



US Department of the Interior  
Bureau of Land Management

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# Greenlink West Project

DRAFT EIS/RMP AMENDMENTS

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

**May 2023**

A photograph of a desert landscape. In the foreground, there are several green and yellow shrubs. A paved road runs horizontally across the middle ground. In the background, a series of power lines with wooden towers stretch across the horizon. Beyond the power lines, there are blue mountains under a sky with scattered white clouds.

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Greenlink West Project

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May 2023

**MISSION STATEMENT**

The Bureau of Land Management 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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## **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 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 North Las Vegas and Reno in Clark, Nye, Esmeralda, Mineral, Lyon, Storey, and Washoe counties (refer to Figure ES1). 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); National Park Service (NPS); Bureau of Indian Affairs (BIA); Nevada Division of State Lands (NDSL); and Clark County lands, in addition to privately-owned lands.

### **II. PROPONENT GOALS**

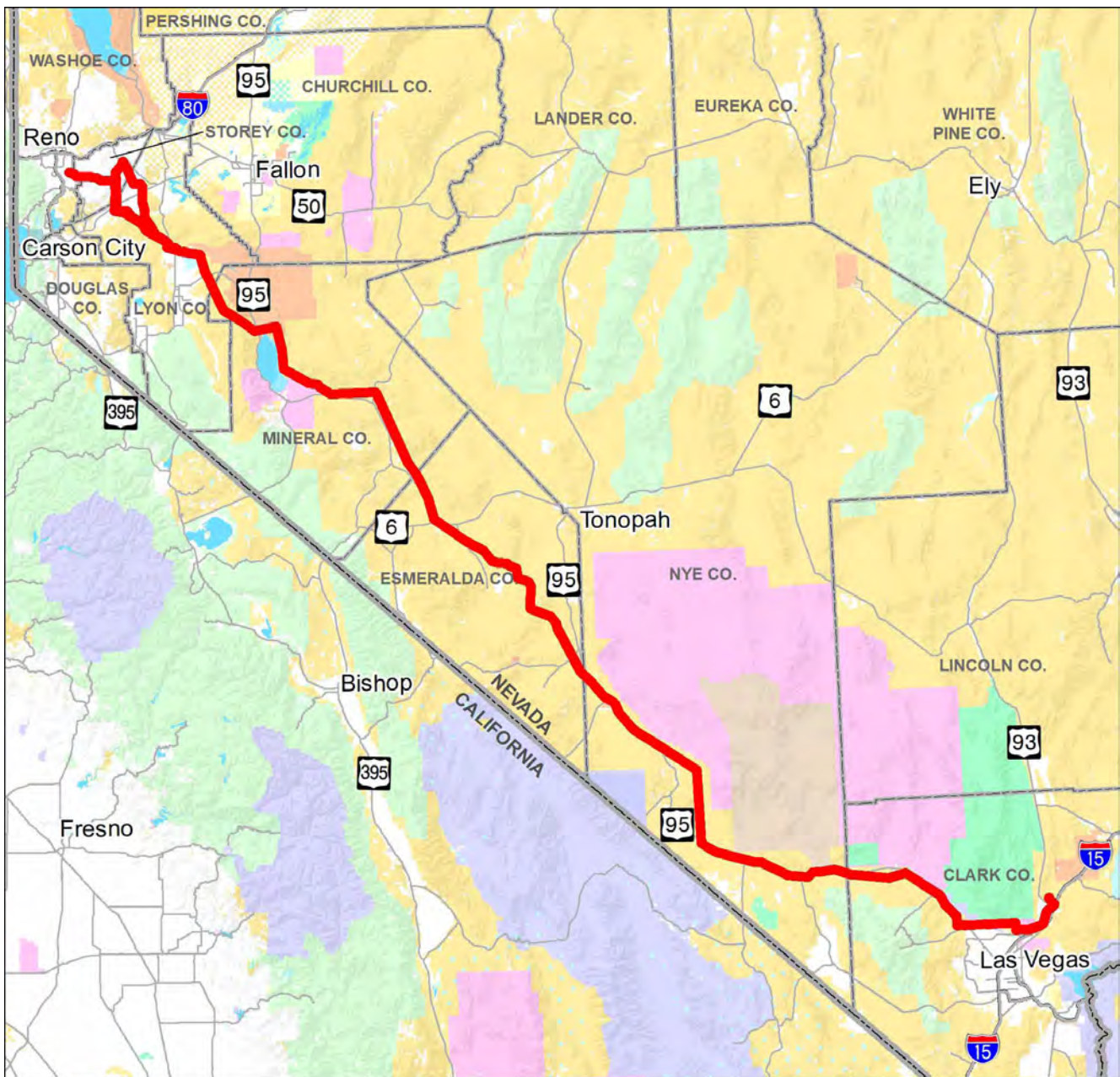
Under Federal Energy Regulatory Commission (FERC) regulations, public utility companies like the Proponent must plan and construct transmission facilities to deliver the projected electric demand in Nevada. The Proponent is also governed by the Western Electricity Coordinating Council standards and criteria, which requires 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. The GLWP would improve the Proponent's overall system reliability by providing a critical state-wide transmission connection. It would also provide redundancy by facilitating access to and stronger transmission interconnection of diversified renewable energy resources to the western grid, such as solar, geothermal, wind, and hydropower.

The GLWP would also facilitate access to BLM-titled Designated Lease Areas and Nevada Solar Energy Zones, contributing to Nevada's Renewable Energy Portfolio, and helping to meet the goal of 100 percent carbon-free resources by 2050. Providing transmission connections to renewable energy industries would also help meet the Nevada statewide net Greenhouse Gas Emission Reduction requirement by the decommissioning of conventional fossil fuel generation resources.

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

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 EIS. The BLM is the lead federal agency for compliance with Section 106 of the National Historic Preservation Act (NHPA). The BLM invited various federal agencies, state agencies, county agencies, and Tribal governments to participate as cooperating agencies. The BLM is also the lead federal agency for compliance with Section 7 of the Endangered Species Act.

The purpose of the federal action on federally managed lands is to decide whether to grant, grant with modifications, or deny an application to construct and operate a transmission line on public lands. The need for the action is established by the federal agencies' responsibility under the Federal Land Policy and Management Act (FLPMA) to respond to an application for a right-of-way (ROW). The FLPMA Title V establishes a multiple-use mandate for management of Federal lands, including "systems for generation, transmission, and distribution of electric energy".



**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

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 ES1. GLWP Area with Proposed Action Alignment**

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

The BLM's purpose is to respond to the ROW application submitted by the Proponent to construct, operate and maintain, and decommission a system of transmission facilities and associated infrastructure that would transmit electricity between the Harry Allen Substation in Clark County, the Mira Loma substation in Washoe County, and the Comstock Meadows substations in Storey County.

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 Federal Energy Regulatory Commission requirements under the Federal Power Act.

Additionally, the BLM's need for this action is guided by the Energy Policy Act of 2005 (Act). The Act 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 electricity transmission and distribution facilities.

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

The BIA's purpose 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 Walker River Paiute Tribe, Las Vegas Paiute Tribe, and the Timbisha Shoshone Tribe.

The BIA's need for this action is to fulfill its responsibility under 25 Code of Federal Regulations 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 United States Code 415, is to deny, grant, or grant with modifications the ROW agreements between the Walker River Paiute Tribe, Las Vegas Paiute Tribe, Timbisha Shoshone Tribe, and the Proponent. The final ROW grant would include any restrictions or conditions imposed in a consent document between the applicant and both the Walker River Paiute Tribe, Las Vegas Paiute Tribe, and the Timbisha Shoshone Tribe.

## **C. National Park Service**

The NPS's purpose is to respond to the ROW application submitted by the Proponent to construct, operate, maintain, and decommission a transmission line over or across NPS-administered lands.

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 enabling legislation and the NPS 2006 Management Policies.

## **D. Decisions to be Made**

The BLM, BIA, and NPS will decide whether to approve, modify, or deny the ROW applications to construct and operate a transmission line on public lands. The BLM, BIA, and NPS will also use this Environmental Impact Statement (EIS) to comply with NEPA and other applicable laws. The other Cooperating Agencies will use this information to support their analyses and decisions, as needed.

## **IV. CONSULTATION, COORDINATION, AND SCOPING**

The BLM has involved, consulted with, and coordinated with federal, state, and local agencies; Native American Tribes; and the public, both formally and informally. These efforts are aimed at informing the public about the GLWP and soliciting input to assist in analysis and decision-making. Consultation and coordination ensures that the most appropriate data has been gathered and analyzed. Additionally, coordination assures agency policy and public values are considered and incorporated into the EIS.



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.

Cooperating Agencies include the BIA; NPS; US Army and Air National Guard; Advisory Council on Historic Preservation; US Fish and Wildlife Service; US Environmental Protection Agency Region 9; and the National Nuclear Security Administration, Las Vegas Paiute Tribe, Timbisha Shoshone Tribe, and Walter River Paiute Tribe.

### **A. Scoping**

Following the submission of the initial ROW application on September 22, 2020, the BLM published a Notice of Intent (NOI) to prepare the GLWP EIS in the Federal Register on April 1, 2022. Publication of the NOI began the scoping process. Scoping notifications were posted on the BLM’s NEPA Register and were sent to 298 individuals, organizations, agency representatives, Native American Tribes. Advertisements were published in eight newspapers throughout the GLWP analysis area, and scoping flyers were placed in public locations in North Las Vegas, Beatty, Tonopah, Hawthorne, Yerington, and Reno, as well as at post offices throughout the analysis area. Scoping meetings were held from April 13 – 20, 2022 in North Las Vegas, Beatty, Tonopah, and Reno.

### **B. Issues**

Issues raised through consultation, coordination, and scoping include effects on wildlife, including federally listed and special-status species and the bald and golden eagles; cultural resources; Native American religious concerns; paleontological resources; National Historic Trails; land use; visual resources; cultural resources; socioeconomics; and environmental justice.

## **V. ACTION ALTERNATIVES**

### **A. Proposed Action**

The proposed 525-kV facilities would begin at the new Fort Churchill Substation located approximately 10 miles north of Yerington in Lyon County; traverse approximately 358 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. The 525-kV transmission line would generally follow US Highway 95 (US 95) and the West-Wide Energy Corridors (WWEC) (also known as Section 368 corridors) for most of its length. The proposed 525-kV transmission line would cross approximately 318 miles of BLM-administered land, 3 miles of DOD land, 2 miles of NPS-managed land, 21 miles of Tribal land, 5 miles of Nevada state land, 2 miles of Clark County land, and 7 miles of private land.

The three proposed 345-kV facilities would begin at the new Fort Churchill Substation and traverse approximately 33 to 44 miles through portions of Lyon, Storey, and Washoe counties. 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. Together, the three proposed 345 kV facilities cross approximately 44 miles of BLM-administered land and 70 miles of private land.

## B. Proposed Alternatives

Potential transmission line route alternatives were grouped into smaller geographic areas to allow for localized comparisons among the various line routes (refer to Table ES1). To compare the Action Alternatives within the same transmission route group, common start and end points for each group were determined, except for the Carson River Transmission Line Route Group. The Action Alternatives were developed based on input from the public, Cooperating Agencies, the BLM, and the Proponent and are focused on nine geographic areas of transmission line route adjustments.

**Table ES1. Transmission Line Route Group Action Alternatives Considered**

<b>Route Group</b>	<b>Transmission Line Route Alternatives</b>
Losee	Alternative A
Tule Springs Fossil Beds National Monument (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, and K
Scotty's Junction	Alternatives A and B
Goldfield-Tonopah	Alternative A
Walker River	Alternative A
Mason Valley Wildlife Management Area	Alternatives A, B, and C
Carson River	Alternatives A, B, and C
Fort Churchill to Harry Allen	Alternative A

<sup>a</sup> TUSK Initial Proposed Action Transmission Alternative was identified as the Proposed Action in the Proponent's 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 because it would have less of a footprint within the TUSK.

Several alternatives were considered but eliminated from detailed study because it became clear that they provided no environmental benefit over the Proposed Action or one of the other alternatives considered in detail; they were not feasible for environmental, physical, or economic reasons; or they did not reasonably meet the Proponents' Purpose and Need.

## C. Comparison of Alternatives

### 1. Losee Transmission Line Route Group Alternative

The Losee Transmission Line Route Group Alternatives consider two different routes between North Lamb Boulevard and the Losee Road extension. 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 Small Arms Range. The Proposed Action would then turn west at the boundary of the Desert National Wildlife Refuge. 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 Alternatives include alternatives within the TUSK and those that avoided 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 north of 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 11 120-foot-tall delta monopoles, and the initial Proposed Action would contain 8 delta monopoles. The TUSK Transmission Alternative B would consist of 6 150-foot-tall guyed-V wire-frame towers. The current Proposed Action would consist of 11 18-foot-tall vertical monopoles. The amount of ROW within the TUSK that would be required for each of these four transmission alternatives would range from 19.1 acres for

the current Proposed Action to 28.2 acres for TUSK Transmission Alternative A to 36.4 acres for both the initial Proposed Action and the TUSK Transmission Alternative B.

Three of the remaining four transmission alternatives, TUSK Transmission Alternatives D, F, and G, would avoid the TUSK. The TUSK Transmission Alternative D would occur along the same 1.5-mile-segment of Moccasin Road but would be located approximately 195 feet south of the TUSK boundary. This transmission alternative would double-circuit the GLWP 525-kV with the existing Lenzie-Northwest/Harry Allen-Northwest 525-kV line. Installing the double circuit extra-high voltage would require replacing the existing 150-foot-high structures with taller structures approximately 190 feet tall. The TUSK Transmission Alternative F would locate the GLWP 525-kV line within the Clark County Route 215 (Beltway) corridor for approximately 12 miles before reaching US 95. From the intersection of the Beltway and US 95, the TUSK Transmission Alternative F would follow the US 95 corridor for approximately 5 miles until it would reconnect to the Proposed Action just east of the Northwest Substation. The overhead transmission line structures associated with this alternative along the Beltway would be over 200 feet 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 towards 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), parallel the Nevada-California border as it heads into Nye County, moving north and connecting to the Proposed Action near the US 95/SR 160 intersection.

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 corridor location. The cited map, however, shows this corridor south of the TUSK and not within the TUSK boundary. The TUSK Transmission Alternative E would require further Congressional legislation to resolve the location of the high-voltage transmission corridor.

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

The Beatty Transmission Line Route Group Alternatives includes 12 alternatives. The Proposed Action for these 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, crossing 7J Ranch and the Amargosa River where it would intersect US 95 and run parallel to the highway until Scotty’s Junction. Beatty Transmission Alternative A avoids structures within the 7J Ranch boundaries by spanning an approximately 340-foot segment where two parcel corners meet. Beatty Transmission Alternative B also avoids structures within the 7J Ranch by spanning approximately 1,300 feet over the 7J Ranch private land parcels. Although no structures would be located within the 7J Ranch boundaries, both alternatives that span the ranch would still require a ROW for operations and maintenance (O&M). Beatty Transmission Alternative C would run north of the 7J Ranch and south of the DOD land, avoiding structures and overhead lines within the 7J Ranch.

Beatty Transmission Alternatives D and E would run south and west of Beatty across the Bullfrog Hills for approximately 59 and 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, south of Scotty’s Junction before reconnecting with the Proposed Action alignment approximately six miles south of the US 95-SR 266 intersection. This alternative would generally follow existing transmission lines. Beatty

Transmission Alternative E would generally run in the same alignment as Alternative D until the crossing of Bullfrog Hills where the alignment would rejoin the existing WVEC 18-224 corridor.

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 7J Ranch. This alternative would cross US 95 approximately 6 miles north of Beatty before following the highway. Beatty Transmission Alternative F would avoid crossing private land and Range 77A restricted military airspace.

Beatty Transmission Alternative G would extend approximately 15 miles between Beatty and 7J Ranch and would cross on the north side of Bare Mountain and remain to the east of US 95. Beatty Transmission Alternative G would avoid crossing private land and Range 77A restricted military airspace.

Beatty Transmission Alternative H would run between Beatty and 7J Ranch and avoid structures within the 7J Ranch boundaries by spanning an approximately 340-foot segment where two parcel corners meet. Additionally, Beatty Transmission Alternative H would avoid crossing the proposed Nevada Test and Training Range (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 7J Ranch.

Beatty Transmission Alternatives I and J were developed as modifications to the Beatty Route Group during the public scoping period and recommended for evaluation. Beatty Transmission Alternative K would follow approximately 4.3 miles of the southern portion of Beatty Transmission Alternative G then turn directly north for approximately 3.8 miles to avoid sensitive cultural resources sites 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 7J Ranch, avoiding the NTTR federal land transfer area, but would not avoid crossing Range 77A restricted military airspace.

#### **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, along the US 95 and extending approximately four miles north of Scotty's Junction at the intersection of US 95 and SR 267. The Proposed Action for these alternatives would run parallel to US 95 except for an approximately 5-mile stretch around Scotty's Junction to the northeast of the highway. Scotty's Junction Transmission Alternative A would stay on the south side of US 95 and the Timbisha Shoshone Reservation before reconnecting with the Proposed Action alignment approximately four miles north of Scotty's Junction. Scotty's Junction Transmission Alternative B would run parallel to US 95 on the south side, in and adjacent to an existing transmission line corridor for approximately 12 miles. This alternative would cross Timbisha Shoshone Reservation land in Scotty's Junction and reconnect with the Proposed Action alignment approximately one mile north of Scotty's Junction.

#### **5. Walker River Transmission Line Route Group Alternatives**

The Walker River Transmission Line Route Group includes two alternative route alignments. The Proposed Action would run north of Hawthorne along the east side of Walker Lake adjacent to existing transmission lines crossing the Walker River Reservation and US 95 north of Walker Lake. 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 alignment approximately 10 miles east of Hawthorne and follow an existing transmission line corridor before turning west towards the SR 395 and crossing the Wassuk Range and following WVEC until it reconnects with the Proposed Action alignment in the Mason Valley/Yerington area.

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

The Mason Valley Transmission Line Route Group includes five alternative route alignments. Four of these alternatives would avoid crossing the Mason Valley Wildlife Management Area (WMA). The Proposed Action for these alternatives would cross the Mason Valley WMA as it enters the Fort Churchill Substation. Mason Valley WMA Transmission Alternative A would diverge from the Proposed Action alignment at the railroad along the south side of Parker Butte and follow the northern boundary of the Mason Valley WMA before turning south and entering the Fort Churchill Substation. Mason Valley WMA Transmission Alternative B would avoid crossing the Mason Valley WMA and cross the Walker River Indian Reservation, extending north to the US 50 before turning west and connecting with the Proposed Action alignment near Stagecoach. Mason Valley WMA Transmission Alternative B would bypass the Fort Churchill Substation and require a new substation and new 345-kV transmission line alignments to connect the new substation to the Mira Loma and Comstock Meadows substations. Mason Valley WMA Transmission Alternative C would diverge from the Proposed Action alignment at the railroad and follow an existing transmission line for approximately four miles before turning to the southwest and running approximately six miles before entering the Fort Churchill Substation.

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

The Carson River Transmission Line Route Group includes three alternatives. The Carson River Proposed Action would have the Fort Churchill to Comstock Meadows #2 transmission line cross the railroad and the Adrian Valley before crossing the Carson River approximately three miles west of the Fort Churchill State Historic Park. Carson River Transmission Alternative A is an alternative for the 345-kV Fort Churchill to Comstock Meadows #2 transmission line only and not for all the three 345-kV lines. Carson River Transmission Alternative C is an alternative for all three 345-kV transmission lines.

Carson River 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, Fort Churchill to Comstock Meadows #2 transmission line would turn east around Table Mountain and run approximately five miles before rejoining the Proposed Action alignment. Carson River Alternative B was developed as a modification to the Carson River Transmission Line Route Group during the public scoping period and recommended for evaluation. Carson River Alternative C 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 for approximately 7.4 miles before turning to the 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 approximately 6.3 miles downstream of the Fort Churchill to Comstock Meadows #2 transmission line.

## **8. Fort Churchill to Harry Allen Transmission Line Route Group Alternatives**

The Fort Churchill to Harry Allen Transmission Line Route Group would include two alternatives, the Proposed Action and Fort Churchill to Harry Allen Transmission Alternative A. The Proposed Action was previously discussed in Section V.A. Proposed Action. The Fort Churchill to Harry Allen Transmission Alternative A would generally follow the same alignment as the Proposed Action and would underground the 525-kV line for the approximately 360 miles between the two substations. This alternative would require the construction of three underground duct banks, reactor stations every 20 miles, and manholes along the length of the underground line

## **9. Substation Group Alternatives**

Potential substation location alternatives were grouped into smaller geographic areas to allow for localized comparisons among the various alternatives. The substation alternatives identified by the Cooperating Agencies, the public, the Proponent, and the BLM are focused on two geographic areas.

The Esmeralda Substation (ES) Group Alternatives consider three different locations for an approximately 109-acre substation over a range of approximately 30 miles. The ES-1 substation location is approximately 8.4 miles south of Mina in Mineral County. 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. The ES-3 would be approximately 10.3 miles southeast of the junction of US 95/US 6 in Esmeralda County.

The Amargosa Substation (AS) 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 is approximately 12.2 miles west of the junction of US 95/SR 373. The AS-2 (Proposed Action) is approximately 6.1 miles west of the junction of US 95/SR 373.

## **10. Microwave Facility 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. Amargosa Microwave Site Alternative 1 (AM-1) was identified on private lands by the Proponent and would be 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.

## **VI. 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 Resource Management Plans (RMPs). 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 applicable 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 Alternative, the purpose and need of the proposed GLWP would not meet projected increases in demand in the Proponents' 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.

## **VII. SUMMARY OF ENVIRONMENTAL CONSEQUENCES**

To avoid, minimize, or 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. These measures, along with 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. In this EIS, the term Environmental Management Measures (EMMs) refers collectively to the EPMs, BMPs, and SOPs. These EMMs are listed in Appendix C. Any mitigation measures identified in the EIS are in addition to the EMMs.

### **A. Federally Listed Species, Special Status Species, and Bald and Golden Eagles**

Construction, O&M, and decommissioning of the GLWP could result in impacts to federally listed species, special status species, and bald and golden eagles. Federally listed species include the Lahontan cutthroat trout, Mojave desert tortoise, southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. The Bi-State sage-grouse has been proposed for federal protection under the ESA. The 2016 BLM Nevada California Greater Sage Grouse Distinct Population Segment Land Use Plan Amendment and ROD, and the US Forest Service Land Management Plan Amendments for the Humboldt-Toiyabe National Forests provides direction for the management and conservation of Bi-State sage-grouse habitats on BLM-administered lands in Nevada. The use of tubular tower structures and perch and nest deterrent devices, were identified as mitigation within designated Bi-State sage-grouse Priority Areas for Conservation (PACs) and in Mojave desert tortoise recovery units to minimize impacts to these species. Additionally, the GLWP includes implementation of the GLWP Raven Management Plan (Appendix G) that would also minimize impacts on the Mojave desert tortoise and Bi-State sage-grouse.

### **B. Cultural Resources**

The ACHP advises federal agencies to coordinate NHPA Section 106 compliance requirements with NEPA requirements. The BLM has chosen to fulfill its obligations to Section 106 by using the process outlined in 36 CFR 800.8(c), otherwise known as "Substitution". Substitution requires identification of consulting parties and historic properties; consultation regarding the GLWP's effects on historic properties; public involvement; and the development of alternatives and proposed mitigation measures through consultation.

The GLWP is anticipated to result in 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, roads, and landscapes. In some cases, the setting of a historic property could be affected by the GLWP. Construction or other ground-disturbing activities could impact previously undetected cultural resources, especially buried resources.

### **C. Native American Religious Concerns**

The 1978 American Indian Religious Freedom Act required federal agencies to evaluate policies and procedures in consultation with Native American traditional religious leaders. Executive Order (EO) 13007 requires federal agencies to accommodate access to and ceremonial use of native American sacred sites and avoid adversely affecting their physical integrity.

Government-to-government consultation between the BLM and federally recognized Native American Tribes is ongoing. Native American Tribes expressed several religious concerns during the consultation process, including 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, and

impacts at TUSK. Other non-religious concerns included cultural sensitivity training for construction crews, having Tribal monitors for archaeological fieldwork and construction, impacts to Mojave desert tortoise, and the expansion of Walker River Paiute Tribe lands that may be impacted by the GLWP. The GLWP may also result in changes to views, including visual obstruction; illegal artifact collection; vandalism; looting; increased traffic and traffic noise; and increased trash at any new roads or pull-outs.

#### **D. Paleontological Resources**

Approximately 145 miles of the GLWP traverses geologic units with very low to low paleontological potential, while approximately 24 miles have moderate to very high geologic potential. Effects due to construction include the possible damage to paleontological specimens. Additionally, fossils would become part of the scientific record and disseminate scientific information amongst the general public and/or scientific community. Effects due to construction include the unauthorized collecting or destruction of paleontological specimens due to increased access and the loss of scientific knowledge. Construction activities can also provide opportunities to recover specimens and associated scientific information that might be otherwise lost.

#### **E. National Historic Trails**

The California, Pony Express, and Old Spanish National Historic Trails (NHTs), as well as the Central Overland Emigrant Route, are within a five-mile viewshed of 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. Four segments would be affected by the GLWP: California NHT I-80 corridor segment, California and Pony Express NHT's Carson Route, California NHT Walker River segment, and Old Spanish Trail Northern Route segment. These segments would be affected by scenic, cultural and historic, recreational, and natural impacts.

#### **F. Land Use, Realty, and Indian Trust Assets**

The land use analysis area encompasses land owned, managed, and/or administered by federal (81 percent), state (2 percent), local agencies (1 percent), and private landowners (14 percent). Disruption in land use could affect defense, recreation, conservation, and communication operations as well as local land uses. Federal lands in the land use analysis area are governed by various land use plans, including National Conservation Area, Wilderness Management, Conservation, and Communication plans. Other land use plans include those that govern Solar Energy Zones/Designated Lease Areas designated by the BLM and Department of Energy; linear utility corridors, the West-Wide Energy Corridor designated by the Energy Policy Act of 2005, grazing allotments, and lands governed by the BLM's Wild Horse and Burro Program. Other land uses include Department of Defense and Tribal lands, such as the 14,000-acre Nellis Air Force Base is located approximately 11 miles south of the Harry Allen Substation and includes 7,700 square miles of airspace, including the Nevada Test and Training Range. Indian Trust Assets include reservations and Public Domain Allotments associated with the Timbisha Shoshone, Walker River Paiute, and Las Vegas tribes. State land includes state recreational areas and parks, a wildlife management area, and correctional and National Guard facilities.

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

Construction of the Proposed Action would generate economic activity in the form of GLWP-related expenditures on materials and supplies. Construction activity would generate about 570 full-time equivalent jobs, more than \$165.3 million in labor income, and approximately \$461.5 million in economic output for the State of Nevada during the construction period. Construction benefits would be temporary, generally occurring within the three-year construction timeframe.



The GLWP would also employ construction workers who may in turn spend much of their income within surrounding communities and increase output in the sectors that provide consumer goods and services. The proportion of workers likely to come from outside the analysis area would vary because the mix of labor categories or skills will vary. The Proponents estimate that during peak construction periods, approximately 20 percent of the workforce would be local (i.e., normally reside within commuting distance of the job sites) and would likely commute to and from their homes to work each day. The remaining 80 percent of the workforce would either temporarily relocate to the affected regions or commute longer distances from their permanent residences.

Local construction expenditures for materials and supplies and spending by workers directly employed by the GLWP are expected to benefit local economies. Construction would also generate state and local tax revenues. The GLWP would benefit service industry occupations that are typically relatively low paid. These benefits would result from increased demand and spending by construction workers temporarily relocating to the GLWP region and would be short-term.

Data compiled by the U.S. Census Bureau indicate the presence of minority and low-income communities in approximately 85 percent of the census block groups in the vicinity of the Action Alternatives.

#### **H. Visual Resources**

Generally, much of the GLWP area would experience no or limited impacts in terms of landscape character or scenic quality. Impacts to views from Scenic Viewing Platforms (SVPs) along highways would vary, with most impacts ranging from no change to relatively unchanged or not visually discernible. Views from community SVPs would remain relatively unchanged except for Stagecoach, Nevada, where it would be noticeably altered. The Special Designation Area (SDA) SVPs would predominantly have views that would be relatively unchanged. Changes in views from NHT SVPs would remain relatively unchanged, as would three of four Native American Tribe SVPs (the one exception being the Timbisha Shoshone Reservation). Amendments to VRM Classes are proposed and described in further detail in Section VIII. Resource Management Plan Amendment.

#### **I. Cumulative Effects**

The cumulative effects of the Action and No Action alternatives that would result from the construction and operation of the GLWP, combined with past, present, or other reasonably foreseeable future actions (RFFAs) were analyzed in the EIS. The intent of the cumulative effects analysis is to capture the total effects of multiple actions over time that would be missed by evaluating each action individually.

Within the cumulative effects' analysis areas (CEAAs) for resources analyzed for contributions to cumulative impacts, there are an estimated 51 solar projects, primarily on BLM-administered lands in Clark, Esmeralda, Mineral, and Nye counties. Other major project types include transportation, mineral exploration and mining, general land development, utilities, wildlife conservation management, and habitat restoration. Other highly probable RFFAs and management activities occurring in the CEAs include livestock grazing, range improvements, vegetation management, recreation, and community development. Ongoing activities occurring also include wildland fire management activities and programs to minimize the spread of noxious weeds and invasive plant species.

### **VIII. RESOURCE MANAGEMENT PLAN AMENDMENTS**

Actions approved or authorized by the BLM must conform to the approved land-use plans (RMPs) for the lands they administer. If the GLWP does not conform to applicable RMPs, the BLM can choose to either deny the project, adjust it to conform to the RMP, or amend the RMP to address the nonconformance.

Portions of the GLWP-related activities would not be in conformance with certain planning decisions (or allocations) in the applicable RMPs for the Carson City District Office, Tonopah Field Office, and Southern Nevada District Office. Potential amendments would modify RMP-designated utility corridors and VRM Class objectives. The BLM Nevada State Director will make the decision in the Record of Decision (ROD) as to whether to approve any RMP amendments.

As required by the 1978 National Parks and Recreation Act, the NPS must develop a General Management Plan for the NPS-administered lands. The NPS is currently in the process of completing a General Management Plan for TUSK, with an expected completion date in 2024.

The BIA does not manage the use of the reservation lands. The portions of the GLWP that would cross reservation lands would be regulated under the specific Tribal environmental policies and/or ordinance, in accordance with NEPA, and in compliance with other federal regulations that apply on Tribal lands. Any conditions will be identified through the Tribal resolutions and applicable stipulations and use conditions would be included in lease agreements.

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## List of Acronyms and Abbreviations

3D	Three-dimensional
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADEQ	Arizona Department of Environmental Quality
AFB	Air Force Base
AIRFA	American Indian Religious Freedom Act
Alt	Alternative
AM	Amargosa Microwave
AML	Appropriate Management Level
ANSI	American National Standards Institute
APE	Area of Potential Effects
APLIC	Avian Power Line Interaction Committee
AS	Amargosa Substation
Ash Meadows NWR	Ash Meadows National Wildlife Refuge
ATV	All-terrain vehicle
ASML	Above Mean Sea Level
BA	Biological Assessment
BBCS	Bird and Bat Conservation Strategy
BCC	Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BLM S	Bureau of Land Management Sensitive Species
BMDO	Battle Mountain District Office
BMP	Best Management Practice
C	Candidate
CA	California
CAA	Clean Air Act
CALI	California National Historic Trail
CCDO	Carson City District Office
CCFO	Carson City Field Office
CDP	Census-designated Place
CE	Critically Endangered Plant
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	Critical Habitat
CO	Carbon Monoxide
CO <sub>2</sub> e	Carbon dioxide equivalent
COM	Construction, Operations, and Maintenance
CR	County Road



CS	Covered Species
CWA	Clean Water Act
DAF	Department of Air Force
DAPE	Direct Area of Potential Effects
DEIS	Draft Environmental Impact Statement
DEVA	Death Valley National Park
DLA	Designated Lease Area
Desert NRW	Desert National Wildlife Refuge
DO	District Office
DOD	Department of Defense
DOE	Department of Energy
DOI	Department of the Interior
Eagle Act	Bald and Golden Eagle Protection Act
EB	Eastbound
EnB	Endangered Bird
EHV	Extra-High Voltage
EIS	Environmental Impact Statement
EJ	Environmental Justice
EMF	Electric and Magnetic Fields
EMM	Environmental Management Measure
EMP	Eagle Management Plan
EO	Executive Order
EPA	Environmental Protection Agency
EPAct	Energy Policy Act of 2005
EPC	Engineering, Procurement, and Construction
EPM	Environmental Protection Measures
ERMA	Extensive Recreation Management Area
ES	Esmeralda Substation
ESA	Endangered Species Act
ESp	Evaluated Species
ESA	Endangered Species Act
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FG	Foreground
Flora	State of Nevada Critically Endangered State Listed Flora
FLPMA	Federal Land Policy and Management Act of 1976
FMPs	Fire Management Plans
FO	Field Office
FR	Federal Register
FSW	Fish and Wildlife Services
FTE	Full-Time Employee
GBIF	Global Biodiversity Information Facility
GDP	Gross Domestic Product

GHG	Greenhouse Gas Emissions
GF	Game Fish
GIS	Geographic Information System
GLO	General Land Office
GLWP	Greenlink West Project
GMU	Game Management Unit
GPR	Ground-Penetrating Radar
H2S	Hydrogen sulfide
HABS	Historic American Buildings Survey
HAER	Historic American Engineering Record
HAP	Hazardous Air Pollutant
HCF	Habitat Conservation Framework
HMA	Herd Management Area
HU	Hunting Unit
HUC	Hydrological Unit Code
HVTL	High Voltage Transmission Lines
I	Interstate
IAU	Inventory Analysis Unit
IBA	Important Bird Area
ID	Identification
IM	Instructional Memorandum
IOP	Interagency Operating Procedures
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
LE	Listed Endangered
LG	Local Government
LiDAR	Light Detection and Rating
LT	Listed Threatened
LUPA	Land Use Plan Amendment
LUST	Leaking underground storage tank
LWC	Lands With Wilderness Characteristics
MBTA	Migratory Bird Treaty Act
MDIRA	Mojave Desert Initiative Rapid Assessment
MG	Middleground
MLWA	Military Lands Withdrawal Act
MM	Mile Marker
MOA	Military Operating Area
MOU	Memorandum of Understanding
MOVES	Motor Vehicle Emission Simulator
MP	Milepost

MPH	Miles Per Hour
MPO	Mining Plans of Operations
MSHCP	Multiple Species Habitat Conservation Plan
Mt	Mount
MTR	Military Training Routes
MU	Management Units
MW	Megawatts
MYA	Million years ago
N <sub>2</sub> O	Nitrous Oxide
N/A	Not applicable
NAAQS	National Ambient Air Quality Standards
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
NO	Number
NDOM	Nevada Department of Minerals
NDOT	Nevada Department of Transportation
NDOW	Nevada Department of Wildlife
NDSL	Nevada Division of State Lands
NDWR	Nevada Division of Water Resources
Nellis AFB	Nellis Air Force Base
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NESC	National Electrical Safety Code
NHD	National Hydrology Dataset
NHPA	National Historic Preservation Act
NHT	National Historic Trail
NM	National Monument
NNSA	National Nuclear Security Administration
NNSS	Nevada National Security Site
No.	Number
NOI	Notice of Intent
NO <sub>x</sub>	Nitrogen Oxides
NPS	National Park Service
NRA	National Recreation Area
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NRS	Nevada Revised Statute
NSR	New Source Review
NSWP	Nevada State Water Plan
NTSA	National Trail System Act
NTTR	Nevada Test and Training Range

NV	Nevada
NV Energy	Nevada Energy
NVCRIS	Nevada Cultural Resources Information System
NVD	Nevada State Designation
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
O&G	Oil and Gas
O&M	Operations and Maintenance
O <sub>3</sub>	Ozone
OCTA	Oregon-California Trails Association
OHV	Off-Highway Vehicle
OLSP	Old Spanish National Historic Trail
OPGW	Optical Groundwire
OSHA	Occupational Safety and Health Administration
PA	Proposed Action
PAC	Priority Area for Conservation
Pb	Lead
PCH	Proposed Critical Habitat
PEIS	Programmatic Environmental Impact Statement
PF	Protected Fish
PFYC	Potential Fossil Yield Classification
PIER	Paleontological Resources Inventory and Evaluation Report
PLT	Proposed Listed Threatened
PM	Particulate Matter
PM <sub>10</sub>	Fugitive dust particulate matter
PM <sub>2.5</sub>	Fugitive dust particulate matter
PMU	Population Management Unit
POD	Plan of Development
POEX	Pony Express National Historic Trail
PR	Protected Reptile
PRA	Protected Amphibian
PRPA	Paleontological Resources Preservation Act
PSD	Prevention of Significant Deterioration
PUCN	Public Utilities Commission of Nevada
PVT	Private
PWA	Philip Williams & Associates, Ltd
RCRA	Resource Conservation and Recovery Act
Rd	Road
RFFA	Reasonably Foreseeable Future Actions
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
ROD	Record of Decision
ROW	Right-of-way
RS	Revised Statute
RSF	Resource Selection Functions

RV	Recreational vehicle
SB	Southbound
SDA	Special Designation Area
SEZ	Solar Energy Zone
SHPO	State Historic Preservation Office
SM	Sensitive Mammal
SMNRA	Spring Mountains National Recreation Area
SnB	Sensitive Bird
SNDO	Southern Nevada District Office
SNPLMA	Southern Nevada Public Land Management Act
SO <sub>2</sub>	Sulfur Dioxide
SOP	Standard Operating Procedures
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
T	Threatened
TAC	Bi-State Technical Advisory Committee Nevada and California
TCP	Traditional Cultural Property
TFO	Tonopah Field Office
THPO	Tribal Historic Preservation Office
TM	Threatened Mammals
TMDL	Total maximum daily load
TNC	The Nature Conservancy
tpy	Tons per year
TR	Threatened Reptile
TUSK	Tule Springs Fossil Beds National Monument
UNLV	University of Nevada, Las Vegas
UPRR	Union Pacific Railroad
US	United States
USACE	US Army Corps of Engineers
USAF	United States Air Force
USAFWC	US Air Force Warfare Center
USC	United States Code
USDA	United States Department of Agriculture
USDOI	US Department of the Interior
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USFWS DR	United States Fish and Wildlife Service Discretionary Status Review
USGS	United States Geological Survey
VAPE	Visual Area of Potential Effects

VAU	Visual Assessment Unit
VOC	Volatile Organic Compounds
VR	Visual Routes
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 <sup>1</sup>
WL	Watch List
WMA	Wildlife Management Area
WSA	Wilderness Study Area
WUS	Waters of the US
WVEC	West-wide Energy Corridor

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

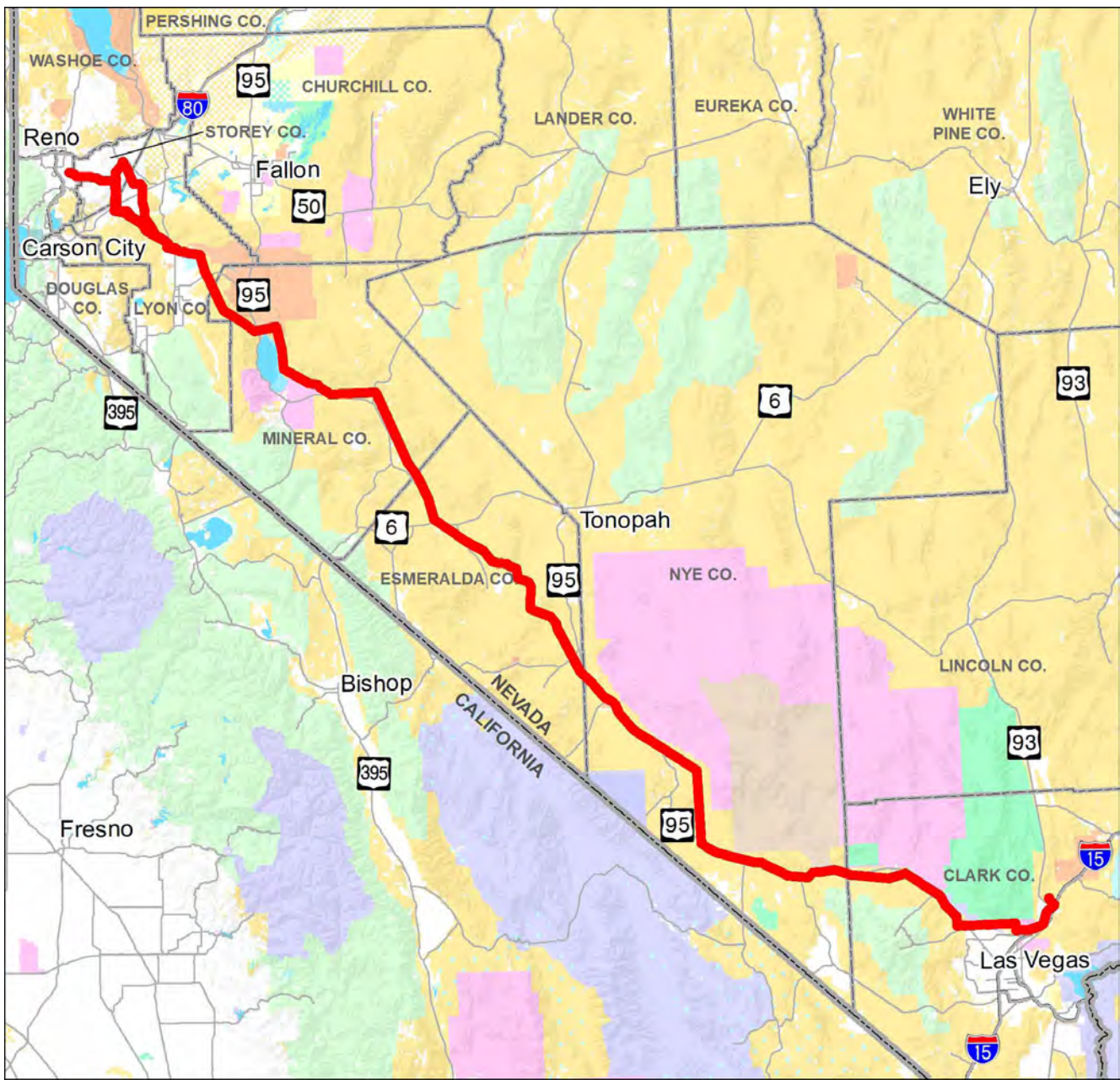
## 1.1 Introduction

Nevada Power Company and Sierra Pacific Power Company, doing business as NV Energy (Proponent), are proposing to build the Greenlink West 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 North Las Vegas and Reno in Clark, Nye, Esmeralda, Mineral, Lyon, Storey, and Washoe counties, Nevada (refer to 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), National Park Service (NPS), Bureau of Indian Affairs (BIA), 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 U.S. 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 [FR] 43304)(September 14, 2020). On May 20, 2022, the CEQ finalized modifications to portions of the 2020 Rule (87 FR 23453), which this EIS follows. This EIS also conforms to the BLM's requirements for NEPA implementation as described in the US Department of the Interior's (DOI) NEPA regulations (43 Code of Federal Regulations [CFR] 46) and the BLM NEPA Handbook (H-1790-1). 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 EIS 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 utilize the substitution process and is satisfying the standards set forth in the Section 106 regulations.

This EIS analyzes the environmental impacts of construction, operation, maintenance, and decommissioning of the transmission system on all lands potentially crossed by the GLWP. However, depending on the chosen alternative, the GLWP potentially would cross other federal lands administered by the BIA, NPS, and DOD. While the EIS contains sufficient information to allow the BLM to choose among alternatives, in some instances cooperating agencies may require additional information related to specific lands within their jurisdiction. Accordingly, project implementation would require the NPS and BIA to make

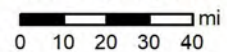


**Legend**

- |   |                                   |   |                       |
|---|-----------------------------------|---|-----------------------|
|  | 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 Area with Proposed Action**



decisions related to granting/permitting ROW. The BLM has included those agencies, as well as 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 15, 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 for construction and a permanent 200-foot-wide ROW<sup>1</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 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).

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 Nevada Revised Statute 704.040 and its Certificate of Public Convenience and Necessity filed with the Public Utilities Commission of Nevada. This means that the Proponent must plan and construct transmission facilities to deliver the projected electric demand in Nevada. By 2031, 1,000 megawatts (MW) of base load generation from fossil-fuel sources are planned for retirement, meaning they will no longer generate electricity (NV Energy 2022). The base load refers to the minimum amount of electric power needed to supply the electrical grid at any given time (Energy Education 2020). In addition, the Proponent, at the time of the NOI, had received more than 1,450 MW of new electric service requests in northern Nevada that will require additional transmission facilities. 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 (Public Utilities Commission of Nevada (PUCN) 2019). New transmission infrastructure is required to deliver the anticipated power demand. On March 22, 2021, the Proponent received approval for the various electric transmission facilities associated with the proposed GLWP by the Public Utilities Commission of Nevada (PUCN).

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

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<sup>1</sup> For the purpose of this EIS, the term "permanent" ROW is 30-years with option to renew, unless otherwise noted.

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 can be more stringent than those required by NERC. Compliance with these standards similarly to NERC requires 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) and is mandatory for Transmission Owners and Transmission Planners. In the event a new transmission line fails to perform according to these reliability requirements, the Proponent may be required by WECC and NERC 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.

While Nevada has abundant solar and geothermal resources, wind and hydropower electric generation are scarce. 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 not the purpose of this EIS, the GLWP would also facilitate access to these DLAs, which 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 Nevada 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 SB 254) by the decommissioning of conventional fossil fuel generation resources and contribute to the renewable energy efficiency measures for the State of Nevada.

In summary, 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.

### **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 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 right-of-way 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 Bureau with a NEPA compliance need, 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 and Walker River Paiute Tribes, and the Timbisha Shoshone 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 Walker River and Las Vegas Paiute Tribes, Timbisha Shoshone Tribe, and the Proponent. The final ROW grant would include any restrictions or conditions imposed in a consent document between the applicant and both the Las Vegas and Walker River Paiute Tribes, and the Timbisha Shoshone Tribe.

### **1.3.3 National Park Service**

The NPS's purpose, as a DOI Bureau with a NEPA compliance need, is to respond to the ROW application submitted by the Proponent to operate and maintain a transmission line over or across NPS-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. 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 policy. All new NPS ROW permits must be approved by the NPS Director or NPS Regional Director. 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.

### **1.3.4 Decisions to be Made**

Table 1-1 summarizes the BLM, BIA, and NPS' (referred to in this EIS as 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, and NPS will use this EIS to comply with NEPA and other applicable laws. The other Cooperating Agencies will use this information 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, Walker River, and Timbisha Shoshone Indian reservations, and the Proponent.
NPS	Approval or denial of an application requesting a ROW permit to authorize use of NPS-administered lands for GLWP operations and maintenance. Approve with conditions deemed necessary by the NPS, a temporary construction permit for the initial and future construction activities.

*Table Acronyms:* BLM – Bureau of Land Management; BIA – Bureau of Indian Affairs; GLWP – Greenlink West Project; 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 2005a). 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 2016c)
- Approved RMP/ROD for Designation of Energy Corridors on BLM-Administered Lands in the 11 Western States (BLM 2009)

Portions of the 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 would be analyzed in this EIS 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 spring of 2024. Basic guidance for planning and management decisions for TUSK can be found within:

- 2019 Foundation Document, Tule Springs Fossil Beds National Monument

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 ordinance, 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 EIS 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 BLM is relying on the 2013 CEQ - ACHP document titled, *NEPA and NHPA: A Handbook for Integrating NEPA and Section 106* to guide BLM's approach in this EIS and satisfy the steps and standards set forth in 36 CFR 800.8(c) (CEQ 2013). The GLWP review and possible authorization also is subject to 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 EIS.

## **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 1501.6 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)).

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 comments of these agencies when making project decisions and includes information required to satisfy the environmental and public review processes associated with those decisions. 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 for 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.

## **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.

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

<b>Agency</b>	<b>Status</b>
Advisory Council on Historic Preservation	Cooperating Agency, Consulting Party
Bureau of Indian Affairs – Pacific Region	Cooperating Agency
Bureau of Indian Affairs – Western Region	Cooperating Agency, Consulting Party
Department of the Air Force	Cooperating Agency, Consulting Party
National Nuclear Security Administration	Cooperating Agency, Consulting Party
National Park Service	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 1-3. Native American Tribes Cooperating Agencies and Consulting Parties**

<b>Agency</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
Pyramid Lake Paiute Tribe 1st	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**

<b>Agency</b>	<b>Status</b>
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 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**

<b>Agency</b>	<b>Status</b>
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**

<b>Agency</b>	<b>Status</b>
Clark County	Cooperating Agency
Esmeralda County	Cooperating Agency
Nye County	Cooperating Agency

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

<b>Agency</b>	<b>Status</b>
National Pony Express Association	Consulting Party
Old Spanish Trail Association	Consulting Party
Oregon-California Trail Association	Consulting Party

As previously noted, the public scoping process began on May 2, 2022, when the BLM published the NOI to prepare an EIS for the *Federal Register*. The NOI briefly describes 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.

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 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 comment 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. Additional information regarding the scoping process is included in 5.2.5 Scoping Process.

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 EIS. Resources that received the most comments during the public scoping period are provided below:

- Alternative(s)
- Federally Listed Species
- General Environmental Effects/Impacts
- General Question
- Proponent Proposed Action
- Recreation
- Resource Management Plan/Land Use
- Social-Economic/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 NEPA Handbook, H-1790-1 (2008: 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 EIS. Issues identified in scoping warrant inclusion in the EIS if analysis of the issue is necessary to make a reasoned choice among the alternatives; if the issue is associated with a 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.



## **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 2022; Appendix B). Chapter 2 also describes and compares the key features of the Proposed Action and the Action Alternatives considered. The term “Action Alternatives” refers to the alternatives that would require construction, O&M, and decommissioning of the GLWP. This is in contrast to the No Action Alternative, which would consist of the federal ROW agencies denying their ROW applications and thus not involve any development of an electrical transmission system or associated facilities. 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 EIS also analyzes the No Action Alternative, which is the continuation of current management of the federal lands. The No Action Alternative provides a useful baseline for comparing the environmental effects associated with the GLWP alternatives.

The Proposed Action has 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, which 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 EIS 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**

A 20-mile-wide routing and siting study area (10 miles on either side of West-Wide Energy Corridors [WWEC]) was initially defined by the Proponent 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 2022).

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 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 (refer to 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 line would cross approximately 318 miles of BLM-administered land, 3 miles of DOD land, 2 miles of NPS-managed land, 21 miles of Tribal land, 5 miles of NDSL, 2 miles of Clark County land, and

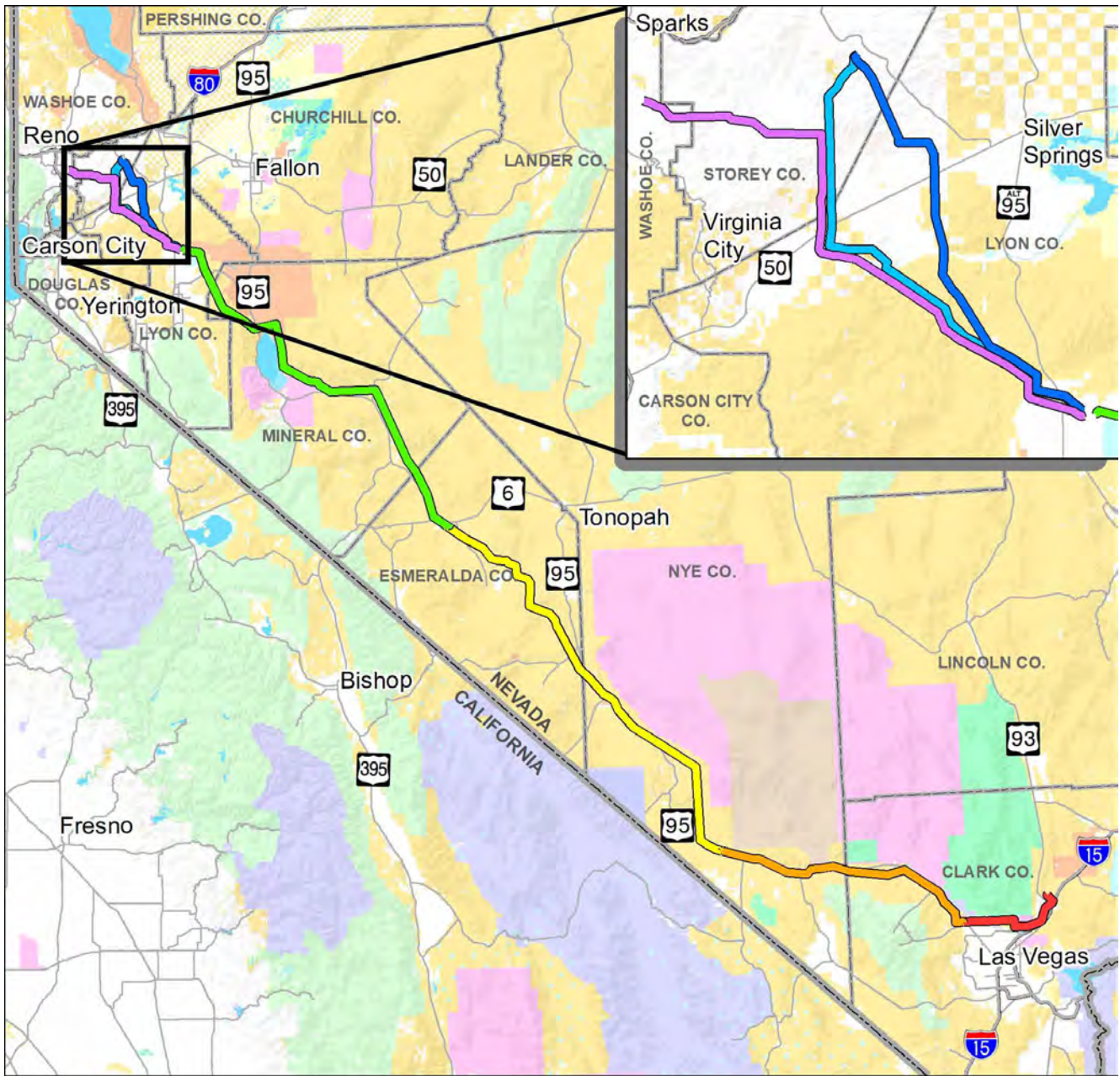
7 miles of private land. Due to rounding, the total mileage identified by ownership/management agency may not sum precisely.

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 miles of BLM-administered land and 70 miles of private land.

### **2.1.2 Federal ROW Actions**

The Proponent will need to obtain ROWs from the federal ROW 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 (refer to Figure 2-2). Within the TUSK, the Proponent has requested a 105-foot-wide ROW, which would be both the temporary construction permit and permanent ROW area. The Proponent has estimated centerline and infrastructure requirements for the Proposed Action and 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 due to final engineering. These potential ROW variations are within the scope of the EIS 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 maintenance access roads 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 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. The ROW grant/permit renewal would be subject to additional environmental review. In addition to the ROWs, the Proponent must obtain all authorizations (e.g., ROWs, permits, and easements from other federal, state, local entities, and private landowners).

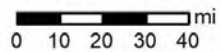


**Legend**

- |  |  |  |                              |
|--|--|--|------------------------------|
|  | 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                        |

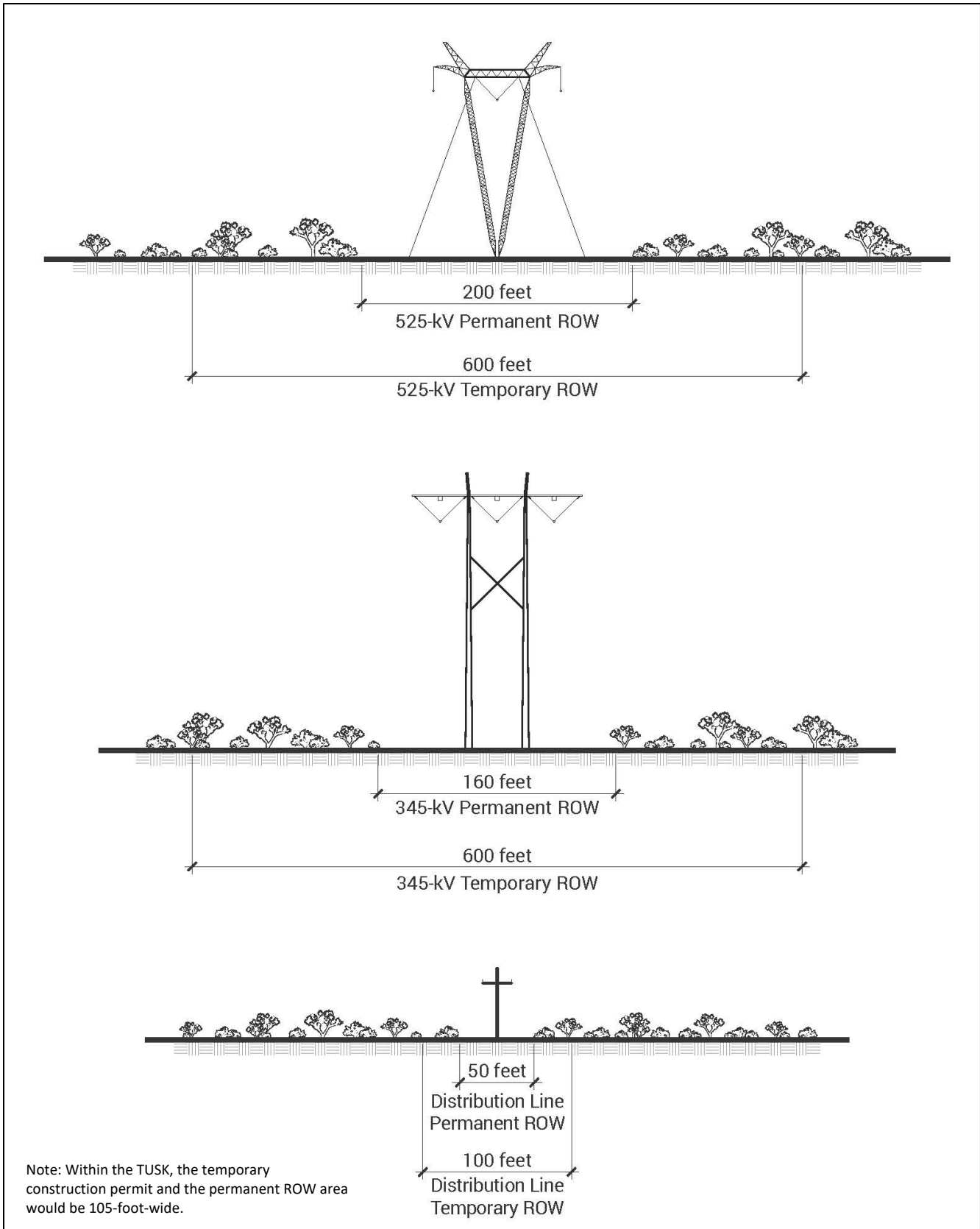


Scale: 1:3,000,000



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**



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

### 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 (refer to Figure 2-3). Descriptions of the conductors, insulators, and grounding systems are provided in the GLWP Preliminary POD (NV Energy 2022). All poles 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 approximately 18,651 acres of temporary disturbance and 5,606 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 is 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, steel three-pole structures, or steel lattice towers.

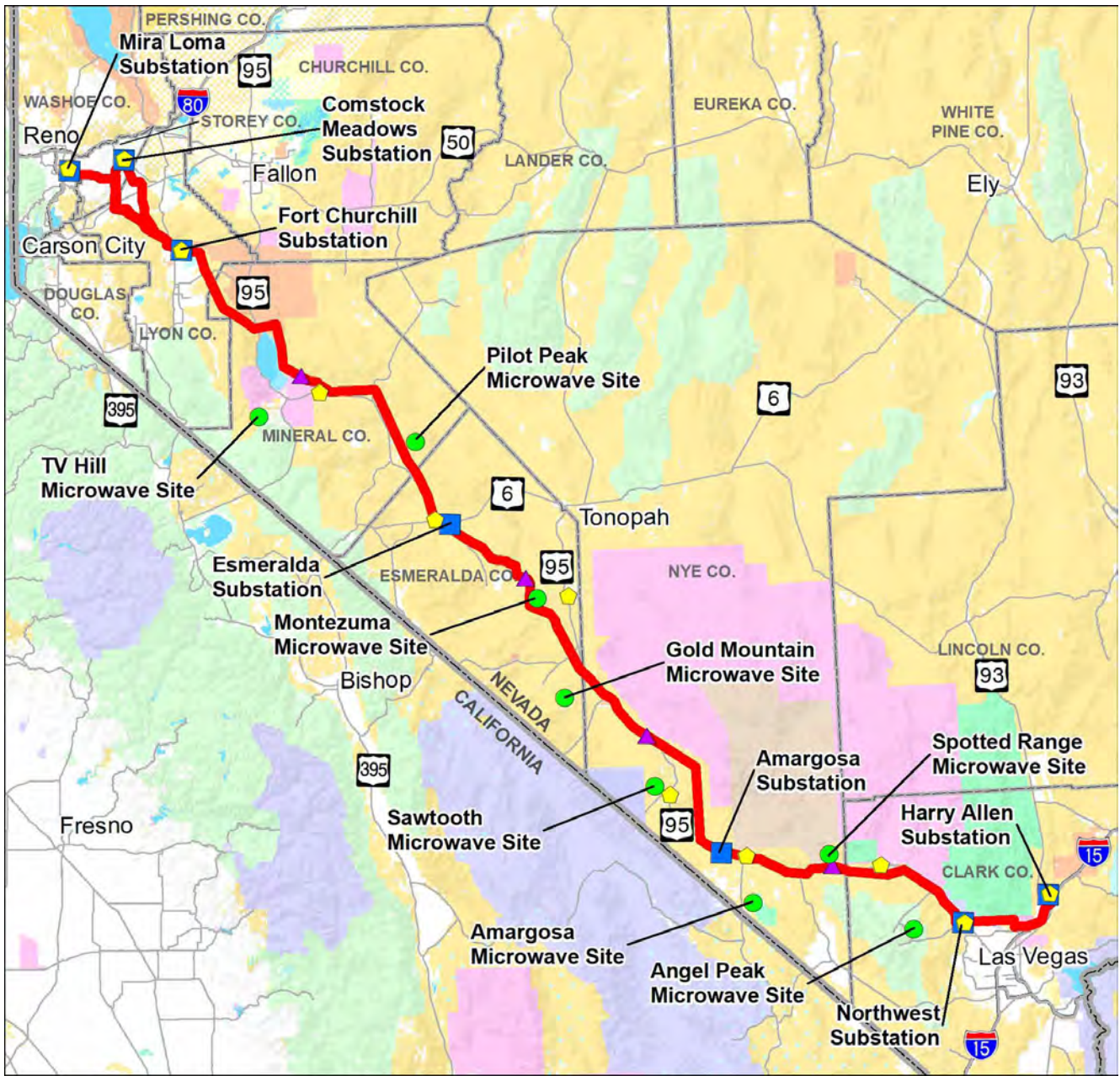
Tangent structures, or straight-through structures, are the most commonly used structure types when electrical and distribution lines generally run in a straight line. Angle structures are used at points where a line undergoes a change in direction. Angle structures are specially reinforced—heavier and 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 5 feet within the TUSK<sup>2</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 ROW, which would be both the temporary and permanent ROW. The additional 50 feet of ROW would allow for construction of facilities by others within the TUSK and would avoid elevated induced voltages, audible noise, or radio interference.

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<sup>2</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.

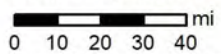


**Legend**

- |                                     |                                |
|-------------------------------------|--------------------------------|
| ▲ 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**

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

<b>GLWP Component</b>	<b>Temporary Disturbance</b>	<b>Approximate Acres of Temporary Disturbance<sup>a</sup></b>	<b>Permanent Disturbance</b>	<b>Approximate Acres of Permanent Disturbance<sup>a</sup></b>
525-kV Tangent Structure Work Area	1,495 sites x 200 feet x 250 feet	1,716	None	0 acres <sup>b</sup>
525-kV Dead-end/ Angle Structure Work Area	119 sites x 200 feet x 400 feet	219	None	0 acres <sup>b</sup>
525-kV Guard Structure Work Area	154 sites x 200 feet x 100 feet	71	None	0 acres <sup>b</sup>
345-kV Tangent Structure Work Area	507 sites x 160 feet x 250 feet	466	None	0 acres <sup>b</sup>
345-kV Dead – end/ Angle Structure Work Area	73 sites x 160 feet x 400 feet	107	None	0 acres <sup>b</sup>
345-kV Guard Structure Work Area	80 sites x 160 feet x 100 feet	29	None	0 acres <sup>b</sup>
525-kV Structure Pad	None	0 acres <sup>c</sup>	987 sites x 100 feet x 100 feet	227
525-kV Structure Pad in Mojave Desert Tortoise Habitat <sup>d</sup>	None	0 acres <sup>c</sup>	627 sites x 200 feet x 200 feet	576
345-kV Structure Pad	None	0 acres <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 acres <sup>b</sup>
Distribution Line Structure Pad	None	0 acres <sup>c</sup>	726 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 acres <sup>b</sup>
525-kV Mid-Span Pull Site	180 sites x 200 feet x 600 feet	496	None	0 acres <sup>b</sup>
345-kV Point of Intersection Pull Site	46 sites x 35.32 acres (on average)	1,625	None	0 acres <sup>b</sup>
345-kV Mid-Span Pull Site	47 sites x 160 feet x 600 feet	104	None	0 acres <sup>b</sup>
Construction Yard	11 sites x 25 acres (on average)	268	None	0 acres <sup>b</sup>
Helicopter Yard	84 sites x 15 acres (on average)	1,264	None	0 acres <sup>b</sup>
Plant Nursery	47 sites x 200 feet x 500 feet	109	None	0 acres <sup>b</sup>
Fort Churchill Substation (expansion area)	360 acres	360	360 acres	360
Esmeralda Substation	109 acres	109	109 acres	109
Amargosa Substation	109 acres	109	109 acres	109
Northwest Substation (expansion area)	17 acres	17	17 acres	17
Harry Allen Substation	No new disturbance	0	No new disturbance	0
Mira Loma Substation	No new disturbance	0	No new disturbance	0

<b>GLWP Component</b>	<b>Temporary Disturbance</b>	<b>Approximate Acres of Temporary Disturbance<sup>a</sup></b>	<b>Permanent Disturbance</b>	<b>Approximate Acres of Permanent Disturbance<sup>a</sup></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 200 feet x 200 feet	4	4 sites x 200 feet x 200 feet	4
Access <sup>e</sup>	544 linear miles x 100 feet	6,594	544 linear miles x 25 feet wide <sup>e</sup>	1,649
Maintenance Road <sup>f</sup>	783 linear miles <sup>g</sup> x 25 feet wide <sup>5</sup>	2,373	783 linear miles <sup>g</sup> x 25 feet wide	2,373
<b>Total</b>	-	<b>18,651</b>	-	<b>5,606</b>

*Table Acronyms:* GLWP – Greenlink West Project; kV – Kilovolt

*Table Notes:* <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.

<sup>g</sup> Estimated based on the length and grade the transmission centerline length.

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 three phases per circuit with two conductors per phase and 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 new Amargosa and Esmeralda substations, microwave radio facilities, and amplifier sites. The distribution supply line voltage would be 25-kV or 12-kV and be 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 (Fort Churchill, Esmeralda, and Amargosa), one expanded (Northwest), and three 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 would be constructed 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 substation and transmission line work would be on BLM-administered lands. The new Amargosa Substation would be constructed approximately 24 miles southeast of Beatty also in Nye County and would occupy approximately 109 acres. The new substation and transmission line work would be on BLM-administered lands.

The existing Northwest Substation in Clark County would be expanded west of the existing substation and require an additional area of approximately 17 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 also in Clark County. At the Harry Allen Substation, all work would occur within the existing substation boundaries (i.e., the extents of the station footprint would not change). Transmission line work into 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 operations, maintenance, 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.

### **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 Fort Churchill, Esmeralda, and Amargosa substations. 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, 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 amplifier sites would also require electric distribution service and installation of a backup generator.

### **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 about 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 582 miles and 201 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 1,649 acres. The maintenance roads would permanently disturb a total area of approximately 2,373 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 selection of these temporary work areas would incorporate the Proponent's preference for placement 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 where they would be turned over to the contractor for hauling to other construction yards.

#### **2.1.4 GLWP Construction**

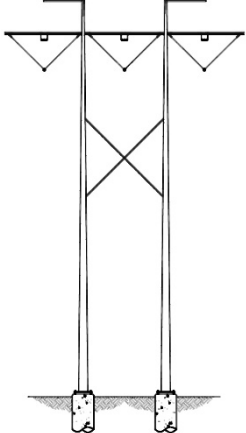
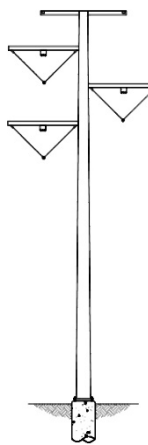
The construction activities are described in the GLWP Preliminary POD (NV Energy 2022) and would be refined and finalized in the Proponent's subsequent Construction, Operations, and Maintenance (COM) Plan. The COM Plan provides direction to the Proponent's construction personnel, construction contractors and crews, compliance inspection contractor, environmental monitors, and agency personnel regarding specifications of construction and the Proponent's personnel for construction activities as well as O&M activities. The federal ROW agencies with jurisdictional responsibilities would monitor the construction and would likely use a compliance inspection contractor to ensure that the measures required by the ROD, and as prescribed in the EIS and the COM Plan, are implemented and 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, 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 (refer to Table 2-2). As summarized in Table 2-1, the transmission structure work areas would temporarily disturb approximately 2,608 acres.

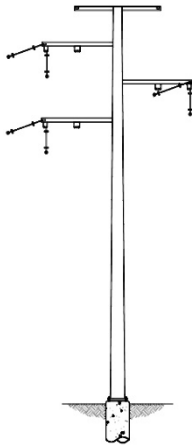
**Table 2-2. Proposed Transmission/Distribution Line Characteristics**

Structure Type	Description
<p data-bbox="272 657 620 682">525-kV steel pole H-frame tangent</p> 	<ul style="list-style-type: none"> <li>• Typical Height: 100 feet to 180 feet</li> <li>• Typical Distance between Structures: 1,140 feet</li> <li>• Minimum Ground Clearance: 35 feet</li> <li>• Construction Footprint Requirements: 200 feet by 250 feet</li> <li>• Operations Footprint Requirements: 5- to 10-foot diameter</li> </ul>
<p data-bbox="259 1134 633 1159">525-kV steel delta monopole tangent</p> 	<ul style="list-style-type: none"> <li>• Typical Height: 100 feet to 180 feet</li> <li>• Typical Distance between Structures: 1,200 feet</li> <li>• Minimum Ground Clearance: 35 feet</li> <li>• Construction Footprint Requirements: 200 feet by 250 feet</li> <li>• Operations Footprint Requirements: 6- to 12-foot diameter</li> </ul>

## Structure Type

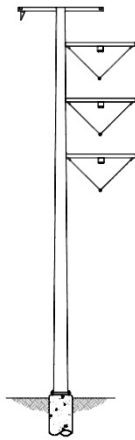
## Description

### 525-kV steel monopole delta dead-end/angle



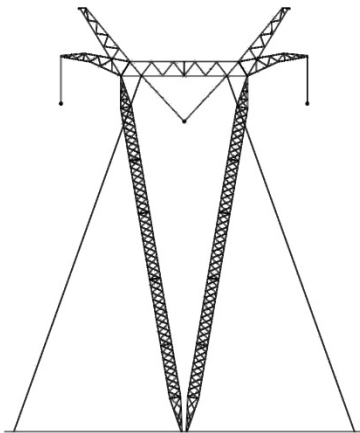
- Typical Height: 100 feet to 180 feet
- Typical Distance between Structures: 1,200 feet
- Minimum Ground Clearance: 35 feet
- Construction Footprint Requirements: 200 feet by 400 feet
- Operations Footprint Requirements: 6- to 12-foot diameter

### 525-kV steel vertical monopole tangent

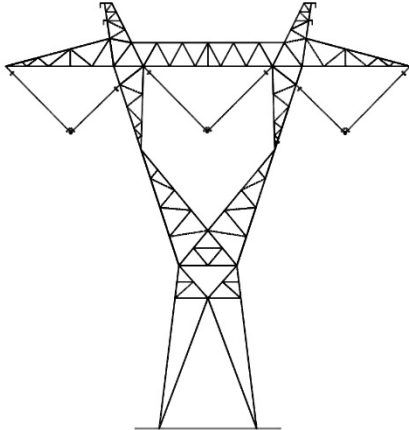
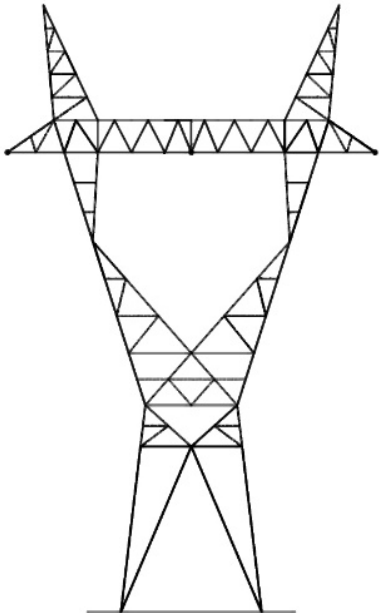
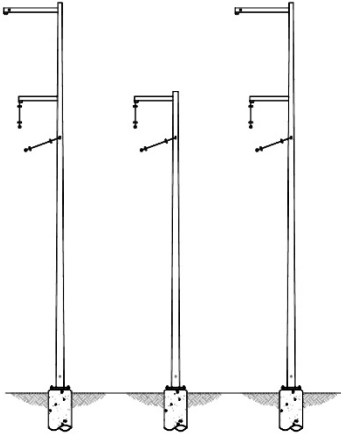


- Typical Height: 120 feet to 180 feet
- Typical Distance between Structures: 1,200 feet
- Minimum Ground Clearance: 35 feet
- Construction Footprint Requirements: 200 feet by 250 feet
- Operations Footprint Requirements: 6- to 12-foot diameter

### 525-kV steel lattice guyed tangent

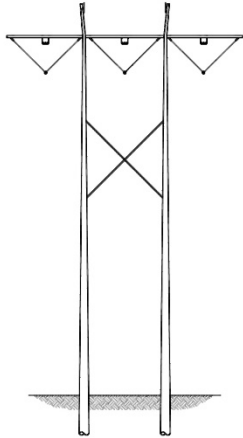


- Typical Height: 105 feet to 160 feet
- Typical Distance between Structures: 1,520 feet
- Minimum Ground Clearance: 35 feet
- Construction Footprint Requirements: 200 feet by 250 feet
- Operations Footprint Requirements: 140 feet x 140 feet square

Structure Type	Description
<p data-bbox="272 191 621 243"><b>525-kV steel lattice self-supporting tangent</b></p> 	<ul data-bbox="688 363 1284 510" style="list-style-type: none"> <li>• Typical Height: 100 feet to 150 feet</li> <li>• Typical Distance between Structures: 1,200 feet</li> <li>• Minimum Ground Clearance: 35 feet</li> <li>• Construction Footprint Requirements: 200 feet by 250 feet</li> <li>• Operations Footprint Requirements: 55 feet x 55 feet</li> </ul>
<p data-bbox="245 688 647 741"><b>525-kV steel lattice self-supporting dead end/angle</b></p> 	<ul data-bbox="688 961 1284 1108" style="list-style-type: none"> <li>• Typical Height: 100 feet to 150 feet</li> <li>• Typical Distance between Structures: 1,200 feet</li> <li>• Minimum Ground Clearance: 35 feet</li> <li>• Construction Footprint Requirements: 200 feet by 400 feet</li> <li>• Operations Footprint Requirements: 55 feet x 55 feet</li> </ul>
<p data-bbox="248 1381 646 1413"><b>525-kV steel three-pole dead-end/angle</b></p> 	<ul data-bbox="688 1577 1284 1724" style="list-style-type: none"> <li>• Typical Height: 100 feet to 180 feet</li> <li>• Typical Distance between Structures: N/A</li> <li>• Minimum Ground Clearance: 35 feet</li> <li>• Construction Footprint Requirements: 200 feet by 400 feet</li> <li>• Operations Footprint Requirements: 6- to 12-foot diameter</li> </ul>

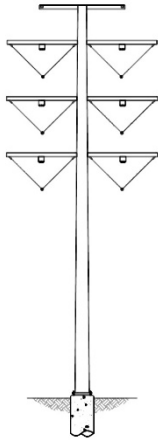
Structure Type	Description
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**345-kV steel pole H-frame tangent**



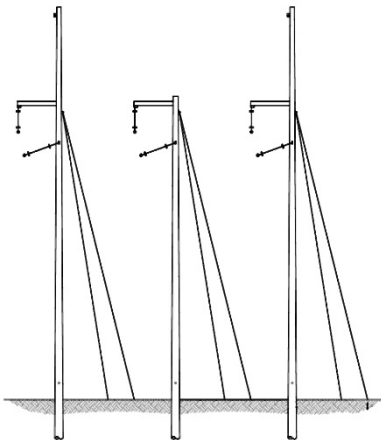
- Typical Height: 75 feet to 180 feet
- Typical Distance between Structures: 1,200 feet
- Minimum Ground Clearance: 28 feet
- Construction Footprint Requirements: 160 feet by 250 feet
- Operations Footprint Requirements: 2- to 4-foot diameter

**345-kV double-circuit steel vertical monopole tangent**

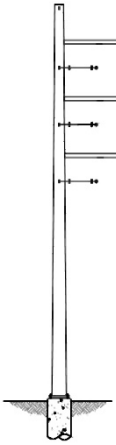
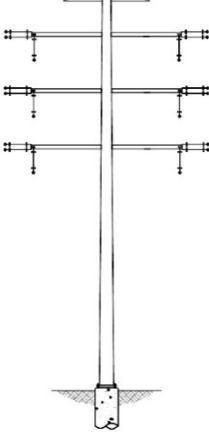
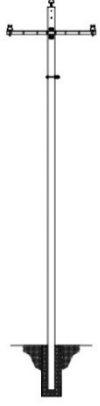


- Typical Height: 110 feet to 160 feet
- Typical Distance between Structures: 1,140 feet
- Minimum Ground Clearance: 28 feet
- Construction Footprint Requirements: 160 feet by 250 feet
- Operations Footprint Requirements: 4- to 8-foot diameter

**345-kV steel three-pole guyed dead-end/angle**



- Typical Height: 75 feet to 180 feet
- Typical Distance between Structures: N/A
- Minimum Ground Clearance: 28 feet
- Construction Footprint Requirements: 160 feet by 400 feet
- Operations Footprint Requirements: 2- to 6-foot diameter

Structure Type	Description
<p data-bbox="256 184 636 241"><b>345-kV steel vertical monopole guyed dead-end/angle</b></p> 	<ul data-bbox="690 367 1291 514" style="list-style-type: none"> <li>• Typical Height: 110 to 160 feet</li> <li>• Typical Distance between Structures: N/A</li> <li>• Minimum Ground Clearance: 28 feet</li> <li>• Construction Footprint Requirements: 160 feet by 400 feet</li> <li>• Operations Footprint Requirements: 5- to 10-foot diameter</li> </ul>
<p data-bbox="272 697 620 753"><b>345-kV double-circuit steel vertical monopole dead-end/angle</b></p> 	<ul data-bbox="690 871 1291 1018" style="list-style-type: none"> <li>• Typical Height: 120 to 165 feet</li> <li>• Typical Distance between Structures: N/A</li> <li>• Minimum Ground Clearance: 28 feet</li> <li>• Construction Footprint Requirements: 160 feet by 400 feet</li> <li>• Operations Footprint Requirements: 6- to 12-foot diameter</li> </ul>
<p data-bbox="360 1201 535 1228"><b>Distribution pole</b></p> 	<ul data-bbox="690 1354 1291 1501" style="list-style-type: none"> <li>• Typical Height: 45 to 50 feet</li> <li>• Typical Distance between Structures: 230 feet</li> <li>• Minimum Ground Clearance: 22 feet</li> <li>• Construction Footprint Requirements: 100 feet by 100 feet</li> <li>• Operations Footprint Requirements: 50 feet x 50 feet</li> </ul>

*Table Acronyms: kV – kilovolt; N/A – Not applicable*

Approximately 342 wire-pulling and tensioning sites (referred to as 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 and 20 acres each have been identified approximately every five miles along the transmission line.

Plant nursery sites would be needed to curate salvaged plants that would later be used to restore the ROW. The plant nurseries would be maintained throughout construction. Nursery sites measuring 200 feet by 500 feet would be located approximately every 10 miles along the transmission line. Plant nursery locations have not yet been identified and are therefore not depicted on the maps in the GLWP Preliminary POD.

A description on construction of the transmission line structures, substations, telecommunication facilities, and fiber optic line is provided in Appendix B (NV Energy 2022). Information on site cleanup, demobilization, restoration, and reclamation is also included in the GLWP Preliminary POD in Appendix B.

### 2.1.5 Construction Workforce Numbers, Vehicles, Equipment, and Time Frames

GLWP construction would require at least 50 to 70 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.

Construction-phase vehicles and heavy equipment would be required for construction of the GLWP (refer to 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 Areas**

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

Equipment	Use
Water truck	Suppress dust and fire
Winch truck	Install and pull sock line and conductors into position
Helicopter	Transport equipment and personnel, erect structures, pull conductor sock-line and hard-line

Table Source: NV Energy 2022

### 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. Annual line inspections would be conducted by helicopter, all-terrain vehicles, or line trucks in addition to visual review of the line along the access roads. 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 county, state, and federal laws.

In the event the GLWP is decommissioned, a Restoration and 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. Additional and 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 (refer to Appendix B). These measures, along with relevant Best Management Practices (BMPs), Standard Operating Procedures (SOPs), Interagency Operating Procedures (IOPs)<sup>3</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 EIS, the term Environmental Management Measures (EMMs) refers collectively to the EPMs and these other relevant measures noted. These EMMs are listed in Appendix C. Any mitigation measures identified in the EIS are in addition to the EMMs.

<sup>3</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 (ROD) 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.

## 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 within the same transmission route group, common start and end points for each group were determined, with the exception of the Carson River Transmission Line Route Group (refer to Section 2.2.7 for more detailed information regarding the Carson River transmission alternatives). 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 (refer to Table 2-4). Figure 2-4 to Figure 2-15 shows the location of each of the transmission line Action Alternatives. The Action Alternatives 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 Action Alternatives Considered**

Route Group	Transmission Line Route Alternatives
Losee	Alternative A
Tule Springs Fossil Beds National Monument (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, and K
Scotty's Junction	Alternatives A and B
Goldfield-Tonopah	Alternative A
Walker River	Alternative A
Mason Valley Wildlife Management Area	Alternatives A, B, and C
Carson River	Alternatives A, B, and C
Fort Churchill to Harry Allen	Alternative A

<sup>a</sup> TUSK Initial Proposed Action Transmission Alternative was identified as the Proposed Action in the Proponent's POD provided with the submittal of the GLWP SF-299 (NV Energy 2021). 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.

### 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 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) (refer to Figure 2-5). The Losee Transmission Alternative A near the intersection of Grand Teton Drive and Lamb Boulevard would travel along the extension of Grand Teton Drive for an additional two miles before turning north on Losee Road and re-connecting 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 those that avoided 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

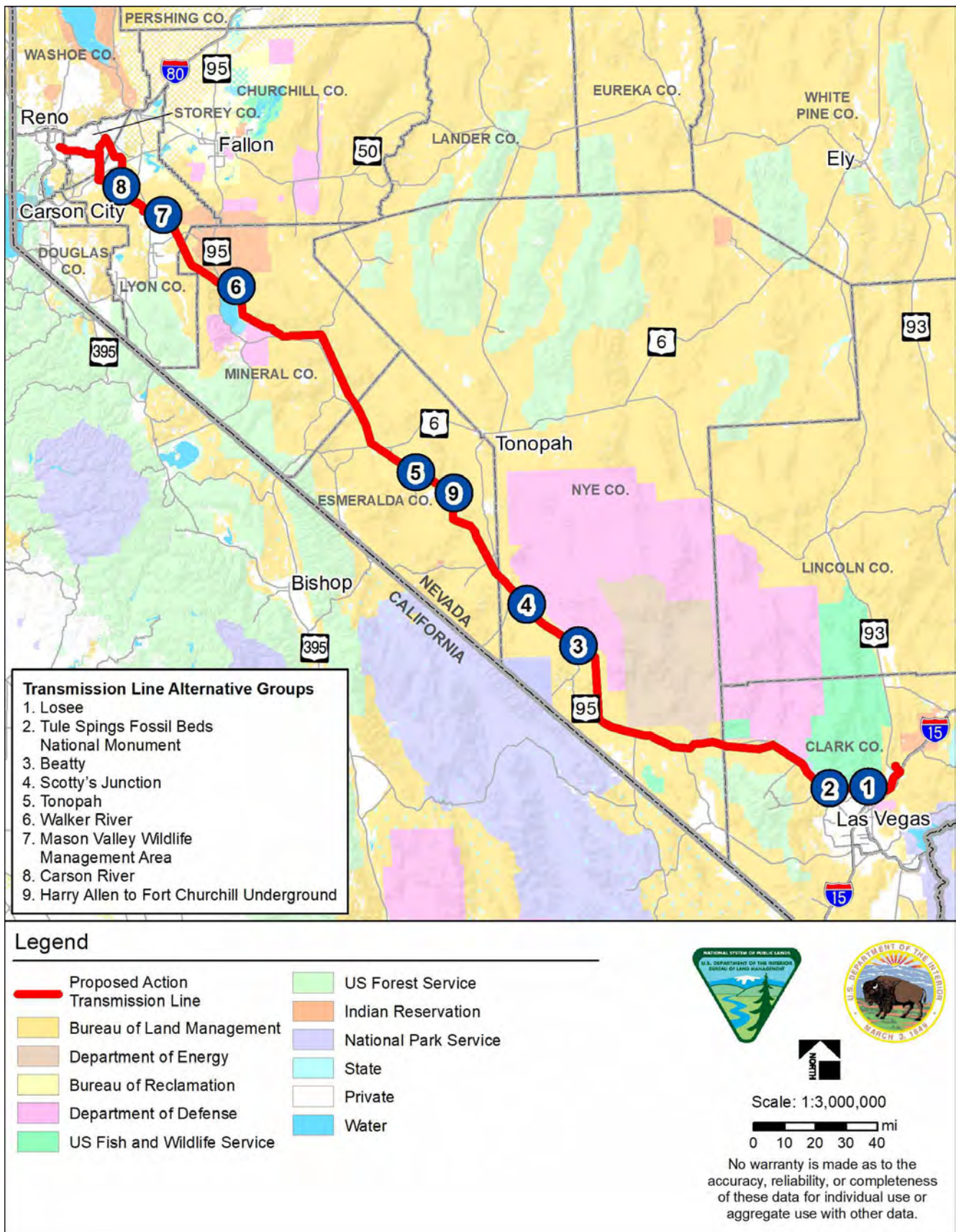
approximately 120 feet tall. The TUSK Transmission Alternative B would consist of six guyed-V wire-frame towers centered on a 200-foot by 200-foot maintenance (refer to Figure 2-7). These wire-frame towers would be approximately 150 feet tall. The current Proposed Action (previously referred to as TUSK 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 feet tall. Refer to Figure 2-6 and Figure 2-7 for the relative distances of the structures and maintenance pads within the TUSK for each of the above-referenced alternatives. The amount of ROW within the TUSK that would be required for each of these four transmission alternatives would range from 19.1 acres for the current Proposed Action to 28.2 acres for TUSK Transmission Alternative A to 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 would require replacing the existing 150-foot-high structures with taller structures approximately 190 feet tall.

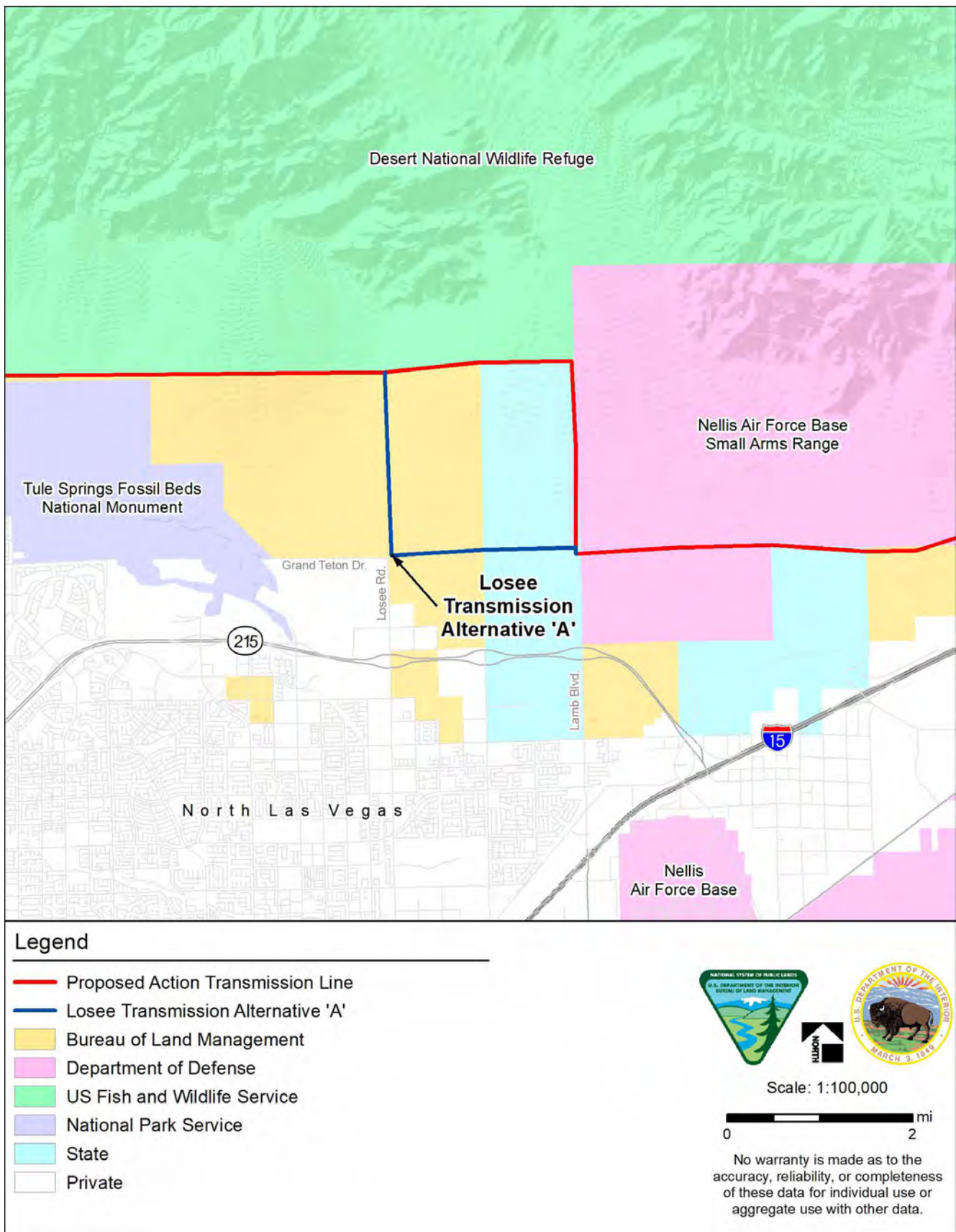
The TUSK Transmission Alternative E would consider the enabling legislation for the TUSK signed by Congress on December 19, 2014 (HR3979-570, PL 112-272; 126 Statute 2248, amended 2014 Section 3092 (a)). This legislation provided for a 400-foot-wide ROW for the construction and maintenance of high-voltage 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 corridor location. The cited map, however, shows this corridor south of the TUSK and not within the TUSK boundary. TUSK Transmission Alternative E would require further Congressional legislation to resolve the location of the high-voltage transmission corridor (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 (Beltway) corridor for approximately 12 miles before reaching US 95 (refer to Figure 2-9). From the intersection of the Beltway and US 95, the TUSK Transmission Alternative F would follow the US 95 corridor for approximately 5 miles until is reconnected to the Proposed Action just east of the Northwest Substation. The overhead transmission line structures associated with this alternative along the Beltway would be over 200 feet tall.

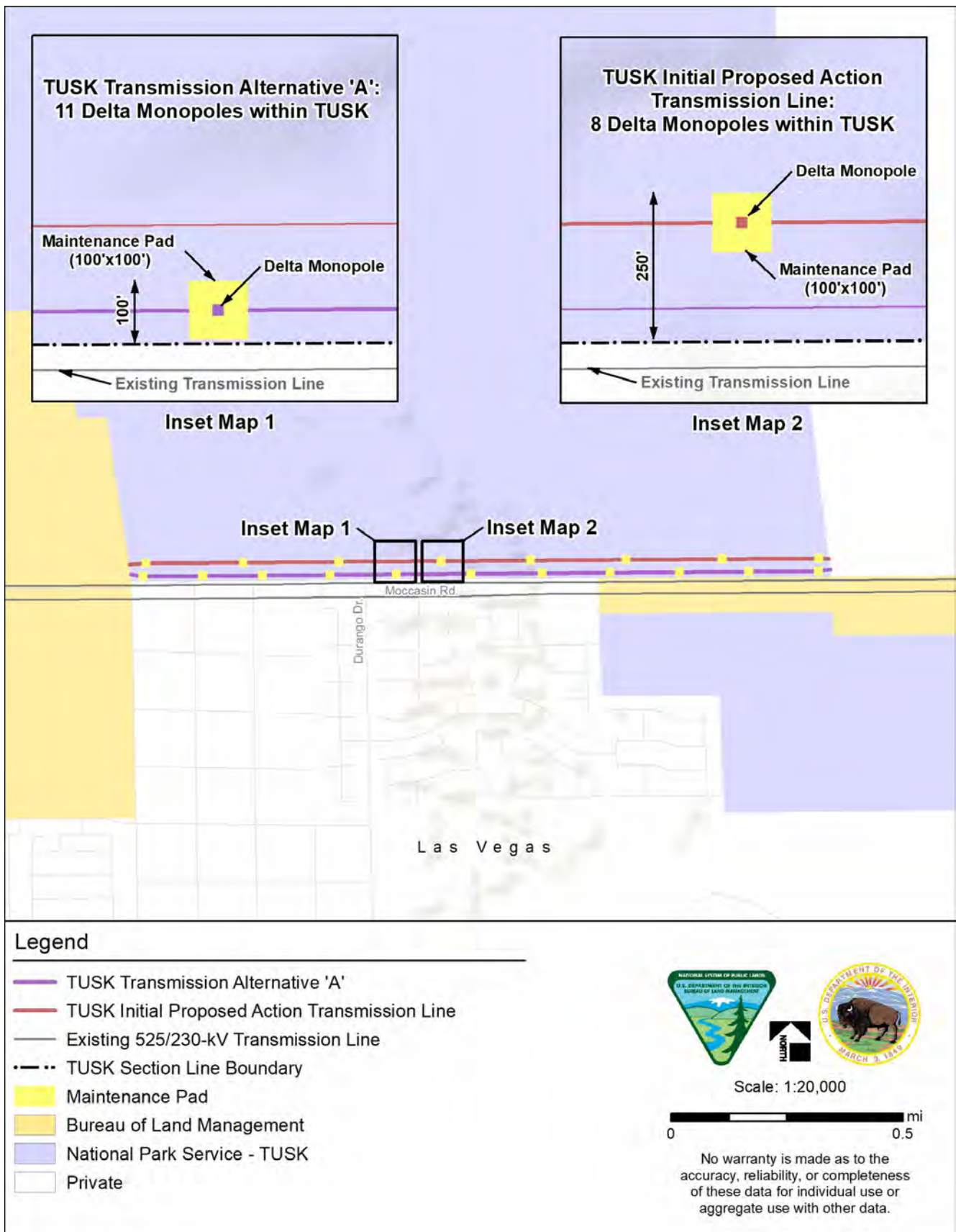
TUSK Transmission Alternative G (South of Las Vegas Corridor) would run generally from Harry Allen Substation south through Rainbow Gardens Area of Critical Environmental Concern (ACEC) along the east side of the Las Vegas metropolitan area towards the El Dorado Valley. This alternative would then turn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



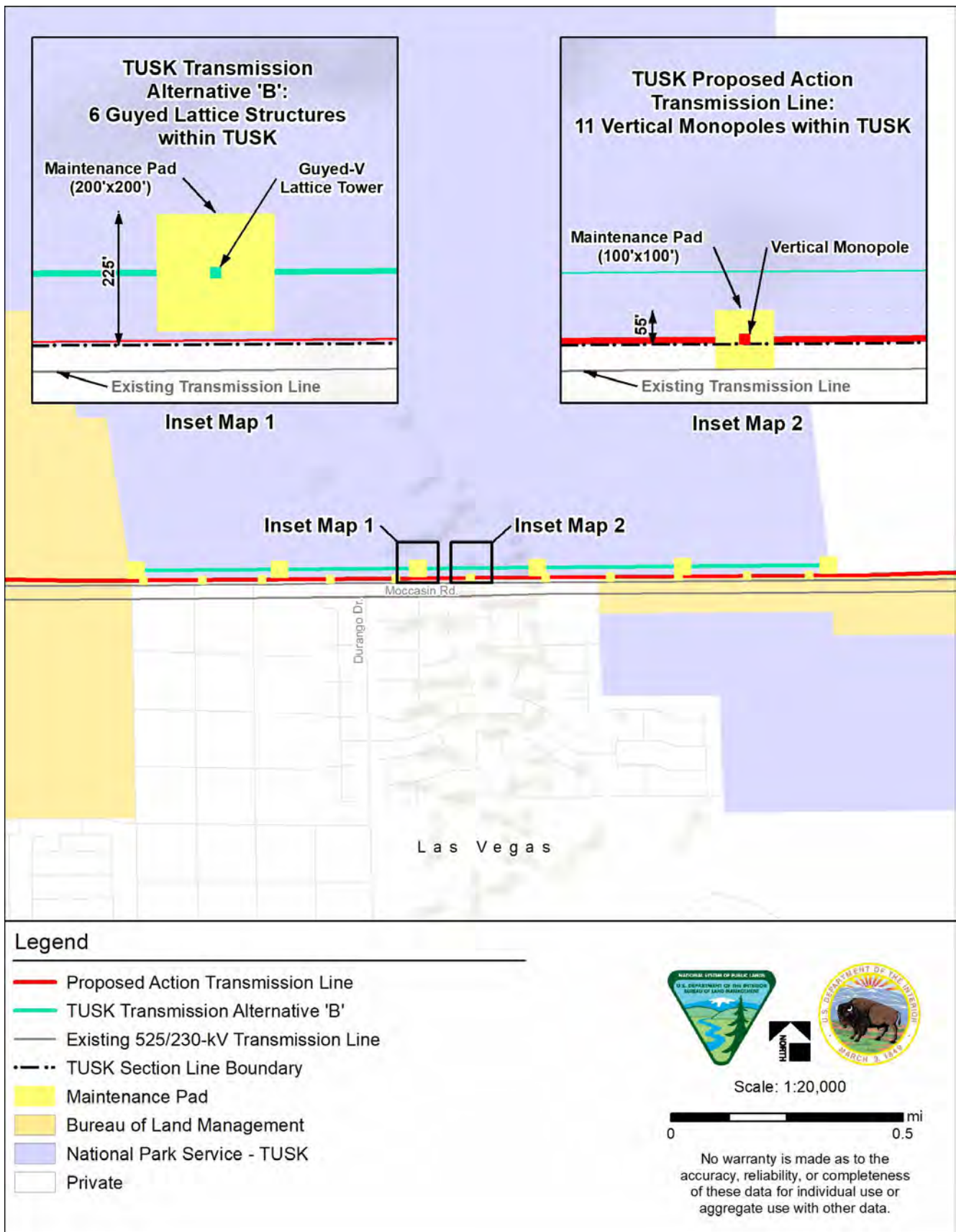
**Figure 2-4. Action Alternative Transmission Route Group Locations**



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

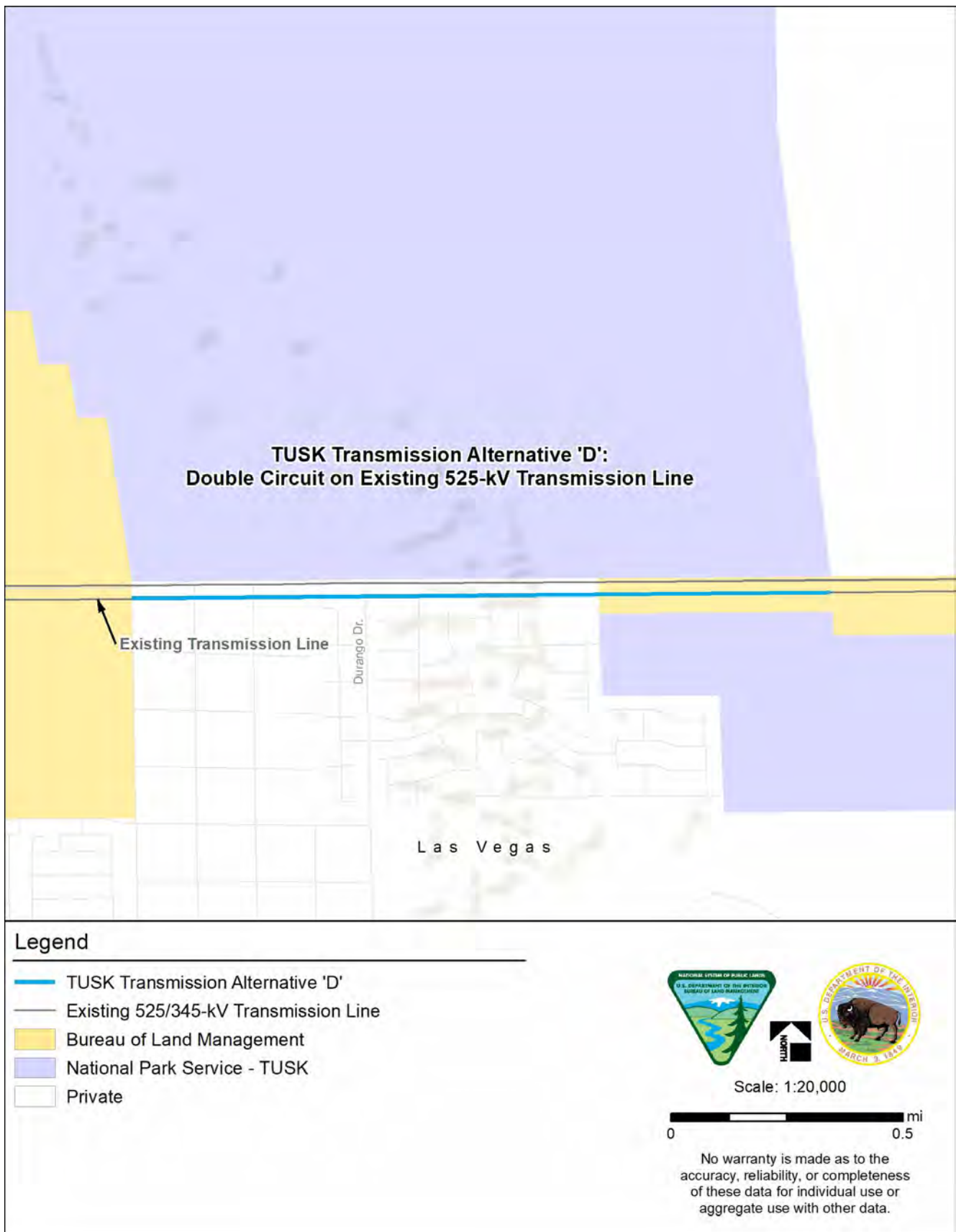


**Figure 2-6. TUSK Transmission Line Alternative Group (1 of 5)**

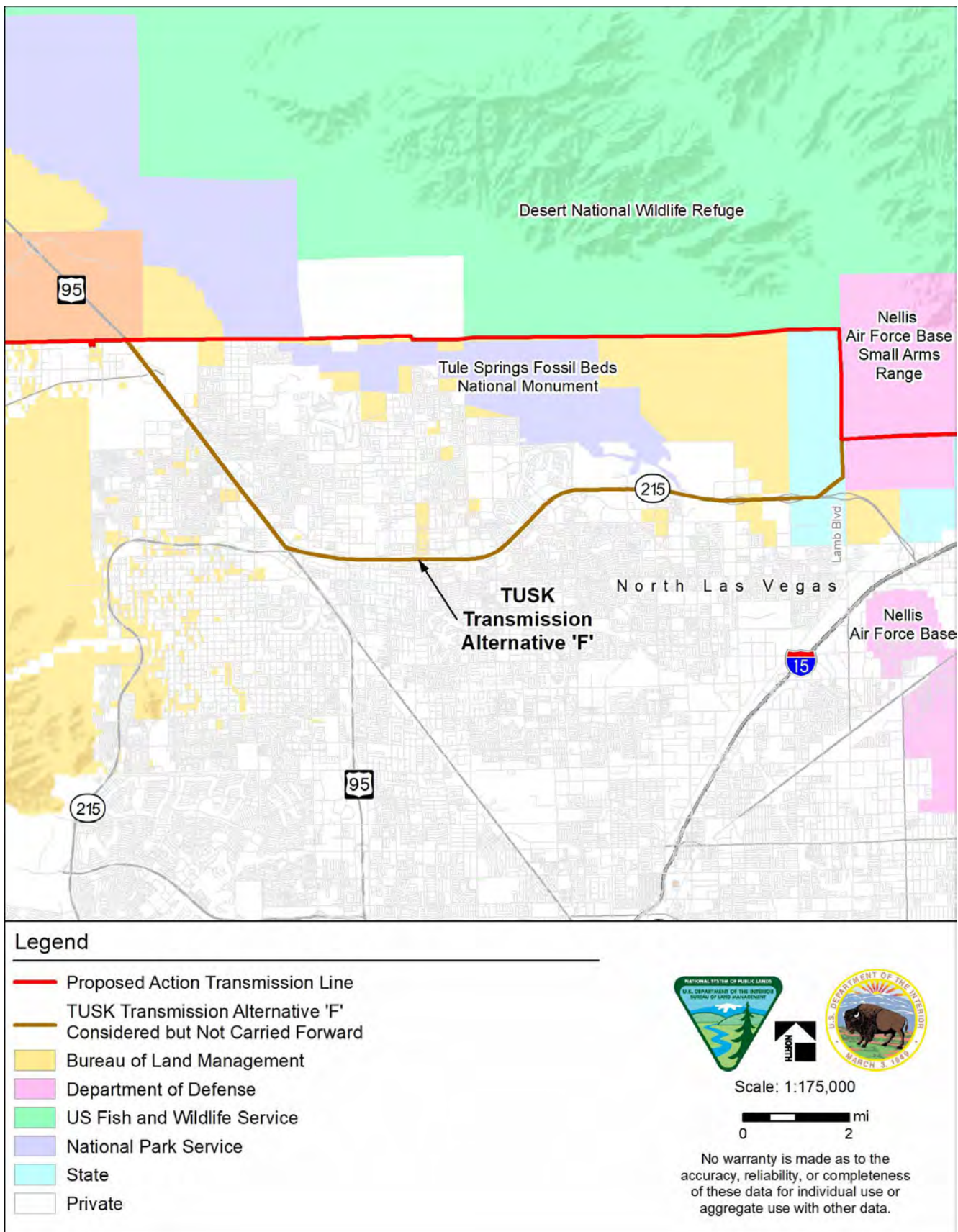


**Figure 2-7. TUSK Transmission Line Alternative Groups (2 of 5)**

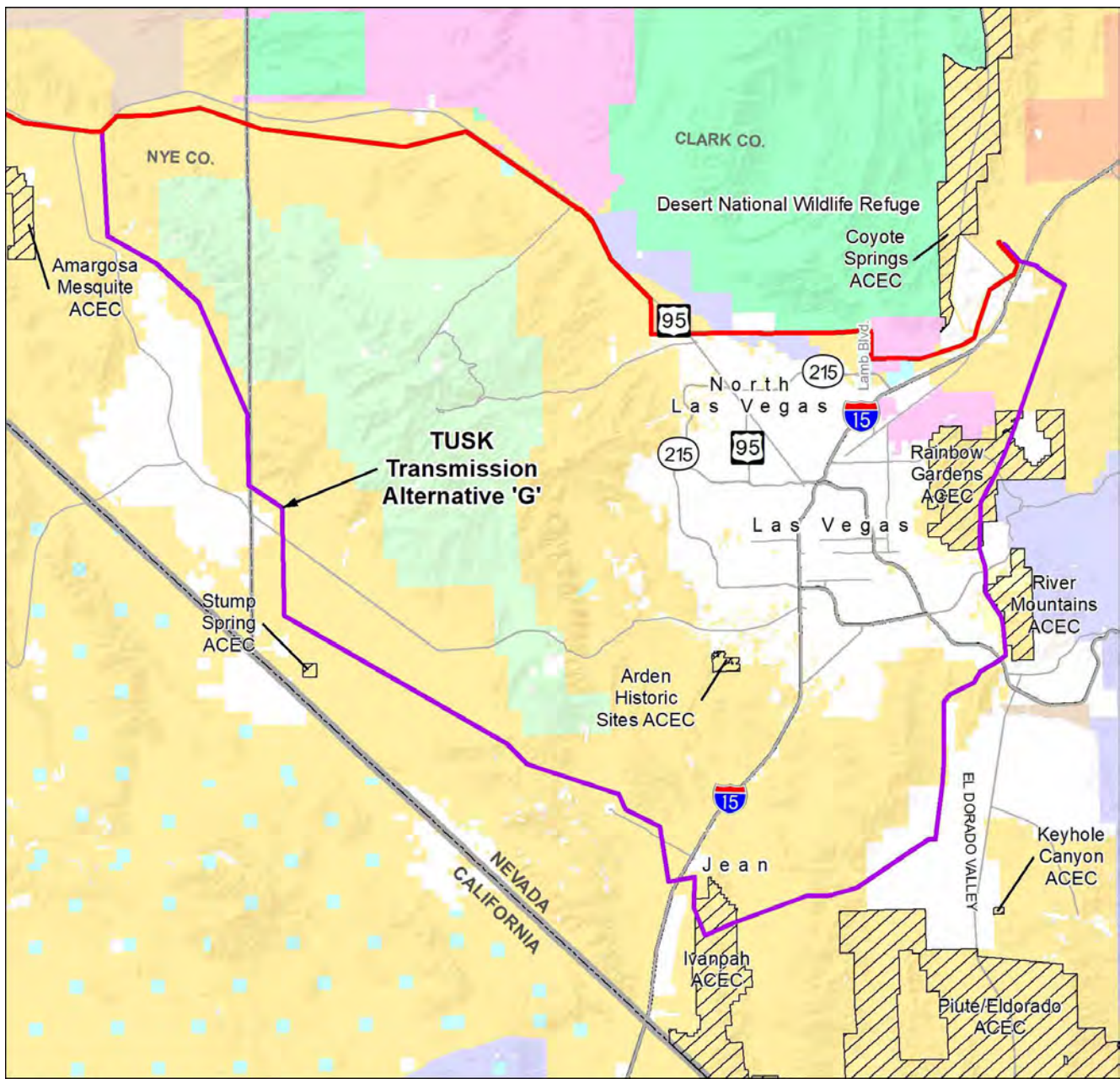




**Figure 2-8. TUSK Transmission Line Alternative Groups (3 of 5)**



**Figure 2-9. TUSK Transmission Line Alternative Groups (4 of 5)**



**Legend**

- |  |  |  |                              |
|--|--|--|------------------------------|
|  | Proposed Action Transmission Line                                    |  | US Forest Service            |
|  | TUSK Transmission Alternative 'G' Considered but Not Carried Forward |  | 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 Alternative Groups (5 of 5)**

### 2.2.3 Beatty Transmission Line Route Group Alternatives

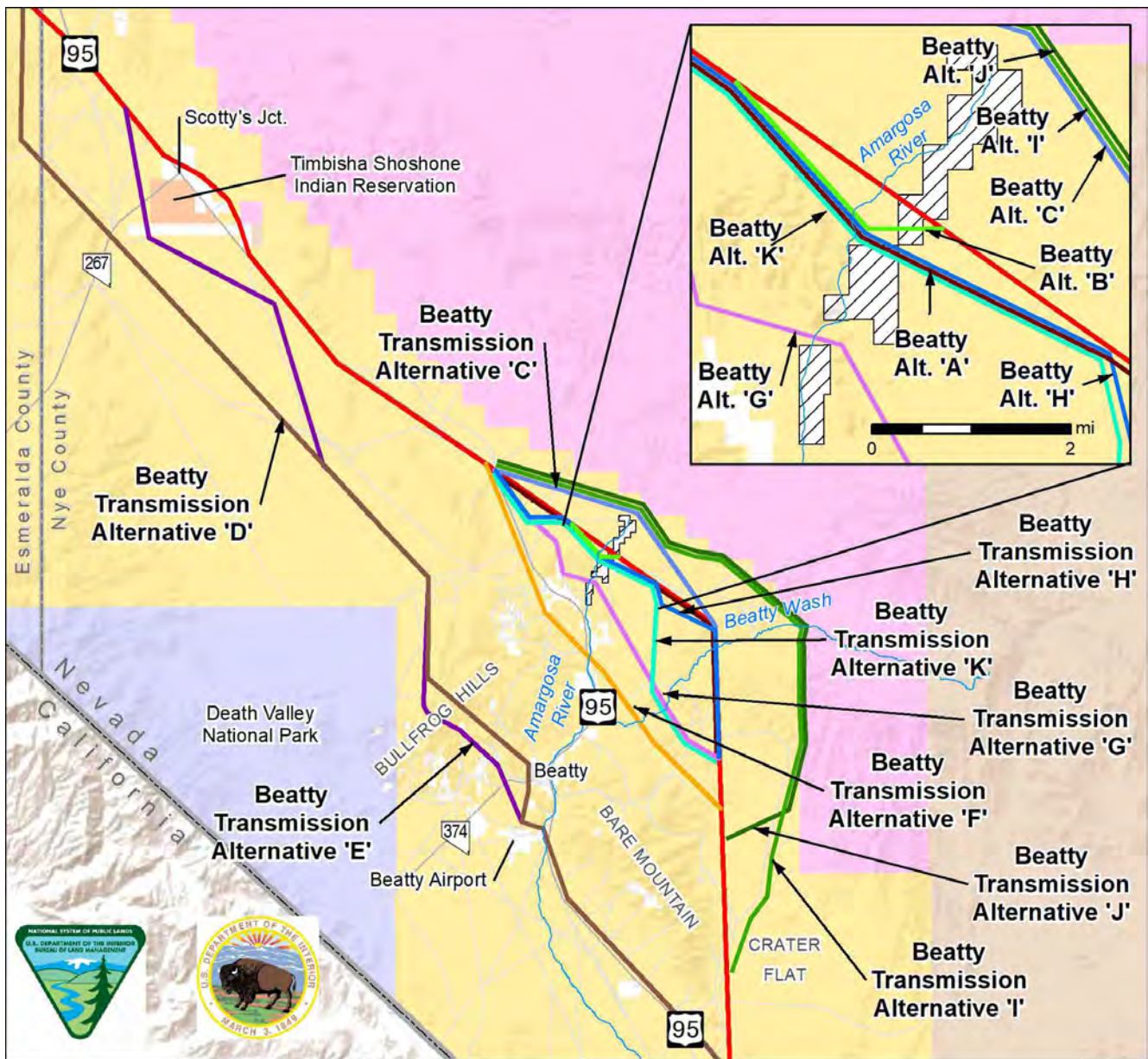
The Beatty Transmission Line Route Group Alternatives includes twelve alternatives (refer to Figure 2-11). The comparable segment of the Proposed Action for this group of transmission alternatives would run north after crossing US 95 through Crater Flat east of Bare Mountain for approximately 20 miles before turning northwest after crossing Beatty Wash for approximately 12 miles. The Proposed Action would then cross The Nature Conservancy's 7J Ranch 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 the route of the Proposed Action but would veer to the south to avoid structures within the 7J Ranch 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 7J Ranch by spanning approximately 1,300 feet over the 7J Ranch between the Proposed Action and Beatty Transmission Alternative A routes. Although no structures would be located within the 7J Ranch boundaries, both Beatty Transmission Alternatives A and B that would span the ranch would still require a ROW on the 7J Ranch for O&M. In contrast to these three transmission alternatives, the Beatty Transmission Alternative C would run north of the 7J Ranch and south of the Nevada Test and Training Range (NTTR), avoiding structures and overhead lines within the 7J Ranch. Beatty Transmission Alternatives A, B, and C and the comparable segment of the Proposed Action would be within the military's restricted airspace and would also cross the proposed NTTR federal land transfer area.

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 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 comparable segment of 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 the crossing of 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 7J Ranch. 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 7J Ranch and would cross on the north side of Bare Mountain and remain to the 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 7J Ranch and avoid structures within the 7J Ranch boundaries by spanning an approximately 340-foot segment where 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 7J Ranch but would be within the restricted military airspace.



**Legend**

- Proposed Action Transmission Line
- Beatty Transmission Alternative 'A'
- Beatty Transmission Alternative 'B'
- Beatty Transmission Alternative 'C'
- Beatty Transmission Alternative 'D'
- Beatty Transmission Alternative 'E'
- Beatty Transmission Alternative 'F'
- Beatty Transmission Alternative 'G'
- Beatty Transmission Alternative 'H'
- Beatty Transmission Alternative 'I'
- Beatty Transmission Alternative 'J'
- Beatty Transmission Alternative 'K'
- ▨ The Nature Conservancy
- ▨ Ranch Property (Privately-Owned)
- 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 2-11. Beatty Transmission Line Route Group**

Beatty Transmission Alternatives I and J were developed as modifications to the Beatty Transmission Line Route Group during the public scoping period and recommended for evaluation. Both of these two alternatives would cross through Crater Flat and run adjacent to NTTR before joining the comparable segment of 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.

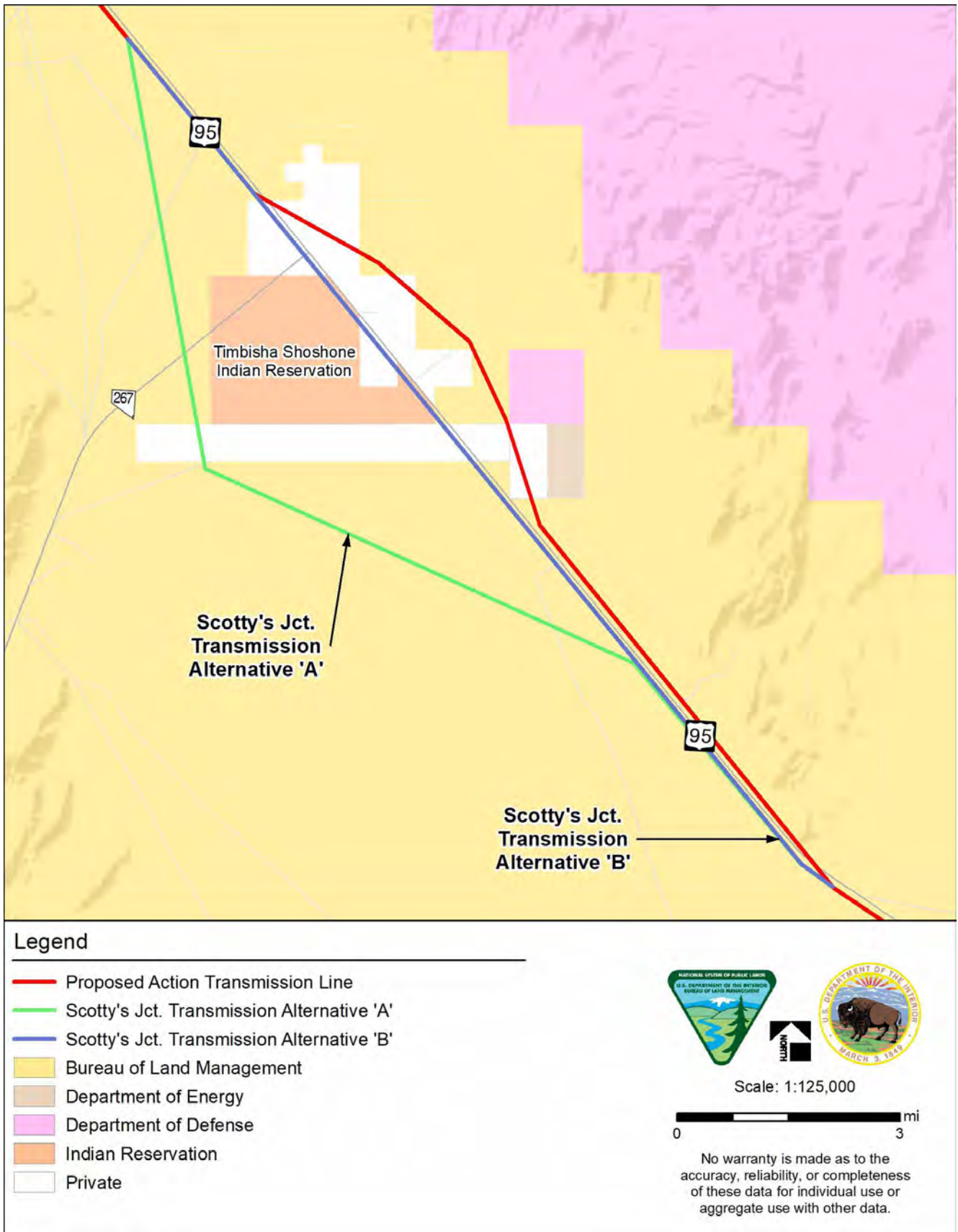
Beatty Transmission Alternative K would follow approximately 4.3 miles of the southern portion of Beatty Transmission Alternative G then turn directly north for approximately 3.8 miles before connecting to Beatty Transmission Alternative H. Beatty Transmission Alternative K would continue along the Beatty Transmission Alternative H alignment, crossing over the two parcel corners of the 7J Ranch, avoiding the NTTR federal land transfer area, but would not avoid crossing Range 77A restricted military airspace.

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

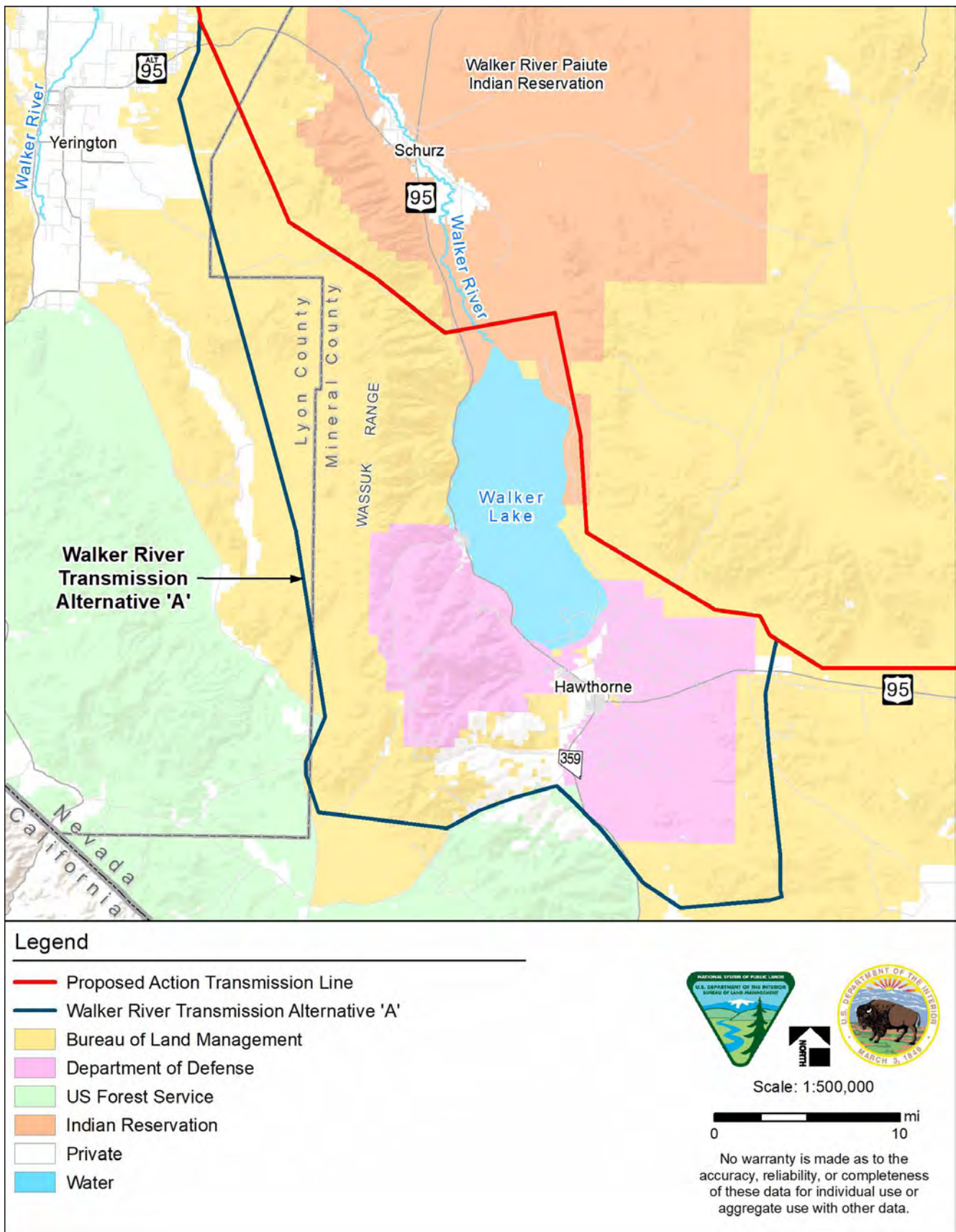
The Scotty's Junction Transmission Alternative Route Group includes three alternative route alignments, beginning approximately 11 miles south of Scotty's Junction, along the US 95 and extending approximately four miles north of Scotty's Junction at the intersection of US 95 and SR 267 (refer to Figure 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 around Scotty's Junction to the northeast of the highway and would not cross the Timbisha Shoshone Reservation. Approximately 7 miles from the junction with SR 267, Scotty's Junction Transmission Alternative A would run south of US 95 and the Timbisha Shoshone Reservation before reconnecting with the Proposed Action approximately four miles north of Scotty's Junction. Scotty's Junction Transmission Alternative B would run parallel to US 95 on the south side 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 Walker River Transmission Line Route Group Alternatives**

The Walker River Transmission Line Route Group includes two alternative route alignments (refer to Figure 2-13). 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 approximately 86-mile-long transmission alternative would cross the Wassuk Range then turn north and follow WWEC 18-23 until it reconnects with the Proposed Action in the Mason Valley/Yerington area just north of US 95A.



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



**Figure 2-13. Walker River Transmission Line Route Group**



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

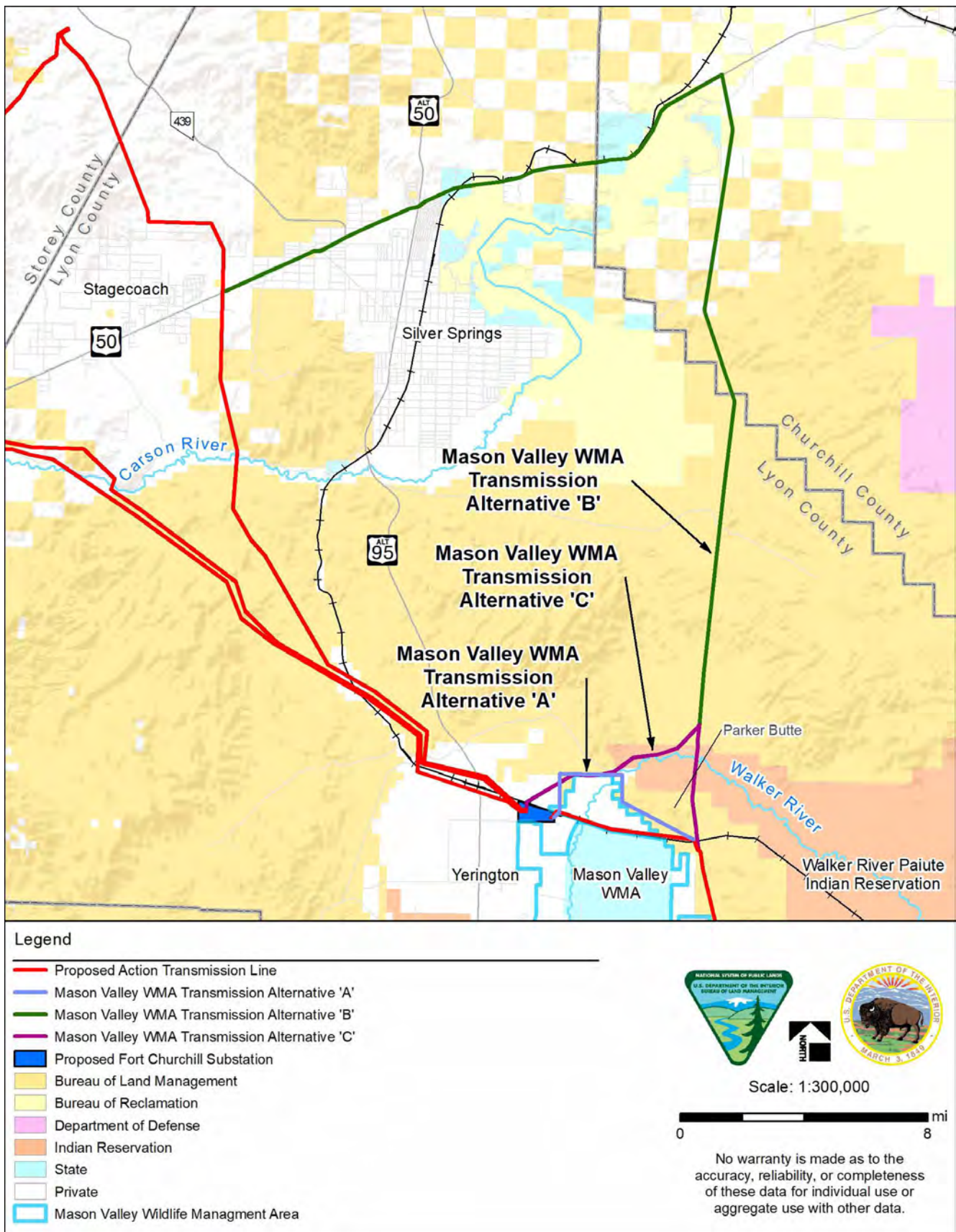
The comparable segment of the Proposed Action for the Mason Valley Wildlife Management Area (WMA) Transmission Line Route Group would cross the Mason Valley WMA just north of the existing railroad line as it enters the Fort Churchill Substation. From the substation, the three 345-kV transmission lines would extend to the northwest to the Mira Loma and Comstock Meadows substations. Four alternatives would avoid crossing the Mason Valley WMA (refer to Figure 2-14), however all the Action Alternative would cross the Walker River. Mason Valley WMA Transmission Alternative A would diverge from the Proposed Action at 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 Transmission Alternative A would span approximately 1,140 feet over the Mason Valley WMA and would require a 200-foot permanent ROW on the WMA.

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 the US 50 before turning west and connecting with the Proposed Action near Stagecoach. This approximately 43-mile-long alternative would require new 345-kV transmission line alignments to connect the new substation 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 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 and entering the Forth Churchill Substation.

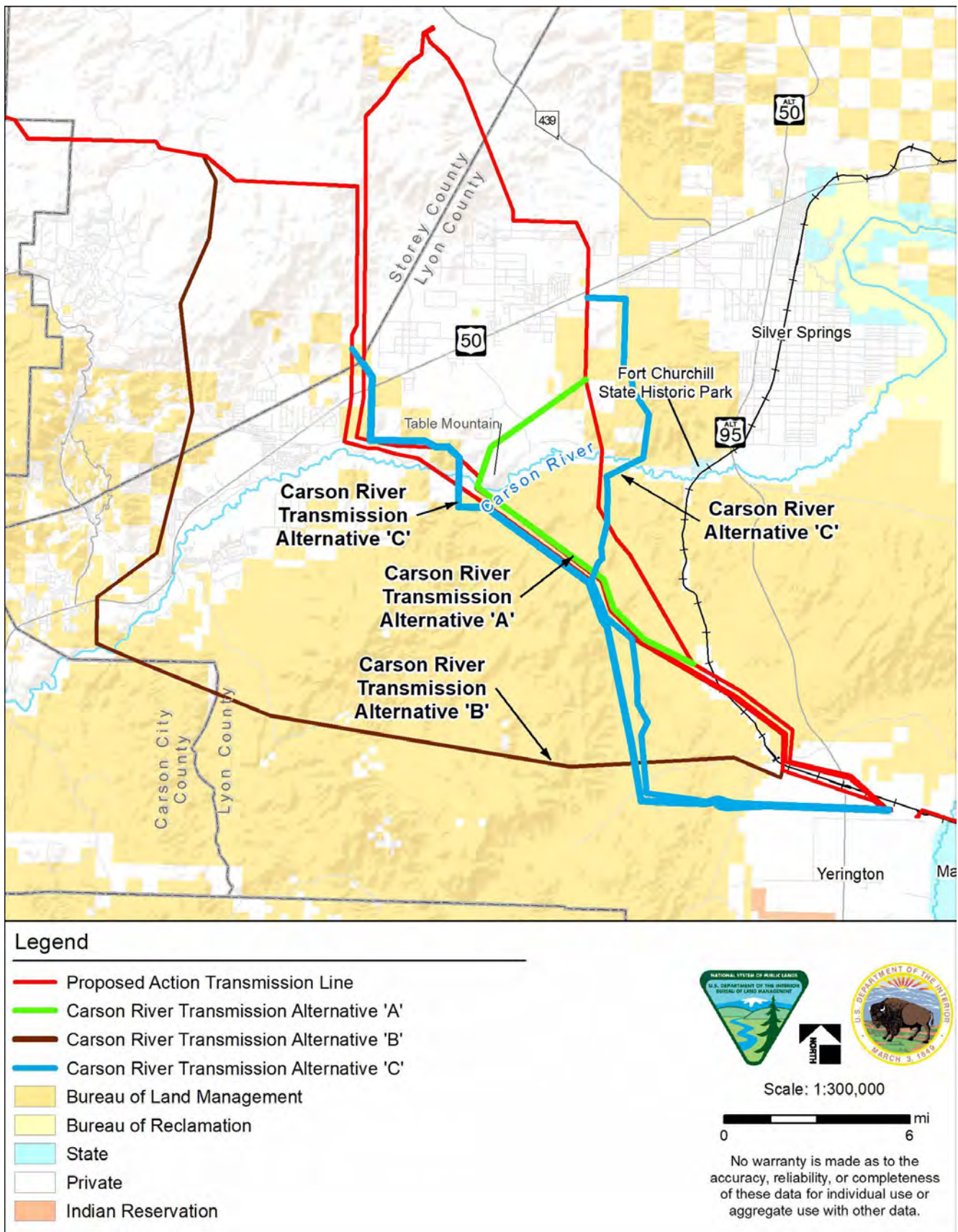
## **2.2.7 Carson River Transmission Line Route Group Alternatives**

The Carson River Transmission Line Route Group includes four alternatives (refer to Figure 2-15). The comparable segment of 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 345-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 Alternative A would keep the three 345-kV transmission lines together after leaving the Fort Churchill Substation until after they would cross the Carson River. After crossing the Carson River, Fort Churchill to Comstock Meadows #2 transmission line would turn east around Table Mountain and run approximately five miles before rejoining the Proposed Action.

Carson River Alternative B was developed as modifications to the Carson River Transmission Line Route Group during the public scoping period and recommended for evaluation. The three 345-kV transmission lines associated with Carson River Transmission Alternative B would go west from the Fort Churchill Substation through the Pine Nut Mountains for approximately 22.8 miles before crossing the Carson River. After crossing the river, the transmission alternative would turn north for approximately 17.5 miles, passing through the community of Dayton and continuing between the Flower and Virginia ranges before re-connecting to the Proposed Action approximately 8.0 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 would need to connect to the Comstock Meadows Substation.



**Figure 2-14. Mason Valley WMA Transmission Line Route Group**



**Figure 2-15. Carson River Transmission Line Route Group**

The three 345-kV transmission lines associated with Carson River Transmission Alternative C would leave the Fort Churchill Substation and go directly west for approximately 7.9 miles before turning north. The 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 Carson River. 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.

Carson River Transmission Alternative A is an alternative for the 345-kV Fort Churchill to Comstock Meadows #2 transmission line only and not for all three Proposed Action 345-kV lines. Carson River Transmission Alternative C is an alternative for all three Proposed Action 345-kV lines. In each of the resource/use sections in Chapter 3, the Carson River Transmission Alternative A is compared against the applicable segment of the Proposed Action for the 345-kV Fort Churchill to Comstock Meadows #2 only, while Carson River Transmission Alternative C is compared against the segment of the Proposed Action for all three 345-kV lines. Carson River Transmission Alternative A cannot be compared to Carson River Transmission Alternative C.

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

Fort Churchill to Harry Allen 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 and would consist of all overhead transmission lines. The Fort Churchill to Harry Allen Transmission Alternative A would generally follow the same alignment as the Proposed Action and would underground the 525-kV line for the approximately 360 miles between the two substations. This alternative would require the construction of three underground duct banks, reactor stations every 20 miles, and manholes along the length of the underground line.

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

The Action Alternatives were assessed for their ability to be technically and economically feasible and meet the purpose and need and the Proponent's goals of the Proposed Action. The following alternatives were considered, but eliminated from detailed analysis in this EIS because they would be: ineffective in responding to the purpose and need, technically or economically infeasible, not in conformance with applicable land use plans or basic policy objectives for the management of an area, remote or speculative, substantially similar in design to an alternative analyzed, or substantially similar to alternative(s) analyzed in terms of effects (BLM 2008a).

#### **2.3.1 TUSK Transmission Alternative A**

The TUSK Transmission Alternative A would be substantially similar in design and effects as compared to the Proposed Action, but the effects of the TUSK Transmission Alternative A would likely be greater than those associated with the Proposed Action. The TUSK Transmission Alternative A and the Proposed Action would consist of the same type and number of structures (11 steel monopoles) (refer to Figure 2-6), and it would have the same level of visual effect to the existing landscape character within the TUSK and to the views of the casual observer as a whole. In terms of effects, this alternative would extend approximately 155 feet within the TUSK boundary, 50 feet further north than the Proposed Action, and would result in more ground disturbance to NPS lands. With greater ground disturbance, there is the potential for greater impacts to TUSK's paleontological and biological resources. The BLM considered but eliminated the TUSK

Transmission Alternative A from detailed analysis because it would have substantially similar or greater effects than the Proposed Action.

### **2.3.2 TUSK Initial Proposed Action Transmission Alternative<sup>4</sup>**

The TUSK Initial Proposed Action Transmission Alternative ROW would be located approximately 200 feet within the TUSK boundary, 95 feet further north than the Proposed Action (refer to Figure 2-6). This alternative would result in more ground disturbance to NPS lands, and potentially greater impacts to TUSK's paleontological and biological resources than the Proposed Action. Within the viewshed of the Durango/Moccasin viewpoint, this alternative would have a greater level of visual effect on the view as a whole because it would be located further within the TUSK than the Proposed Action. At this location, it would have the potential to be seen in the view or photos from the future TUSK sign. The BLM considered but eliminated the TUSK Initial Proposed Action Transmission Alternative from detailed analysis because it would have substantially similar or greater effects than the Proposed Action.

### **2.3.3 TUSK Transmission Alternative D – Double Circuit Lenzie Northwest/Harry Allen Northwest 525-kV Line**

Double-circuit extra-high voltage (EHV) 525-kV overhead transmission lines are uncommon in the United States. They would be more expensive, have a higher visual impact, degrade electric system reliability, and would be less safe for the workers than the Proposed Action. The cost of a double-circuit EHV overhead transmission line is 80 to 100 percent more than single circuit (NV Energy 2022). The Proponent estimates the cost of a 1.5-mile single-circuit EHV overhead transmission line is approximately \$2.7 million while the cost of a double circuit EHV overhead transmission line is approximately \$4.9 to \$5.4 million.

Placing the GLWP 525-kV on a double-circuit structure would defeat the purpose of a redundant path. In addition, the electric field of one EHV line on a double circuit structure would induce a voltage on the parallel line. The induced voltage would require an outage on both EHV circuits to ensure the safety of personnel performing maintenance or emergency repairs. The double-circuit structure would be less reliable than a single-circuit structure because both circuits would need to be out of service simultaneously for any maintenance or emergency repairs. Personnel performing maintenance or emergency repairs would need to take additional precautions by shutting down both circuits to ensure safe maintenance and repairs. In addition, the double-circuit structure would be approximately 190 feet tall, 40 feet taller than the existing structure. These substantially taller structures would have a greater level of visual effect on the view as a whole from within the TUSK because it would attract attention more so than the Proposed Action.

The BLM considered but eliminated the TUSK Transmission Alternative D Double-Circuit Lenzie-Northwest/Harry Allen-Northwest 525-kV Line (refer to Figure 2-8) from detailed analysis because it would be ineffective in meeting the purpose and need for the proposed action by not improving electric reliability. Further, it would be economically infeasible, nearly doubling the projected costs for construction of this segment, as compared to the Proposed Action, while at the same time increasing visual impacts.

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<sup>4</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 because it would have less of a footprint within the TUSK.

### **2.3.4 TUSK Transmission Alternative E – Electric Utility Corridor as Stated in the TUSK Legislative Language**

The June 2019 TUSK Foundation Document’s Special Mandates for “management of the park” established in the enabling legislation that “upon a complete application from a qualified electric utility, a 400-foot-wide ROW will be issued to a qualified electric utility for the construction and maintenance of high-voltage transmission facilities” (NPS 2019a). However, the cited North Las Vegas Valley Overview map referenced in the TUSK enabling legislation shows the 400-foot-wide electric utility corridor south of the TUSK boundary along Moccasin Road, which would impact a residential subdivision built in 2006. If the electric utility corridor were to be used, residences would need to be removed to construct any transmission facility. To resolve this apparent conflict with the location of the electric utility corridor, Congress would need to enact further legislation, which could potentially take several years to resolve. To meet federal and state mandates and the electrical power needs of Nevada in a timely manner, the TUSK Transmission Alternative E was eliminated from further consideration.

### **2.3.5 TUSK Transmission Alternative F – Clark County Route 215 (“Beltway”)**

While construction of transmission lines within a highway corridor is common, construction of 525-kV overhead transmission lines through urban environments is extremely uncommon due to visual impacts, cost, maintenance requirements and associated public disruptions (refer to Figure 2-9). The height of 525-kV transmission line structures along the Beltway would be well above 200 feet, which is 50 percent (70 feet) taller than the Proposed Action’s 150-foot overhead transmission line. The additional structure height would be needed to facilitate clearance above bridges, streetlights, and traffic signals and to limit induced currents on large vehicles and equipment. The TUSK Transmission Alternative F would be approximately two miles longer than the comparable segment of the Proposed Action. The cost of an EHV overhead transmission line along the Beltway is estimated to be 80 to 100 percent more than the Proposed Action due to its longer length and increased height. A 525-kV overhead transmission line along the Beltway would also be much more difficult to maintain. Helicopters would be needed to inspect, maintain, and repair structures along the Beltway, which would be disruptive and hazardous to vehicles travelling along the Beltway. The BLM considered but eliminated the TUSK Transmission Alternative F – Clark County Route 21 from detailed analysis because it would be economically infeasible—nearly doubling the projected costs of this segment—and maintenance on the transmission line would be more difficult as well as disruptive and hazardous to the public compared to the Proposed Action.

### **2.3.6 TUSK Transmission Alternative G – South of Las Vegas Corridor**

A route originating from the Fort Churchill Substation to the Harry Allen Substation using the TUSK Transmission Alternative G alignment would be approximately 417 miles in total length (refer to Figure 2-10). This alternative would be approximately 42 miles longer than the Proposed Action route from the Fort Churchill Substation to the Harry Allen Substation and would cost more than an estimated \$70 million in additional capital to construct. The TUSK Transmission Alternative G would potentially have greater environmental impacts compared to the Proposed Action because of its additional length including crossing through the Rainbow Gardens, River Mountains, and Ivanpah ACECs and by creating more disturbance and fragmentation of Mojave desert tortoise (*Gopherus agassizii*) recovery areas and habitat. The BLM considered but eliminated the TUSK Transmission Alternative G from detailed analysis because it would have substantially similar or greater effects than the Proposed Action.

### **2.3.7 Beatty Transmission Alternative B**

Approximately 70 percent of Beatty Transmission Alternative B would be the same alignment as the Beatty Transmission Alternative A, and more ROW would be needed across private lands than would be required for Beatty Transmission Alternative A (refer to Figure 2-16). The BLM considered but eliminated the Beatty Transmission Alternative B from detailed analysis because it would have substantially similar or greater effects than the Proposed Action and Beatty Transmission Alternative A, crossing through similar terrain, habitat, and landscape character.

### **2.3.8 Beatty Transmission Alternative D**

The Beatty Transmission Alternative D would be in the viewshed of the Death Valley National Park and immediately adjacent to the community of Beatty and the Beatty Airport. This alternative would cross through similar terrain, habitat, landscape character, and scenic quality as the Proposed Action but would have additional visual impacts on the viewshed of Death Valley National Park and would create potential conflicts with the operation of the airport (refer to Figure 2-16). The Proposed Action would not be visually discernible from Death Valley National Park. The BLM considered but eliminated the Beatty Transmission Alternative D from detailed analysis because it would have substantially similar or greater effects to the Death Valley National Park and to the community of Beatty than the Proposed Action as well as crossing through similar terrain, habitat, and landscape character.

### **2.3.9 Beatty Transmission Alternative E**

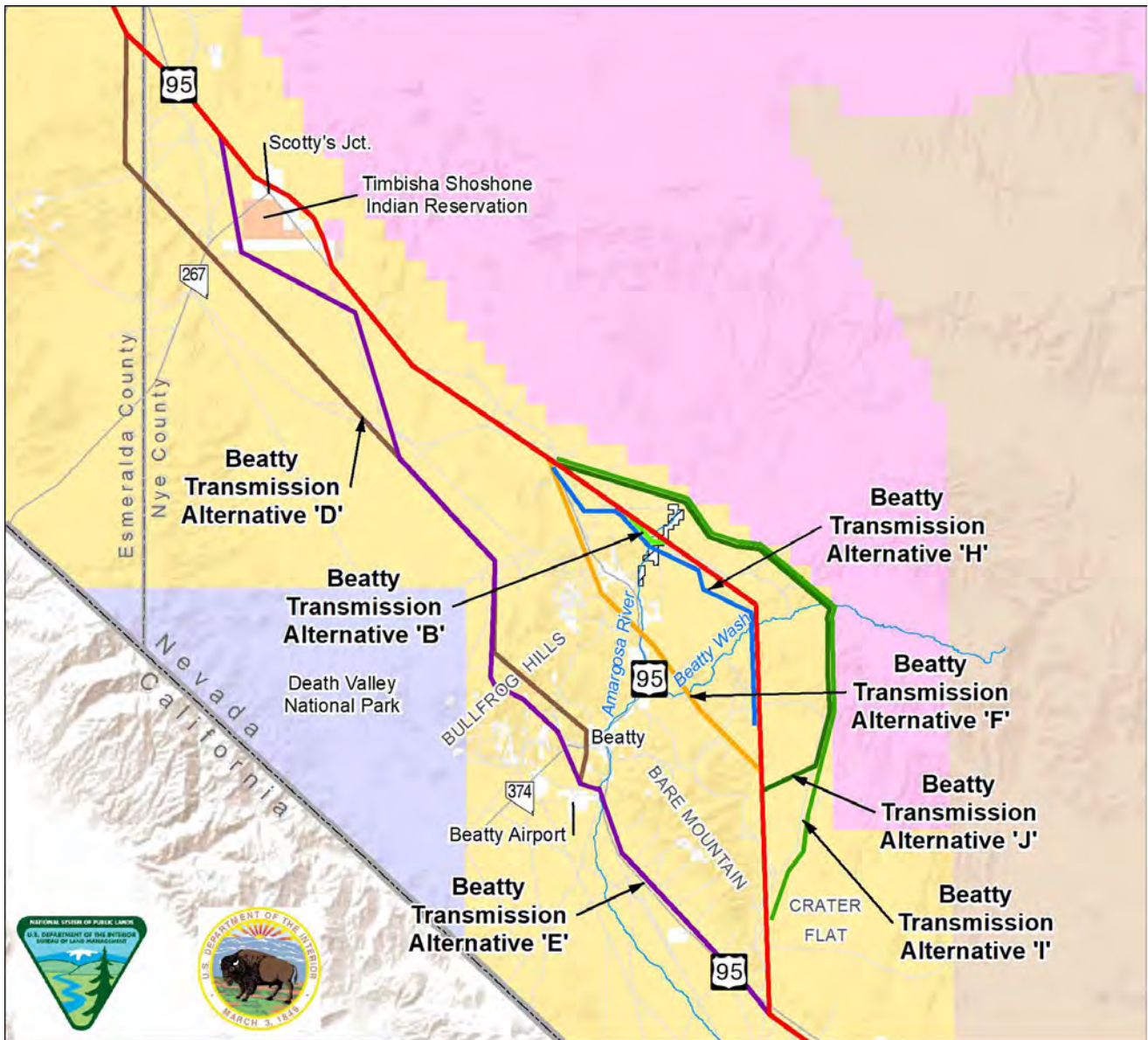
Similar to Beatty Transmission Alternative D, the Beatty Transmission Alternative E would have visual impacts on the viewshed of Death Valley National Park and immediately adjacent to the community of Beatty and the Beatty Airport, which would create potential conflicts with the airport's operations (refer to Figure 2-16). The BLM considered but eliminated the Beatty Transmission Alternative E from detailed analysis because it would have substantially similar or greater effects to views from Death Valley National Park and to the community of Beatty than the Proposed Action as well as crossing through similar terrain, habitat, and landscape character.

### **2.3.10 Beatty Transmission Alternative F**

Beatty Transmission Alternative F would be comparable in length to the Proposed Action and would cross through similar terrain, habitat, and landscape character. The Beatty Transmission Alternative F alignment would be closer to more private property as compared to the Proposed Action (refer to Figure 2-16). The BLM considered but eliminated the Beatty Transmission Alternative F from detailed analysis because it would have substantially similar or greater effects as compared to the Proposed Action.

### **2.3.11 Beatty Transmission Alternative H**

Beatty Transmission Alternative H would be comparable in length to the Proposed Action with similar acres of ground disturbance. Both alternatives would cross through similar terrain, habitat, and landscape character. Beatty Transmission Alternative K would cross through less (approximately 5.5 miles) of the military restricted airspace than Beatty Transmission Alternative H. The BLM considered but eliminated the Beatty Transmission Alternative H from detailed analysis because it would have substantially similar or greater effects than the Proposed Action and the Beatty Transmission Alternative K.



**Legend**

- |  |   |  |   |
|--|---|--|---|
|  | Proposed Action Transmission Line   |  | The Nature Conservancy<br>7J Ranch Property (Privately Owned) |
|  | Beatty Transmission Alternative 'B'<br>Considered But Not Carried Forward |  | Bureau of Land Management                                     |
|  | Beatty Transmission Alternative 'D'<br>Considered But Not Carried Forward |  | Department of Energy  |
|  | Beatty Transmission Alternative 'E'<br>Considered But Not Carried Forward |  | Department of Defense   |
|  | Beatty Transmission Alternative 'F'<br>Considered But Not Carried Forward |  | Indian Reservation  |
|  | Beatty Transmission Alternative 'H'<br>Considered But Not Carried Forward |  | National Park Service   |
|  | Beatty Transmission Alternative 'I'<br>Considered But Not Carried Forward |  | Private   |
|  | Beatty Transmission Alternative 'J'<br>Considered But Not Carried Forward |  |   |



Scale: 1:550,000



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

**Figure 2-16. Beatty Transmission Line Route Alternatives Considered but Eliminated from Detailed Analysis**



### **2.3.12 Walker River Transmission Alternative A**

The Walker Lake Transmission Alternative A would be approximately 34 miles longer than the Proposed Action and would create 40 percent more ground disturbance than the Proposed Action, much of which would be in more mountainous terrain (refer to Figure 2-13). Constructing the 525-kV transmission line in steeper terrain would cause greater impacts to the existing landscape character and reduce scenic quality not only on BLM-administered lands but also within the Toiyabe National Forest. The Walker Lake Transmission Alternative A would also cross 77 percent more Bi-State sage-grouse (*Centrocercus urophasianus*) Priority Area for Conservation (PAC) area than the Proposed Action (refer to Figure 3-1 through Figure 3-3). The BLM considered but eliminated the Walker River Transmission Alternative A from detailed analysis because it would have substantially greater effects than the Proposed Action from the increased amount of temporary and permanent ground disturbance relative to the Proposed Action.

### **2.3.13 Mason Valley WMA Transmission Alternative B**

The Mason Valley WMA Transmission Alternative B would not cross the Mason Valley WMA but would pass through into the Walker River Indian Reservation (refer to Figure 2-14). This alternative would not connect to the Fort Churchill Substation and would require a different network of 345-kV lines to connect to the Mira Loma and Comstock Meadows substations and a new substation to step the 525-kV voltage down to 345-kV. The Mason Valley WMA Transmission Alternative B would also cross through the Lahontan State Recreation Area. This alternative would result in greater cost associated with the construction of an additional approximately 38 miles of 525-kV transmission line compared to the Proposed Action. Because this alternative would be longer than the Proposed Action, it would create substantially more ground disturbance than the Proposed Action with the potential for greater cultural, biological, and visual impacts. The BLM considered but eliminated the Mason Valley WMA Transmission Alternative B from detailed analysis because it would be substantially less technically and economically feasible and potentially have more environmental impacts caused by greater temporary and permanent ground disturbance footprint than the Proposed Action.

### **2.3.14 Mason Valley WMA Transmission Alternative C**

The Mason Valley WMA Transmission Alternative C would not cross the Mason Valley WMA but would pass through the Walker River Indian Reservation in two separate locations (refer to Figure 2-14). The transmission line's alignment would not be constructable because of the sharp change in direction that would be needed to connect to the Fort Churchill Substation. The BLM considered but eliminated the Mason Valley WMA Transmission Alternative B from detailed analysis because it would be technically infeasible and would have substantially similar or greater effects than the Proposed Action.

### **2.3.15 Fort Churchill to Harry Allen Transmission Alternative A**

While visual impacts of an underground transmission can be less than overhead depending on the existing landscape character and scenic quality, the cost is 10- to 15-times more (Xcel Energy 2014). The Proponent estimates that the cost of one mile of overhead transmission line is approximately \$1.8 million while the cost of an underground transmission line is approximately \$18 to \$27 million. There would also be an additional cost of \$6 to \$8 million for reactor stations spaced approximately every 20 miles along the transmission line corridor for a total cost of \$372 to \$556 million for a 20-mile section. This correlates to a total estimated underground cost per mile of \$18.6 to \$27.8 million for the Fort Churchill to Harry Allen Transmission Alternative A. Previously, the PUCN has assigned incremental costs of undergrounding

transmission lines to rate payers of local government entities that imposed undergrounding as a condition of a permit (Public Utilities Commission of Nevada (PUCN) 2008).

The physical impact of an underground transmission line is two- to five-times more than an overhead transmission line. The temporary disturbance to construct the Proposed Action's 350-mile overhead transmission line is approximately 3,409 acres, while the temporary disturbance for an underground line is approximately 7,746 acres. This is due to constructing an underground duct bank the entire length of the ROW and reactor stations at 20-mile intervals. The permanent disturbance to construct the 350-mile overhead transmission line for the Proposed Action would be approximately 2,453 acres, while the permanent disturbance for the Fort Churchill to Harry Allen Transmission Alternative A would be approximately 7,746 acres. Overhead transmission lines can span cultural, paleontological, and sensitive wildlife habitat such as riparian areas and wetlands as well as mining operations and access. Fort Churchill to Harry Allen Transmission Alternative A would have the potential for greater impacts to both surface and subsurface resources as compared to the Proposed Action.

Underground transmission lines are susceptible to reduced reliability and extensive repair durations. The increased number and sensitivity of technically sophisticated components increases the risk of failure and degrades electric system reliability. The typical time needed to repair a failed component is lengthy. Repairs require additional effort to locate, excavate, and repair and may take a few weeks to several months as illustrated by a five-week-long power outage affecting Auckland, New Zealand (Ministry of Commerce of New Zealand 1998). Average repair time for a single downed overhead transmission line can be one day.

The BLM considered but eliminated the Fort Churchill to Harry Allen Transmission Alternative A from detailed analysis because it would be technically and economically infeasible, would potentially have more environmental impacts because of its greater temporary and permanent ground disturbance than the Proposed Action, and would not achieve the Proponent's goals of improving electric system reliability .

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

### **2.4.1 Beatty Transmission Alternatives I and J**

During the public scoping period, modifications to Beatty Transmission Alternative C and the Proposed Action were recommended for evaluation that would avoid, to the extent possible, existing mining claims. Beatty Transmission Alternatives I and J were identified to the east of the Proposed Action, closer to the NTTR (refer to Figure 2-16).

The BLM may permit the multiple use of the surface estate of the post-1955 claim areas so long as those uses do not materially interfere with prospecting or mining operations. Appropriate siting and avoiding mineral-producing sites should reduce impacts associated with access to and extraction of mineral resources. The Proponent would be required to coordinate with claim holders to minimize impacts to the claimant's valid existing rights. Beatty Transmission Alternative C and the Proposed Action are not anticipated to materially interfere with prospecting or mining operations because the GLWP is not expected to preclude or restrict access to mineral resources or prevent the development of mineral resources during O&M. The linear nature of the GLWP and the flexibility in the siting of structures would minimize any potential restriction of access or develop mineral resources.

Similar to Beatty Transmission Alternative C, Beatty Transmission Alternatives I and J would substantially impact military flying and training operations in Range 77A restricted airspace and military training

operations in the planned legislative lands withdrawal. Beatty Transmission Alternatives I and J and the comparable segment of the Proposed Action would conflict with military training routes (MTRs) and airspace restrictions that include both visual and instrument routes for the NTTR. Beatty Transmission Alternatives I and J would cross through similar areas of the landscape—the Yucca Mountains foothills and across the Crater Flat and Oasis valleys—which would result in similar visual resource impacts and changes to the landscape character and scenic quality as the Proposed Action and Beatty Transmission Alternative C. The Beatty Transmission Alternatives I and J would both be located with the Eastern Mojave Recovery Unit of the Mojave desert tortoise.

The BLM considered but eliminated Beatty Transmission Alternatives I and J from detailed analysis because they would have substantially similar or greater effects than the Proposed Action and Beatty Transmission Alternative C, crossing through similar terrain, habitat, landscape character, and scenic quality values.

#### **2.4.2 Goldfield-Tonopah Transmission Alternative A**

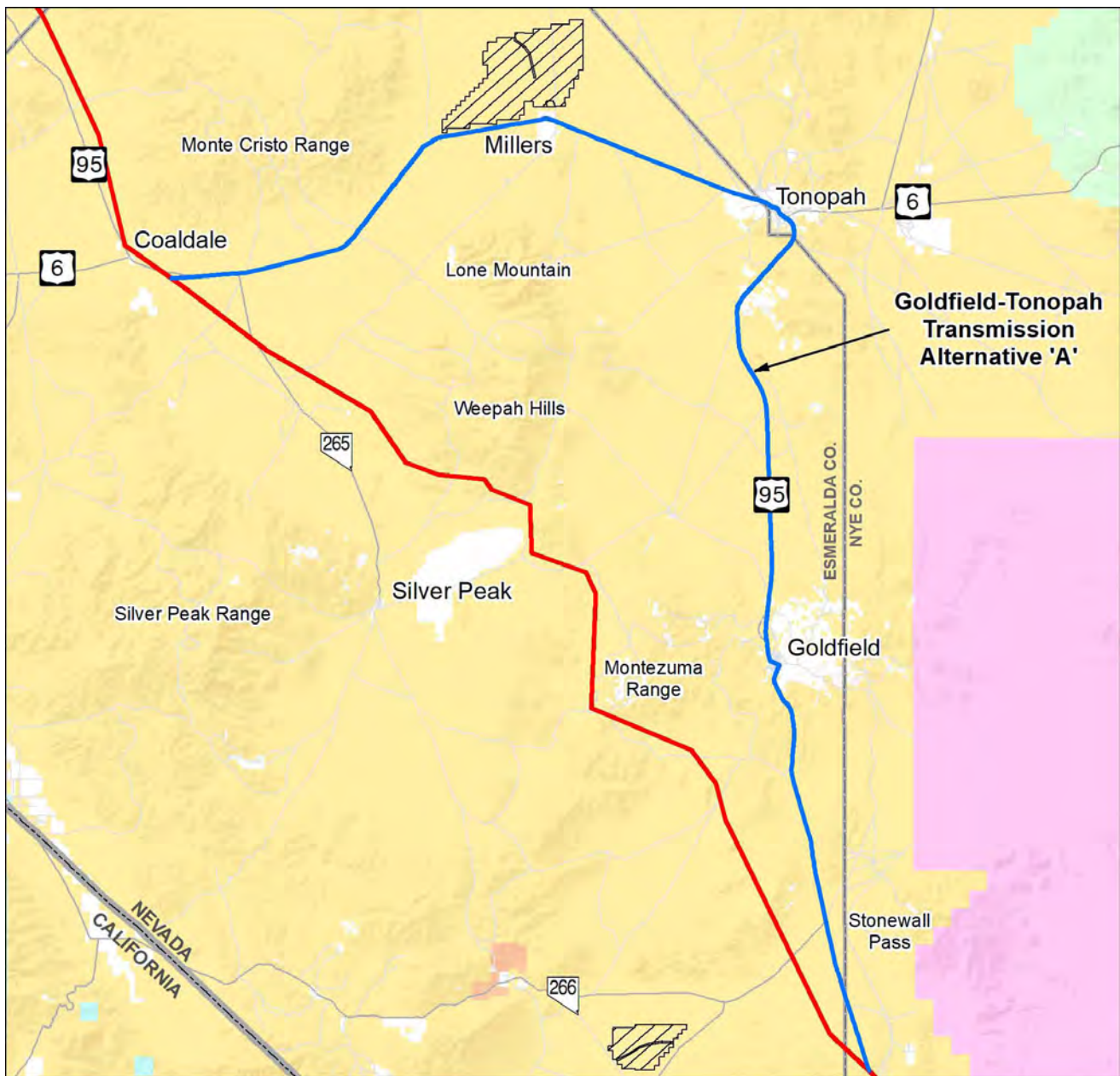
During the public scoping period, several comments were received that suggested an alternative for the GLWP alignment that would follow a recommended revision to a designated Section 368 corridor (WWEC 18-224) and keep the GLWP within the US 95 corridor (BLM, USFS, and DOE 2022). In April 2022, the BLM issued a final report outlining potential recommendations to WWEC designated in 2009 (BLM, USFS, and DOE 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 to Tonopah and then turning west along US 95/US 6 back to Coaldale. The rationale for this recommended shift of WWEC 18-224 was to collocate with existing infrastructure and provide access to the Millers SEZ. The final report, which was not a NEPA analysis, did not analyze potential environmental or social impacts, nor did it consider the economic feasibility of the proposal, but did acknowledge the GLWP.

The Goldfield-Tonopah Transmission Alternative A would follow US 95 starting approximately at mile marker (MM) 103-NY near Stonewall Pass, continue adjacent to the highway past the communities of Goldfield and Tonopah, and turn west along US 95/US 6 where it would join the Proposed Action near MM 21-ES, just east of Coaldale (refer to Figure 2-17). This alternative would run adjacent to Millers SEZ near MM 44-ES. The Goldfield-Tonopah Transmission Alternative A would be approximately 88.3 miles—24 miles longer than the Proposed Action and would result in approximately 27 percent more disturbance area. This additional length would result in cost increases of approximately \$35.2 million, which reflect the additional material and time necessary to construct the added miles of transmission line. The Goldfield-Tonopah Transmission Alternative would be collocated for 0.2 miles with existing transmission lines.

The Goldfield-Tonopah Transmission Alternative A would have substantially less impacts to the Mojave desert tortoise Eastern Mohave Recovery Unit, cliff/canyon habitat, Lands with Wilderness Characteristic (LWC) inventoried units, and VRM Class III<sup>5</sup> designated landscapes, as compared to the Proposed Action. Based on a review of preliminary environmental impacts, the Goldfield-Tonopah Transmission Alternative A would have substantially greater impacts to unpatented mining claims, designated historic districts, and social and economic considerations than the Proposed Action. There are seven locations with authorized mining plans of operations (MPOs) that would be potentially impacted by the Goldfield-Tonopah Transmission Alternative A as compared to the Proposed Action, which would not cross any authorized MPOs. The claimants of these MPOs have asserted a right of possession and the right to develop and extract a discovered, valuable, mineral deposit. Under the law applicable to post-1955 claims such as these

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<sup>5</sup> Refer to Section 3.15 Visual Resources Table 3-100 for VRM Class objectives definitions.



**Legend**

- Proposed Action Transmission Line
- Goldfield-Tonopah Transmission Alternative 'A'
- Solar Energy Zone (SEZ)
- Bureau of Land Management
- Department of Defense
- US Forest Service
- Indian Reservation
- Private
- State



Scale: 1:600,000



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. Goldfield-Tonopah Transmission Line Route Alternatives Considered but Eliminated from Detailed Analysis**

seven claims, the BLM is not allowed to permit multiple uses of the surface that would materially interfere with prospecting or mining operations. The construction, O&M, and decommissioning of the Goldfield-Tonopah Transmission Alternative A may materially interfere with the MPOs.

The Goldfield-Tonopah Transmission Alternative A would intersect the historic mining towns of Goldfield and Tonopah. The Goldfield Historic District is listed on the National and State Registers of Historic Places under Criteria A, B, C, and D; and comprises the central downtown portion of the town. When nominated in 1982, it contained at least 42 significant buildings and structures and 68 contributing resources, many of which are individually eligible for listing on the National Register. The National Register-eligible Goldfield Mining District surrounds the Goldfield Historic District. This encompasses an approximately 20 by 10-mile area of mines, adits, shafts, prospects, and other mining-related resources; it is recommended eligible under Criteria A, B, C, and D. In Tonopah, the Goldfield-Tonopah Transmission Alternative A would intersect the Tonopah Multiple Resource Area and come within 0.5 miles of many of its contributing resources. This area is listed on the National and State Registers of Historic Places under Criteria A, B, C, and D.

In addition, there are 45 individually listed historic properties within the Tonopah Multiple Resource Area as well as other contributing resources. Although no formal archaeological district surrounding Tonopah has been established like that surrounding Goldfield, there is a historic mining district encompassing an approximately 10 by 5-mile area, comprised of 46 mines. This area would also likely be eligible for the National Register under Criteria A, B, C, and D. The Goldfield Historic District and Tonopah Multiple Resource Area are listed on the National Register for their archaeological and architectural significance and their direct association with persons and events proven significant to local, regional, and national history. The addition of a transmission line could alter the visible horizon and landscape surrounding these resources, which would modify the historic setting and undermining the resources' abilities to convey significance under Criterion A. The Goldfield-Tonopah Transmission Alternative A therefore has potential to create visual impacts, which could result in adverse effects to resources eligible for and listed on the National Register.

The Goldfield-Tonopah Transmission Alternative A would also require easements through private lands in the communities of Tonopah and Goldfield. Approximately 4.5 miles of Tonopah and 1.6 miles of Goldfield, through the core of the communities, would be disturbed, potentially affecting 611.9 acres of private lands. The exact number of private parcels that would be impacted would not be known until detailed design is done. For this analysis based on a clearance estimate<sup>6</sup> of 100 feet, approximately 70 to 82 parcels in Goldfield would be affected depending on which side of US 95 the transmission line would be constructed. In Tonopah, approximately 81 to 84 parcels in Tonopah would require financial compensation for an easement to the respective private landowners. These parcels include businesses and residences because US 95 goes through the downtown areas of both communities. The disruption that would be created in both communities during the construction and decommissioning activities would be substantial and result in loss of short- and long-term revenue essential to the respective town's tourism-based economy. The visual impact of the Goldfield-Tonopah Transmission Alternative A to these two downtowns would also be substantial due to the addition of the EHV transmission line structures that would attract attention and introduce discordant elements not currently found in these historic mining towns. Increased structure height may be needed to facilitate clearance above streetlights and traffic signals and to limit

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<sup>6</sup> Clearance estimate is based on using a steel monopole structures along US 95 within the communities on private lands. The 100-foot clearance estimate is based on the monopoles being located 20 feet from the edge of pavement, a 20-foot cross arm, and a 60-foot horizontal clearance area.

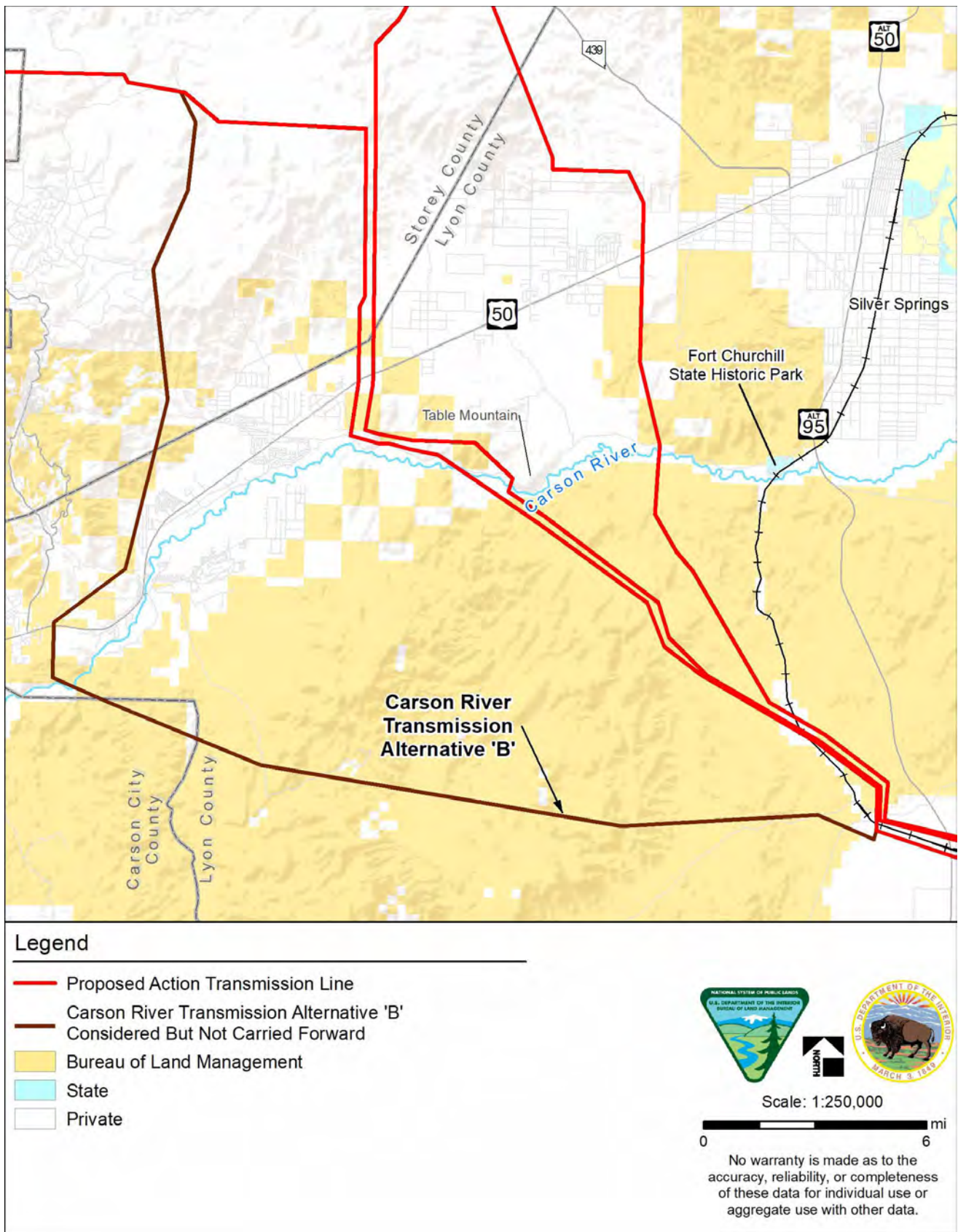
induced currents on large vehicles. During routine maintenance activities, a 525-kV overhead transmission line along US 95 in the two downtowns would be disruptive and hazardous to vehicles travelling along the highway.

If the Goldfield-Tonopah Transmission Alternative A is approved and constructed, this alternative has the potential to become the new designated route for WVEC 18-224, creating a preferred route for future utility and energy transport. Revising WVEC 18-224 to shift it from its current location to track the Goldfield-Tonopah Transmission Alternative A would require the BLM to go through a comprehensive land use planning process. The designation of the WVEC 18-224 along this portion of US 95/US 6 would promote the link to the Millers SEZ because of its adjacency to the corridor. The Millers SEZ is currently unused, and the BLM has not received any interest in its use for solar development. However, the proposed new Esmeralda Substation would be sufficiently close to the Millers SEZ via a gen-tie line to facilitate its connection. Designating the Goldfield-Tonopah Transmission Alternative A as the WVEC 18-224 would place the corridor in closer proximity to the communities of Tonopah and Goldfield. This would create additional impacts to Tonopah and Goldfield as well as potentially interfere with authorized mining operations present in the corridor.

The Goldfield-Tonopah Transmission Alternative A was eliminated from detailed analysis because it would be inconsistent with the BLM's basic policy objectives for cultural resources in the Approved Tonopah RMP and ROD "to protect archaeological, historical, paleontological, and sociocultural resources and manage for information potential ..., public values ..., and conservation" (BLM 1997). Additionally, this alternative was eliminated from detailed analysis due to the economic infeasibility associated with the \$35.2 million increase in construction costs, as compared to the Proposed Action.

### **2.4.3 Carson River Transmission Alternative B**

During the public scoping period, a comment was submitted requesting an alternative in the Carson River Transmission Route Group area that would follow an alignment that the Proponent considered in their Routing and Constraint Study (NV Energy 2022), referred to as Route Link 310 (refer to Figure 2-18). The Carson River Transmission Alternative B would not achieve the Proponent's goals for the GLWP because it would combine the three 345-kV transmission lines into a single corridor, eliminating the geographic separation, redundancy, and reliability of this portion of the transmission system that the GLWP was designed to improve upon. Additionally, this alternative would cross the planning area for the Land Use Plan Amendment for the Nevada and California Greater Sage-Grouse Bi-State Distinct Population Segment in the CCDO and Tonopah FO (BLM 2016b). The Carson River Transmission Alternative B would not conform with the management objectives for the area, because the 2016 Land Use Plan Amendment does not allow tall structures to be installed within four miles of an active or pending lek and because the planning area is managed as a ROW avoidance area for new high-voltage transmission lines outside of existing corridors (refer to Figure 3-1 through Figure 3-4). The BLM considered but eliminated Carson River Transmission Alternative B from detailed analysis because it would not respond to the purpose and need for the Proposed Action to provide electric system reliability and would be inconsistent with the BLM's basic policy objectives for the management of the Bi-State sage-grouse.



**Figure 2-18. Carson River Transmission Alternative B Considered but Eliminated from Detailed Analysis**

## 2.5 Substation Group Alternatives

Potential substation location alternatives were grouped into smaller geographic areas to allow for localized comparisons among the substation alternatives. The substation alternatives identified by the Cooperating Agencies, the public, the Proponent, and the BLM are focused on two geographic areas (refer to Table 2-5 and Figure 2-19). Figure 2-19 shows the location of each of the substation alternative.

**Table 2-5. Substation Group Alternatives Considered**

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

### 2.5.1 Esmeralda Substation Group Alternatives

The Esmeralda Substation (ES) Group Alternatives consider different locations for an approximately 109-acre substation over a range of approximately 30 miles (refer to Figure 2-19). 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.

### 2.5.2 Amargosa Substation Group Alternatives

The Amargosa Substation (AS) Alternatives consider different locations for an approximately 109-acre substation over a range of approximately 6.7 miles in Nye County (refer to Figure 2-19). 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.

## 2.6 Microwave Facility Alternatives

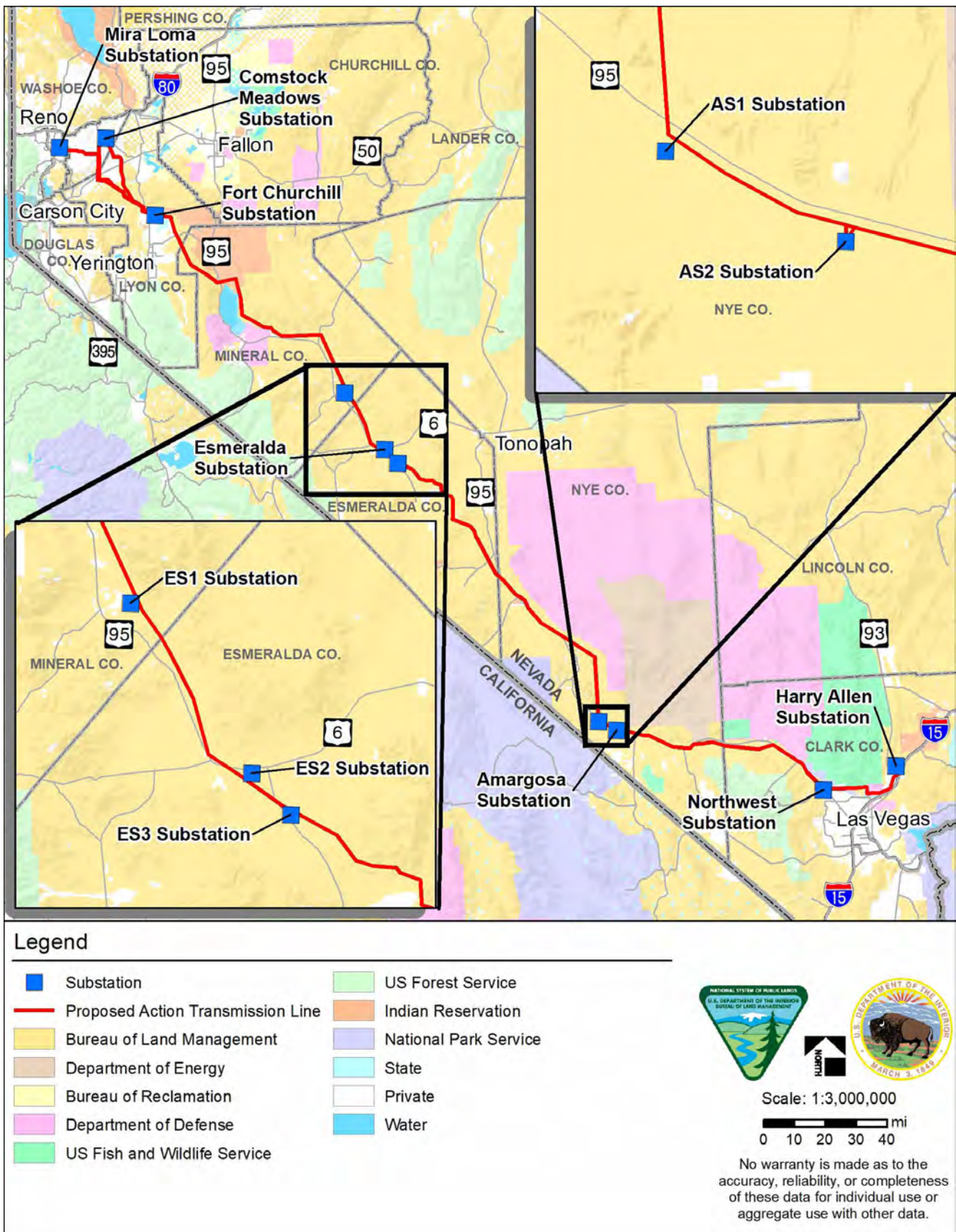
### 2.6.1 Amargosa Microwave Group Alternatives

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. Amargosa Microwave Site Alternative 1 (AM-1) was identified on private lands by the Proponent and would be 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 2-20 shows the location of the Amargosa Microwave alternatives.

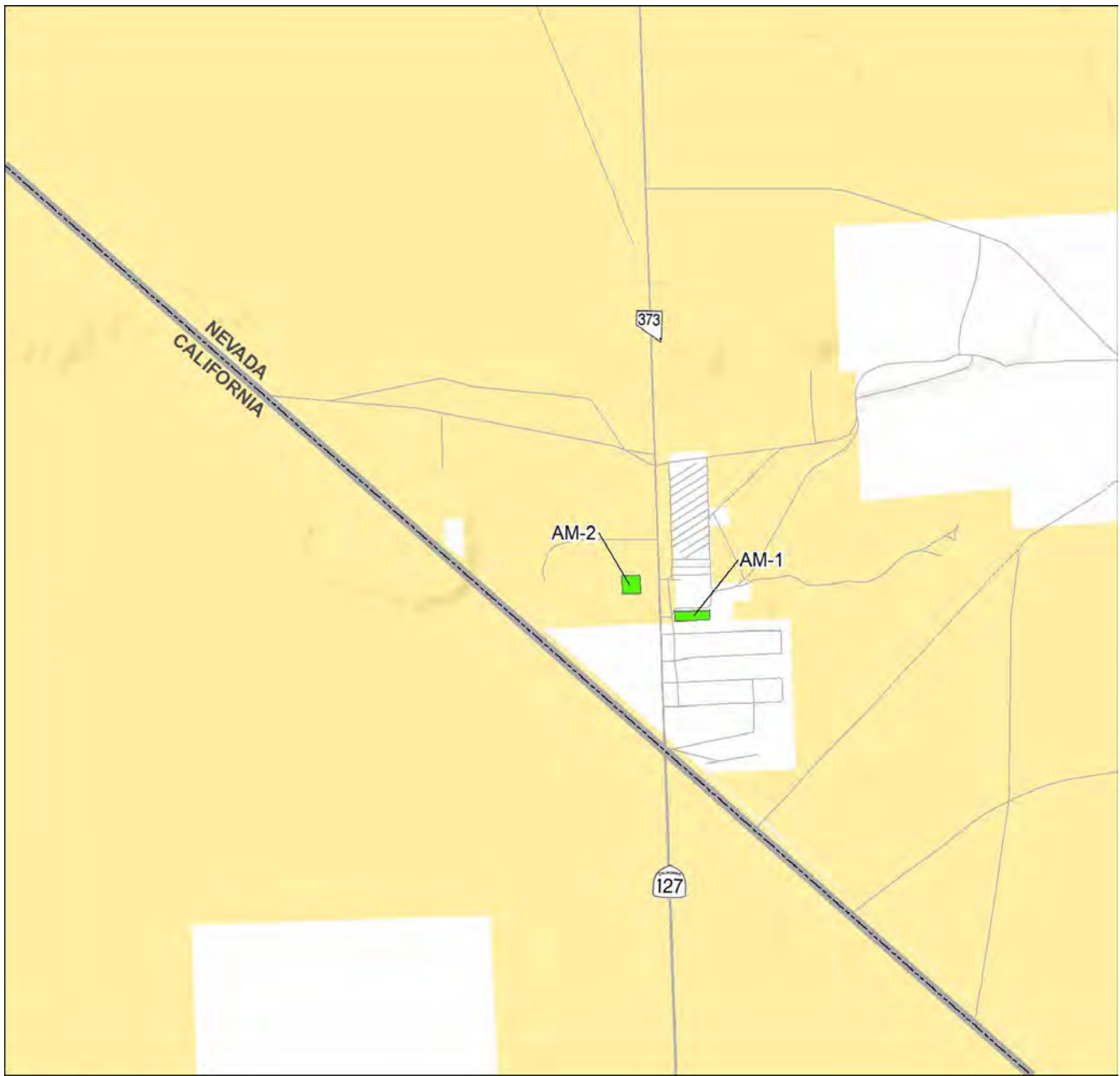
## 2.7 Action Alternatives Carried Forward

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 EIS. All the substation and microwave alternatives are analyzed in detail.





**Figure 2-19. Substation 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 2-20. Amargosa Microwave Alternatives**

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

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

*Table Acronyms:* TUSK–Tule Springs Fossil Beds National Monument; WMA–Mason Valley Wildlife Management Area

## **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 and operation, 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.

## 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 purposes 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 EIS 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 restoration 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 restoration).
- **Long-term:** These are impacts that would be greater than eight years.

For purposes of this analysis, unless otherwise noted the geographic scale of the effects is defined as a five-mile radius from the Proposed Action transmission line centerline. In the EIS, this ten-mile-wide corridor (approximately 4,306 square miles or 2,755,542 acres) is referred to as the “GLWP area.”

The impacts common to all Action Alternatives are normally described in each resource/use section. These effects are not repeated for each Action Alternative, and the differing impacts are instead noted for each Action Alternatives for the given resource/use.

To compare the transmission line Action Alternatives, common start and end points were determined within the same transmission route group with the exception of the Carson River Transmission Line Route Group. Refer to Section 2.2.7 for more detailed information regarding the Carson River transmission alternatives. In the discussion of the Action Alternative impacts within a given transmission 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.

### 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, increase in predator species, habitat fragmentation, and noise?
- What would the impacts to the Mojave desert tortoise be from reasonably foreseeable future actions?
- 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 increased 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 ancillary facilities).

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

<b>Analysis Area Category</b>	<b>Analysis Area Acres</b>	<b>Transmission and Distribution Lines</b>	<b>Access Roads and Ancillary Facilities</b>
Federally listed species wildlife analysis area	803,079	Temporary ROW area plus 0.5 mile buffer	Access road temporary ROW areas plus 0.5-mile buffer Existing access roads with no improvements plus 0.5-mile buffer on the roadway centerline Ancillary facility boundary plus 0.5-mile buffer
Federally listed species plants analysis area	408,212	Temporary ROW area plus 1,640-foot (500-meter) buffer	Access road temporary ROW areas plus 1,640-foot (500 meter) buffer Unpaved access roads with no improvements plus 1,640-foot (500-meter) buffer on the roadway centerline; existing paved access roads with no proposed improvements are excluded. Ancillary facility boundary plus 1,640-foot (500-meter) buffer

#### Methodology

An 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) February 21, 2023, using the Information for Planning and Consultation (IPaC) review tool. A total of 15 species were included on the list (USFS 2023). Information on the 15 species’ habitat associations and their potential to occur within the respective federally listed species analysis areas is provided in Table F-1 in Appendix F. Federally Listed Species Considered. There are no designated critical habitats within the respective federally listed species analysis areas; however, there is proposed critical habitat for the Bi-State sage-grouse within the federally listed species wildlife analysis area.

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 also 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 through this coordination, data review, and targeted surveys that six federally listed wildlife species have the potential to occur within the federally listed species wildlife analysis area; these six species are listed in Table 3-2. In addition to the EIS, these six species are described in detail in the GLWP Draft Biological Assessment (BA) (BLM 2022c) to support Endangered Species Act (ESA) Section 7 Consultation.

<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 the same geographic scale as the action area in the Biological Assessment.

**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
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
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>	LE 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 Acronyms:* CH – Critical Habitat; LE – Listed Endangered; LT – Listed Threatened; PLT – Proposed Listed Threatened; PCH – Proposed Critical Habitat

There is no suitable habitat present in the respective federally listed species analysis areas or the respective analysis areas are outside of the current range for the remaining nine 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.

### 3.1.3 Affected Environment

This section provides a description of the affected environment for each of the six species with the potential to occur within the federally listed species wildlife analysis area. A more detailed description of the species and their habitat requirements are provided in the GLWP BA (BLM 2023).

#### 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 of 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 2016c), 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 and increasing species, infrastructure, and mineral development (USFWS 2020d).

#### 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 Environmental Impact Statement (Final EIS) and ROD (BLM 2016c). 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 presents information on Bi-State sage-grouse habitat only and

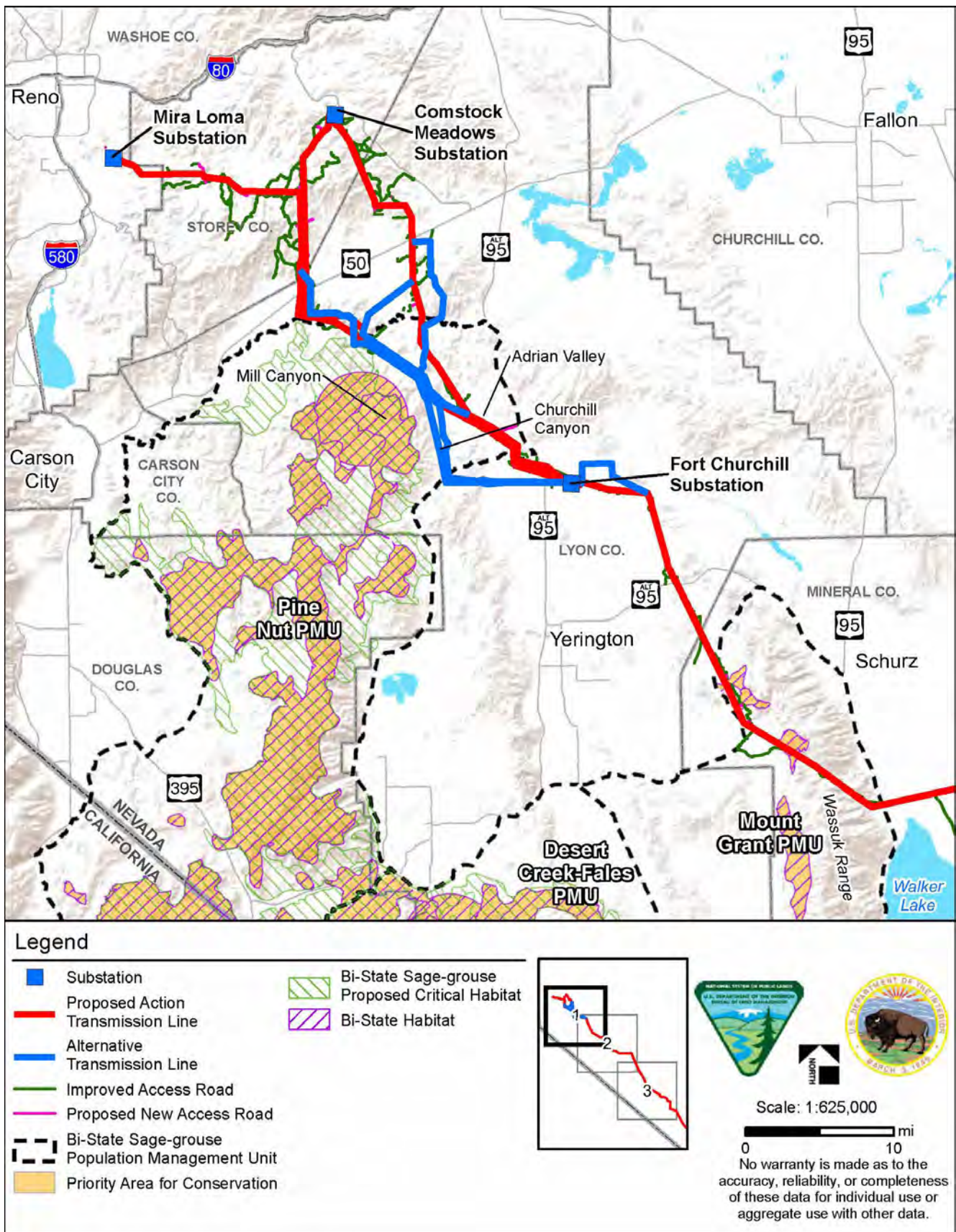
assumes that all areas of Bi-State sage-grouse habitat are considered suitable habitat for the species. All areas of Bi-State sage-grouse habitat are assumed occupied by sage-grouse and therefore this analysis does not include discussion of occupied or un-occupied habitat areas. Information on Bi-State 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 those that are strongly avoided by Bi-State sage-grouse within the Bi-State sage-grouse DPS. The RSF modeling of range wide Bi-State sage-grouse habitats have 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 while pending leks are defined as having two or more males have been observed only once in the last five years (BLM 2016c). Nesting habitat is characterized by sagebrush with an understory of native grasses and forbs that provides vertical and horizontal cover, herbaceous forage, and adequate insect prey base. Bi-State sage-grouse move to mesic areas (e.g., non-wooded riparian communities, springs, seeps, and 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**

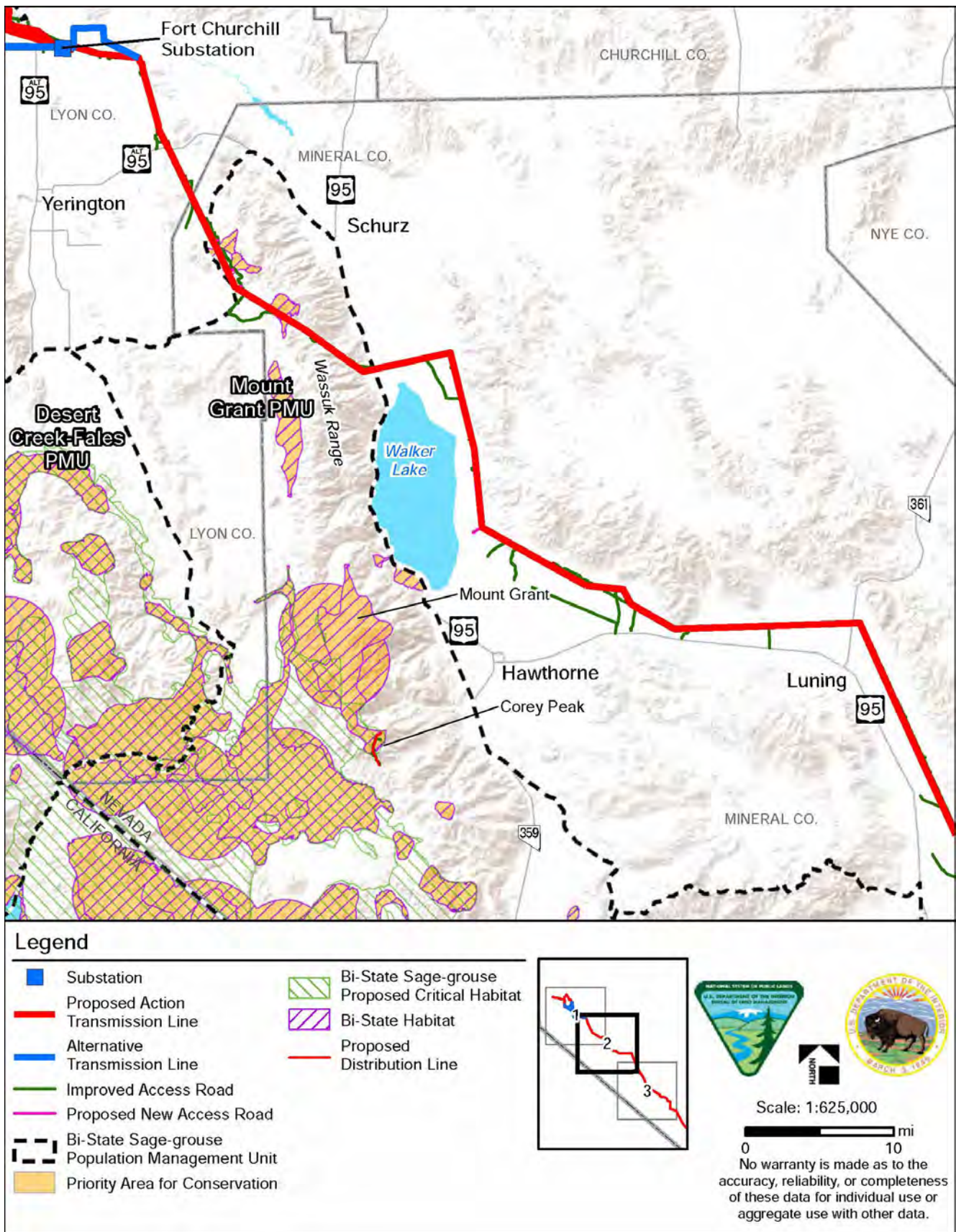
In an effort to monitor the Bi-State sage-grouse, six Population Management Units (PMUs) were established across its range (refer to Figure 3-1 to Figure 3-3) (TAC 2012). The USFWS 2015 Greater Sage-grouse Conservation Objectives Team Report (USFWS 2015) alternatively identifies four PMUs across the Bi-State DPS. This analysis includes discussion of the PMUs originally designated in the 2012 Bi-State TAC. There are three PMUs, Pine Nut, Mount Grant, and White Mountains PMUs, within the temporary ROW area (refer to 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 acting as the primary threats (USFWS 2020e). Within the Mount Grant PMU, woodland succession, historical and current mining activity, and recreational 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 sage-grouse in the White Mountains are not well understood due to difficulty in accessing the area (USFWS 2020e). The GLWP area crosses the eastern boundary of the White Mountains PMU in an area that is located greater than 10-miles from Bi-State sage-grouse habitat (Figure 3-3).

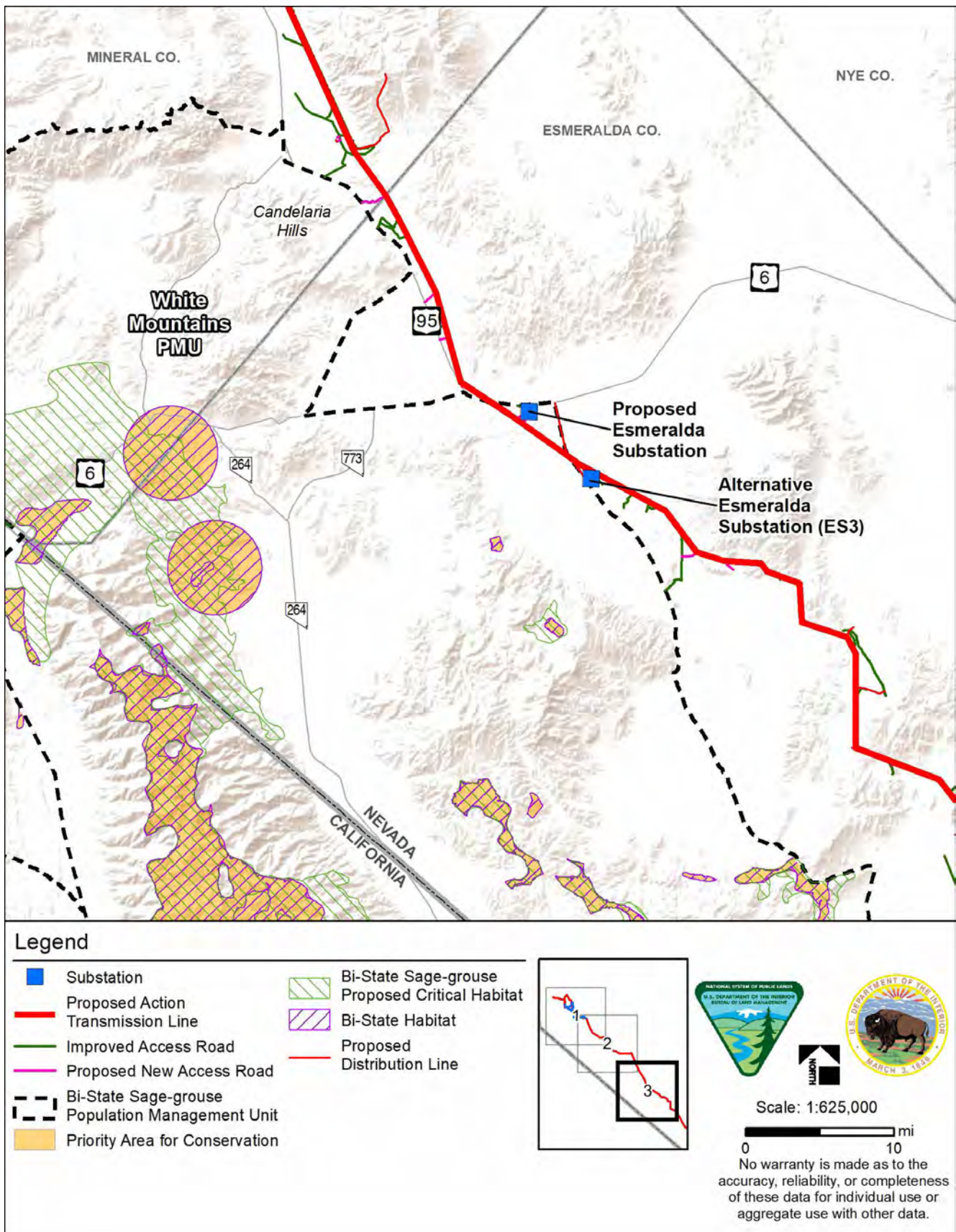


**Figure 3-1. Bi-State Sage-grouse Habitat (1 of 3)**





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



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

**Table 3-3. 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 Acronyms:* BLM – Bureau of Land Management; DOD – Department of Defense; PMU – Population Management Unit  
*Table Notes:* <sup>a</sup>Includes all proposed GLWP ROWs and facilities (transmission line, distribution lines, access roads, communication sites)

*Table Sources:* (BLM and NSMA 2021; NV Energy 2022; TAC 2012)

### USFWS Proposed Critical Habitat

The USFWS has proposed designation of four critical habitat units representing the 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, and Figure 3-4 shows the location of proposed critical habitat. Proposed critical habitat does not occur within the federally listed species wildlife analysis area for any of the other Action Alternatives.

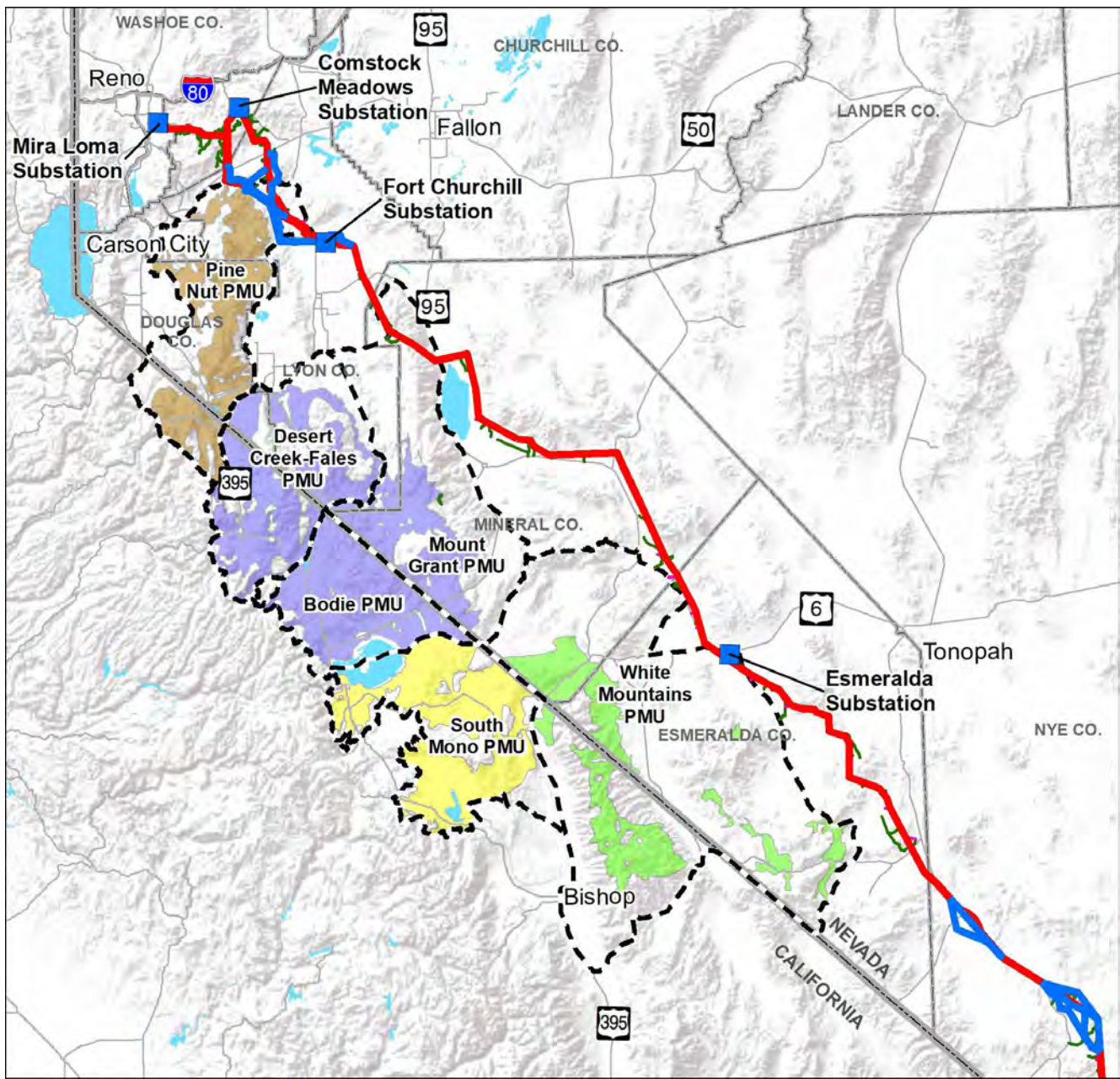
**Table 3-4. Acres of Proposed Critical Habitat for the Bi-State Sage-grouse within the Federally Listed Wildlife Analysis Area**

Unit #/Name	Unit Size (acres)	Acres within the Federally Listed Species Wildlife Analysis Area	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 2022). 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 10 Management Units (MU) from the



**Legend**

- |   |   |
|---|---|
| <span style="color: blue;">■</span> Substation  | <b>Proposed Critical Habitat Unit</b>   |
| <span style="color: red;">—</span> Proposed Action Transmission Line  | <span style="background-color: #c08040; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Unit #1 Pine Nut        |
| <span style="color: blue;">—</span> Alternative Transmission Line   | <span style="background-color: #8064c0; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Unit #2 North Mono Lake |
| <span style="color: green;">—</span> Improved Access Road   | <span style="background-color: #ffff00; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Unit #3 South Mono Lake |
| <span style="color: magenta;">—</span> Proposed New Access Road   | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 20px; height: 10px;"></span> Unit #4 White Mountains |
| <span style="border-top: 1px dashed black; width: 20px; display: inline-block;"></span> Bi-State Sage-grouse Population Management Unit |   |



Scale: 1:2,000,000  
 0 10 20 30 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 3-4. Bi-State Sage-grouse PMUs and Proposed Critical Habitat**

three Game Management Units outlined in the Recovery Act (USFWS 1995b). These 10 MUs are associated with the watersheds or distinct genetic populations that are within the historic range of the species, and all are within or partially occur within Nevada. (USFWS 2019b). 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 2019b).

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 currently contain populations of the Lahontan cutthroat trout. The river in both of these areas is perennial and lined with wetland herbaceous and shrub/scrub vegetation and 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 1990). 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 distinct population segments of the desert tortoise in the 1994 recovery plan (USFWS 1994a). The boundary of these units was refined in the revised recovery plan (USFWS 2011). 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 2011) (Figure 3-5).

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

In the southern and western Nevada portions of the Mojave Desert, Mojave desert tortoises generally found in creosote bush scrub communities of flats, valley bottoms, alluvial fans, and bajadas but may occasionally utilize rocky slopes and blackbrush scrub. 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 tortoises forage. Desert tortoises in this area feed on summer and winter annuals, cacti, perennial grasses, and herbaceous perennials (USFWS 2011). 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 (prolonged dormancy of the species during hot or dry periods) (USFWS 2011) (2019a)

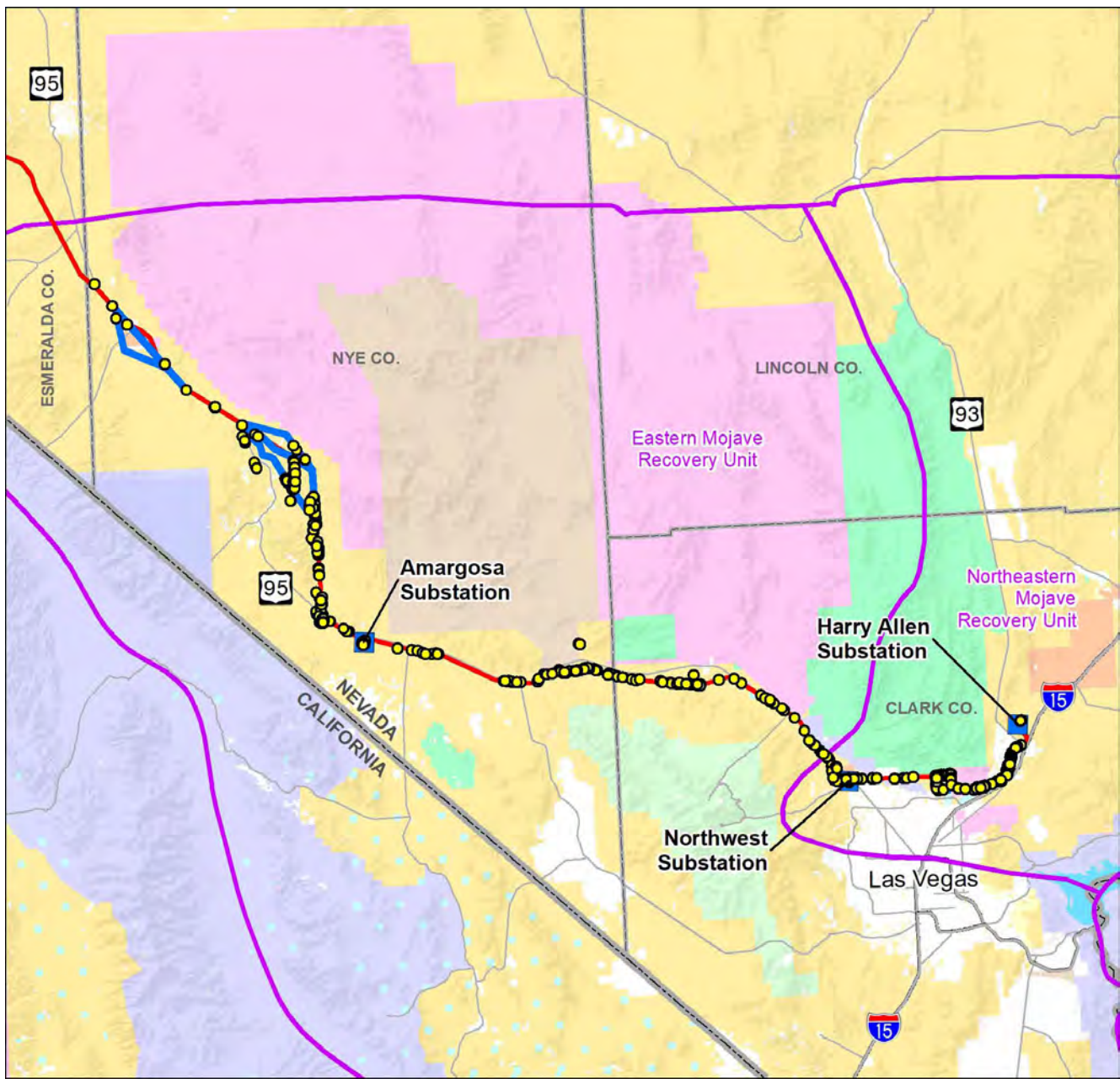
Two GIS models were used to identify Mojave desert tortoise habitat within the federally listed species wildlife analysis area: 1) United States Geological Survey (USGS) habitat potential index model (Nussear et al. 2009) uses values from 0 to 1, with 0 indicating low potential value and 1 indicating 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 desert tortoise densities and high quality habitat (BLM 2021e) (Figure 3-6). 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.

### **Mojave Desert Tortoise Surveys**

Mojave desert tortoise surveys were conducted for the GLWP from September 2021 through November 2022. Existing access roads that would not require any improvements were not included in the survey. Land not authorized for surveys by the landowners included the DOD lands, the Nevada National Security Site (NNSS), 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 (2021b), Nevada Natural Heritage Program (NDNH) (2021), and the NNSS (DOE 2021).

Survey results are documented in the Draft Mojave Desert Tortoise Survey Report (Monks and Logan Simpson 2023). The survey area covered approximately 39,610 acres for the Proposed Action and 8,813 acres for the remaining Action Alternatives (BLM 2022c). 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, which involves 33-foot (10-meter)-wide belt transects every 328 feet (100 meters). 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 (10 meters) apart to obtain 100 percent survey coverage (USFWS 2019a). The majority of the survey (87 percent) was conducting using the Linear Project Survey protocol, with the remainder surveyed using the 100 percent Small Project Survey protocol.

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 shown in Figure 3-5. Many of the desert tortoise observations for the Alternatives overlap with the Proposed Action. The entire survey for the Proposed Action and Alternatives observed a total of 11 live adult desert tortoises, 468 tortoise burrows (366 class 1, 2, and 3 burrows), 31 tortoise carcasses, and tortoise sign at 19 locations.



**Legend**

- |                                      |                              |
|--------------------------------------|------------------------------|
| Proposed Action Transmission Line    | Bureau of Reclamation        |
| Alternative Transmsion 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                 | Private                      |
|                                      | Water                        |

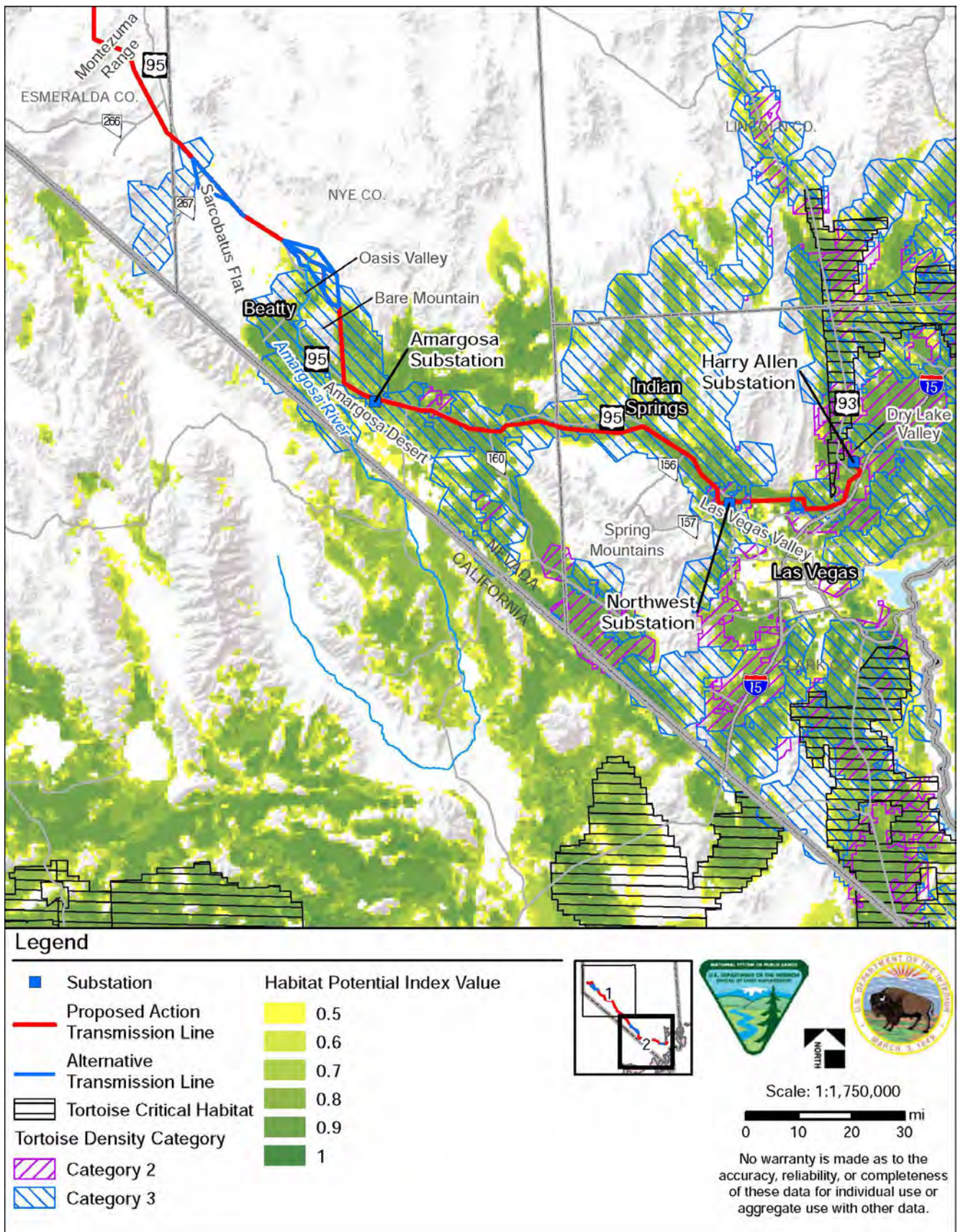


Scale: 1:1,500,000

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**



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



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

<b>Observation Type<sup>a</sup></b>	<b>BLM</b>	<b>Nevada State Land</b>	<b>Desert NWR</b>	<b>Clark County</b>	<b>NPS</b>	<b>Tribal Land</b>	<b>DOD</b>	<b>Total</b>
Live Adult Tortoise	6	-	-	-	-	1	2	<b>9</b>
Burrow Class 1	43	-	5	-	1	3	4	<b>56</b>
Burrow Class 2	140	3	3	6	5	17	13	<b>187</b>
Burrow Class 3	53	-	1	4	2	4	5	<b>69</b>
Burrow Class 4	43	-	1	-	2	-	-	<b>46</b>
Burrow Class 5	41	-	-	-	-	-	-	<b>41</b>
Tortoise Carcass	23	-	1	2	-	1	2	<b>29</b>
Tortoise Sign	14	-	-	4	-	-	1	<b>19</b>
<b>Total</b>	<b>363</b>	<b>3</b>	<b>11</b>	<b>16</b>	<b>10</b>	<b>26</b>	<b>27</b>	<b>456</b>

*Table Acronyms:* BLM – Bureau of Land Management; DOD – Department of Defense; NWR – National Wildlife Refuge; NPS – National Park Service  
*Table Notes:* <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

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

<b>Observation Type<sup>a</sup></b>	<b>Losee A</b>	<b>Scotty's Junction A</b>	<b>Beatty A</b>	<b>Beatty C</b>	<b>Beatty G</b>	<b>Beatty K</b>	<b>TUSK B</b>
Live Tortoise	-	-	-	-	-	-	-
Burrow Class 1	3	-	-	-	-	-	1
Burrow Class 2	5	-	-	1	-	9	2
Burrow Class 3	1	-	1	1	2	6	1
Burrow Class 4	1	-	1	2	-	-	1
Burrow Class 5	-	1	3	4	1	2	-
Tortoise Carcass	1	-	-	-	-	-	-
<b>Total</b>	<b>11</b>	<b>1</b>	<b>5</b>	<b>8</b>	<b>3</b>	<b>17</b>	<b>5</b>

*Table Acronyms:* TUSK – Tule Springs National Monument  
*Table Notes:* Alternatives not included in this table had no tortoise observations or are not analyzed in detail in this EIS.  
<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

### 3.1.3.4 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) and critical habitat was designated in 2013, though none occurs within the federally listed species wildlife analysis area (USFWS 2013b). 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 2013b).

Southwestern willow flycatchers are small brownish birds, usually less than six inches in length, and are found below 8,500 feet in elevation. 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/willow and tamarisk vegetation) alongside streams, rivers, or other wetlands. This species is not typically found nesting in areas without willows or tamarisk (USFWS 2013b). Migrating

flycatchers use a variety of riparian habitats or patches (small areas of riparian vegetation) not typically suitable for nesting (USFWS 2003). In Nevada, breeding populations of southwestern willow flycatcher are restricted to riparian habitat 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 federally listed species wildlife analysis area does not contain suitable breeding habitat for the southwestern willow flycatcher. The nearest occupied breeding habitat to GLWP is at Ash Meadows NWR approximately eight miles south of the temporary ROW area and five miles east of SR 373. This species could use small patches of riparian habitat near the federally listed species wildlife analysis area for migration to and from breeding habitat and during dispersal.

### **3.1.3.5 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 2023). A recovery plan has not been established for this species.

The yellow-billed cuckoo is a medium-sized, slender bird (10-12 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 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, willow, mesquite, velvet ash, Arizona walnut, and tamarisk (Martin 2005). Nesting home ranges vary from 25 acres to over 100 acres, nesting 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 where this species has confirmed breeding in Nevada is along the California border (Lake Tahoe, Washoe Lake, and Topaz Lake) and 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 2023). 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 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 0.5 mile east of US 95, and 6 miles west of the temporary ROW area); within the TUSK (3 miles north of the temporary ROW area); and in North Las Vegas (observed in 1999, located 5 miles south of the temporary ROW area) (NDNH 2022a; NDOW 2021b). 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 potential

habitat is present for both breeding and migration for yellow-billed cuckoo, though 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.

### **3.1.3.6 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, USFWS initiated efforts to revise the recovery plan to incorporate new information since 1981 and a draft recovery plan was published by USFWS (in 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's 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 species (*Salix exigua*, *S. gooddingii*, *Tamarix* spp., *Tessaria sericea*, and *Baccharis* spp.) 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 the 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 breeding season typically ending 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.

## **3.1.4 Environmental Consequences**

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

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 with 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 the GLWP Raven Management Plan (Appendix G) that would also minimize impacts on Bi-State sage-grouse.

**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**

Impact Indicator	Impact	GLWP Phase
Loss of Birds	Mortalities resulting from electrocutions with energized components	O&M
Loss of Birds	Mortalities resulting from collisions with GLWP infrastructure 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 ancillary facilities	O&M
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 facilities	Construction, O&M
Destruction, modification, or curtailment of habitat or range	Degradation of Bi-State sage-grouse habitat and function	Construction and O&M
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 Acronyms: O&M – Operations and Maintenance

## **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, which would be similar impacts to other special status bird species as well. 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 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 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 on individual Bi-State sage-grouse from noise, nighttime lighting, and human activity would extend further than the actual disturbance footprint and may extend to lands outside of the temporary ROW area (Table 3-8). These types of disturbances may result in physiological and behavioral changes, including avoidance of affected areas, throughout the three-year construction duration.

**Table 3-8. Proposed Action Estimated Temporary and Permanent Disturbance in Bi-State Sage-grouse Proposed Critical Habitat<sup>a</sup>**

<b>Unit #/ Name</b>	<b>Temporary Disturbance Access Road (acres)</b>	<b>Temporary Disturbance Distribution Lines (acres)</b>	<b>Permanent Disturbance Access Roads (acres)</b>	<b>Permanent Disturbance Distribution Lines (acres)</b>	<b>Total Temporary Disturbance (acres)</b>	<b>Total Permanent Disturbance (acres)</b>
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>Grand 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 Notes:* <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 Sources:* (NV Energy 2022; TAC 2012)

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

In total, approximately 153 acres of permanent ROW area and 694 acres of temporary ROW area would occur within Bi-State sage-grouse habitat within the Mount Grant PMU only from the Proposed Action. The Mount Grant PMU area of Bi-State sage-grouse habitat crossed by the Proposed Action would be sited within an existing WWEC transmission corridor 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 Tonopah FO (BLM 2016b). 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 (see Figure 3-2). These impacts to Bi-State sage-grouse habitat would result in 694 acres of temporary ROW and 153 acres of permanent ROW to Bi-State sage-grouse habitat.

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 7.1 miles, respectively, from the Proposed Action (Figure 3-3).

**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 (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 requiring access road upgrades to be limited to the area necessary to accommodate construction activity (Appendix C). No temporary or permanent impacts to proposed critical habitat would result from the transmission line ROW because there would be no transmission lines crossing through proposed critical habitat. Table 3-8 presents the estimated acreages of permanent ground disturbance anticipated to occur within Bi-State sage-grouse proposed critical habitat under the Proposed Action.

The Proposed Action in the Pine Nut PMU would split into the three 345-kV transmission lines for a total of 41.3 miles (Figure 3-7). The 345-kV Mira Loma Transmission Line would be the closest to Bi-State sage-grouse habitat located approximate 1.4 miles away (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 3-9. Approximately 2.1 miles of the temporary and permanent transmission line ROW would cross Bi-State sage-grouse habitat within an existing WWEC transmission corridor in the Mount Grant PMU (Figure 3-1).

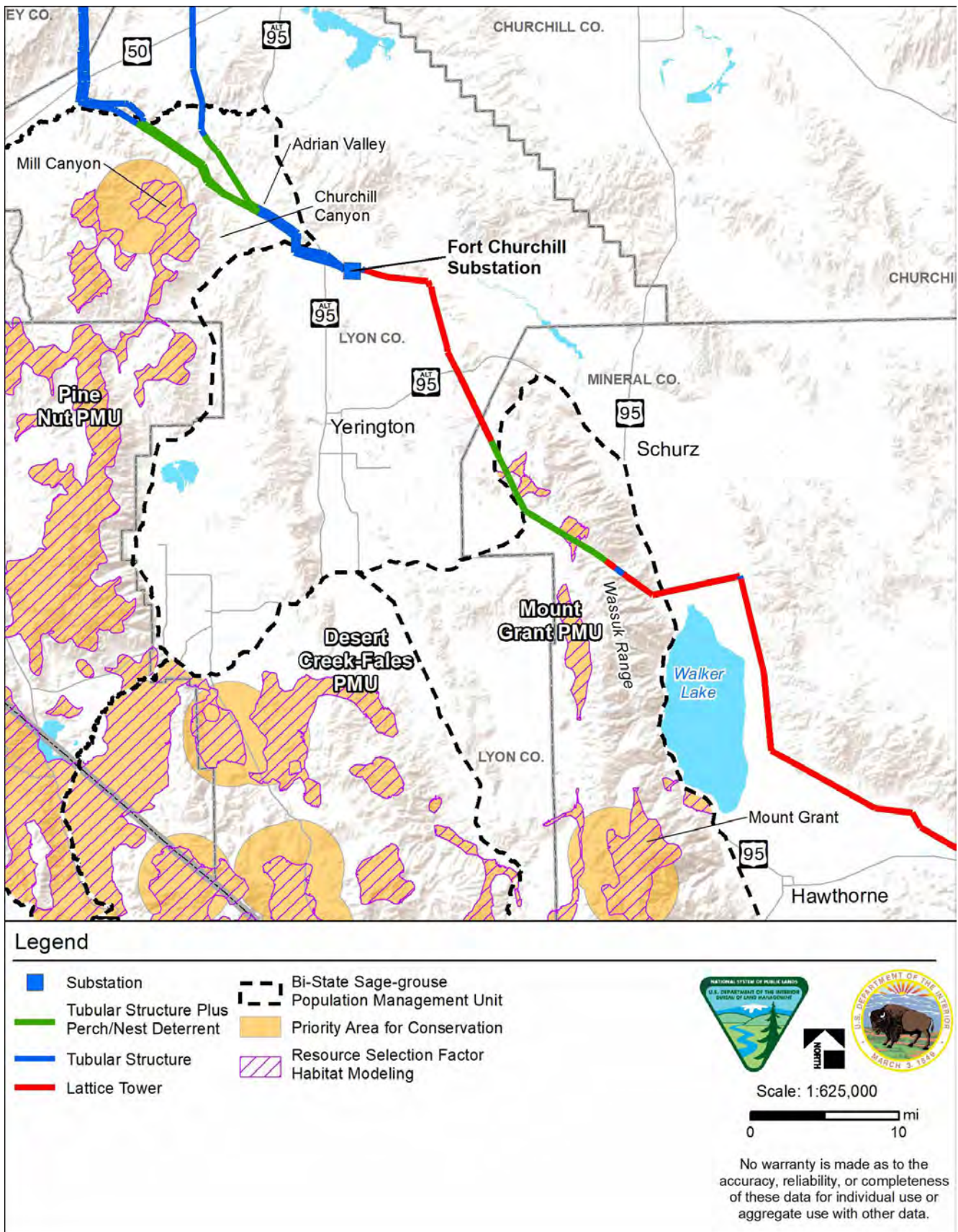
**Table 3-9. Miles of Proposed Action Transmission Line in Bi-State Sage-grouse Habitat and PMUs**

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

*Table Acronyms: PMU – Population Management Unit*

**Proximity of Proposed Action to Leaks**

Seven leaks are located within four miles of the GLWP 345-kV transmission lines, all present near Mill Canyon within the Pine Nut PMU (NDOW 2021b). 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 is located approximately 1.8 miles from a lek. The nearest Bi-State sage-grouse habitat in relation to the Proposed Action is summarized in Table 3-10.



**Figure 3-7. Anti-Perching/Nesting Mitigation Measure Areas for Bi-State Sage-grouse**

**Table 3-10. Proposed Action Transmission and Distribution Lines and Access Roads  
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	Churchill Canyon and Adrian Valley
Mount Grant	0 (525-kV transmission line)	0 (new and existing access roads)	Black Mountain
Mount Grant	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 Acronyms:* kV – Kilovolt; PMU – Population Management Unit

### **Operations and Maintenance**

The Proposed Action would result in short- and long-term impacts to the Bi-State sage-grouse during O&M phase of the GLWP from habitat removal and fragmentation; mortality from collisions with vehicles and equipment; and increased predation pressure from raptor and corvid (such as crows and ravens) species. The degree of impacts to the Bi-State sage-grouse would vary by location and type of impact. Impacts in areas where the Proposed Action is collocated with existing transmission lines are anticipated to occur but may be reduced in degree due to the fact that similar impacts are already present. In areas where the Proposed Action is not collocated with existing transmission, new impacts from construction and operation of the transmission line would likely be more perceptible to the Bi-State sage-grouse.

Within the Mount Grant PMU, the Proposed Action would cross two areas of Bi-State sage-grouse habitat within the Wassuk Range (Table 3-10, Table 3-11, and Figure 3-2). This area of Bi-State sage-grouse habitat would be fragmented and degraded by the presence of the transmission line and access roads. Although these areas would be become available for use by this species once restoration is complete, sage-grouse have been documented to avoid areas of habitat where tall structures provide perching opportunity to avian predators. Areas that are successfully restored within the vicinity of the transmission line may not provide the same or similar value to pre-project conditions (Braun 1998; Holloran et al. 2005).

**Table 3-11. Proposed Action Temporary and Permanent ROW Areas  
in Mojave Desert Tortoise Habitat**

Components	Temporary ROW Area (acres)	Permanent ROW Area (acres)
Access Roads	1,215.9	381.3
Amplifier Sites	1.8	1.8
Distribution Lines	38.7	19.1
Microwave Sites	4.3	4.3
Construction Yards	125.7	-
Substation – Amargosa	109.0	109.0
Substation – Northwest Expansion	16.9	16.9
Transmission Lines	13,206.0	4,302.3
<b>Total</b>	<b>15,206.0</b>	<b>4,834.6</b>

*Table Acronyms:* ROW – right-of-way

*Table Note:* Desert tortoise habitat calculations are based off of temporary and permanent ROW areas in Clark and Nye counties.



A ten year study conducted in central Nevada by Gibson et al. (2018) on the 345-kV Falcon to Gondor transmission line concluded that impacts from raven predation may result in habitat avoidance by sage-grouse to occur up to 7.8 miles from tall transmission lines and other elevated structures (Gibson et al. 2018). This research also concluded that in years of above average raven abundance, greater sage-grouse avoidance of transmission structures was extended farther from the transmission ROW, re-nesting propensity was reduced, and nest survival was lower near the transmission line relative to areas more distant. Specifically, greater sage-grouse nests located 7.8 miles (12.5 km) from the transmission line had a 6 to 14 percent higher probability of hatching in years of average to high levels of raven abundance, relative to nests located within 0.6 mile of the transmission line.

During O&M, 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. Although raptor species are not considered to be 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 GLWP 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 extent, assuming some degree of acclimation to disturbance by resident birds during the O&M phase. During 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).

### **Effects Determination for the Bi-State Sage-grouse**

To minimize any effects to Bi-State sage-grouse and Bi-State sage-grouse habitat, the GLWP Raven Management Plan (Appendix G) and identified EMMs (see EMMs BSSG-1 through 16 in Appendix C) would be implemented. Impacts on Bi-State sage-grouse from construction and decommissioning of the Proposed Action would include direct mortality and injury from collisions vehicles, transmission line, distribution lines, and project fencing. During construction, habitat removal, fragmentation, and degradation due to vegetation removal; dust; non-native and invasive plant species; and vibration, noise, and nighttime lighting from human activity and heavy equipment would occur within the temporary and permanent ROW. During the O&M phase, impacts would include direct mortality, injury, and general avoidance from increased predation by ravens perching and foraging from transmission line structures. The Proposed Action would have short- and long-term impacts to Bi-State sage-grouse. The introduction of new transmission structures and an increase in raven predation would result in impacts on Bi-State sage-grouse and their genetic connectivity between populations.

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

The BLM has added the following measure to mitigate<sup>8</sup> impacts of the Proposed Action on Bi-State sage-grouse associated with potential increase in raven predation due to introduction of guyed lattice structures.

Within two miles of designated PACs located in the Mount Grant PMU and within the entire Pine Nut PMU, construct the transmission lines using tubular tower designs (e.g., H-frame, three-pole dead end, monopole towers) with pointed tops rather than lattice tower designs. Perch and nesting deterrents would be installed on all transmission towers and distribution poles within two miles of PACs and within four miles of leks. In the Bi-State sage-grouse habitat areas, the mitigation measure would convert approximately 13 miles of lattice structures to H-frame structures, for a total of approximately 164 miles of lattice structures converted to H-frame tubular structures. Additionally, the anti-perching/nesting mitigation measures would require approximately 25 percent more structures within Bi-State sage-grouse habitat.

This mitigation measure is referred to as the anti-perching/nesting mitigation in this EIS, and the locations where this applies are depicted in Figure 3-7. Consultation with USFWS and NDOW is on-going, and any additional measures identified by the USFWS in the Biological Opinion would be included in the Final EIS. See Section 3.1.4.3 Impacts from Anti-Perching/Nesting Mitigation Measure for further detail.

### **Lahontan Cutthroat Trout**

#### **Construction**

Construction of the Proposed Action would result in no direct impacts to Lahontan cutthroat trout because no occupied habitats occur within the temporary ROW area and there would be no construction activities occurring directly within the trout's suitable habitat. 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, the construction of new access roads, and construction of transmission towers and other ground-disturbing construction activities, would be avoided within 300 feet from the riparian areas along Walker and Carson rivers. If feasible alternatives are not available, coordination would be required with the respective federal ROW agency before GLWP construction can commence (refer to Appendix C).

Construction of the Proposed Action would result in indirect impacts to Lahontan cutthroat trout 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 improvement along the Walker and Carson rivers may slightly reduce shade and cover and reduce forage and cover for terrestrial invertebrates. Riparian vegetation removal for both the Carson and Walker rivers would be minimized to the greatest extent possible. Approximately 25 acres of permanent and 87 acres of temporary ROW intersect within riparian vegetation for both the Walker River (12.7 acres of permanent and 33.8 acres of temporary) and Carson River (12.6 acres of permanent ROW areas and 53.5 acres of temporary) that may be subject to potential removal or trimming of vegetation to ensure adequate separation from vegetation to the powerline. 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, where taller trees may be pruned or removed and lower growing vegetation and shrubs would remain. Only appropriate land management agency-

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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.

approved herbicides would be applied during vegetation removal and treatment. Vegetation is sparse in areas where the Proposed Action would cross and where access roads requiring improvements are near the Walker and Carson rivers. These areas require very little vegetation removal along the streambanks. This slight reduction in vegetation along the streambanks would result in negligible changes in shade and cover. 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 GLWP EMMs that require construction cease during high wind conditions exceeding 15 miles per hour (mph), staging and construction would occur at least 300 feet from rivers and wetlands, and stormwater management measures would be implemented (refer to EMMs BIO-42, BIO-45, and HYDRO\_WQ-23 in Appendix C).

### **Operations and Maintenance**

Impacts on Lahontan cutthroat trout 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 trout's occupied or suitable habitat. Approximately 25 acres of permanent ROW area intersect within riparian vegetation for both the Walker River (12.7 acres of permanent ROW area) and Carson River (12.6 acres of permanent ROW area) that may be subject to potential removal or trimming of vegetation to ensure adequate separation from vegetation to the powerline. Vegetation management treatments would only use appropriate federal ROW agencies' approved herbicides. 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. Additional impacts on Lahontan cutthroat trout from O&M activities would be similar to those for 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 (refer to EMMs BIO-42, BIO-45, and HYDRO\_WQ-23 in Appendix C) 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 extent. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions over the long-term and human activity associated with the permanent ROW area would decrease.

### **Effects Determination for the Lahontan Cutthroat Trout**

To minimize effects to Lahontan cutthroat trout, EMMs have been identified and would be implemented (refer to EMMs BIO-42, BIO-45, and HYDRO\_WQ-23 in Appendix C). The Proposed Action would result in no direct impacts on Lahontan cutthroat trout because there would be no construction activities occurring within the trout's suitable habitat. The Proposed Action may result in impacts from habitat degradation due to vegetation removal, herbicide application, soil disturbance, and runoff into Walker and Carson rivers. However, with the implementation of EMMs referenced above, the impacts to Lahontan cutthroat trout habitat would be negligible.

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

Consultation with the USFWS is ongoing and any additional measures identified by the USFWS would be included in the Final EIS.

## Mojave Desert Tortoise

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

### Construction

The Proposed Action would include approximately 15,206 acres of temporary and 4,835 acres of permanent ROW areas within Mojave desert tortoise habitat (refer to Table 3-11), and 177 miles of 525-kV transmission lines, of which 38 miles are collocated adjacent to existing transmission line ROWs.

Table 3-12 below provides an estimate of temporary and permanent disturbance by the actual footprint of the components GLWP (refer to Table 2-1) within these temporary and permanent ROW area .

Construction of the Proposed Action would result in an estimated 5,826 acres of temporary disturbance of which approximately 4,024 acres would be restored resulting in an estimated 1,802 acres of permanent disturbance to Mojave desert tortoise habitat, which is approximately 1.1 percent of the Northeast Mojave and Eastern Mojave Recovery Units. The majority of the temporary disturbance (82 percent) would occur at temporary construction areas (pull sites, plant nurseries, and helicopter yards) where vegetation would be driven over and crushed and/or cut to ground level and where needed during construction of the transmission line. Temporary construction areas would be reclaimed, restoring some of the disturbed tortoise habitat over the long term, however, vegetation recovery in the desert can take decades or longer. Studies indicate restoration following disturbance in the Mojave Desert could take 50 to 300 years (Lovich and Bainbridge 1999; Webb 2002).

**Table 3-12. Proposed Action Estimated Temporary and Permanent Disturbance and Acres of Restoration in Mojave Desert Tortoise Habitat**

Components	Temporary Disturbance Acres <sup>a</sup>	Acres of Restoration <sup>a</sup>	Permanent Disturbance Acres <sup>a</sup>
Access Roads <sup>b</sup>	300	0	300
Amplifier Sites	4	0	4
Distribution Poles	17	13	4
Maintenance Roads	573	0	573
Microwave Sites	4	0	4
Substation – Amargosa	109	0	109
Substation – Northwest Expansion	22	0	22
Temporary Construction Yards <sup>c</sup>	3,718	3,718	0
Transmission Line Structures <sup>d</sup>	1,081	293	788
<b>Total</b>	<b>5,826</b>	<b>4,024</b>	<b>1,802</b>

*Table Notes:* <sup>a</sup>Acreages were calculated using GIS data and from information provided in NV Energy’s Preliminary POD. 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 acreages associated with the permanent tower pads have been subtracted from the temporary work area totals to eliminate double-counting of impacts.

<sup>d</sup>Temporary construction areas include pull sites, construction yards, helicopter yards, and plant nurseries.

Construction may introduce or spread non-native plant species, which could contribute to habitat loss and reduction of food 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 (pending) and EMMs (Appendix C. EMMs BIO-39 and BIO-42) to control the introduction and spread of non-native plant species and reduce dust would minimize these impacts.

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 tortoises as a result of being crushed by vehicles. These impacts would be minimized through implementation of EMMs which limit project vehicle speeds to 15 mph during the desert tortoise active season (March 1 to October 31) and 25 mph during the inactive season and restricting unauthorized access on GLWP access roads (Appendix C. EMMs MDT-1.e and MDT-1.f).

Construction activities would temporarily impact desert tortoises due to vibration, noise, and nighttime lighting. Impacts to desert tortoise during construction would be minimized with the implementation of preconstruction surveys, construction monitoring, and relocation of desert tortoises outside of the construction areas, in accordance with the EMMs (MDT-1 through MDT-5 in Appendix C) and USFWS handling and relocation procedures (USFWS 2009).

Temporary exclusion fencing (prior to permanent perimeter fencing) would be placed around the AS-2 (PROPOSED ACTION), Northwest Substation expansion, AM-2, two amplifier sites, and construction yards in Mojave desert tortoise habitat. The five construction yards in desert tortoise habitat would have exclusionary fencing that would be removed following construction activities. Exclusionary fencing around construction areas could restrict desert tortoise movement. Because of the difficulty in locating juvenile Mojave desert tortoises and eggs, some may not be found and could be crushed or injured during construction. Since adult Mojave desert tortoises are more easily detected due to their large size, it is expected that any of the adult Mojave desert tortoises found would be relocated just outside the construction areas according to USFWS handling and relocation procedures (USFWS 2009) and the Mojave desert tortoise EMMs MDT-1.a through MDT-1.r in Appendix C. Relocating Mojave desert tortoises out of the construction areas may result in harassment and possibly injury or death (Blythe et al. 2003). The desert tortoises would be handled only by USFWS-authorized Mojave desert tortoise biologists. The construction-related effects would also be minimized by implementation of the GLWP Raven Management Plan (Appendix G), which would require trash and litter control, reducing potential for predator-related effects on desert tortoises.

The temporary loss of approximately 5,826 acres of desert tortoise habitat along the transmission ROWs, new access roads, and areas with temporary exclusion fencing, when added to existing anthropogenic barriers to desert tortoise connectivity (particularly US 95 and other existing transmission line ROWs), may result in localized habitat fragmentation and constriction of movement across the federally listed species wildlife analysis area, resulting in reduction in genetic connectivity between Mojave desert tortoise populations. The temporary loss of habitat represents a small percentage (0.09 percent) of available Mojave desert tortoise habitat in the Eastern and Northeastern Recovery Units (6,563,960 acres) (Darst 2014). The portions of the GLWP along US 95 between Indian Springs and Amargosa is in an area with current connectivity constraints, and the GLWP would contribute to existing habitat connectivity effects in the area.

## **Operations and Maintenance**

During O&M, desert tortoises are expected to re-inhabit the Proposed Action transmission and distribution ROWs. However, the perimeter fencing around AS-2 (PROPOSED ACTION), Northwest Substation expansion, AM-2, and two amplifier sites would remain, preventing tortoises from re-inhabiting those areas. Ground disturbing activities (such as activities to repair or replace structures and equipment) and vegetation management of the Proposed Action during O&M would result in similar impacts on desert tortoise as those impacts listed during construction, though to a lesser degree as these actions would occur less frequently and in isolated areas. The approximately 28.5 miles of newly constructed access roads associated with the Proposed Action within desert tortoise habitat are anticipated to be used by the public. The additional miles of roads and increased use of the roads during O&M and by the public would increase direct mortality or injury to 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 (refer to EMM MDT-1.f in Appendix C).

Three transmission tower types would be utilized for the Proposed Action in desert tortoise habitat, three-pole dead-end/angle, guyed lattice, and monopole (refer to Table 3-13 and see Table 2-2 for tower descriptions). Within Mojave desert tortoise habitat, these towers would provide perching and nesting habitat for ravens along the ROW corridor, which could lead to increased direct mortality to the tortoise by raven predation. Transmission towers in an open landscape are commonly used and preferred by raptors and ravens for perches and nesting, as they provide a vantage point to hunt from (Knight and Kawashima 1993). Studies have found that transmission towers increase tortoise predation by ravens, particularly with ravens selecting to heavily predate on juvenile tortoises, reducing the numbers of tortoises surviving to older age classes within an area (Boarman 1992, 2003). Ravens have been observed building nests on a variety of transmission towers. They prefer towers that provide adequate support, such as towers with crossarms and diagonal and horizontal bracing (Avian Power Line Interaction Committee (APLIC) 2006; Dixon et al. 2013) Ravens nesting on transmission towers that are located in areas where no other nesting substate exists nearby (i.e., no other tall structures are present within the landscape within 0.4 mile of the transmission tower) have been documented to substantially reduce juvenile tortoise populations around the transmission tower up to 0.25 mile away (USFWS 2019a). Preliminary raven nesting data collected during an on-going 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 tortoise populations along the permanent ROW, as compared to other tower types. The GLWP includes measures to minimize impacts associated with predation in the GLWP 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 miles of guyed lattice structures (Table 3-13) within Mojave desert tortoise habitat.

**Table 3-13. Miles of Proposed Action within Desert Tortoise Habitat by Tower Type**

<b>Tower Types</b>	<b>BLM</b>	<b>Nevada State Lands</b>	<b>Clark County</b>	<b>NPS</b>	<b>Tribal Land</b>	<b>DOD</b>	<b>Private</b>	<b>Total</b>
Three-Pole Dead-End/Angle	0.6	0.9	-	-	-	-	-	1.5
Guyed Lattice	146.9	0.1	-	-	-	1.2	3.3	151.4

Tower Types	BLM	Nevada State Lands	Clark County	NPS	Tribal Land	DOD	Private	Total
Monopole	9.3	3.7	2.0	1.5	5.1	2.0	0.2	23.7
<b>Total</b>	<b>156.7</b>	<b>4.6</b>	<b>2.0</b>	<b>1.5</b>	<b>5.1</b>	<b>3.2</b>	<b>3.5</b>	<b>176.6</b>

*Table Acronyms: BLM – Bureau of Land Management; DOD – Department of Defense; NPS – National Park Service*

### **Decommissioning**

Impacts during decommissioning would be similar to those during the construction phase, though to a lesser extent. After reclamation of disturbed areas, vegetation would be restored to preconstruction conditions and habitat for Mojave desert tortoise would be reestablished. Human activity associated with the GLWP transmission lines and ancillary project components would cease after decommissioning activities are completed. Because vegetation recovery in the Mojave Desert could take 50 to 300 years (Lovich and Bainbridge 1999; Webb 2002), it is anticipated that residual impacts to Mojave desert tortoise would remain for long-term following decommissioning of the GLWP.

### **Effects Determination for the Mojave Desert Tortoise**

To minimize any effects to the Mojave desert tortoises and their habitat, the GLWP Raven Management Plan (Appendix G) and Mojave desert tortoise EMMs (see EMMs MDT-1 through MDT-5 in Appendix C) would be implemented. Impacts on Mojave desert tortoise from construction and decommissioning of the Proposed Action would include direct mortality and injury from handling and relocation of tortoise, vehicles, and/or disturbance to burrows; habitat degradation due to vegetation removal, dust, and non-native and invasive plant species; habitat fragmentation and reduction in genetic connectivity; and disturbance from vibration, noise, and nighttime lighting from human activity and heavy equipment. During the O&M phase, impacts would include direct mortality and injury from increased predation by ravens foraging from transmission line structures. The Proposed Action would have short- and long-term impacts to Mojave desert tortoises. The introduction of lattice structures and increase in raven predation would result in impacts on local Mojave desert tortoise populations and their genetic connectivity in the regional area.

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

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 associated with the Proposed Action within desert tortoise habitat. All transmission line structures for the GLWP located in Mojave desert tortoise recovery units (USFWS 2011) would be designed and constructed using tubular transmission structures (e.g., 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.

In the Mojave desert tortoise recovery unit areas, approximately 151 miles of lattice transmission structures would be converted to H-frame structures. Additionally, the anti-perching/nesting mitigation measures would require approximately 25 percent more structures in Mojave desert tortoise recovery units.

This mitigation measure is referred to as the anti-perching/nesting mitigation in this EIS. Consultation with the USFWS is ongoing and any additional measures identified by the USFWS in the Biological Opinion on the Mohave desert tortoise, or its habitat would be included in the Final EIS.

## **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 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. Breeding impacts to the yellow-billed cuckoo from the Proposed Action would be minimized by implementing a timing-restriction conservation measure (refer to EMM BIO-20 in Appendix C), which requires construction within 0.25 mile of the Carson, Walker, and Amargosa rivers to only occur outside of the breeding season for the yellow-billed cuckoo. 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 Walker and Amargosa rivers would result in localized impacts on yellow-billed cuckoo breeding habitat. The vegetation at these locations is relatively sparse and vegetation removal would be limited.

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 in Appendix C at the Carson, Walker, and Amargosa rivers and other riparian areas along washes would reduce vegetation removal within riparian areas. 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 0.25 mile of the Carson, Walker, and Amargosa rivers to minimize impacts.

Birds may also collide with transmission power 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 (APLIC 2012)] 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 extent. After reclamation of disturbed areas, vegetation would be restored to preconstruction conditions over the long-term. Human activity associated with the GLWP would cease after decommissioning activities are completed.

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

The Proposed Action would not impact southwestern willow flycatcher or Yuma Ridgway's rail breeding behavior or breeding habitat. The Proposed Action would result in insignificant and discountable impacts on yellow-billed cuckoo breeding behavior and breeding habitat where the three 345-kV transmission lines cross the Carson River and where the 525-kV line crosses the Walker River due to vegetation removal and inspections during the breeding season. The Proposed Action may result in negligible impacts on these three federally listed species during construction, O&M, and decommissioning from vegetation removal, human presence, and potential collision with transmission lines.

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

Consultation with the USFWS is ongoing and any additional measures identified by the USFWS would be included in the Final EIS.

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

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

#### **Bi-State Sage-grouse and Lahontan Cutthroat Trout**

The Losee Transmission Alternative A would not occur within suitable habitat or within PMUs for Bi-State sage-grouse or Lahontan cutthroat trout. Therefore, there would be no impacts Bi-State sage-grouse 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. Surveys identified 10 tortoise burrows and one tortoise carcass within the survey area of Losee Transmission Alternative A and 18 tortoise burrows, one live tortoise, and one tortoise carcass within the Proposed Action survey area. The Losee Transmission Alternative A includes eight tortoise burrows within the temporary ROW area and no burrows in the permanent ROW area. The Proposed Action includes four tortoise burrows in the temporary ROW area and no burrows in the permanent ROW area. Compared to the Proposed Action, the Losee Transmission Alternative A would not substantially add to or reduce the impacts on Mojave desert tortoise from construction, O&M, and decommissioning of the GLWP.

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

The Losee Transmission Alternative A would not occur within suitable breeding habitat for the southwestern willow flycatcher and Yuma Ridgway's rail and this alternative would not increase or reduce the impacts on breeding habitat. Similar to the Proposed Action, Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail birds could migrate or disperse over the GLWP federally listed species wildlife analysis areas for the Losee Transmission Alternative A. 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 comparable segments of 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 and Lahontan Cutthroat Trout**

The TUSK Transmission Alternative B would not occur within suitable habitat or within PMUs for Bi-State sage-grouse or within suitable or occupied habitat for the Lahontan cutthroat trout. Therefore, there would be no impacts to Bi-State sage-grouse or Lahontan cutthroat trout 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.

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

The TUSK Transmission Alternative B 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 GLWP federally listed species wildlife analysis areas for the Proposed Action and the TUSK Transmission Alternative B. 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 and Lahontan Cutthroat Trout**

The Beatty Transmission Line Route Group Alternatives would not occur within suitable habitat or within PMUs for Bi-State sage-grouse or the Lahontan cutthroat trout. There would be no impacts to Bi-State sage-grouse or the Lahontan cutthroat trout or their respective habitats from construction, O&M, and decommissioning activities associated with these Action Alternatives.

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

The Beatty Transmission Line Route Group Alternatives would all occur within Mojave desert tortoise suitable habitat and impacts to Mojave desert tortoises may occur during construction, O&M, and decommissioning. Table 3-14 below shows Mojave desert tortoise survey results within the survey area for these alternatives and the comparable segment of the Proposed Action. While surveys along Beatty Alternatives C and K identified more desert tortoise burrows than the comparable section of the Proposed

Action, impacts on desert tortoise would be similar under these alternatives in comparison to the Proposed Action because all these Action Alternatives contain suitable habitat for Mojave desert tortoises, and EMMs (refer to Appendix C. EMM MDT-1 through MDT-5) would be applied to the Beatty transmission alternatives to avoid and minimize impacts to desert tortoise and their habitat. The Beatty Transmission Alternatives A, C, G, and K would not substantially add to or reduce the impacts on Mojave desert tortoise as compared to the Proposed Action.

**Table 3-14. Mojave Desert Tortoise Survey Results for Beatty Transmission Line Route Group Alternatives**

<b>Observation Type</b>	<b>Beatty Alternative A</b>	<b>Beatty Alternative C</b>	<b>Beatty Alternative G</b>	<b>Beatty Alternative K</b>	<b>Proposed Action Comparison Segment</b>
Class 2 Burrow	-	1	-	9	-
Class 3 Burrow	1	1	2	6	1
Class 4 Burrow	1	2	-	-	1
Class 5 Burrow	3	4	1	2	3
<b>Total</b>	<b>5</b>	<b>8</b>	<b>3</b>	<b>17</b>	<b>5</b>

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

The Beatty Transmission Line Route Group Alternatives 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 Beatty Alternatives A, C, G, and K would cross the Amargosa River. However, the areas where the Amargosa River crossings would occur by these Action Alternatives (including the Proposed Action) are considered to be 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 0.25 mile of the Amargosa 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 Beatty Transmission Alternatives A, C, G, and K on breeding yellow-billed cuckoo would be negligible, similar to the Proposed Action.

Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway’s rail birds could migrate or disperse over the GLWP federally listed species wildlife analysis areas for the Proposed Action and the Beatty Transmission Line Route Group 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 Beatty Transmission Line Route Group Alternatives on southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway’s rail would be negligible and similar to the Proposed Action.

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

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

##### **Bi-State Sage-grouse and Lahontan Cutthroat Trout**

The Scotty's Junction Transmission Line Route Group Alternatives would not occur within suitable habitat or within PMUs for Bi-State sage-grouse or Lahontan cutthroat trout. There would be no impacts to Bi-State sage-grouse or Lahontan cutthroat trout or their respective habitats from construction, O&M, and decommissioning activities associated with these Action 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. Surveys for this species identified one Mojave desert tortoise burrow within the survey area for Scotty's Junction Transmission Alternative A, and no Mojave desert tortoise or tortoise signs were observed within the survey area for Scotty's Junction Transmission Alternative B. One Mojave desert tortoise burrow was observed within the survey area of the Proposed Action. No Mojave desert tortoises or Mojave desert tortoise signs were observed within the temporary and permanent ROW areas for either of the Scotty's Junction Transmission Alternatives A or B. One Mojave desert tortoise burrow was observed within the Proposed Action's temporary and permanent ROW areas. The Scotty's Junction Transmission Alternatives A and B would not substantially add to or reduce the impacts on Mojave desert tortoise from construction, O&M, or decommissioning of the GLWP as compared to the Proposed Action.

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

The Scotty's Junction Transmission Line Route Group Alternatives 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 GLWP federally listed species wildlife analysis areas for the Proposed Action and the Scotty's Junction Transmission Line Route Group 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 Scotty's Junction Transmission Line Route Group 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 and Mojave Desert Tortoise**

The Mason valley WMA Transmission Line Route Group Alternatives would not occur within suitable habitat or within PMUs for Bi-State sage-grouse or Mojave desert tortoise. There would be no impacts to Bi-State sage-grouse or Mojave desert tortoise or their respective habitat from construction, O&M, and decommissioning activities associated with these Action Alternatives.

### **Lahontan Cutthroat Trout**

The crossing of Walker River 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 temporary and 6.0 acres of permanent ROW 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 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 not substantially add to or reduce the impacts on the Lahontan cutthroat suitable habitat as compared to the Proposed Action.

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

The Mason Valley WMA Transmission Line Route Group Alternatives 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 would cross the Walker River. However, the areas where the Walker River crossings would occur by these Action Alternatives (including the Proposed Action) are considered to be 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 0.25 mile 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.

Southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail birds could migrate or disperse over the GLWP federally listed species wildlife analysis areas for the Proposed Action and the Mason Valley WMA Transmission Line Route Group 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 Mason Valley WMA Transmission Line Route Group 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**

#### **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 comparable segment of 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 in scope and degree to the comparable segment of the Proposed Action. Table 3-15 presents a summary comparison of ownership

acres for the Carson River Transmission Alternatives A and C, and the respective comparable segments of the Proposed Action.

**Table 3-15. Pine Nut PMU within Temporary ROW Area of Carson River Transmission Alternatives**

Alternative	Pine Nut PMU Size (acres)	BLM (acres)	Private (acres)	Total <sup>a</sup> (acres)
Carson Alternative A	574,372	1,006.7	40.2	1,046.9
Carson Alternative A Comparable Proposed Action Segment	574,372	555.1	27.4	582.5
Carson Alternative C	574,372	2,993.1	157.6	3,150.7
Carson Alternative C Comparable Proposed Action Segment	574,372	3,132.4	413.3	3,545.7

*Table Acronyms:* PMU – Population Management Unit

*Table Notes:* <sup>a</sup>Includes temporary ROW only. This acreage would be similar to the corresponding ROW area under the Proposed Action.

Approximately 1,047 acres of temporary ROW area and 227 acres of permanent ROW area would occur within the Pine Nut PMU as a result of Carson River Transmission Alternative A. Compared to the Proposed Action (Fort Churchill to Comstock Meadow #1), this would be an increase of 465 acres within the temporary ROW area and 43 acres within the permanent ROW area (Table 3-16). The Carson River Alternative A and comparable section of the Proposed Action do not occur within Bi-State sage-grouse habitat (see Section 3.1.3.1 for discussion of how habitat is defined) or Bi-State sage-grouse proposed critical habitat.

**Table 3-16. Summary of Bi-State PMU Disturbance from Carson River Transmission Alternatives A and C in Comparison to the Respective Segments of the Proposed Action**

Alternative	Temporary ROW	Permanent ROW
	Area <sup>a</sup> (acres)	Area <sup>a</sup> (acres)
Carson Alternative A Comparable Proposed Action Segment <sup>b</sup>	583	184
Carson River Alternative A	1,047	227
Carson Alternative C Comparable Proposed Action Segment <sup>c</sup>	3,546	999
Carson River Alternative C	3,151	894

*Table Acronyms:* PMU – Population Management Unit

*Table Note:* <sup>a</sup>Acreages represent comparable sections of the permanent or temporary ROW areas.

<sup>b</sup>Comparison is to the Fort Churchill-Comstock Meadows #2 345-kV transmission line only.

<sup>c</sup>Comparison includes all three 345-kV transmission lines.

The route for the Carson River Transmission Alternative A would be collocated with the Fort Churchill to Comstock Meadow #1 345-kV transmission line within the Pine Nut PMU, whereas the comparable segment of the Proposed Action (Fort Churchill to Comstock Meadow #1) would not be collocated with other two 345-kV transmission lines. Impacts in areas where the Carson River Alternative A is collocated with existing transmission lines are anticipated to occur but may be reduced because similar impacts are already present. In addition to human noise and presence during construction and O&M activities, impacts of habitat removal, fragmentation, and degradation would still occur in areas where collocation is

proposed under the Carson River Transmission Alternative A. Bi-State sage-grouse are likely to already be avoiding the area of existing transmission lines and the addition of the Carson River Transmission Alternative A would likely result in an increase in the area of avoidance.

The Carson River Transmission Alternative C would route the three 345-kV transmission lines west of the Fort Churchill Substation before heading north, then two of the transmission lines would cross the Carson River at a similar alignment to the Proposed Action and the Fort Churchill to Comstock Meadows #2 transmission line would cross the Carson River approximately 6.3 miles downstream from the other two transmission lines. The Carson River Transmission Alternative C and comparable section of the Proposed Action do not occur within Bi-State sage-grouse habitat (see Section 3.1.3.1 for discussion of how habitat is defined) or Bi-State sage-grouse proposed critical habitat. The permanent ROW for Carson River Alternative C is located adjacent to the proposed critical habitat boundary and the nearest Bi-State sage-grouse habitat is located approximately 1.9 miles to the south.

### **Lahontan Cutthroat Trout**

The Carson River Transmission Alternative A river crossing contains suitable habitat for the Lahontan cutthroat trout but is not currently occupied by the Lahontan cutthroat trout. 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 crossing locations. The Carson River Transmission Alternative A would require relatively the same amount of temporary and permanent ROW areas as the comparable segment of the Proposed Action, just in a different location. The Carson River Transmission Alternative A includes approximately 25 acres of temporary and 5 acres of permanent ROW in riparian vegetation.

The Carson River Transmission Alternative C includes approximately 64 acres of temporary and 21 acres of permanent ROW in riparian habitat. The comparable segment of the Proposed Action would include approximately 89 acres of temporary and 25 acres of permanent ROW in riparian vegetation. Impacts to riparian vegetation from trimming and removal within the ROW would be minimized to the furthest extent possible (see EMM BIO-35 in Appendix C).

Vegetation density along the streamside crossings of the three crossings of the Carson River for the Carson River Transmission Alternatives A, C, and both comparable segments of the Proposed Action would require similar riparian vegetation removal/modifications within the temporary and permanent ROWs. Impacts associated with habitat degradation from vegetation removal, soil movement, and runoff would be negligible for the Lahontan cutthroat trout under for the Carson River Transmission Alternatives A, C, and both comparable segments of the Proposed Action.

### **Mojave Desert Tortoise**

The Carson River Transmission Alternatives A and C would not occur within suitable or occupied habitat for the Mojave desert tortoise. There would be no impacts on Mojave desert tortoise from construction, O&M, and decommissioning activities associated with these Action Alternatives.

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

The Carson River Transmission Alternative A and C would occur outside the range for the southwestern willow flycatcher and Yuma Ridgway's rail and these alternatives would not add to or reduce the impacts on these two birds. The Carson River contains marginal suitable breeding habitat for 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 is sparse and there are limited populations of the species occurring 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. The Carson River Transmission Alternative C has two 345-kV lines cross the same corridor as the comparable segment of the Proposed Action, although, the Comstock Meadows #2 transmission line would cross the Carson River approximately 6.3 miles downstream from the other two 345-kV transmission lines. Breeding season timing restriction would be implemented for the yellow-billed cuckoo at the Carson River, and direct impacts on breeding yellow-billed cuckoo would be avoided for the Carson River Transmission Alternatives A, C, and both comparable segments of the Proposed Action.

Yellow-billed cuckoo could migrate or disperse along the Carson River and as a result the cuckoos could collide with transmission power 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 both the comparable segments of the Proposed Action. Because the number of crossings over the Carson River would be the same under Carson River Alternative A and C as their respective comparable Proposed Action segments, the impacts of the Carson River Transmission Alternatives A and C on the yellow-billed cuckoo would be similar to the comparable segments of the Proposed Action.

### **3.1.4.9 Direct and Indirect Impacts from Amargosa Substation Group**

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

##### **Bi-State Sage-grouse and Lahontan Cutthroat Trout**

The Amargosa Substation Group Alternatives would not occur within suitable habitat or within PMUs for Bi-State sage-grouse or Lahontan cutthroat trout. There would be no impacts to Bi-State sage-grouse or Lahontan cutthroat trout or their respective habitat from construction, O&M, and decommissioning activities associated with these Action Alternatives.

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

Both AS-1 and AS-2 (Proposed Action) would occur within suitable habitat for Mojave desert tortoise. Both AS-1 and AS-2 (PROPOSED ACTION) would result in 109 acres of permanent loss of Mojave desert tortoise suitable habitat, therefore, impacts on habitat would be the same under AS-1 in comparison to AS-2 (Proposed Action).

Mojave desert tortoise surveys of the two substation alternatives found seven Class 5 Mojave desert tortoise burrows (poor condition, may be suitable for Mojave desert tortoise) within the AS-2 (Proposed Action) boundary, and nine Mojave desert tortoise burrows ranging in classification from Class 1 to Class 5, and Mojave desert tortoise sign at 10 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).



### **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 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 GLWP federally listed species wildlife analysis areas for 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 and similar to the Proposed Action.

#### **3.1.4.10 Direct and Indirect Impacts from Esmeralda Substation Group**

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

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

The ES-1 and ES-3 alternatives would be located outside of the Bi-State sage-grouse PMUs and habitat. The ES-2 (Proposed Action) would be located approximately 0.3 miles from the eastern extent of the White Mountains PMU (Figure 3-3). The ES-2 (Proposed Action) would result in disturbance of approximately 109.1 acres 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 located in the Silver Peak Range near Piper Peak (refer to Section 3.1.3.1 for discussion of how Bi-State sage-grouse habitat is defined).

###### **Lahontan Cutthroat Trout and Mojave Desert Tortoise**

The Esmeralda Substation Group Alternatives would not occur within suitable or occupied habitat for the Lahontan cutthroat trout or Mojave desert tortoise. There would be no impacts on Lahontan cutthroat trout or Mojave desert tortoise or from their respective habitats from construction, O&M, and decommissioning activities associated with these Action 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 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 GLWP federally listed species wildlife analysis areas for 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 and similar to the Proposed Action.

### **3.1.4.11 Direct and Indirect Impacts from Amargosa Microwave Group**

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

##### **Bi-State Sage-grouse and Lahontan Cutthroat Trout**

The Amargosa Microwave Group Alternatives would not occur within suitable habitat or within PMUs for Bi-State sage-grouse or Lahontan cutthroat trout. There would be no impacts on Bi-State sage-grouse or Lahontan Cutthroat trout or their respect habitats from construction, O&M, and decommissioning activities associated with these Action Alternatives.

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

Mojave desert tortoise surveys of the AM-1 and AM-2 (Proposed Action) microwave sites found no live tortoise, burrows, carcasses, or sign within the survey area for both microwave sites. However, suitable habitat is present and desert tortoise may occur at both microwave site locations. Prior to construction, the substations and microwave sites would be subject to Mojave desert tortoise clearance surveys, tortoise found would be relocated to outside the substation and microwave site construction areas, and exclusionary fencing would be installed to permanently exclude Mojave desert tortoise outside of the substation boundary. The AM-1 alternative would result in a slight increase in temporary disturbance of one acre to desert tortoise habitat in comparison to AM-2 (Proposed Action), but slightly less permanent disturbance to desert tortoise habitat (0.5 acres) in comparison to the AM-2 site.

##### **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 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 GLWP federally listed species wildlife analysis areas for 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 and similar to the Proposed Action.

### **3.1.4.12 Impacts from Anti-Perching/Nesting 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 two miles of PACs and within four miles of leks. This mitigation measures 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 location, size of temporary or permanent ROW, 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 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 .

Ravens have been documented to have a substantial impact on prey population dynamics even at low densities (Brusse and Coates 2018). Coates and Delehanty (2010) observed that an increase of 1 raven per 6.2 mile (10 kilometers)- transect was associated with a 7.4 percent increase in the odds of a greater sage-grouse nest failure. Due to this understanding of the extent that raven predation on Bi-State sage-grouse, the Proponent and the BLM are working with the Cooperating Agencies to explore current and novel adaptive management techniques for implementation through the GLWP Raven Management Plan (Appendix G). The differences in tower type (tubular vs lattice) effects upon raven perching and nesting is 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 in comparison to lattice type structures based upon the reduction in available surface area for perching.

While predation would still likely occur under implementation of the anti-perching/nesting mitigation measure, use of tubular structures with perch prevention devices would reduce the concentration of raven predation directly around and near the transmission structures in comparison 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 GLWP 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 without the mitigation measure. Additionally 26.6 miles of the 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**

The anti-perching/nesting mitigation measures for the Mohave desert tortoise and Bi-State sage-grouse would be located outside of suitable or occupied habitat for Lahontan cutthroat trout. The anti-perching/nesting mitigation measures would have no impact on the Lahontan cutthroat trout or its habitat.

### **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 Line Route Alternatives Losee A, TUSK B, Beatty A, C, G, and K; Amargosa Substation Alternatives; and Amargosa Microwave Site Alternatives. The mitigation measures would not change the transmission line route location 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 would result in an approximately 25 percent increase in the number of structures in Mojave desert tortoise habitat. 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 on the structures would be used where the transmission line alignment would cross through the Eastern Mojave

and Northeastern Mojave Recovery Units. For comparison, the Proposed Action without the mitigation measure would include 151 miles of lattice structures, while the anti-perching/nesting mitigation measure converts these 151 miles of lattice structures to tubular H-frame structures with perch and nesting deterrents. Use of tubular structures with perch and nesting prevention devices would reduce the concentration of raven predation directly around and near the transmission structures in comparison to the 151 miles of lattice structures proposed under the Proposed Action without the mitigation measure, minimizing impacts on individual Mojave desert tortoise and local populations. Use of tubular structures in Mojave desert tortoise habitat, combined with implementation of the GLWP Raven Management Plan (includes raven monitoring measures and use of perch deterrents; Appendix G) would decrease the impacts of the Proposed Action and the Losee A, TUSK B, and Beatty A, C, G, and K Transmission Line Route Group Alternatives on Mojave desert tortoises.

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

The anti-perching/nesting mitigation measures for the Mohave desert tortoise and Bi-State sage-grouse would be located outside of suitable habitat for southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail. The anti-perching/nesting mitigation measures for the Mohave desert tortoise and Bi-State sage-grouse would have no impact on these federally listed bird species.

## **3.2 General Vegetation**

This section describes natural vegetation communities, invasive plant species and noxious weeds, and forest resources that occur across the GLWP area. This section describes the existing vegetation environment and assesses the impacts from the Action Alternatives and No Action Alternative.

### **3.2.1 Issues Identified for Analysis**

- How would construction, O&M, and decommissioning of the GLWP affect native vegetation, invasive plant species and noxious weeds, and forest resources?

### **3.2.2 Analysis Area and Methodology**

#### **Analysis Area**

The vegetation analysis area was defined as a 0.5-mile radius from the transmission line centerline and equates to approximately 779,014.4 acres (1,217 square miles). The vegetation analysis area includes access roads and ancillary facilities.

#### **Methodology**

Predominant land cover types and acreages were identified using the Southwest Regional Gap Analysis Project (SWReGAP) land cover data (SWReGAP 2021). The vegetation analysis area crosses a range of vegetation types in several ecoregions. Ecoregions are areas where the ecosystems and the type, quality, and quantity of environmental resources are generally similar as defined by the analysis of patterns of geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology.

The terms "invasive weed" and "noxious weed" are often used interchangeably to describe any plant that is unwanted and grows or spreads aggressively. Under EO 13112, an invasive species is defined as a harmful non-native species causing or likely to cause harm to the economy, environment, animal, or human health. Projects with a federal nexus have the responsibility to:

(i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; and (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded (DOI 1999).

Noxious weeds are plant species which are legally designated and regulated by state and federal laws (BLM 2007). They are invasive plants and generally are non-native (BLM 2007), detrimental or destructive, and difficult to control or eradicate. Invasive vegetation and noxious weeds degrade or reduce soil productivity, water quality and quantity, native plant communities, wildlife habitat, wilderness values, recreational opportunities, and livestock forage. Their presence is detrimental to the agriculture and commerce of the US and to public health (BLM 2007).

The greatest difference between noxious weeds and invasive plants is the state and federal laws that regulate them. Legally, a noxious weed is a plant designated by a federal, state, or county government as harmful to public health, agriculture, recreation, wildlife, or property. Although noxious and invasive plants have similar effects on native plant communities, not all invasive plants have been put on noxious weeds list in federal and state laws or state regulations. This occurs for a variety of reasons, including lack of information about the distribution of the species, differing public opinion about the effects of a species, and lack of proponents to list a species. Officially listed noxious weeds are inherently invasive. The plants' ability to establish themselves in a variety of habitats and then quickly dominate an area is the prime reason that noxious vegetation is so problematic. In addition to the federal noxious weed list, each state maintains a list of regulated and prohibited noxious and invasive weed species. The State of Nevada maintains a list of designated state noxious weeds (Appendix D). Salvaging desert vegetation (i.e., cactus and yucca species) in Nevada is regulated by the State of Nevada Division of Forestry (Nevada Revised Statutes 527.050 – 527.110). The BLM is authorized to salvage vegetation on BLM-administered lands under BLM Manual 5000-1 (BLM 2011b) and 43 CFR 5400.

The BLM manages forests and woodlands in accordance with the multiple use, sustained yield mandate of FLPMA to meet the present and future needs of communities, wildlife, and all those who benefit from forests (BLM 2022b). The Tonopah RMP (BLM 1997), Las Vegas RMP (BLM 1998a), and Carson City Consolidated RMP (BLM 2001) all allow for the sustainable harvest of forest resources for consumptive use (e.g., Christmas trees, firewood, pinyon pine nuts, fence posts, live transplants, and woody biomass) subject to approved areas with limits on total volume.

### **3.2.3 Affected Environment**

The GLWP occurs within two US EPA Level III ecoregions (refer to Figure 3-10). The portion of the vegetation analysis area north of Beatty is located within the Central Basin and Range Ecoregion. This northwestern ecoregion's topography is comprised of northerly trending fault-block ranges and intervening drier basins. The portion of the vegetation analysis area south of Beatty is located within the Mojave Basin and Range Ecoregion. The southeastern ecoregion's topography contains broad desert basins with scattered mountains that are generally lower, warmer, and drier than the Central Basin to the north. Predominant land cover types were identified using the SWReGAP land cover data (SWReGAP 2021) and include desert scrub (approximately 74 percent), arid shrubland/grassland (approximately 10 percent), and pinyon-juniper woodland (approximately four percent). The remaining 12 percent of the GLWP is made up of several land cover types, each of which make up one percent or less of the vegetation analysis area acreage. Based on SWReGAP data (SWReGAP 2021), the GLWP contains woodland areas, primarily at

higher elevations on landforms and in the northern end of the project outside Reno. For discussion on Special Status Plant Species refer to Section 3.3 Special Status Species. A detailed description of all land cover types is listed in Appendix E and depicted in Figure 3-8 and Figure 3-9. A comparison of each of the alternatives with the comparable section of the Proposed Action is shown in Appendix E.

### **3.2.4 Environmental Consequences**

The environmental consequences on vegetation resources from the Action Alternatives and No Action Alternative were assessed using the locations of these resources in relation to the proposed surface disturbance areas. The acreages disturbed for each vegetation type in the vegetation analysis area is shown in Appendix E. Areas of higher risk of impacts from the introduction or spread of invasive plant species and noxious weeds have been identified. Areas with woodland communities have been identified for impacts to woodland areas.

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

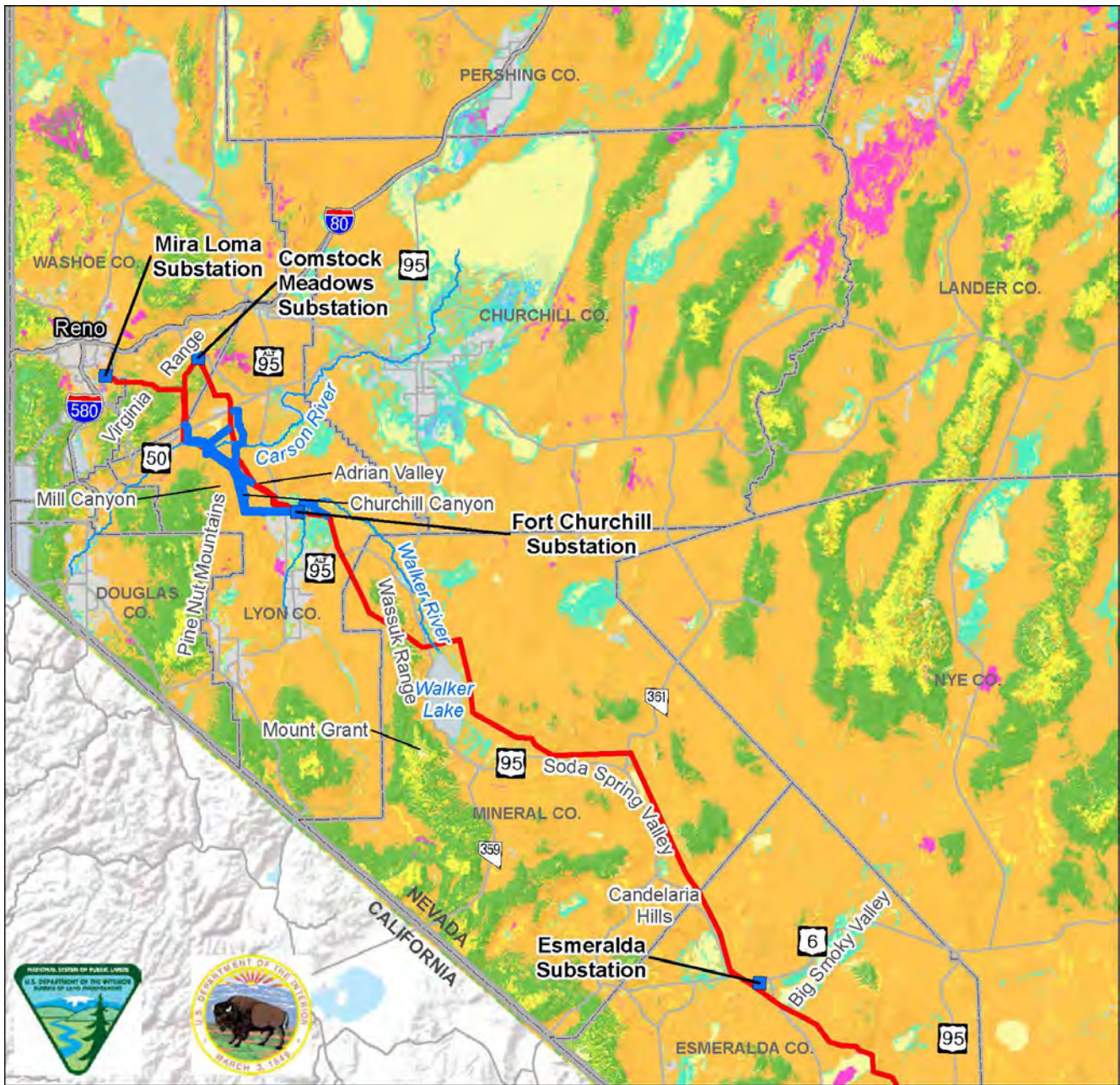
It is anticipated that under the No Action Alternative, the current uses and trends of vegetation would continue to occur. There would be no impacts to vegetation attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

#### **3.2.4.2 Direct and Indirect Impacts Common to All Action Alternatives**

##### **Construction**

The impacts to vegetation during construction of the GLWP components would be associated with removal and/or crushing of vegetation communities from construction of transmission lines, new substations, construction yards, and new access roads. Removal of protective vegetation would expose soil to potential wind and water erosion, which could result in further loss of vegetation. There would also be impacts from fragmentation of connected vegetation types. The introduction or colonization of disturbed areas by invasive plant species would lead to changes in vegetation communities, including the possible shift to more wildfire-prone vegetation, which favors invasive species over native species. Soil disturbance increases the ability of invasive and noxious weeds to occupy an area. Construction vehicles could potentially introduce new species of invasive weeds to the temporary ROW area.

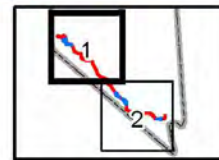
Cacti and yucca are protected in Nevada under Nevada Revised Statute (NRS) 527. The EMM BIO-47 in Appendix C has been included to address the avoidance, salvage, and transplanting of cactus and yucca on lands administered by federal ROW agencies. Any yucca, cacti, or succulent plant species that cannot be avoided would be salvaged by the Proponent. Cacti and yucca in areas of permanent disturbance where vegetation is removed (e.g., roads, transmission tower pads) would be salvaged and transplanted. First, the Proponent would identify the plants that require salvage and the season for salvage based on the species. The salvaged plants would then be moved to the nearest recipient site during construction, which would typically be the nearest plant nursery site, and then the plants would later be transplanted in the ROW after construction during restoration activities. The implementation of these measures would minimize impacts on cacti and yucca during construction of the GLWP.



Source: Vegetation Reclassified from SWReGAP (SWReGAP.org 2021)

**Legend**

- |  |  |
|--|--|
| <span style="color: blue;">■</span> Substation                       | <span style="color: blue;">■</span> Emergent wetland                 |
| <span style="color: red;">—</span> Proposed Action                   | <span style="color: green;">■</span> Evergreen forest                |
| <span style="color: red;">—</span> Transmission Line                 | <span style="color: yellow;">■</span> Grassland/herbaceous           |
| <span style="color: blue;">—</span> Alternative                      | <span style="color: brown;">■</span> Mixed forest                    |
| <span style="color: blue;">—</span> Transmssion Line                 | <span style="color: grey;">■</span> Other                            |
| <span style="color: pink;">■</span> Altered or disturbed             | <span style="color: orange;">■</span> Scrub/shrub                    |
| <span style="color: lightgreen;">■</span> Deciduous forest           | <span style="color: lightyellow;">■</span> Sparsely vegetated/barren |
| <span style="color: lightblue;">■</span> Emergent herbaceous wetland | <span style="color: teal;">■</span> Woody wetland                    |

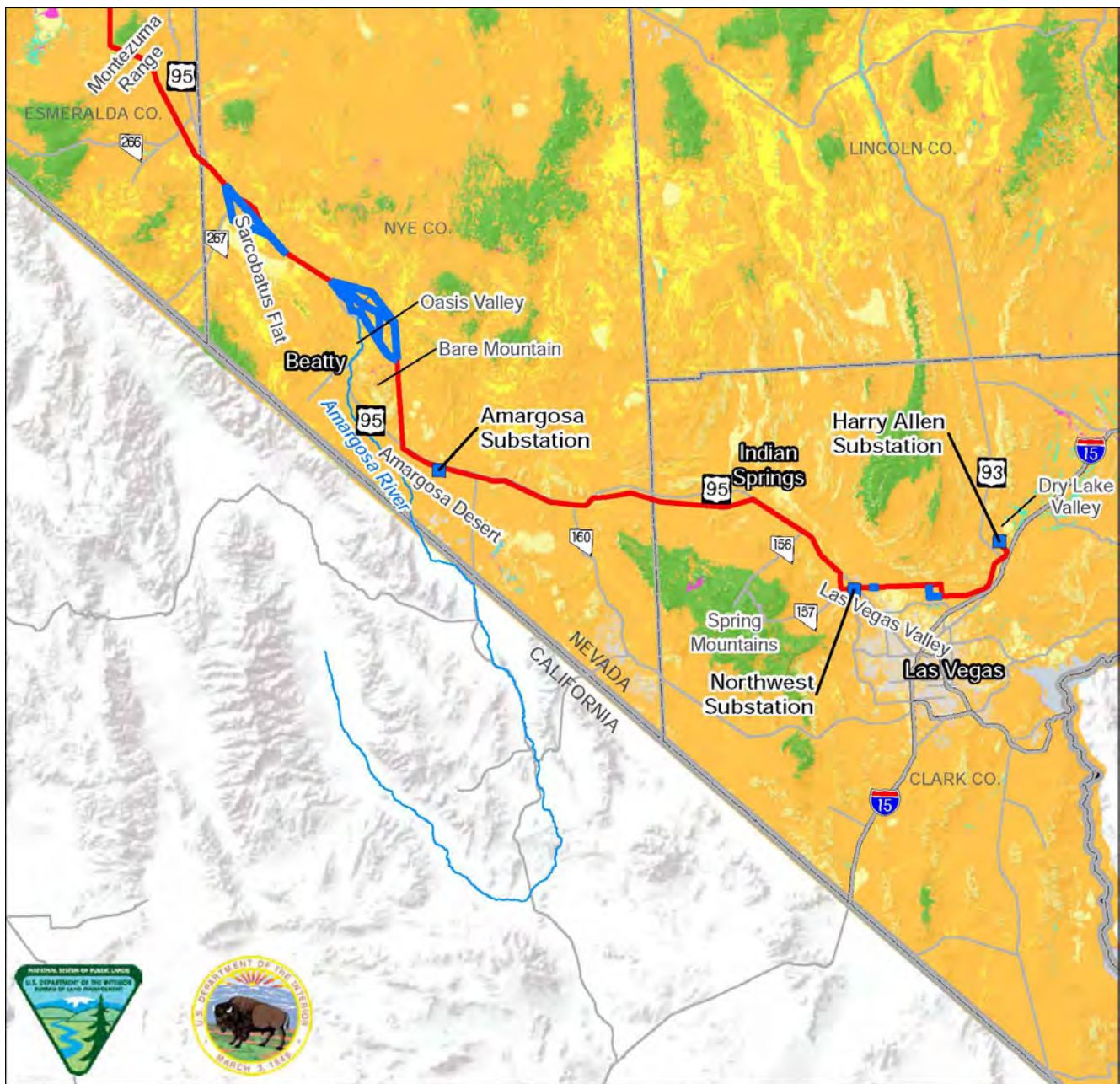


Scale: 1:1,750,000

0 10 20 30 mi

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

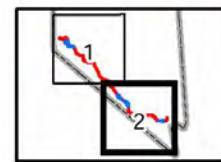
**Figure 3-8. Vegetation Land Cover Types (1 of 2)**



Source: Vegetation Reclassified from SWReGAP (SWReGAP.org 2021)

### Legend

- |  |  |
|--|--|
| <span style="color: blue;">■</span> Substation                       | <span style="color: blue;">■</span> Emergent wetland                 |
| <span style="color: red;">—</span> Proposed Action Transmission Line | <span style="color: green;">■</span> Evergreen forest                |
| <span style="color: blue;">—</span> Alternative Transmission Line    | <span style="color: yellow;">■</span> Grassland/herbaceous           |
| <span style="color: magenta;">■</span> Altered or disturbed          | <span style="color: grey;">■</span> Other                            |
| <span style="color: cyan;">■</span> Emergent herbaceous wetland      | <span style="color: orange;">■</span> Scrub/shrub                    |
|  | <span style="color: lightyellow;">■</span> Sparsely vegetated/barren |
|  | <span style="color: lightgreen;">■</span> Woody wetland              |



Scale: 1:1,750,000

0 10 20 30 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 3-9. Vegetation Land Cover Types (2 of 2)**



## **Operations and Maintenance**

The Proponent is committed to implementing integrated vegetation management using industry measures in the removal of incompatible vegetation (ANSI 2018; Miller 2021) while maintaining compliance with NERC Reliability Standard FAC-003-4. This integrated vegetation management approach systematically selects, implements, and monitors different types of vegetation treatment methods in order to manage plant communities to achieve established objectives. Each federal ROW agency has processes and procedures for the management and prevention of invasive plant species and noxious weeds that would be followed. Any invasive plant and noxious weed populations would be managed in compliance with the applicable federal ROW agency and are included in the EMMs (Appendix C. EMMs BIO-13, BIO-17, BIO-34, BIO-39, CON-10; FOREST-1 through FOREST-3, OPS-4, REC-12, and REC-19). Additionally, the SOPs from the recent BLM vegetation management EISs for noxious weed control are incorporated by reference and would be followed by the Proponent to minimize the spread of invasive plant species and noxious weeds on BLM-administered lands (BLM 2007, 2016c) (BLM Integrated Vegetation Management Handbook 1740-2). These SOPs from these documents provide measures for prevention and early detection of weeds, applying herbicides while minimizing impacts on resources, revegetation methods, and precaution measures for protection of resources, among others. Herbicides would be used where needed for ongoing vegetation management after approval from the federal ROW agency. The Proponent would follow herbicide application guidelines as described by the federal ROW agency's policies and procedures (e.g., Final Vegetation Treatments Using Herbicides Programmatic EIS) (BLM 2007) when treating invasive plant species or noxious weeds.

Vegetation loss would occur during O&M for incompatible vegetation clearance. Incompatible vegetation is defined in this EIS as plants under, above, and near power lines that could disrupt the safe, reliable, and continuous delivery of electricity. Vegetation impacts from O&M would be minimal and primarily associated with vegetation treatment along the transmission corridor and access roads. Clearing woodland areas would be required for vegetation maintenance to meet electrical line minimum ground-clearance requirements.

Throughout the life of the GLWP, maintenance vehicles would travel to and from the transmission line corridor using both new and existing access roads. Some road maintenance is expected to ensure safe and efficient access to the transmission line, but this would be a negligible threat to noxious and invasive species. Vehicles would also occasionally travel along the maintenance roads located within the ROW. Although vehicle travel within the ROW would be low and result in minimal ground disturbance, there would still be a potential to spread and introduce noxious and invasive seeds to other areas.

## **Decommissioning**

Vegetation loss would occur during decommissioning with the removal of GLWP components. Decommissioning is anticipated to impact areas that were previously disturbed during GLWP facilities installation. Thus, the direct removal of native vegetation communities is not anticipated during site decommissioning. As part of decommissioning, disturbed areas would be reclaimed except where permanent facilities would be located. Potential impacts on native vegetation communities include introduction of fugitive dust on exposed topsoil and colonization of the GLWP area by invasive weeds during and after decommissioning.

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

#### **Construction**

Surface-disturbing activities associated with the Proposed Action would occur within the temporary ROW, which includes approximately 47,145.3 acres of vegetation (6 percent of the vegetation analysis area). Of the temporary ROW area, approximately 37,402.2 acres (80 percent) would occur in desert scrub land cover types (Inter-Mountain Basins Mixed Salt Desert Scrub, Mojave Mid-Elevation Mixed Desert Scrub, Sonora-Mojave Mixed Salt Desert Scrub, and Sonora-Mojave Creosotebush-White Bursage Desert Scrub). The permanent ROW area would encompass approximately 13,717.2 acres of vegetation (2 percent of the vegetation analysis area). Of the permanent ROW area, approximately 10,908.2 acres (80 percent) would occur in the same desert scrub land cover types as the temporary ROW area.

Based on Southwest Regional Gap Analysis data (SWReGAP 2021), the GLWP area contains woodland areas (e.g., communities of pinyon-juniper, riparian woodlands) on BLM-administered lands, primarily at higher elevations on landforms and in the northern end of the GLWP outside Reno. Of the approximately 47,145.3 acres of temporary ROW area associated with the Proposed Action, 1,399.4 acres would be woodlands (approximately three percent). Of the approximately 13,717.2 acres of permanent ROW area associated with the Proposed Action, 297.2 acres would be woodlands (approximately two percent). Refer to Appendix E. Vegetation Analysis Tables for a breakdown of the various vegetation cover types for the Proposed Action and the other Action Alternatives.

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

The O&M and decommissioning-related general vegetation impacts would be same to those discussed in the impacts common to all Action Alternatives above.

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

No additional measures to avoid and/or minimize impacts to vegetation are recommended for the Proposed Action with the implementation of the EMMs (Appendix C. EMM BIO-13, BIO-16, BIO-17, BIO-34, BIO-39, CON-8, CON-10; FOREST-1 through FOREST-5, OPS-4, REC-12, REC-19, REC-20, and DECOM-10).

### **3.2.4.4 Direct and Indirect Impacts from Losee and TUSK Transmission Line Route Groups**

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

The impacts of the Losee and TUSK Transmission Line Route Group Alternatives on the vegetation resources within the vegetation analysis area would have no distinguishing differences from the Proposed Action, as illustrated in Appendix E, Table E-5 and Table E-10, respectively. There are no forest resources or woodlands within the vegetation analysis area for Losee and TUSK Transmission Line Route Group Alternatives; therefore, the GLWP would have no impacts on forest resources or woodlands under these Action Alternatives or the comparable sections of the Proposed Action.

### **3.2.4.5 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

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

The total temporary and permanent disturbance to vegetation that would occur for the Beatty Transmission Alternatives A, C, G, and K and the Proposed Action are similar as illustrated in Appendix E, Table E-8. However, the quantity of each land cover type that would be impacted by the Beatty Transmission Alternatives would differ from the Proposed Action. The Beatty Transmission Alternative A

would result in more disturbance to North American Warm Desert Playa vegetation than the comparable segment of the Proposed Action. The Beatty Transmission Alternatives C and G would result in more disturbance to Mojave Mid-Elevation Mixed Desert Scrub and Sonora-Mojave mixed Salt Desert Scrub vegetation than the Proposed Action. The Beatty Transmission Alternative K would result in more disturbance to Sonora-Mojave Creosotebush-White Bursage Desert Scrub vegetation than the Proposed Action.

The Beatty Transmission Alternatives would have impacts on vegetation communities and negligible impacts to the spread and/or introduction of invasive plant species and noxious weeds. The Beatty Transmission Alternatives are anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.

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

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

The impacts of the Scotty's Junction Transmission Alternatives on the vegetation resources within the vegetation analysis area would have no distinguishing differences from the Proposed Action as illustrated in Appendix E, Table E-9. The Scotty's Junction Transmission Alternatives are anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the BLM.

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

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

The impacts of the Mason Valley WMA Transmission Alternative A on the vegetation resources within the vegetation analysis area would have a notable difference from the Proposed Action as illustrated in Appendix E, Table E-7. The Mason Valley WMA Transmission Alternative A would result in up to approximately 336 acres more impact to vegetation in the temporary ROW and 52 acres more impact to vegetation in the permanent ROW in comparison to the Proposed Action. The Mason Valley WMA Transmission Alternative A anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.

#### **3.2.4.8 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

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

The impacts of the Carson River Transmission Alternative A on the vegetation resources within the vegetation analysis area would have no distinguishing differences from the comparable segment of the Proposed Action. The Carson River Transmission Alternative A temporary and permanent ROWs include approximately 776.1 acres (approximately 59 percent) more vegetation than the comparable segment of the Proposed Action. The Carson River Transmission Alternative C would result in up to approximately 101 acres less temporary ROW compared to the Proposed Action segment, and up to approximately 219 acres more of permanent ROW than the comparable section of the Proposed Action (refer to Table E-6 in Appendix E). The Carson River Transmission Alternatives A and C and the comparable segments of the Proposed Action would have impacts on vegetation communities and negligible impacts on the spread

and/or introduction of invasive plant species and noxious weeds. There are no forest resources or woodlands within the vegetation analysis area for the Carson River Transmission Line Route Group Alternatives and there would be no impacts on forest resources or woodlands under these Action Alternatives.

### **3.2.4.9 Direct and Indirect Impacts from Amargosa and Esmeralda Substation Groups and Amargosa Microwave Group**

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

The impacts of the Amargosa and Esmeralda Substation alternatives and Amargosa Microwave alternatives on vegetation resources within the vegetation analysis area would have no distinguishing differences from the Proposed Action because the same amount of vegetation would be disturbed for each of the substation alternatives. The two Amargosa Substation Alternatives both would disturb approximately 109 acres of Sonoran-Mojave creosotebush-white bursage desert scrub, and the three Esmeralda Substation Alternatives would each disturb approximately 109 acres of vegetation within inter-mountain basins mixed salt desert scrub vegetation. The Amargosa and Esmeralda Substation alternatives and Amargosa Microwave alternatives would have negligible impacts on vegetation communities; on the spread and/or introduction of invasive plant species and noxious weeds; and on forest resources.

### **3.2.4.10 Impacts from Anti-Perching/Nesting Mitigation Measure**

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

The majority of the 525-kV transmission line associated with the Action Alternative would use guyed lattice structures rather than tubular H-frame or monopole structures. The anti-perching/nesting mitigation measure would convert approximately 151 miles 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 to 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. 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 without the mitigation measures (an increase of approximately 25 percent of structures under the anti-perching/nesting mitigation measures).

Vegetation within the transmission line ROW would be impacted initially during construction and by ongoing vegetation management and vegetation clearing for maintenance roads within the ROW during O&M. The amount of vegetation removed, maintained, and eventually restored upon decommissioning under the anti-perching/nesting mitigation measures for these actions would be similar to the Action Alternatives without the mitigation, with the exception of impacts associated with the increase in structures under the anti-perching/nesting mitigation measures. Impacts on vegetation would be greater under the anti-perching/mitigation measure associated with vegetation clearing and maintenance of the 525-kV structure pads. Approximately 656 acres of vegetation would be cleared for structure pads in the anti-perching/mitigation measure areas, whereas the Proposed Action would include approximately 492 acres of vegetation clearing for structure pads (Table 3-17). Therefore, the impacts of the anti-perching/nesting mitigation measures on the vegetation resources within the vegetation analysis area would impact approximately 164 acres more vegetation than the Action Alternatives without the anti-perching/nesting mitigation measures.

**Table 3-17. Vegetation Disturbance Comparison of Anti-Perching/Nesting Mitigation Measures with the Proposed Action**

Category	Proposed Action (acres)	Proposed Action with Anti-Perching/Nesting Mitigation Measures (acres)
Miles of mitigation measure in desert tortoise recovery unit areas	151	151
Miles of mitigation measure in Bi-State sage-grouse habitat areas.	13	13
<b>Total Miles</b>	<b>164</b>	<b>164</b>
Number of 525-kV structure pads in desert tortoise recovery unit area	525	699
Number of 525-kV structure pads in Bi-State sage-grouse habitat areas	45	60
<b>Total Structures</b>	<b>570</b>	<b>760</b>
Acres of 525-kV structure pads in desert tortoise recovery unit area <sup>a</sup>	482	642
Acres of 525-kV structure pads in Bi-State sage-grouse habitat areas <sup>b</sup>	10	14
<b>Total Acres</b>	<b>492</b>	<b>656</b>

<sup>a</sup> 525-kV structure pads in desert tortoise recovery unit areas would be 200 feet by 200 feet

<sup>b</sup> 525-kV structure pads in Bi-State sage-grouse habitat areas would be 100 feet by 100 feet

### 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 ESA, including federally listed species covered by the Clark County Multiple Species Habitat Conservation Plan (MSHCP) (RECON 2000), 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, increase 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

##### Analysis Area

The analysis areas for special status species are described in Table 3-18. 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 ancillary GLWP components with a buffer that varies by disturbance type and taxa.

**Table 3-18. Special Status Species Analysis Areas**

Species Group	Analysis Area (acres)	Transmission and Distribution Lines	Access Roads and Ancillary Facilities <sup>a</sup>
Fish and Wildlife	803,079	Temporary ROW area with a 0.5-mile buffer	Access roads with a 0.5-mile buffer Ancillary facilities with a 0.5-mile buffer from facility boundary
Plants	408,212	Temporary ROW area with a 1,640-foot (500 meter) buffer	Access roads (with improvements and new roads) with a 1,640-foot (500-meter) buffer Unpaved access roads (no improvements) with a 1,640-foot (500 meter) buffer on the roadway centerline; existing paved access roads with no proposed improvements are excluded Ancillary facilities with 1,640-foot (500 meter) buffer from facility boundary

Table Notes: <sup>a</sup>Ancillary facilities include substations, construction yards, microwave sites, and amplifier sites, among others.

### Methodology

Special status species that are known to occur or could potentially occur in the special status species analysis areas include:

- BLM sensitive species
- Eagles protected under the federal Bald and Golden Eagle Protection Act (Eagle Act)
- Listed, proposed, and candidate species for listing under the federal ESA
- Migratory Birds including USFWS BCC
- Nevada Critically Endangered Flora
- NDNH At Risk Plant and Animal Tracking List
- Species covered under the Clark County MSHCP
- TUSK sensitive species

Species considered for individual review for impacts from the GLWP include the 306 species listed on the BLM Sensitive Species List for Nevada that occur within the SNDO, Battle Mountain District Office (BMDO), and/or CCDO (BLM 2017); 14 species listed as Sensitive by the TUSK (E. Eichenberg Pres. Comm 2021); 175 species on the NDNH At-Risk Plant and Animal Tracking list (NDNH 2021); and 24 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 2023). The IPAC System identified bird species of concern that occur on the USFWS’ list of BCC or warrant special attention within the GLWP area. 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 2022e) (refer to Section 3.13.3.8 Wild Horses and Burros).

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 (2021b), the NDNH (2021), and Clark County (Nussear 2018; Nussear and Simandle 2020) as well as publicly available information provided by iNaturalist (2021), Global Biodiversity Information Facility (GBIF), (USGS 2021a), NatureServe Explorer (2021), SEINet (2021), Wildlife Action Plan Team (NDOW 2012), and eBird (2021). Special status species detected during formal or informal surveys of the analysis area and vicinity were also taken into account; such information includes incidental locations of burrowing owls (*Athene cunicularia*) and desert bighorn sheep (*Ovis canadensis nelsoni*) collected during pre-project Mojave desert tortoise surveys (Monks and Logan Simpson 2023), pre-project bird, plant, and bat surveys conducted on TUSK (West 2023a, 2023b), and plant surveys conducted in support of the proposed Bonanza Solar Project (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 3-19.

**Table 3-19. Special Status Species Potential to Occur Categories**

Potential to Occur Category	Description
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 individually reviewing 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 as well as a non-eagle raptor nests identified during pre-project surveys conducted in 2021 (West 2022).

### 3.3.3 Affected Environment

#### Ecological Setting

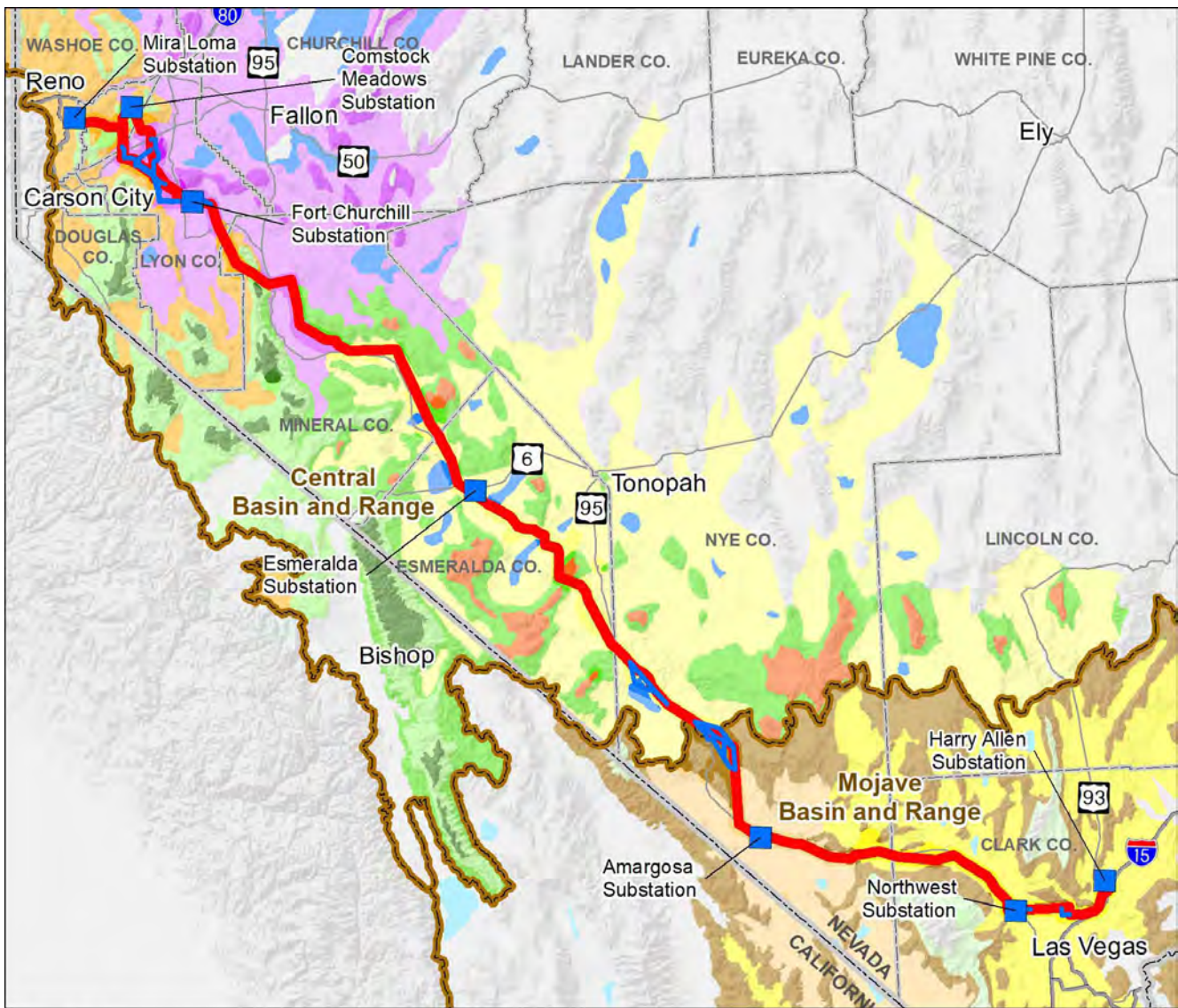
The GLWP would occur within two EPA Level III Ecoregions and 14 Level IV Ecoregions (refer to Figure 3-10) (Bryce et al. 2003). The portion of the GLWP north of Beatty, Nye County, is located within the Central Basin and Range Level III Ecoregion. This northwestern ecoregion's topography is comprised 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. The southeastern 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 (four percent), and playa and riparian areas (three percent). The remaining 2 percent of the GLWP area is made up of several land cover types including cliff/rock outcrops (0.87 percent), urban areas (0.8 percent), mining areas (0.27 percent), desert pavement (0.05 percent), barren lands (0.04 percent), and recently burned areas (0.02 percent). 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 Area**

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 57 plants, 43 birds, 31 mammals, 15 reptiles, 11 insects, three fish, three amphibians, and three mollusk species that are BLM Sensitive, TUSK Sensitive, NDNH At-Risk Plant and Animal Tracking list species, Nevada Critically Endangered Flora species, Wild-Free Roaming Horses and Burros Act of 1971 (WFRHBA), 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 94 species with a high potential to occur and 41 species with a moderate potential to occur in the GLWP special status species analysis areas and are carried forward for detailed analysis (refer to Table 3-20. Special Status Plants; Table 3-21. Special Status Terrestrial Wildlife; Table 3-22. Special Status Aquatic Wildlife; and Table 3-23. Special Status Birds and Bats). The remaining 33 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 since these special status species are unlikely to be present; therefore, detailed analysis in the EIS is not warranted.





**Legend**

- Substation
- Alternative Transmission Line
- Proposed Action Transmission Line
- Level III Ecoregion Boundary

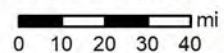
**Level IV Ecoregion**

- Amargosa Desert
- Eastern Mojave Basins
- Eastern Mojave Low Ranges and Arid Footslopes
- Eastern Mojave Mountain Woodland and Shrubland
- Lahontan Sagebrush Slopes

- Lahontan Salt Shrub Basin
- Lahontan and Tonopah Playas
- Mojave Playas
- Sierra Nevada-Influenced High Elevation Mountains
- Sierra Nevada-Influenced Ranges
- Sierra Nevada-Influenced Semiarid Hills and Basins
- Tonopah Basin
- Tonopah Sagebrush Foothills
- Tonopah Uplands
- Other Level IV Ecoregions Outside the Project Vicinity

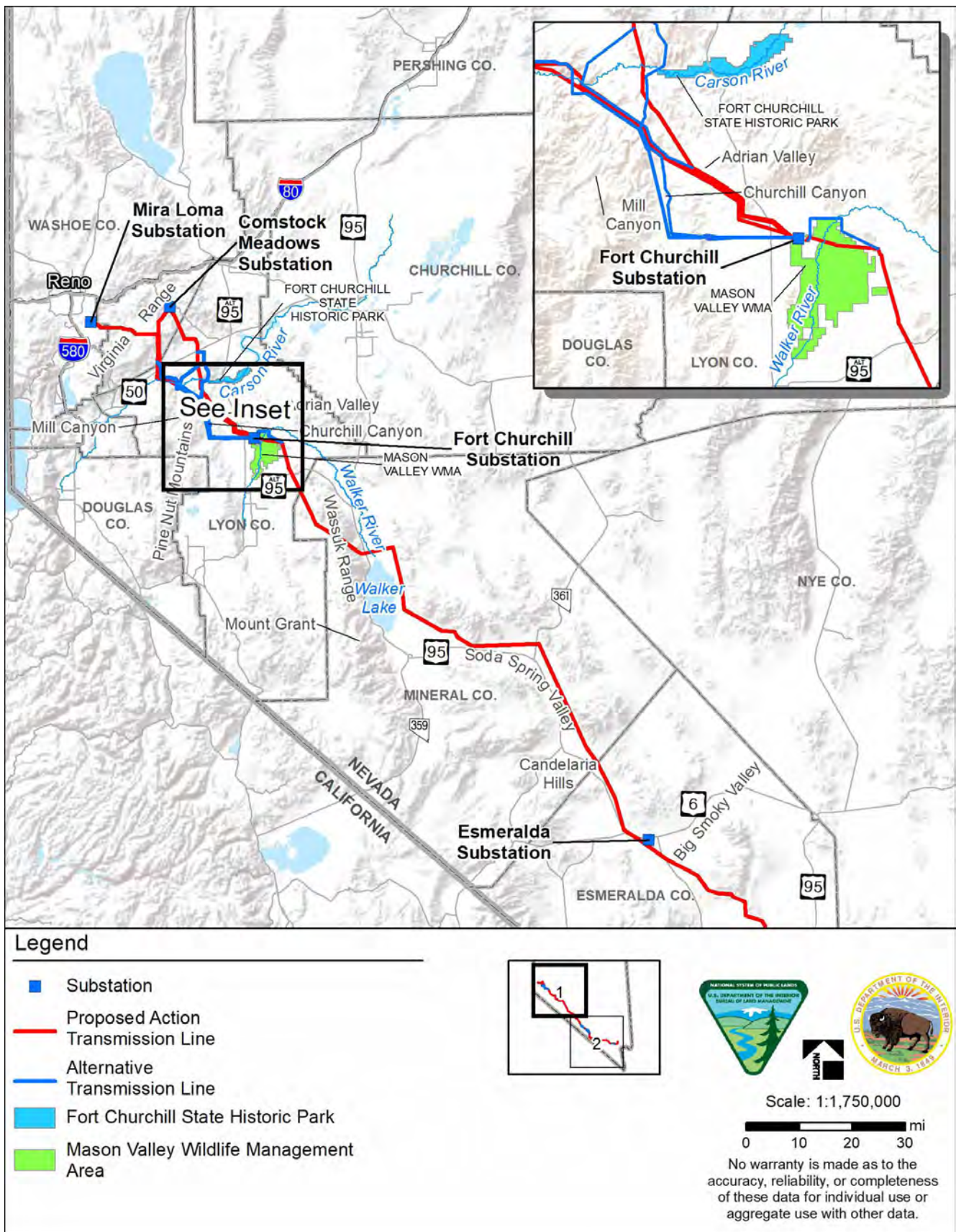


Scale: 1:3,000,000

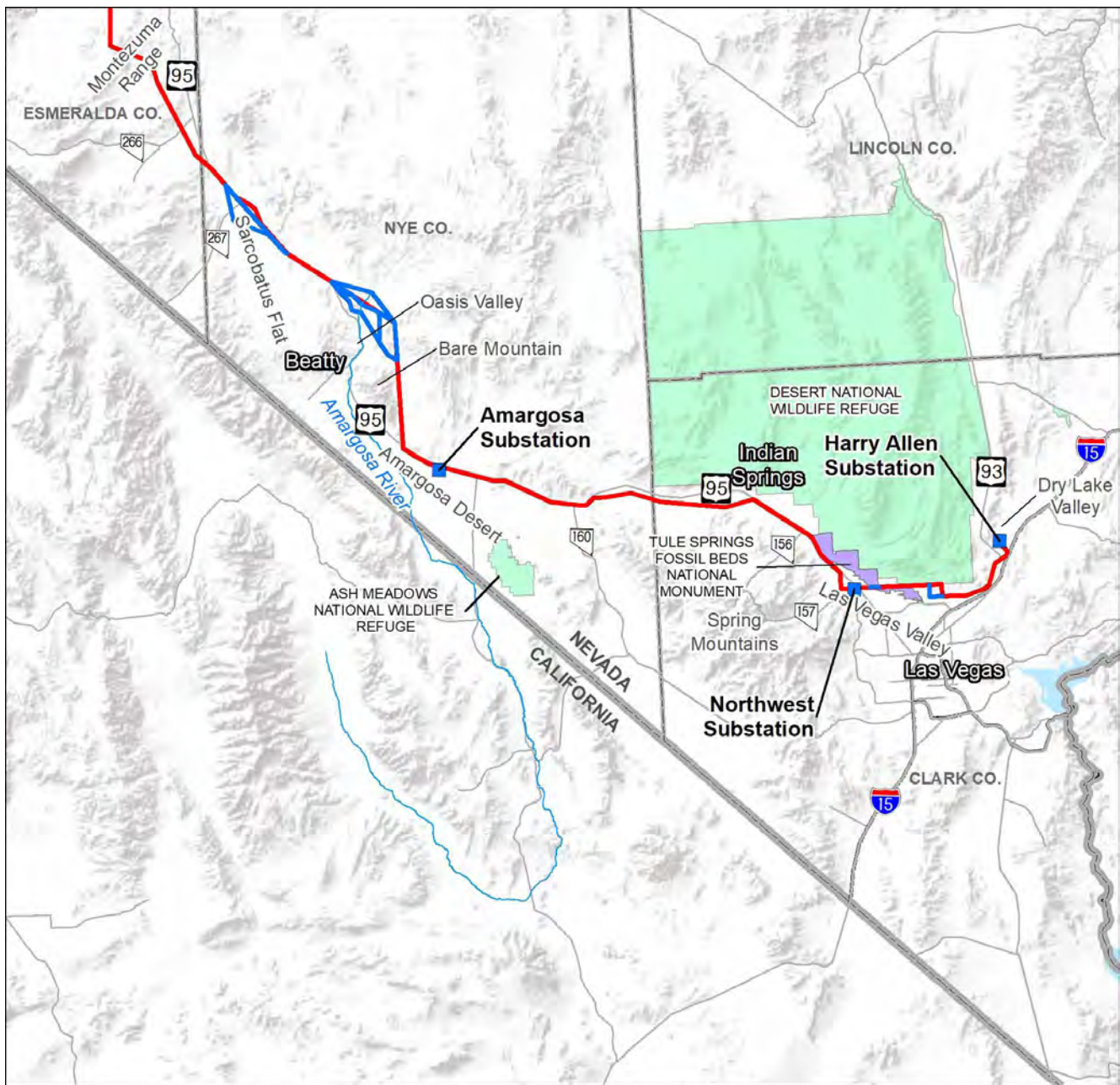


No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 3-10. Ecoregions**

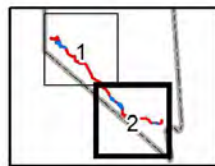


**Figure 3-11. Topographic and Important Features (1 of 2)**

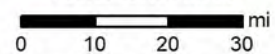


**Legend**

- Substation
- Proposed Action Transmission Line
- Alternative Transmission Line
- Desert National Wildlife Refuge
- Tule Springs Fossil Beds National Monument



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 3-12. Topographic and Important Features (2 of 2)**

**Table 3-20. Special Status Plants with Moderate to High Potential to Occur within the Special Status Plant Analysis Areas**

<b>Common Name Scientific Name</b>	<b>Status<sup>a</sup></b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Alexander's buckwheat <i>Eriogonum alexanderae</i>	BLM S	Light-colored clay outcrops, hillsides, and badlands in shadscale, sagebrush, and pinyon-juniper zones	Moderate
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
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
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
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 from four populations that are restricted to approximately three square miles in the vicinity of the Churchill Narrows, Lyon County. Spatial data provided by the NDNH identified 192 acres as occupied by Churchill Narrows buckwheat, all in the vicinity of Churchill Narrows.	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 amsl	High
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 ES <sub>p</sub>	Carbonate outcrops, talus, scree, and gravelly washes and banks in the creosote-bursage, shadscale, and blackbrush zones between 4,000 to 6,000 feet amsl	High
Death Valley beardtongue <i>Penstemon fruticiformis</i> var. <i>amargosae</i>	BLM S NVD CE MSHCP ES <sub>p</sub>	Quartzite- and limestone-derived soils in sandy or gravelly washes within the creosote, saltbush, and blackbrush communities between 3,100 to 6,300 feet amsl	Moderate
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
Halfring milkvetch <i>Astragalus mohavensis</i> var. <i>hemigyris</i>	BLM S NVD CE MSHCP ES <sub>p</sub>	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
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 to 9,300 feet amsl	Moderate
Jaeger ivesia <i>Ivesia jaegeri</i>	BLM S NVD CE MSHCP ES <sub>p</sub>	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 to 11,200 feet amsl	Moderate

Common Name Scientific Name	Status <sup>a</sup>	General Habitat Requirements	Potential
Lahontan Basin buckwheat <i>Eriogonum rubricaulae</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
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 to 2,700 feet amsl	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 to 9,000 feet amsl	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 to 4,450 feet amsl	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 to 5,500 feet amsl	High
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 to 7,500 feet amsl	Moderate
Parish phacelia <i>Phacelia parishii</i>	BLM S NVD CE	Moist to superficially dry, open, flat to hummocky, mostly barren, often salt-crust, 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 amsl	Moderate
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 to 4,900 feet amsl	Moderate

Common Name Scientific Name	Status <sup>a</sup>	General Habitat Requirements	Potential
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 to 6,000 feet amsl	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 to 9,200 feet amsl	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>sesquimetalis</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
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.	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 from 4,550 to 6,000 feet amsl	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
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
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 to 4,600 feet amsl	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 amsl	High

Table Acronyms: amsl – above mean sea level; BLM – Bureau of Land Management

Table Notes: <sup>a</sup>Status Definitions: BLM S – Sensitive Species; CS – Covered Species; CE – Critically Endangered Plant; ES – Evaluated Species; Flora – State of Nevada Critically Endangered State Listed Flora; MSHCP – Clark County Multiple Species Habitat Conservation Plan; NVD – Nevada State Designation; TUSK – Tule Springs Fossil Beds National Monument Species of Concern

**Table 3-21. Special Status Terrestrial Wildlife with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Areas**

Common Name Scientific Name	Status <sup>a</sup>	General Habitat Requirements	Potential
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	High
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
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 spp.</i>	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.	High
Common chuckwalla <i>Sauromalus ater</i>	BLM S	Lava flows, hillsides, and outcrops in rocky desert; uses rock crevices for shelter	High
Desert horned lizard (northern and southern subspecies) <i>Phrynosoma platyrhinos platyrhinos</i> and <i>P. p. calidiarum</i>	BLM S MSHCP ES	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 <i>Euphilotes enoptes primavera</i>	BLM S	Known only from the Wassuk Range in Mineral County, Nevada, 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

<b>Common Name Scientific Name</b>	<b>Status<sup>a</sup></b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Great Basin small blue <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
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
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
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 desert tortoise <i>Gopherus agassizii</i>	BLM S ESA T NVD TR TUSK	Creosote scrub and blackbrush on rocky slopes, washes, bajadas, and alluvial fans	High
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
Nevada alkali skipperling <i>Pseudocopaedodes 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
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
Palmer's chipmunk <i>Neotamias palmeri</i>	NVD SM MSHCP	Mature coniferous forests; endemic to the Spring Mountains	Moderate
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



Common Name Scientific Name	Status <sup>a</sup>	General Habitat Requirements	Potential
Sidewinder <i>Crotalus cerastes</i>	BLM S MSHCP CS	Wind-blown sands, especially where sand hummocks are topped with vegetation	High
Western pond turtle <i>Actinmys marmorata</i>	BLM S	Permanent and intermittent waters of rivers, creeks, small lakes and ponds, marshes, irrigation ditches, and reservoirs	Moderate
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 Acronyms: amsl – above mean sea level; BLM – Bureau of Land Management

Table Notes: <sup>a</sup>Status Definitions: BLM S – BLM Sensitive Species; C – Candidate; CS – Covered Species; ESsp – Evaluated Species; ESA – Endangered Species Act; MSHCP – Clark County Multiple Species Habitat Conservation Plan; NVD – Nevada State Designation; PRA – Protected Amphibian; PM – Protected Mammal; PR – Protected Reptile; SM – Sensitive Mammal; T – Threatened; TR – Threatened Reptile; TUSK – Tule Springs Fossil Beds National Monument Species of Concern; WFRHBA – Wild-Free Roaming Horses and Burros Act of 1971; WL – Watch List

**Table 3-22. Special Status Aquatic Wildlife with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Areas**

Common Name Scientific Name	Status <sup>a</sup>	General Habitat Requirements	Potential
Lahontan cutthroat trout <i>Oncorhynchus clarki henshawi</i>	BLM S ESA T NVD GF	Cool, well-oxygenated water in a wide variety of lakes and streams	High
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
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
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

Table Acronyms: amsl – above mean sea level; BLM – Bureau of Land Management; NV – Nevada

Table Notes: <sup>a</sup>Status Definitions: BLM S – BLM Sensitive Species; ESA – Endangered Species Act; GF – Game Fish; NVD – Nevada State Designation; PF – Protected Fish; T – Threatened

**Table 3-23. Special Status Birds and Bats with Moderate to High Potential to Occur within the Special Status Wildlife Analysis Areas**

Common Name Scientific Name	Status <sup>a</sup>	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
Bald eagle <i>Haliaeetus leucocephalus</i>	BLM S BGEPA NVD EnB BCC TUSK	Near lakes, reservoirs, rivers, marshes, and coasts	High
Bendire's thrasher <i>Toxostoma bendirei</i>	BLM S BCC MSHCP ESsp 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
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
Burrowing owl (includes western burrowing owl) <i>Athene cunicularia</i> including <i>A. c. hypugaea</i>	BLM S BCC MSHCP ESsp	Open habitats with sparse vegetation such as prairie, pasture, desert, or shrub-steppe, and airports	High
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 amsl	High

<b>Common Name Scientific Name</b>	<b>Status<sup>a</sup></b>	<b>General Habitat Requirements</b>	<b>Potential</b>
California myotis <i>Myotis californicus</i>	BLM S	Variety of habitats from desert scrub to forest at elevations between 680 to 6,000 feet amsl	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
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 ES <sub>p</sub>	Dense mesquite thickets and brush along desert streams, as well as in sparse brush in open areas and dense chaparral in mountains below 6,000 feet amsl	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 ES <sub>p</sub>	Wide range of habitats from low-elevation desert scrub to high-elevation coniferous forest at elevations between 1,400 to 7,000 feet amsl	High
Golden eagle <i>Aquila chrysaetos</i>	BLM S BGEPA BCC MSHCP WL TUSK	Open country—especially around mountains, hills, and cliffs—in a variety of habitats including deserts, shrublands, grasslands, coniferous forests, farmland, and riparian corridors	High
Grace's warbler <i>Setophaga graciae</i>	BCC	Open pine forest, pine-oak woodlands, and pine savanna	High
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

<b>Common Name Scientific Name</b>	<b>Status<sup>a</sup></b>	<b>General Habitat Requirements</b>	<b>Potential</b>
Greater sage-grouse <i>Centrocercus urophasianus</i>	BLM S ESA PT	Sagebrush steppe near meadows and aspen stands, nesting in areas of relatively dense cover	High
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 amsl	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 amsl	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 amsl	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

Common Name Scientific Name	Status <sup>a</sup>	General Habitat Requirements	Potential
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	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	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
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
Silver-haired bat <i>Lasionycteris noctivagans</i>	BLM S MSHCP CS	Primarily mature forests and riparian corridors	High
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 amsl	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

Common Name Scientific Name	Status <sup>a</sup>	General Habitat Requirements	Potential
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 amsl	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 amsl	High
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	BLM S ESA T NVD SnB	Most commonly associated with cottonwood/willow-dominated vegetation	Moderate
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 amsl	High

*Table Acronyms:* amsl – above mean sea level; BLM – Bureau of Land Management

*Table Notes:* <sup>a</sup> *Status Definitions:* BCC – US Fish and Wildlife Birds of Conservation Concern; BGEPA – Bald and Golden Eagle Protection Act; BLM S – BLM Sensitive Species; CS – Covered Species; EnB – Endangered Bird; ESp – Evaluated Species; ESA – Endangered Species Act; 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

Species protected under the federal Migratory Bird Treaty Act (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 in 2021 and 2022 identified a total of 352 active, inactive, unoccupied, and unknown status raptor and corvid nests (West 2022). The 14 actively occupied nests consisted of eight red-tailed hawk, one peregrine falcon, three great-horned owl, and two 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 2022 breeding season. Survey results for golden eagles are discussed in Section 3.4 Bald and Golden Eagles.

Five Important Bird Areas (IBAs) designated by the National Audubon Society occur within the 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 National Recreation Area. The Spring Mountains were designated as an IBA because they contain a high number of vegetation zones and, as a result, 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 only one of 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 water. The Mount Grant IBA is located on private land and lands managed 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 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 2021).

The special status species are separated for analysis in 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 (i.e., butterflies, moths) and hymenopterans (i.e., bees) are included in special status terrestrial wildlife due to their strong associations with terrestrial vegetation. Special status aquatic wildlife includes all vertebrate and invertebrate species that are aquatic in nature throughout most of their life cycle such as fish, mollusks, and aquatic insects. Where applicable, the federal ESA- and Eagle Act-listed status is included within the special status species tables. Refer to Section 3.1 Federally Listed Species and Section 3.4 Bald and Golden Eagles for detailed analyses of these species.

### 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 with 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 or creation; increased noise and human presence; nighttime lighting; deposition of dust; sedimentation; crushing by or collisions with vehicles and personnel; and collisions with powerlines. 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 are those that either support a large number of species as compared to other habitats or that 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. BIO-1, BIO-6, BIO-8, and BIO-21, BIO-23, BIO-38, BIO-39, and BIO-43) would be implemented to minimize and avoid the potential for disturbance-related impacts to special status plant species. Special status plant surveys would be conducted within suitable habitat prior to construction. Plants detected during surveys would be protected in place, where feasible, and the GLWP would be constructed in such a way to minimize impacts from altered drainage patterns and fugitive dust. If special status plants found on survey cannot be positively distinguished from similar species by a qualified botanist, EMMs as noted above would be implemented to protect the plants as if they were a confirmed special status species. To ensure populations are avoided, a minimum 300-foot avoidance buffer would be marked around special status plant populations that occur within or near the ROW and work. A biological monitor would be present during all ground-disturbing and vegetation removal activities; the monitor would also survey for special status plants immediately prior to disturbance. In the event that individuals of species protected under Nevada Critically Endangered Flora Law cannot be protected in place, the Proponent would obtain a permit from the State prior to removal or destruction, as required by law. Topsoil would be salvaged from special status plant habitat for use during reclamation.

#### Operations and Maintenance, and Decommissioning

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 or crushed by workers or equipment, EMMs would be implemented (Appendix C. BIO-1, BIO-6, BIO-8, BIO-21 through BIO-23, BIO-38 through BIO-44). These include surveys would be conducted within suitable habitat for



special status plants as prescribed by the EMMs. Special status plants found on survey would be protected in place, where feasible, and removal permits would be acquired from the State, when required by law. 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 extent. After reclamation of disturbed areas, 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, and removal permits would be acquired from the State when required by law. Special status plants adjacent to areas being reclaimed may be subjected to increased dust deposition for the duration of reclamation.

### **Special Status Terrestrial Wildlife Species**

#### **Construction**

Under the Action Alternatives, construction-related activities would impact terrestrial wildlife that occur along the existing and new access roads, the footprint of ancillary facilities, and within the temporary ROW area. Impacts on special status terrestrial wildlife species would include potential injury or death from interactions with 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 reptiles and mammals. 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. Numerous 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 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 restoration is complete. During construction of the Proposed Action, the Proponent would report all occurrences of the Gila monster (*Heloderma suspectum*) to NDOW to within 24-hours of occurrence to comply with NDOW's Gila Monster Reporting Protocol (NDOW 2020).

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 ancillary facilities would promote localized increases in predator occupancy (e.g., kit foxes, coyotes, ravens, raptors). These increases in predator occupancy along the GLWP construction areas (e.g., construction yards) and ancillary facilities would result in increased localized predation specifically to special status terrestrial prey species such as small mammals, insects, amphibians, and reptiles. EMMs (Appendix C. BIO-36, HAZMAT\_WASTE-10, HAZMAT\_WASTE-13, HAZMAT\_WASTE-21) would minimize

changes in predator occupancy near construction areas by reducing wildlife access to anthropogenic resources (i.e., waste management and restricting wildlife access and 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 and 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. In addition, impacts on the terrestrial wildlife from O&M activities would result in habitat degradation, specifically through the introduction and spread of invasive plant species and noxious weeds, impacts from predators perching and nesting on transmission towers and lines, and habitat degradation and fragmentation due to increased anthropogenic disturbance.

### **Decommissioning**

Impacts during decommissioning would be similar to those described for the construction phase, though to a lesser extent. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions over the long-term. Human activity associated with the Action Alternatives would decrease after decommissioning and the removal of transmission line facilities.

## **Special Status Aquatic Wildlife**

### **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 on dry land away from rivers and 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 wildlife, EMMs (Appendix C. EMMs BIO-35, CON-11, CON-15, HYDRO\_WQ-9, HYDRO\_WQ-23, and OPS-13) would implement stormwater management measures and prohibit/minimize to the greatest extent practical 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 land management agency would be required before ground disturbance can commence. In addition, if construction activities would require ground disturbance within the wetland/waterway, and wetlands/waterways are 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 greatest extent practical.

### **Operations and Maintenance**

Effects on special status aquatic wildlife 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 wildlife species. Impacts on special status aquatic wildlife from O&M activities would be from sedimentation into the rivers and other surface water resources from soil disturbance from inspection and maintenance of the transmission facilities. Maintenance of the permanent ROW to clear vegetation from interfering with the powerlines would be conducted by trimming and removing riparian

vegetation along the Carson River and Walker River crossings. These activities are anticipated to be infrequent and would result in undetectable impacts on special status aquatic wildlife species and their habitat.

### **Decommissioning**

Impacts during decommissioning would be similar to those described for the construction phase, though to a lesser extent. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions over the long-term.

## **Special Status Birds and Bats**

### **Construction**

Generally, riparian vegetation is of high-value to special status birds and bats. To reduce the impacts to riparian and other high-value habitats, EMMs (Appendix C. EMMs BIO-35, CON-11, CON-15, HYDRO\_WQ-9, HYDRO\_WQ-23, and OPS-13) would be implemented to avoid and minimize impacts. Birds and bats would be subject to injury or death from vehicular collisions throughout construction. Areas of potential habitat not currently occupied by special status birds and bats would be unavailable for colonization for the duration of disturbance. All temporary construction areas would be restored following GLWP construction; these areas would become available for use by special status birds and bats once restoration is complete. Impacts on bird and bat species that are less tolerant of the disturbance associated with noise, nighttime lighting, and human activity would extend further than the actual disturbance footprint to lands outside of the temporary ROW area. These types of disturbances may result in physiological and behavioral changes including avoidance of affected areas for the duration of construction.

### **Operations and Maintenance**

The presence of the Action Alternatives' transmission and distribution lines would have impacts to special status birds and bats. The addition of transmission line 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 GLWP Raven Management Plan (Appendix E) and Bird and Bat Conservation Strategy (Appendix G), 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' transmission and distribution lines could also cause avian and bat mortality from collisions with and electrocution by 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, though they would not eliminate the impacts on birds and bats. Other impacts of the Action Alternatives during O&M would be similar to those experienced during construction, including mortality or injury due to crushing by or collisions with vehicles as well as impacts associated with increased disturbance 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 extent, assuming some degree of resident bird acclimation to disturbance during the O&M phase. 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 41 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 with the Proposed Action 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 (2021) for 14 special status plants occur within the footprint of one or more GLWP components (Table 3-24). 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 GLWP construction completion. Once restoration is complete, these areas would become available for special status plant colonization. Special status plants in portions of the special status plants analysis area not subjected to ground disturbance may be impacted by airborne dust created during 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 GLWP-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.

Although EMMs as noted above would minimize impacts to special status plants, Churchill Narrows buckwheat and Tiehm's peppergrass may be particularly vulnerable to habitat loss as these three species occupy a limited range. White-margined beardtongue is also considered to be vulnerable and was petitioned for listing under the federal ESA in March 2023. Impacts to these three species are described in detail following Table 3-24.

**Table 3-24. Impacts from Proposed Action on Known Special Status Plant Populations or Habitat Areas**

Species Name	Component and Relative Location
Black woollypod <i>Astragalus funereus</i>	Construction Yard 7 – Beatty
Churchill Narrows buckwheat <i>Eriogonum diatomaceum</i>	Transmission Lines; P76 Fly Yard – Churchill Narrows
Cima milkvetch <i>Astragalus cimae</i> var. <i>Cimae</i>	Transmission Lines; State Highway 2C Access Roads Requiring Improvements near Coaldale Junction
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
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 <sup>a</sup> ; Transmission Lines and Access Roads Requiring Improvements adjacent to TUSK <sup>b</sup>
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
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

Species Name	Component and Relative Location
Sodaville milkvetch <i>Astragalus lentiginosus</i> var. <i>Sesquimetalis</i>	Rhodes Salt Marsh Road Access Road Requiring Improvements
Tiehm's peppercress <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 Source: Known populations were provided by the NDNH (2021) species occurrence datasets, BLM (2012), and BLM (2011a), and may not include all special status plant populations that occur within the GLWP analysis area.

<sup>a</sup>Occurrences documented within modeled habitat that includes portions of and extends beyond TUSK in 2005 (BLM 2011a). No individuals were found on the western portion of TUSK during surveys conducted in April and September 2022 (West 2023b); surveys of the eastern portion of TUSK within the temporary and permanent ROW areas will be conducted in 2023.

<sup>b</sup>Occurrences documented within modeled habitat that includes portions of and extends beyond the permanent and temporary ROW (BLM 2011a).

### **Churchill Narrows Buckwheat**

Churchill Narrows buckwheat is known in four populations that are restricted to diatomaceous soil outcroppings within a 3-square mile area managed by the BLM in the vicinity of the Churchill Narrows, Lyon County (USFWS 2014b). The most recent surveys for Churchill Narrows buckwheat were conducted by the BLM in 2011, at that time species was found at 16 discrete locations totaling approximately 17.9 acres (BLM 2012; USFWS 2014b). Within the three-square mile range of the species, Churchill Narrows buckwheat is known to shift its distribution in response to external conditions; therefore, diatomaceous soil outcroppings not occupied by the species in 2011 are important to the long-term persistence of the species as they may be occupied when construction begins or at a future point within the lifespan of the GLWP. Currently, the extent of diatomaceous soil outcroppings suitable for occupancy by Churchill Narrows buckwheat within the footprint of the GLWP as well as within the larger range of the species is unknown. Therefore, surveys for suitable Churchill Narrows buckwheat habitat would be conducted by qualified botanists prior to final project siting and design. Results of the surveys would be provided in the Final EIS. Surveys would include all areas within 1,640 feet (500 meters) of the Proposed Action and alternatives within the range of the species. Where present, suitable habitat would be delineated, and the location and number of Churchill Narrows buckwheat plants would be recorded.

Under the Proposed Action, three separate 345-kV transmission lines would cross the range of Churchill Narrows buckwheat. Approximately 0.5 mile of the Comstock Meadows #1 and 0.9 mile of the Comstock Meadows #3 transmission lines would cross a corner of the Churchill Narrows buckwheat range. No 2011 populations occur within the special status plants analysis area along these two parallel lines. Approximately 5.3 miles of the third transmission line, Comstock Meadows #2, would bisect the range of the species. All but one of the 2011 locations associated with Populations 1, 2, and 3 fall entirely within the special status plants analysis area for this line, a portion of one Population 3 location is partially outside the analysis area; no 2011 locations associated with Population 4 would be impacted. Portions of two discrete 2011 locations, one from Population 2 and one from Population 3, representing 3.7 acres (20.7 percent) of 2011 occupied habitat occur within the temporary and permanent ROW areas for the Comstock Meadows #2 line. Additionally, one of these occupied locations occurs within the footprint of Fly Yard P76. Construction of Fly Yard P76 would result in destruction of individual Churchill Narrows buckwheats and would temporarily remove approximately three acres of habitat occupied in 2011. This

three-acre habitat loss represents 61.1 percent of the 4.9 acres occupied by Churchill Narrows buckwheat Population 2 and 16.8 percent of the area occupied by the species as a whole in 2011.

### ***Tiehm's Peppergrass***

Tiehm's peppergrass occurs in scattered populations within a limited range in Lyon and Douglas counties. Under the Proposed Action, three 345-kV transmission line segments, Fort Churchill to Mira Loma, Fort Churchill to Comstock #1, and Fort Churchill to Comstock #2 occur within the species' range. Two previously recorded populations of Tiehm's peppergrass are located within the special status plants analysis area for the 345-kV Fort Churchill to Comstock #1 transmission line (NDNH 2021). 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).

### ***White-Margined Beardtongue***

A petition to list the white-margined beardtongue as endangered or threatened under the federal ESA was submitted to the USFWS on March 16, 2023. Declines in white-margined beardtongue populations are attributed in part to habitat loss and degradation due to drought and climate change, fragmentation from utility, energy, and urban development, and harm from off-highway vehicles (Center for Biological Diversity Center for Biological Diversity 2023). The species occurs in four disjunct population centers in the southwestern US: Mohave County, AZ, San Bernadino County, CA; and Clark and Nye County, NV. The GLWP is not located in proximity to the two AZ populations or the Clark County population that is located south of Las Vegas, NV. The GLWP would impact portions of the Nye County population that occurs near US 95 between the Nevada National Security Site and the Ash Meadows NWR. Approximately 13.9 acres and 4.5 acres within the temporary and permanent ROW areas, respectively, would occur within documented occurrences for the white-margined beardtongue. The Proposed Action may impact approximately 7.2 percent (18.4 acres of the 257 acres documented) of the Nye County population through habitat loss (NDNH 2021). Impacts to the white-margined beardtongue include habitat degradation (e.g., increases in dust and introduction of invasive species), alteration of behavior patterns of the species pollinators and herbivores, and loss of pollinator habitat. These impacts of construction of the Proposed Action would result in localized impacts to only a small portion of the Nye County population for the white-margined beardtongue, and EMMs (Appendix C. BIO-1, BIO-6, BIO-8, BIO-21 through BIO-23, BIO-38 through BIO-44) would establish pre-construction surveys and avoidance of the species, measures to manage both dust and invasive species, and restore habitats following construction. The construction of the Proposed Action is 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 same to those discussed in the impacts common to all Action Alternatives above.

### **Effects Determination for Special Status Plant Species**

Impacts on special status plant species would be minimized through implementation of EMMs (Appendix C. BIO-1, BIO-6, BIO-8, BIO-21 through BIO-23, BIO-38 through BIO-44) and implementation of the Integrated Weed Management Plan to minimize introduction and spread of invasive species and noxious weeds. The Proposed Action would result in impacts, ranging from undetectable to impacts only to the individual, on 41 special status plants due to the potential for individuals to be removed or

destroyed and because of localized habitat degradation. 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 peppercress because of the limited range of both species.

### **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 in Appendix C.

## **Special Status Terrestrial Wildlife**

### **Construction**

Implementation of the Proposed Action would impact 31 special status terrestrial wildlife species that have a moderate or high potential to occur within the special status fish and wildlife analysis area. Although 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 minimize impacts to special status terrestrial wildlife, the Amargosa toad may be particularly vulnerable to project disturbance because the species occupies a limited 10-mile-long range of scattered wetland and nearby upland habitats along the Amargosa River in Oasis Valley near the town of Beatty (USFWS 1996). In the vicinity of the Proposed Action, the Amargosa toad 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 all proposed access roads for the GLWP (NDNH 2021). Additionally, the toad occurs along a portion of the Amargosa River directly adjacent to Construction Yard 7 located south of Beatty. Construction-related activities within the range of the Amargosa toad may result in impacts due to mortality by crushing from vehicles as well as other impacts due to habitat loss and degradation from construction activities resulting in vegetation removal and ground disturbance. Construction of new and existing access roads requiring maintenance may involve ground disturbance to ephemeral drainages within the Oasis Valley. Increases in sedimentation within isolated water bodies has been found to reduce survivorship for local tadpole populations (Wood and Richardson 2009) sedimentation resulting from construction and movement of vehicles and equipment 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 March to April breeding season. To minimize the impacts to the Amargosa toad, the previously referenced EMMs would implement stormwater management measures and avoid/minimize to the greatest extent practical vehicle travel and construction related activities within 300 feet from wetlands and waterways (i.e., Amargosa River and its ephemeral tributaries and springs). In addition, EMMs specific to the Amargosa toad (Appendix C. EMMs BIO-25, BIO-26) would require construction activities to cease during and immediately after rainfall events within the Oasis Valley as well as during the Amargosa toad breeding season. A biological monitor would be present during activities within Construction Yard 7 and construction-related activities that occur near the Amargosa River or its tributaries. If construction activities, such as constructing new access roads or updating existing access roads, would result in impacts to ephemeral drainages in the Oasis Valley, the Proponent would mitigate the potential disturbance as part of the CWA Section 404 permit (refer to Section 3.14 Water Resources) and a biological monitor would be present during the access roads construction/modification. With the implementation of these EMMs, effects to Amargosa toad would impact individual Amargosa toads but are not anticipated to result in population-level impacts.

Desert bighorn sheep may be particularly vulnerable to disturbance as the subspecies occurs as isolated populations among mountain ranges throughout southern Nevada. Spatial data provided by NDOW

(2021b) and Monks and Logan Simpson (2023) identifies desert bighorn sheep records and occupied habitat within the special status fish and wildlife analysis area; 16 separate herds located in 18 mountain ranges occur within the special status fish and wildlife analysis area. Most of these habitat areas are utilized year-round, three habitat areas provide winter range, and one is identified as limited use (NDOW 2021b). Occupied bighorn sheep habitat generally occurs within the mountain ranges located on either side transmission line ROW, while the ROW itself is mostly located outside habitat. Exceptions where the ROW bisects occupied mountain ranges include the Spring/Las Madres herd at Indian Ridge and the Virginia Range Herd. Additionally, 13 bighorn sheep movement corridors intersect the Proposed Action. Nine movement corridors are bisected by the transmission line ROW such that bighorn sheep movement from one portion of the corridor to another may be restricted for the duration of construction due to temporary and permanent habitat removal and increased human presence and noise among others. Construction-related activities would result in impacts to desert bighorn sheep due to behavioral changes from disturbances caused by construction activities such as helicopter use, blasting, vibration, and noise. These impacts would be most severe during the sheep mating and lambing seasons (February to May) as disturbance could lead to loss of reproductive opportunities or lamb mortality. To minimize the impacts to desert bighorn sheep, EMMs (Appendix C. EMMs BIO-27 and BIO-28) would be implemented to prohibit the use of helicopters within active lambing areas and to restrict construction activities within bighorn sheep winter range.

The monarch butterfly may be particularly vulnerable to project disturbance as this species is limited to specific larval host plants (i.e., milkweed [*Asclepias spp.*]) and is in population decline throughout the US (USFWS 2020c). The species is a candidate for federal listing under the ESA (USFWS 2020c) and the Proposed Action would occur within the range of the western migratory population that largely overwinters in coastal California (WAFWA 2019). The monarch butterfly and its larval host plants, milkweed, are known to occur within suitable habitat throughout the Proposed Action, specifically within areas that contain water resources such as Las Vegas, Oasis Valley, Walker Lake, and along the Amargosa, Carson, and Walker rivers (WMMM 2022). Under the Proposed Action, construction-related activities would result in habitat degradation and reduction of their host milkweed as a result of vegetation crushing and removal, exposure to chemicals (herbicides and spills from equipment), and introduction of invasive plant species and noxious weeds. These impacts would occur within the temporary ROW area and ancillary facilities, and predominantly impact only at the individual level. To minimize the impacts to the monarch butterfly, EMMs (Appendix C. EMMs BIO-29 and BIO-30) would be implemented to restore or protect in place milkweed patches for the species.

### **Operations and Maintenance**

Giuliani's dune scarab and large aegialian scarab may be particularly vulnerable to disturbance because these species are highly endemic and are only known to occur at two locations, Big Dune and Lava Dune in the Amargosa Valley (USFWS 2012). Populations of these two species at Big Dune are located approximately three miles south of the special status fish and wildlife analysis area and are not anticipated to be impacted by the GLWP. Populations of Giuliani's dune scarab and large aegialian scarab at Lava Dune would be impacted if GLWP construction were to affect sand transport to Lava Dune. In the last 70 years Lava Dune's perimeter is nearly unchanged, constrained to the surface of Lathrop Wells basalt flow, although increases in exposed bedrock at the dune perimeter suggests some sand loss or consolidation over time (Paylor 2023). Moreover, surveys on Lava Dune have documented the Giuliani's dune scarab to be in low abundance (Lange 2021). As described in Section 3.9 Earth Resources, access roads and structure foundations are anticipated to have a very localized impact on sand transport. Lattice structures utilized near Lava Dune under the Proposed Action are anticipated to allow winds to essentially blow through the



structure, minimizing the impact on sand transport. Since the strongest winds consistently come from the south-southeast, portions of the AS-2 (Proposed Action) that extend above ground level may interrupt sand transport to Lava Dune, which is located downwind. Because Lava Dune is one of only two locations where Giuliani's dune and large aegialian scarabs are known to occur, actions that alter geological processes governing sand transport to this location have the potential to alter a substantial portion of the habitat available for these two species, potentially resulting in population-level effects.

### **Decommissioning**

Impacts from the Proposed Action during decommissioning activities would be the same as impacts common to all Action Alternatives.

### **Effects Determination for Special Status Terrestrial Species**

Impacts on special status terrestrial wildlife species would be minimized through implementation of 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) that would reduce vehicle speed limits on access roads and construction areas, provide an onsite biological monitor supervising construction activity, and promote habitat regeneration. Species-specific EMMs would be implemented to reduce impacts to Amargosa toad and bighorn sheep (EMMs BIO-25, BIO-26, BIO-27, BIO-28, and BIO-31 in Appendix C). In addition, implementation of the Integrated Weed Management Plan (pending) would minimize introduction and spread of invasive species and noxious weeds and a Raven Management Plan (Appendix F) would reduce avian and terrestrial predator occupancy, especially targeted toward ravens.

The Proposed Action would result in impacts, ranging from undetectable to impacts only to the individual, on 26 special status terrestrial species due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, and potential increased predation. Impacts to bighorn sheep may occur at the population level impacts to movement corridors. The Proposed Action is not likely to result in a trend toward federal listing or loss of viability of these 29 special status terrestrial species. The Proposed Action may result in a trend toward federal listing or loss of viability of Giuliani's dune scarab and large aegialian scarab due to impacts of sand transport to Lava Dune.

### **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 in Appendix C.

## **Special Status Aquatic Wildlife**

### **Construction**

Construction of the Proposed Action would result in impacts to six special status aquatic wildlife that have a moderate or high potential to occur within the special status wildlife analysis area. 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 on dry land away from rivers and surface water resources, and the transmission and distribution line wires would span over the riparian habitats and open water.

Construction of the Proposed Action would result in impacts on special status aquatic wildlife, such as the mountain whitefish, Oasis Valley speckled dace, and Pahranaagat naucorid bug from habitat degradation as a result of construction within ephemeral drainages, vegetation removal, sedimentation, and stormwater runoff into the Amargosa, Carson, and Walker rivers. Under the Proposed Action, construction activities

may result in impacts to groundwater which would contribute to further habitat degradation to the water quality and the water table needed to support suitable habitat for species status aquatic wildlife. Refer to Section 3.14 Water Resources for analysis of impacts the GLWP would have on groundwater resources.

Construction of new and existing access roads requiring maintenance may require approximately 15.3 acres of disturbance to access roads that cross ephemeral drainages. If construction activities would result in impacts to these ephemeral drainages, the Proponent would mitigate the potential disturbance as part of the CWA Section 404 permit (refer to Section 3.14 Water Resources). These ephemeral drainages are unlikely to support habitat for special status aquatic wildlife, although, impacts to these ephemeral drainages may result in impacts to their downstream suitable habitats. Vegetation removal within the temporary and permanent ROW area along the Walker and Carson rivers may reduce shade, forage, and cover for aquatic wildlife species. Approximately 25 acres of permanent and 87 acres of temporary ROW intersect within riparian vegetation for both the Walker River (12.7 acres of permanent and 33.8 acres of temporary) and Carson River (12.6 acres of permanent and 53.5 acres of temporary) that may be subject to potential removal or trimming to develop a cleared area for the powerline 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. Similarly, 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. As previously note, habitat degradation on special status aquatic wildlife would be minimized with the implementation of EMMs (Appendix C. EMMs BIO-35, CON-11, CON-15, HYDRO\_WQ-9, HYDRO\_WQ-23, and OPS-13), which would prohibit/minimize to the greatest extent practical vehicle travel and construction related activities within 300 feet from wetlands and waterways.

#### **Operations and Maintenance and Decommissioning**

Impacts on special status aquatic wildlife from the Proposed Action during O&M and decommissioning activities would be the same as impacts common to all Action Alternatives.

#### **Effects Determination for Special Status Aquatic Wildlife Species**

There would be no impacts to aquatic wildlife during construction, O&M, and decommissioning-related activities under the Proposed Action because no activities would occur directly within the special status aquatic wildlife occupied or suitable aquatic habitats. The Proposed Action would result in impacts, ranging from undetectable to impacts only to the individual, driven predominantly by localized habitat degradation on six special status aquatic wildlife. The Proposed Action is not likely to result in a trend toward federal listing or loss of viability of special status aquatic wildlife species.

#### **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 wildlife species with the implementation of the EMMs in Appendix C.

### **Special Status Birds and Bats**

#### **Construction**

The Proposed Action would impact 37 special status birds and 20 special status bats that have a moderate or high potential to occur within the special status wildlife species analysis area. A total of 324 non-eagle raptor nests were documented within two miles of the Proposed Action centerline; nests within the special status wildlife analysis area may also be affected during construction. Table 3-25 shows acreages of temporary and permanent ROW areas within each IBA from the Proposed Action. Construction of the

Proposed Action across high-value riparian areas along the Amargosa, Walker, and Carson Rivers as well as within the Mason Valley WMA and nearby Perk, Joggles, and Perazzo sloughs would also impact migratory birds and bats utilizing these areas. Generally, riparian vegetation is of high-value to special status birds and bats; approximately 560 acres of riparian vegetation, marsh, and playa occur within the temporary ROW area and 195 acres occur within the permanent ROW area for the Proposed Action. To reduce the impacts to riparian and other high-value habitats, EMMs referenced above would be implemented to avoid and minimize impacts. Construction of the Proposed Action would also impact special status birds and bats through habitat loss. Active bird nests and bats roosting in trees or cliffs/rock outcroppings within the permanent and temporary ROW areas may be crushed during ground-disturbing activities; 120 acres of cliff, canyon, and outcrop landcover occur within the temporary ROW area and 24 acres occur within the permanent ROW area for the Proposed Action.

**Table 3-25. Proposed Action Temporary and Permanent ROW Areas to Important Bird Areas**

Important Bird Area	Acres	Temporary ROW area (acres)	Temporary ROW Area (percentage)	Permanent ROW Area (acres)	Permanent ROW Area (percentage)
Spring Mountains	18,157.5	0.2	< 1	0.2	< 1
Oasis Valley	268,776.5	60.1	< 1	19.2	< 1
Mount Grant	92,975.8	48.7	< 1	17.9	< 1
Walker Lake	41,519.8	83.8	< 1	27.2	< 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>192.8</b>	<b>&lt; 1</b>	<b>64.4</b>	<b>&lt; 1</b>

<sup>a</sup>A portion of the Carson Rive Delta IBA falls within the special status wildlife analysis area along two access roads where no ground disturbance will occur.

A petition to list the pinyon jay as endangered or threatened under the federal ESA was submitted to the USFWS in April 2022. Declines in pinyon jay populations are attributed in part to loss and degradation of pinyon-juniper habitat (Defenders of Wildlife 2022). Pinyon-juniper vegetation occurs in scattered locations throughout the length of the GLWP including within 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. Approximately 31,686.2 acres of pinyon-juniper vegetation occur within the special status wildlife analysis area, 753.5 acres of which occur within the temporary and permanent ROW areas. 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 project actions would impact vegetation within a small portion of the overall range of the pinyon jay.

**Operations and Maintenance and Decommissioning**

Impacts on special status birds and bats from the Proposed Action during O&M and decommissioning activities would be the same as impacts common to all Action Alternatives.

**Effects Determination for Special Status Birds and Bats**

Impacts on special status birds and bats would be minimized through implementation of a BBCS developed specifically for the GLWP (Appendix H). The GLWP would be designed in accordance with APLIC suggested practices (2006, 2012). Measures specified in the EMMs note above would reduce avian mortality at nest sites via pre-construction surveys and avoidance of active nests and would minimize the potential for electrocution and collision events, among other benefits. The GLWP Raven Management Plan developed

for the GLWP would further reduce impacts to special status birds by minimizing predation by common ravens. Implementation of the BBCS would reduce impacts to bat roosts and hibernacula via pre-construction surveys and avoidance.

The Proposed Action would result in impacts, ranging from undetectable to population-level impacts, to 57 special status birds and bats due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, and increased predation. The Proposed Action is not likely to result in a trend toward federal listing or loss of viability of any special status bird or bat species.

#### **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 in Appendix C.

### **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. No records occur within the temporary or permanent ROW areas for the Losee Transmission Alternative A or the comparable segment of the Proposed Action, but previously undocumented populations or individuals may be present. The Losee Transmission Alternative A would result in slightly fewer acres of potential habitat for Las Vegas bearpoppy, Las Vegas buckwheat, and rosy twotone beardtongue within the temporary (5.3 acres) and permanent (1.7 acres) ROW areas than the Proposed Action. The construction, O&M, and decommissioning of the Losee Transmission Alternative A may impact special status species through habitat removal, crushing by equipment and personnel, and dust deposition. As under the Proposed Action, surveys would be conducted within suitable habitat prior to construction and individual plants detected during the survey would be protected in place, where feasible.

#### **Special Status Terrestrial Wildlife**

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

The Losee Transmission Alternative A would occur within Sonora-Mojave Creosotebush-White Bursage Desert Scrub vegetation community, which is suitable habitat for a variety of special status terrestrial wildlife, specifically reptiles such as the banded Gila monster, common chuckwalla, and desert horned lizard. Both Losee Transmission Line Alternative A and the comparable segment of the Proposed Action are located in proximity to a seasonal movement corridor for bighorn sheep along the La Madre Ridge in the Las Vegas Range. Approximately 180 acres of the movement corridor would be subject to disturbance due to increased human presence and noise, among others, under Losee Transmission Alternative A, which includes about 35 more acres of temporary/permanent ROW than the 215 acres of temporary/permanent ROW under the Proposed Action. As boundaries of the disturbance area and the movement corridor itself are approximate, Losee Transmission Alternative A is not likely to notably add to impacts to bighorn sheep movement corridors as compared to the Proposed Action. No occupied bighorn sheep occupied habitat would be impacted Losee Transmission Alternative A or the comparable segment of the Proposed Action.

## **Special Status Aquatic Wildlife**

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

The Losee Transmission Alternative A would not occur within suitable or occupied habitat for any special status aquatic wildlife. There would be no impacts to special status aquatic wildlife 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 Sonora-Mojave Creosotebush-White Bursage Desert Scrub vegetation community, which provides 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 special status wildlife analysis area for either the Losee Transmission Alternative A or the Proposed Action.

## **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. There are no records of Las Vegas buckwheat within the permanent ROW area for TUSK Transmission Alternative B or the Proposed Action, but previously undocumented populations or individuals may be present. Occurrences of Las Vegas bearpoppy were documented within modeled habitat that includes portions of and extends beyond the permanent ROW on TUSK (BLM 2011b). The permanent ROW area of disturbance footprints do not differ between the TUSK Transmission Alternative B or the Proposed Action. As with the Proposed Action, surveys would be conducted within suitable habitat prior to construction and individuals detected on survey would be protected in place, where feasible.

## **Special Status Terrestrial Wildlife**

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

The TUSK Transmission Alternative B and the Proposed Action would occur within Sonora-Mojave Creosotebush-White Bursage Desert Scrub, North American Warm Desert Playa, and Sonora-Mojave Mixed Salt Desert Scrub vegetation communities, which are suitable habitat for a variety of special status terrestrial wildlife. Both TUSK Transmission Alternative B and the Proposed Action are located entirely within a seasonal movement corridor for bighorn sheep along the La Madre Ridge in the Las Vegas Range, and there is no occupied bighorn sheep habitat within the TUSK Transmission Alternative B or the comparable segment of the Proposed Action temporary/permanent ROW area.

## **Special Status Aquatic Wildlife**

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

The TUSK Transmission Alternative B or the comparable segment of the Proposed Action would not occur within suitable or occupied habitat for any of the special status aquatic wildlife. There would be no impacts to special status aquatic wildlife 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 Sonora-Mojave Creosotebush-White Bursage Desert Scrub, North American Warm Desert Playa, and Sonora-Mojave Mixed Salt Desert Scrub vegetation communities, which provide habitat for a variety of special status birds and bats including phainopepla, peregrine falcon, and hoary bat. 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.

#### **3.3.4.6 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

## **Special Status Plants**

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

Two special status plants—Nevada dune beardtongue and black woollypod—have been recorded the vicinity of the Beatty transmission alternatives. A known population of black woollypod occurs within the permanent and temporary ROW areas for Beatty Transmission Alternatives G and K; no other records of black woollypod occur within the ROW areas for any of the other Beatty transmission alternatives or the comparable section of the Proposed Action. However, unknown populations of black woollypod may be present within the ROW areas for the Beatty Transmission alternatives, in addition to the known population along Beatty Transmission Alternatives G and K. There are no records of Nevada dune beardtongue within the temporary or permanent ROW areas the Beatty transmission alternatives or the comparable segment of the Proposed Action, but previously undocumented populations or individuals may be present. If present, these species would be subject to impacts from ground disturbance; crushing by equipment and personnel; and dust deposition as described under the Proposed Action. As noted previously, surveys would be conducted within suitable habitat prior to construction and where feasible, individuals detected on survey would be protected in place. Compared to Beatty Transmission Alternatives A and C and the comparable segment of the Proposed Action, Beatty Transmission Alternatives G and K would result in the greatest impacts to special status plants. The Beatty Transmission Alternatives G and K both would impact a known population of black woollypod not impacted by Beatty Transmission Alternatives A and C or the comparable section of the Proposed Action.

## **Special Status Terrestrial Wildlife**

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

The Beatty transmission alternatives and the comparable segment of the Proposed Action primarily occur within Sonora-Mojave Creosotebush-White Bursage Desert Scrub, Sonora-Mojave Mixed Salt Desert Scrub, Mojave Mid Elevation Mixed Desert Scrub, and North American Warm Desert Playa vegetation communities. These vegetation communities are suitable habitat for a variety of special status terrestrial wildlife including common chuckwalla, desert horned lizard, and Great Basin collared lizard. Each Beatty transmission alternative and the comparable segment of the Proposed Action occurs within the Bare to Yucca Mountains bighorn sheep seasonal movement corridor. Each of these Action Alternatives fully bisect this corridor and may temporarily disrupt bighorn sheep use of and movement within the corridor because of habitat removal, increased human presence, and noise. No occupied bighorn sheep habitat would be impacted by the Beatty transmission alternatives or the comparable segment of the Proposed Action.

The Amargosa toad, a species that may be vulnerable to disturbance due to its limited range along the Amargosa River in Oasis Valley, occurs in the vicinity of the Beatty transmission alternatives (NDNH 2021). Each of the Beatty transmission alternatives, including the comparable segment of the Proposed Action, bisects the upper headwaters of the Amargosa River.

The Beatty Transmission Alternatives A and K would both result in approximately 5.1 acres and 0.6 acres of temporary and permanent ROW areas, respectively. However, the 525-kV transmission line in both transmission alternatives would span the 7J Ranch and no structures would be constructed within the ranch. A permanent easement would need to be obtained for the transmission lines for these two Action Alternatives for O&M activities. The Beatty Transmission Alternative C would be the furthest north transmission line route and would avoid the 7J Ranch boundaries. The Beatty Transmission Alternative G may result in 33.5 acres within the temporary ROW area on privately owned land and would avoid the 7J Ranch. In addition for this transmission alternative, there would be no permanent ROW on the privately owned lands. The Proposed Action would result in 9.3 acres of permanent and 27.2 acres of temporary ROW area within the 7J Ranch boundary, although the Proposed Action does not occur near any permanent surface waters.

The Amargosa toad has been documented to occur within and along the border of the 7J Ranch that is within the special status fish and wildlife analysis area for the Beatty Transmission Alternatives A, C, and K. In addition, approximately 36.3 acres of temporary and 11.1 acres of permanent ROW would occur within wetland habitat (i.e., marsh and playa) for the Beatty Transmission Alternative A; 2.4 acres of temporary ROW would occur for the Beatty Transmission Alternative C; 1.3 acres of temporary ROW would occur for the Beatty Transmission Alternative G; 31.3 acres of temporary and 10.7 acres of permanent ROW would occur for the Beatty Transmission Alternative K; and 9.6 acres of temporary and 1.9 acres of permanent ROW areas would occur for the Proposed Action.

Similar to the Proposed Action, EMMs (Appendix C. EMMs BIO-35, DECOM-7, HYDRO\_WQ-2 to HYDRO\_WQ-7, HYDRO\_WQ-16, and HYDRO-WQ-19) would implement stormwater management measures and, to the greatest extent practical, prohibit/minimize vehicle travel and construction-related activities within 300 feet of wetlands and waterways. In addition, removal of wetland vegetation would be avoided/minimized to the greatest extent possible. However, impacts to the Amargosa toad from vehicles may occur more frequently within the 7J Ranch and in areas with more habitat adjacent to isolated springs (wetlands) along the Amargosa River. The Beatty Transmission Alternatives A and K would result in greatest impacts to the Amargosa toad and special status terrestrial wildlife from construction, O&M, or decommissioning of the GLWP due to impacts to the 7J Ranch. Beatty Transmission Alternatives C and G would result in fewest impacts from construction, O&M, or decommissioning of the GLWP to the Amargosa toad and special status wildlife species, and impacts of the Proposed Action would on the Amargosa toad and special status wildlife species would be less than the impacts from Beatty Transmission Alternatives A and K but more than the impacts of Beatty Transmission Alternatives C and G.

## **Special Status Aquatic Wildlife**

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

The Beatty transmission alternatives, including the Proposed Action, bisect the upper headwaters of the Amargosa River and only the Beatty Transmission Alternative C avoids the 7J Ranch preserve. The Beatty Transmission Alternatives A, C, and K would intersect various desert springs along the Amargosa River, which likely support suitable habitat for the Oasis Valley pyrg. The Beatty Transmission Alternative G and Proposed Action would not occur within desert springs for the Oasis Valley pyrg. However, the Proposed

Action would cross the 7J Ranch. No construction activities for the Beatty Transmission alternatives, including the Proposed Action, would occur within surface waters and wetland habitats. Vehicles, equipment, and workers would remain on access roads, and transmission towers would be constructed on dry land away from surface water resources. However, construction-related activities, including construction of new- and existing access roads in need of improvements, may result in ground disturbance to ephemeral washes that intersect the access road. This could result in hydrologic degradation to the desert springs. If construction activities would require ground disturbance within the wetland/waterway, and wetlands/waterways are determined to be WUS, a Section 404 CWA permit issued by the USACE would be obtained (refer to Section 3.14 Water Resources).

Since the Beatty Transmission Alternative C avoids crossing into the 7J Ranch preserve, this alternative would result in the least impact to special status aquatic wildlife—especially for the Oasis Valley pyrg—compared to the Beatty Transmission Alternatives A, G, and K, and the Proposed Action. The Proposed Action and the Beatty Transmission Alternative G would result in fewer impacts from construction, O&M, or decommissioning of the GLWP to the Oasis Valley pyrg, compared to the Beatty Transmission Alternatives A and K. However, the Proposed Action and the Beatty Transmission Alternative G would result in impacts to special status aquatic species that occur within the 7J Ranch. The Beatty Transmission Alternatives A and K would result in the most impacts to special status aquatic species compared to the other Action Alternatives.

### **Special Status Birds and Bats**

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

The Beatty Transmission Line Route Group Alternatives and the Proposed Action primarily occur within Sonora-Mojave Creosotebush-White Bursage Desert Scrub, Sonora-Mojave Mixed Salt Desert Scrub, Mojave Mid Elevation Mixed Desert Scrub, and North American Warm Desert Playa vegetation communities, which provide habitat for numerous special status birds and bats. Three non-eagle raptor nests within the Beatty Transmission Alternatives G and K special status wildlife analysis areas may be impacted. Two raptor nests within the analysis area of Beatty Transmission Alternatives A and C, and the comparable segment of the Proposed Action may be impacted. None of the raptor nests occur within the permanent or temporary ROW areas. There are no records of pinyon jays in proximity to the Beatty transmission alternatives; therefore, pinyon jays would not be impacted by disturbance to pinyon-juniper habitat at this location.

Beatty Transmission Alternatives G and K each contain approximately 26 acres of cliff and rock outcrop landcover within their temporary and permanent ROW areas that may provide roosting habitat for bats. No other Beatty Transmission alternatives or the comparable section of the Proposed Action contain cliff or canyon bat roosting habitat.

Each of the Beatty transmission alternatives and the Proposed Action would cross the Amargosa River. Table 3-26 below lists the acres of temporary and permanent ROW in wetland habitat (i.e., marsh and play) for Beatty transmission alternatives. None of the Beatty transmission alternatives or the comparable section of the Proposed Action would disturb riparian vegetation. Impacts to riparian and marsh vegetation would be minimized for all alternatives through implementation of the EMMS (EMMs BIO-35, CON-15, and HYDRO\_WQ-23 in Appendix C).



**Table 3-26. Beatty Transmission Alternatives and the Proposed Action Temporary and Permanent ROW within Wetland Habitat**

Beatty Transmission Alternative	Temporary ROW Area (acres)	Permanent ROW Area (acres)
A	36.3	11.1
C	2.4	0.0
G	1.3	0.0
K	31.3	10.7
Proposed Action	9.6	2.0

Approximately 4.2 miles of the Beatty Transmission Alternative G, 1.2 miles of Beatty Transmission Alternatives A and K, and 0.7 mile of the Proposed Action would cross the Oasis Valley IBA. The Proposed Action would result in fewer acres of temporary and permanent ROW within this IBA than Beatty Transmission Alternatives A, G, and K. Beatty Transmission Alternative C is entirely outside the Oasis Valley IBA and would avoid impacts to this IBA that would occur under the Proposed Action. Table 3-27 shows the acreages of temporary and permanent ROW areas within the Oasis Valley IBA that would result from each Beatty transmission alternatives.

**Table 3-27. Beatty Transmission Alternatives and the Proposed Action Temporary and Permanent ROW within Important Bird Areas**

Beatty Transmission Alternative	Temporary ROW Area (acres)	Permanent ROW Area (acres)
A	83.3	27.8
C	0.0	0.0
G	491.5	100.8
K	83.3	27.8
Proposed Action	50.1	16.7

The Proposed Action would have the most impact on 7J Ranch because it is the only Beatty transmission alternative that would directly cross the ranch. Beatty Transmission Alternatives C and G would result in less impacts to the ranch since they would avoid the ranch entirely compared to the other Beatty transmission alternatives. Beatty Transmission Alternative C would also have less impact to special status birds and bats because it would have less miles crossing the Oasis Valley IBA and the second-fewest acres with existing riparian and marsh vegetation. The Beatty Transmission Alternatives A and K would also avoid ground disturbance within 7J Ranch but would require permanent ROW area for O&M activities. Overall, Beatty Transmission Alternatives A, C, and K would have less overall impacts than the Proposed Action on special status birds and bats. Beatty Transmission Alternative G would result in greater impacts to special status birds and bats than the Proposed Action because of the impacts to potential bat roosting habitat, riparian and marsh vegetation, the Oasis Valley IBA, and 7J Ranch.

### 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. No records occur within the permanent and temporary ROW areas for Scotty’s Junction Transmission Alternatives A and B or the Proposed Action, but previously undocumented

populations or individuals may be present. If present, individuals of these species would be subject to impacts from ground disturbance; crushing by equipment and personnel; and dust deposition as described under the Proposed Action. Compared to the corresponding sections of the Proposed Action, Scotty's Junction Transmission Alternative A would result in 107.6 more acres of temporary and permanent ROW area and Scotty's Junction Transmission Alternative B would impact 26.9 fewer acres of temporary and permanent ROW areas. Scotty's Junction Transmission Alternative B would not substantially add to or reduce the impacts on special status plants from construction, O&M, or decommissioning of the GLWP relative to the Proposed Action. Scotty's Junction Transmission Alternative A would have greater impacts on special status plants from construction, O&M, or decommissioning of the GLWP relative to the Scotty's Junction Transmission Alternative B and the Proposed Action.

### **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. As compared to Proposed Action, Scotty's Junction Transmission Alternative A would result in a greater acreage of temporary (80.6 acres) and permanent ROW (27.0 acres) within potential habitat for special status terrestrial wildlife. Scotty's Junction Transmission Alternative B would result in fewer acres of temporary (20.4 acres) and permanent (6.1 acres) ROW within special status terrestrial wildlife habitat. The temporary and permanent ROW areas for the Proposed Action occur within occupied desert bighorn sheep habitat on the east side of US 95 that would not be impacted by the Scotty's Junction Alternatives A and B, which are located west of US 95.

### **Special Status Aquatic Wildlife**

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

Neither the Scotty's Junction Transmission Alternatives A and B or the Proposed Action would occur within suitable- or occupied habitat for any of the special status aquatic wildlife.

### **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. No cliff or canyon bat roosting habitat or IBAs occur within temporary and permanent ROW areas of the Scotty's Junction Transmission Alternatives A and B and the Proposed Action. One unidentified raptor nest occurs within the special status species analysis area for Scotty's Junction Transmission Alternatives A and B and the Proposed Action. This nest does not occur within the permanent or temporary ROW areas of any of the Scotty's Junction Transmission alternatives or the Proposed Action. Records of pinyon jays do not occur in proximity to the Scotty's Junction transmission alternatives; therefore, pinyon jays would not be impacted by disturbance to pinyon juniper habitat.

### **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**

No records of special status plants occur in the vicinity of the Mason Valley WMA Transmission Alternative A or the Proposed Action. Therefore, there would be no impact to special status plants from the Mason Valley WMA Transmission Alternative A or the Proposed Action.

#### **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 on BLM-administered lands 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 and 6.0 acres of permanent ROW areas would occur within riparian habitat along the Walker River crossings, compared to the Mason Valley WMA Transmission Alternative A's approximately 12.8 acres of temporary and 2.0 acres of permanent ROW areas within riparian habitat. In addition, the Proposed Action would cross Perk Slough, Joggles Slough, and Perazzo Slough areas and Mason Valley WMA Transmission Alternative A would be located north of these sloughs.

Mason Valley WMA Transmission Alternative A would avoid two major water resources and the Mason Valley WMA 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.

#### **Special Status Aquatic Wildlife**

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

The Mason Valley WMA Transmission Alternative A would cross over the Walker River, which is habitat for special status aquatic wildlife—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, as well as Joggles Slough and Perk Slough. The mountain whitefish is known to prefer large river segments with a minimum pool depth of four feet (WAPT 2012). Where the Proposed Action would cross, 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 Mason Valley WMA, Perk Slough, and Joggles Slough, this alternative would have less impact to water sources for special status aquatic wildlife relative to the Proposed Action.

## 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, which provide habitat for a variety of special status birds and bats. Less than one acre of cliff and canyon bat roosting habitat occurs within the temporary ROW area of Mason Valley WMA Transmission Alternative A, while no cliff and canyon bat roosting habitat would occur within the Proposed Action's temporary ROW area. No pinyon jay habitat occurs within the special status wildlife analysis area of any of the Mason Valley WMA Transmission Alternative A. The Mason Valley WMA Transmission Alternative A would not cross any IBAs.

One unidentified raptor nest occurs within the permanent ROW area for Mason Valley WMA Transmission Alternative A. This nest, which was identified as inactive, would be impacted by Mason Valley WMA Alternative A. Five raptor nests would occur in proximity to the Mason Valley WMA Transmission Alternative A, with one raptor nest occurring within the temporary ROW of this alternative. One raptor nest occurs in proximity to the Proposed Action.

Three surface water features and associated marsh and riparian vegetation (Walker River, Perk Slough, and Joggles Slough) would occur within the special status fish and wildlife analysis areas near the Mason Valley WMA area. Approximately 15.6 acres of temporary and 6.0 acres of permanent ROW would occur within riparian habitat along the Walker River crossings, compared to the Mason Valley WMA Transmission Alternative A's approximately 12.8 acres of temporary and 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. Perk Slough and Joggles Slough flow north from the Mason Valley WMA. The Proposed Action would cross these two sloughs before meeting Walker River south of the Mason Valley WMA Transmission Alternative A. 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. Access roads within the WMA's boundaries that would be utilized under the Proposed Action would not be utilized under Mason Valley WMA Transmission Alternative A.

### **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 peppergrass—have been recorded in the vicinity of the Carson River Transmission Alternatives A and C. Portions of both Carson River transmission alternatives and comparable segments of the Proposed Action would be located within a 9,700-acre area occupied by Nevada suncup, on the southern aspect of Churchill Butte (NDNH 2021).

The Carson River Transmission Alternative A would result in impacts to Nevada suncup along 1.8 miles of transmission lines, which would be less than the comparable segment of the Proposed Action's 2.7 miles. Carson River Transmission Alternative A would be in proximity to a population of Tiehm peppergrass; areas of potential habitat may occur within the temporary ROW area for this alternative. No known populations

of Tiehm's peppergrass occur in the vicinity of the comparable segment of the Proposed Action. The Carson River Transmission Alternative A would result in less overall impacts to special status plants than the comparable segment of the Proposed Action, because it would avoid long-term impacts to Nevada suncup and Churchill Narrows buckwheat populations and/or habitat that may occur under the comparable segment of the Proposed Action.

Carson River Alternative C would result in 3.3 miles of impacts to Nevada suncup habitat compared to the 2.7 miles that would be disturbed by the comparable segment of the Proposed Action. Carson River Transmission Alternative C would avoid impacts to a known population of Tiehm's peppergrass that would occur under the comparable segment of the Proposed Action. This population is within the temporary ROW area of the Proposed Action, whereas the Carson River Transmission Alternative C temporary ROW area begins approximately 500 feet east of this population.

Under Carson River Transmission Alternative C, two of the 345-kV transmission lines would cross a corner of the Churchill Narrows buckwheat range, similar to the comparable segment of the Proposed Action. However, the 345-kV transmission line routes associated with Carson River Transmission Alternative C would result in fewer impacts to potential buckwheat habitat because they are collocated together and cross a shorter segment of habitat. The third transmission line route associated with Carson River Transmission Alternative C would bisect the range of Churchill Narrows buckwheat and would cross a shorter distance of buckwheat habitat (approximately 2.5 miles compared to approximately 5.3 miles under the comparable segment of the Proposed Action) but would require a 1,200-foot-wide temporary ROW area to accommodate construction in steep terrain. The Proposed Action, for the most part, would mostly require only a 600-foot-wide temporary ROW. Notably, Carson River Alternative C would avoid impacts to all Churchill Narrows buckwheat occupied habitat identified in 2011, but portions of the Carson River Alternative C temporary ROW would occur within 1,640 feet of occupied habitat identified in 2011.

The Carson River Alternative C would have fewer impacts to special status plants than the comparable segment of the Proposed Action because it avoids impacts to populations of Churchill Narrows buckwheat that would occur under the Proposed Action. Both Carson River Transmission Line Alternatives A and C and the comparable segments of the Proposed Action pass through areas that may be suitable for Tiehm's peppergrass but which do not have previous records of the species. For Tiehm's peppergrass, Carson River Transmission Alternative C would result in less impact because it avoids impacts to a known population impacted by the comparable segment of the Proposed Action.

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

A spatial-avoidance buffer would be implemented for all areas within 1,650 feet of known extant populations of Churchill Narrows buckwheat identified by the BLM in 2011 (BLM 2012). A spatial-avoidance buffer was developed in coordination with USFWS and 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 1,640 feet of avoidance buffer from previously unknown 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**

Carson River Transmission Line Alternatives A and C and their respective comparable segments of the Proposed Action would primarily 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.

The Comstock Meadows #2 transmission line under Carson River Transmission Alternative A would include approximately 18 acres of riparian habitat within its temporary ROW and 5 acres within its permanent ROW areas. The comparable segment Comstock Meadows #2 transmission line under the Proposed Action would include approximately 24 acres of riparian habitat within its temporary ROW and approximately 5 acres within its permanent ROW areas.

The Carson River Transmission Line Alternative C would include approximately 64 acres of temporary ROW and 21 acres of permanent ROW areas that contain riparian, marsh, and playa habitat. The comparable segment of the Proposed Action would include approximately 89 acres of temporary and 25 acres of permanent ROW areas.

Carson River Transmission Alternative A would also result in fewer effects to special status terrestrial wildlife by reducing habitat fragmentation and exposure to other disturbances such as human presence and noise resulting from a more consolidated Carson River crossing of the comparable segment of the Proposed Action. Since 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.

### **Special Status Aquatic Wildlife**

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

The Carson River Transmission Alternative A would require relatively the same amount of disturbance to aquatic habitat within its temporary and permanent ROW areas as the comparable segment of the Proposed Action but in a different location. Carson River Transmission Alternative C would also require relatively the same amount of disturbance within permanent ROW areas as the comparable segment of the Proposed Action, but the Proposed Action would result in 25 more acres of disturbance within temporary ROW areas than Carson River Transmission Alternative C. Impacts associated with habitat degradation from vegetation removal, movement of soil, and runoff would be similar for both the Carson River Transmission Alternatives A and C and with the comparable segments of the Proposed Action, respectively.

### **Special Status Birds and Bats**

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

The Carson River Transmission Line Route 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. 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 Action Alternatives in the Carson River area would impact this habitat. No pinyon jay habitat occurs within the special status wildlife analysis area of the Carson River transmission alternatives, nor the comparable segments of the Proposed Action. No raptor nests occur within the temporary or permanent ROW areas of any of the Carson River alternatives. In addition, none of the Carson River Transmission alternatives or the comparable segments of the Proposed Action would cross through an IBA.

Carson River Transmission Alternative A would contain approximately 5.7 acres of cliff and canyon bat roosting habitat within its temporary ROW area and no cliff and bat roosting habitat in its permanent ROW area. The comparable segment of the Proposed Action would have approximately 1.1 acres of cliff and canyon bat roosting habitat within its temporary ROW area and 0.1 acre within its permanent ROW area. Nine raptor nests occur within the special status wildlife analysis area for Carson River Transmission Alternative A; four raptor nests occur within the special status wildlife analysis area for the comparable segment of the Proposed Action.

The Comstock Meadows #2 transmission line under Carson River Transmission Alternative A would include approximately 18 acres of riparian habitat within its temporary and 5 acres within its permanent ROW areas, while the comparable segment Comstock Meadows #2 transmission line under the Proposed Action would include approximately 24 acres of riparian habitat within its temporary ROW and five acres within its permanent ROW areas. Carson River Transmission Alternative A would result in less effects to special status birds and bats by reducing habitat fragmentation and exposure to other disturbances such as human presence and noise resulting from a more consolidated crossing of the Carson River than the Proposed Action. Carson River Transmission Alternative A would also result in less impacts to high-value riparian habitat than the comparable segment of the Proposed Action.

The Carson River Transmission Line Alternative C would include approximately 64 acres of temporary ROW and 21 acres of permanent ROW areas to riparian, marsh, and playa habitat, while the comparable segment of the Proposed Action would include approximately 89 acres of temporary and 25 acres of permanent ROW areas. Carson River Transmission Line Alternative C would result in less impacts to riparian, marsh, and playa habitat than the comparable segment of the Proposed Action.

Carson River Transmission Alternative C would contain approximately 15.1 acres of cliff and canyon bat roosting habitat within the temporary ROW area and approximately 4.8 acres within the permanent ROW area. The comparable segment of the Proposed Action would have approximately 14.6 acres of cliff and canyon bat roosting habitat within the temporary and approximately 2.1 acres within the permanent ROW area. Ten raptor nests occur within the special status fish and wildlife analysis area for Carson River Transmission Alternative C and 14 raptor nests occur within the special status wildlife analysis area for the comparable segment of the Proposed Action.

### **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; therefore, AS-1 would not substantially add to or reduce the impacts on most special status terrestrial wildlife from construction, O&M, or decommissioning of the GLWP relative to the AS-2 (Proposed Action).

As described under the Proposed Action, construction of AS-2 may result in a trend toward federal listing for Giuliani's dune scarab and large aegialian scarab due to its potential to alter sand transport to habitat for these species on Lava Dune. While AS-2 (Proposed Action) would be located 1.2 miles upwind, AS-1 is located 5.2 miles west of Lava Dune and is not anticipated to interfere with sand transport to the dune. As a result, impacts to Giuliani's dune scarab and large aegialian scarab under the AS-2 (Proposed Action) would be avoided by implementation of the AS-1 alternative instead.

### **Special Status Aquatic Wildlife**

#### **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 wildlife. There would be no impact to special status aquatic wildlife 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 not substantially add to or reduce the impacts on special status migratory birds and bats from construction, O&M, or decommissioning of the GLWP relative to the comparable substation of the AS-2 (Proposed Action).

### **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; where feasible, individuals detected on survey would be protected in place. The ES-1 and ES-3 would not substantially add to or reduce the impacts on special status plants from construction, O&M, or decommissioning of the GLWP relative to the ES-2 (Proposed Action).

### **Special Status Terrestrial Wildlife**

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

The ES-1, ES-2 (Proposed Action), and ES-3 all primarily occur within the Inter-Mountain Basins Mixed Salt Desert Scrub vegetation community. The substation alternatives would all be approximately 109 acres in size. The ES-1 and ES-3 would not substantially add to or reduce the impacts on special status terrestrial wildlife from construction, O&M, or decommissioning of the GLWP relative to the comparable substation of the ES-2 (Proposed Action).



## **Special Status Aquatic Wildlife**

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

Neither ES-1, ES-2 (Proposed Action), nor ES-3 would occur within suitable- or occupied habitat for any of the special status aquatic wildlife. There would be no impact to special status aquatic wildlife from the construction, O&M, or 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 primarily occur within the Inter-Mountain Basins Mixed Salt Desert Scrub vegetation community. All three of the substation alternatives are estimated to be 109 acres. The ES-1 and ES-3 would not substantially add to or reduce the impacts on special status birds and bats from construction, O&M, or decommissioning of the GLWP relative to the comparable substation of the Proposed Action (ES-2).

### **3.3.4.12 Direct and Indirect Impacts from Amargosa Microwave Site 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. Both microwave-site alternatives would be approximately 2.3 acres in size. The AM-1 would not substantially add to or reduce the impacts on special status terrestrial wildlife from construction, O&M, or decommissioning of the GLWP relative to the comparable substation of the AS-2 (Proposed Action).

## **Special Status Aquatic Wildlife**

### **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 wildlife. There would be no impact to special status aquatic wildlife from the construction, O&M, or decommissioning of 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 primarily occur within the Sonora-Mojave Creosotebush-White Bursage Desert Scrub vegetation community. Both microwave-site alternatives would be 2.3 acres in size. The AM-1 would not substantially add to - or reduce the impacts on special status migratory birds and bats from construction, O&M, or decommissioning of the GLWP relative to the comparable substation of the AM-2 (Proposed Action).

### **3.3.4.13 Impacts from Anti-Perching/Nesting Mitigation Measure**

As described in Section 3.1 Federally Listed Species, an anti-perching/nesting mitigation measure would be implemented to replace guyed lattice towers with tubular H-frame towers to reduce the overall nesting and perching of ravens within sensitive habitat areas for Mojave desert tortoise and Bi-State sage-grouse. Due to a decrease in average span between towers under the anti-perching/nesting mitigation (1,520 feet for lattice and 1,140 feet H-frames for structures), replacing steel lattice towers with tubular H-frame towers would result in an estimated 25 percent increase in towers within desert tortoise and Bi-State sage-grouse sensitive habitat areas. Approximately 162 miles of the Action Alternative transmission lines within these species habitats would be converted from lattice structure to tubular H-frame structures. Although the same size, with the anti-perching/nesting mitigation there would be an increase in the number of structure pads in desert tortoise and Bi-State sage-grouse habitat (an estimated 750 structure pads versus 563 pads, respectively). Permanent hardscaped surfaces resulting from the increased number of towers and supporting concrete pads would therefore be greater (approximately 689 acres versus approximately 517 acres) with the implementation of the anti-perching/ nesting mitigation measure compared to the Proposed Action. The impacts of this anti-perching/nesting mitigation measure on special status species are described below.

#### **Special Status Plants**

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

Implementation of tubular H-frame towers would require approximately 25 percent more structure pads with permanent hard surfaces to be constructed within desert tortoise and Bi-State sage-grouse sensitive habitat areas, which would increase habitat loss for special status plants. 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, prior to construction surveys for special status plants would be conducted within suitable habitat and, where feasible, individuals detected on survey would be protected in place.

#### **Special Status Terrestrial Wildlife**

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

Implementing tubular H-frame towers would require approximately 25 percent more structure pads with permanent hard surfaces to be constructed within desert tortoise and Bi-State sage-grouse sensitive habitat areas which, compared to the Proposed Action, would increase habitat loss for special status terrestrial wildlife. Even though the anti-perching/nesting mitigation measure would result in additional habitat loss, it is anticipated to provide a net benefit to terrestrial wildlife because, compared to the Proposed Action, it would decrease localized predation by ravens and raptors along the temporary and permanent ROW.

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 winds to blow through the structure, 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 where Giuliani's dune and large aegialian

scarabs are known to occur, actions that alter geological processes governing sand transport to this location have the potential to alter the habitat available for these two species; this could result in population-level effects.

### **Special Status Aquatic Wildlife**

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

The anti-perching/nesting mitigation measure would have no effect on special status aquatic wildlife.

### **Special Status Birds and Bats**

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

Implementing tubular H-frame towers would require approximately 25 percent more structure pads with permanent hard surfaces to be constructed within desert tortoise and Bi-State sage-grouse sensitive habitat areas, which would increase habitat loss for special status birds and bats. Even though the anti-perching/nesting mitigation measure would result in additional habitat loss, it is anticipated to provide reduced impacts to bird and bat prey species. Because the tubular H-frame tower design does not rely on guy wires, it would reduce collision risk to special status birds and bats. The implementation of tubular H-frame towers along the temporary and permanent ROW near the Oasis Valley IBA would support suitable habitat for a large concentration of special status migratory bird prey species. Without the anti-perching/nesting mitigation measure, predatory special status bird species would have increased perching and nesting opportunities.

### **3.4 Bald and Golden Eagles**

The Bald and Golden Eagle Protection Act (Eagle Act) is the overarching law that protects bald and golden eagles. This section provides the baseline condition and addresses the effects to bald and golden eagles as a result of the construction, O&M, and decommissioning activities associated with No Action Alternative and the Action Alternatives.

#### **3.4.1 Issues Identified for Analysis**

- How would construction, O&M, and decommissioning of the GLWP affect bald and golden eagles and their associated habitats?

#### **3.4.2 Analysis Area and Methodology**

##### **Analysis Area**

The bald and golden eagle analysis area (eagle analysis area) is the temporary ROW area with a 2-mile buffer, which is approximately 1,492,260 acres. This eagle analysis area is consistent with USFWS recommendations for the GLWP to survey for eagle nests within two miles of temporary ROWs and other GLWP components for the Action Alternatives. This eagle analysis area is supported by recent data from satellite-tagged breeding golden eagles related to wind energy projects. The data provided new information on the ranging behavior of golden eagles around their nest sites that suggests that territorial breeding golden eagles seldom range further than 1.9 miles from their territory centers (USFWS 2020b).

##### **Methodology**

To determine where bald and golden eagles have the potential to occur within the eagle analysis area, information was gathered from the BLM, USFWS, and NDOW. Geographic information systems data

identifying historical nesting locations for eagles and other raptors was also obtained from NDOW (2021a). Two seasons of surveys for golden eagle and other raptor nests were conducted in 2021/2022 and again in 2023. The 2021/2022 surveys occurred during the period of December 2021 and January 2022 (first round of survey) and again March and April 2022 (second round of survey). The 2021/2022 surveys included the majority of the Action Alternatives with the exception of Carson River Transmission Alternative C and Beatty Transmission Alternative K, which were added as Action Alternatives after the surveys were conducted. The 2023 surveys included any areas not previously surveyed during the first 2021/2022 survey, which included Carson River Transmission Alternative C and Beatty Transmission Alternative K. The 2023 surveys occurred in February 2023 (first round of survey) and Late March/early April 2023 (second round of survey). The results from the 2021/2022 surveys and existing data from the BLM, USFWS, and NDOW were used in the analysis of potential effects to eagles from the construction, O&M, and decommissioning activities associated with the GLWP. The results from the 2023 surveys were not available at the time of the publishing the Draft EIS but will be added to the Final EIS.

### **3.4.3 Affected Environment**

#### **Bald Eagle**

Bald eagles (*Haliaeetus leucocephalus*) were a federally listed species until 2007 when they were delisted due to recovery (USFWS 2007). Bald eagles inhabit coastal areas, estuaries, unfrozen inland waters, and some arid areas of the western interior and southwestern portion of the US. They are commonly found around water catching fish or scavenging food. They prefer areas with high water-to land edge and areas with unimpeded views. Bald eagles winter throughout Nevada and breed in a few areas near Lake Tahoe and the Colorado River. Common wintering habitats include open water where fish and waterfowl can be taken. Bald eagles nest in the vicinity of water sources because fish make up a heavy part of their diet (NDOW 2022a).

There are no known bald eagle nest sites within or near the areas associated with the Action Alternatives and occurrence of this species would be limited to migrating and wintering individuals flying over the GLWP area.

#### **Golden Eagle**

Golden eagles (*Aquila chrysaetos*) are Nevada year-round residents. Some eagles migrate when they are not in their breeding territories. In general, the species displays fidelity to nest sites, nesting territories, and wintering areas. Golden eagles are somewhat variable in their use of nesting habitats. They typically prefer cliff and canyon habitats, but nests have been documented in large trees, pinyon-juniper woodland, on transmission structures, and even on the ground in prairie habitat (Katzner et al. 2020). For their nesting sites in Nevada, golden eagles typically select cliffs with open views of surrounding areas and proximity to hunting grounds (Camenzind 1968). Generally, golden eagle breeding season (includes courtship, nesting, egg-laying, and chick-rearing) occurs from December through August (Katzner et al. 2020). Research indicates onset of courtship begins by late December or early January throughout Nevada (Barnes 2021).

Golden eagles are present within the eagle analysis area. Surveys were conducted in December 2021 and January 2022 (first round of survey) and March and April of 2022 (second round of survey) to identify areas occupied by golden eagles, particularly nesting occupancy (Moqtaderi et al. 2022). Surveys were again conducted in February 2023 and again in April 2023 for two alternatives (Beatty Transmission Alternative K and Carson River Transmission Alternative C) that were developed after the 2021/2022 surveys. Surveys

were conducted consistent with methods identified in the 2010 golden eagle survey protocol (Pagel et al. 2010) using a combination of aerial and ground survey methods. In the eagle analysis area, 176 nest structures were identified large enough in size to potentially support golden eagle nesting (refer to Table 3-28, Figure 3-13, and Figure 3-14).

**Table 3-28. Potential Eagle Nest Structures within the Eagle Analysis Area for All Action Alternatives**

Nest Condition <sup>a</sup>	Tribal Lands	BLM	Clark County	USFS	Private	Total Nests
Good	-	13	-	-	-	13
Fair	1	76	2	2	9	89
Poor	2	62	3	1	6	70
<b>Total Nests</b>	<b>2</b>	<b>151</b>	<b>5</b>	<b>3</b>	<b>15</b>	<b>176</b>

*Table Acronyms:* BLM – Bureau of Land Management; USFS –United States Forest Service

*Table Notes:* <sup>a</sup> Good condition refers to a nest that is maintained with a well-defined bowl and no sagging and was currently occupied or had the possibility of immediate occupancy. Fair condition nests have well-defined bowl and minor sagging but requires minor repairs prior to nesting. Poor condition nests have sloughing sticks or heavily sagging and requires extensive repairs prior to nesting.

The second round of surveys in March and April of 2022 and April of 2023 revisited the eagle analysis area, including nests documented during the first round of survey, to document breeding activity of raptors, including eagles. Of the 176 nest structures identified that could potentially support golden eagle nesting, five nests were confirmed as golden eagle nests, two of which were in-use<sup>9</sup> at the time of the second round of survey and three had sign of golden eagle use during survey but were unoccupied at the time of survey (refer to Table 3-29). These five nests were located on cliffsides on BLM land within the Proposed Action eagle analysis area.

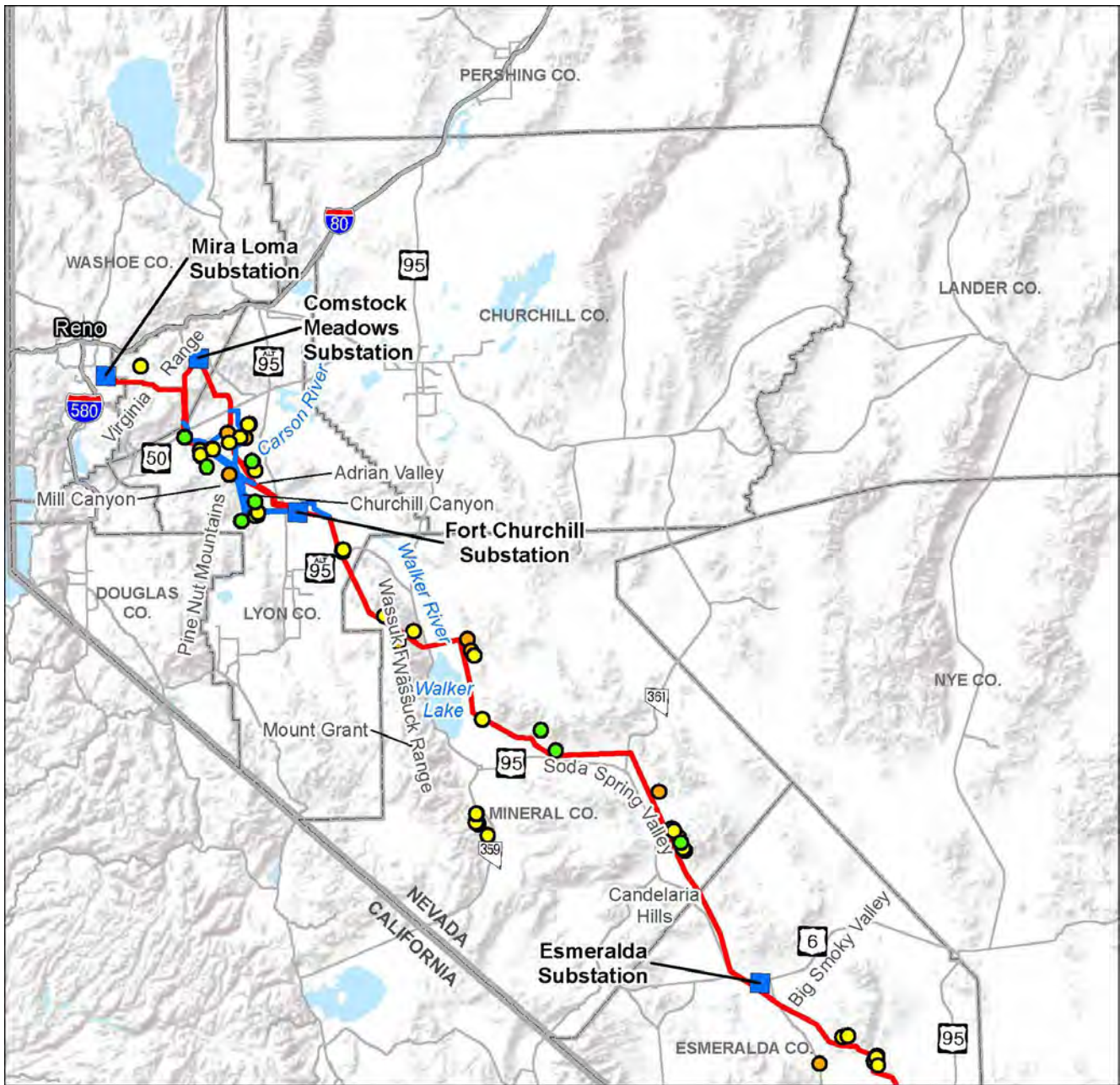
**Table 3-29. Nests with Golden Eagle Status Recorded during 2022 Survey**

Nest Condition <sup>a</sup>	In-Use Nest <sup>b</sup>	Unoccupied Golden Eagle Nest <sup>b</sup>	Total Golden Eagle Nests
Good	2	1	3
Fair	-	1	1
Poor	-	1	1
<b>Total Nests</b>	<b>2</b>	<b>3</b>	<b>5</b>

*Table Notes:* <sup>a</sup> Good condition refers to a nest that is maintained with a well-defined bowl and no sagging and was currently occupied or had the possibility of immediate occupancy. Fair condition nests have well-defined bowl and minor sagging but requires minor repairs prior to nesting. Poor condition nests have sloughing sticks or heavily sagging and requires extensive repairs prior to nesting.

<sup>b</sup> Nests are classified as in-use if any of these are observed at the nest structure: presence of one or more eggs, dependent young, or adult eagles on the nest. Nests are classified as unoccupied golden eagle nest if the criteria for in-use was not observed but there is evidence of newly constructed or refurbished stick nest in area where territorial behavior of eagle was observed, and/or recently repaired nest with fresh sticks (clean breaks) or fresh boughs on top, and/or droppings and/or molted feathers on its rim or underneath nests (USFWS 2013a).

<sup>9</sup> An in-use nest is defined as a “golden eagle nest characterized by the presence of one or more eggs, dependent young, or adult eagles on the nest in the past 10 days during the season” (50 CFR 22.3).



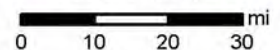
**Legend**

Raptor Nest Structures Likely to be Golden Eagle Nest

- Poor Condition
- Fair Condition
- Good Condition
- Substation
- Proposed Action Transmission Line
- Alternative Transmission Line

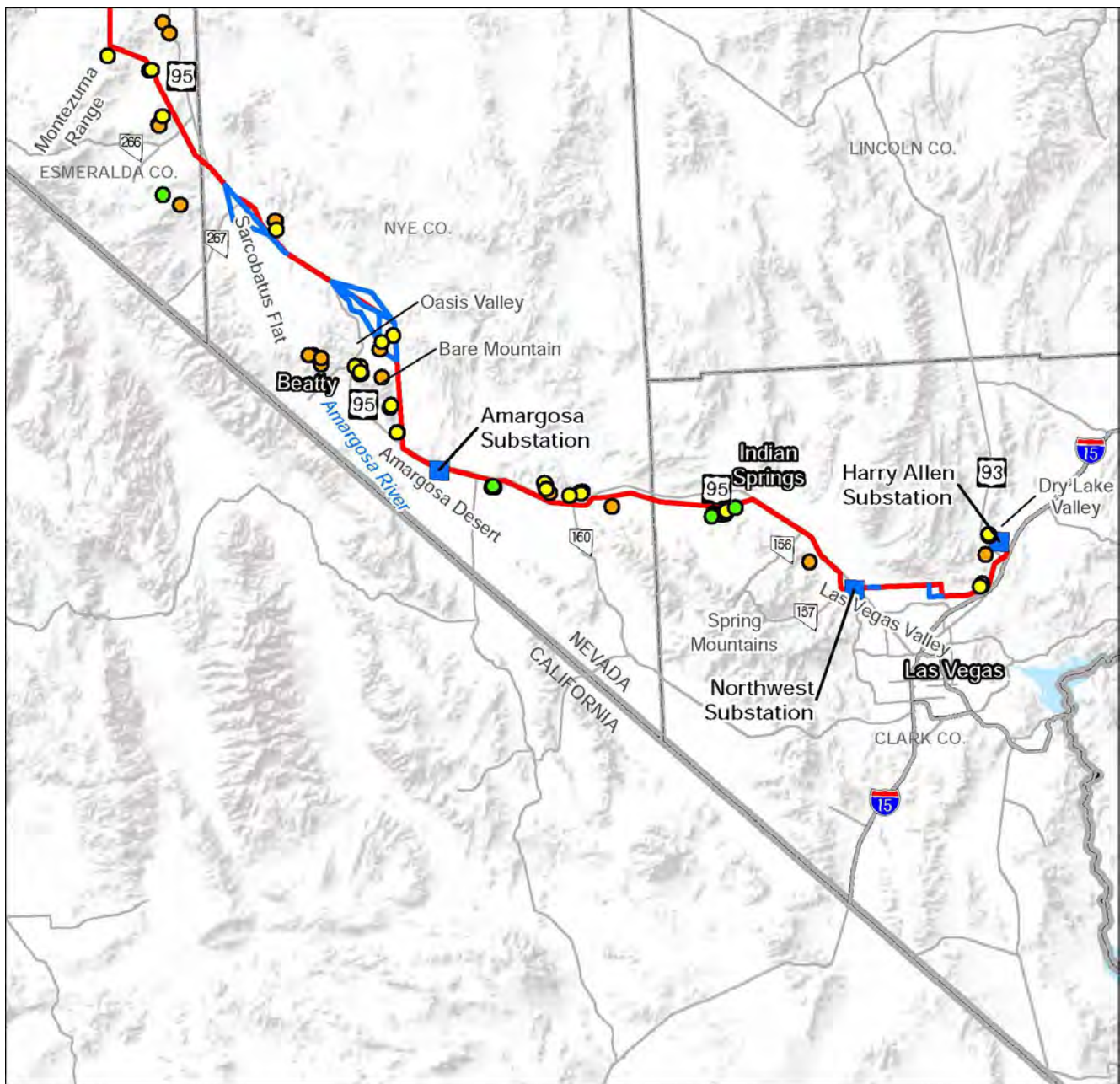


Scale: 1:1,750,000



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

**Figure 3-13. Likely Golden Eagle Nest Structures (1 of 2)**



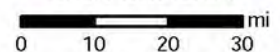
**Legend**

**Raptor Nest Structures Likely to be Golden Eagle Nest**

- Poor Condition
- Fair Condition
- Good Condition
- Substation
- Proposed Action Transmission Line
- Alternative Transmission Line



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 3-14. Likely Golden Eagle Nest Structures (2 of 2)**

### **3.4.4 Environmental Consequences**

#### **3.4.4.1 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 bald and golden eagles attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

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

##### **Bald and Golden Eagle Protection Act (Eagle Act)**

As previously noted, the Eagle Act is the overarching law that protects bald and golden eagles. It prohibits anyone without a permit from “taking” eagles, their parts, eggs, or nests. Through discussions with the USFWS, the BLM, and NDOW, the Proponent has decided not to seek an incidental take permit. A Draft Eagle Management Plan<sup>10</sup> (EMP) has been prepared because the Proponent has committed to avoiding eagle take for construction of the GLWP (NV Energy 2022). The EMP has been developed to address how GLWP complies with the Eagle Act, assesses risk of impacts on eagles during the GLWP, and demonstrates how the Proponent plans to avoid impacts on breeding eagles during construction, O&M, and decommissioning (NV Energy 2022). The EMP was prepared specifically for golden eagles due to the low likelihood of bald eagles occurring within the temporary or permanent ROW areas. Several EMMs were developed and included in the EMP to minimize impacts of GLWP construction on golden eagles and are also included in the EMMs of this EIS (Appendix C, EMM EAGLE-1 through EAGLE-7).

##### **Construction**

Bald eagles are expected to occur infrequently and sporadically in the eagle analysis area given the lack of nesting, roosting, and limited foraging habitat. While wintering and dispersing bald eagles can range widely, they generally focus their activities at lakes and along rivers where there is suitable prey.

Impacts on golden eagles during construction may occur from noise and human presence and would temporarily displace eagles to areas outside the active construction zone. These impacts would be minimized because construction activities within one mile of in-use nests (two miles for blasting work) would be conducted outside the breeding season for golden eagles (December – August). Additionally, helicopter inspections and work involving helicopter use within a one-mile distance from in-use nests would not occur during the golden eagle breeding season. These avoidance measures would be applied to nests that have the potential to support golden eagles during the early stages of breeding from December 15 to April 15. These nests would be considered as potentially in-use (unless already confirmed in-use) through April 15. Nests can be assumed unoccupied by April 15 if pre-construction surveys have confirmed no breeding activity at the nest (see Appendix C, EMM EAGLE-4). Extending the avoidance measures through the early stages of breeding (through the egg laying period) would ensure that in-use nests are avoided during construction; therefore, impacts on golden eagle breeding from construction activities are highly unlikely.

Construction vehicles may collide with golden eagles scavenging for carrion along roadsides. Recent research on golden eagle use of roadkill mammal carcasses resulting in eagle flushing and vehicle strikes suggests that moving carcasses at least 39 feet from the road decreases flush-related vehicle strikes four-

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<sup>10</sup> The Eagle Management Plan document contains sensitive and confidential information and is not included with this Draft EIS/RMPA. All measures that were developed as part of the EMP are included in the EMMs (Appendix C, EMM EAGLE-1 through EAGLE-7).



fold in comparison to carcasses located at the road edge (Slater et al. 2022). Therefore, EMM EAGLE-5 in Appendix C has been included requiring that any roadkill caused by construction (or O&M) of the GLWP would be moved at least 39 feet from the road edge. This impact would also be minimized through enforcing reduced speed limit on unpaved access roads within one mile of in-use nests, making injury and death to eagles from vehicle collisions unlikely.

During construction, impacts on golden eagles may occur from habitat loss, degradation, and fragmentation that may impact productivity and eagle survival. Construction of the Proposed Action would result in disturbance within the temporary ROW area, which may reduce locally available prey. This disturbance to habitat and prey spans across western Nevada and is localized to the temporary ROW area, which is surrounded by suitable foraging habitat for golden eagles.

### **Operations and Maintenance**

There would be less on-site activity during the O&M phase of the GLWP than during construction. As a result, impacts to eagles during O&M are expected to be similar to those during construction, but to a lesser degree. Additionally, there would be less noise and visual disturbance to golden eagles from human activities, though impacts similar to those identified for the construction phase could occur during the O&M phase. The EMMs (EAGLE-1 through EAGLE-7 in Appendix C) would apply to O&M activities as well as construction, and timing restrictions would be implemented for all surface-disturbing activities and helicopter inspections occurring within one-mile of in-use golden eagle nests.

Transmission lines, distribution lines, and other components would be designed to discourage perching or nesting where possible, though the components would still pose a threat to eagles from electrocution from distribution lines and collisions with transmission wires over the life of the GLWP. Overhead power lines would be constructed to APLIC suggested practices to reduce the risk of electrocution and collisions (APLIC 2012). Bird flight diverters, high-visibility-marking devices, or other collision diversion would be installed on transmission conductors and guy wires to reduce the potential for collisions in common-collision areas (e.g., near lakes, along rivers). Additionally, the Proponent would implement the Bird and Bat Conservation Strategy (Appendix H) that includes measures and procedures to avoid and minimize impacts on birds, including eagles, during O&M.

### **Decommissioning**

The extent of noise and visual disturbance to bald and golden eagles during decommissioning of the Proposed Action would be similar to the construction phase, but to a lesser degree. After decommissioning activities are completed, human activity associated with the transmission lines and ancillary project components would cease. As the various components are removed and disturbed areas are rehabilitated and restored over time, prey availability may increase locally.

### **Summary of Effects of the Proposed Action on Bald and Golden Eagles**

There would be a very small loss of foraging habitat for bald eagles because the eagle analysis area does not contain this species' preferred foraging habitat. Impacts to golden eagles associated with noise, visual disturbance, human presence, electrocution, and injury from transmission wire collision are anticipated to be negligible due to implementation of EMMs (EAGLE-1 through EAGLE-7 in Appendix C). 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. The EMMs would minimize the potential short- and long-term impacts to eagles during construction of the Proposed Action through implementation of eagle avoidance measures, avoiding direct impacts on eagle breeding activity and survival of young.

**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 water resources with the implementation of the EMMs in Appendix C.

**3.4.4.3 Direct and Indirect Impacts from Losee, TUSK, Beatty, Scotty’s Junction, and Mason Valley WMA Transmission Line Route Groups, Amargosa and Esmeralda Substation Group, and Amargosa Microwave Group**

**Construction, Operations and Maintenance, Decommissioning**

No nests potentially suitable for golden eagles were found within the eagle survey area for the Losee, TUSK, Scotty’s Junction, and Mason Valley WMA Transmission Line Route Groups, Esmeralda and Amargosa Substation Alternatives, or Amargosa Microwave Alternatives. Table 3-30 presents the survey results for Beatty Transmission Alternatives A, C, and G has in comparison to the Proposed Action. Beatty Transmission Alternatives A and C have the same nests as the Proposed Action. Beatty Transmission Route Alternative G has two additional nests in comparison to the Proposed Action; both of these nests are in poor condition. Surveys for Beatty Transmission Alternative K are in progress and findings will be provided in the Final EIS. The impacts of the Beatty Transmission Alternatives A, C, and G on bald and golden eagles would be similar to the Proposed Action. These alternatives would not substantially add to or reduce the impacts on bald or golden eagles from construction, O&M, or decommissioning of the GLWP relative to the Proposed Action.

**Table 3-30. Potential Eagle Nest Structures within Action Alternatives  
Eagle Analysis Area by Nest Condition**

<b>Alternative</b>	<b>Good Condition Nest<sup>a</sup></b>	<b>Fair Condition Nest<sup>a</sup></b>	<b>Poor Condition Nest<sup>a</sup></b>	<b>Total Nests</b>
Beatty Transmission Alternative A	-	1	-	1
Beatty Transmission Alternative C	-	1	-	1
Beatty Transmission Alternative G	-	1	2	3
Beatty Transmission Alternative K	-	1	2	3
Beatty Transmission Alternatives Comparable Proposed Action Segment	-	1	-	1
Carson River Transmission Alternative A	-	4	3	7
Carson River Transmission Alternative A Comparable Proposed Action Segment	1	7	6	14
Carson River Transmission Alternative C	1	4	4	9
Carson River Transmission Alternative C Comparable Proposed Action Segment	2	12	9	23

*Table Notes:* Many of these nest structures overlap with the Proposed Action eagle analysis area. TBD: to be determined.

<sup>a</sup> Good condition refers to a nest that is maintained with a well-defined bowl and no sagging and was currently occupied or had the possibility of immediate occupancy. Fair condition nests have well-defined bowl and minor sagging but requires minor repairs prior to nesting. Poor condition nests have sloughing sticks or heavily sagging and requires extensive repairs prior to nesting.

**3.4.4.4 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

**Construction, Operations and Maintenance, Decommissioning**

The eagle analysis area identified five golden eagle nests (refer to Table 3-30). None of the golden eagle nests were located within the eagle analysis area for Carson River Transmission Alternative A, but two were located within the eagle analysis area for the comparable segment of the Proposed Action. These two nests showed signs of eagle use but were unoccupied at the time of survey. The 2021 and 2022

surveys for golden eagle nest locations identified 12 nests potentially suitable for golden eagles within the eagle analysis area for Carson River Transmission Alternative A and 14 nests potentially suitable for golden eagles within the eagle analysis area for the comparable section of the Proposed Action. The Carson River Transmission Alternative A would consolidate the transmission lines crossings of the Carson River and the areas where potential collision with the transmission line wires may occur, though this is not expected to have any change in impacts in comparison to the Proposed Action. Additionally, the same eagle EMMs (EAGLE-1 through EAGLE-7 in Appendix C) would be applied to the Action Alternatives. Impacts associated with the Carson River Transmission Alternative A would be similar to the comparable segment of the Proposed Action.

Of the five golden eagle nests identified during survey, three of the five golden eagle nests were located within the eagle analysis area of Carson River Transmission Alternative C and also within the eagle analysis area for the comparable Proposed Action segment (one in-use nest and two nests that showed sign of eagle use but was unoccupied at the time of survey). Surveys conducted in 2021/2022 included portions of the Carson River Transmission Alternative C survey area, but some portions were surveyed in 2023 because the Carson River Transmission Alternative C was developed after the 2021/2022 surveys. The 2021/2022 and 2023 surveys for golden eagle nest locations identified 25 nests potentially suitable for golden eagles within the eagle analysis area for Carson River Transmission Alternative C and 23 nests potentially suitable for golden eagles within the eagle analysis area for the comparable segment of the Proposed Action. The comparable Proposed Action segment includes one less good condition nest and one less poor condition nest than the Carson River Alternative C.

#### **3.4.4.5 Impacts from Anti-Perching/Nesting Mitigation Measure**

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

The anti-perching/nesting mitigation measures would be implemented along the applicable Action Alternatives. A total of approximately 164 miles of lattice structures would be converted to H-frame tubular structures. Additionally, the anti-perching/nesting mitigation measures would require approximately 25 percent more structures, which would amount to approximately 760 H-frame structures in the anti-perching/nesting mitigation measure areas based on 1,140-foot estimated span width versus approximately 570 lattice structures without the mitigation measures based on 1,520-foot estimated span width. There is effectively no risk of electrocution for eagles on high voltage transmission lines due to the large separation between conductors required, regardless of the structure type (APLIC 2006). The increased number of tubular structures (approximately 25 percent more structures) under the mitigation measures would not change the potential for electrocution risk.

Eagles may be impacted by the change in transmission structures with the implementation of the anti-perching/nesting mitigation measures. Raptors, including eagles, may use transmission towers for perching and nesting, and they prefer lattice towers that contain diagonal and horizontal bracing (APLIC 2006; Dixon et al. 2013). It is anticipated that under the anti-perching/nesting mitigation measures, eagles use of transmission structures would be slightly less in in desert tortoise and Bi-State sage-grouse habitat areas in comparison to the Action Alternatives without the mitigation measures because of the reduction in lattice structure types, which would reduce the number of potential nesting and perching structures available to eagles. There is available eagle habitat throughout the eagle analysis area, and the perching and nesting habitat associated with lattice structures is anticipated to provide a very small contribution to eagle perching and nesting habitat. Should an eagle establish a nest on a transmission structure, the nest material can result in electrical short circuits or faults which may reduce the quality of commercial power

supply and the Proponent may need to manage the nest (such as providing a nesting platform for the nest or relocating the nest outside of the breeding season) to maintain system reliability, potentially impacting eagle breeding success (Jenkins et al. 2013). The reduction in potential nesting and perching structures under the anti-perching/nesting mitigation measures could reduce impacts associated with eagle nesting on transmission structures.

### **3.5 General Wildlife**

General wildlife includes wildlife species not already discussed in Section 3.1 Federally Listed Species and 3.3 Special Status Species. Most bird species within the general wildlife analysis area receive protection under the federal Migratory Bird Treaty Act and are also addressed in Section 3.3 Special Status Species. Bird species addressed in this section are limited to non-migratory species and exotic species not covered by this Act. Impacts to bats are discussed in Section 3.3 Special Status Species.

This General Wildlife Section also addresses habitat connectivity and big game winter ranges and migration corridors. The BLM Instruction Memorandum (IM) 2023-005 instructs BLM state offices to work with state and Tribal wildlife managers and other stakeholders to assess data regarding connectivity, permeability, and resilience and, based on that assessment, identify where to focus management that best supports priority species to maintain, improve, and/or conserve habitat connectivity for fish and wildlife. Additionally, Secretarial Order 3362: Improving Habitat Quality in Western Big Game Winter Range and Migration Corridors directs the federal agencies under the DOI to manage, conserve, and improve important winter habitat and migration corridors for elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), and pronghorn (*Antilocapra americana*) (DOI 2018). NDOW is in the process of collaboratively establishing a Nevada Habitat Conservation Framework (HCF) that will delineate and conserve migratory corridors of wild ungulates and other key species (Nevada Executive Department 2023). The HCF Connectivity Plan is currently in development and is unavailable for use in the general wildlife analysis until publication in December 31, 2023 (Nevada Executive Department 2023). BLM IM NV-IM-2021-022: Considering State of Nevada Big-Game Migration Corridors on BLM Administered Lands in Nevada, also sets forth guidance on how the BLM will evaluate and consider the State of Nevada's big-game migration corridors on BLM-administered lands.

#### **3.5.1 Issues Identified for Analysis**

- How would construction, O&M, and decommissioning of the GLWP affect general wildlife and their associated habitats?

#### **3.5.2 Analysis Area and Methodology**

##### **Analysis Area**

The general wildlife analysis area includes areas within 0.5 mile of the temporary ROW area associated with the transmission and distribution lines, 0.5 mile of the disturbance associated with access roads, and 0.5 mile of the boundary of ancillary facilities, for a total of approximately 803,079 acres.

##### **Methodology**

The general wildlife considered for review for impacts from the GLWP includes the 895 species that are managed by NDOW (NRS 501.331) such as big and small games species as well as non-game species such as reptiles, amphibians, mammals, insects, and fish that occur within the general wildlife analysis area. The general wildlife analysis includes an assessment of impacts based on the affected habitats identified by the

SWReGAP landcover types (refer to Section 3.2 General Vegetation) that occur within the general wildlife analysis area. Riparian, playa, and aquatic habitats are biodiversity hotspots for various general wildlife species among resource scarce areas (e.g., desert scrub and shrublands), and are utilized as travel corridors between habitats; therefore, are highlighted in the general wildlife impact assessments. In addition, areas of high-quality habitat provided conservation management (i.e., management areas) were also included for assessment of impacts to general wildlife based on their role as refuges for various general wildlife species.

To address impacts to habitat corridors and wintering ranges for general wildlife including, but not limited to, big game, project-related impacts were assessed for the NDOW big game movement corridors and winter ranges that intersect the general wildlife analysis area (i.e., bighorn sheep [*Ovis canadensis*], pronghorn, and mule deer).

### 3.5.3 Affected Environment

General wildlife is a category of species that does not require additional management priority because of substantial population or habitat declines. Populations of general wildlife are considered stable and well-distributed and show a high resiliency to habitat disturbance. General wildlife species occur within a variety of habitats that occur within the general wildlife analysis area. The SWReGAP (Lowry Jr. et al. 2005) is a landcover dataset that was used to identify general landcover types within the general wildlife analysis area, which includes desert scrub (75 percent), arid shrubland/grassland (16 percent), pinyon-juniper woodland (four percent), and playa and riparian areas (three percent). The remaining 2 percent of the GLWP area is made up of several land cover types including cliff/rock outcrops (0.87 percent), urban areas (0.8 percent), mining areas (0.27 percent), desert pavement (0.05 percent), barren lands (0.04 percent), and recently burned areas (0.02 percent). Acreages of these landcover types are discussed in Section 3.2 General Vegetation. Kit fox (*Vulpes macrotis*), coyote (*Canis latrans*), and American badger (*Taxidea taxus*) dens are located within the permanent ROW area (Monks and Logan Simpson 2023).

Riparian, playa, and aquatic habitats are relatively rare in the general wildlife analysis area, but typically support a greater diversity and abundance of species than upland areas. These riparian, playa, and aquatic habitat types are utilized not only by aquatic and semi-aquatic organisms, but also provide habitat components such as cover, forage, and drinking water for a variety of upland species as well as travel and migration corridors and landscape level connectivity. Riparian and aquatic resources within the general wildlife analysis area include the Amargosa, Walker, and Carson rivers. Management areas within the general wildlife analysis area include the TUSK, Desert NWR, 7J Ranch, Mason Valley WMA, and Fort Churchill State Historic Park. Other rare habitat types utilized by a diverse amount of wildlife include high-elevation mountain ranges, such as the Spring Mountains. The broadly distributed desert scrub, arid shrubland/grassland and pinyon-juniper habitats support the majority of the general wildlife including both big and small game species and non-game species. Sagebrush habitat located predominantly along the western section of the GLWP supports various habitat specific upland wildlife species. Refer to Section 3.1 Federally Listed Species for in-depth impact analysis for the GLWP on sagebrush habitat specifically for the Bi-State sage-grouse.

Habitat corridors support various daily and seasonal wildlife movement between habitats otherwise separated by anthropogenic barriers (e.g., roadways, urban cities, and transmission routes). Habitat corridors are important to general wildlife as these corridors promote connectivity between populations and their resources (e.g., food availability, water availability, and shelter).

The general wildlife analysis area occurs within 17 movement/migration corridors (13 bighorn sheep, three mule deer, and one pronghorn; refer to Figure 3-15). In addition, the general wildlife analysis area occurs within three wintering ranges for bighorn sheep and two wintering ranges for mule deer (Figure 3-16).

### **3.5.3.1 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 general wildlife attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

### **3.5.3.2 Direct and Indirect Impacts Common to all Action Alternatives**

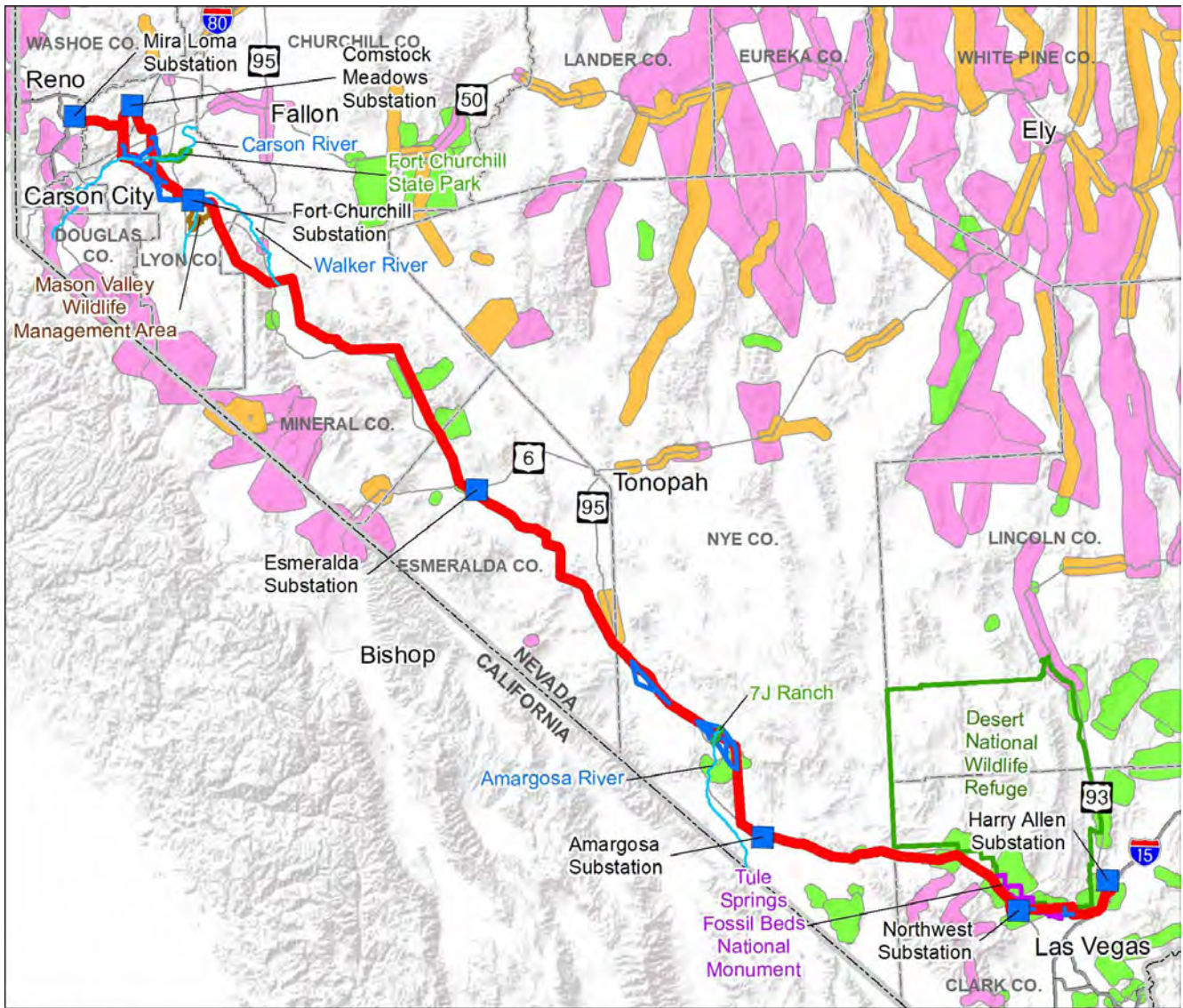
The construction, O&M, and decommissioning of the GLWP may impact general wildlife through habitat removal or creation, increased noise and human presence, nighttime lighting, deposition of dust, sedimentation, crushing by or collisions with vehicles and personnel, and collisions with powerlines. Many of these disturbances would also contribute to habitat fragmentation for some species. As part of the GLWP, EMMs would be implemented to reduce impacts on general wildlife (EMMs BIO-35, BIO-36, BIO-37, CON-1, HYDRO\_WQ-22, OPS-11, and OPS-12 in Appendix C).

#### **Construction**

Areas of temporary ROW not incorporated as part of the permanent ROW area would be available for use by wildlife following completion of GLWP construction and restoration. Impacts on general wildlife would be minimized through implementation of EMMs (Appendix C. BIO-1 through BIO-9, BIO-14 through BIO-20, BIO-34, BIO-36) that would include an on-site biological monitor supervising construction activity, implement season restrictions within big game wintering ranges, and promote habitat regeneration. In addition, implementation of the Integrated Weed Management Plan in the Final POD would minimize introduction and spread of invasive species and noxious weeds and the Raven Management Plan (Appendix G) would reduce avian and terrestrial predator occupancy, especially targeted toward ravens.

Construction of the Proposed Action would impact general wildlife by increases in noise, human presence, vibrations, and nighttime lighting within construction sites and access roads. 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. General wildlife may disperse 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 would promote localized increases in predator occupancy (e.g., kit foxes, coyotes, ravens, and raptors) along the Proposed Action temporary construction footprint. These increases in predator occupancy along the temporary construction areas would result in increased localized predation specifically to general wildlife prey species such as small mammals, insects, amphibians, and reptiles.

The EMMs referenced above would minimize impacts to rare habitats for general wildlife. Specifically, construction would be prohibited or minimized to the greatest extent practical and vehicle travel, construction-related activities within 300 feet from wetlands and waterways and impacts to sagebrush habitat would be avoided to the greatest extent possible. Construction-related activities may result in direct mortality to general wildlife via vehicle mortality along access roads and within construction sites. Mobile wildlife species are anticipated to move away from active construction sites, but less mobile species may be crushed during ground-disturbing activities. General wildlife would also be susceptible to



**Legend**

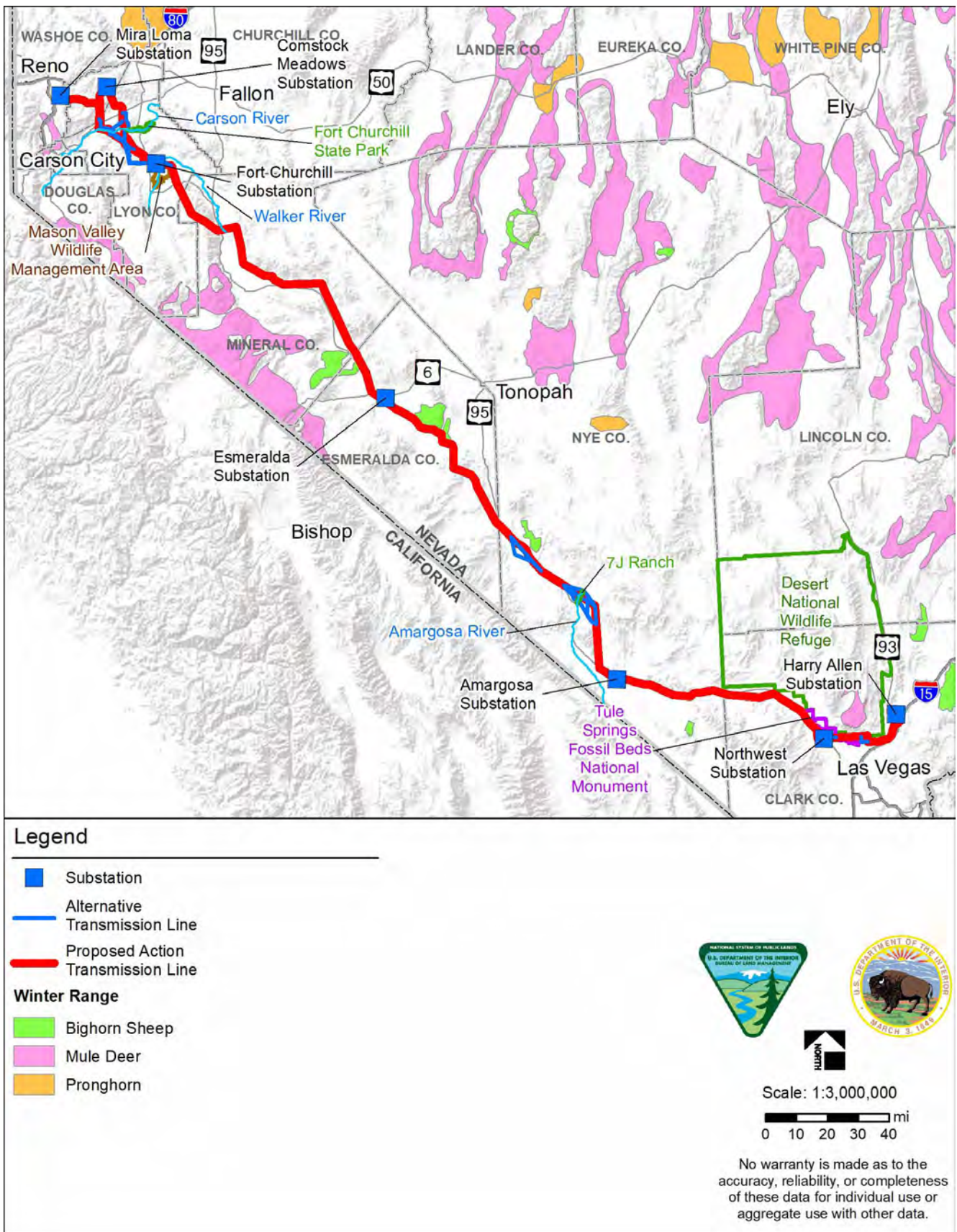
- Substation
  - Alternative Transmission Line
  - Proposed Action Transmission Line
- Movement Corridors**
- Bighorn Sheep
  - Mule Deer
  - Pronghorn



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 3-15. NDOW Big Game Movement Corridors**



**Figure 3-16. NDOW Big Game Winter Ranges**



### **3.5.4 Environmental Consequences**

injury or death from collisions with construction vehicles, especially within known ungulate movement corridors and wintering ranges (bighorn sheep, mule deer, and pronghorn).

The general wildlife analysis area intersects 17 movement corridors (13 bighorn sheep, three mule deer, and one pronghorn) identified by NDOW. In addition, five wintering ranges (three bighorn sheep and two mule deer) occur within the general wildlife analysis area. Areas along these corridors and wintering ranges may have higher risk of vehicle collisions to big game species. The EMMs referenced above would also minimize impacts to general wildlife species by establishing speed limits along designated access roads and within the construction sites throughout the GLWP such as within sensitive areas (e.g., big game winter ranges).

Impacts on general wildlife from use of the general wildlife habitat areas and corridors may result in increases in mortality from loss of food and water resources and decreases in population recruitment and genetic diversity during construction. The EMMs referenced above would minimize impacts to general wildlife by minimizing nighttime lighting, predator occupancy near temporary construction areas by reducing wildlife access to anthropogenic resources (i.e., waste management and restricting wildlife access and use of transported water), and establishing seasonal restrictions on construction related activities specific to the bighorn sheep lambing and big game wintering ranges associated with the movement corridors (Appendix C. EMMs BIO-27 and BIO-28).

#### **Operations and Maintenance**

Ongoing O&M activities associated with the Action Alternatives would result in impacts on general wildlife from habitat degradation from vegetation management, the introduction and spread of invasive plant species and noxious weeds and impacts from predators perching and nesting on transmission towers and 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. Prey species may experience increased mortality due to avian predators nesting on or using transmission line structures to forage. During O&M, some general wildlife may continue to stay away from the Action Alternatives' permanent ROW, which could reduce connectivity between certain big game movement corridors due to human presence, vehicle traffic, and nighttime lighting, where present.

#### **Decommissioning**

Impacts during decommissioning would be similar to those described for the construction phase, though to a lesser extent. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions over the long-term. Human activity in the general wildlife analysis area would decrease after decommissioning and the removal of transmission line facilities.

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

##### **Construction**

Construction of the Proposed Action would impact general wildlife through habitat loss and fragmentation and mortality. These impacts would extend across an area larger than the actual construction footprint, and wildlife species more sensitive to fragmentation and disturbance may shift habitat use to other areas. The impacts of habitat loss and fragmentation are greatest when the affected habitats are in short supply (i.e., riparian and wetland areas and sagebrush habitat) and the species range is limited. In addition, management areas—specifically the TUSK, Desert NWR, 7J Ranch, and Mason Valley WMA—would be

impacted during construction-related activities. The GLWP would impact no more than one percent of the total acreage within these wildlife management areas (refer to Table 3-31). The Proposed Action would traverse parallel to the southern boundary of Desert NWR for approximately 7 miles. There would be no temporary or permanent disturbance associated with the GLWP within Desert NWR.

**Table 3-31. Proposed Action Temporary and Permanent ROW Area within WMAs**

<b>Management Areas</b>	<b>Acres</b>	<b>Temporary ROW Area (acres)</b>	<b>Temporary ROW Area (percentage)</b>	<b>Permanent ROW Area (acres)</b>	<b>Permanent ROW Area (percentage)</b>
7J Ranch	1,066	47.1	4.4	12.8	1.1
Mason Valley WMA	16,635	20.2	< 1	10.0	< 1
TUSK	22,650	62.8	< 1	19.8	< 1
<b>Total</b>	<b>40,351</b>	<b>130.1</b>	<b>&lt; 1</b>	<b>42.6</b>	<b>&lt; 1</b>

*Table Acronyms:* TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area

Localized disturbances may impact the four riparian resource corridors (Carson, Walker, and Amargosa rivers), five winter ranges, and the 17 movement corridors resulting in temporary avoidance of use within these areas along the Proposed Action. Avoidance of these habitat areas and movement corridors may reduce access to food and water resources as well as reproductive opportunities between populations.

#### **Operations and Maintenance and Decommissioning**

The O&M and decommissioning-related general wildlife impacts would be same to 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 general wildlife with the implementation of the EMMs in Appendix C.

#### **3.5.4.2 Direct and Indirect Impacts from Losee, TUSK, and Scotty’s Junction Transmission Line Route Groups, Amargosa and Esmeralda Substation Groups, and Amargosa Microwave Group**

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

The Losee, TUSK, and Scotty’s Junction Transmission Line Route Group Alternatives, Amargosa and Esmeralda Substation Alternatives, and Amargosa Microwave Site Alternatives would result in similar impacts to individuals but would not impact wildlife populations. Impacts would be due to habitat loss and fragmentation, collisions with or crushing by vehicles and equipment, increased avian predation, and temporary disturbance from noise, vehicles, and human presence during construction, O&M, and decommissioning.

#### **3.5.4.3 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

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

Impacts from the Beatty transmission alternatives, such as habitat degradation, sedimentation, and habitat loss to general wildlife, would be greater for alternatives impacting surface water and riparian or marsh vegetation and for alternatives impacting 7J Ranch. The 7J Ranch was acquired by The Nature Conservancy (TNC) in 2019 to protect the property’s ecological value and the headwaters of the Amargosa River (TNC 2023). Because The Nature Conservancy intends to conduct restoration activities on 7J Ranch,

the ranch's wildlife value is anticipated to increase over time. The Beatty Transmission Alternatives A and K would both result in permanent and temporary ROW (approximately 0.6 acres and 5.1 acres, respectively) within the 7J Ranch, however the 525-kV transmission line in both alternatives would span the ranch and no structures would be constructed within the ranch. A maintenance easement would need to be obtained for the transmission lines for the Beatty Transmission Alternatives A and K. Similarly, the Beatty Transmission Alternative G may result in impacts to 33.5 acres of habitat in the temporary ROW during construction, but there would be no structures within the 7J Ranch boundaries and no need for a permanent easement. The Beatty Transmission Alternative C would be the furthest north transmission line route and would avoid the 7J Ranch boundaries. The Proposed Action would result in 27.2 acres of temporary ROW and 9.3 acres of permanent ROW within the 7J Ranch boundary.

The wetland habitats associated with the Amargosa River within the Oasis Valley are important habitats that provide food and water resources to various general wildlife that occur within the area. Within the general wildlife analysis area, approximately 11.1 acres of permanent and 36.3 acres of temporary ROW area for Beatty Transmission Alternative A, approximately 2.4 acres of temporary ROW area for Beatty Transmission Alternative C, approximately 1.3 acres of temporary ROW area for Beatty Transmission Alternative G, and approximately 10.7 acres of permanent and 31.3 acres of temporary ROW areas for Beatty Transmission Alternative K would occur within wetland habitat (i.e., marsh and playa). Approximately 1.9 acres of permanent and 9.6 acres of temporary ROW areas would occur within wetland habitats for the Proposed Action. None of the Beatty transmission alternatives or the comparable section of the Proposed Action would disturb riparian vegetation. Impacts to wetland vegetation would be minimized for all of the Beatty transmission alternatives through implementation of the EMMs (Appendix C. BIO-35, CON-15, HYDRO\_WQ-23, and ROW\_Utility-4). Therefore, the Beatty Transmission Alternatives A, G, and K and the Proposed Action would result in impacts to the general wildlife from construction, O&M, or decommissioning of the GLWP because the routes would occur within wetland habitats and the 7J Ranch. Beatty Transmission Alternative C would have the least impact to general wildlife compared to the other Beatty transmission alternatives and the comparable segment of the Proposed Action because it would have the least impact to 7J Ranch and to existing wetland habitats.

Temporary and permanent disturbance to vegetation within may impact wildlife species habitat through reduction of shade, cover, and food sources during construction and O&M. Beatty Transmission Alternative G would have the greatest temporary impacts on vegetation (2,007 acres), while the other Beatty transmission alternatives would have similar temporary impacts on vegetation (1,670 for Beatty Alternative A, 1,727 acres for Beatty Alternative C, and 761 acres for Beatty Alternative K) in comparison to the Proposed Action, which would temporarily impact approximately 1,687 acres. Beatty Alternatives A, C, G, and K would have similar permanent impacts on vegetation (440 acres for Alternative A, 455 acres for Alternative C, 414 acres for Alternative G, and 447 for Alternative K) as the Proposed Action (438 acres) (refer to Appendix E, Table E-8). While Beatty Transmission Alternative G would temporarily disturb more vegetation, thus disturbing more wildlife habitat, the long-term impacts associated with the permanent ROW area of Beatty Transmission Alternative G would be very similar to the other Beatty transmission alternatives. The Proposed Action and other Beatty transmission alternatives would have relatively the same amount of impact to the two movement corridors within the Bare Mountains for bighorn sheep.

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

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

The Proposed Action would cross the Walker River within the Mason Valley WMA adjacent to an existing railroad river crossing. Approximately 15.6 acres of temporary and 6.0 acres of permanent ROW would occur within riparian habitat along the Walker River crossings compared to the Mason Valley WMA Transmission Alternative A's approximately 12.8 acres of temporary and 2.0 acres of permanent ROW within riparian habitat. In addition, the Proposed Action would cross Perk Slough and Joggles Slough, areas that provide high-quality general wildlife habitat, while Mason Valley WMA Transmission Alternative A would be located north of these features. Fragmentation of high-value general wildlife habitat within the sloughs that would occur under the Proposed Action would not occur under the Mason Valley WMA Transmission Alternative A. No construction activities, structure pads, and vehicle travel are to occur within 300 feet of wetlands/waterways (refer to Appendix C. EMM HYDRO\_WQ-23). Access roads within the Mason Valley WMA's boundaries would not be utilized under Mason Valley WMA Transmission Alternative A. The Mason Valley WMA Transmission Alternative A route would have less impact on general wildlife from construction, O&M, or decommissioning of the GLWP relative to the Proposed Action.

#### **3.5.4.5 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

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

The entire stretch of the Carson River, in the vicinity of the Carson River Transmission Alternatives A and C, provides high-value riparian and aquatic habitat for general wildlife. Both the Carson River Transmission Alternatives A and C and their respective comparable segments of the Proposed Action would impact this habitat. As previously noted, the 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 crossings across the Carson River. Carson River Transmission Alternative A can only be compared to the comparable segment of the Proposed Action's 345-kV Fort Churchill to Comstock Meadows #2 transmission line. The calculations of disturbance for Carson River Transmission Alternative A and the comparable segment of the Proposed Action only reflect the 345-kV Fort Churchill to Comstock Meadows #2 transmission line and does not include the remaining two 345-kV lines. The Proposed Action and Carson River Transmission Alternative C, which includes all three 345-kV lines, would pass over the Carson River also in separate locations.

The Carson River Transmission Line Alternative A would include approximately 18 acres of riparian habitat within its temporary ROW area and five acres within its permanent ROW area, while the comparable segment of the Proposed Action would disturb approximately 24 acres of riparian habitat within its temporary ROW area and five acres within its permanent ROW area. Carson River Transmission Alternative A would result in fewer effects to general wildlife by reducing habitat fragmentation and exposure to other disturbances such as human presence and noise resulting from a more consolidated crossing of the Carson River. Carson River Transmission Alternative A would also result in fewer impacts to high-value riparian habitat than the comparable segment of the Proposed Action.

The alignment of the three 345-kV lines in the Carson River Transmission Alternative C would differ from the comparable segment of the Proposed Action. The Carson River Transmission Alternative C would include approximately 64 acres of temporary ROW area and 21 acres of permanent ROW area within

riparian, marsh, and playa habitats while the comparable segment of the Proposed Action would include approximately 89 acres of temporary and 25 acres of permanent ROW areas within these habitats. Since 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 Carson River Transmission Alternative C and the comparable segment of the Proposed Action would expand the predation opportunities on the local terrestrial prey populations. Carson River Transmission Alternative C would result in less impacts to riparian, marsh, and playa habitats than the comparable segment of the Proposed Action because of the greater acres of these types of habitats within the temporary and permanent ROW areas.

#### **3.5.4.6 Impacts from Anti-Perching/Nesting Mitigation Measure**

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

Implementing the anti-perching/nesting mitigation measures would include replacing 164 miles of lattice structures with tubular structures in Mojave desert tortoise recovery unit areas and Bi-State sage-grouse habitat areas. This would increase the number of structures by approximately 25 percent from approximately 570 structures to 760 structures in these habitat areas (the span length for guyed lattice structures would be approximately 1,520 feet while the span length for tubular structures would be approximately 1,140 feet). More structure pads with permanent hard surfaces to be constructed within desert tortoise and Bi-State sage-grouse sensitive habitat areas which, compared to the Proposed Action, would increase habitat loss for general wildlife by approximately 164 acres and may result in impacts to movement corridors (refer to Table 3-17). Even though the anti-perching/nesting mitigation measures would result in additional habitat loss, the use of tubular structures with perch and nesting prevention devices would reduce the concentration of raven predation around and near the transmission structures in comparison to the 164 miles of lattice structures proposed without the anti-perching/nesting mitigation measures. While the focus of the anti-perching/nesting mitigation measures is for the protection of the Mojave desert tortoise and Bi-State sage-grouse, ravens also predate on other terrestrial wildlife species, including small mammals, reptiles, amphibians, nesting birds, and eggs. The anti-perching/nesting mitigation measures would also reduce the concentration of raven predation on small general wildlife species. Use of tubular structures in Mojave desert tortoise and Bi-State sage-grouse habitat areas, combined with implementation of the GLWP Raven Management Plan (includes raven monitoring measures and use of perch deterrents; Appendix G) would decrease the impacts of the Action Alternatives on general wildlife.

### **3.6 Cultural Resources**

The classification of a cultural resource for this EIS 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 the NEPA and the NHPA. Discussions herein include issues identified for analysis, regulatory context, consultation and coordination, analysis area and methodology, affected environment, identification of cultural resources, impacts and effects, and measures to avoid, minimize, and/or mitigate adverse effects to cultural resources.

### **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?
- Would historic properties be adversely affected by physical, visual, atmospheric, and cumulative changes to the environment caused by construction, O&M, and decommissioning?
- Can 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 Advisory Council of Historic Preservation (ACHP); authorizing the National Register of Historic Places (NRHP); and introducing Section 106, among other inclusions. Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties 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. This Cultural Resources section was completed in partial fulfillment of the BLM's responsibility under Section 106.

This Cultural Resources section was completed in partial fulfillment of the BLM's responsibility under NEPA. Federal agencies have independent statutory obligations under NHPA and NEPA. The regulations for both Section 106 of the NHPA 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 of the NHPA 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 of the NHPA by using the process outlined in 36 CFR 800.8(c), otherwise known as 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" 36 CFR 800.8(c)(1). The agency official must notify the SHPO/THPO and the ACHP in advance of its intentions.

This 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 substitution process 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));
- Consult regarding 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 EIS.

Following publication, the consulting parties and public would have an opportunity to review and comment on this Draft EIS (36 CFR 800.8(c)(2)). All consulting parties and/or the ACHP can object to the BLM during the public comment period allotted for the Draft EIS that the Draft EIS 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 EIS is inadequate. If the BLM receives such an objection, the BLM will then refer the matter to the ACHP. After publication of the Final EIS, the agency may approve the undertaking through a Record of Decision (ROD), which must include binding commitment measures to avoid, minimize, or mitigate adverse effects (36 CFR 800.8(c)(4)). If the ROD makes a binding commitment 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 3-32). 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 3-32. NEPA and NHPA Terms and Definitions**

<b>NEPA Term and Definition</b>	<b>NHPA Term and Definition</b>
<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>

NEPA Term and Definition	NHPA Term and Definition
<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>
<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 interest 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 r alternatives as described in an environmental document or record of decision 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 including 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>



NEPA Term and Definition	NHPA Term and Definition
<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 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 the Section 106 regulations do not define “cumulative effects,” the Council of Environmental Quality 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 Notes:* 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 Council on Environmental Quality Executive Office of the President and the Advisory Council on Historic Preservation. 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 of the NHPA. The ACHP regulations, 36 CFR Part 800 sets forth the process for how federal agencies comply with Section 106. Specifically, the process outlining the requirements of Section 106 is described in 36 CFR §§ 800.3–800.6.

Substitution under 36 CFR § 800.8(c) permits agencies to use the NEPA review to comply with Section 106 as an alternative to the process set out in 36 CFR §§ 800.3–800.6. The use of the substitution approach allows agencies to use the procedures and documentation required for the preparation of the EIS and ROD to comply with the Section 106 procedures. The BLM intends to use the substitution approach to comply with Section 106 for the undertaking (referred to henceforth as “undertaking” or “GLWP”).

This 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 substitution process.

### **Initiation of the Undertaking**

#### **Notification (36 CFR 800.8(c))**

Section 106 regulations at 36 CFR § 800.8(c) require that the federal agency official notify in advance the SHPO and/or THPO and the ACHP of its intent to use the Substitution process for Section 106 purposes. The BLM sent notification of its intent to use Substitution to the SHPO, THPOs, ACHP and Native American Tribes in May 2021 and February 2022 (see Appendix V for documentation). These letters included notification of the BLM’s election to use the NEPA substitution process described in 36 CFR 800.8, 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 (see Chapter 5 Consultation and Coordination) for more information on government-to-government consultation. The Walker River Paiute Tribe elected to engage as both a consulting party and a cooperating agency. Additionally, BLM, ACHP, and SHPO met in July of 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 area of potential effects, 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 following parties to consult under 36 CFR 800.3(f) as well as to participate as cooperating agencies under NEPA in a May 2021 letter: Nevada SHPO, THPOs, ACHP, 19 Native American Tribes, and 3 National Historic Trails groups (Table *Acronyms*: TUSK – Tule Springs Fossil Beds National Monument

Table 3-34). In that letter to the SHPO, BLM asked for their assistance in identifying other consulting parties. The BLM requested assistance in identifying additional consulting parties in a December 2021 meeting with consulting parties, but no additional potential consulting parties were identified at that time. The BLM shared the Scoping Report with the consulting parties in July 2022, and SHPO provided a list of 35 additional potential consulting parties. The NEPA scoping process resulted in the identification of an additional 16 Tribes who might attach religious and cultural significance to historic properties in the area of potential effects. These tribes were sent a notification and invitation to participate as consulting parties and cooperating agencies in February 2022.

The Nevada SHPO, ACHP, Moapa Band of Paiutes, Las Vegas Paiute Tribe, Walker River Paiute Tribe, Duckwater Shoshone Tribe, Reno-Sparks Indian Colony, Timbisha Shoshone, Kaibab Band of Paiutes, Hopi Tribe, Washoe Tribe of Nevada and California, and the Oregon-California Trail Association (OCTA) responded that they would like to be consulted for the GLWP under Section 106 of the NHPA. 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 undertaking may affect lands administered by the Timbisha Shoshone Tribe, Las Vegas Paiute Tribe, and the Walker River Paiute Tribe. The THPOs for Timbisha Shoshone and Walker River Paiute are Section 106 consulting parties, and additionally the Walker River Paiute Tribe is participating as a cooperating agency. The Las Vegas Paiute does not have a THPO, but the Tribe is a Section 106 consulting party. Federal agencies who manage land that may be affected by the undertaking are being consulted as part of the EIS process. Additional consulting parties may be identified and will be included as the NEPA process continues. Table 3-33 through Table 3-36 identifies current consulting parties under Section 106 of the NHPA and Appendix V includes this correspondence.

## 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 established an initial APE and included those details as part of the notification and consultation letters sent to consulting parties. After receiving questions, particularly from the SHPO, the BLM held a consulting party meeting in December of 2021 (included in Appendix V). This meeting addressed several topics, one of which was the development of the APE. The presentation included photographs of similar projects at different distances documenting the adequacy of the APE for potential visual effects of the GLWP. Additional discussion topics included the BLM's strategy for identification of historic properties and assessment of effects, requested ideas and input on treatment of adverse effects to historic properties, discussed public involvement and next steps in the NEPA substitution process.

In March of 2022, the BLM conducted additional consultation with Native American Tribes, including discussions of the APE, the BLM's strategy for identification of historic properties and assessment of effects, requested ideas and input on treatment of adverse effects to historic properties, discussed public involvement and next steps in the NEPA substitution process, as well as the status of the NEPA effort overall, and ways to participate as cooperating agencies. The meeting agenda and invited participants is included in Appendix V. Further discussion regarding the APE 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 2,499 known cultural resource sites within the Visual APE (VAPE), 360 of which are located within the cultural resources Direct Area of Potential Effects (DAPE). Within the DAPE, 62 are recommended eligible for listing in the NRHP, 2 are listed, 54 are unevaluated for listing in the NRHP, 225 are not eligible, and 17 have unknown NRHP eligibilities. Of the remaining 2,139 sites solely within the VAPE, 61 are listed or recommended eligible for listing in the NRHP under Criteria A, B, and/or C; within the viewshed of a proposed transmission line, distribution line, or substation, and retains integrity of setting and feeling. As such, these are subject to visual effects analysis. Known cultural resources include indigenous lithic scatters and quarries, artifact scatters, rock shelters, and sites with rock writing, and 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 R. Lamb State Park, Tule Springs Archaeological Site, Lagomarsino Petroglyph Site, Fort Churchill, Buckland Station, and Stockton Well Station. The latter is listed on the State Register for Historic Places, but not the National Register.

#### ***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 historic mapped features were relocated, if possible. A total of 1,332 sites, structures, and districts were documented in the Class III inventory area; 177 previously identified resources and 1,155 newly identified resources. Documented cultural resources date to the Paleoarchaic, Archaic, Late Prehistoric, and Historic periods. Resource types

include lithic scatters, rock shelters, habitations, 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 subsistence-processing activities of mobile hunter-gatherers during all periods of human occupation. Recent historical sites reflect early Euro-American exploration and settlement transportation, communication, mining, the ranching and agriculture industries, military, and informal refuse.

The BLM is consulting multiple Native American Tribes (refer to *Table Acronyms*: TUSK – Tule Springs Fossil Beds National Monument

Table 3-34 for list of consulted Native American Tribes) 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 APE.

**Table 3-33. Section 106 Federal Agency Consulting Parties**

<b>Agency</b>
Advisory Council on Historic Preservation
National Park Service – TUSK
National Park Service – National Trails Office
Bureau of Indian Affairs
Department of Defense
Department of Energy
US Fish and Wildlife Service

*Table Acronyms*: TUSK – Tule Springs Fossil Beds National Monument

**Table 3-34. Section 106 Native American Tribes and THPO Consulting Parties**

<b>Agency</b>
Big Pine Paiute Tribe of the Owens Valley
Bishop Paiute Tribe
Bridgeport Indian Colony
Burns Paiute Tribe
Chemehuevi Indian Tribe
Colorado River Indian Tribes
Confederated Tribes of Warm Springs
Duckwater Shoshone Tribe
Fort Independence Indian Community
Fort McDermitt Paiute and Shoshone Tribes
Fort Mojave Indian Tribe
Havasupai Tribe
Hopi Tribe
Hualapai Indian Tribe
Kaibab Band of Paiute Indians
Las Vegas Paiute Tribe
Lone Pine Paiute Shoshone Tribe
Lovelock Paiute Tribe
Moapa Band of Paiute Indians
Pahrump Paiute Tribe <sup>a</sup>
Paiute Indian Tribe of Utah
Fallon Paiute-Shoshone Tribe
Pyramid Lake Paiute Tribe

<b>Agency</b>
Reno-Sparks Indian Colony
San Juan Southern Paiute Tribe of Arizona
Shoshone-Paiute Tribes of the Duck Valley Indian Reservation
Summit Lake Paiute Tribe
Timbisha Shoshone Tribe (and THPO)
Twenty-Nine Palms Band of Mission Indians
Utu Utu Gwaitu Paiute Tribe
Walker River Paiute Tribe (and THPO)
Washoe Tribe of Nevada and California
Winnemucca Indian Colony
Yerington Paiute Tribe
Yomba Shoshone Tribe

*Table Acronyms:* THPO – Tribal Historic Preservation Office

*Table Notes:* \*The Pahrump Paiute Tribe is not federally recognized but was invited to participate in Section 106 consultation.

**Table 3-35. Section 106 State Agency Consulting Parties**

<b>Agency</b>
Nevada State Historic Preservation Office
Nevada Division of Parks
Comstock Historic District Commission

**Table 3-36. Section 106 Trail Organizations Consulting Parties**

<b>Agency</b>
National Pony Express Association
Old Spanish Trail Association
Oregon-California Trail Association

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 C.F.R. § 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.

In a series of monthly meetings from January to August of 2022, the BLM provided updates on the status of the inventory efforts to SHPO. In April and May of 2023, BLM sent the Class I and Class III inventory reports and preliminary NRHP eligibility determinations to the consulting parties requesting agreement with these eligibility determinations as required under 36 CFR 800.4(c)(2). Results of this consultation will be reported in the Final EIS.

### **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. Between May 2021 and April 2023, there were 13 cooperating agency meetings for the GLWP.

Cooperating agencies and consulting parties were invited to review the Administrative Draft EIS in December of 2022. The BLM incorporated and/or addressed all substantive comments received. Although

SHPO declined to participate as a cooperating agency, the BLM notified the SHPO of its availability, some changes to the NEPA scheduling, and anticipated next steps via email.

In April of 2023, the BLM sent a letter (included in Appendix V) to consulting parties listed in Table 3-33 through Table 3-36 with an invitation to participate in a Section 106 consulting party meeting in May of 2023. Items discussed included: results of the identification effort, preliminary NRHP eligibility determinations, preliminary adverse effect determination, and proposed treatment methods. The BLM provided information on the public scoping meetings as well as details about commenting on the EIS.

In May of 2023, BLM held a government-to-government meeting with Native American Tribes and discussed results of the identification effort, preliminary NRHP eligibility determinations, preliminary adverse effect determination, proposed treatment methods, and provided more information on the results of other resource studies. BLM provided information on the public scoping meetings as well as details about commenting on the EIS and next steps in the NEPA process.

### **Determination of Effect**

The procedure for assessing adverse effects 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 National Register 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 based on the direct physical and visual changes the GLWP would introduce to historic properties. 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. Archaeological sites in the DAPE may be affected by ground-disturbing activities, while resources in the VAPE may be affected by visual effects when the transmission and distribution lines dominate the nearby landscape. An adverse effect to cultural resources would result if the construction, operation, or maintenance of the GLWP has the potential to cause a direct physical effect; adverse visual change; or restricted access by Tribes to known cultural resources that are listed in or eligible for the NRHP, cultural resources that have not been evaluated for NRHP eligibility, and cultural resources of significance to Native American Tribes. Appendix K includes a list of the specific historic properties that may be adversely affected by the GLWP and proposed mitigation measures.

This Draft EIS is being distributed to consulting parties and the public for consultation on the preliminary determination of effect. The results of this consultation and final determinations will be included in the Final EIS.

### **Public Involvement (36 CFR 800.8(c)(1)(iv))**

The BLM understands that the views of the public are essential to informed Federal decision making in the Section 106 process. The BLM is using agency procedures for the public involvement under NEPA in lieu of the public involvement requirements of Section 106. The BLM held eight in-person public input workshops in June 2021 in Las Vegas, Beatty, Hawthorne, and Yerington; four virtual public input workshops in November 2021 and February 2022; and four in-person public scoping meetings in May 2022 in Las Vegas, Beatty, Tonopah, and Reno. The BLM will hold public meetings during the public comment period in an effort to provide adequate opportunities for public involvement. In addition, this Draft EIS is posted on the BLM's ePlanning website for public accessibility during the public review 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))**

Consulting parties were invited to attend cooperating agency meetings throughout the NEPA process. Between May 2021 and April 2023, there have been 13 cooperating agency meetings. BLM has worked with cooperating agencies and consulting parties who have identified concerns to develop alternatives and measures to avoid, minimize or mitigate adverse effects (also referred to as treatment methods) 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 of 2022, the BLM consulted with recently identified consulting parties, including discussions of the BLM's strategy for identification of historic properties and assessment of effects, proposed treatment of adverse effects to historic properties, and GLWP alternatives. In August 2022, BLM invited consulting parties to discuss the proposed alternatives for the GLWP in a cooperating agency meeting. In September 2022, BLM provided information to the cooperating agencies and consulting parties on the process for commenting on the Administrative Draft EIS. BLM worked with cooperating agencies and consulting parties to develop alternatives to address as many concerns as possible.

Consultation and coordination with the Duckwater Shoshone Tribe identified sites of Tribal significance in the Beatty area. Beatty Transmission Alternative K was developed specifically to avoid direct physical impacts/adverse effects to cultural resource sites of Native American religious and cultural significance.

### ***Proposed Treatment Measures***

A matrix of proposed treatment measures and sites with a preliminary determination of adverse effect are included in Appendix K. These include: avoidance through design; Tribal and archaeological monitoring; cultural sensitivity training for construction personnel, archival research, ethnographic research, and oral history interviews to develop a historic context suitable for the public and/or Tribe(s); development of interpretive signage; LiDAR, photogrammetry, and/or drone photography for archaeological sites; HABS/HAER for buildings and structures; and archaeological data recovery.

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 will continue consultation with consulting parties on site specific treatments methods and describe the results in the Final EIS. The BLM will make a binding commitment to implement the treatment methods in the ROD.

### **Summary**

This section meets the standards set forth in 36 CFR § 800.8(c)(1) and demonstrates how the BLM is complying with the Section 106 Process, including Initiation of the Undertaking, Identification of Historic Properties, Assessment of Effects, and Measures to Avoid, Minimize, or Mitigate Adverse Effects. 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 SHPO, Tribes, other consulting parties, and the public will determine if these proposed efforts are adequate for determining effects of this undertaking on historic properties. A consulting party may report an objection to the BLM that the process has not met the standards of 800.8(c)(1) or that the measures to avoid and minimize impacts to historic properties are inadequate. If there is an objection, the BLM would refer the objection to the ACHP for its opinion which the ACHP has 30 days to provide. If the ACHP does not agree with the objection or does not respond within 30 days, the BLM may proceed to conclude its NEPA and Section 106

reviews. If the ACHP agrees with the objection, the BLM takes the ACHP opinion into account in reaching a final decision regarding the issue following the process set out at 36 C.F.R. § 800.8(c)(3)(i).

### **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 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. See the Class III Cultural Resources Inventory portion of Section 3.6.4 Methodology for more information.

#### **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 rock features, encountered within the BMDO during the Class III cultural resources survey. Several sites were documented in the proceeding months and two field visits were conducted. In October 2021, a member of the Duckwater Shoshone Tribe and the BLM conducted the first field visit southwest of Goldfield. The group visited three sites containing rock features and one site containing rock writing. The Tribal representative provided assistance in interpretation and eligibility determinations and requested avoiding these sites during construction. Representatives of the Duckwater Shoshone Tribe, the Timbisha Shoshone Tribe, and the BLM conducted a second field visit in January 2022, near Beatty. The group visited two sites with substantial rock features and the Tribal representatives recommended avoiding these sites during construction of the GLWP. A third site visit was conducted in April 2022, near Beatty and Scotty's Junction with representatives from the BLM, Duckwater Shoshone Tribe, and Timbisha Shoshone Tribe. Timbisha representatives identified areas of significance to the Tribe and related that they would only support an alternative that results in the least ground disturbance. A fourth site visit was completed in April 2023, near Beatty with representatives from the Duckwater Shoshone Tribe and the Timbisha Shoshone Tribe. The purpose was to visit two rock stack sites in Beatty Alternative K and discuss potential treatments to avoid, minimize, or mitigate potential adverse effects. Duckwater Shoshone indicated that they prefer Beatty Alternative G because that corridor contains fewer sites of Tribal importance that may be affected by the GLWP.

#### **3.6.3.3 Other Tribal Coordination**

Some Native American Tribes have reached out to the BLM about the GLWP via email and telephone during the GLWP planning process. These conversations have occurred with the Duckwater Shoshone Tribe, Reno-Sparks Indian Colony, and the Washoe Tribe of Nevada and California. This information sharing and coordination occurred outside of formal consultation letters, meetings, and site visits.



In addition to Section 106 consultation, Tribal monitors participation during archaeological fieldwork, visits to archaeological sites with Tribes, and GLWP conversations, the BLM coordinated GLWP presentations to Tribes, invited Tribes to public input workshops and NEPA Cooperating Agency meetings, and participated in government-to-government consultation. Additional details about this coordination are available in the Section 3.7 Native American Religious Concerns.

### **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 analysis area for cultural resources under NEPA is the same as the APE under NHPA and hereafter is referred to as the APE. The BLM defined the APE in consultation with the Nevada SHPO, THPOs, ACHP, and other consulting parties, including Native American Tribes. The APE encompasses numerous cultural resources and historic properties.

The APE for cultural resources is divided into two categories: the direct effects analysis area/direct APE (hereafter referred to as the DAPE) and the visual effects analysis area/visual APE (hereafter referred to as the VAPE). The DAPE includes all areas that may be subject to ground-disturbing activity plus a 98-foot (30-meter) buffer. The approximately 80,453-acre DAPE includes the temporary 600-foot-wide 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 (30-meter) buffer around all of these areas as stipulated by the BLM. Physical disturbances and long-term noise are expected to be contained in the DAPE.

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; and cumulative effects. 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 alignments. 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 three miles; 230-kV lattice or monopole transmission lines after 1.5 miles; and wooden monopole transmission lines after 0.5 mile (Pay et al. 2020). Following Pay et al. 2020, the VAPE is a 3-mile-wide buffer around the centerline of Proposed Action and Action Alternatives for a total 6-mile-wide corridor and a 0.5-mile-wide buffer around the distribution lines (for a total 1-mile-wide corridor) and substations and is approximately 1,722,483 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 3-37.

**Table 3-37. GLWP Components and Associated DAPE and VAPE**

<b>GLWP Component</b>	<b>DAPE</b>	<b>VAPE</b>
525-kV and 345-kV Transmission Line ROWs	600-foot temporary ROW plus 98-foot (30-meter) buffer	6-mile-wide corridor around centerline (3 miles on both sides of centerline)
Distribution Lines	100-foot temporary ROW plus 98-foot (30-meter) buffer	1-mile-wide corridor around centerline (0.5 mile on both sides of centerline)
Substations	Disturbance footprint plus 98-foot (30-meter) buffer	0.5-mile buffer around disturbance footprint
Microwave radio facilities Amplifier sites Material/Construction yards Tensioning areas	Disturbance footprint plus 98-foot (30-m) buffer	None
Access Roads slated for improvement or construction	196-foot (60-m) wide corridor around centerline (98 feet [30 meters] on both sides of centerline)	None

*Table Acronyms:* DAPE – Direct Area of Potential Effects; ft – feet; m – meter; VAPE – Visual Area of Potential Effects

## Methodology

A careful assessment of whether cultural resources/historic properties would be adversely affected is necessary. In order to fulfill the BLM’s obligations under Section 106 of the NHPA, the following tasks were or are being 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

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).

### **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 APE. Data sources for the research included the Nevada Cultural Resources Information System (NVCRIS) database; files from the BLM SNDO, the CCDO, and the 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 APE. 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 3 miles, areas visible from the distribution lines out to a distance of 0.5 mile, and areas visible from the proposed and alternative substations out to a distance of 0.5 mile. 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 within the viewshed were considered. Furthermore, cultural resources subject to this detailed analysis only include historic properties that are 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 the identified parameters (significance under Criteria A, B, or C and retaining integrity of setting, feeling, and association), if so, they were subject to the detailed analysis. Resources meeting these criteria may be visually affected by the

construction of transmission and distribution lines and were subjected to further visual analysis during the Class III inventory.

### **Class III Cultural Resources Inventory**

A Class III cultural resources inventory was required for the DAPE for the Proposed Action plus the Action Alternatives that were carried forward into detailed analysis. If portions of the DAPE were surveyed for cultural resources by a qualified professional in the last 20 years to Class III standards, those areas 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. When right-of-entry is obtained from private landowners for the GLWP, all private lands in the DAPE would be inventoried for cultural resources prior to construction and/or monitored during construction. For the purposes 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.

The DAPE was inventoried by qualified and permitted field supervisors. Crews walked one 98-foot (30-meter) transect on both sides of road corridors and utilized 98-foot (30-meter) transect spacing for all remaining areas. Cultural resources were identified and documented according to BLM standards.

The Moapa Band of Paiutes, 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 most of the survey efforts, based on their availability. On average, there was one Tribal monitor on each field crew, which also consisted of up to four professional archaeologists. A total of 10 different Tribal monitors participated in the fieldwork efforts within the identified areas of interest.

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 NHRP, 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.

### **Visual Effects Field Assessment**

Historic properties that are eligible or listed under Criteria A, B, or C and retain integrity of setting, feeling, and association, and that are within both the viewshed and the VAPE could be visually affected by the GLWP. Sites meeting these criteria and located within 0.5-mile of the ROW are assumed to have visual effects that may require mitigation. Sites beyond 0.5-mile of the ROW were subject to visual field inspections and assessment. Visited historic properties were photographed from selected sensitive viewing platforms, which were established from within the historic property or at the edge of the site boundary, and the photographs document the visibility conditions of the proposed transmission or distribution line from the viewing platform. The environmental factors were documented using BLM VRM Contrast Rating

Form process and completed based on the results of the field observation and visibility analysis at publicly accessible site (BLM 1984, 1986a).

### **Treatment Plan**

It is anticipated that the GLWP would not be able to avoid all NRHP-eligible sites and therefore the GLWP would have adverse effects on historic properties. Appendix K lists the sites that would be adversely affected and preliminary treatment measures to resolve those effects. This plan was developed through discussions with consulting parties and Native American Tribes and BLM provided it to Consulting Parties in May 2023. Assuming an Action Alternative is selected, the BLM will continue consultation to develop a more detailed a plan to avoid, minimize, or mitigate adverse effects to historic properties; a monitoring plan for construction; an unanticipated discovery plan; a plan on how BLM will report completed mitigation measures to the consulting parties; and a Native American Graves Protection and Repatriation Act plan of action. The final treatment plan with detailed site-specific recommendations. The BLM will incorporate a binding commitment to implement the treatment measures in the ROD.

### **3.6.5 Affected Environment**

#### **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 follows: 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 and 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 be 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). Towards the end of the period and leading into the Late Archaic, smaller points (e.g., Eastgate and 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, but they 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, however, 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 and 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 during 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—with the San Juan Southern Paiute as the exception who 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. Across this vast region many local bands were formed, 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, 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 Kooyoowae 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 in the north, and Sonora Pass in 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 rather have always been there (ITCN 1976d). Furthermore, linguistic studies show that the Washoe language is drastically distinct from that of their neighbors.

### **Historic**

The state'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, had 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 "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.

### **3.6.6 Identification of Resources**

The findings and recommendations reported represent preliminary BLM NRHP determinations and may change as a result of Section 106 consultation. The BLM initiated consulted with the Nevada SHPO, THPOs, Native American Tribes, the ACHP, and all other Section 106 consulting parties prior to the public review of

the Draft EIS to achieve consensus on NRHP eligibility determinations and GLWP effect. Consultation is ongoing and the results will be presented in the Final EIS. Section 106 consulting parties received copies of all Class III technical reports and site forms for review and comment prior to the publication of the Draft EIS. Out of the 1,332 sites, structures, and districts in the Class III survey area, the BLM has determined that 226 are eligible for inclusion in the NRHP, 1,036 have been determined not eligible for inclusion in the NRHP, and the NRHP-eligibility statuses of 68 sites remain unevaluated. Additionally, there are two resources listed in the NRHP. 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 3.6.7 Environmental Consequences

### **Historic Property Visual Effects Analysis Results**

Historic Properties that might be subject to visual effects to the setting were identified by reviewing records available on NVCRIS (Class I inventory) and by conducting Class III inventory of the DAPE. The Class I inventory identified 2,499 cultural resources within the APE, 2,438 of which are not eligible for listing in the NRHP or are NRHP-eligible archaeological sites that are not sensitive to changes in setting or feeling (e.g., artifact scatters and artifact scatters with features) or are not visible from the action alternatives. The remaining subset of sites (61 sites) are historic properties requiring visual effects analysis fieldwork. 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 viewshed of the GLWP components; 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 71 sites were identified that meet these parameters, thus bringing the total number of historic properties subjected to visual effects analysis fieldwork to 132.

Where access was permitted, many historic properties were preliminarily 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 the GLWP facilities was made for each historic property. Many historic properties located within 0.5 mile of the transmission and distribution centerlines were not visited; due to their proximity to the GLWP, visual adverse effects are assumed at this time. A summary of historic properties requiring visual effect analysis (i.e., site meeting the criteria established above and are in the three-mile viewshed of the GLWP) are presented in Table 3-39.

### **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 (see further analysis in 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.



**Table 3-38. Cultural Resource Site Types and NRHP Status within the Cultural Resources DAPE**

<b>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</b>	<b>Unevaluated</b>
Proposed Action (ROW only) <sup>a</sup>	340	391	80	7	2	140	644	32
Proposed Action Distribution Lines	6	29	4	0	0	3	32	4
Proposed Action Other Substations, Amplifier Sites, Material Yards Microwave Sites, and Tensioning Areas	35	61	10	0	2	15	85	4
Proposed Action Roads <sup>a</sup>	140	346	54	2	2	95	425	20
AS-2/Proposed Action	2	0	0	0	0	2	0	0
AS-1	2	2	0	0	0	0	4	0
ES-2/Proposed Action	0	1	0	0	0	0	1	0
ES-1	0	1	0	0	0	0	1	0
ES-3	1	4	1	0	0	1	5	0
Proposed Action/AM-2	0	0	0	0	0	0	0	0
AM-1	0	0	0	0	0	0	0	0
Proposed Action/AM-2 Option 1 Distribution Line	0	1	0	0	0	0	1	0
Proposed Action/AM-2 Option 2 Distribution Line	0	1	0	0	0	0	1	0
Losee Transmission Proposed Action	0	5	1	0	1	1	4	0
Losee Transmission Alternative A	0	6	1	0	1	1	5	0
TUSK Transmission Proposed Action	0	0	0	0	0	0	0	0
TUSK Transmission Alternative B	0	0	0	0	0	0	0	0

Component	Prehistoric Sites	Historic Sites	Multi-component Sites	Sites of unknown age	NRHP-Listed	NRHP Eligible for Listing	NRHP Not Eligible	Unevaluated
Beatty Transmission Proposed Action <sup>a</sup>	69	13	6	0	0	20	67	1
Beatty Transmission Alternative A <sup>a</sup>	60	13	6	0	0	17	61	1
Beatty Transmission Alternative C <sup>a</sup>	75	11	5	0	0	20	70	1
Beatty Transmission Alternative G <sup>a</sup>	42	25	9	1	0	5	71	1
Beatty Transmission Alternative K <sup>a</sup>	51	15	2	1	0	8	59	2
Scotty's Junction Transmission Proposed Action	35	11	18	0	0	11	52	1
Scotty's Junction Transmission Alternative A	25	10	8	0	0	11	31	1
Scotty's Junction Transmission Alternative B	20	6	19	0	0	9	36	0
Mason Valley WMA Transmission Proposed Action	2	4	2	0	0	1	4	3
Mason Valley WMA Transmission Alternative A <sup>a</sup>	29	7	2	0	0	11	13	14
Carson River Transmission Proposed Action <sup>a</sup>	41	44	11	1	0	17	68	12
Carson River Transmission Alternative A <sup>a</sup>	31	47	12	1	0	17	63	11
Carson River Transmission Alternative C <sup>a</sup>	4	14	3	0	0	5	16	0

*Table Acronyms:* AM – Amargosa Microwave; AS – Amargosa Substation; ES – Esmeralda Substation; TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area; NRHP – National Register of Historic Places

*Table Notes:* <sup>a</sup>Additional inventory needed; quantities subject to change

**Table 3-39. Historic Properties Requiring Visual Effect Analysis in the Cultural Resources Analysis Areas/APE**

<b>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 (ROW only)	63	19	25	2	4	105	0
Proposed Action Distribution Lines <sup>a</sup>	0	0	2	0	0	2	0
Other Proposed Action Substations (New Fort Churchill Substation and Northwest Substation expansion)	0	5	0	0	0	5	0
AS-2 (Proposed Action) <sup>a</sup>	0	0	0	0	0	0	0
AS-1 <sup>a</sup>	0	0	1	0	0	1	0
ES-2 (Proposed Action) <sup>a</sup>	0	0	0	0	0	0	0
ES-1 <sup>a</sup>	0	0	0	0	0	0	0
ES-3 <sup>a</sup>	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 Proposed Action	0	1	1	0	1	1	0
Losee Transmission Alternative A	0	1	1	0	1	1	0
TUSK Transmission Proposed Action	0	1	0	0	1	0	0
TUSK Transmission Alternative B	0	1	0	0	1	0	0
Beatty Transmission Proposed Action	25	1	7	0	0	33	0
Beatty Transmission Alternative A	25	1	7	0	0	33	0
Beatty Transmission Alternative C	22	0	7	0	0	29	0
Beatty Transmission Alternative G	26	1	10	0	0	36	1
Beatty Transmission Alternative K	27	1	9	0	0	36	1
Scotty's Junction Transmission Proposed Action	0	1	1	0	0	2	0
Scotty's Junction Transmission Alternative A	0	1	1	0	0	2	0
Scotty's Junction Transmission Alternative B	0	1	1	0	0	2	0

Component	Prehistoric Sites	Historic Sites	Multi-component Sites	Sites of Unknown Age	NRHP-Listed	NRHP Eligible for Listing	Unevaluated
Mason Valley WMA Transmission Proposed Action	0	3	0	0	0	3	0
Mason Valley WMA Transmission Alternative A	0	3	0	0	0	3	0
Carson River Transmission Proposed Action	5	3	3	0	0	11	0
Carson River Transmission Alternative A	5	3	3	0	0	11	0
Carson River Transmission Alternative C	5	6	3	0	3	11	0

*Table Acronyms:* AS – Amargosa Substation; ES – Esmeralda Substation; NRHP – National Register of Historic Places; TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area

*Table Notes:* <sup>a</sup>Additional analysis needed; quantities subject to change.

### Private Lands and Non-Accessible Lands

The Proponent plans to 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, a GIS predictive model for cultural resources was used to predict the probability (e.g., low, medium, high) of the occurrence of cultural resources on privately owned lands and other non-accessible lands. 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 was developed by the BLM and include the parameters of slope and distance to water with both parameters set to moderate instead of weighting one more than the other. A summary of the predictive model results for privately owned and other non-surveyed lands within the cultural resources direct effects analysis area is provided in Table 3-40.

Additionally, 128 sites, structures, buildings, and districts were previously documented within areas not surveyed within the DAPE. Of these, 30 sites were recommended/determined eligible for inclusion in the NRHP, 70 sites were recommended or determined not eligible for inclusion in the NRHP, 22 sites have not been evaluated for inclusion in the NRHP, and 6 sites have unknown eligibilities. Based upon 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 privately owned land, non-accessible land, and land yet to be surveyed within the DAPE likely include: lithic scatters, rock shelters, rock features, can and/or glass scatters, temporary camps, ranches, homesteads, mining and prospecting-related features, military facilities, roads, canals, transmission lines, and architectural structures.

**Table 3-40. Archaeological Sensitivity of Privately-Owned and Non-Accessible Lands by Proposed Action, Transmission Alternatives, and Other GLWP Components**

<b>Transmission Alternatives and Other GLWP Components</b>	<b>Acres of Private Land</b>	<b>Acres of Non-Accessible Federal or State Land (not surveyed)</b>	<b>Acres of Unsurveyed Areas by Probability of Containing Cultural Resources (high/medium/low)</b>	<b>Known Sites from Class I Research (not yet field verified)</b>
Proposed Action (ROW only)	10,073	3,783	1,663/5,265/6,928	67
Proposed Action Distribution Lines	2	79	2/22/57	0
Proposed Action Amplifier Sites, Material Yards, Microwave Sites, and Tensioning Areas	1,865	43	630/572/706	21
Proposed Action Roads	3,669	582	808/2,168/1,275	53
Other Proposed Action Substations (New Fort Churchill Substation and Northwest Substation expansion)	413	1	402/12/0	2
AS-2 (Proposed Action)	0	0	n/a	0
AS-1	0	0	n/a	0
ES-2 (Proposed Action)	0	0	n/a	0
ES-1	0	0	n/a	0
ES-3	0	0	n/a	0
AM-2 (Proposed Action)	0	0	n/a	0
AM-1	6	0	0/0/6	0
AM-2 (Proposed Action) Option 1 Distribution Line	0	0	n/a	0
AM-2 (Proposed Action) Option 2 Distribution Line	0	0	n/a	0
Losee Transmission Proposed Action	0	0	n/a	0
Losee Transmission Alternative A	<1	0	0/<1/0	0
TUSK Transmission Proposed Action	47	0	0/44/3	0
TUSK Transmission Alternative B	34	0	0/32/2	0
Beatty Transmission Proposed Action	36	60	5/86/5	2
Beatty Transmission Alternative A	8	35	5/35/3	2
Beatty Transmission Alternative C	0	74	0/67/7	2
Beatty Transmission Alternative G	45	247	32/131/129	11
Beatty Transmission Alternative K	8	35	8/35/<1	9
Scotty's Junction Transmission Proposed Action	281	3	0/284/0	0
Scotty's Junction Transmission Alternative A	49	0	0/49/0	0
Scotty's Junction Transmission Alternative B	273	0	0/273/0	2
Mason Valley WMA Transmission Proposed Action	353	7	360/0/0	4
Mason Valley WMA Transmission Alternative A	237	99	272/37/27	2
Carson River Transmission Proposed Action	2,847	1,065	1,213/1,526/1,173	38
Carson River Transmission Alternative A	3,074	1,097	1,418/1,502/1,251	38
Carson River Transmission Alternative C	1,429	5,058	1,038/3,438/2,011	18

*Table Acronyms:* AM – Amargosa Microwave; AS – Amargosa Substation; ES – Esmeralda Substation; GLWP -Greenlink West Project; n/a – Not applicable; WMA – Wildlife Management Area

### **3.6.7 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. For the purposes of this analysis, cultural resources of indeterminate NRHP-eligibility were treated as if they were eligible for inclusion in the NRHP. The findings and recommendations reported herein represent preliminary NRHP determinations and assessment of effect by the BLM and may change as a result of Section 106 consultation. Section 106 consulting parties were provided with detailed technical reports for review and comment prior to the publication of this Draft EIS. The BLM will continue consultation to produce a final mitigation/treatment plan regarding effects and treatments measures and once complete, will be incorporated into the ROD.

Adverse effects to historic properties would be avoided, minimized, or mitigated. Effects to historic properties would be avoided as much as possible through design. Archaeological monitoring during construction would help minimize effects to historic properties. If adverse effects are not avoidable, historic properties would be subject to appropriate mitigation measures prior to construction. Additional information regarding avoiding, minimizing, and mitigating adverse effects can be found in Section 3.6.8 Measures to Avoid and/or Minimize Impacts and Appendix K.

Cultural resources that are not eligible for listing in the NRHP warrant no further consideration under the NHPA. NRHP-ineligible resources may be modified, damaged, or destroyed by the GLWP and therefore are considered impacted.

#### **3.6.7.1 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 with the No Action Alternative.

#### **3.6.7.2 Direct and Indirect Impacts Common to All Action Alternatives**

##### **Construction**

The GLWP components may cause effects to cultural resources/historic properties from ground disturbance during construction. These ground-disturbing activities could have direct physical effects on historic properties, such as displacement of artifacts, features, or cultural deposits, and damage or destruction of artifacts or features. Construction activities that modify the slope of the natural terrain, compact soils, and/or remove vegetation could cause increased erosion of archaeological deposits. The setting of historic properties in the VAPE could be visually affected by the GLWP from the new lines, tower structures, and substation and amplifier sites. Other construction effects to historic properties may include temporary increased dust (atmospheric) and audible effects (construction machinery) associated with construction. The APE for these temporary effects due to construction is the VAPE.

Indirect effects may include illegal artifact collection, vandalism, or looting due to new or increased access to sites or increased visibility of 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 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 of the site. 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 in the area are artifact scatters, which are less visible and less vulnerable to unauthorized collection or vandalism and are in remote areas of the APE. Other indirect effects may include increased trash at any new roads or pull-outs along US 95, or increased likelihood of additional transmission lines being constructed adjacent to the same ROW.

The BLM would implement EMMs to help reduce inadvertent effects to cultural resources/historic properties such as mandatory training for all construction worker on the significance of cultural resources, marking boundaries of authorized work areas, and restricting travel to designated routes for crews and vehicles (Appendix C. EMMs CULT-1, CULT-2, CULT-4, CULT-5, and CULT-8).

### **Operations and Maintenance**

All access roads, new and improved, would be maintained as permanent. Historic properties that may be affected by the construction or improvement of roads will be mitigated prior to construction or improvement; therefore, adverse effects from maintenance of existing roads are not expected if ground disturbance is minimal and kept within the existing road prism within historic properties. Other operations and maintenance activities that have the potential to affect historic properties include vegetation management beneath the transmission and distribution lines and transmission line structure maintenance/repair. As with roads, any historic properties that may be affected by the construction of the GLWP and its associated facilities will be mitigated prior to construction. Adverse effects from operations and maintenance are not expected if ground disturbance is confined to the DAPE and EMMs are implemented (Appendix C. EMMs CULT-4 and CULT-5).

### **Decommissioning**

A Restoration and Decommissioning Plan would be filed by the Proponent and approved by the federal ROW agencies before terminating the ROW and before decommissioning activities could begin. Potential effects during decommissioning would be similar to those described for the construction phase, though to a lesser extent.

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

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

Cultural resources within the DAPE for the Proposed Action ROW that were recorded during the Class III inventory and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-41. 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 transmission line route group alternatives are provided in subsequent sections.

A total of 870 sites were identified within the DAPE and/or analyzed for visual effects. Of these, 644 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 226 sites, 44 were determined to not be adversely affected physically or visually and no further consideration of the GLWP's impacts is warranted.

**Table 3-41. Cultural Resources Summary for  
Proposed Action ROW**

Description	Proposed Action ROW
Prehistoric Site	363
Historic Site	406
Multi-component Site	93
Unknown age Site	8
NRHP Listed	6
NRHP Eligible	188
NRHP Unevaluated	32
NRHP Not Eligible	644
Adverse Effects (NHPA)	182
No Adverse Effects (NHPA)	44
No Effects (NHPA)	644
<b>Site Total</b>	<b>870</b>

*Table Acronyms:* ROW – right-of-way; NRHP – National Register of Historic Places; NHPA—National Historic Preservation Act

In total, the BLM has determined that 182 sites would be adversely affected by the GLWP. This includes 114 sites physically affected, 58 sites physically and visually affected, and 10 sites visually affected. Sites that would be adversely affected 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. Additionally, NRHP-listed properties that would be adversely affected would include the Lagomarsino Petroglyph Site and the Mormon Emigrant Trail.

The DAPE for the Proposed Action ROW contains approximately 13,856 acres of private land, non-accessible land, or land yet to be surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 1,663 acres of those lands are high sensitivity (i.e., most likely to contain cultural resources), 5,265 acres are medium sensitivity, and 6,928 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that 67 previously recorded sites are located in these areas, but these have not been field verified as a part of the GLWP.

**Distribution Lines**

Cultural resources within the DAPE for the Proposed Action distribution lines recorded during the Class III inventory and historic properties subjected to visual analysis in the corresponding VAPE are listed in Table 3-42. No distribution lines associated with Route Alternative Groups have been identified. Specific discussion related to the Proposed Action distribution line and alternative for the Proposed Action Amargosa microwave site (AM-2) is provided in a subsequent section.

A total of 41 sites were identified within the DAPE and/or analyzed for visual effects. Of these, 32 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining nine sites, two 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 seven sites would be adversely affected by the GLWP. This includes six sites physically affected and one site physically and visually affected. Sites that would be adversely affected include prehistoric, historic, and multi-component artifact scatters, features of ceremonial significance, and constructed elements (i.e., roads, buildings, railroads).



The DAPE for the Proposed Action distribution lines contains approximately 81 acres of private and non-accessible land and that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that two acres of those lands are high sensitivity (i.e., most likely to contain cultural resources), 22 acres are medium sensitivity, and 57 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that no previously recorded sites are in these areas.

**Table 3-42. Cultural Resources and NRHP Status Summary for Proposed Action Distribution Lines**

Description	Proposed Action Distribution Lines
Prehistoric Site	6
Historic Site	29
Multi-component Site	6
Unknown age Site	0
NRHP Listed	0
NRHP Eligible	5
NRHP Unevaluated	4
NRHP Not Eligible	32
Adverse Effects (NHPA)	7
No Adverse Effects (NHPA)	2
No Effects (NHPA)	32
<b>Site Total</b>	<b>41</b>

*Table Acronyms: NRHP – National Register of Historic Places*

**Amplifier Sites, Construction Yards, Microwave Sites, and Tensioning Areas**

Cultural resources within the DAPE for the Proposed Action amplifier sites, construction yards, microwave sites, and tensioning areas that were recorded during the Class III inventory 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 AM-2, its alternative, and the associated distribution line alternatives is provided in the subsequent section.

A total of two sites were identified within the DAPE for the Proposed Action amplifier sites. Both of these are determined not eligible and would not be affected under NHPA. A total of three sites were identified within the DAPE for the Proposed Action construction yards. All three 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 microwave sites. Both of these are determined not eligible and would not be affected under NHPA. A total of 100 sites were identified within the DAPE for the Proposed Action tensioning areas. Of these 80 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 20 sites, one resource—the NRHP-listed Sheep Mountain Range Archaeological District—was determined to not be adversely affected. In total, the BLM has determined that 19 sites would be adversely affected by the Proposed Action tensioning areas. These include features of ceremonial significance, transportation networks, artifact scatters with data potential, irrigation systems, a ranch, and potential funerary features. The one listed historic property in the DAPE for the Proposed Action tensioning areas that would be adversely affected is the Mormon Emigrant Trail.

**Table 3-43. Cultural Resources and NRHP Status Summary for Proposed Action Amplifier Sites, Construction Yards, Microwave Sites, and Tensioning Areas**

Description	Amplifier Sites	Construction Yards	Microwave Sites	Tensioning Areas
Prehistoric Site	0	0	0	35
Historic Site	1	3	2	56
Multi-component Site	1	0	0	9
Unknown age Site	0	0	0	0
NRHP Listed	0	0	0	2
NRHP Eligible	0	0	0	14
NRHP Unevaluated	0	0	0	4
NRHP Not Eligible	2	3	2	80
Adverse Effects (NHPA)	0	0	0	19
No Adverse Effects (NHPA)	0	0	0	1
No Effects (NHPA)	2	3	2	80
<b>Site Totals</b>	<b>2</b>	<b>3</b>	<b>2</b>	<b>100</b>

*Table Acronyms:* NRHP – National Register of Historic Places

The DAPE for the Proposed Action construction yards, microwave sites, and tensioning areas contains approximately 1,908 acres of private or non-accessible land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 630 acres of those lands are high sensitivity (i.e., most likely to contain cultural resources), 572 acres are medium sensitivity, and 706 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that 21 previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

**Access Roads**

Cultural resources within the DAPE for the Proposed Action access roads that were recorded during the Class III inventory are listed in Table 3-44. Major 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. No access roads associated with the other Action Alternatives have been identified.

**Table 3-44. Cultural Resources and NRHP Status Summary for Proposed Action Access Roads**

Description	Access Roads
Prehistoric Site	140
Historic Site	346
Multi-component Site	54
Unknown age Site	2
NRHP Listed	2
NRHP Eligible	95
NRHP Unevaluated	20
NRHP Not Eligible	425
Adverse Effects (NHPA)	114
No Adverse Effects (NHPA)	3
No Effects (NHPA)	425
<b>Site Total</b>	<b>542</b>

*Table Acronyms:* NRHP – National Register of Historic Places

A total of 542 sites were identified within the DAPE for the Proposed Action access roads. Of these 425 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 97 sites, three were determined to not be adversely affected. One of these includes the NRHP-listed Sheep Mountain Range Archaeological District.

In total, the BLM has determined that 94 sites would 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. The one listed historic property in the DAPE for the Proposed Action roads that would be adversely affected is the Mormon Emigrant Trail.

The DAPE for the Proposed Action roads contains approximately 4,251 acres of private or non-accessible land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 808 acres of those lands are high sensitivity (i.e., most likely to contain cultural resources), 2,168 acres are medium sensitivity, and 1,275 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that 53 previously recorded sites are located in these areas but have not been field verified as part of the GLWP.

### 3.6.7.4 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 that were recorded during the Class III inventory and historic properties subjected to visual analysis in the corresponding VAPE are listed in Table 3-45.

**Table 3-45. Cultural Resources and NRHP Status Summary for Losee Transmission Alternatives**

Description	Proposed Action	Losee Transmission Alternative A
Prehistoric Site	0	0
Historic Site	6	7
Multi-component Site	1	1
Unknown age Site	0	0
NRHP Listed	1	1
NRHP Eligible	2	2
NRHP Unevaluated	0	0
NRHP Not Eligible	4	5
Adverse Effects (NHPA)	1	1
No Adverse Effects (NHPA)	2	2
No Effects (NHPA)	4	5
<b>Site Totals</b>	<b>7</b>	<b>8</b>

*Table Acronyms:* NRHP – National Register of Historic Places

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 are determined not eligible and would not be affected under NHPA. Of the remaining three sites, two were determined to not be adversely affected physically or visually and no further consideration of the GLWP’s impacts is warranted. One of these two includes the NRHP-listed Sheep Mountain Range Archaeological District.

In total, the BLM has determined that only one site, a historic artifact scatter with features, would be adversely affected by the Losee Transmission Alternative A. Adverse effects to this historic property would be minimized through avoidance, monitoring, or other forms of mitigation as described in Section 3.6.9 and Appendix K. The DAPE for the Losee Transmission Alternative A contains less than one acre of private land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that all of those private lands are medium sensitivity (i.e., possible to contain cultural resources). Class I research indicates that no previously recorded sites are located in these areas.

All of the DAPE for the Proposed Action was surveyed. 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 are determined not eligible and would not be affected under NHPA. Of the remaining three sites, two were determined to not be adversely affected physically or visually and no further consideration of the GLWP’s impacts is warranted. One of these two includes the NRHP-listed Sheep Mountain Range Archaeological District. In total, the BLM has determined that only one site, a historic artifact scatter with features, would be adversely affected by the Proposed Action.

The Proposed Action for the Losee Transmission Line Route Group would have the least impact to historic properties. While both Actions would adversely affect the same resource, the Proposed Action would intersect less of it.

**3.6.7.5 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 that were recorded during the Class III inventory and historic properties subjected to visual analysis in the corresponding VAPE are listed in Table 3-46.

**Table 3-46. Cultural Resources and NRHP Status Summary for the TUSK Transmission Alternatives**

Description	Proposed Action	TUSK Transmission Alternative B
Prehistoric Site	0	0
Historic Site	1	1
Multi-component Site	0	0
Unknown age Site	0	0
NRHP Listed	1	1
NRHP Eligible	0	0
NRHP Unevaluated	0	0
NRHP Not Eligible	0	0
Adverse Effects (NHPA)	0	0
No Adverse Effects (NHPA)	1	1
No Effects (NHPA)	0	0
<b>Site Totals</b>	<b>1</b>	<b>1</b>

*Table Acronyms:* NRHP – National Register of Historic Places

No sites were identified within the DAPE for the Proposed Action or the TUSK Transmission Alternative B and only one site was analyzed for visual effects. This resource, the Tule Springs Ranch/Floyd R. Lamb State Park, was subjected to visual effects analysis fieldwork and determined to be not adversely affected by either TUSK transmission alternatives, and no further consideration of the GLWP’s impacts is warranted.

The DAPE for the TUSK Transmission Alternative B contains approximately 34 acres of private land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 32 acres of those lands are medium sensitivity (i.e., possible to contain cultural resources) and two acres are low sensitivity (i.e., least likely to contain cultural resources). Much of these areas is developed and/or disturbed. Class I research indicates that no previously recorded sites are located in these areas. The DAPE for the Proposed Action contains approximately 47 acres of private land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 44 acres of those lands are medium sensitivity (i.e., possible to contain cultural resources) and three acres are low sensitivity (i.e., least likely to contain cultural resources).

Neither Action Alternative for the Losee Transmission Line Route Group would impact historic properties and there is no preference from a cultural resources standpoint.

### 3.6.7.6 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 that were recorded during the Class III inventory and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-47.

**Table 3-47. Cultural Resources and NRHP Status Summary for the Beatty Transmission Alternatives**

Description	Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K
Prehistoric Site	83	75	87	65	75
Historic Site	14	14	11	26	16
Multi-component Site	10	10	9	19	11
Unknown age Site	0	0	0	1	1
NRHP Listed	0	0	0	0	0
NRHP Eligible	39	37	36	38	41
NRHP Unevaluated	1	1	1	2	3
NRHP Not Eligible	67	61	70	71	59
Adverse Effects (NHPA)	23	23	23	9	14
No Adverse Effects (NHPA)	17	15	14	31	30
No Effects (NHPA)	67	61	70	71	59
<b>Site Totals</b>	<b>107</b>	<b>99</b>	<b>107</b>	<b>111</b>	<b>103</b>

*Table Acronyms:* NRHP – National Register of Historic Places

A total of 99 sites were identified within the DAPE for the Beatty Transmission Alternative A and/or analyzed for visual effects. Of these, 61 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 38 sites, 15 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 23 sites would be adversely affected by the Beatty Transmission Alternative

A. This includes 8 sites physically affected, 13 sites physically and visually affected, and 2 sites visually affected. Sites that would be adversely affected include features of ceremonial significance, transportation networks, and artifact scatters with data potential.

The DAPE for the Beatty Transmission Alternative A contains approximately 43 acres of private land or land yet to be surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that five acres of those private lands are high sensitivity (i.e., most likely to contain cultural resources), 35 acres are medium sensitivity, and three acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that two previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

A total of 107 sites were identified within the DAPE for the Beatty Transmission Alternative C and/or analyzed for visual effects. Of these, 70 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 37 sites, 14 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 23 sites would be adversely affected by the Beatty Transmission Alternative C. This includes 8 sites physically affected, 13 sites physically and visually affected, and 2 sites visually affected. Sites that would be adversely affected include features of ceremonial significance, transportation networks, and artifact scatters with data potential.

The DAPE for the Beatty Transmission Alternative C contains approximately 74 acres of private land or land yet to be surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 67 acres are medium sensitivity, and seven acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that two previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

A total of 111 sites were identified within the DAPE for the Beatty Transmission Alternative G and/or analyzed for visual effects. Of these, 71 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 40 sites, 31 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 nine sites would be adversely affected by the Beatty Transmission Alternative G. This includes three sites physically affected, three sites physically and visually affected, and three sites visually affected. Sites that would 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 historic properties and more specifically the least impact to sites containing features of ceremonial significance to Native American Tribe of the Beatty transmission alternatives.

The DAPE for the Beatty Transmission Alternative G contains approximately 292 acres of private land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 32 acres of those private lands are high sensitivity (i.e., most likely to contain cultural resources), 131 acres are medium sensitivity, and 129 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that 11 previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

A total of 103 sites were identified within the DAPE for the Beatty Transmission Alternative K and/or analyzed for visual effects. Of these, 59 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 44 sites, 30 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 14 sites would be adversely affected by the Beatty Transmission Alternative K. This includes eight sites physically affected, three sites physically and visually affected, and three sites visually affected. Sites that would be adversely affected include features of ceremonial significance, rock writing features, and artifact scatters with data potential. Adverse effects to historic properties would be minimized through avoidance, monitoring, or other forms of mitigation as described in Section 3.6.9 and Appendix K..

The DAPE for the Beatty Transmission Alternative K contains approximately 43 acres of private land or land yet to be surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that eight acres of those private lands are high sensitivity (i.e., most likely to contain cultural resources), 35 acres are medium sensitivity, and less than one acre is low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that nine previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

A total of 107 sites were identified within the DAPE for the Proposed Action and/or analyzed for visual effects. Of these, 67 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 40 sites, 17 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 23 sites would be adversely affected by the Proposed Action. This includes 7 sites physically affected, 14 sites physically and visually affected, and 2 sites visually affected. Sites that would 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 land or land yet to be surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that five acres of those private lands are high sensitivity (i.e., most likely to contain cultural resources), 86 acres are medium sensitivity, and five acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that two previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

### 3.6.7.7 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 that were recorded during the Class III inventory and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-48.

**Table 3-48. Cultural Resources and NRHP Status for the Scotty’s Junction Transmission Alternatives**

Description	Proposed Action	Scotty’s Junction Transmission Alternative A	Scotty’s Junction Transmission Alternative B
Prehistoric Site	35	25	20
Historic Site	11	10	6
Multi-component Site	19	8	19
Unknown age Site	0	0	0

<b>Description</b>	<b>Proposed Action</b>	<b>Scotty's Junction Transmission Alternative A</b>	<b>Scotty's Junction Transmission Alternative B</b>
NRHP Listed	0	0	0
NRHP Eligible	12	11	9
NRHP Unevaluated	1	1	0
NRHP Not Eligible	52	31	36
Adverse Effects (NHPA)	13	12	9
No Adverse Effects (NHPA)	0	0	0
No Effects (NHPA)	52	31	36
<b>Site Totals</b>	<b>65</b>	<b>43</b>	<b>45</b>

*Table Acronyms: NRHP – National Register of Historic Places*

A total of 43 sites were identified within the DAPE for the Scotty's Junction Transmission Alternative A and/or analyzed for visual effects. Of these, 31 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 12 sites, all were determined to be adversely affected physically or visually. In total, the BLM has determined that 12 sites would be adversely affected by the Scotty's Junction Transmission Alternative A. This includes 10 sites physically affected and two sites physically and visually affected. Sites that would be adversely affected include features of ceremonial significance, artifact scatters with data potential, and potential funerary features. Adverse effects to historic properties would be minimized through avoidance, monitoring, or other forms of mitigation as described in Section 3.6.9 and Appendix K.

The DAPE for the Scotty's Junction Transmission Alternative A contains approximately 49 acres of private land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that all of those private lands are medium sensitivity (i.e., possible to contain cultural resources). Class I research indicates that no previously recorded sites are located in these areas.

A total of 45 sites were identified within the DAPE for the Scotty's Junction Transmission Alternative B and/or analyzed for visual effects. Of these, 36 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining nine sites, all were determined to be adversely affected physically or visually. In total, the BLM has determined that nine sites would be adversely affected by the Scotty's Junction Transmission Alternative B. This includes seven sites physically affected and two sites physically and visually affected. Sites that would be adversely affected include features of ceremonial significance, artifact scatters with data potential, and potential funerary features.

The DAPE for the Scotty's Junction Transmission Alternative B contains approximately 273 acres of private land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that all of those private lands are medium sensitivity (i.e., possible to contain cultural resources). Class I research indicates that two previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

A total of 65 sites were identified within the DAPE for the Proposed Action and/or analyzed for visual effects. Of these, 52 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 13 sites, all were determined to be adversely affected physically or visually. In total, the BLM has determined that 13 sites would be adversely affected by the Proposed Action. This includes 11 sites physically affected, one site physically and visually affected, and one site



visually affected. Sites that would be adversely affected include features of ceremonial significance, artifact scatters with data potential, and potential funerary features.

**3.6.7.8 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 Line Route Group that were recorded during the Class III inventory and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-49.

**Table 3-49. Cultural Resources and NRHP Status Summary for Mason Valley WMA Transmission Alternatives**

Description	Proposed Action	Mason Valley WMA Transmission Alternative A
Prehistoric Site	2	29
Historic Site	6	8
Multi-component Site	2	2
Unknown age Site	0	0
NRHP Listed	0	0
NRHP Eligible	3	12
NRHP Unevaluated	3	14
NRHP Not Eligible	4	13
Adverse Effects (NHPA)	4	25
No Adverse Effects (NHPA)	2	1
No Effects (NHPA)	4	13
<b>Site Totals</b>	<b>10</b>	<b>39</b>

*Table Acronyms:* NRHP – National Register of Historic Places; WMA – Wildlife Management Area

A total of 39 sites were identified within the DAPE for the Mason Valley WMA Transmission Alternative A and/or analyzed for visual effects. Of these, 13 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 26 sites, one was 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 25 sites would be adversely affected by the Mason Valley WMA Transmission Alternative A. This includes 24 sites physically affected and one site physically and visually affected. Sites that would be adversely affected include artifact scatters with data potential and irrigation features.

The DAPE for the Mason Valley WMA Transmission Alternative A contains approximately 336 acres of private land or land yet to be surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 272 acres of those private lands are high sensitivity (i.e., most likely to contain cultural resources), 37 acres are medium sensitivity, and 27 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that two previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

A total of 10 sites were identified within the DAPE for the Proposed Action and/or analyzed for visual effects. Of these, four resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining six sites, two 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 four sites would be adversely affected physically by the Proposed Action. These include artifact scatters with data potential and an irrigation feature.

The DAPE for the Proposed Action contains approximately 360 acres of private or non-accessible land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that all of those lands are high sensitivity (i.e., most likely to contain cultural resources). Class I research indicates that four previously recorded sites are located in these areas, but these have not been field verified as part of the GLWP.

### 3.6.7.9 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 that were recorded during the Class III inventory and historic properties subject to visual analysis in the corresponding VAPE are listed in Table 3-50. For the cultural resources analysis, the Proposed Action includes all three of the 345-kV transmission lines.

**Table 3-50. Cultural Resources and NRHP Status Summary for the Carson River Transmission Alternatives**

Description	Proposed Action	Carson River Transmission Alternative A	Carson River Transmission Alternative C
Prehistoric Site	42	32	9
Historic Site	46	49	19
Multi-component Site	11	12	3
Unknown age Site	1	1	0
NRHP Listed	0	0	3
NRHP Eligible	20	20	12
NRHP Unevaluated	12	11	0
NRHP Not Eligible	68	63	16
Adverse Effects (NHPA)	29	28	6
No Adverse Effects (NHPA)	3	3	9
No Effects (NHPA)	68	63	16
<b>Site Totals</b>	<b>100</b>	<b>94</b>	<b>31</b>

*Table Acronyms:* NRHP – National Register of Historic Places

A total of 94 sites were identified within the DAPE for the Carson River Transmission Alternative A and/or analyzed for visual effects. Of these, 63 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 31 sites, three 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 28 sites would be adversely affected by the Carson River Transmission Alternative A. This includes 23 sites physically affected and five sites physically and visually affected. Sites that would 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 4,171 acres of private land, non-accessible land, or land yet to be surveyed for cultural resources. The cultural sensitivity GIS

model demonstrates that 1,418 acres of those lands are high sensitivity (i.e., most likely to contain cultural resources), 1,502 acres are medium sensitivity, and 1,251 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that 38 previously recorded sites are located in these areas, but these have not been field verified as a part of the GLWP.

A total of 31 sites were identified within the DAPE for the Carson River Transmission Alternative C and/or analyzed for visual effects. Of these, 16 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 15 sites, 9 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 six sites would be adversely affected by the Carson River Transmission Alternative C. This includes three sites physically affected, two sites physically and visually affected, and one site visually affected. Sites that would be adversely affected include features of ceremonial significance, artifact scatters with data potential, a ranch, an irrigation feature, and Fort Churchill. The latter is a National Historic Landmark and is listed on the NRHP. Adverse effects to historic properties would be minimized through avoidance, monitoring, or other forms of mitigation as described in Section 3.6.9 and Appendix K.

The DAPE for the Carson River Alternative C contains approximately 6,487 acres of private land that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 1,038 acres of those private lands are high sensitivity (i.e., most likely to contain cultural resources), 3,438 acres are medium sensitivity, and 2,011 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that 18 previously recorded sites are located in these areas, but these have not been field verified as a part of the GLWP.

A total of 100 sites were identified within the DAPE for the Proposed Action and/or analyzed for visual effects. Of these, 68 resources identified within the DAPE are determined not eligible and would not be affected under NHPA. Of the remaining 32 sites, three 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 29 sites would be adversely affected physically by the Proposed Action. This includes 24 sites physically affected and five sites physically and visually affected. Sites that would 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 approximately 3,912 acres of private land, non-accessible land, or land yet to be surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 1,213 acres of those lands are high sensitivity (i.e., most likely to contain cultural resources), 1,526 acres are medium sensitivity, and 1,173 acres are low sensitivity (i.e., least likely to contain cultural resources). Class I research indicates that 38 previously recorded sites are located in these areas, but these have not been field verified as a part of the GLWP.

#### **3.6.7.10 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 were recorded during the Class III inventory and those cultural resources subjected to visual effects analysis within the corresponding VAPE are listed in Table 3-51.

**Table 3-51. Cultural Resources and NRHP Status Summary for Substation Alternatives**

<b>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>	<b>Fort Churchill &amp; Northwest Substations</b>
Prehistoric Site		2	0	0	1	0
Historic Site	2	0	1	1	4	5
Multi-component Site	2	0	0	0	1	0
Unknown age Site	1	0	0	0	0	0
NRHP Listed	0	0	0	0	0	0
NRHP Eligible	0	2	0	0	1	5
NRHP Unevaluated	1	0	0	0	0	0
NRHP Not Eligible	0	0	1	1	5	0
Adverse Effects (NHPA)	4	2	0	0	1	2
No Adverse Effects (NHPA)	1	0	0	0	0	3
No Effects (NHPA)	0	0	1	1	5	0
<b>Site Totals</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>1</b>	<b>6</b>	<b>5</b>

*Table Acronyms:* AS – Amargosa Substation; ES – Esmeralda Substation; NRHP – National Register of Historic Places

The entire DAPE for AS-1 was surveyed and a total of five sites were identified within the DAPE and/or analyzed for visual effects. Of these, four resources identified within the DAPE are determined not eligible and would not be affected under NHPA. The BLM has determined that the remaining site, one with features of ceremonial significance, would be adversely affected visually. 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 and the BLM has determined they would be adversely affected physically.

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, five resources identified within the DAPE are determined not eligible and would not be affected under NHPA. The BLM has determined that the remaining site, and artifact scatter with data potential, would be adversely affected physically.

No areas within the new Fort Churchill Substation and the Northwest Substation expansion were surveyed for cultural resources. However, five historic properties were analyzed for visual effects. Of these, three were determined to not be adversely affected and no further consideration of the GLWP’s impacts is warranted. In total, the BLM has determined that two sites, irrigation features, would be adversely affected visually.

The DAPE for the new Fort Churchill Substation and the Northwest Substation expansion contains approximately 414 acres of private and non-accessible land and that was not surveyed for cultural resources. The cultural sensitivity GIS model demonstrates that 402 acres of those lands are high sensitivity (i.e., most likely to contain cultural resources) and 12 acres are medium sensitivity. Class I research indicates that two previously recorded sites are in these areas, but these have not been field verified as a part of the GLWP.

### 3.6.7.11 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 that were recorded during the Class III inventory. Those cultural resources were subjected to visual effects analysis within the corresponding VAPE are listed in Table 3-52. Distribution lines associated with AM-1 have not yet been identified by the Proponent.

**Table 3-52. Cultural Resources and NRHP Status Summary for Amargosa Microwave Alternatives and Associated Distribution Line Options**

Description	AM-1	AM-2 (Proposed Action)	AM-2 (Proposed Action) Distribution Line Option 1	AM-2 (Proposed Action) Distribution Line Option 2
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 Acronyms: AM – Amargosa Microwave; NRHP – National Register of Historic Places*

No cultural resources, historic properties or otherwise, are located within the DAPE for AM-1. 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 are low sensitivity (i.e., least likely to contain cultural resources). 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. No cultural resources, historic properties or otherwise, are located within the DAPE for the AM-2 (Proposed Action). 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. Likewise for 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.

### 3.6.7.12 Impacts of Anti-Perching/Nesting Mitigation Measure

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

Anti-perching/nesting mitigation measures for Mojave desert tortoise and Bi-State sage-grouse may have direct and indirect effects on cultural resources/historic properties. The anti-perching/nesting mitigation measure would use tubular steel 525-kV H-frame structures instead of guyed lattice structures. 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 span of H-frame towers between structures is 1,140 feet, while the span of guyed lattice structures is 1,520 feet, and the 525-kV H-frames are approximately 30 feet taller than the guyed lattice. More 525-kV H-frames would need to be constructed than lattice structures due to the reduced span. 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 without the mitigation measures (an increase of approximately 25 percent of structures under the anti-perching/nesting mitigation measures). This additional ground disturbance could result in adverse effects to historic properties. Indirect effects of the anti-perching/nesting mitigation measure are the same as the rest of the Proposed Action and may include unintentional damage to archaeological sites due to GLWP activities (including illegal artifact collection), increased trash at any new roads or pull-outs along major roads, or increased likelihood of additional lines being constructed in the same corridor.

### 3.6.8 Summary of Direct and Indirect Impacts

Historic properties are present in the collective APE of nearly every GLWP component (Table 3-53). Cultural resources that are listed or eligible for listing in the NRHP and those that are unevaluated for NRHP eligibility may be subjected to adverse effects, both physical and visual. Adverse effects would be avoided or minimized through design or monitoring or mitigated prior to construction (see Section 3.6.8 Measures to Avoid and/or Minimize Impacts and Appendix K). The ROW of the Proposed Action would include 188 NRHP-eligible sites, 6 NRHP-listed sites, and 32 unevaluated sites; 182 would be adversely affected and 44 would not be adversely affected. The 644 not eligible sites within the Proposed Action would not be affected under NHPA. Proposed Action distribution lines include five NRHP-eligible sites and four unevaluated sites; seven would be adversely affected and two would not be adversely affected. The 32 not eligible sites within the Proposed Action distribution lines would not be affected under NHPA. The access roads include 95 NRHP-eligible sites, two listed sites, and 20 unevaluated sites; 114 would be adversely affected and three would not be adversely affected. The 425 not eligible sites within the Proposed Action access roads would not be affected under NHPA. The amplifier sites, material yards, microwave sites, and tensioning areas include 14 NRHP-eligible sites, 2 NRHP-listed sites, and 4 unevaluated sites; 18 would be adversely affected and 2 would not be adversely affected. The 87 not eligible sites within these components would not be affected under NHPA. The new and expanded substations include five NRHP-eligible sites; two would be adversely affected and three would not be adversely affected. The AS-2 (Proposed Action) contains two NRHP-eligible sites while AS-1 has one NRHP-eligible site; in each case these sites would be adversely affected.

**Table 3-53. Cultural Resource Sites and Historic Properties within Cultural Resources Analysis Areas/APE with NHPA Determinations of Effect by Action Alternatives and Substation Alternatives**

<b>Transmission Line Route Group Action and Component Alternatives</b>	<b>Adverse Effects</b>	<b>No Adverse Effects</b>	<b>No Effects</b>
Proposed Action (ROW only)	182	44	644
Proposed Action Distribution Lines	7	2	32
AS-2 (Proposed Action)	2	0	0
<b>AS-1<sup>a</sup></b>	1	0	4
<b>ES-2 (Proposed Action)<sup>a</sup></b>	0	0	1
<b>ES-1a</b>	0	0	1
ES-3	1	0	5

<b>Transmission Line Route Group Action and Component Alternatives</b>	<b>Adverse Effects</b>	<b>No Adverse Effects</b>	<b>No Effects</b>
Other Substations	2	3	0
<b>AM-2 (Proposed Action)<sup>a</sup></b>	0	0	0
AM-1	0	0	0
<b>AM-2 (Proposed Action) Distribution Line Option 2<sup>a</sup></b>	0	0	1
AM-2 (Proposed Action) Distribution Line Option 1	0	0	1
Proposed Action Amplifier Sites, Material Yards Microwave Sites, and Tensioning Areas	18	2	87
Proposed Action Roads	114	3	425
Proposed Action Losee	1	2	4
Losee Transmission Alternative A	1	2	5
<b>Proposed Action – TUSK<sup>a</sup></b>	0	2	0
TUSK Transmission Alternative B	0	2	0
Proposed Action – Beatty	23	17	67
Beatty Transmission Alternative A	23	15	61
Beatty Transmission Alternative C	23	14	70
Beatty Transmission Alternative G	9	31	71
<b>Beatty Transmission Alternative K<sup>a</sup></b>	14	30	59
Proposed Action – Scotty’s Junction	13	0	52
Scotty’s Junction Transmission Alternative A	12	0	31
<b>Scotty’s Junction Transmission Alternative B<sup>a</sup></b>	9	0	36
<b>Proposed Action – Mason Valley WMA<sup>a</sup></b>	4	2	4
Mason Valley WMA Alternative A	25	1	13
<b>Proposed Action – Carson River<sup>a,b</sup></b>	29	3	68
Carson River Alternative A	28	3	63
Carson River Alternative C	6	9	16

Table Acronyms: AM – Amargosa Microwave; AS – Amargosa Substation; ES – Esmeralda Substation; NRHP – National Register of Historic Places; TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area  
Table Notes: <sup>a</sup>Bolded components indicate the alternatives with less cultural resources potential effects than the comparable, respective segments. <sup>b</sup>The Proposed Action for the Carson River Transmission Route Group considers all three of the 345-kV lines.

The ES-2 (Proposed Action) and ES-1 do not contain NRHP-eligible or listed properties or unevaluated sites; therefore, there would be no effects to historic properties. The one not eligible site within the ES-2 (Proposed Action) and the one not eligible site within ES-1 would not be affected under NHPA. The ES-3 contains one NRHP-eligible site; this site would be adversely affected. The five not eligible sites within the ES-3 would not be affected under NHPA. From a cultural resources management perspective, the ES-1 and ES-2 (Proposed Action) distribution line options are comparable, as neither require avoidance, monitoring, mitigation, or further consideration under Section 106.

The Losee Transmission Alternative A and Proposed Action would both include two NRHP-eligible sites and one NRHP-listed site. In both Action Alternative, one site would be adversely affected and two would not be adversely affected. The four not eligible sites within the Proposed Action and the five not eligible sites within the Losee Transmission Alternative A would not be affected under NHPA.

The TUSK Transmission Alternative B and the Proposed Action both include two NRHP-listed sites. The Moapa Band of Paiutes expressed concerns about constructing the transmission line through TUSK, because there are culturally sensitive areas there (see Section 3.7 Native American Religious Concerns).

The four Beatty Action transmission alternatives and the Proposed Action contain similar quantities of cultural resources. The Proposed Action would include 39 NRHP-eligible sites and one unevaluated site; 23

would be adversely affected and 17 would not be adversely affected. The 67 not eligible sites within the Proposed Action would not be affected under NHPA. Beatty Transmission Alternative A would include 37 NRHP-eligible sites and one unevaluated site; 23 would be adversely affected and 15 would not be adversely affected. The 61 not eligible sites within Beatty Transmission Alternative A would not be affected under NHPA. Beatty Transmission Alternative C would include 36 NRHP-eligible sites and one unevaluated site; 23 would be adversely affected and 14 would not be affected under NHPA. Beatty Transmission Alternative G would include 38 NRHP-eligible sites and 3 unevaluated sites; 9 would be adversely affected and 31 would not be adversely affected. The 71 not eligible sites within Beatty Transmission Alternative G would not be affected under NHPA. Beatty Transmission Alternative K would include 41 NRHP-eligible sites and 3 unevaluated sites; 14 would be adversely affected and 30 would not be adversely affected. The 59 not eligible sites within Beatty Transmission Alternative K would not be affected under NHPA. All of the Beatty transmission alternatives would adversely affect historic properties. The Beatty Transmission Alternatives G and K would appear to contain the least amount of physical impacts to NRHP-eligible and unevaluated sites containing stacked rock and other significant features identified by the Tribes as resources that should be avoided.

The Scotty's Junction Transmission Alternatives A and B and the Proposed Action also contain similar quantities of cultural resources. The Proposed Action would include 12 NRHP-eligible sites and one unevaluated site; all 13 would be adversely affected. The 52 not eligible sites within Proposed Action would not be affected under NHPA. Scotty's Junction Transmission Alternative A would include 11 NRHP-eligible sites and one unevaluated site; all 12 would be adversely affected. The 31 not eligible sites within Scotty's Junction Transmission Alternative A would not be affected under NHPA. Scotty's Junction Transmission Alternative B includes nine NRHP-eligible sites; all nine would be adversely affected. The 36 not eligible sites within Scotty's Junction Alternative B would not be affected under NHPA.

The comparable segment of the Proposed Action of the Mason Valley WMA transmission alternatives would include three NRHP-eligible sites and three unevaluated sites; four would be adversely affected and two would not be adversely affected. The four not eligible sites within Proposed Action would not be affected under NHPA. The Mason Valley WMA Transmission Alternative A segment includes 12 NRHP-eligible sites and 14 unevaluated sites; 25 would be adversely affected and one would not be adversely affected. The 13 not eligible sites within Mason Valley WMA Transmission Alternative A would not be affected under NHPA. The Proposed Action has not been fully surveyed and additional NRHP-eligible and unevaluated sites are expected to be identified and documented.

The Carson River Transmission Alternative A segment would include 20 NRHP-eligible sites and 11 unevaluated sites; 28 would be adversely affected and three would not be adversely affected. The 63 not eligible sites within Carson River Transmission Alternative A would not be affected under NHPA. The Carson River Transmission Alternative C segment includes 12 NRHP-eligible sites and three listed sites; 6 would be adversely affected and 9 would not be adversely affected. The 16 not eligible sites within Carson River Transmission Alternative C would not be affected under NHPA. This transmission alternative is largely not surveyed and could contain additional historic properties. The Proposed Action would include 20 NRHP-eligible sites and 12 unevaluated sites; 29 would be adversely affected and three would not be adversely affected. The 68 not eligible sites within the Proposed Action would not be affected under NHPA.

NRHP-listed, NRHP-listed, and unevaluated sites may be directly/adversely affected physically and/or visually by GLWP construction. These sites may also be subject to indirect effects due to increased visibility and visitation with the construction or improvement of access roads.



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

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 be relevant to the GLWP that would likely 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). 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 Cultural Resources Mitigation Plan (Appendix K) developed for the GLWP. Measures to avoid, minimize, or mitigate effects would be determined on a site-by-site basis and may include a combination of avoidance, monitoring, or mitigation. Appendix K offers preliminary mitigation measures for each site that may be adversely affected by the GLWP. The Final EIS will contain site-specific mitigation measures that are approved through NHPA Section 106 consultation. The BLM will commit to mitigation measures in the ROD consistent with 36 CFR 800.8(c)(4); no agreement documents (i.e., memorandum of agreement or programmatic agreement) will be required.

The buffered boundaries of historic properties and unevaluated resources would be provided to NV Energy to assess if the GLWP can be engineered to avoid as many historic properties and unevaluated resources to the extent practicable. For example, historic properties that may be adversely affected by improving or constructing access roads for the GLWP could be avoided by re-routing access roads away from historic properties. Historic properties in the ROW that are eligible under Criterion D would be adversely affected by the construction of a transmission line structure in the middle of the site. However, redesigning the spacing of the line structures outside the site, with lines spanning over the site to avoid direct physical effects could be implemented to avoid an adverse effect to the historic property. The 525-kV and 345-kV structures have a span range of 500 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.

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 (30-meter) buffer. Any GLWP activities occurring within the flagged boundary would be monitored by a professional archaeologist to ensure that construction crews stay on approved roads; eligible components of the site, including 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, particularly in places where ground-disturbing activities would not affect the eligible portions of sites.

The GLWP is anticipated to result in adverse effects to historic properties that would require treatment/mitigation. Adverse effects may be the result of physical disturbance to the site or the visual effects of the GLWP infrastructure. Adversely affected sites and proposed mitigation measures are described in Appendix K; for archaeological sites these include data recovery efforts such as systematic archaeological excavation and/or intensive surface mapping and artifact inventory. Mitigation measures for historical-period sites include archival research and the preparation of a historic context. Mitigation measures include but are not limited to:

- Archaeological testing or excavation/data recovery
- Intensive surface mapping and artifact inventory
- Remote sensing/geophysical investigations
- Ethnographic research, oral history interviews
- Archival research
- Development of historic contexts
- Development of digital public archaeology products, such as videos, blogs, website content
- Development of interpretive signage
- Cultural sensitivity training for GLWP field workers
- Installation of post/cable fencing to protect sites
- Road closures and reclamation
- Historic American Building Survey/Historic American Engineering Record
- Landscaping or other techniques to minimize visual effects
- Nominating sites to the NRHP
- Additional field investigations to define potential archaeological and historic districts
- Repair existing damage to historic properties
- Other mitigation as determined through consultation

The BLM continues consultation on mitigation measures by providing Section 106 consulting parties mitigation plans prior to the release of the Final EIS. The Final EIS will include the final mitigation measures as an appendix, and the BLM will commit to those measures in the ROD. 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 (30 meters)
A (event)	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot (30-meter) 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 signage if along roads Monitor all construction activities within the site plus a 98-foot (30-meter) buffer if warranted
B (people)	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet (30 meters)
B (people)	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot (30-meter) 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 signage if along roads Monitor all construction activities within the site plus a 98-foot (30-meter) buffer if warranted
C (design)	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet (30 meters)
C (design)	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot (30-meter) buffer

<b>Criterion of Significance</b>	<b>GLWP Effect</b>	<b>Mitigation Measures</b>
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 drone photography for archaeological sites HABS/HAER for buildings and structures Development of interpretive signage if along roads Monitor all construction activities within the site plus a 98-foot (30-meter) buffer if warranted
D (data)	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet (30 meters)
D (data)	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot (30-meter) 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 systematic and judgmental subsurface units over at least five percent of the site surface within the direct effects analysis area. Expose and fully excavate any encountered features. Monitor all construction activities within the site plus a 98-foot (30-meter) buffer if warranted
Unevaluated	None: avoidance through design	Archaeological and/or Tribal monitoring may be required for construction activities within 98 feet (30 meters)
Unevaluated	The GLWP may affect non-eligible portion of resource	Monitor all construction activities within the site plus a 98-foot (30-meter) buffer
Unevaluated	Adverse effects to resource cannot be avoided	Archaeological testing Excavate systematic and judgmental subsurface units over at least three percent of the site surface within the direct effects analysis area. 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.

### 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 Native American religious concerns.

#### 3.7.1 Issues Identified for Analysis

- What areas or resources are of special significance to Tribes?
- Are there sacred sites or Traditional Cultural Properties that could be affected by construction, O&M, and decommissioning of the GLWP? If so, how could adverse effects or significant impacts 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 called 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, provide reasonable notice of proposed actions or land management policies that may restrict access or use of sacred sites or adversely affect them.

## **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 consulted and coordinated with a number of interested Tribes for the GLWP and continues to do so. The BLM has invited Native American Tribes to public workshops, facilitated government-to-government consultation, coordinated GLWP meetings with Native American Tribes, and has presented GLWP updates to Tribal Councils (see 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 (see Cultural Resources section for more information on Section 106 consultation and coordination). See Table 3-33 through Table 3-36 and Table 5-1 for lists of consulted Native American Tribes.

The Native American Tribes most actively participating in NHPA Section 106 and government-to-government consultations include the Duckwater Shoshone, Walker River Paiute, Timbisha Shoshone, and Moapa Band of Paiutes. 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.

### 3.7.4 Analysis Area and Methodology

#### Analysis Area

The analysis area for Native American religious concerns consists of areas in which consulted Native American Tribes may have concerns for the 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 APE for cultural resources. The total APE for cultural resources and analysis area for Native American religious concerns is approximately 1,722,483 acres. The analysis area accounts for physical disturbances and watershed changes resulting from the GLWP. See the 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. The BLM has initiated and continues consultation with Native American Tribes through government-to-government relations following BLM Manual 1780, NHPA Section 106, and additional Tribal coordination occurring through presentations and meetings. In addition to consultation efforts, 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 utilized 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 Pahump 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 also crosses the Las Vegas Paiute Tribe's Snow Mountain reservation land just northwest of Las Vegas. *Newe* (Western Shoshone) crossed by the Native American religious concerns analysis area are west of the abovementioned intersection to the Esmeralda and Mineral County boundary. Several Western Shoshone Tribes are being consulted; the Duckwater Shoshone Tribe and Timbisha Shoshone Tribe have actively participated in the GLWP with the BLM. This participation included GLWP meetings, several field visits with the BLM and the Tribes, as well Tribal monitors from both Tribes during the cultural resources inventory. Additionally, Scotty's Junction Transmission Alternative B crosses through 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. Several Northern Paiute Tribes are being consulted and ongoing 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 crosses portions of this land 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. The

Washoe Tribe of Nevada and California is being consulted under NHPA Section 106 and government-to-government consultation.

### **3.7.6 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, and impacts at TUSK. Other non-religious concerns included cultural sensitivity training for construction crews, having Tribal monitors for archaeological fieldwork and construction, impacts to Mojave desert tortoise, and the potential upcoming expansion of Tribal lands that may be impacted by the GLWP. 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 of the NHPA, 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 16 miles from the Native American religious concerns analysis area) and *Naga Kaiv* (Sheep Mountain, approximately 14 miles from the Proposed Action and 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 Duckwater and Timbisha Shoshone Tribes. 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. At least two known prayer locations are within the temporary ROW area. There are also additional unknown prayer locations. These generally occur along US 95, outside the DAPE for cultural resources, which was inventoried during the cultural resources field surveys. The Tribes would have to provide some location information in order to determine whether the GLWP would adversely affect the additional prayer locations.

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 the BLM and Duckwater and Timbisha Shoshone Tribal representatives and were recognized as spaces of spiritual and cultural importance and 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 proponents of the GLWP, and potential resolution of effects are discussed in the Section 3.6 Cultural Resources.

The Moapa Band of Paiutes 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 Tribe 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 and none were identified. Although no archaeological sites were identified, there are culturally sensitive places in the TUSK, but those exact locations are not known.

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 visual effect analysis area but would not be physically impacted by the GLWP. Portions of Beatty Wash and the Yucca Mountain Range are in the direct effects analysis area 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 non-religious concerns include cultural sensitivity training, Tribal monitors, and impacts to possible expansion of Tribal lands. Cultural sensitivity training for construction workers and any associated field workers on the GLWP would be implemented to educate them 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. Such training could 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, including but not limited to cultural resources, biological resources, and areas of Tribal concern, are not inadvertently impacted during construction. One Tribe expressed concerns about how the GLWP may affect Mojave desert tortoise. Effects of the GLWP on 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 will be addressed on an individual basis through government-to-government consultation.

### **3.7.7 Environmental Consequences**

This section assesses the impacts on Native American religious concerns that would result from the No Action Alternative and from the construction, O&M, and decommissioning of the Action Alternatives. Impacts on those concerns 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.

#### **3.7.7.1 Direct and Indirect Impacts of 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 religious or non-religious concerns expressed by Native American Tribes attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

### 3.7.7.2 Direct and Indirect Impacts from Proposed Action

#### Construction and Operations and Maintenance

Identified areas of Native American concern include prayer locations, the Salt Song Trail, and culturally sensitive areas in TUSK. The GLWP components may directly and/or indirectly impact some areas of Native American religious concern (i.e., prayer locations and the Salt Song Trail). Direct impacts would come from ground disturbance during construction. These ground-disturbing activities could have direct physical impacts on prayer sites, such as displacement of damage or destruction of features. Construction activities that modify the slope of the natural terrain, compact soils, and/or remove vegetation could cause increased erosion of areas surrounding prayer sites. Other construction impacts to prayer sites may include temporary increased dust (atmospheric) and temporary audible effects (construction machinery). No physical evidence of the Salt Song Trail was identified within the Native American religious concerns analysis area as the songs reference many places within the broader surrounding landscape. No changes to Tribal access to sacred sites is anticipated.

Indirect effects may include illegal artifact collection, vandalism, or looting due to new or increased access to sites or increased visibility of sites, increased trash at any new roads or pull-outs along US 95, or increased likelihood of additional lines being constructed in the same corridor.

The modern prayer locations only exist between Tonopah and Las Vegas and were identified within the temporary ROW and the access roads and tensioning areas. As discussed above, prayer locations were only identified during the cultural resources inventory of the direct effects analysis area (i.e., area of potential physical disturbance). Additional prayer locations likely exist along US 95 within other unsurveyed areas within the Native American religious concerns analysis area. Additional locations have not yet been disclosed to the BLM by Tribes. Only two prayer locations have known physical locations located within the Native American religious concerns analysis area. Both prayer locations would be avoided by direct effects (e.g., new roads) during micro-siting and final design or construction activities but may require monitoring. Native American Tribes expressed religious concerns with obstructing views to the east of modern prayer locations as well as auditory effects of high-energy transmission lines. The centerline for the Proposed Action associated with the Scotty's Junction transmission alternatives would be within 230 feet of one known prayer location, within the temporary ROW, and would not obscure the view directly east (facing 90-degrees). The Proposed Action could possibly obstruct views to the east-southeast. The Proposed Action may be close enough to cause auditory effects. A second prayer location would be obstructed to the east by the Proposed Action ROW but does not fall within the temporary or permanent ROW for the Proposed Action. The 525-kV transmission line would be as close as 575 feet, and to the east (facing 90-degrees) would be 1,120 feet away. Both prayer locations are situated within 75 feet to US 95 and auditory effects are likely to be greater from traffic, though exceptions under some conditions might apply (i.e., periods of low traffic, high winds).

All access roads, new and improved, would be maintained as permanent components of the Proposed Action. Additional roads may lead to greater recreational activity. This could contribute to increased trash along roads or overland travel during wetter conditions as roads may become impassable and alternate routes are sought by recreationalists. Prayer sites could be directly impacted by these activities if they are located near roads. The transmission line structures would also be maintained as permanent and, depending on 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. No changes to Tribal access to sacred sites is anticipated. Currently, no prayer locations or other



physical locations of Native American religious concerns fall within the temporary or permanent ROW areas or would be otherwise impacted by the Proposed Action's distribution lines, amplifier site, or material yards.

There are also concerns regarding the Salt Song Trail and impacts at TUSK. Because there is no physical evidence of the Salt Song Trail, it is difficult to identify 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. This will allow the BLM to further understand the impacts that the GLWP might have and ways to avoid or minimize them.

The Moapa Band of Paiutes expressed concern about the GLWP impacting culturally sensitive areas in the TUSK. No archaeological sites were identified during the cultural resources inventory. Continued consultation with the Tribe is needed to identify impacts to culturally sensitive areas in TUSK. This consultation will be led and initiated by the BLM in coordination with NPS as the land manager. The consultation will help the BLM to determine if the GLWP would affect Native American religious concerns in the TUSK as well as to avoid or minimize them.

The GLWP is anticipated to result in impacts to at least two prayer locations. Impacts to the prayer locations can be resolved through avoidance of ground disturbance through micro-siting and final design and monitoring during construction. Where there is potential for the view from these locations to be obstructed to the east, micro-siting and final design through use of longer spans or adjustment of structure location should be considered to minimize this obstruction.

### **Decommissioning**

A Restoration and Decommissioning Plan would be filed by the Proponent and approved by the federal ROW agencies before terminating the ROW and before decommissioning activities could begin. Impacts during decommissioning would be similar to those described for the construction phase, though to a lesser extent.

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

With the implementation of the EMMs in Appendix C (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 Proposed Action.

#### **3.7.7.3 Direct and Indirect Impacts from Losee, 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**

Currently, no prayer locations or other physical locations of Native American religious concerns fall within the temporary or permanent ROWs or would be otherwise impacted by the Losee, Beatty, Mason Valley WMA, or Carson River Transmission Line Route Groups; the Amargosa and Esmeralda Substation Group Alternatives; or the Amargosa Microwave Alternatives.

### **3.7.7.4 Direct and Indirect Impacts from TUSK Transmission Line Route Group**

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

The impacts of the TUSK transmission alternatives would be the same as the Proposed Action. Additional consultation with the Tribe is needed to determine if the Action Alternatives would affect Native American religious concerns in the TUSK.

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

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

One of the modern prayer locations was identified within the Scotty's Junction transmission alternatives. This prayer location would be avoided by direct effects (i.e., new roads, tensioning) during micro-siting and final design or construction activities but may require monitoring. Native American Tribes expressed religious concerns with obstructing views to the east of modern prayer locations as well as auditory effects of high-energy transmission lines. This location would not be obstructed to the east by the Proposed Action or Scotty's Junction Transmission Alternatives A and B. Of the three Action Alternatives, the Proposed Action would be as close as 230 feet, and the Scotty's Junction Transmission Alternative B would be as close as 295 feet, both within their respective temporary ROWs. The Proposed Action would be more visible (entering view at 126-degrees) than Scotty's Junction Transmission Alternative B (entering view at 142-degrees). Neither would obscure the view directly east (facing 90-degrees). The Proposed Action could possibly obstruct views to the east-southeast. Either may be close enough to cause auditory effects. The prayer location is situated within close proximity to US 95 and auditory effects are likely to be greater from traffic, though exceptions under some conditions might apply (i.e., periods of low traffic, high winds)

### **3.7.7.6 Impacts from Anti-Perching/Nesting Mitigation Measure**

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

Anti-perching/nesting mitigation measures for Mojave desert tortoise and Bi-State sage-grouse may have impacts on Native American religious concerns. The anti-perching/nesting mitigation measure would use tubular steel 525-kV H-frame structures instead of guyed lattice structures. The 525-kV 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, which may result in additional visual effects. The span of H-frame towers between structures is 1,140 feet, while the span of guyed lattice structures is 1,520 feet, and the 525-kV H-frames are approximately 30 feet taller than the guyed lattice. More 525-kV H-frames would need to be constructed than lattice structures due to the reduced span. This additional ground disturbance could result in impacts to areas of Native American religious concern, although GLWP component siting can aid in avoiding direct physical disturbances to areas of concern. There would be similar impacts to the views from Las Vegas Paiute Indian Reservation from the H-frame structures as the guyed lattice structures. Changes to views from either tower structure would range from negligible to visually recognizable and beginning to attract attention.

## **3.8 Paleontological Resources**

Paleontological resources are any fossilized remains, traces, or imprints of organisms, preserved in or on the Earth's crust and provide information about the history of life on Earth. 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 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 200-foot buffer around the Action Alternatives, totaling approximately 47,462.4 acres.

#### Methodology

Activities that occur in or on geologic units that preserve paleontological resources have the potential to affect those resources. Effects include resource damage or destruction and loss of data associated with the fossils. Effects may occur when paleontological resources are successfully recovered, which can initiate new scientific discoveries and engage the public 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 is not known at this time (i.e., transmission structure locations), the assessment of effects conducted here takes into consideration that generalized GLWP activities would include ground disturbance such as grading, augering or boring, and trenching for tower installation and roads. This assessment 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; yet 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 excavations below the depth of the surficial deposits would be at greater risk of affecting paleontological resources. For this reason, the assessment of effects takes into consideration both the surface and subsurface geology.

The assessment of effects summarized here relies on the BLM's (2022a) Potential Fossil Yield Classification (PFYC) mapping of the GLWP area and Action Alternatives, as well as 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 along the GLWP and alternatives. Additionally, in September of 2022, ground-penetrating radar (GPR) studies were conducted in TUSK. These studies were conducted at the request of the NPS as part of the GLWP. The summary of findings from the GPR is discussed in Section 3.8.4.2.

This EIS uses the Paleontological Resources Preservation Act of 2009 (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 [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 credentialled paleontologists (see 43 CFR Part 49) may determine what fossils have paleontological interest.

### **3.8.3 Affected Environment**

The GLWP would be 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 Utah in the east, and ending at the Wasatch Fault. 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 grabens form a vast terrain of structurally complex basins infilled with thick stacks of alluvial sediments eroded from the surrounding mountain ranges with superposed lacustrine 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 to some degree (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, such as the Cambrian Explosion, 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, Cuprite Hills, Goldfield Hills, 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. These include Adrian Valley, Mason Valley, Walker Lake Valley, Soda Spring Valley, Clayton Valley, Lida Valley, Sarcobatus Flat, the Amargosa Desert, and the Las Vegas Valley. These 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 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). As shown in

current BLM PFYC mapping data (BLM 2022a), these geologic units range from very low (PFYC 1) to very high (PFYC 5), and unknown (PFYC U) paleontological potentials. 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 (PFYC U), low (PFYC 2), and moderate (PFYC 3) potential, as well as one unit with very high (PFYC 5) potential. A wide variety of volcanic igneous rocks with very low (PFYC 1) or unknown (PFYC U) are also mapped in the GLWP 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 (PFCY 1) to high (PFYC 4).

The GLWP would be underlain by geologic units that range from very low (PCFY 1) to very high (PFYC 5) paleontological potential and also units with unknown (PCFY U) paleontological potential (Table 3-55). Geologic units with low (PFYC 2) paleontological potential make up the highest percentage of the paleontological analysis area (40.1 percent), followed by unknown (PFYC U) potential, including primarily surficial sediments and mixed volcanoclastic units (32.6 percent), and very low (PFYC 1) potential units (21.8 percent). Geologic units with higher potential would be much less common, with moderate (PFYC 3), high (PFYC 4), and very high (PFYC 5) units combined would make up less than six percent of the paleontological analysis area.

The geologic units with high (PCFY 4) and very high (PFYC 5) potential are of particular note. These are, from youngest to oldest, the Las Vegas Formation (PFYC 5), the Esmeralda Formation (PCFY 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 GLWP paleontological analysis area.

**Table 3-55. Summary of the PFYC of the Geologic Units Underlying the GLWP**

PFYC	Acres	Percent	Geologic Units
Very Low (PFYC 1)	10,368.7	21.8%	Andesitic rocks, basalt and andesite flows, rhyolite, plutonic igneous rocks, mafic volcanic rocks, metasedimentary rocks, nonwelded ash flow, welded ash flow, Wahmonie Formation of the Paintbrush Group, Peavine Sequence, Stirling Quartzite, Basalt of Black Mountain
Low (PFYC 2)	19,046.7	40.1%	Desert wash, young alluvium, older young alluvium, sedimentary rocks (an undifferentiated unit)
Moderate (PFYC 3)	1,519.4	3.2%	Papoose Lake Member of the Bonanza King Formation, Campito Formation, Eleana Formation, Emigrant Formation, Harkless Formation, Kate Peak Formation, Monte Cristo Group, Nopah Formation, undivided Sevy and Laketown Dolomites
High (PFYC 4)	926.6	2.0%	Esmeralda Formation, Poleta Formation, Deep Spring Formation
Very High (PFYC 5)	133.7	0.3%	Las Vegas Formation
Unknown (PFYC U)	15,458.7	32.6%	Alluvium, young fan alluvium, younger alluvium, older sedimentary rocks, older alluvium, undivided basin-fill sediments, undivided Pliocene sedimentary rocks, undivided Quaternary sediments, undivided surficial sediments, gravels of Oasis Valley, deposits of Jumbo Pass, Beatty Wash Formation, Belted Range Group, andesitic lavas, Tram Tuff, Excelsior Formation, felsic volcanic rocks, Hartford Hill Rhyolite, metavolcanic rocks, Tiva Canyon Tuff, Siebert Tuff, Timber Mountain and Paintbrush Tuffs, Tuff of Crater Flat, Tuff of Tolicha Peak, young tuffs of the Pancake Caldera Complex
<b>Total</b>	<b>47,453.8<sup>a</sup></b>	<b>100%</b>	<b>N/A</b>

*Table Acronyms:* GLWP – Greenlink West Project; N/A – not applicable; PFYC – Potential Fossil Yield Classification

*Table Notes:* <sup>a</sup>Discrepancy between the table total and the total for the paleontological analysis area is due to the presence of 4 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 (PFYC 5) paleontological potential (BLM 2022a). 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, amphibians, lizards, snakes, birds, invertebrates, plant macrofossils, and pollen are also documented and contribute 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 ecosystem preserved, with invertebrates useful for environmental indicators preserved alongside the more well known megafauna (Springer et al. 2017). In the GLWP area, the Las Vegas Formation is found in the southeastern-most area, mapped at the surface both within the bounds of the TUSK and beyond on lands managed by the NPS, the BLM, local government agencies, and on private lands. During the pedestrian survey, non-significant fossils consisting of bone fragments were identified along the GLWP in the Las Vegas Formation (Stantec 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 has been assessed as having high (PFYC 4) paleontological potential due to the presence of significant fossils and the possibility of rare or uncommon fossils (BLM 2022a). 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 along the GLWP in the Esmeralda Formation (Stantec PIER – Pending).

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 (2022a) has assessed the Poleta Formation as having high (PFYC 4) 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 along the GLWP area during the pedestrian survey (Stantec PIER – Pending).

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 2022a) as having high (PFYC 4) 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 (PFYC 3) potential geologic units along the GLWP 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 2022a).

The geologic units with unknown (PFYC U) 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 along the GLWP 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. This national monument was established as the 405th unit of the national park system on December 19, 2014, through the National Defense Authorization Bill and the transfer of 22,650 acres of land from the BLM to the NPS. The monument 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).

Within the boundaries of TUSK, there are three categories of geologic deposits: 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 and they also crop out on the upthrown side of the Eglinton 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 the 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) imaging in identifying fossils.

To address these study goals, GPR was applied at seven different locations within TUSK, of which three of which were within the GLWP ROW and as such had already been the subject of a pedestrian survey (Stantec 2022). At each of the three study locations within the GLWP ROW, anomalies were detected in the subsurface which 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 study locations. Additionally, 3-Dimensional (3-D) imaging revealed that the anomalies at one of the study locations in the GLWP ROW 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 locations. The study also identified anomalies at four of the other locations outside the GLWP ROW, two of which included vertebrate fossil remains visible at the surface.

Urban characterized the results as identifying anomalies best explained as vertebrate fossils, with successful identification of anomalies at depths of 32.8 feet, 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 3-17 through Figure 3-22. 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 PFYC 3 or above and the comparable segment of the Proposed Action crossing PFYC 2 or below). Of the geologic units underlying all of the Action Alternatives, most are assessed as having unknown potential.

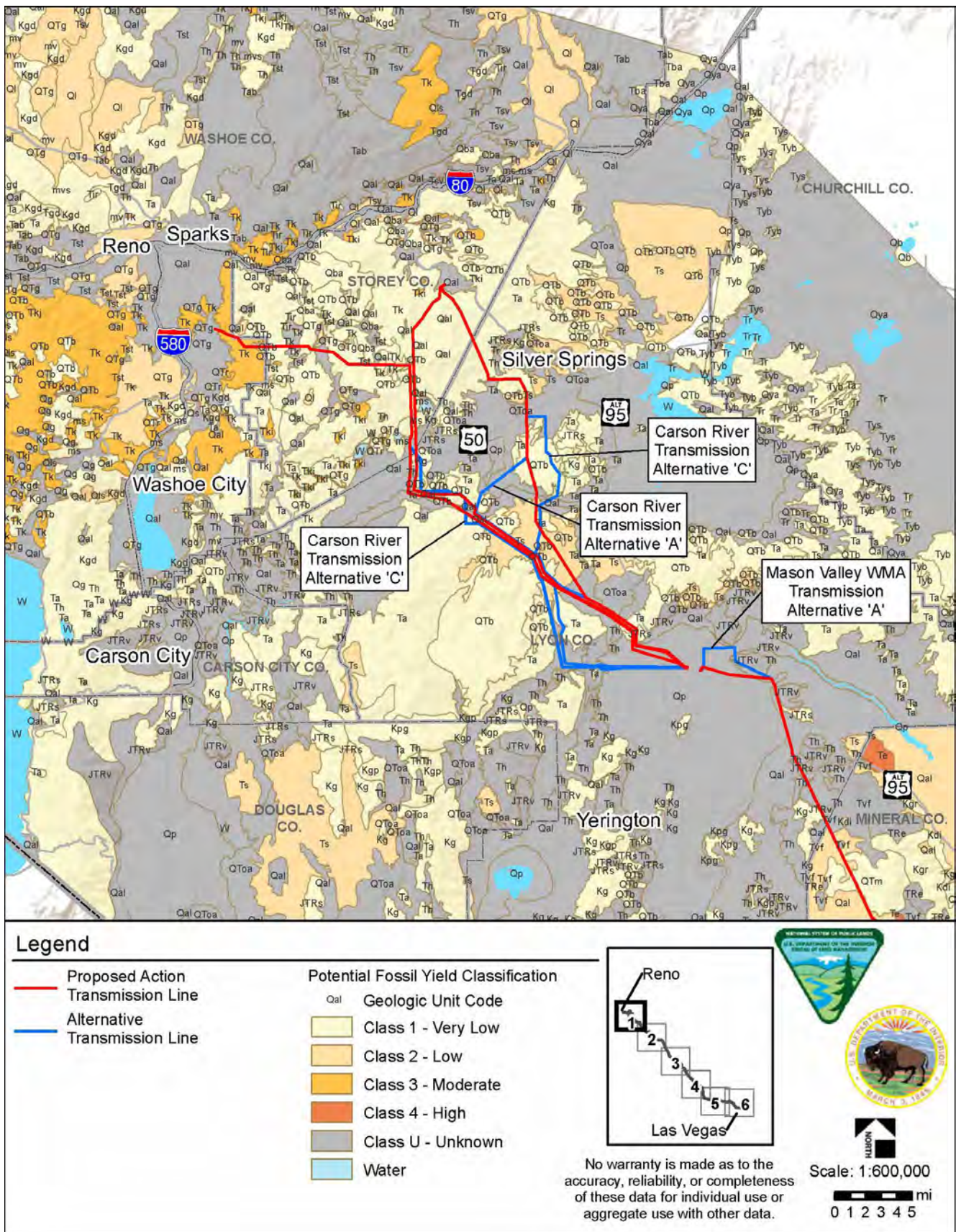
#### **3.8.4.1 Direct and Indirect Effects of the Proposed Action**

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

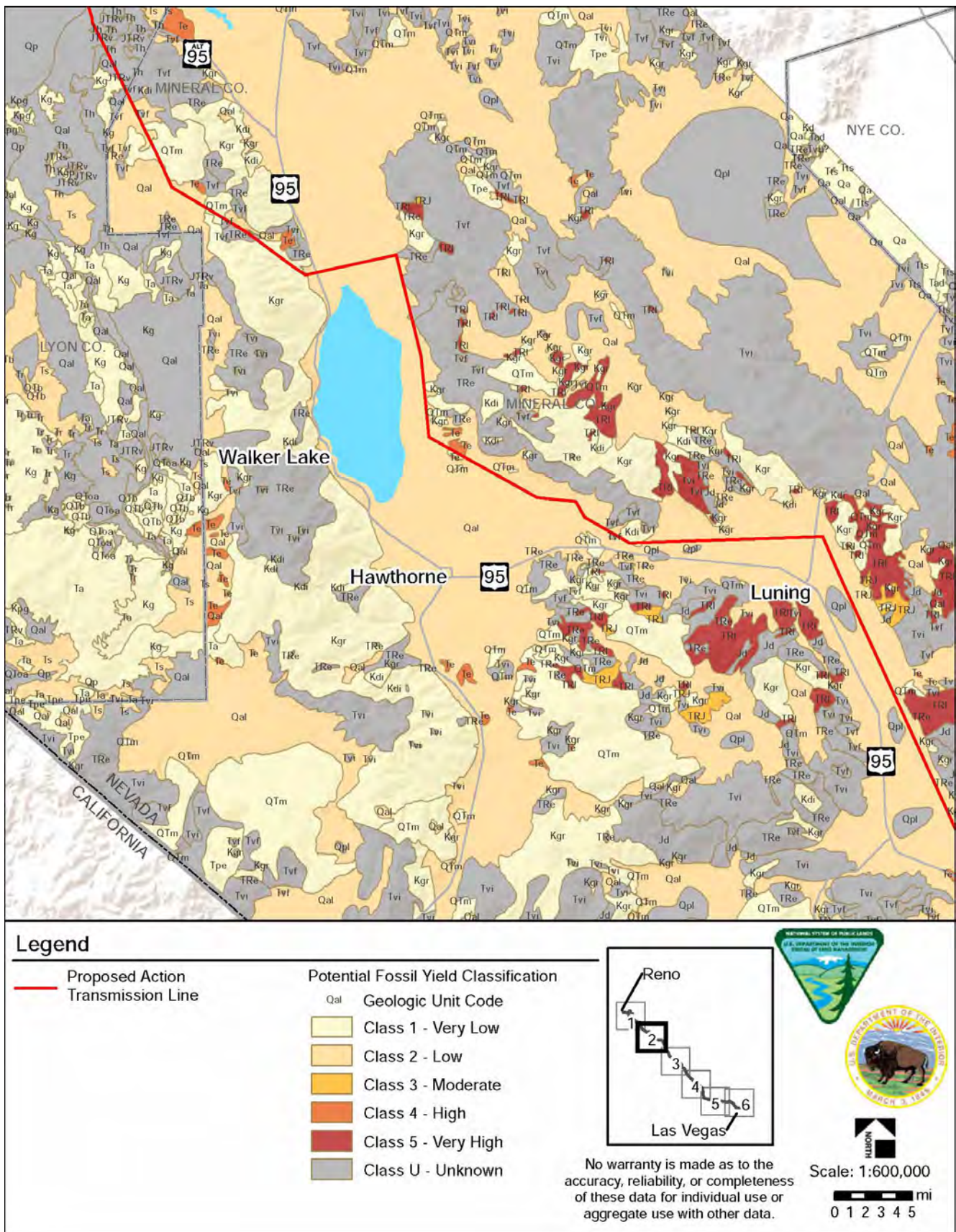
Construction of the Proposed Action would result in disturbance of geologic units with varying paleontological potentials. Assessing the potential effects on paleontological resources are tied to the paleontological potential of the unit impacted and vary accordingly. Approximately 22 percent (10,368.7 acres) of the Proposed Action would be underlain by geologic units with very low (PFYC 1) paleontological potential and approximately 40 percent (19,046.7 acres) of the Proposed Action would be underlain by geologic units with low (PFYC 2) paleontological potential. 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, and so effects to paleontological resources are unlikely in these geologic units.

Approximately six percent (2,579.1 acres) of the Proposed Action is underlain by geologic units that range in paleontological potential from moderate (PFYC 3) to very high (PFYC 5). In these areas, construction activities are more likely to encounter fossils. The discovery, successful documentation, and salvage of fossils that meet significance criteria as paleontological resources would be a direct effect of the GLWP. The effect would pertain to the fossils encountered and also 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 and would extend beyond the geographic extent of the GLWP area, as the fossils and the resulting scientific information is disseminated amongst the general public and/or scientific community. The damage or destruction of paleontological resources by the Proposed Action construction activities could also occur. In particular, geologic units with high (PFYC 4) or very high (PFYC 5) 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, as well as 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. The direct effect would be the loss of the fossils, while indirect effects would be the loss of

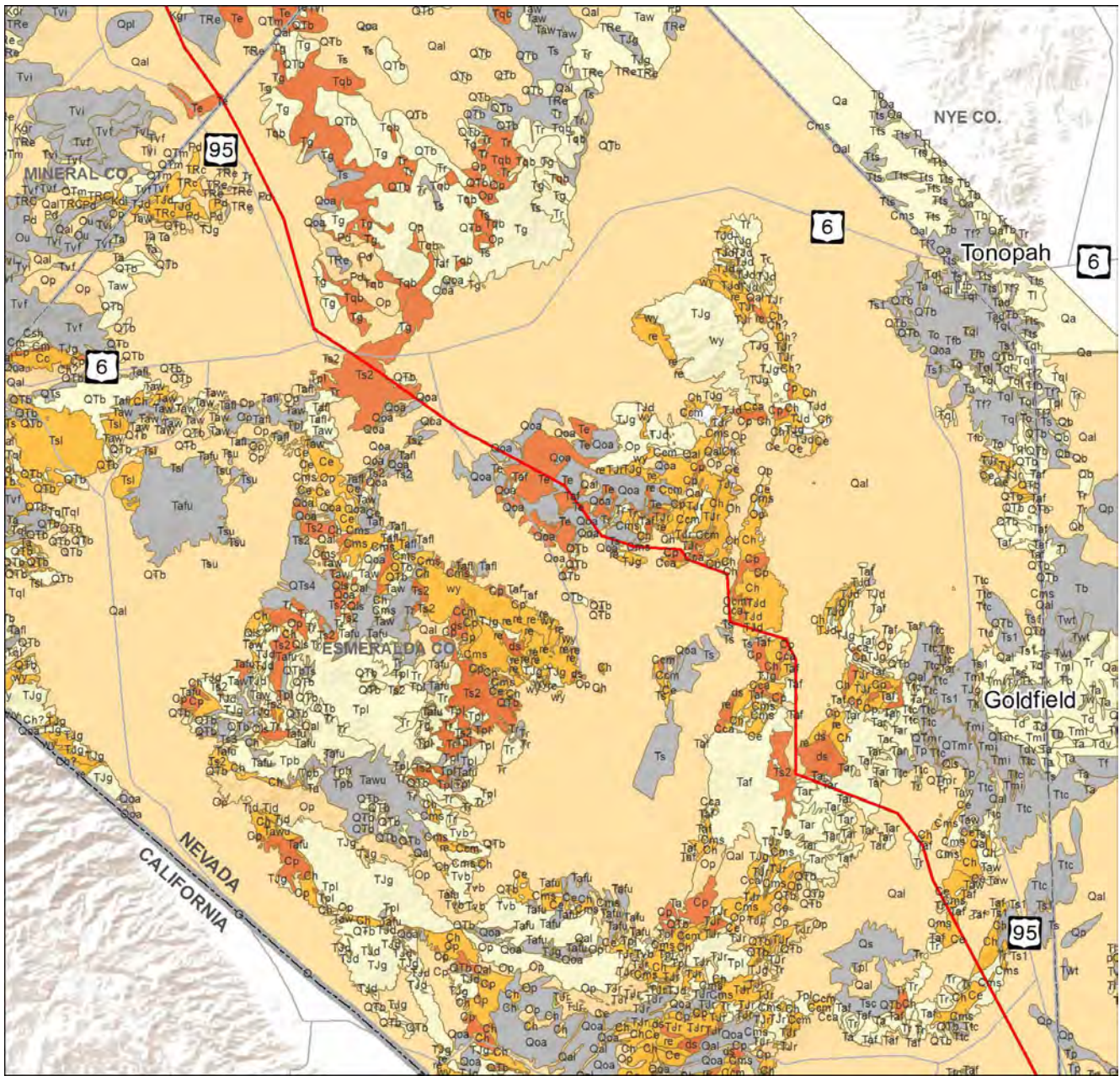




**Figure 3-17. Potential Fossil Yield Classifications (1 of 6)**



**Figure 3-18. Potential Fossil Yield Classifications (2 of 6)**

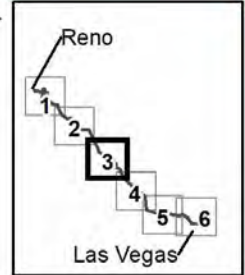


**Legend**

- Proposed Action Transmission Line Alignment
- Alternative Route Transmission Line Alignment

**Potential Fossil Yield Classification**

- Qal Geologic Unit Code
- Class 1 - Very Low
- Class 2 - Low
- Class 3 - Moderate
- Class 4 - High
- Class U - Unknown



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

Scale: 1:600,000  
 0 1 2 3 4 5 mi

**Figure 3-19. Potential Fossil Yield Classifications (3 of 6)**

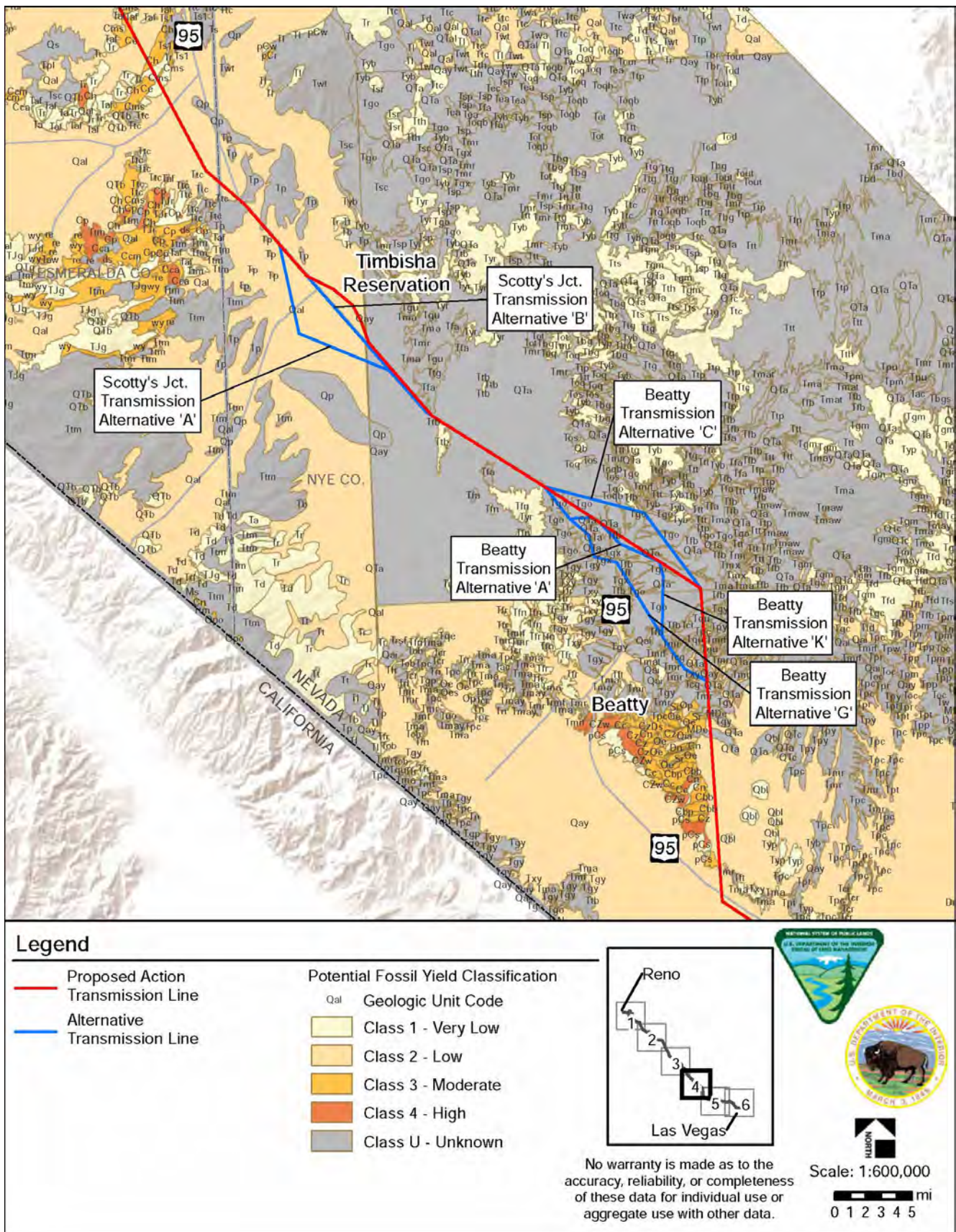
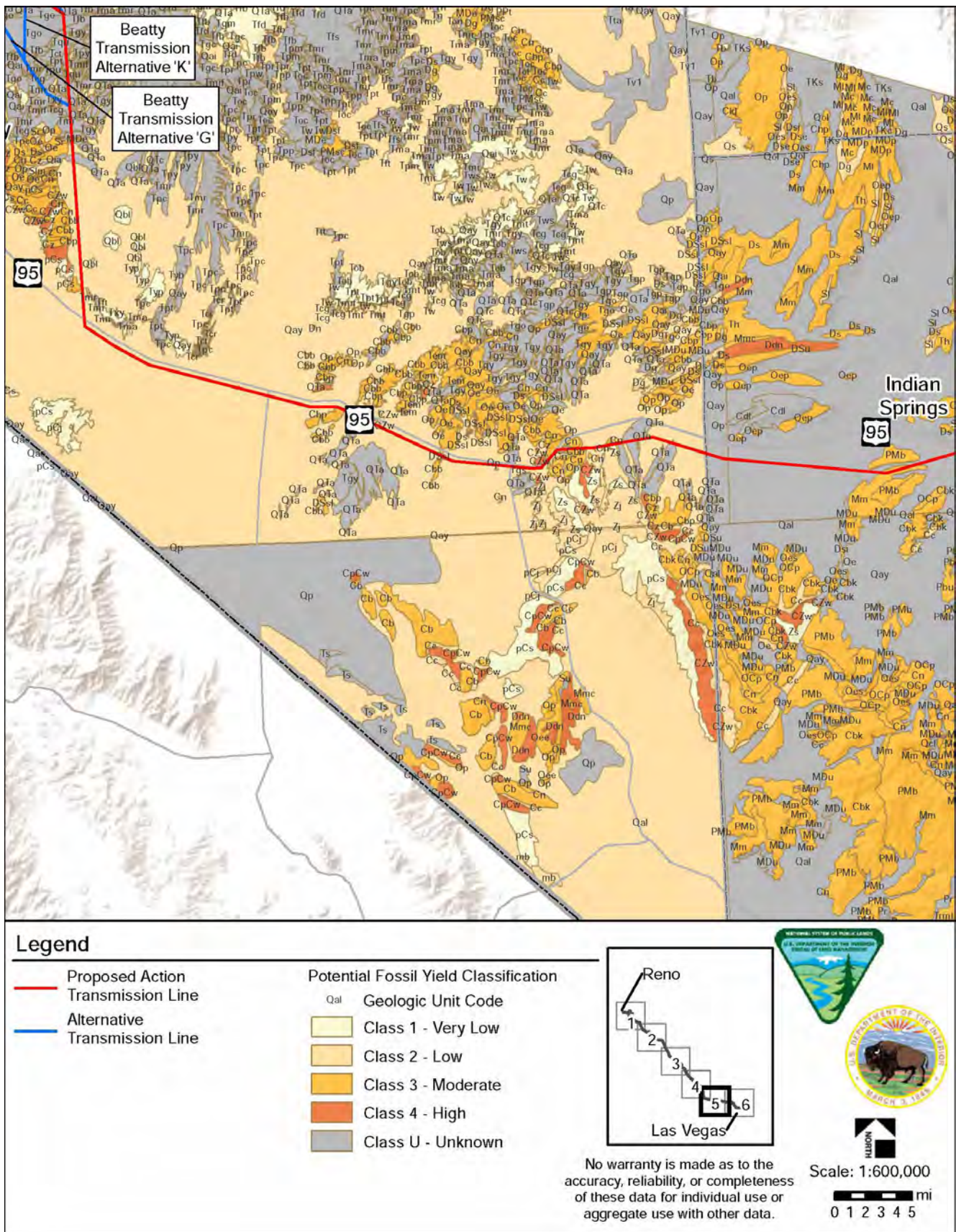


Figure 3-20. Potential Fossil Yield Classifications (4 of 6)



**Figure 3-21. Potential Fossil Yield Classifications (5 of 6)**

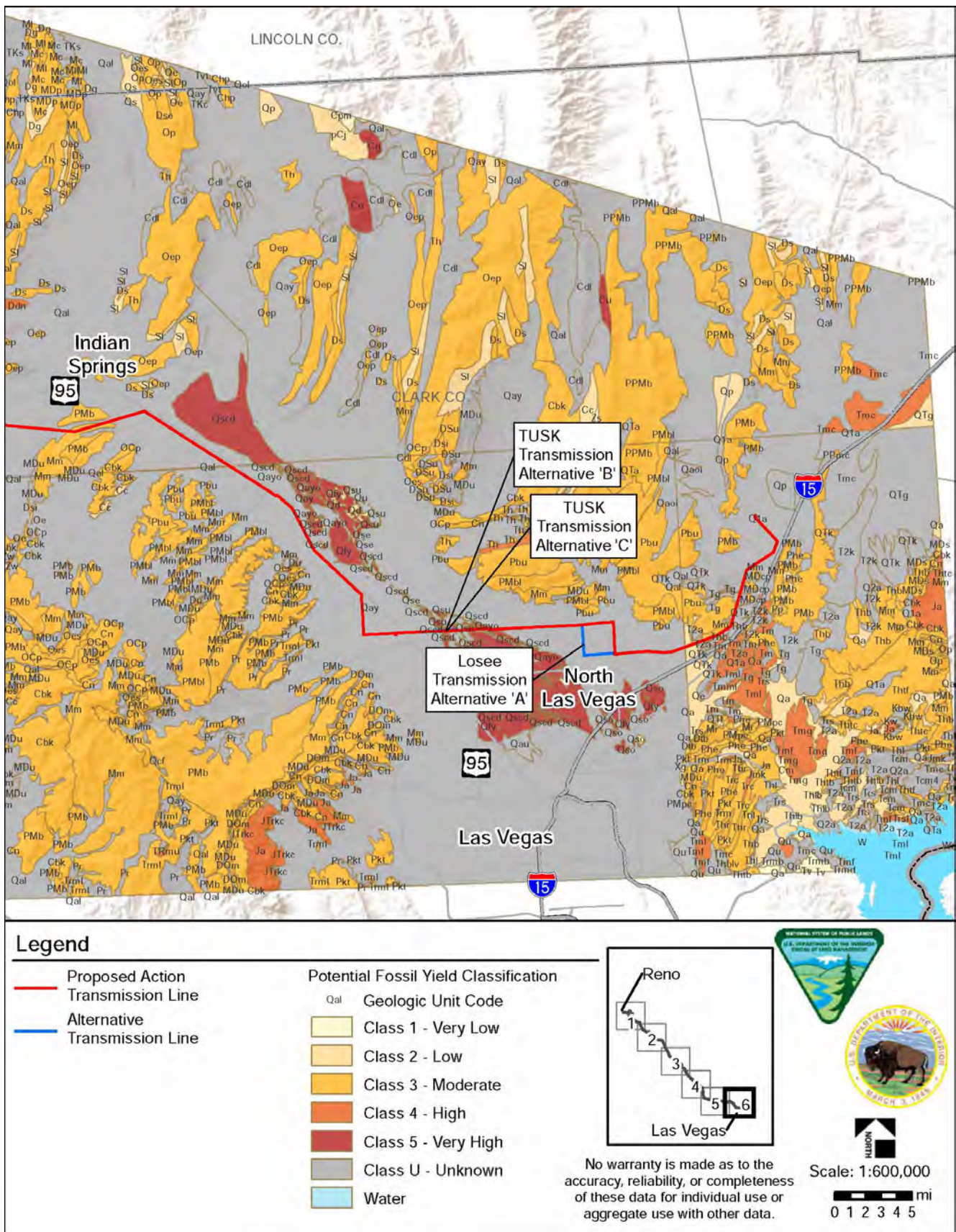


Figure 3-22. Potential Fossil Yield Classifications (6 of 6)

scientific knowledge. These effects are permanent in duration, as 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 (refer to Appendix C. EMMs PALEO-1 through PALEO-4) and the Paleontological Resources Mitigation Plan that has been developed (refer to Appendix L).

#### **Recommendations**

Current recommendations for paleontological mitigation for the GLWP within the TUSK include the development of a detailed paleontological resources monitoring and mitigation plan that addresses construction activities, in terms of both location and type of activity. The development of this plan should include recommendations for the treatment of the three study locations within the GLWP ROW, for approval by the NPS. Should additional GPR studies be conducted in the GLWP ROW, the resulting data should also be made available for the development of the plan.

### **3.8.4.2 Direct and Indirect Impacts from the Losee, TUSK, Beatty, Scotty's Junction, Mason Valley WMA, and Carson River Transmission Line Group Alternatives**

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

All of the Losee, TUSK, Beatty, Scotty's Junction, Mason Valley WMA, and Carson River transmission alternatives are 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 transmission alternatives and the Proposed Action 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 respective transmission alternatives. However, these are mostly minimal differences that are unlikely to create substantial changes in the anticipated effects to paleontological resources, or in the possibilities for mitigation activities along either route. The paleontological impacts of the Action Alternatives is summarized in Table 3-56 through Table 3-66.

Of the geologic units underlying all of the transmission line group alternatives, most are assessed as having unknown potential. Units with very low (PFYC 1) potential would also be present underlying the Beatty Transmission Alternative C and units with low (PFYC 2) potential would also be present underlying Scotty's Junction Transmission Alternative A and Carson River Transmission Alternative A. The only Action Alternative with potentially fossiliferous units would be the TUSK Transmission Alternative B and its comparable segment of the Proposed Action, which would be partially underlain by the Las Vegas Formation, with very high (PFYC 5) paleontological potential. The Las Vegas Formation is described above in Section 3.8.3 Affected Environment.

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 the Potential Fossil Yield Classifications Crossed by  
Losee Transmission Alternative A**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	BLM	210.3	295.3
U	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	DOD	41.3	0.0
U	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	FWS	50.8	1.5
U	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	PVT	0.0	0.2
<b>TOTAL</b>	-	-	-	<b>302.4</b>	<b>297.0</b>

*Table Acronyms:* PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; DOD – Department of Defense; FWS – Fish and Wildlife Services; PVT – private

**Table 3-57. Comparison of the Potential Fossil Yield Classifications Crossed by  
TUSK Transmission Alternative B**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
5	Qscd: Las Vegas Formation	Deposits associated with past ground-water discharge	BLM	0.6	0.6
5	Qscd: Las Vegas Formation	Deposits associated with past ground-water discharge	LG	0.4	0.4
5	Qscd: Las Vegas Formation	Deposits associated with past ground-water discharge	NPS	14.0	21.5
5	Qscd: Las Vegas Formation	Deposits associated with past ground-water discharge	PVT	17.3	10.1
5	Qsu: Las Vegas Formation	Undivided young and intermediate fine-grained deposits associated with past ground water discharge	BLM	5.1	3.0
5	Qsu: Las Vegas Formation	Undivided young and intermediate fine-grained deposits associated with past ground water discharge	NPS	1.8	1.8
<b>PFYC 5 Total</b>	-	-	-	<b>39.2</b>	<b>37.4</b>
U	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	BLM	17.8	12.6
U	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	LG	1.6	2.1
U	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	NPS	39.1	52.5
U	Qay: Young Fan Alluvium	Non-cemented alluvial fan gravel and sands with weakly developed soil	PVT	17.9	11.1
<b>PFYC U Total</b>	-	-	-	<b>76.4</b>	<b>78.2</b>
<b>TOTAL</b>	-	-	-	<b>115.6</b>	<b>115.6</b>

*Table Acronyms:* PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; LG –Local Government; PVT – private; NPS – National Park Service



**Table 3-58. Comparison of the Potential Fossil Yield Classifications Crossed by Beatty Transmission Alternative A**

<b>PFYC Class</b>	<b>Geologic Unit</b>	<b>Geologic Description</b>	<b>Administrative Agency</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	BLM	5.4	5.4
<b>PFYC 1 Total</b>	-	-	-	<b>5.4</b>	<b>5.4</b>
2	Qay: younger alluvial fans	Holocene-aged alluvium	BLM	51.0	51.0
<b>PFYC 2 Total</b>	-	-	-	<b>51.0</b>	<b>51.0</b>
U	QTa, Qa: surficial deposits	Holocene- to Pleistocene-aged alluvium	BLM	493.0	431.0
U	QTa, Qa: surficial deposits	Holocene- to Pleistocene-aged alluvium	PVT	27.2	5.1
U	Tfb: Beatty Wash Formation	rhyolite lavas and related tuff	BLM	9.5	10.9
U	Tff: Rhyolite of Fleur-de-lis Ranch	rhyolite lavas and welded ash-flow tuff	BLM	0	31.7
U	Tgo: Gravels of Oasis Valley	basin-fill deposits and fan alluvium	BLM	665.6	699.6
U	Tct: Crater Flat Group, Tram Tuff	resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally nonwelded to partially welded crystal-poor, rhyolite ash-flow tuff	BLM	113.6	113.6
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	mostly soft, coarse grained sedimentary rocks of widely scattered units of differently poorly constrained ages	BLM	126.2	126.2
U	Tgy: Basin-Fill sediments, undivided	poorly consolidated, poorly sorted, poorly to moderately well bedded, sandy gravel and tuffaceous matrix	BLM	25.5	25.5
U	Tmr: Rainier Mesa Tuff, Timber Mountain Group	generally resistant, pink, brown, light-red, and light-gray, nonwelded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	BLM	1.1	1.1
U	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray to reddish-brown, moderately crystal-rich, locally lithophysal, nonwelded to densely welded ash-flow tuff	BLM	134.1	134.1
U	Tpy: Young tuffs of the Pancake Caldera Complex	moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, nonwelded to densely welded high silica rhyolite ash-fall tuff	BLM	42.0	42.0

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	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	BLM	4.1	4.1
<b>PFYC U Total</b>	-	-	-	<b>1,641.9</b>	<b>1,624.9</b>
<b>TOTAL</b>	-	-	-	<b>1,698.3</b>	<b>1,681.3</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; PVT – private

**Table 3-59. Comparison of the Potential Fossil Yield Classifications Crossed by Beatty Transmission Alternative C**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
1	Tfn: Latite of Donovan Mountain	crystal-rich latite to trachyte lava flows, feeder dikes, plugs, sills, and related tephra	BLM	5.4	4.9
1	Tyb: Thirsty Canyon and Younger Basalts	Widespread trachybasalt, basaltic andesite lava flows	BLM	0.0	3.2
<b>PFYC 1 Total</b>	-	-	-	<b>5.4</b>	<b>8.1</b>
2	Qay: younger alluvial fans	Holocene-aged alluvium	BLM	51.0	51.0
<b>PFYC 2 Total</b>	-	-	-	<b>51.0</b>	<b>51.0</b>
U	QTa, Qa: surficial deposits	Holocene- to Pleistocene-aged alluvium	BLM	493.0	471.6
U	QTa, Qa: surficial deposits	Holocene- to Pleistocene-aged alluvium	PVT	27.2	0.0
U	Tfb: Beatty Wash Formation	rhyolite lavas and related tuff	BLM	9.5	0.0
U	Tgo: Gravels of Oasis Valley	basin-fill deposits and fan alluvium	BLM	665.6	769.3
U	Tct: Crater Flat Group, Tram Tuff	resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally nonwelded to partially welded crystal-poor, rhyolite ash-flow tuff	BLM	113.6	113.6
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	mostly soft, coarse grained sedimentary rocks of widely scattered units of differently poorly constrained ages	BLM	126.2	126.2
U	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	BLM	4.1	4.1
U	Tgy: Basin-Fill sediments, undivided	poorly consolidated, poorly sorted, poorly to moderately well bedded, sandy gravel and tuffaceous matrix	BLM	25.5	25.5

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	Tmr: Rainier Mesa Tuff, Timber Mountain Group	generally resistant, pink, brown, light-red, and light-gray, nonwelded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	BLM	1.1	1.1
U	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray to reddish-brown, moderately crystal-rich, locally lithophysal, nonwelded to densely welded ash-flow tuff	BLM	134.1	134.1
U	Tpy: Young tuffs of the Pancake Caldera Complex	moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, nonwelded to densely welded high silica rhyolite ash-fall tuff	BLM	42.0	42.0
<b>PFYC U Total</b>	-	-	-	<b>1,641.9</b>	<b>1,687.5</b>
<b>TOTAL</b>	-	-	-	<b>1,698.3</b>	<b>1,746.6</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; PVT – private

**Table 3-60. Comparison of the Potential Fossil Yield Classifications Crossed by Beatty Transmission Alternative G**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
1	Tfn: Latite of Donovan Mountain	crystal-rich latite to trachyte lava flows, feeder dikes, plugs, sills, and related tephra	BLM	5.4	6.6
1	Txy: Thirsty Canyon Group, Younger landslide, gravity slide and talus breccia	mostly soft masses of landslide, talus and rock-avalanche breccia	BLM	0.0	18.9
<b>PFYC 1 Total</b>	-	-	-	<b>5.4</b>	<b>25.5</b>
2	Qay: younger alluvial fans	Holocene-aged alluvium	BLM	51.0	15.9
<b>PFYC 2 Total</b>	-	-	-	<b>51.0</b>	<b>15.9</b>
U	QTa, Qa, Qai, Qal: surficial deposits	Holocene- to Pleistocene-aged alluvium	BLM	493.0	313.5
U	QTa, Qa, Qai, Qal: surficial deposits	Holocene- to Pleistocene-aged alluvium	PVT	27.2	12.3
U	Tcg, Tgx, Tgy: sedimentary rocks	poorly consolidated, poorly sorted, poorly to moderately well bedded, sandy gravel and tuffaceous matrix	BLM	25.5	181.8
U	Tgo: Gravels of Oasis Valley	basin-fill deposits and fan alluvium	BLM	665.6	376.5
U	Tfb: Beatty Wash Formation	rhyolite lavas and related tuff	BLM	9.5	55.3
U	Tff: Rhyolite of Fleur-de-lis Ranch	rhyolite lavas and welded ash-flow tuff	BLM	0.0	115.9

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	Tma: Ammonia Tanks Tuf, Timber Mountain Group	Voluminous (about 900 km <sup>3</sup> ), moderately resistant, light-red, lavender-gray, light-gray, light-brown, and black, nonwelded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Ammonia Tanks caldera	BLM	0.0	141.9
U	Tma: Ammonia Tanks Tuf, Timber Mountain Group	Voluminous (about 900 km <sup>3</sup> ), moderately resistant, light-red, lavender-gray, light-gray, light-brown, and black, nonwelded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Ammonia Tanks caldera	PVT	0.0	21.4
U	Tct: Crater Flat Group, Tram Tuff	resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally nonwelded to partially welded crystal-poor, rhyolite ash-flow tuff	BLM	113.6	0.0
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	mostly soft, coarse grained sedimentary rocks of widely scattered units of differently poorly constrained ages	BLM	126.2	318.1
U	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	BLM	4.1	0.0
U	Tmr: Rainier Mesa Tuff, Timber Mountain Group	generally resistant, pink, brown, light-red, and light-gray, nonwelded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	BLM	1.1	138.9
U	Tmrf: Rhyolite of Fluorspar Canyon, Timber Mountain Group	Mostly soft, light-gray, pink, and white, nonwelded rhyolite ash-flow, airfall, surge, and waterlaid tuff and subordinate, locally resistant, gray, petrographically identical rhyolite lava flow	BLM	0.0	239.1
U	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray to reddish-brown, moderately crystal-rich, locally lithophysal, nonwelded to densely welded ash-flow tuff	BLM	134.1	54.7
U	Tpu: Post-Tiva Canyon rhyolites	rhyolite lavas and related nonwelded tuff	BLM	0.0	3.9

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	Tpy: Young tuffs of the Pancake Caldera Complex	moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, nonwelded to densely welded high silica rhyolite ash-fall tuff	BLM	42.0	0.0
<b>PFYC U Total</b>	-	-	-	<b>1,641.9</b>	<b>1,973.3</b>
<b>TOTAL</b>	-	-	-	<b>1,698.3</b>	<b>2,014.7</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; PVT – private

**Table 3-61. Comparison of the Potential Fossil Yield Classifications Crossed by Beatty Transmission Alternative K**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
1	Tfn: Latite of Donovan Mountain	crystal-rich latite to trachyte lava flows, feeder dikes, plugs, sills, and related tephra	BLM	5.4	5.9
1	Txy: Thirsty Canyon Group, Younger landslide, gravity slide and talus breccia	mostly soft masses of landslide, talus and rock-avalanche breccia	BLM	0.0	18.9
<b>PFYC 1 Total</b>	-	-	-	<b>5.4</b>	<b>24.8</b>
2	Qay: younger alluvial fans	Holocene-aged alluvium	BLM	51.0	15.9
<b>PFYC 2 Total</b>	-	-	-	<b>51.0</b>	<b>15.9</b>
U	QTa, Qa, Qai, Qal: surficial deposits	Holocene- to Pleistocene-aged alluvium	BLM	493.0	376.5
U	QTa, Qa, Qai, Qal: surficial deposits	Holocene- to Pleistocene-aged alluvium	PVT	27.2	5.1
U	Tcg, Tgy: sedimentary rocks	poorly consolidated, poorly sorted, poorly to moderately well bedded, sandy gravel and tuffaceous matrix	BLM	25.5	166.6
U	Tgo: Gravels of Oasis Valley	basin-fill deposits and fan alluvium	BLM	665.6	475.9
U	Tfb: Beatty Wash Formation	rhyolite lavas and related tuff	BLM	9.5	46.6
U	Tff: Rhyolite of Fleur-de-lis Ranch	rhyolite lavas and welded ash-flow tuff	BLM	0.0	31.7
U	Tct: Crater Flat Group, Tram Tuff	resistant, light-brown, light-olive-gray, light-brownish-gray, mostly densely welded but locally nonwelded to partially welded crystal-poor, rhyolite ash-flow tuff	BLM	113.6	0.0
U	Tgo: Belted Range Group, Older sedimentary rocks, undivided	mostly soft, coarse grained sedimentary rocks of widely scattered units of differently poorly constrained ages	BLM	126.2	213.1

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	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	BLM	4.1	0.0
U	Tmr: Rainier Mesa Tuff, Timber Mountain Group	generally resistant, pink, brown, light-red, and light-gray, nonwelded to densely welded, generally crystal-rich, metaluminous ash-flow tuff derived from the Rainier Mesa caldera	BLM	1.1	120.0
U	Tmrf: Rhyolite of Fluorspar Canyon, Timber Mountain Group	Mostly soft, light-gray, pink, and white, nonwelded rhyolite ash-flow, airfall, surge, and waterlaid tuff and subordinate, locally resistant, gray, petrographically identical rhyolite lava flow	BLM	0.0	232.2
U	Tpc: Paintbrush Group, Tiva Canyon Tuff	Voluminous, resistant, gray to reddish-brown, moderately crystal-rich, locally lithophysal, nonwelded to densely welded ash-flow tuff	BLM	134.1	54.7
U	Tpu: Post-Tiva Canyon rhyolites	rhyolite lavas and related nonwelded tuff	BLM	0.0	3.9
U	Tpy: Young tuffs of the Pancake Caldera Complex	moderately resistant, gray, pink, brown, and light-orange almost aphyric, locally lithophysal, nonwelded to densely welded high silica rhyolite ash-fall tuff	BLM	42.0	0.0
<b>PFYC U Total</b>	-	-	-	<b>1,641.9</b>	<b>1,726.4</b>
<b>TOTAL</b>	-	-	-	<b>1,698.3</b>	<b>1,767.1</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; PVT – private

**Table 3-62. Comparison of the Potential Fossil Yield Classifications Crossed by Scotty’s Junction Transmission Alternative A**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
2	Qal: Desert wash	Colluvium, alluvium, playa deposits	BLM	407.6	733.6
2	Qal: Desert wash	Colluvium, alluvium, playa deposits	DOD	1.2	0.0
2	Qal: Desert wash	Colluvium, alluvium, playa deposits	PVT	181.1	36.9
2	Qay: Young Alluvial deposits	Gravel, sand, silt, intermixed and interbedded	BLM	0.0	0.0
2	Qay: Young Alluvial deposits	Gravel, sand, silt, intermixed and interbedded	PVT	13.8	3.6
<b>PFYC 2 Total</b>	-	-	-	<b>603.7</b>	<b>774.1</b>
U	Qay: Tuff of Tolicha Peak	Calc-alkaline, very crystal poor, welded rhyolite ash-flow tuff	BLM	479.7	409.8
U	Qay: Tuff of Tolicha Peak	Calc-alkaline, very crystal poor, welded rhyolite ash-flow tuff	PVT	12.4	0.0

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	Tfa: Andesitic Lavas	Andesitic to basaltic lava flows and local interflow tuffaceous sed. rocks	BLM	5.2	0.0
<b>PFYC U Total</b>	-	-	-	<b>497.3</b>	<b>409.8</b>
<b>TOTAL</b>	-	-	-	<b>1,101.0</b>	<b>1,183.9</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; DOD – Department of Defense; PVT – private

**Table 3-63. Comparison of the Potential Fossil Yield Classifications Crossed by Scotty’s Junction Transmission Alternative B**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
2	Qal: Desert wash	Colluvium, alluvium, playa deposits	BIA	0.0	111.8
2	Qal: Desert wash	Colluvium, alluvium, playa deposits	BLM	407.6	295.1
2	Qal: Desert wash	Colluvium, alluvium, playa deposits	DOD	1.2	0.0
2	Qal: Desert wash	Colluvium, alluvium, playa deposits	PVT	181.1	205.7
2	Qay: Young Alluvial deposits	Gravel, sand, silt, intermixed and interbedded	BLM	0.0	6.0
2	Qay: Young Alluvial deposits	Gravel, sand, silt, intermixed and interbedded	PVT	13.8	0.0
<b>PFYC 2 Total</b>	-	-	-	<b>603.7</b>	<b>618.6</b>
U	Qa: alluvium	Holocene- to Pleistocene-aged alluvium	BLM	479.7	463.8
U	Qa: alluvium	Holocene- to Pleistocene-aged alluvium	PVT	12.4	0.0
U	Tfa: Andesitic Lavas	Andesitic to basaltic lava flows and local interflow tuffaceous sed. rocks	BLM	5.2	0.0
<b>PFYC U Total</b>	-	-	-	<b>497.3</b>	<b>463.8</b>
<b>TOTAL</b>	-	-	-	<b>1,101.0</b>	<b>1,082.4</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BIA – Bureau of Indian Affairs; BLM – Bureau of Land Management; DOD – Department of Defense; PVT – private

**Table 3-64. Comparison of the Potential Fossil Yield Classifications Crossed by Mason Valley WMA Transmission Alternative A**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	JTRv: Metavolcanic Rocks	Andesite breccias, tuffs, and flows; and rhyolite, with interbedded volcanic-derived sedimentary rocks	BLM	0.0	250.4
U	JTRv: Metavolcanic Rocks	Andesite breccias, tuffs, and flows; and rhyolite, with interbedded volcanic-derived sedimentary rocks	PVT	0.0	5.1
U	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	BLM	84.7	51.1

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	PVT	2.05	0.0
U	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	BLM	4.55	219.1
U	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	PVT	267.9	169.9
U	Qp: Playa, floodplain	Fine sand, silt, and clay of river flood plains, and playa clay and sand	NV	0.0	0.0
<b>TOTAL</b>	-	-	-	<b>359.6</b>	<b>695.6</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; PVT – private; NV – State of Nevada

**Table 3-65. Comparison of the Potential Fossil Yield Classifications Crossed by Carson River Transmission Alternative A**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
1	QTb: Basalt and Rhyolite	Olivine basalt, basalt, basaltic andesite and pyroxene andesite flows	BLM	105.5	517.7
1	QTb: Basalt and Rhyolite	Olivine basalt, basalt, basaltic andesite and pyroxene andesite flows	PVT	73.5	37.5
1	Ta: Andesitic Rocks	Flow breccias, lava flows, and agglomerates with interbedded sediments	BLM	0.0	80.6
1	Ta: Andesitic Rocks	Flow breccias, lava flows, and agglomerates with interbedded sediments	PVT	0.0	73.3
<b>PFYC 1 Total</b>	-	-	-	<b>179.1</b>	<b>709.7</b>
2	Ts: Sedimentary Rocks	Lacustrine and fluvial sediments, sandstone, mudstone, shale, marl	BLM	452.3	432.7
2	Ts: Sedimentary Rocks	Lacustrine and fluvial sediments, sandstone, mudstone, shale, marl	PVT	13.2	0.0
<b>PFYC 2 Total</b>	-	-	-	<b>465.6</b>	<b>432.7</b>
U	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	BLM	79.3	26.4
U	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	PVT	17.3	216.5
U	Qp: Playa, floodplain	fine sand, silt, and clay of river flood plains, and playa clay and sand	BLM	102.8	120.6



PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	Qp: Playa, floodplain	fine sand, silt, and clay of river flood plains, and playa clay and sand	PVT	29.0	40.9
<b>PFYC U Total</b>	-	-	-	<b>228.3</b>	<b>404.5</b>
<b>TOTAL</b>	-	-	-	<b>872.8</b>	<b>1,546.3</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; PVT – private

**Table 3-66. Comparison of the Potential Fossil Yield Classifications Crossed by Carson River Transmission Alternative C**

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
1	JTRs: Metasedimentary rocks	shale, slate, tuffaceous siltstone, sandstone and greywacke	BLM	113.6	0.0
1	JTRs: Metasedimentary rocks	shale, slate, tuffaceous siltstone, sandstone and greywacke	PVT	3.6	0.0
1	Kg: Granitic Rocks	undivided nonporphyritic quartz monzonite and granodiorite and hybrid mafic rocks	BLM	44.2	127.1
1	Kg: Granitic Rocks	undivided nonporphyritic quartz monzonite and granodiorite and hybrid mafic rocks	PVT	93.2	31.6
1	QTb: Basalt and Rhyolite	Olivine basalt, basalt, basaltic andesite and pyroxene andesite flows	BLM	838.4	1,000.9
1	QTb: Basalt and Rhyolite	Olivine basalt, basalt, basaltic andesite and pyroxene andesite flows	PVT	224.8	117.0
1	Ta: Andesitic Rocks	flow breccias, lava flows, and agglomerates with interbedded sediments	BLM	813.3	1,252.8
1	Ta: Andesitic Rocks	flow breccias, lava flows, and agglomerates with interbedded sediments	PVT	357.0	224.6
<b>PFYC 1 Total</b>	-	-	-	<b>2,488.2</b>	<b>2,754.0</b>
2	Ts: Sedimentary Rocks	Lacustrine and fluvial sediments, sandstone, mudstone, shale, marl	BLM	1,390.8	1,134.51
2	Ts: Sedimentary Rocks	Lacustrine and fluvial sediments, sandstone, mudstone, shale, marl	PVT	13.2	0.0
<b>PFYC 2 Total</b>	-	-	-	<b>1,390.8</b>	<b>1,134.5</b>
U	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	BLM	330.5	1,107.6
U	Qal: Alluvium	Mainly alluvial fan gravel, stream-laid gravel, sand and silt, some talus material	PVT	535.3	205.9

PFYC Class	Geologic Unit	Geologic Description	Administrative Agency	Proposed Action (acres)	Alternative Route (acres)
U	Qp: Playa, floodplain	fine sand, silt, and clay of river flood plains, and playa clay and sand	BLM	517.8	99.7
U	Qp: Playa, floodplain	fine sand, silt, and clay of river flood plains, and playa clay and sand	PVT	1,040.9	620.7
U	QToa: Older Alluvium	predominantly fanglomerate and pediment gravel	BLM	63.9	0.0
U	QToa: Older Alluvium	predominantly fanglomerate and pediment gravel	PVT	49.7	0.0
U	Th: Hartford Hill Rhyolite	predominantly ash-flow tuff, variably welded	BLM	19.8	358.4
U	Th: Hartford Hill Rhyolite	predominantly ash-flow tuff, variably welded	PVT	3.8	0.0
<b>PFYC U Total</b>	-	-	-	<b>2,561.7</b>	<b>2,392.3</b>
<b>TOTAL</b>	-	-	-	<b>6,440.8</b>	<b>6,280.8</b>

Table Acronyms: PFYC – Potential Fossil Yield Classification; BLM – Bureau of Land Management; PVT – private

### 3.8.4.3 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, AS-2 (Proposed Action), ES-1, ES-2 (Proposed Action), ES-3, AM-1, and AM-2 (Proposed Action) when compared to each other respectively within their groups. The impacts from AS-1, AS-2 (Proposed Action), ES-1, ES-2 (Proposed Action), ES-3, AM-1, and AM-2 (Proposed Action) would be the same.

### 3.9 Earth Resources

This section describes the existing condition and considers impacts related to geology including geological hazards, soils, and mineral resources associated with GLWP. Impacts from geological hazards include ground rupture from Quaternary faults, destabilization of the land surface by fissures, and flooding. Impacts to soil resources are discussed in terms of acreage impacted disturbance percentage. Impacts to mineral resources associated with the GLWP area includes the restriction of access to locatable, leasable, and salable mineral resources.

#### 3.9.1 Issues Identified for Analysis

- How would construction, O&M, and decommissioning of the GLWP affect the earth resources of geology, soils, and minerals?

### **3.9.2 Analysis Area and Methodology**

#### **Analysis Area**

The analysis area for geology and mineral resources (geology/mineral analysis area) is a five-mile radius on either side of the transmission centerline for all Action Alternatives (approximately 4,306 square miles). The soils analysis area is the temporary ROW area (47,146.4 acres).

#### **Methodology**

Information for geological hazards and mineral resources was obtained from scientific literature including publications, maps, GIS data from the BLM, USGS, and Nevada Bureau of Mines and Geology. Soil survey data was derived from the Natural Resources Conservation Service (NRCS), a division of the United States Department of Agriculture (USDA). Methods for assessing impacts from geological hazards include identifying the types of impacts and areas with the likelihood of a geological hazard occurring in the future. The approach used to assess impacts on mineral resources resulting from the GLWP include identifying where the construction and operation of the GLWP could limit development and extraction of mineral resources or where the proposed facilities might interfere with mining activities. The methods for assessing impacts on soil resources from the GLWP include identifying areas that would accelerate erosion and where there would be conversion of designated prime or unique farmland soils to nonagricultural uses. Any GLWP-related impacts to biological soil crusts would be considered where there would be direct impacts of surface-disturbing activities (e.g., blading of new access roads) and the indirect impacts of increased public recreational use (e.g., new access of areas by Off-Highway Vehicles [OHVs]). It should be noted that NRCS attribute data coverage did not encompass the entire soils analysis area and the analyses presented here are based on existing data within the NRCS databases. No alternate sources of soils data outside the NRCS databases were identified.

### **3.9.3 Affected Environment**

#### **Geology**

The geology/mineral analysis area is located within the Great Basin section of the Basin and Range Province characterized by northwest-trending block-faulted mountain ranges separated by deep alluvium-filled basins or valleys. In the basins, the geology/mineral resources analysis area contains primarily unconsolidated deposits of alluvium, alluvial fan, lake beds, undifferentiated alluvium, and occasional outcrops of dolomite, limestone, and shale Cambrian rocks (Planert and Williams 1995). In low-relief valleys such as the Amargosa and Clayton valleys, elevations range from approximately 2,600 feet in the Amargosa Valley to 4,300 feet at Clayton Valley. Mountain ranges include the Wassuk and Gillis ranges and the Spring and Pine Nut mountains, where some of the highest peaks adjacent to the geology/mineral analysis area include Mount Grant at 11,286 feet and Charleston Peak at 11,919 feet (USGS 2022a).

Sand dunes, volcanic cinder cones, and playas are also features in the Great Basin, most notably are the Big and Lava Dunes in the Amargosa Valley. Sand dunes form where winds are consistently strong enough, typically greater than 14 mph, to lift fine sand grains just above the ground and push the grains across the dune surface. Sandy alluvium in dry washes and alluvial fans, such as those in the Amargosa Valley, are examples of sources for these materials. Strong winds generally transport the sands to areas with topographic irregularity, such as at the mountain front, where decreasing winds deposit sand (Harden 2004). Sand dunes typically have an active layer of mobile sand and exist in a state of dynamic equilibrium as they continuously lose sand downwind and gain sand upwind (BLM 2015). Sand dunes are found in the Amargosa Valley; the most notable are Big Dune (also known as Amargosa Dunes) and Lava

Dune. Big Dune is a complex of shifting dunes on a southward draining alluvial fan within the Amargosa Desert. It is located approximately 9.3 miles west of the town of Amargosa Valley and approximately 1.9 miles of US 95. Big Dune is approximately 753 acres in size and can reach elevations upwards to 2,740 feet. Wind directions in this area vary seasonally, however, the source of the sand is primarily Precambrian rocks that lie 1.2 to 6.2 miles to the southwest (Castor et al. 2006; USFWS 2012). Lava Dune is approximately 420 acres and located about 4.5 miles east of Big Dune on the north side of US 95. Lava Dune is on the east side of the Lathrop Wells Cinder Cone and was formed from sand trapped at the base of the old volcanic cinder cone and lava flow. The dune is a mixture of sand and lava rock and is approximately 2,800 feet in height (USFWS 2012; WildEarth Guardians 2010). Big Dune and Lava Dune provide important habitat for two BLM-sensitive beetle species, large aegialian scarab and Giuliani's dune scarab.

According to the Nevada Bureau of Mines and Geology (NBMG), geologic hazards consist of seismic hazards, landslides, subsidence, flooding, and radon gas. The majority of the geology/mineral analysis area is located within the Walker Lane Belt, a 625-mile long northwest-trending seismic region along the Nevada-California border with hundreds of earthquake faults that eases the strain from movement between the Pacific and North American plates (Wolterbeek 2020). Nevada's Basin and Range topography is dominated by faults. Seismic hazards occur as the result of energy released when there is movement on faults in the earth's crust, resulting in earthquakes. Seismicity is the probability of a certain degree of ground-shaking (or ground motion) and the probability that an area will be affected by an earthquake. Nevada is the third most seismically active state in the US. Quaternary faults are the most recent faults and are considered still active; therefore, they are more likely in the future to have ground rupture, displacement, and/or earthquakes along their length than faults of pre-Quaternary age (Price 2003). There are 13 quaternary faults within the geology/mineral analysis area including Ash Meadows, Paymaster Ridge, Benton Spring, Stonewall Flat, and Montezuma Range faults NBMG (2020).

The seismic hazard data indicates ground movement within the area that could be triggered by a maximum credible earthquake has the potential for very strong to severe ground-shaking. This equates to an earthquake magnitude of potentially 6.0-6.99 as measured on a seismograph and very strong to severe intensity on the Maximum Modified Mercalli Intensity scale to occur in the Walker Lane Belt area of Nevada (NBMG 2020; USGS 2010, 2011).

Landslide is a term used for various processes involving the movement of earth material down slopes. The degree of landslide hazard is defined on the basis of landslide incidence and degree of landslide susceptibility as determined by the USGS (Radbruch-Hall et al. 1982). While the USGS landslide risk database indicates that the relative risk for landslides in the GLWP area is low, there may be potential locally for slope movement in areas of steep topography, depending on site-specific conditions. Similarly, historical floods in the GLWP area have occurred along the Carson and Walker rivers. Any substantial flooding hazards would be primarily limited to these two river systems (NBMG 2020).

Subsidence is a decrease of surface elevation of the ground and may be caused by a variety of phenomena including, but not limited to, dissolution of subsurface strata, compaction, removal of groundwater, and earthquake ground motion. Other causes of subsidence are underground mining and groundwater withdrawal. Subsidence due to groundwater withdrawal has long been recognized in the Las Vegas Valley (Bell et al. 2002). Since 1935, total subsidence in the Las Vegas Valley has been approximately five feet. The development of ground fissures has accompanied the subsidence. Except for the Las Vegas Valley, subsidence data has not been mapped for the remainder of the GLWP area by the USGS (NBMG 2020).

Radon is a naturally occurring radioactive gas that has no odor, color, or taste. It is produced by the breakdown of uranium in soil, rock, and water. As it decays into radon gas, it moves through the soil into the atmosphere and is harmlessly dispersed in outdoor air. The radon hazard risk percentage potential is associated with certain rock types, including granite and shale, that commonly have higher than average uranium content exposed at the ground surface and are associated with elevated radon concentrations. Site-specific testing is the only way to determine local radon concentrations.

### **Soil Resources**

Broad valleys, old lakebeds, and isolated mountain ranges occur throughout the soils analysis area, which is the 47,146.4 acres of the temporary ROW area. The valleys consist mostly of alluvial fill, but playa deposits occur at the lowest elevations in the closed basins. The alluvial valley fill consists of cobbles, gravel, and coarse sand near the mountains at the highest points of the alluvial fans with sands, silts, and clays on the distal ends of the fans. Playas are at the lowest elevations in the closed basins. Water from shallow subsurface flow and from surface flows that periodically fill the playa basins evaporates, leaving accumulations of evaporite minerals, including salts and borates. Saline and sodic soils are common.

Soil susceptibilities to water and wind erosion were assessed based on NRCS standards assigned to Soil Survey Geographic Database-level soil map units. Water erosion factor “K” represents both susceptibility of soil to erosion and the rate of runoff ranging on a scale of 0.0 to 0.64, with increasing values corresponding to greater susceptibilities to water erosion. Coarse-textured soils, such as sandy soils, have low K values of about 0.05 to 0.2 due to low runoff even though these soils are easily detached. Medium-textured soils, such as the silt loam soils, have a moderate K value of about 0.25 to 0.4 because they are moderately susceptible to detachment and produce moderate runoff. Soils having a high silt content are most erodible of all soils. They are easily detached, tend to crust, and produce high rates of runoff. These soils tend to have K values greater than 0.4 (USDA 1999).

Wind Erodibility Groups (WEGs) are a set of classes given integer designations from one through eight, based on the properties of the soil surface considered to affect susceptibility to wind erosion. Wind erosion ratings of one or two are highly susceptible to wind erosion, ratings of three and four are considered moderately susceptible to wind erosion and those with ratings between four and seven are considered to have a low susceptibility to wind erosion. Soil units assigned to a WEG of 8 are not susceptible to wind erosion (USDA 1999).

The dominant soil orders are Entisols (poorly developed soils with little to no structure) and Aridisols (arid environment soils), which together make up approximately 75 percent of the soils within the soils analysis area. Entisols and Aridisols soils have low organic matter with less than one percent of organic matter present within the top six inches of soil (Appendix J). They can lose approximately 4.07 and 2.92 tons of soil per acre per year, respectively, before their long-term productivity would be reduced. These two soils also have a relatively low average wind erosion group rating and have low water erosion risk factors. Inceptisols, Mollisols, and Alfisols soils makeup less than five percent within the soils analysis area, and the remaining approximately 20 percent are not classified (NRCS 2020).

Sensitive soils within the soils analysis area include wetlands soils, biological soil crusts, and prime and unique farmland soils. Wetland soils are limited to areas along the Carson and Walker rivers. Biological soil crusts (biocrusts), also referred to as cryptogamic soils, occur on undisturbed soils in arid or semi-arid regions. Biocrusts have not been documented within the GLWP area, but they may be present. Research shows that there are three soil types with the greatest potential to support biocrusts, gypsiferous soils, noncalcareous sandy soils, and limestone-derived soils (Bowker and Belnap 2008). Gypsiferous and

limestone-derived soils are found in Clark County and noncalcareous sandy soil are found in Nye County (NRCS 2006, 2015). Biocrusts are susceptible to impacts related to surface-disturbing activities, including grazing and OHV use.

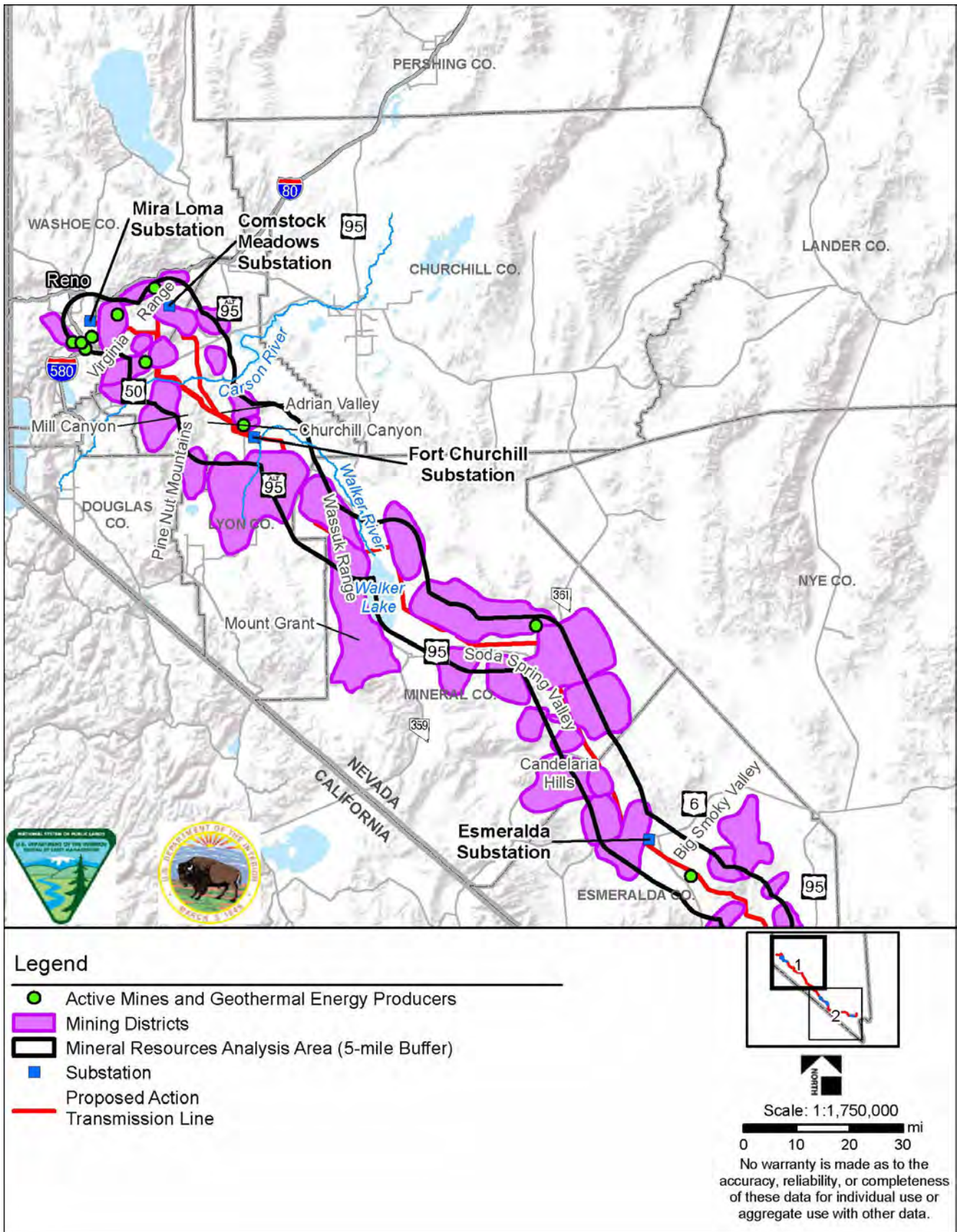
The Farmland Protection Policy Act seeks to minimize federal programs that contribute to unnecessary and irreversible conversion of farmland to non-agricultural use. It states that land will be administered in a manner, as practicable, compatible with state government, local government, and private programs and policies to protect farmland. The NRCS classifies acreage as prime farmland based on that land with the best combination of physical and chemical characteristics for producing agricultural crops with minimum inputs of fuel, fertilizer, pesticides, labor, and without intolerable soil erosion. These soils have the capability to be prime farmland but may have not yet been developed for irrigated agriculture uses. Impacts to prime farmland soils are of particular concern due to their importance to the country's agricultural output. The NRCS also identifies farmland of statewide importance. These lands include farmland that is nearly prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods.

### **Mineral Resources**

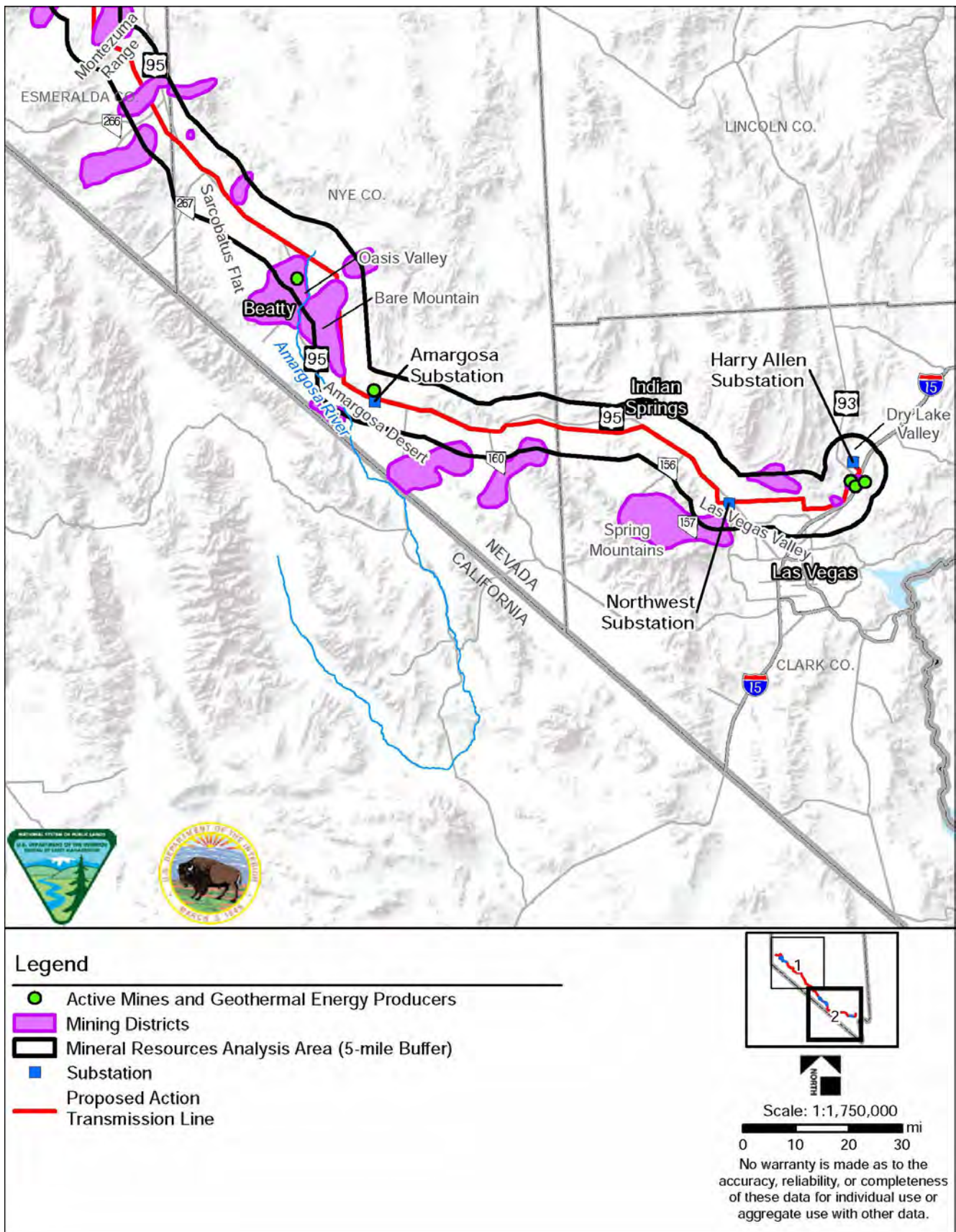
Mineral resources within the geology/mineral analysis area includes precious metals (gold, silver, lead, and copper); industrial or non-metallic deposits (cinder, bentonite, pumice, diatomite, lithium, and gypsum); and geothermal. While six historic oil/gas wells were drilled and subsequently plugged and abandoned within the geology/mineral analysis area (Nevada Division of Minerals (NDOM) 2022), there are no identified hydrocarbons (oil and natural gas) within the geology/mineral analysis area. Mineral resources include locatable, leasable, and salable resources. Locatable minerals include a broad category of economically important minerals, such as precious metals and industrial minerals. Certain gemstones may also be considered locatable minerals. Leasable resources include geothermal leases; there are four authorized geothermal leases crossed by the Action Alternatives (NVN-94092, 095883, 97286, and 100032) (NDOM 2023). Non-energy-related solid leasable resources also include sodium, potassium, phosphate, and sulfur. Salable mineral resources are typically used for construction and industrial purposes such as pumice, and cinder. Locatable and salable mineral resources can be exposed at the surface, lie just below the surface, or be several hundred feet below the surface.

A high density of active mines, abandoned mines, and mining operations exist throughout the mineral analysis area. The density of mines and mining operations is primarily due to the Walker Lane Belt. As noted in the description of the geology within the geology/mineral analysis area, the Walker Lane Belt is an active seismic geologic trough; it also contains a wide range of mineral deposits including precious metals. There are 15 known active mines and geothermal energy facilities within the geology/mineral analysis area including metal (gold) and industrial mineral (sulfur, cinder, and alum) mines (refer to Figure 3-23 and Figure 3-24). Abandoned mine lands and non-abandoned mine lands and abandoned mine and mill sites include for example the Minnesota Mine and Buckskin Millsite near Yerington, Wolff Millsite and Huson Mill near Scotty's Junction; and Desert Lab near Beatty.

According to the NBMG, there are 50 mining districts containing metals, precious metals, and minerals present in the geology/mineral analysis area (refer to Figure 3-23 and Figure 3-24). The 50 districts encompass approximately 1.7 million acres, approximately 777,964 acres are within the geology/mineral



**Figure 3-23. Mining Districts and Active Mines and Geothermal Energy Producers (1 of 2)**



**Figure 3-24. Mining Districts and Active Mines and Geothermal Energy Producers (2 of 2)**



analysis area. It should be noted that mining districts are not mines; they are large areas within which mining occurs and within which specific mines are located. The majority of the districts contain metallic minerals and rocks such as the Mount Grant District, which encompasses the Wassuk Range and has silver and gold. The relatively few non-metallic districts mineral deposits contain borates and turquoise. There

### **3.9.4 Environmental Consequences**

#### **3.9.4.1 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 earth resources attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.9.4.2 Direct and Indirect Impacts Common to All Action Alternatives**

##### **Geology/Geological Hazards**

###### **Construction and Decommissioning**

Construction-related direct impacts to geological hazards would include the potential for grading and excavation to undercut slopes and cause instability. The EMMs (Appendix C – EMM GEO\_SOIL-12) would limit creating excessive slopes during excavation and require site-specific specialized construction techniques in steep areas. In the event of an earthquake, construction workers could be exposed to hazards from seismic ground shaking or ground failure. Construction of the GLWP would not increase the risks of seismic hazard exposure over typical seismic hazard risks throughout the region. Earthquake safety training pursuant to Occupational Safety and Health Administration (OSHA) regulations would minimize the potential for effects to workers. With the construction of substations, radon gas can enter buildings through the foundation and become trapped inside, presenting risks to workers. The majority of the geology/mineral resources analysis area has a less than 20 percent radon hazard risk potential with some higher-potential areas near Mason Valley/Yerington (48 percent), the Virginia Range (29 percent), Beatty (25 percent), and the Wassuk Range (43 percent) (NBMG 2020).

###### **Operations and Maintenance**

The O&M of the GLWP on BLM-administered lands along US 95 in Amargosa Valley may impact the two notable sand dunes in the geology/mineral analysis area. Sand transport occurs when wind speeds exceed approximately 14 miles per hour. Objects as low as 12 inches above the ground surface can interfere with sand transport, creating a “sand shadow” and affect the size of downwind dunes (Philip Williams & Associates (PWA) 2011). Steel guyed-V lattice structures are proposed to be used in the Amargosa Valley area. Because of their open design, the lattice structures would allow winds to essentially blow through the structure, minimizing the impact on sand transport (as compared to solid structures). The lattice structures and access roads would be located along the south side of US 95, which would be approximately 2.6 miles north of Big Dune. Based on the past five years of data from the Department of Energy’s National Nuclear Security Administration’s Community Environmental Monitoring Program (CEMP) Amargosa Valley weather station, the wind direction varies but predominately comes from the northwest. The strongest winds, those over 14 mph, consistently come from the south-southeast (DOE 2022). The source of the Big Dune’s sand is noted to be rocks approximately one to five miles to the southwest of the dune (Castor et al. 2006). The GLWP components would be located north-northeast of the Big Dune and would have no impact to the sand deposition for the Big Dune.

The specific source of Lava Dune's sand is not known. It is assumed that the sand source is the alluvial fan associated with the Amargosa Valley, which consists of undivided surficial deposits consisting of alluvium, colluvium, playa, terrace, and eolian sand (Castor et al. 2006). Lava Dune is located on the north side of US 95 and the GLWP components could potentially interfere with sand transport because the strongest wind direction is from the south-southeast (DOE 2022). The portions of the structure foundations that extend above ground level would intermittently interrupt sand transport on the upwind side. Access roads, as required, would be at-grade and only minimally impact sand transport. These intermittent disruptions of the flow of sand across short distances of the landscape's surface would have a very localized impact on sand transport in the immediate area of the access roads and structure foundations in the long term. As noted, the lattice structures would allow winds to essentially blow through the structure, minimizing the impact on sand transport for the Lava Dune. In addition, the individual foundations of the lattice structures would be approximately 1,520 feet apart. Impacts from the Amargosa Substation alternatives on the sand transport is discussed in Section 3.9.4.9.

During O&M of the proposed facilities, direct impacts from seismicity would include ground movement that could cause damage to facilities. Through implementation of EMMs (Appendix C – EMMs EXC\_BLAZT\_GRADE-1 and DECOM-4), the risk of damage from seismicity, landslides or subsidence would be substantially reduced. No direct effects resulting in destabilization of unstable geologic units would occur during O&M. If an earthquake were to occur, workers on the various GLWP ancillary project component sites conducting O&M activities could be exposed to seismic shaking. Pursuant to OSHA regulations, earthquake safety training would minimize the potential for effects on workers. Seismic hazards would not result in a substantial direct effect on the Action Alternatives or workers during O&M.

With the implementation of appropriate EMMs (Appendix C – EMMs GEO\_SOIL-1 to GEO\_SOIL-12 and HYDRO\_WQ-1 to HYDRO\_WQ-23), the risk of flood damage to GLWP infrastructure and the risk of GLWP-caused flood damage from impacted flood flows to other properties would be slight. The known risk to or from subsidence to project infrastructure would also be negligible for the GLWP with implementation of appropriate EMMs.

## **Soils**

### **Construction and Decommissioning**

Impacts on soil resources would occur mainly as a result of ground-disturbing activities, such as grading and excavating. The GLWP can result in changes to soil quality, changes to certain properties (e.g., organic matter), and susceptibility to erosion. Soil quality refers to a soil's capacity to function and sustain productivity and the ability to filter, buffer, degrade, immobilize, and detoxify (BLM 2007). Impacts to soil resources due to construction and decommissioning activities include the loss of soil productivity due to removal of soils during ground disturbance. Vegetation clearing, topsoil clearing, and grading could result in newly exposed disturbed soils that could be subject to accelerated erosion by wind and water. Any soil removal associated with development of structure foundations and at substation sites would be permanent. Other physical impacts to soil resources would include equipment compacting and crushing topsoil during salvaging and stockpiling. Potential physical effects of soil compaction may include reduced permeability and porosity and increased erosion potential. Existing unpaved access roads that are not currently maintained are more susceptible to erosion by wind and water. Any improvements to these roads by the GLWP would be a benefit to the soil resources associated with unpaved access roads.

Areas located on steep slopes are inherently susceptible to erosion. The majority of reclaimed areas associated with the GLWP would incorporate a generally flat to gently sloped surface. Soil erosion in areas

of ground disturbance would also have a greater potential until the soil is stabilized by successful revegetation. Disturbing fine-textured soils during construction and reclamation activities would result in windblow dust. Disturbed soils that are not successfully reclaimed or stabilized are likely to lose productivity and the ability to sustain vegetation over the long term, which would reduce watershed health and contribute to sedimentation in surface water or degradation of local air quality. It is not possible to quantify or locate all the areas where this may occur. Losses in soil productivity due to wind erosion are most likely to occur on soils that are saline or alkaline, fine-textured, and formed in some lake sediments.

In accordance with the Construction Stormwater General Permit NVR100000, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented during construction. Site-specific measures to minimize erosion, including installation and routine maintenance of sediment controls, would be implemented throughout construction. Effects from soil erosion caused by construction would be minimized.

Soil contamination could result from material or fuel spills during construction and decommissioning activities. If spills occur, contamination could result in the removal and disposal of large amounts of soil. Saturated soils have the potential to disperse contaminants to groundwater or surface water. The application of EMMs (Appendix C – EMMs DECOM-12, HAZMAT\_WASTE-1 to HAZMAT\_WASTE-7, POD-14) would help reduce the risk of an accidental spill or release of hazardous materials. The EMMs may not fully prevent soil contamination, but they would reduce the potential and help meet state and federal requirements.

The GLWP-related impacts to biological soil crusts are associated with surface-disturbing activities (e.g., constructing new access roads, excavation and compaction of structure foundations and substations) and increased public recreational use (e.g., OHV access on newly available routes). Based on the rarity of ideal biocrust supporting soil types within the soils analysis area, it is unlikely that GLWP would encounter these sensitive soil resources. If biocrust soils were identified during GLWP-related activities, measures would be implemented to avoid or limit impacts, including restricting access to mapped and designated roadways, and spanning and avoiding sensitive areas (refer to Appendix C –EMMs CON-17 and GEO\_SOIL-12).

### **Operations and Maintenance**

During the O&M phase of GLWP, there would be impacts associated with the operation of the facilities, removal of incompatible vegetation under the transmission and distribution lines, and other associated maintenance activities. Impacts would also occur where new access roads would be open to the public to access previously inaccessible areas, potentially resulting in accelerated rates of erosion and soil compaction created by motorists traveling on unpaved roads. Following construction and implementation of the Reclamation Plan in the Final POD, the continued removal and treatment of incompatible vegetation within the transmission and distribution ROWs would be conducted to encourage compatible, low-growing vegetation to establish, consistent with Integrated Vegetation Management Practices (ANSI 2021; Miller 2021). Establishing low-growing compatible vegetation increases soil stabilization and herbicide use would reduce the frequency between vegetation maintenance cycles, resulting in less ground disturbance than with manual and mechanical methods alone.

## **Mineral Resources**

### **Construction and Decommissioning**

A direct impact to mineral resources would occur if construction activities were to prevent access to mineral resources. The construction of the GLWP is not expected to preclude or restrict access to mineral resources. Continued operation of existing mines outside of the temporary ROW area would not be hindered by construction activities. During construction, any salable mineral materials would likely be balanced on the GLWP site (i.e., any saleable minerals extracted from within the ROW would be used within the ROW for construction). If any excess salable mineral materials were generated during construction, the materials would be disposed of and exported from the GLWP site through a BLM Contract for the Sale of Mineral Materials or Free Use Permit or stockpiled within the ROW or another mineral mining site for future disposal by the BLM. If the material is to be removed from the site, the Proponent would provide an estimate of the amount of mineral material to be exported based on grading plans. The quantity of excess salable mineral materials and soil resources that could be removed from the GLWP site during construction would not be substantial compared to the overall quantity that would remain and be available following decommissioning.

Impacts from the GLWP decommissioning to mineral resources are similar to construction impacts, but to a lesser degree. Decommissioning would not be expected to result in mineral resources of economic value being lost or made inaccessible for future uses. Once decommissioning is completed and the ROW is terminated, the surface would be available for surface extraction of mineral resources again.

### **Operations and Maintenance**

Activities associated with O&M would not affect the operation of existing mines outside of the permanent ROW area. The linear nature of the GLWP would result in minimal access restrictions to mineral resources. It is possible that mineral resources may exist directly underneath the permanent ROW area and some types of resources would not be practically accessible for the life of the 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, and stone) which could be disturbed, removed, or rendered inaccessible by GLWP components. Currently there are no existing mine operations within the permanent ROW area. Of the 11 active mines within the mineral analysis areas, the closest Action Alternative would be more than 0.1 miles away from two of the open pit mines, one of the mines would be approximately 0.6 miles away, and more than a mile away from the other nine active mines.

### **3.9.4.3 Direct and Indirect Impacts from the Proposed Action**

#### **Geology/Geological Hazards**

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

The construction, O&M, and decommissioning-related risks related to geology and geological hazards created by the Proposed Action, except for the AS-2 (Proposed Action), would be the same to those discussed in the impacts common to all Action Alternatives described above. Refer to Section 3.9.4.9 for a discussion of the impacts on the two notable sand dunes from the substation alternatives, AS-1 and AS-2 (Proposed Action).

## Soils

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

The total acres of temporary and permanent ROW areas would be approximately 47,146.4 and 13,717.7 acres, respectively. However, because the entire ROW area would not be disturbed, the actual area of disturbance is estimated to be 18,651 acres of temporary disturbance and 5,606 acres of permanent disturbance, which reflects the anticipated ground disturbance associated with the Proposed Action transmission lines and ancillary project components. Approximately 40 percent of the temporary ROW area and 41 percent of the permanent ROW area would not be disturbed by the transmission line construction, access roads, temporary use areas, and the other ancillary facilities.

There would be long-term loss of soil productivity on acres not reclaimed during the life of the GLWP. Approximately 1,373.9 acres (3 percent) of soils within the temporary ROW area and 433.5 acres (three percent) within the permanent ROW area are considered to have water erosion K values of greater than 0.4 or high rates of runoff. Approximately 40,449.6 acres (86 percent) of soils within the temporary ROW area and 11,402.4 acres (83 percent) within the permanent ROW area are considered to have water erosion K values of less than 0.24 or low rates of runoff. The soil orders associated with the Proposed Action within the temporary and permanent ROW areas have wind erosion ratings on average ranging from 4.16 to 6.00 ratings, which indicate that the soils generally have a low susceptibility to wind erosion. Impacts to soil quality may be 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 because of reclamation efforts. Adherence to EMMs would minimize soil resources impacts (refer to Appendix C – EMMs GEO\_SOIL-1 to GEO\_SOIL-12).

Soil resources would be lost and removed from production where long-term facilities associated with the Proposed Action would be constructed on prime farmland. Approximately 347.1 acres of prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium would be removed from production by the Proposed Action for the duration of the ROWs. In addition, approximately 1,524.1 acres of farmland of statewide importance, if irrigated, would be removed by the Proposed Action for the duration of the ROWs. While the exact location of the overhead transmission and distribution line tower foundations are not known, localized long-term impacts to soils would also result from loss of surface lands and soil productivity and quality at the tower foundations (typically 100 feet by 100 feet per foundation). Within the temporary and permanent ROW areas, the prime farmland and farmland of statewide importance are not currently irrigated for agriculture use. The construction of the Proposed Action would not result in loss of existing irrigated farmland and would not cause impacts to prime farmland soils currently being irrigated for agriculture use.

## Mineral Resources

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

The construction, O&M, and decommissioning-related risks related to mineral resources created by the Proposed Action would be the same as those discussed in the impacts common to all Action Alternatives described above. The temporary ROW area for the Proposed Action would cross 28 mining districts on approximately 11,654.9 acres of land, which represents less than two percent of the mining districts within the geology/mineral analysis area. The Proposed Action's permanent ROW area would occupy approximately 2,959.6 acres within those 28 mining districts, which would be less than one percent of the districts within the geology/mineral analysis area.

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

With the implementation of EMMs as noted above, no additional measures to avoid and/or minimize impacts to earth resources from the Proposed Action in Appendix C Action are recommended.

#### **3.9.4.4 Direct and Indirect Impacts from the Losee and TUSK Transmission Line Route Groups.**

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

The construction, O&M, and decommissioning-related risks related to earth resources created by the Proposed Action would be similar to those discussed in the impacts common to all Action Alternatives described above. The amount of temporary and permanent ROW areas would be similar for the Losee Transmission Alternative A and the comparable segment of the Proposed Action and for the TUSK Transmission Alternative B and the comparable segment of the Proposed Action. Wind and water erosion factors (WEGs from six to eight and K factors from 0.05 to 0.17) are low for the Losee and TUSK transmission alternatives and the respective segments of the Proposed Action. 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 Losee Transmission Alternative A, TUSK Transmission Alternative B, or the Proposed Action. The Losee and TUSK transmission alternatives and associated portions of the Proposed Action would also not cross any mining districts.

#### **3.9.4.5 Direct and Indirect Impacts from Beatty Transmission Group**

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

The construction, O&M, and decommissioning-related risks related to earth resources created by the Proposed Action would be similar to those discussed in the impacts common to all Action Alternatives described above. The greatest amount of temporary ROW area would be created by Beatty Transmission Alternative G at approximately 2,007.0 acres compared to Beatty Transmission Alternative A, which would disturb approximately 1,669.8 acres or approximately 17 percent less disturbance. Beatty Transmission Alternatives C and K and the Proposed Action would be similar in the amount of temporary ROW area at 1,726 acres, 1,760.8 acres, 1,686.9 acres, respectively. The WEGs ratings range between five and six (low wind erosion susceptibility) for the soil associated with all of the Beatty transmission alternatives and the Proposed Action. The K factors range from 0.05 to 0.28, which are considered to have low water erosion and runoff except for less than one percent. One percent of the soil is in the moderate range for water erosion and runoff at 0.37 for all of the Beatty transmission alternatives and the Proposed Action. There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium soils that would be crossed by the Beatty transmission alternatives or the Proposed Action in this portion of the soils analysis area. Farmland of statewide importance, if irrigated soils, would be disturbed within the permanent ROW area by the Beatty transmission alternatives and the Proposed Action ranging from approximately 99.9 acres by the Proposed Action to approximately 29.8 acres by Beatty Transmission Alternative C.

The Beatty transmission alternatives and comparable segment of the Proposed Action would cross up to two mining districts, Bare Mountain and Bullfrog. The temporary and permanent ROW area would affect one percent or less of the respective mining districts. The temporary and permanent ROW for the Beatty Transmission Alternative G would disturb approximately 1,116.5 acres and 186.0 acres, respectively within the Bare Mountain and Bullfrog mining district. It is the only Beatty transmission alternative that would cross two mining districts. Beatty Transmission Alternatives A and C and the Proposed Action would result

in the same amount of temporary and permanent ROW area within the Bare Mountain Mining District of approximately 533.2 acres and 120.9 acres respectively. Beatty Transmission Alternative K would result in approximately 720.5 acres of temporary ROW area and approximately 119.9 acres of permanent ROW area in the Bare Mountain Mining District.

#### **3.9.4.6 Direct and Indirect Impacts from Scotty's Junction Transmission Group**

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

The construction, O&M, and decommissioning-related risks related to earth resources created by the Proposed Action would be similar to those discussed in the impacts common to all Action Alternatives described above. The amount of temporary and permanent ROW areas would be similar for the Scotty's Junction Transmission Alternatives A and B and the Proposed Action. There would be less than 10 percent difference between the three transmission alternatives ranging from approximately 1,084.2 to 1,104.8 acres of temporary ROW area and from approximately 360.0 to 393.7 acres of permanent ROW area.

Wind erosion susceptibility would be considered low for the Scotty's Junction transmission alternatives and the associated Proposed Action ranging from 5.0 to 5.9. This portion of the soil resources analysis area has a range of water erosion and runoff rates from low to high for each of the transmission Action Alternatives. 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 and approximately 63.4 acres in the permanent ROW) with K factors ranging from 0.43 to 0.49 than the other two transmission alternatives. Scotty's Junction Transmission Alternative B and the Proposed Action would predominately have soils within the 0.05 to 0.28 range or low water erosion and runoff rates.

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 Scotty's Junction Transmission Alternatives A and B as well as the Proposed Action in this portion of the soil resources analysis area. The Scotty's Junction transmission alternatives and the Proposed Action would not cross any mining districts.

#### **3.9.4.7 Direct and Indirect Impacts from Mason Valley WMA Transmission Group**

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

The construction, O&M, and decommissioning-related risks related to earth resources created by the Proposed Action would be similar to those discussed in the impacts common to all Action Alternatives described above. The Mason Valley WMA Transmission Alternative A and the Proposed Action would not cross any mining districts. The Mason Valley WMA Transmission Alternative A's temporary ROW area (approximately 695.6 acres) would be 48 percent greater than the Proposed Action area (approximately 359.3 acres). Similarly, the Proposed Actions' permanent ROW area would be approximately 118.4 acres compared to the Mason Valley WMA Transmission Alternative A's permanent ROW area of approximately 170.1 acres or 30 percent less.

Wind erosion susceptibility would be considered moderate for the Mason Valley WMA Transmission Alternative A with WEGs that would range from 3.0 to 3.79 for both temporary and permanent ROW areas. Approximately 23 percent (82.9 acres) of the Proposed Action's 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. However, the Proposed Action's permanent ROW area would have approximately 33 percent (39.4 acres) of soils considered to have low wind erosion. This portion of the soil

resources analysis area would have a range of water erosion and runoff rates from low to high for the temporary and permanent ROW areas for the Proposed Action and for the temporary ROW area for the Mason Valley WMA Transmission Alternative A. There would be low to moderate K factors for the soils in the permanent ROW area for the Mason Valley WMA Transmission Alternative A. The high water erosion and runoff rates would be less than 2 percent for these two Action Alternatives.

According to the 2020 Lyon County Master Plan for Mason Valley Land Use plan, portions of the Mason Valley WMA Transmission Alternative A (approximately 0.8 miles/19.4 acres) would cross over lands planned for agriculture. In addition, portions of the Proposed Action (3.4 miles/82.4 acres) along with a segment of the 345-kV Fort Churchill to Mira Loma transmission line (0.6 miles/11.6 acres) would cross over lands also planned for agriculture. These areas are not currently being farmed, and the Lyon County 2020 Plan does not prohibit transmission lines from being constructed within agriculture lands. The construction of these transmission route alternatives would result in no loss of existing irrigated farmland and no impact to prime farmland soils currently being irrigated for agriculture use. 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 this alternative's permanent ROW area. 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 alternative's permanent ROW area.

### **3.9.4.8 Direct and Indirect Impacts from Carson River Transmission Group**

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

The construction, O&M, and decommissioning-related risks related to earth resources created by the Proposed Action would be similar to those discussed in the direct and indirect impacts common to all Action Alternatives described above. The Carson River Transmission Alternative A's temporary ROW area (approximately 1,546.3 acres) would be 44 percent greater than the Proposed Action area (approximately 872.8 acres). Similarly, the Carson River Transmission Alternative A's permanent ROW area would be approximately 29 percent greater (348.6 acres) compared to associated portion of the Proposed Action's permanent ROW of approximately 246.0 acres.

Wind erosion susceptibility would be considered predominately low for the Carson River Transmission Alternative A with WEGs that would range from 4.2 to 6.67 for both temporary and permanent ROW areas. There would be approximately 203.6 acres and 36.6 acres of moderate soil wind susceptibility, however these areas would be less than 13 percent of the Carson River Transmission Alternative A ROW area. The associated Proposed Action's ROW areas would also be predominately low but would have approximately 64.5 acres (seven percent) and 10.6 acres (four percent) of high soil wind susceptibility for the temporary and permanent ROW areas, respectively.

Less than one percent of the Carson River Transmission Alternative A and Proposed Action's temporary ROW area, (approximately 3.3 acres and 2.9 acres respectively), would have soils that have a high susceptibility to water erosion and runoff. However, the Proposed Action's permanent ROW area would have no soils considered to K factor rate of over 0.4 and the Carson River Transmission Alternative A would only have approximately 1.1 acres of soils considered to have high soil erosion and runoff properties. Carson River Transmission Alternative A would have the greater amount of low susceptible soils for erosion and runoff (approximately 1,330.5 acres [86 percent] in the temporary ROW and approximately



278.2 acres [80 percent] in the permanent ROW) as the comparable section of the Proposed Action (approximately 479.7 acres [55 percent] in the temporary ROW and approximately 118.9 acres [48 percent] in the permanent ROW).

The Carson River Transmission Alternative A would remove approximately 42.2 acres of farmland of statewide importance and approximately 6.5 acres of prime farmland if irrigated and reclaimed of excess salts and sodium long-term in the permanent ROW area. The Proposed Action would remove less acres of farmland of statewide importance in the permanent ROW area (approximately 18.0 acres) and of prime farmland if irrigated and reclaimed of excess salts and sodium long-term (approximately 3.5 acres) than compared to the Carson River Transmission Alternative A.

The Carson River Transmission Alternative A and comparable segment of the Proposed Action would not cross any mining districts. The Mason Valley WMA Transmission Alternative A would have greater impacts to earth resources as compared to the Proposed Action primarily because the Carson River Transmission Alternative A's temporary ROW area would be 44 percent greater, and the permanent ROW area would be approximately 29 percent greater compared to the comparable segment of Proposed Action's temporary and permanent ROW acres.

The Carson River Transmission Alternative C's temporary ROW area (approximately 6,280.8 acres) would be two percent less than the comparable segment of the Proposed Action area (approximately 6,440.8 acres). However, the Carson River Transmission Alternative C's permanent ROW area would be approximately 10 percent greater (1,933.2 acres) compared to comparable segment of the Proposed Action's permanent ROW of approximately 1,740.0 acres.

The Carson River Transmission Alternative C would have approximately 5,176.7 acres (82 percent) of soils with K factors between 0.02 and 0.24 and less than one percent of soils with K factors over 0.4 in the permanent ROW. Similarly, the comparable segment of Proposed Action would predominately have soils within the same low range water erosion and runoff rates. The comparable portion of the Proposed Action would have approximately 4,504.6 acres (70 percent) in the temporary ROW and approximately 1,080.6 acres (62 percent) in the permanent ROW area that would have soils with low water erosion susceptibility (K factors between 0.02 and 0.24). The comparable segment of the Proposed Action would have less than one percent of the soil in the ROW areas with K factors over 0.4. or soils with high water erosion and runoff rates.

The Carson River Transmission Alternative C would remove in the permanent ROW area approximately 1.4 acres of prime farmland if irrigated, 6.8 acres of prime farmland if irrigated and drained, and 30.8 acres of prime farmland if reclaimed of excess salts and sodium in addition to 575.1 acres of farmland of statewide importance soils. In comparison, the Proposed Action would remove in the permanent ROW area approximately 0.6 acres of prime farmland if irrigated, 51.3 acres of prime farmland if irrigated and drained, and 88.7 acres of prime farmland if reclaimed of excess salts and sodium in addition to 340.4 acres of farmland of statewide importance soils.

The Carson River Transmission Alternative C would cross two mining districts, Como and Red Mountain, and the permanent ROW area would affect one percent or less of the respective mining districts. The permanent ROW for the Carson River Transmission Alternative C may disturb a total of approximately 36.8 acres and 53.2 acres, respectively within the Como and Red Mountain mining districts. The comparable portion of the Proposed Action's permanent ROW area would cross through only the Red Mountain Mining District for approximately 50.0 acres.

### 3.9.4.9 Direct and Indirect Impacts from Amargosa Substation Group

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

The construction, O&M, and decommissioning-related impacts to earth resources would be the same as those discussed in the impacts of the common to all Action Alternatives described above. The AS-1 site would be located approximately 5.2 miles west of the Lava Dune and approximately 2.7 miles northwest of Big Dune. The AS-1 site would not interfere with the sand transport to either dune formation since the strongest winds, over 14 mph, consistently come from the south-southeast (DOE 2022). This substation alternative would be located a substantial distance away from either dune.

AS-2 (Proposed Action) would be located approximately 3.1 miles east of Big Dune and would not interfere with sand transport to this dune. Construction of the AS-2 (Proposed Action) may impact the sand transport to Lava Dune. Since the strongest winds consistently come from the south-southeast, portions of AS-2 (Proposed Action) that extend above ground level would intermittently interrupt sand transport. Literature reviewed suggests that a distance of about 25 times the barrier height is appropriate for reintroducing sand back into its natural deposition rate and pattern (PWA 2011). The greatest height associated with the AS-2 (Proposed Action) substation would be approximately 125 feet. Based on a barrier height of 125 feet, the area from the substation for a distance of approximately 0.6 mile would be considered impacted, and beyond the 0.6-mile distance, sand could return to its natural deposition rate and pattern. The AS-2 (Proposed Action) would be located along the south side of US 95, which would be approximately 1.2 miles south of this dune.

The AS-1 temporary ROW area (approximately 201.5 acres) would be 15 percent greater than the AS-2 (Proposed Action) area (approximately 170.9 acres). Similarly, the AS-1 permanent ROW area would be approximately nine percent greater (142.3 acres) compared to the AS-2's (Proposed Action) permanent ROW of approximately 129.9 acres. Wind erosion susceptibility would be considered low for the AS-1 with WEGs that would be 6.0 for both temporary and permanent ROW areas. The AS-2's (Proposed Action) ROW areas would also be low with WEGs ranging from 5.0 to 5.25 soil wind susceptibility for the temporary and permanent ROW areas. The AS-1 and AS-2 (Proposed Action) ROW areas would both have K factor rates of between 0.05 and 0.2 reflecting low susceptible soils for erosion and runoff.

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 and AS-2 (Proposed Action) ROW area in this portion of the soil resources analysis area. The AS-1 would include approximately 201.5 acres of temporary and approximately 142.3 acres of permanent ROW areas that are considered farmland of statewide importance, if irrigated. The AS-2 (Proposed Action) would only impact less than 0.2 acre of soil that are considered farmland of statewide importance, if irrigated within its ROW areas. Neither of the substation alternatives would cross any mining districts.

Although AS-1 would include substantially more acres of permanent ROW area encompassing farmland of statewide importance, if irrigated, this substation alternative would not interfere with the natural deposition rate and pattern of sand transport to either Big Dune or Lava Dune. AS-2 (Proposed Action) may interfere with sand transport to Lava Dune since it would be in the path of the strongest winds. However, based on literature research, this substation alternative may be of sufficient distance to allow for the sand to return to its natural deposition rate and pattern.

### **3.9.4.10 Direct and Indirect Impacts from Esmeralda Substation Group**

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

The construction, O&M, and decommissioning-related earth resources impacts would be same to those discussed in the common to all Action Alternatives described above. The ES-1 temporary ROW area (approximately 214.1 acres) would be 22 percent less than the ES-2 (Proposed Action) (approximately 273.0 acres) and 29 percent less than the ES-3 (approximately 302.7 acres) temporary ROW areas. The ES-2 (Proposed Action) permanent ROW area (approximately 167.2 acres) would be essentially the same as the ES-3 permanent ROW area (approximately 166.2 acres). The ES-2 (Proposed Action) and ES-3 permanent ROW areas would be 13 percent larger than ES-1's permanent ROW area (approximately 214.1 acres).

Wind erosion susceptibility would be considered high for the entire temporary and permanent ROW areas of ES-2 (Proposed Action) with WEGs that would be no greater than 2.00. Approximately 99 percent (212.9 acres) of the ES-1 temporary ROW area and 67 percent (143.0 acres) of the permanent ROW area would be considered highly susceptible for both temporary and permanent ROW areas. There would be approximately 223.6 acre (74 percent) and 127.8 acres (23 percent) of the ES-3 temporary and permanent ROW areas respectively that would have a low soil wind susceptibility rating.

All three Esmeralda Substation alternatives' ROW areas would have soils within the same low range water erosion and runoff rates with the exception of ES-2's (Proposed Action) access roads and transmission line. The access road and transmission line going into ES-2 (Proposed Action) would be constructed on less than one percent of soils with high water erosion and runoff rates within the ROW areas.

There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium soils associated with the ES-1, ES-2 (Proposed Action), and ES-3 ROW areas. 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 that are considered farmland of statewide importance, if irrigated.

The ES-1 and ES-2 (Proposed Action) alternatives would cross the Rhodes Marsh and Coaldale mining districts. The ROW areas would represent less than one percent of the Coaldale Mining District and less than two percent of the Rhodes Marsh Mining District. The ES-3 would not cross a mining district. The ES-1, ES-2 (Proposed Action), and ES-3 would have similar impacts to earth resources.

### **3.9.4.11 Direct and Indirect Impacts from Amargosa Microwave Group**

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

The construction, O&M, and decommissioning-related earth resources impacts would be same to those discussed in the impacts of the common to all Action Alternatives described above. AM-1 or AM-2 (Proposed Action). The amount of temporary and permanent ROW areas would be similar for the AM-1 (approximately 3.1 acres and 2.7 acres, respectively) and AM-2 (Proposed Action) (5.3 acres and 3.4 acres, respectively). Wind and water erosion factors (WEG 5.00 and K factor 0.20) are low for the two Amargosa microwave radio alternatives. 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 two alternatives. Both of the AM-1 and AM-2 (Proposed Action) would be within the Ash Meadows Mining District; however, the relatively small amount of acres for either alternative would be less than one percent of the mining district.

### **3.9.4.12 Impacts from Anti-Perching/Nesting Mitigation Measure**

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 disrupt sand deposition's rate and pattern to the dune. Since the strongest winds consistently come from the south-southeast, the H-frame structures would intermittently interrupt sand transport. Because of their open design, lattice structures would allow winds to essentially blow through the structure, minimizing the impact on sand transport to Lava Dune. A literature review suggested that a distance of about 25 times the barrier height is appropriate for reintroducing sand into the transport corridor (PWA 2011). The height of the H-frame would be 180 feet and spaced approximately 1,140 feet apart. Based on a barrier height of 180 feet, the area from the H-frame structures for a distance of approximately 0.9 mile would be considered impacted, and beyond the 0.9-mile distance, sand could return to its natural deposition rate and pattern. The solid structure of the tubular H-frames would be located along the south side of US 95, which would be approximately 0.9 miles south of Lava Dune. The combination of the AS-2 (Proposed Action) and the mitigation measure of tubular H-frame structures may interfere with the natural deposition rate and pattern of sand transport to Lava Dune.

## **3.10 Air Quality, Climate Change, and Greenhouse Gas Emissions**

### **3.10.1 Issues Identified for Analysis**

- How would construction, O&M, and decommissioning of the GLWP affect air quality?

### **3.10.2 Analysis Area and Methodology**

#### **Analysis Area**

The air quality, climate change, and greenhouse gas emissions analysis area is defined as the seven counties—Clark, Nye, Esmeralda, Mineral, Lyon, Storey, and Washoe—that GLWP would pass through and equates to approximately 42,471 square miles (27,181,260 acres).

#### **Methodology**

Individual methodology for air quality, climate change, and greenhouse gas (GHG) emissions are provided below.

#### **Air Quality**

The Proponent has completed and provided an air quality emissions analysis for the GLWP. Analysis and data below are referenced in Appendix W. Emission factors for nitrogen oxides (NO<sub>x</sub>), carbon monoxide (CO), and particulate matter (PM) were taken from EPA Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in its EPA's Motor Vehicle Emission Simulator (MOVES) 3.0.2 (EPA 2021). For diesel engines, all exhaust particulate matter emissions are assumed to be smaller than 10 microns and reported as PM<sub>10</sub>. For PM<sub>2.5</sub>, an adjustment of 0.97 is applied to the PM<sub>10</sub> output. Emission factors for sulfur dioxide (SO<sub>2</sub>) along with hourly emissions were calculated by the Proponent and provided in Appendix W. Hourly emissions were calculated based on annual emission factors/calculations and assumed daily hourly use.

#### **Climate Change and Greenhouse Gas Emissions**

The CEQ issued interim guidance to assist agencies in analyzing GHG and climate change effects of their proposed actions under NEPA (CEQ 2023). When conducting climate change analyses in NEPA reviews,

agencies should consider: (1) the potential effects of a proposed action on climate change, including by assessing both GHG emissions and reductions from the proposed action; and (2) the effects of climate change on a proposed action and its environmental impacts.

Climate change is a term used to describe the effect GHG emissions have on the environment. These gases trap heat in the atmosphere, causing a greenhouse effect. According to the Intergovernmental Panel on Climate Change (IPCC), increased atmospheric levels of GHGs are correlated with rising temperatures. Projected concentrations of GHGs (expressed as CO<sub>2</sub>e) are used as a proxy for assessing proposed actions' potential effects on climate change. For the GLWP, potential GHG emissions from construction, O&M, and decommissioning were evaluated. Calculations for in-use adjusted brake-specific fuel consumption (BSFC) were used to compute CO<sub>2</sub>e emissions directly. The carbon that goes to exhaust HC emissions is subtracted as the correction for unburned fuel.

### 3.10.3 Affected Environment

#### Air Quality

Federal actions must conform to Clean Air Act (CAA) standards. The EPA sets National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment (EPA n. d.). This includes six criteria pollutants: PM, ozone (O<sub>3</sub>), CO, sulfur oxides (SO<sub>x</sub>), NO<sub>x</sub>, and lead (Pb). Unlike most criteria pollutants, ozone is not emitted directly from fuel combustion, but is synthesized in the atmosphere via a complex web of chemical reactions from ozone precursors such as non-methane Volatile Organic Compounds (VOCs), NO<sub>x</sub>, CO, and atmospheric methane.

Separate procedures have been established for federal pre-construction review of certain large, proposed projects in attainment areas versus nonattainment areas. Review for affected sources located in attainment areas called Prevention of Significant Deterioration (PSD)<sup>11</sup> is intended to prevent a new source from causing air quality to deteriorate beyond acceptable levels. Review for affected sources located in nonattainment areas is referred to as New Source Review (NSR)<sup>12</sup>. The emission threshold for "major stationary sources" varies between PSD and NSR according to the type of facility and the attainment status of the area. The emissions calculations indicate that none of the GLWP facilities during construction are considered stationary sources, nor would they be large enough, once constructed, to trigger PSD or NSR requirements.

General vehicle emissions are major sources of CO, NO<sub>x</sub>, and VOC. Emissions from internal combustion engines are also sources of PM. Under the CAA NAAQS, the EPA classifies areas as "attainment," "nonattainment," or "maintenance" for the degree of ambient air pollution. Attainment areas are geographic areas that meet or exceed the NAAQS and indicate adequate air quality. Nonattainment areas are areas that do not meet this standard. Maintenance areas are geographic areas that have a history of nonattainment, but now consistently meet the NAAQS (EPA 2022b). The Las Vegas Area (Clark County) was redesignated as a maintenance area for CO in 2010, after the State Implementation Plan effectively reduced the ambient CO concentration levels from the serious nonattainment classification designated in 1990. The area was similarly designated for serious nonattainment for PM<sub>10</sub> levels in 1990 and attained

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<sup>11</sup> PSD thresholds apply to emissions of attainment pollutants from stationary sources. The construction of the transmission line, substation expansion, and related additions at associated aboveground facilities are not considered to be stationary sources, and as such they are not subject to the provisions of the PSD regulations.

<sup>12</sup> NSR provisions apply to emissions of nonattainment pollutants from stationary sources. The construction of the transmission line, substation expansion, and related additions are not considered to be stationary sources, and as such they are not subject to the provisions of the NSR regulations.

maintenance status in 2014. Washoe County was also redesignated as a maintenance area in 2014 for PM<sub>10</sub> following a serious classification in 2001. Finally, Washoe County was redesignated to maintenance for CO in 2008 following a moderate CO nonattainment (EPA 2023). Clark County is the only county in the GLWP area currently in nonattainment status for any of the criteria pollutants (8-hour O<sub>3</sub>).

Construction activities are also expected to generate hazardous air pollutant (HAP) emissions. HAPs are substances known or suspected to cause cancer or other serious health effects such as reproductive effects, birth defects, or adverse environmental effects. The EPA currently lists 188 compounds as HAPs, some of which can be emitted from vehicles and construction equipment, such as benzene and formaldehyde.

### **Climate Change and Greenhouse Gas Emissions**

According to the USGS National Climate Change viewer, climate change models agree that there will be some degree of warming in the GLWP area due to climate change (USGS 2021b). While emissions from the GLWP are unlikely to contribute directly to this issue, they will contribute to climate change on a global scale. In addition, the loss of desert vegetation and soil disruption associated with the development of the GLWP would likely also have a small effect on the ability of the local ecosystem to cycle or sequester carbon and modulate atmospheric CO<sub>2</sub> levels.

In the final regulation on GHG permitting, the EPA established standards for emissions of CO<sub>2</sub> for newly constructed, modified, and reconstructed fossil fuel-fired electric utility generating units (EPA n. d.). This regulation considers a source that emits more than 100,000 tons per year (tpy) of CO<sub>2</sub> to be a major source and requires a stationary source that emits more than 25,000 tpy to report their emissions. Because GHG emissions for the construction and decommissioning of the GLWP are anticipated to be less than the 25,000 metric tpy reporting minimum and are not a fossil fuel-fired electric utility generator, no additional assessment is required (CEQ 2010).

The EPA sets GHG emissions standards for on-road and off-road engines. Construction equipment would be operated as needed and the emissions from gasoline and diesel engines would be minimized by engine compliance with mobile-source exhaust standards established by the EPA.

### **General Conformity**

A federal agency must make a determination that permitting or approving an activity will conform to the state implementation plan in accordance with 40 CFR Part 93.150. A conformity determination is required for each pollutant when the total of direct and indirect emissions caused by a federal action in a nonattainment area would equal or exceed threshold quantities specified in 40 CFR Parts 93.153(b) (1) and (2). The applicable conformity thresholds for the GLWP area are as follows:

- NSR – 100 tpy for nitrogen oxides, carbon monoxide, volatile organic compounds, sulfur oxides, and particulate matter with a diameter of less than 10 microns (NO<sub>x</sub>, CO, VOC, SO<sub>x</sub>, and PM<sub>10</sub>, respectively)
- PSD – 250 tpy for NO<sub>x</sub>, CO, VOC, SO<sub>x</sub>, and PM<sub>10</sub>
- Title V – 100 tpy for NO<sub>x</sub>, CO, VOC, SO<sub>x</sub>, and PM<sub>10</sub>
- Conformity Thresholds – 100 tpy for NO<sub>x</sub>, CO, VOC, SO<sub>x</sub>, and PM<sub>10</sub>

Based upon the use of conservative emissions estimates, the emissions from the construction, O&M, and decommissioning of the GLWP in the identified nonattainment areas would be below the conformity thresholds; therefore, the GLWP would be exempt from performing a comprehensive conformity analysis.

### **3.10.4 Environmental Consequences**

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

It is anticipated that under the No Action Alternative, the current uses and trends for the resource would continue to occur. There would be no impacts to air quality, climate change, and GHG emissions attributed to the construction, O&M, and decommissioning of the GLWP under the No Action Alternative.

#### **3.10.4.2 Direct and Indirect Impacts Common to All Action Alternatives**

##### **Construction and Decommissioning**

###### **Air Quality**

The Nevada Division of Environmental Protection Bureau of Air Pollution Control regulates emissions from various sources through the Nevada Administrative Code Chapter 445B. Generally, any source that has the potential to emit greater than 100 tpy of any criteria pollutant (PM<sub>10</sub>, PM<sub>2.5</sub>, CO, NO<sub>x</sub>, SO<sub>2</sub>, VOC, H<sub>2</sub>S, and Pb) is considered a Major Class I source. However, within Washoe and Clark counties, emissions are regulated by the Washoe County Health District Air Quality Management Division and the Clark County Division of Air Quality, respectively.

Construction and decommissioning activities associated with the GLWP would release regulated pollutants into the atmosphere. Some of these pollutants may be transported from the immediate area into the surrounding areas. For the transmission line, the maximum fugitive dust emissions would occur during the construction of the transmission line structures, substations, and other ancillary components and/or upgrade of access and maintenance roads. For the other pollutants, emissions from construction equipment would occur during construction of the transmission line structures and the construction and expansion of the substations and ancillary components. During substation construction, emissions of fugitive dust would occur when each site is graded.

Emissions from helicopter operations, traffic, and paved and unpaved road traffic would occur over a large area, resulting in negligible impacts at any given location.

Modeling for VOCs was not conducted because they are regulated as precursors to other pollutants (O<sub>3</sub>, PM<sub>10</sub>), and are generally modeled only as part of regional applications. Modeling for GHG emissions was also not conducted because there are no ambient standards for GHGs, and they contribute to climate change on a global, rather than local or regional, scale.

In all jurisdictions, the transmission line would not be regulated because it will not emit any criteria pollutants greater than 100 tpy and thus not considered a Major Class I source. However, the Action Alternatives have the potential to result in both short-term and long-term air quality impacts during construction. Construction vehicle emissions specifically affect air quality when travel raises fugitive dust particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and emits by-products of combustion (CO, SO<sub>x</sub>, NO<sub>x</sub>, VOC, PM).

Fugitive dust raised by construction vehicle traffic on unpaved roads and trails can contribute to air quality degradation, resulting in a direct hazard to human health. Wind can also disperse suspended particulates over long distances, potentially allowing dust raised by construction vehicle travel to disperse dust-adsorbed contaminants beyond the construction area. Transmission line construction would require earthwork and, therefore, disturbed soils and inevitably dust. New road construction and improvements to existing roads may also result in short-term impacts. Throughout the construction period, air quality impacts from dust would likely fluctuate in severity. For instance, dust impacts would be greater during dry

weather, but would still be negligible in overall severity. Fugitive dust on unpaved roads would be reduced through watering the roads or other dust-control measures, as identified in Appendix C EMMs (AIR-7, AIR-9, AIR-11 to AIR-16).

As shown in Table 3-67 below, annual criteria pollutant emissions from construction activities are below the levels considered for regulation of major sources. Emissions of HAPs are estimated at 5.4 tpy, well below the 25 tpy limit set by the EPA. It is also important to note that these impacts will be spread out over the course of the approximately 472-mile project, resulting in negligible impacts to air quality. Max hourly emissions (Table 3-68) were determined based on anticipated daily use and are conservative estimates assuming all equipment is operated simultaneously. Actual hourly emissions will be lower and spread out over the course of the approximately 472-mile project. Total criteria pollutant emissions associated with the GLWP can be found by multiplying annual values by the anticipated construction timeline of three years.

**Table 3-67. Annual Criteria Pollutant Emissions from Construction**

<b>Emission Type</b>	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
Off-Road Equipment	65.3	23.5	4.5	0.1	4.1	0.4
Off-Road Vehicles	0.0	0.3	0.1	0.0	2.3	0.0
On-Road Vehicles	18.5	19.6	2.0	0.0	0.9	0.6
Worker Commute	1.4	10.1	0.9	0.0	0.2	0.2
Materials Delivery Truck	0.8	0.1	0.0	0.0	0.0	0.0
Aircraft	0.2	0.1	0.3	0.0	0.0	0.0
Fugitive Dust	--	--	--	--	6.6	1.4
<b>Total</b>	<b>86.2</b>	<b>53.9</b>	<b>7.8</b>	<b>0.2</b>	<b>7.6</b>	<b>1.2</b>

*Table Source: NV Energy 2023 (Appendix W)*

**Table 3-68. Short-term (Hourly) Criteria Pollutant Emissions from Construction**

	<b>NO<sub>x</sub></b>	<b>CO</b>	<b>VOC</b>	<b>SO<sub>x</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
Off-Road Equipment	152.2	54.3	10.4	0.3	9.6	0.9
Off-Road Vehicles	0.0	0.2	0.1	0.0	0.0	1.6
On-Road Vehicles	2.5	2.6	0.3	0.0	0.1	0.1
Worker Commute	4.5	33.6	2.9	0.0	0.8	0.6
Materials Delivery Truck	0.0	0.0	0.0	0.0	0.0	0.0
Aircraft	2.1	5.3	4.2	0.0	0.1	0.1
Fugitive Dust	--	--	--	--	16.5	4.2
<b>Total</b>	<b>161.3</b>	<b>96.1</b>	<b>17.9</b>	<b>0.4</b>	<b>27.0</b>	<b>7.4</b>

*Table Source: NV Energy 2023 (Appendix W)*

Emissions from construction of the transmission lines, substations, and ancillary components are not expected to cause or contribute to a violation of an applicable ambient air quality standard or contribute substantially to an existing or projected air quality violation because the construction equipment would be operated on an as-needed basis during daylight hours only and the emissions from gasoline and diesel engines would be minimized because the engines must be built to meet the standards for mobile sources established by the EPA. Most of the construction equipment would be powered by diesel engines that would meet current EPA emissions standards based upon engine size and date of manufacture, and GLWP-related vehicles and construction equipment would be required to use the new low sulfur diesel fuel as soon as it is commercially available. The GLWP would be exempt from most air quality permits, but would conform to all necessary national, state, and county regulations pertaining to air quality protection by



obtaining and adhering to any necessary air quality construction permits. The following EMMs would substantially reduce impacts to air quality (Appendix C EMMs AIR-1 to AIR-5 and AIR-8).

**Climate Change and Greenhouse Gas Emissions**

Construction of the Action Alternatives would result in temporary GHG emissions from fuel combustion in construction vehicles. Annual construction engine emissions of GHGs (CO<sub>2</sub>e - which include CO<sub>2</sub>, methane, and nitrous oxide) for the Action Alternatives from construction engine sources are expected to be equivalent to construction associated with transmission line construction projects of similar magnitude and are estimated in Table 3-69 below (BLM 2015). Total GHG emissions associated with the GLWP can be found by multiplying the values in Table 3-69 by the anticipated construction timeline of three years. Decommissioning of the GLWP would result in gaseous emissions, including CO<sub>2</sub>e. However, emissions are assumed to be less than those associated with construction, as decommissioning would occur over a shorter period of time. There would be short-term increases in exhaust from equipment and vehicles increasing ambient concentrations of GHGs. Emissions from the construction of the transmission line, substations, and ancillary components are not expected to cause or contribute to a violation of an applicable ambient air quality standard or contribute substantially to an existing or projected air quality violation.

**Table 3-69. Estimated Annual Construction Engine GHG Emissions**

<b>Emission Type</b>	<b>CO<sub>2</sub>, MT</b>	<b>CH<sub>4</sub>, MT</b>	<b>N<sub>2</sub>O, MT</b>	<b>CO<sub>2</sub>e, MT</b>
Off-Road Equipment	12,504.3	2.1	0.1	13,119.0
Off-Road Vehicles	1.5	0.0	0.0	1.5
On-Road Vehicles	3,961.7	0.2	0.0	3,977.0
Worker Commute Emission	1076.4	0.0	0.0	1,080.5
Materials Delivery Truck	105.3	0.0	0.0	105.7
Aircraft	79.0	3.3	0.6	391.6
Fugitive Dust	--	--	--	--
<b>Total</b>	<b>17,728.1</b>	<b>5.6</b>	<b>0.8</b>	<b>18,675.4</b>

*Table Source: NV Energy 2023 (Appendix W)*

**Operations and Maintenance**

**Air Quality**

Once construction activities are completed (estimated to take up to three years), the transmission line would not emit any regulated air pollutant and therefore would not be considered a stationary source subject to air emission regulations. The substations would be considered stationary sources in most air quality jurisdictions; however, provided the substations have no fuel burning equipment or stationary engines, there would be few, if any, regulated emissions. However, there could be long-term, negligible increases in emissions from a limited amount of vehicle traffic in and out of the GLWP area for O&M activities. It is also expected that the public may occasionally use newly constructed roads or travel throughout the corridor using vehicles and OHVs. This would result in some air quality impacts from particulate matter, but impacts would be negligible and would not impact air quality to a degree that would exceed the standard thresholds for any pollutant criteria.

**Climate Change and Greenhouse Gas Emissions**

Fuel usage during O&M activities along the transmission line, substations, and ancillary components would result in fuel usage from mostly light-duty vehicles from workers commuting, delivery trips, and construction equipment. Operational emissions of GHGs are estimated to be less than 3,500 metric tons of

CO<sub>2</sub> for the life of the GLWP. Although mobile equipment emissions are not applicable to stationary source air permitting rules, GHG emissions during the operational phase of the GLWP would be well below the state and federal air permitting threshold for stationary sources (75,000 tpy).

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

There are no additional measures recommended to avoid and/or minimize impacts from the Action Alternatives to air quality, climate change, and greenhouse gas emissions with the implementation of the EMMs AIR-1 through AIR-16 in Appendix C.

#### **3.10.4.3 Direct and Indirect Impacts from Proposed Action; Losee, TUSK, Beatty, Scotty's Junction, Mason Valley WMA, and Carson River Transmission Line Route Groups; the Amargosa and Esmeralda Substation Groups; and Amargosa Microwave Group**

The construction, O&M, and decommissioning impacts to air quality and GHG resources created by the Proposed Action, Losee, TUSK, Beatty, Scotty's Junction, Mason Valley WMA, and Carson River transmission alternatives; the Amargosa and Esmeralda Substation Group Alternatives; and Amargosa Microwave Alternatives are discussed in the impacts common to all Action Alternatives described above.

#### **3.10.4.4 Impacts from Anti-Perching/Nesting Mitigation Measure**

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

The anti-perching/nesting mitigation measures would have no distinct impact differences for air quality, climate change, and GHG.

## **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), Areas of Critical Environmental Concern (ACECs), Wilderness Areas, WSAs, LWC, National Historic Trails, National Wildlife Refuges, 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). National Historic Trails (NHT) are addressed in Section 3.12 National Historic Trails and Trails Under Study for Congressional Designation.

### **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 special designation areas within the GLWP Area?
- Would the construction, O&M, and decommissioning of the GLWP reduce acreage within 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 2,755,542 acres. Where the SDA analysis area intersects with a SDA, the SDA analysis area extends to include the entirety of the SDA.

## **Methodology**

Effects to SDAs would occur if the GLWP would conflict with the objectives of the special designation or if the GLWP would have impacts on an SDA's natural, recreational, scenic, or scientific qualities. Unless specifically identified in the designation or case law, impacts to visual resources outside of SDAs such as views to or from an SDA are not afforded legal protection and are addressed in Section 3.15 Visual Resources. The LWC data is based on the 2017 BLM Tonopah Field Office inventory and the 2019 CCDO inventory.

### **3.11.3 Affected Environment**

#### **3.11.3.1 Federal Designation**

##### **Tule Springs Fossil Bed National Monument**

Congress established the 22,650-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” (P.L. 113-291, sec. 3092). The TUSK lies north of Las Vegas and extends along US 95 adjacent to the GLWP as shown on Figure 3-26. 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, the National Monument will have a Foundational 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 as well as the Monument's 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 and 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.

##### **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 (Figure 3-25). The NDAA states that the BLM shall provide for access to and use of cultural resources by the Tribe in the NCA, as well as protection from disturbance of the Tribe's cultural resources and burial sites located in the NCA. Within two years of the enactment of the NDAA, the BLM is also responsible for developing a management plan for the NCA.

##### **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 2021c). Red Rock Canyon NCA is located 17 miles west of Las Vegas and offers a variety of activities including but not limited

to: hiking, scenic drives, rock climbing, and mountain biking as shown on Figure 3-26. Over two million visitors visit this 198,000-acre NCA annually.

### **Desert National Wildlife Refuge**

Desert National Wildlife Range 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 Fish and Wildlife Service (Service) and the Bureau of Land Management, 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 National Wildlife Refuge, reduced its size to 1,588,000 acres, and transferred sole administration to the Service. 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.

The National Wildlife Refuge (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 Desert Tortoise), and four amphibian species, as well as over 500 plant species. Over 1.3 million acres of the refuge is proposed Wilderness and has been managed as de facto wilderness since 1974.

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 William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (P.L. 116-283). The NTTR overlays approximately 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) (Figure 3-26).

### **Lands with Wilderness Characteristics**

Lands that possess the qualities of a wilderness but that have not been designated by Congress as Wilderness or have not been 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 their 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 those that are ecological, geological, or other features of scientific, educational, scenic, or historical value.

The BLM has inventoried and identified lands which possess wilderness characteristics within the SDA analysis area. The BLM's CCDO and Tonopah Field Office have completed inventories for LWC in 2019 and 2017 respectively. There are no LWC units in the BLM's SNDO within the SDA analysis area. The list of the current 29 LWC inventoried units within the SDA analysis area are provided in Table 3-70 and illustrated in Figure 3-27 and Figure 3-28.

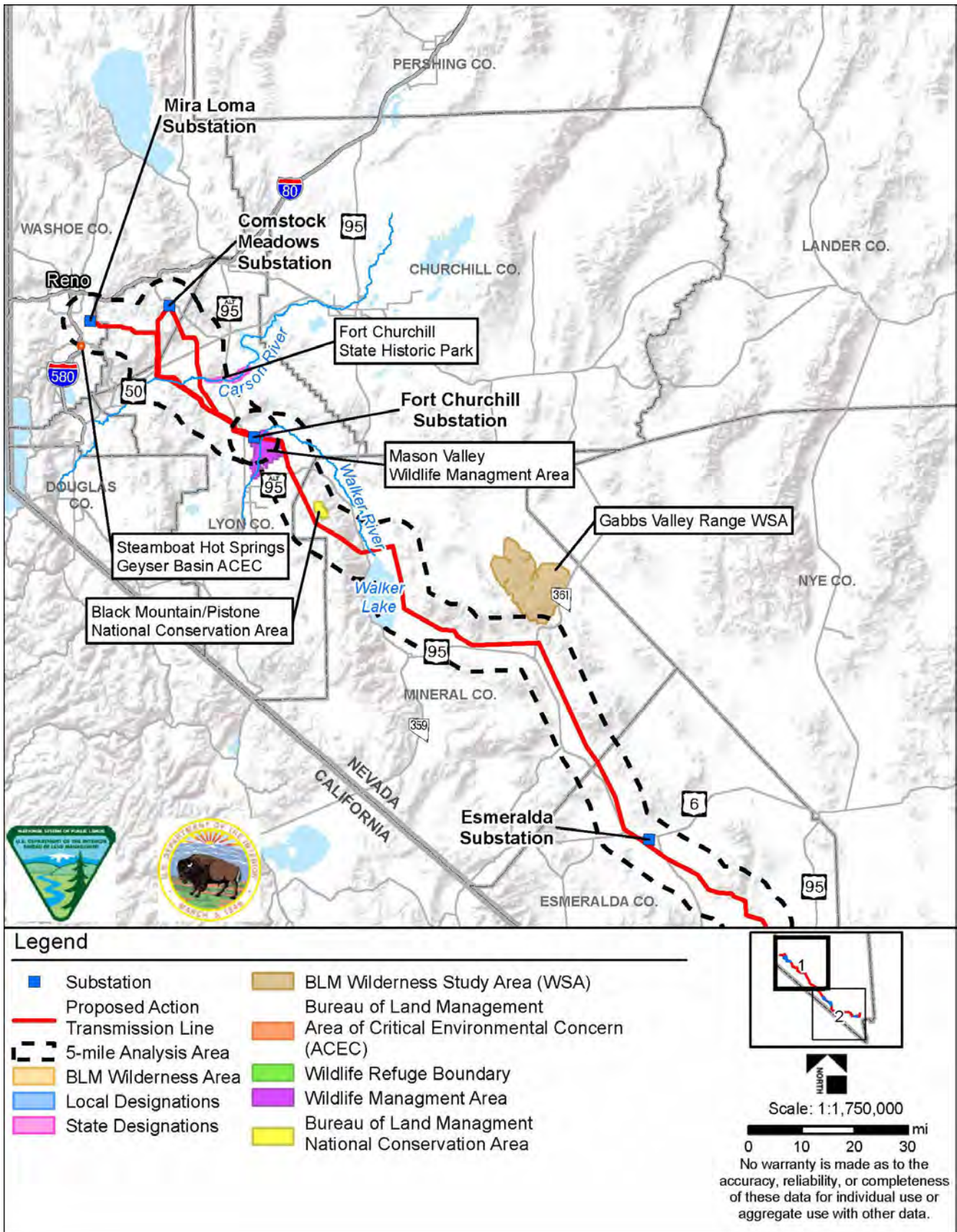
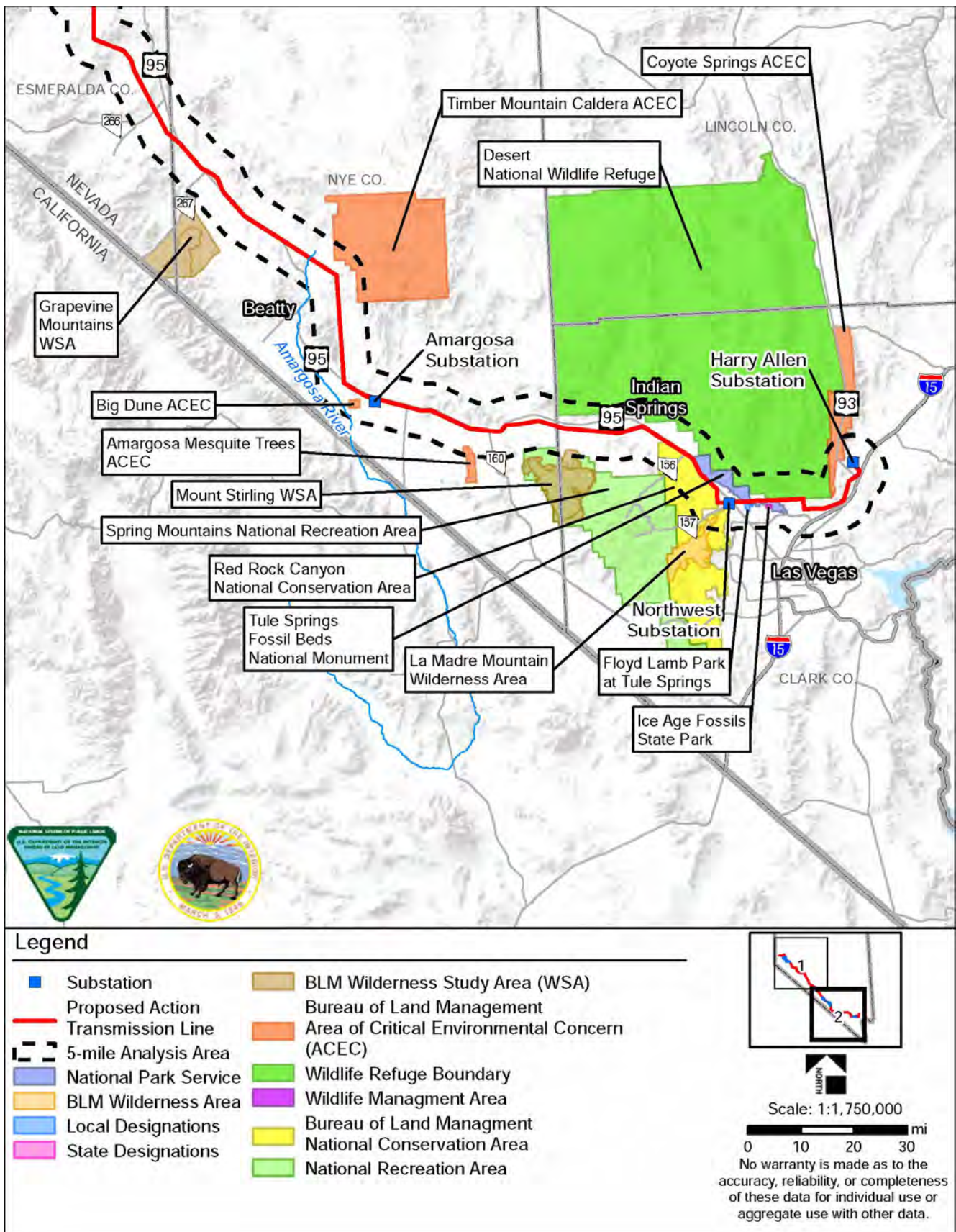


Figure 3-25. Special Designation Areas (1 of 2)



**Figure 3-26. Special Designation Areas (2 of 2)**

**Table 3-70. Inventoried Lands with Wilderness Characteristics on BLM-administered Lands within the GLWP Area <sup>a</sup>**

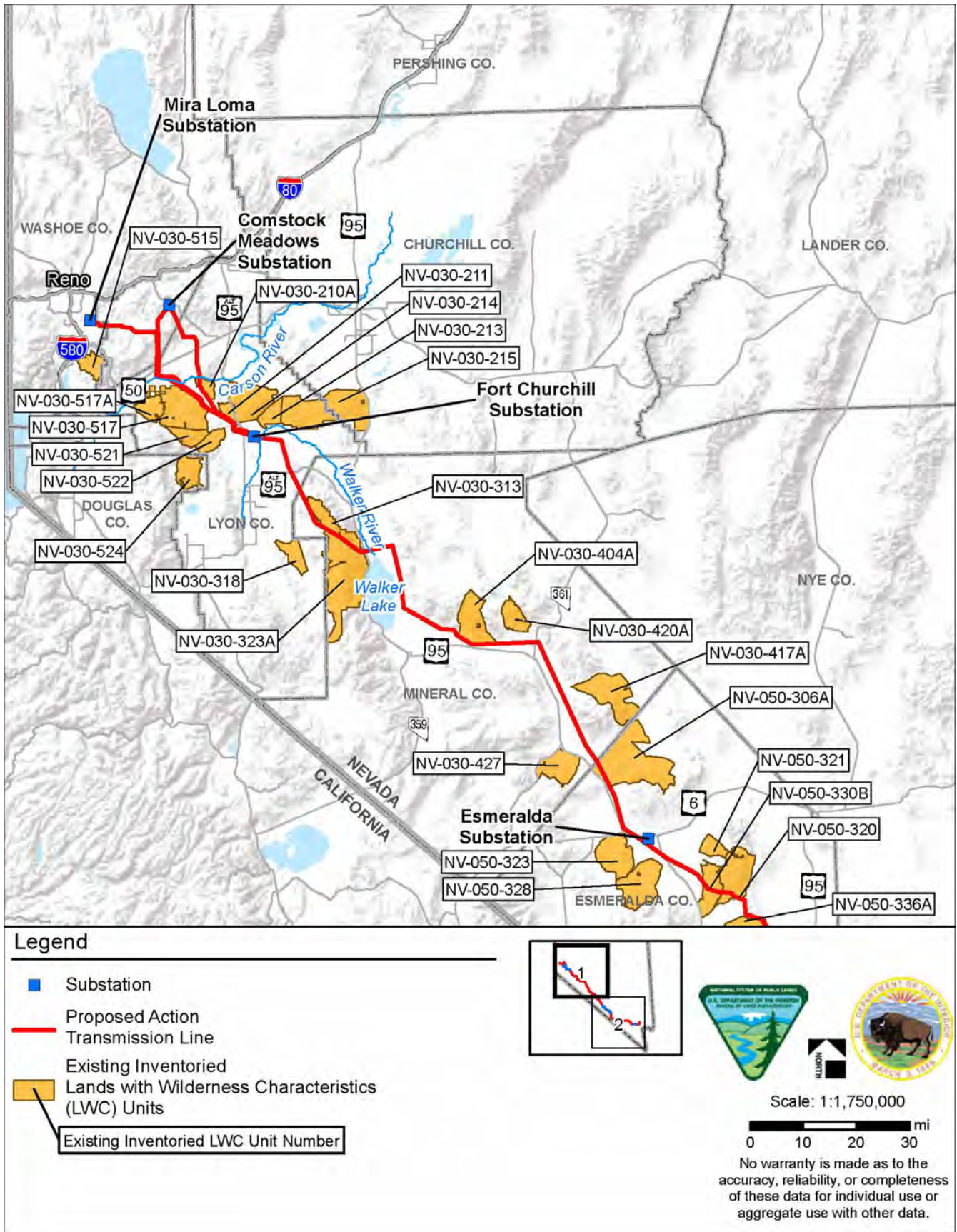
Inventoried Lands with Wilderness Characteristic Units	Acres of Units Possessing Wilderness Characteristics
NV-030-210A	5,699.7
NV-030-211	5,470.8
NV-030-213	9,665.2
NV-030-214	30,060.4
NV-030-215	61,109.5
NV-030-313	16,993.1
NV-030-318	11,518.6
NV-030-323A	64,248.6
NV-030-404A	27,744.5
NV-030-417A	36,076.8
NV-030-420A	13,319.9
NV-030-427	22,393.1
NV-030-517	36,645.3
NV-030-517A	13,539.3
NV-030-521	11,165.9
NV-030-522	9,446.7
NV-030-524	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
NV-050-323A -	64,248.6
<b>Total</b>	<b>927,641.2</b>

*Table Notes:* <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.

The LWC units list in Table 3-70 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.

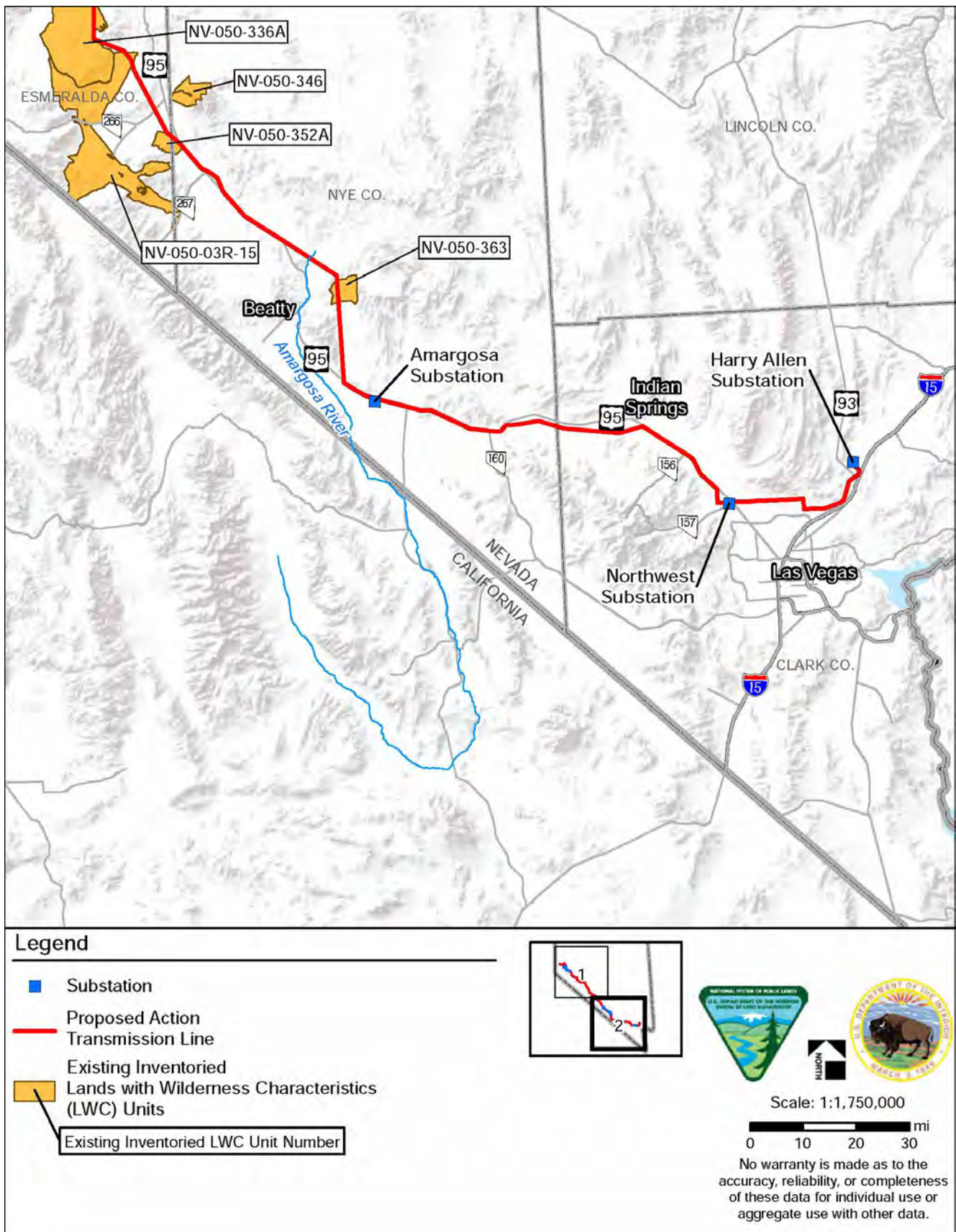
### **La Madre Mountain Wilderness Area**

The La Madre Mountain Wilderness is a 47,180-acre area approximately 12 miles west of Las Vegas (Figure 3-26). 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.



**Figure 3-27. Lands with Wilderness Characteristics Units (1 of 2)**





**Figure 3-28. Lands with Wilderness Characteristics Units (2 of 2)**

### **Mount Stirling Wilderness Study Area**

The Mount Stirling WSA is managed by the USFS and the BLM (Figure 3-26). It is a rugged landscape with canyons, ridges, and heavy forest cover which 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.

### **Amargosa Mesquite Area of Critical and Environmental Concern**

The Amargosa Mesquite ACEC was designated in 1998 through the Las Vegas RMP. Located within Nye County (Figure 3-26), the approximately 7,000-acre ACEC 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 3-26) is a formation of sand dunes administered by the BLM. The 1900-acre ACEC was designated in through the Las Vegas RMP. The dunes rise up 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 two sensitive species of beetles with five acres set aside to protect these species on the east side of the dunes. 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.

### **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 3-26). 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.

### **Grapevine Mountains Wilderness Study Area**

The Grapevine Mountains WSA (Figure 3-26), managed by the BLM, 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 Gabbs Valley Range WSA is located northeast of Hawthorne in Mineral County (Figure 3-25), managed by the BLM, 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. There are 3 named mountains in Gabbs Valley Range Wilderness Study Area, and the highest and the most prominent mountain is Mount Ferguson. Hikers visit the WSA to explore hidden places and experience views from the mountain peaks (Friends of Nevada Wilderness 2023). In 1992, the BLM recommended it as an area with wilderness characteristics to be protected. The WSA contains 80,500 acres of BLM-administered lands 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 (BLM 2000). Its size, shape, vegetation, drainage patterns, and highly branched ridge contribute to what the BLM describes as outstanding opportunities for solitude.

### **Steamboat Hot Springs Geyser Basin Area of Critical and Environmental Concern**

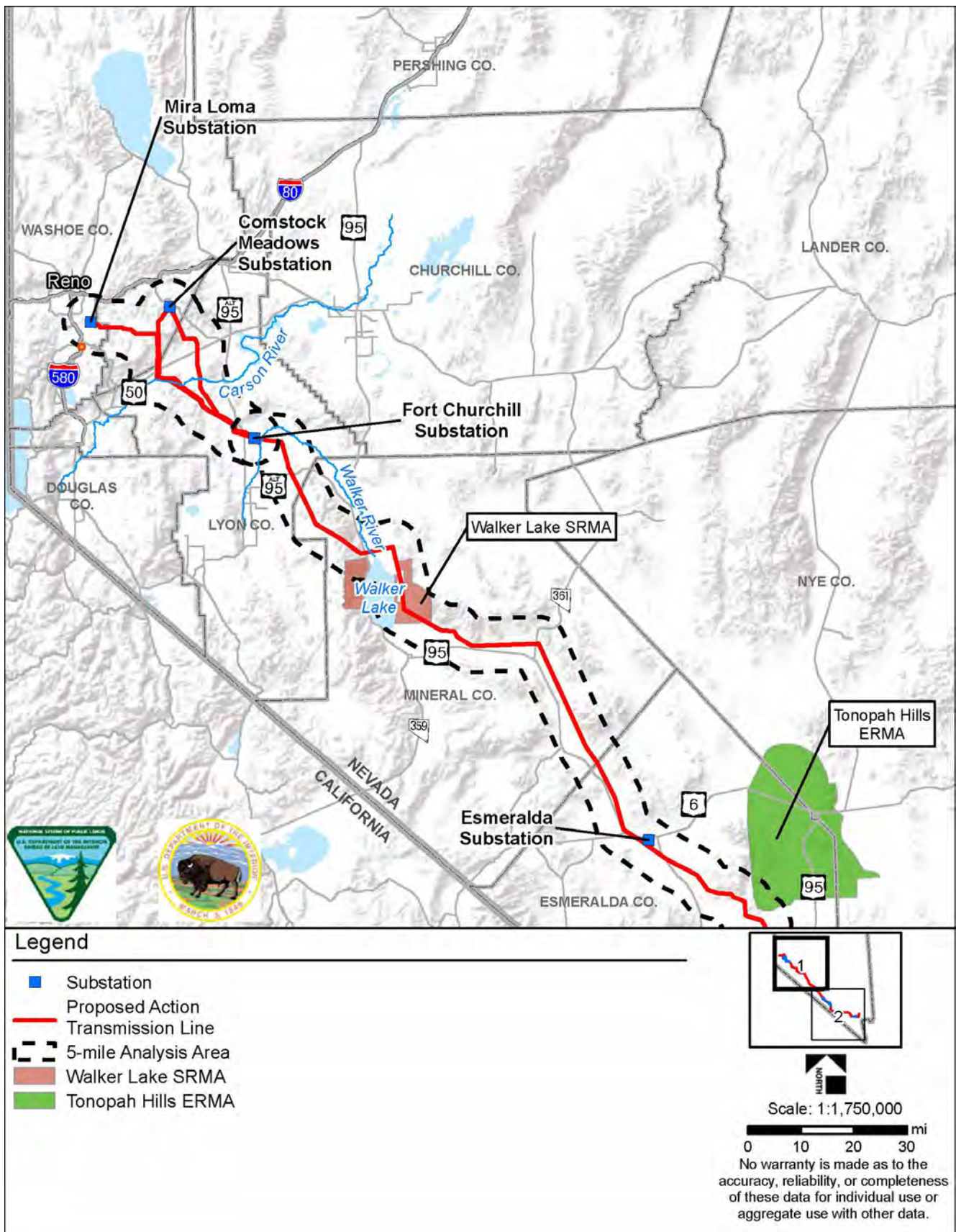
Steamboat Hot Springs Geyser Basin ACEC was first designated in 1982 in the Reno Management Framework Plan. It was redesignated in 1987 in the Lahontan RMP and the designation was brought forward in the 2001 Carson Consolidated RMP. The Steamboat Hot Springs Geyser Basin ACEC is a 40-acre area of unique geyser fields and other thermal features, located south of Reno (Figure 3-25). Native Americans consider this place to be sacred, and settlers quickly developed it into a therapeutic resort. Steamboat Hot Springs Geyser Basin is a State of Nevada historical landmark. 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.

### **BLM Special Recreation Management Areas and Extensive Recreation Management Areas**

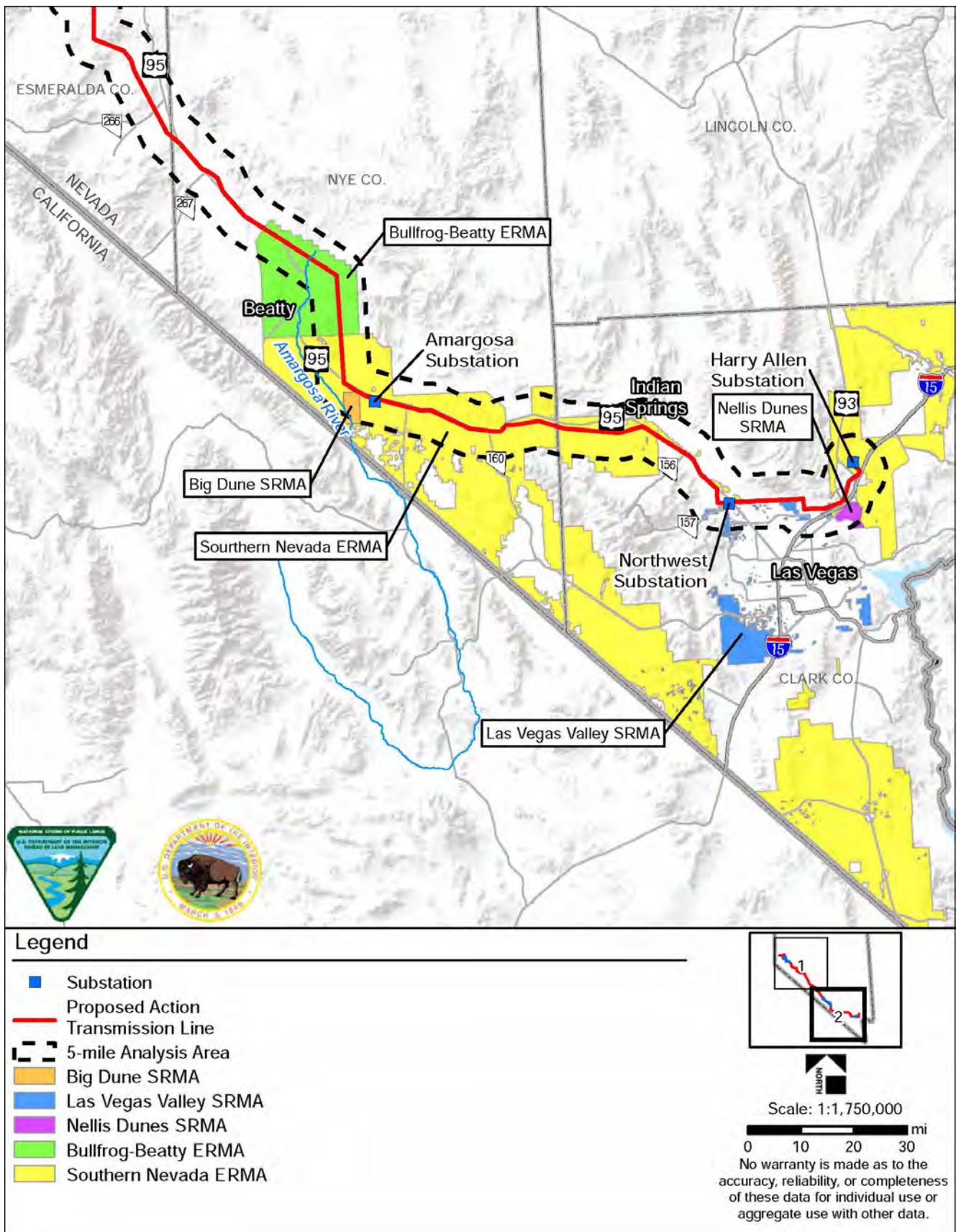
Public recreation lands administered by the BLM include Special Recreation Management Areas (SRMAs) and Extensive Recreation Management Areas (ERMAs). Through their planning processes, the BLM designates SRMAs to provide people with specific recreational opportunities such as trails for hiking, mountain 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—including Big Dune SRMA, Las Vegas Valley SRMA, Nellis Dunes SRMA, and Walker Lake SRMA (refer to Figure 3-29 and Figure 3-30).

The management objective of the Big Dune SRMA is to manage 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 197,300 acres in the Las Vegas Valley and facilitate the provision of open space areas, recreational trails, and parks for Valley residents. The Nellis Dunes SRMA management objective is to manage 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 CCFO Consolidated RMP (BLM 2001).

The BLM also designates ERMAs which constitute all public lands outside SRMAs. In these areas, recreation is non-specialized, dispersed, and does not require intensive management. Although recreation may not be the primary management objective in ERMAs, 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 ERMAs occur including Bullfrog-Beatty ERMA, Southern Nevada ERMA, and Tonopah Hills ERMA (refer to Figure 3-25 and Figure 3-26).



**Figure 3-29. SRMAs and ERMAs within the GLWP Area (1 of 2).**



**Figure 3-30. SRMAs and ERMAs within the GLWP Area (2 of 2).**

### **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 (Figure 3-26). The SMNRA is comprised of rugged mountains with cliffs, steep hillsides, and deep, narrow canyons. Bristlecone pine trees; ponderosa pine and white fir 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 designated recreation facilities within the SDA analysis area.

#### **3.11.3.2 State Designations**

### **Mason Valley Wildlife Management Area**

Wildlife Management Areas are managed by the Nevada Board of Wildlife Commissioners. While funding sources for these areas provide guidance to management objectives, these areas are generally created to provide for the preservation, protection, management, and restoration of wildlife and wildlife habitats at a state level. The Mason Valley WMA consists of 13,375 acres of land and is located about 75 miles southeast of Reno, as shown on (Figure 3-25). (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, with all other uses considered 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 (Figure 3-26), this state park consists of 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. Ice Age Fossils State Park is currently under development and not open to the public.

### **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 one half mile to the east, an important way station for 1800s pioneer travelers on the Overland Route. With 3,200 acres along the Carson River (Figure 3-25), the park provides recreation for campers, hikers, bird watchers, canoeists, and equestrians.

#### **3.11.3.3 Local Government Designations**

The only major designated municipal recreation area within the SDA analysis area is Floyd Lamb Park. Floyd Lamb Park centers around Tule Springs and includes a series of small lakes. Surrounded by an urban setting in the City of Las Vegas (Figure 3-26), 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**

The Action Alternatives would cross within the boundaries of TUSK and the Mason Valley WMA and existing inventoried LWC units in addition to SRMAs and ERMAs. No other designated areas below would be crossed by the Action Alternatives.

#### **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 with the No Action Alternative.

#### **3.11.4.2 Direct and Indirect Impacts from Common to All Action Alternatives**

##### **Construction**

The Action Alternatives would cross Las Vegas Valley SRMA, Walker Lake SRMA, Southern Nevada ERMA, and Bullfrog-Beatty ERMA. For detailed impacts to recreation experience, refer to Section 3.13 Land Use, Realty, and Indian Trust Assets, and for detailed impacts to visual resources, refer to Section 3.15 Visual Resources. The construction of the GLWP would not alter the management of the SRMAs or ERMAs. Access to an area may be restricted for short durations for public safety during active construction periods in a given location, however, no permanent closures to the access to these SDAs would be required for construction. Any impacts to SRMAs and ERMAs associated with these activities would be temporary and cease once construction is complete. The ERMAs are predominantly large areas that include extensive existing rural, urban, and industrial development. 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.

Designated values of SDAs not directly crossed by the Action Alternatives may be indirectly impacted. Indirect impacts from construction activities associated with the Action Alternatives would include increased noise, dust, and vehicular traffic within the temporary ROW that would be proportional to distance and visibility from adjacent SDAs. This has the potential to disturb and displace recreation users and wildlife within SDAs and affect recreational access.

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 areas 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 (if any).

##### **Operations and Maintenance**

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 access to the SDA analysis area, 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.

Localized areas of the permanent ROW area would, where needed, be cleared of trees and large vegetation to allow for maintenance of the transmission line and related facilities. Compared to periods of construction, regular maintenance activities associated with substations and transmission lines would be

more infrequent and would be of shorter duration. During O&M, visibility of the transmission line and ancillary facilities, and vegetation-clearing in the permanent ROW area, may result in changes to the natural setting. The magnitude of the 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 occurs 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, would temporarily impact wilderness characteristics and would not persist for extended periods of time.

### **Decommissioning**

Decommissioning the GLWP would require a Restoration and Decommissioning 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 extent.

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

### **Construction**

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. These types of construction impacts would be more apparent and attract more attention from those SDAs that would be within 0.5 miles (referred to as the immediate FG) of the Proposed Action. The SDAs within 0.5 miles would be the TUSK, Desert NWR, Floyd Lamb Park, Black Mountain-Pistone NCA, Red Rock Canyon NCA, and Mason Valley WMA. Amargosa Mesquite ACEC, Big Dune ACEC, and Timber Mountain Caldera ACEC. Those SDAs that would be directly crossed or within the immediate FG of the Proposed Action include TUSK, Mason Valley WMA, Desert MWR, and Red Rock Canyon NCA. The Proposed Action would directly cross two SDAs (TUSK and the Mason Valley WMA), three SRMAs (Las Vegas Valley, Big Dune, and Walker Lake), and two ERMAs (Southern Nevada and Bullfrog-Beatty).

An approximately 1.5-mile segment of the Proposed Action would cross the TUSK. Specific resource impacts are provided in the respective biological, visual, paleontological, and cultural resources section of this EIS for construction as well as O&M and decommissioning activities. Except for two temporary non-motorized trails, three information kiosks, and limited off-street parking, there are no other public facilities at the TUSK at this time. There are a relatively small number of visitors, primarily local residents, to the Monument. Access to the TUSK would not be prohibited but may be restricted during brief periods when there may be public safety issues during construction activities. The increases in ambient noise levels, the presence of heavy equipment, and dust 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.

The Proposed Action would run immediately adjacent to the Red Rock Canyon NCA border for nearly 1.5 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 along approximately 7.1 miles of Desert NWR boundary. 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 noises, visual disturbances, and/or the presence of other humans could detract from these recreation opportunities and activities on these two SDAs. Any potential construction-related impacts on recreation opportunities, activities, and experiences would be localized and temporary in nature.

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 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, specifically wetland protection and waterfowl activities. The Thorne Branch railway corridor is active as of 2020 (NDOT 2020a) and was accounted for when the Mason Valley WMA was created. The magnitude of temporary construction effects would be negligible as train activity already disturbs wildlife on an intermittent basis.

La Madre Mountain Wilderness Area, Mount Stirling WSA, Grapevine Mountains WSA, and Gabbs Valley Range WSA are greater than 0.5 miles from the Proposed Action. The opportunity for solitude in WSAs and wilderness areas may be negligibly 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 and are discussed in Section 3.15 Visual Resources.

### **Operations and Maintenance**

Operations and Maintenance activities within the Proposed Action permanent ROW area would result in impacts to TUSK and Mason Valley WMA because the GLWP components would be operated and maintained within the SDA boundaries. 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 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 “wildcat” and user-created route proliferation. Any illegal and/or unauthorized use of access roads would be enforceable by federal law enforcement officers.

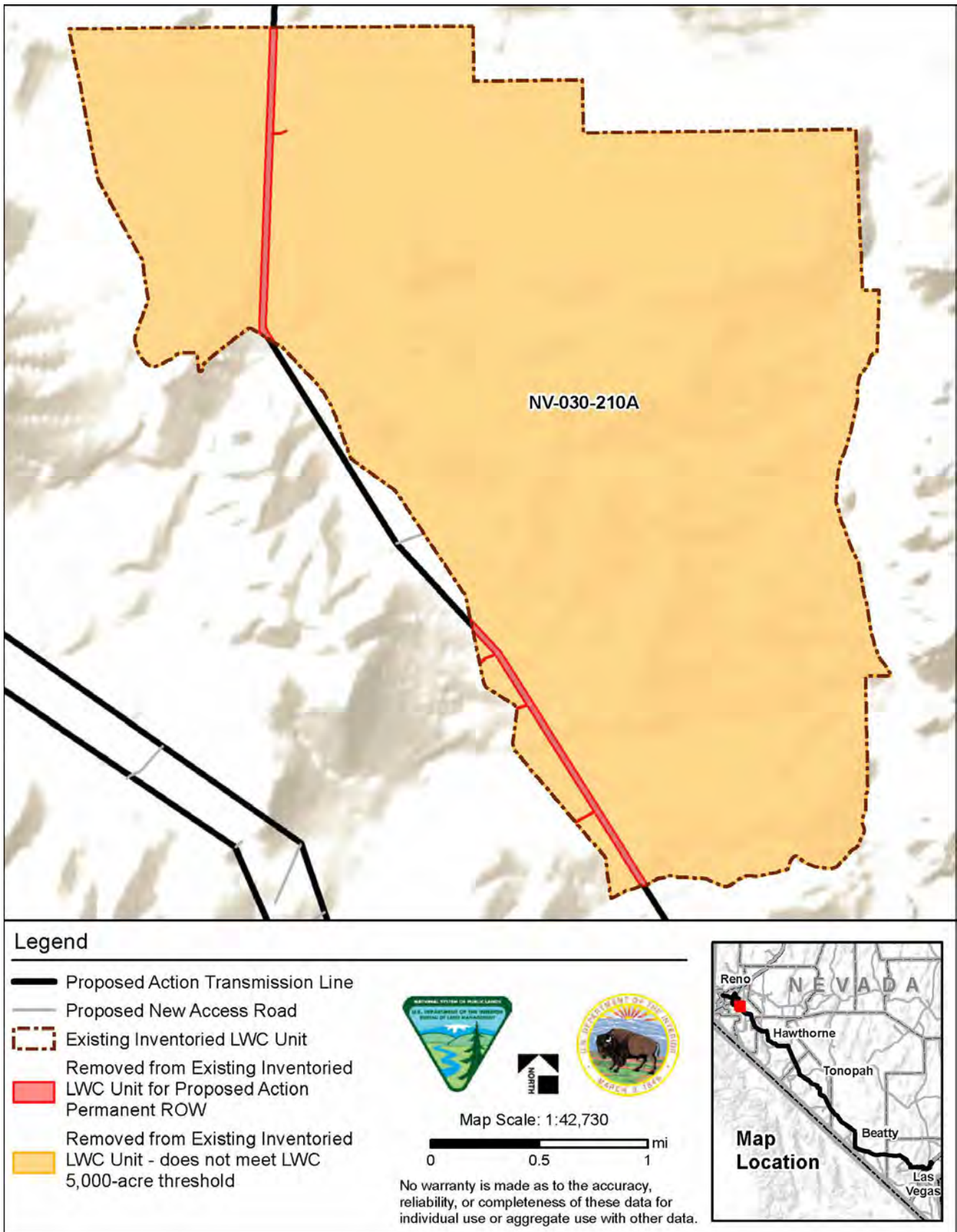
The Proposed Action would directly impact the Las Vegas Valley, Big Dune, and Walker Lake SRMAs. Approximately 9.1 miles of the 525-kV transmission line would cross the Las Vegas Valley SRMA along the edge of the SDA, primarily next to the border of the Desert NWR. The Proposed Action would not interfere with this SRMA’s management objective to facility 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 the Big Dune SRMA. There are no designated recreation facilities in this northeast corner of the 11,600-acre SRMA and there would be no restrictions on the 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 an existing transmission line. There are no designated trails in this portion of the Walker Lake SRMA or any other recreation facility and the Proposed Action would be over two miles away from the shoreline of the lake. 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.

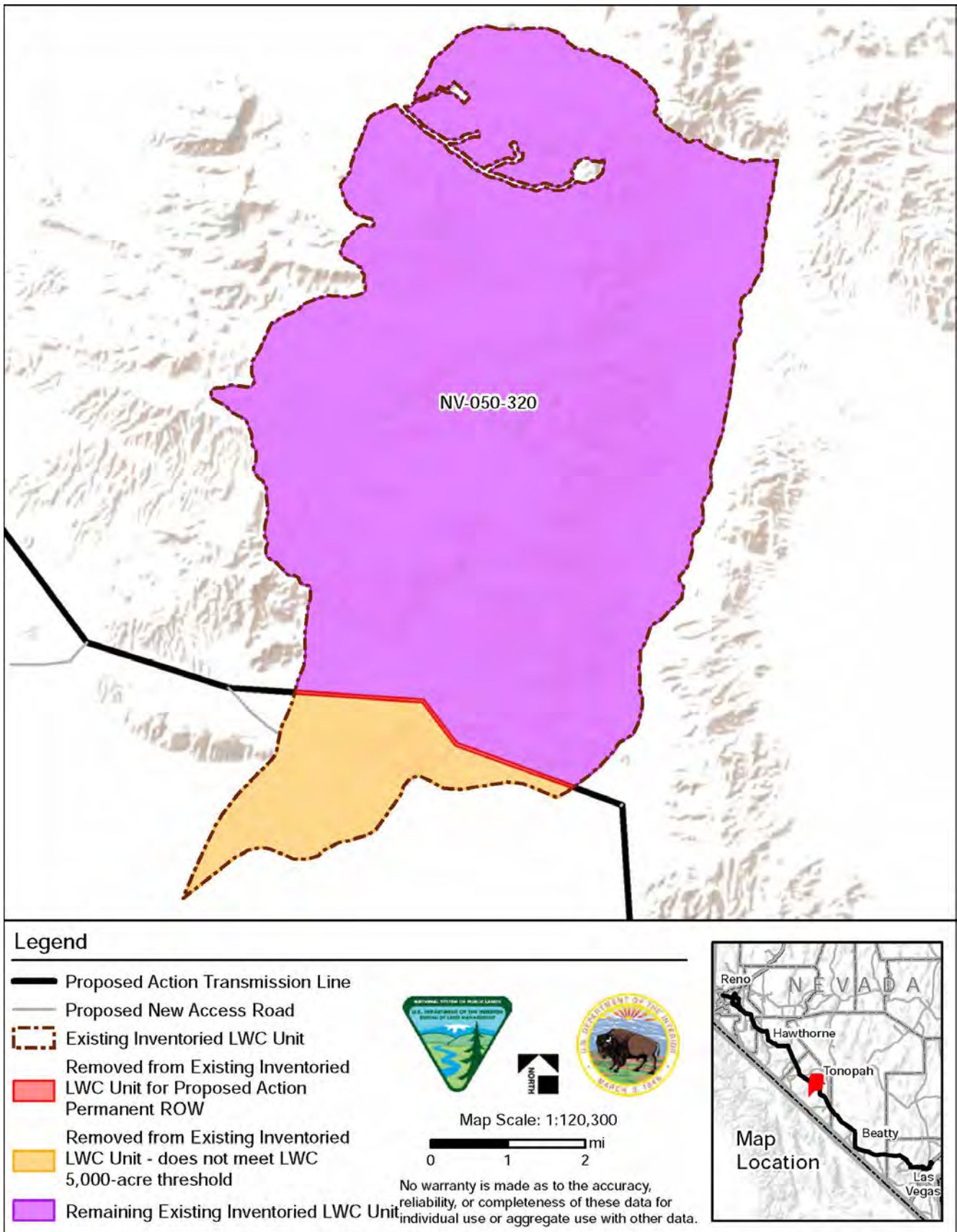
Impacts to existing inventoried LWC units would occur when the transmission line or a new access road would cross or subdivide an inventoried LWC unit and creates one or more sub-units less than 5,000 acres in size. Because the Wilderness Act establishes 5,000 acres as the minimum size threshold for wilderness, areas that fall below this threshold no longer qualify as LWC (refer to 16 USC § 1131 [c]). An existing inventoried LWC unit falling below this size threshold would be considered a “lost opportunity” for wilderness management and represents a direct impact from the GLWP. Table 3-71 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 3-31 illustrates the impact of the Proposed Action on the existing inventoried LWC Unit NV-030-210A that would result in an area that would fall below the 5,000-acre threshold. Figure 3-32 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 10 LWC units, disqualify two existing inventoried LWC units (NV-030-0210A and NV-030-211), and result in the loss of approximately 23,857.0 acres (5 percent) of inventoried wilderness characteristics within the Tonopah and Stillwater Field Offices. 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 3-71. BLM-administered Lands with Inventoried Wilderness Characteristics  
Units Crossed by the Proposed Action**

BLM Field Office	Inventoried LWC Unit Number	Total Inventoried LWC Unit Area (acres)	Area Occupied by GLWP (acres)	Inventoried LWC Unit Not Meeting 5,000 Acre Threshold (acres)	Total Area Removed from Inventoried LWC Unit (acres)	Percent Loss
Stillwater	NV-030-210A	5,699.7	56.9	5,642.9	5,699.7	100
Stillwater	NV-030-211	5,470.8	137.4	5,333.4	5,470.8	100
Stillwater	NV-030-313	16,993.1	135.5	74.5	209.9	1
Stillwater	NV-030-404A	27,744.5	187.3	158.7	346.0	1
Tonopah	NV-050-03R-15	148,226.3	64.7	1,449.0	1,513.7	1
Tonopah	NV-050-306A	67,621.9	130.3	3,319.8	3,450.1	5
Tonopah	NV-050-320	31,809.8	96.5	3,056.9	3,153.4	10
Tonopah	NV-050-330B	19,248.9	111.4	676.3	787.7	4
Tonopah	NV-050-336A	100,048.0	222.4	86.3	308.7	<1
Tonopah	NV-050-352A	9,199.6	43.7	43.5	87.2	1
<b>Total</b>		<b>445,296.7</b>	<b>1,285.3</b>	<b>22,571.6</b>	<b>23,857.0</b>	<b>5</b>



**Figure 3-31. Proposed Action Impact on Inventoried LWC Unit NV-030 - 210A**



**Figure 3-32. Proposed Action Impact on Inventoried LWC Unit NV-050 - 320**

## **Decommissioning**

Decommissioning the GLWP would require a Restoration and Decommissioning Plan in accordance with the BLM and other agency management as appropriate. Impacts from decommissioning-related activities on SDAs would be similar to those during construction, but to a lesser extent.

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

The implementation of the EMMs in Appendix C (EMMs AIR\_4, AIR-7, AIR-9, AIR 16, CON-8, NOISE\_5, TRAF\_TRANSP-1, and VIS-1 to VIS-22) would help to avoid and/or minimize impacts on SDAs. The loss of opportunities to manage BLM-administered lands inventoried under LWC status would require compensatory mitigation. The compensatory mitigation may consist of either performing, providing funding for, or some combination of preservation and/or restoration actions to improve or protect lands with inventoried wilderness characteristics. For the Proposed Action (and appropriate Action Alternatives), the Final EIS would estimate the disqualified inventoried wilderness characteristics acres that would be considered for compensatory mitigation.

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

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

The Losee Transmission Alternative A would be located approximately two miles from the Desert NWR border, which would reduce the area for unauthorized access to the SDA. This alternative would result in 29 percent less area for unauthorized access potential than the Proposed Action. The Desert NWR would experience no direct effects from implementation of the Proposed Action. However, views toward and from this SDA may be affected and are discussed in Section 3.15 Visual Resources. Approximately 3.0 miles of the Losee Transmission Alternative A would cross the Las Vegas Valley SRMA along the extension of the alignments of Moccasin and Losee roads. The Proposed Action would not interfere with this SRMA's management objective to facility the provision of open space areas, recreational trails, and parks. The Proposed Action would cross the Las Vegas Valley SRMA for approximately 1.0 mile.

### **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 have a long-term presence in the Monument that would conflict with the TUSK's purpose to preserve landmarks, structures, and objects of natural, historic, or scientific interest. Specific resource impacts are provided in the respective biological, visual, paleontological, and cultural resources section of this EIS. The Proposed Action would have the greater total ground disturbance as compared to the TUSK Transmission Alternative B because 11 vertical monopole of the Proposed Action versus 6 guyed-V lattice structures of the TUSK Transmission Alternative B that would be constructed.

The La Madre Mountain Wilderness is five miles southwest of the TUSK Transmission Alternatives B and the Proposed Action. While no direct effects would result from implementation of the GLWP, views toward and from the wilderness may remind visitors of the sights and sounds of civilization, resulting in a loss of opportunities for solitude. These are discussed in more detail in Section 3.15 Visual Resources.

### 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 three miles of the Proposed Action and Beatty Transmission Alternatives A and K. Beatty Transmission Alternative C is located approximately 1.5 miles from the Timber Mountain Caldera ACEC. The Proposed Action may be visible from a distance of approximately 2.9 miles or more and the impacts to the viewshed are discussed in Section 3.15 Visual Resources. There would be no change in primary use, use patterns, or functions at the Timber Mountain Caldera ACEC and the Proposed Action would not alter the management of the ACEC.

Table 3-72 identifies the LWC unit (NV-050-363) that would be intersected by the Beatty Transmission Alternatives A, C, G, and K 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 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 3-72. Existing Inventoried LWC Units Crossed by the Beatty and Carson River Transmission Alternative Groups**

Transmission Alternative	Inventoried LWC Unit Number	Total Inventoried LWC Unit Area (acres)	Area Occupied by GLWP (acres)	Inventoried LWC Unit Not Meeting 5,000 Acre Threshold (acres)	Total Area Removed from Inventoried LWC <sup>a</sup> Unit (acres)	Percent Loss
Beatty Transmission Alternative A	NV-050-363	13,234.1	96.9	2,732.8	2,829.7	21
Beatty Transmission Alternative C	NV-050-363	13,234.1	96.9	2,732.8	2,829.7	21
Beatty Transmission Alternative G	NV-050-363	13,234.1	5.6	13.3	18.9	<1
Beatty Transmission Alternative K	NV-050-363	13,234.1	5.6	13.3	18.9	<1
Beatty Transmission Alternative Proposed Action	NV-050-363	13,234.1	96.9	2,732.8	2,829.7	21
Carson River Transmission Alternative C	NV-030-210A	5,699.7	48.9	5,650.8	5,699.7	100
Carson River Transmission Alternative C	NV-030-517	36,645.3	462.6	961.4	1,424.0	4
Carson River Transmission Alternative C	NV-030-521	11,165.9	32.9	24.9	57.8	<1

Transmission Alternative	Inventoried LWC Unit Number	Total Inventoried LWC Unit Area (acres)	Area Occupied by GLWP (acres)	Inventoried LWC Unit Not Meeting 5,000 Acre Threshold (acres)	Total Area Removed from Inventoried LWC <sup>a</sup> Unit (acres)	Percent Loss
Carson River Transmission Alternative C	NV-030-522	9,446.7	245.9	2,088.2	2,334.2	25
Subtotal for Carson River Transmission Alternative C		62,957.6	790.3	8,725.3	9,515.7	15
Carson River Transmission C – Proposed Action	NV-030-210A	5,699.7	69.9	5,629.8	5,699.7	100
Carson River Transmission C – Proposed Action	NV-030-211	5,470.8	163.5	5,307.3	5,470.8	100
Subtotal for Carson River Transmission Alternative C – Proposed Action		11,170.6	233.5	10,937.1	11,170.6	100

Table Note: <sup>a</sup>Acres may not sum exactly because of rounding.

### 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 B and the Proposed Action would not come within five miles of any SDA. Scotty’s Junction Transmission Alternative A would come within 3.2 miles of the Grapevine Mountain WSA. While no direct effects would result from implementation of Scotty’s Junction Transmission Alternative A, scenic views toward and from the WSA may be affected, resulting in visitors seeking opportunities for solitude to be reminded of the sights and sounds of civilization. These impacts are discussed in detail in Section 3.15 Visual Resources. 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. The Scotty’s Junction Transmission Alternative B and the Proposed Action would not impact any inventoried LWC unit in BLM’s Tonopah Field Office.

### 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 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 vegetation. Visual impacts created by Mason Valley WMA Transmission Alternative A would

not notably change as transmission lines and a railroad corridor already impact existing landscape character. This alternative would create a noticeable short-term change in the primary use of the WMA but would generally be in conformance with the WMA's managing agency policies since there would be no transmission line towers within the SDA. The Proposed Action would create a long-term change in the WMA's primary because of the greater permanent ROW area (approximately 82.2 acres) as compared to the Mason Valley WMA Transmission Alternative A (approximately 5.0 acres) and as well, have potentially up to 15 structures within the WMA versus none with Mason Valley WMA Transmission Alternative A. The Mason Valley WMA Transmission Alternative A and the Proposed Action would not impact any inventoried LWC units in BLM's CCDO.

#### **3.11.4.9 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

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

The Carson River Transmission Alternative A's 345-kV Fort Churchill to Comstock Meadows #2 transmission line would be approximately 3.4 miles from the western boundary of Fort Churchill Historic State Park and approximately 7.4 miles from Buckland Station. The comparable segment of the Proposed Action would be approximately 1.0 miles from the park's western boundary and approximately 4.3 miles from Buckland Station. There would be no change in primary use, use patterns, or functions at Fort Churchill Historic State Park because neither the Carson River Transmission Alternative A or comparable segment of the Proposed Action would directly cross through the park. However, changes in the views from the within the park from both of these transmission lines would be dependent on the presence or absence of foliage of the riparian gallery of trees along the Carson River, the distance from the park (and park visitor) to the transmission lines, and the terrain. More detail on the visual effects of the Action Alternatives' transmission lines on the Fort Churchill Historic State Park is provided in Section 3.15 Visual Resources.

The 345-kV Fort Churchill to Comstock Meadows #1 and the Fort Churchill to Mira Loma transmission lines associated with Carson River Transmission Alternative C and the comparable segment of the Proposed Action would not visually discernible from the Fort Churchill Historic State Park primarily. These 345-kV lines would be more than five miles from the park and would be seen intermittently because of the terrain associated with the Pine Nut Mountains and the Carson River's riparian vegetation. The Carson River Transmission Alternative C's 345-kV Fort Churchill to Comstock Meadows #2 and the comparable segment of the Proposed Action would both be within the FG of the western boundary of the park, approximately 100 feet and approximately 1.0 mile, respectively. The visual effect on the park's users views and experience would be an obvious change in the existing landscape character and setting, specifically from Carson River Transmission Alternative A since it would be immediately adjacent to the park boundary. The visual setting would appear to be substantially altered when the structures are that close because of the scale and form of the structures, even with the backdrop of adjacent mountains. Because neither the Carson River Transmission Alternative A or comparable segment of the Proposed Action would cross directly through the park, there would be no change in primary use, or functions at park. However, there may be a change in the use pattern from Carson River Transmission Alternative A because visitors may avoid this end of the park because the H-frame structures would dominate the setting.

Only the Carson River Transmission Alternative C and comparable Proposed Action would cross through any inventoried LWC units in the CCDO. The Carson River Transmission Alternative C would intersect four inventoried LWC units (NV-030-210A, NV-030-517, NV-030-521, and NV-030-522) (refer to Table 3-72). The comparable segment of the Proposed Action would intersect with the LWC Units NV-030-210A and NV-030-211 (refer to Table 3-72). Carson River Transmission Alternative C would impact approximately



9,515.7 acres (15 percent) of the inventoried LWC units that the alternative would cross and result in the loss of the LWC Unit NV-030-210A because it would reduce the unit below the 5,000-acre threshold. The comparable Proposed Action would impact approximately 11,170 acres (100 percent) of the units crossed and would result in the two of the inventoried LWC units that would be eliminated from the LWC inventory in BLM's CCDO.

#### **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 or the Amargosa Microwave group alternatives; this is because there are no SDAs near these alternatives. Both the AS-1 and AS-2 (Proposed Action) are near the Big Dune SRMA and the Big Dune ACEC—approximately 1.0 mile and 2.6 miles, respectively. Neither of the Amargosa Substation alternatives would impact these SDAs.

#### **3.11.4.11 Impacts from Anti-Perching/Nesting 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 0.5 miles of SDAs would attract attention and be visually prominent. With either tower structure, the visual setting would appear to be substantially altered when the structures are in close proximity (less than 0.5 miles) because of the scale and form of the structures, even with the backdrop of adjacent mountains. In comparison to the guyed lattice structures, the characteristic landscapes would also be substantially altered where the 525-kV H-frame structures would be between 0.5 miles and 3 miles from the SDA. Compared to the guyed lattice structures, the 525-kV H-frame structures would attract more attention in the landscape because they would not blend as well into the landscape 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 a 10-mile viewshed of the GLWP included 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). Relevant nature and purposes, trail 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 are provided in the NHT Inventory and Assessment Report (Appendix M). 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 the 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.

Criteria for consideration as high potential route segments and historic sites include historic significance, presence of visible historic remnants, scenic quality, and relative freedom from intrusion. The California NHT Carson Route (along US 50) and Old Spanish NHT California Crossing are considered high potential route segments.

### **3.12.1 Issues Identified for Analysis**

- How would the GLWP affect the NHTs (Old Spanish, California, and Pony Express)?
- 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**

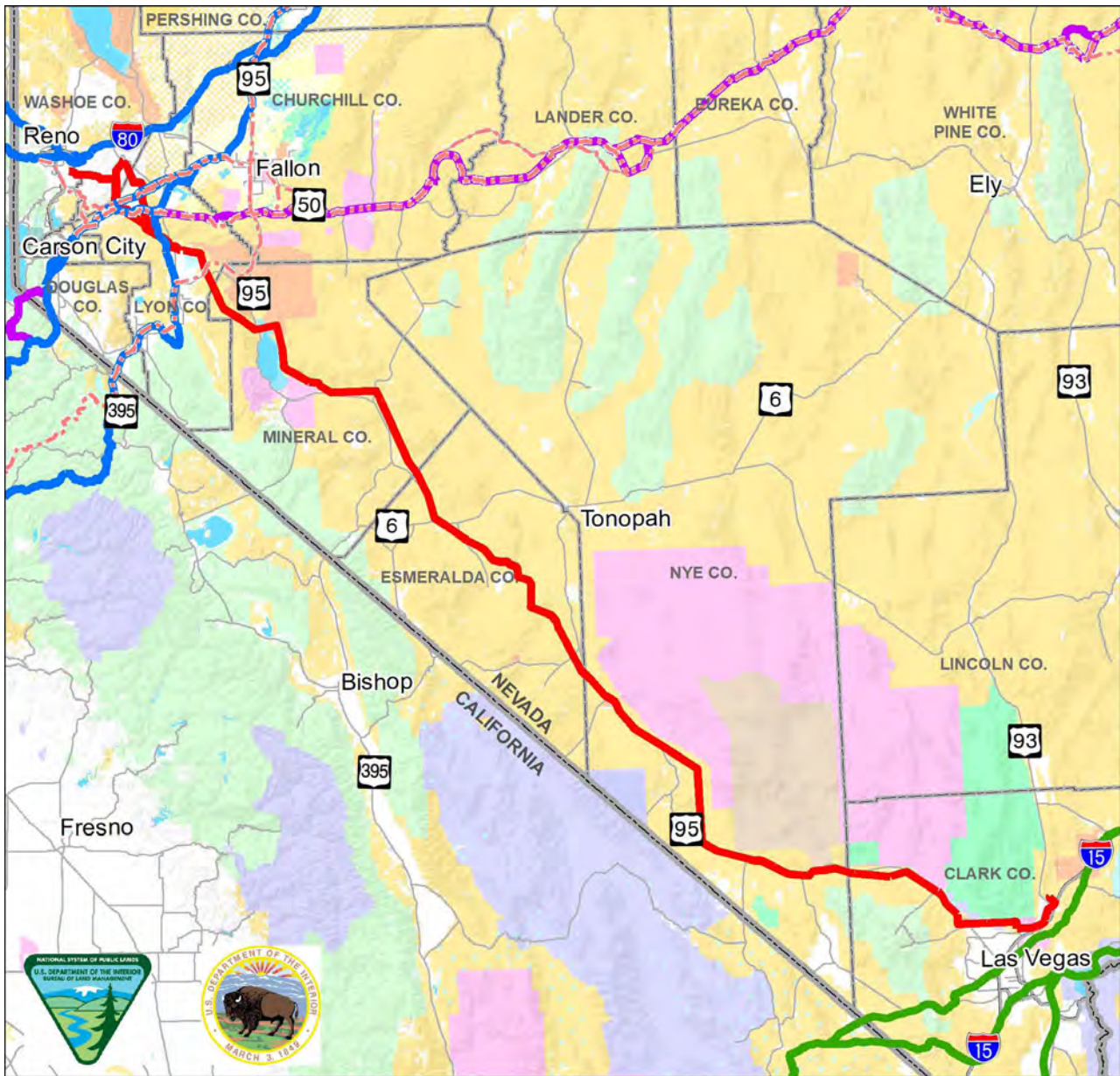
#### **Analysis Area**

The NHT analysis area is defined as the five-mile buffer from the transmission centerline for Action Alternatives and is approximately 2,755,542 acres.

#### **Methodology**

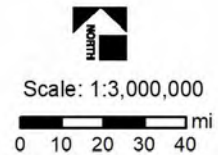
In compliance with the BLM Manual 6280, Management of National Scenic and Historic Trails Under Study or Recommended as Suitable for Congressional Designation, this section and the GLWP NHT Inventory and Assessment Report (Appendix M) identifies the resources, qualities, values, associated setting, and primary uses that support the nature and purpose of affected NHTs and impacts. The BLM established NHT Inventory Analysis Units (IAUs) for the California and Pony Express NHT Carson Route and California NHT Walker River Route, two NHT routes that the GLWP would directly cross and where impacts would occur. The IAUs were delineated to generally encompass a five-mile viewshed from those NHT segments that occur with the GLWP area. The IAUs include the GLWP Visual Area of Potential Effects (GLWP VAPE) and the GLWP Direct Area of Potential Effects (GLWP DAPE), which encompass all areas that may be subject to ground-disturbing activity plus an approximately 98.4-foot buffer (Section 3.6 Cultural Resources).

Key observation points (KOPs) within the IAUs were selected to capture the components of the GLWP and the existing features, both natural and build-features, that would be seen or not seen from the NHTs. Field crews visited the GLWP area to observe trail traces, historic properties, recreational viewpoints, and Auto Tour Routes and to analyze the impacts to historic properties within five miles of the GLWP. Figure 3-33 shows the locations of the Proposed Action and Congressionally designated NHTs. Visual impacts to historic properties were evaluated in Section 3.6 Cultural Resources. Visual effects are considered direct effects (rather than indirect effects), but they will not result in physical disturbance to historic properties.



**Legend**

- |   |                              |
|---|------------------------------|
| Proposed Action Transmission Line                     | Department of Defense        |
| Feasible and Suitable Segments Under Study (NPS 2021) | US Fish and Wildlife Service |
| California National Historic Trail                    | US Forest Service            |
| Old Spanish National Historic Trail                   | Indian Reservation           |
| Pony Express National Historic Trail                  | National Park Service        |
| Bureau of Land Management                             | State                        |
| Department of Energy                                  | Private                      |
| Bureau of Reclamation                                 | Water                        |



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. Congressionally Designated NHTs**

A National Trail inventory and assessment and IAUs were not prepared for other routes of the California NHT and Old Spanish NHT as changes to landscape character resulting from the GLWP would not be visually discernible and would not attract attention within the existing landscape.

The BLM has provided project updates to NPS, the Oregon California Trail Association and National Pony Express Association. The Oregon California Trail Association has identified impacts to the visual setting and trail traces where GLWP would cross the Carson Route. The BLM will continue working with the Oregon California Trail Association to address their concerns prior to the Final EIS.

### **3.12.3 Affected Environment**

Resources, qualities, values, associated settings, and primary use or uses associated with scenic, cultural and historic, recreational and travel management, and natural elements of each NHT or Trails Recommended as Suitable for Congressional Designation are described in detail in the GLWP NHT Inventory and Assessment Report (Appendix M) and summarized here to document the baseline conditions of the NHT analysis area.

#### **The California and Pony Express NHTs and Feasible and Suitable Routes**

For a historical context of the California and Pony Express NHTs, refer to Section 3.6 Cultural Resources and the GLWP NHT Inventory and Assessment Report (Appendix M). 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, biking, horseback riding, using a handcart, using a covered wagon, historic interpretation, visiting trail sites and related features, and driving along auto-tour routes (NPS 1998).

Affected NHT routes occur in three major groups from north to south:

- 1) The California NHT's Truckee Route, Beckwourth Trail, and I-80 Auto Tour Route that generally follow the I-80 corridor north of the GLWP;
- 2) The California NHT's Carson Route, Carson Wet/Dry Route, and Simpson Route #35E that generally follow US 50; and the Carson River Route, Simpson Route #35E, and Pony Express NHT that parallel the Carson River (addressed in the Carson River IAU); and
- 3) The California NHT Walker River segment that follows the Walker River north-south and Bidwell-Bartleson Route #39 (addressed in the Walker River IAU).

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. This area encompasses VRM Classes III and IV and includes built features of urban development throughout the IAU and the I-80 corridor.

The Carson River IAU contains the US 50 Auto Tour Route from Silver Springs to approximately Dayton. California NHT segments following the US 50 Auto Tour Route are classified as a High Potential Segments (the Carson Route, Carson Dry Route, and the Carson Wet Route). One Simpson Route #35E segment also parallels US 50. The Carson River IAU extends north from the Flowery Range southward to the Carson River, the Fort Churchill Historic State Park, and the Pine Nut Mountains. Two nearly parallel segments of the California and Pony Express NHTs and the Simpson Route #35E follow the Carson River from Fort Churchill Historic State 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 State Park are not classified as high potential segments, yet the dominance of the river corridor and

cottonwoods along the Carson River Route, high-quality recreation and interpretive opportunities, average scenic quality, rich history, undeveloped character, ease of access, and its historic setting remain intact despite concentrated industrial uses at the Nevada Automotive Test Center. Combined, these attributes are representative of a high potential segment. This IAU encompasses VRM Classes III and IV and includes built features and urban development activities throughout the IAU and the US 50 corridor.

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. The 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-west in the southern portion of the Walker River IAU. This IAU encompasses VRM Class IV and includes built features and urban development activities as well as areas not currently classified for VRM.

### **The Old Spanish National Historic Trail**

For a historical context of the Old Spanish NHT, see Section 3.6 Cultural Resources and the GLWP NHT Inventory and Assessment Report (Appendix M) The Congressional legislation authorizing the trail 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 designation of the trail commemorates the commercial trading activities between New Mexico and California from 1829 to 1848 (BLM and NPS 2017). The Old Spanish NHT's 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 trail also honors the persistence and courage of early 19<sup>th</sup> century Mexican traders from New Mexico (BLM and NPS 2017).

Resources, qualities, values, associated settings, and primary use or uses associated with the scenic, cultural and historic, recreational and travel management, and natural landscape elements along the Old Spanish NHT are provided in more detail in the GLWP NHT Inventory and Assessment Report (Appendix M). The GLWP would only affect the Northern Route of the Old Spanish NHT. Potentially visible portions of Northern Route segments fall within the City of North Las Vegas, the BLM Nellis Dunes OHV Recreation Area, Nellis Air Force Base, and urban portions of Clark County. The Northern Route crosses areas managed as VRM Class III and 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 distance to the GLWP components; any impacts may be reduced with the implementation of EMMs (Appendix C. EMMs BIO-16, BIO-35, CON-8, CON-15, CULT-4, CULT-6, OPS-1, OPS-3, REC-20, and VIS-1 to VIS-22) and the Cultural Resources Mitigation Plan (Appendix K). 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 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 with the No Action Alternative.

#### 3.12.4.2 Direct and Indirect Impacts Common to all Action Alternatives

##### Construction

Common Action Alternatives-related construction impacts to the four affected segments' (California NHT I-80 corridor segment, California and Pony Express NHT's Carson Route, California NHT Walker River segment, and Old Spanish Trail Northern Route segment) landscape elements are summarized below:

- **Scenic:** Visual changes from construction of the Action Alternatives could modify the NHTs' visual settings by introducing form, line, color, and texture where the GLWP components are not similar to common built features in the existing landscape. The California and Pony Express NHTs and Central Overland Emigrant Route in the Carson River IAU and Walker River IAU would be physically crossed by the Action Alternatives. The California NHT segments along I-80 and the Old Spanish Trail would not be crossed by the Action Alternatives. No visual impacts to known NHT-associated historic properties would occur. Section 3.15 Visual Resources provides a summary of the additional impacts from views from the KOPs near NHTs.
- **Historic and Cultural:** Construction activities that modify the slope of the natural terrain, compact soils, and remove vegetation could cause increased erosion of trail traces and archaeological deposits. Looting and vandalism due to the increase of accessibility from constructed roads can also be an impact. New transmission lines and access roads would reduce the historic integrity of less-developed settings. Private land was not surveyed during the Class III fieldwork and would be monitored during construction and impacts to known trail segments would be avoided, if feasible. There are no known historic properties visually affected by the construction of the Action Alternatives within the Carson River and Walker River IAUs.
- **Recreational and Travel Management:** Impacts to recreation settings, experience, and activities would occur during construction activities. Construction noise, dust, and the presence of heavy equipment and workers would displace recreationists in the Carson River IAU and Walker River IAU. New roads and improved existing roads in the immediate vicinity of NHT traces may contribute to unauthorized recreational travel and route proliferation. Refer to Section 3.13 Land Use, Realty, and Indian Trust Assets for additional discussion of impacts from GLWP access and maintenance roads.
- **Natural:** Activities from the construction of the GLWP components would disturb soils and vegetation and affect the appearance of mountain, basin, foothills, and riparian landscapes representative of the Basin and Range physiographic province. The dusting of vegetation, vegetation removal, and potential spread of invasive species/noxious weeds during construction would affect existing vegetation. Soil disturbance, displacement, and erosion would occur within areas of the temporary and permanent ROW. Refer to Section 3.2 Vegetation for additional discussion of impacts from GLWP.

## Operations and Maintenance

During O&M, all access and maintenance roads would be maintained as permanent, unless otherwise specified by the landowner or land-administrator. Annual inspections of the lines and substations associated with the Action Alternative would be conducted by helicopter, all-terrain vehicles, or line trucks on existing access and service roads. The O&M of the GLWP transmission line and ancillary facilities would have intermittent noise, dust, and visual impacts to the NHT landscape elements. The magnitude of change to the landscape elements and scenic quality from the Action Alternatives would vary depending on the existing conditions, presence of existing built features, scale of GLWP facilities, and distance from the NHT. The views of the setting from the NHTs may be altered by the presence of the GLWP transmission line and from the occasional O&M vehicle by introducing form, line, color, and texture not existing in the existing landscape.

## Decommissioning

The impacts associated with the decommissioning process would be similar to the construction-related effects for the Action Alternatives, but to a lesser extent. Scenic, cultural, recreational, and natural landscape elements 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, transmission line stringing, and material stockpiles. The impacts would be intermittent and would cease once decommissioning is complete.

### 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 1.9 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 4.8 miles. Within the Reno metropolitan area, the Truckee Route, Beckwourth Trail, and I-80 Auto Tour Route do not possess aspects of integrity. The visible portion of the Proposed Action from these NHT routes occur in the middleground (MG) as it enters the existing Mira Loma Substation in context with existing urban, suburban, industrial, and other electrical facility uses. Refer to Table 3-73 for summary of the impacts on the California NHT I-80 segments by the Proposed Action.

**Table 3-73. Proposed Action Impacts to I-80 NHT Segments**

NHT-Designated Resources	Length of NHT with Views of Proposed Action (miles)	Proposed Action Crossings	Scenic Impacts	Cultural and Historic Impacts	Recreational Impacts	Natural Impacts
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

*Table Acronyms:* CALI – California National Historic Trail; I-80 – Interstate 80; N/A – Not Applicable; NHT – National Historic Trail

Table Notes: <sup>a</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>b</sup>National Trail recreation and travel management opportunities and settings would be modified minimally by the GLWP. Contributing qualities would continue to define the character of the trail.

Views from the Truckee Route, Beckwourth Trail, and I-80 Auto Tour Route Segments resulting from Proposed Action’s O&M activities would result in the same impacts as the O&M impacts common to all Action Alternatives.

**Carson River IAU Segments (California and Pony Express NHTs)**

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

The GLWP would add three larger, 345-kV steel H-frame transmission lines to the landscape where one wood H-frame transmission line currently exists. Refer to Figure 3-34 for a viewshed of the Proposed Action in the Carson River IAU and Walker River IAU. Overall, the California and Pony Express NHTs and the Simpson Route #35E would be physically crossed by the 345-kV transmission lines in 19 locations, though some of these locations overlap. The Proposed Action would cross the California and Pony Express NHTs on private land that would not be subject to a Class III cultural resources inventory and report until after publication of the EIS and ROD using the process outlined in 36 CFR 800.8(c). When right-of-entry is obtained from private landowners for the GLWP, all private lands in the DAPE would be inventoried for cultural resources prior to construction and/or monitored during construction (Section 3.6 Cultural Resources). Implementation of EMMs (refer to Appendix C. EMMs BIO-16, BIO-35, CON-8, CON-15, CULT-4, CULT-6, OPS-1, OPS-3, REC-20, and VIS-1 to VIS-22) would minimize impacts to NHT features. Refer to Table 3-74 for summary of the impacts on the Carson River IAU by the Proposed Action.

**Table 3-74. Proposed Action Impacts to Carson River IAU Segments**

<b>NHT-Designated Resources</b>	<b>Length of NHT with Views of Proposed Action (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>
Fort Churchill State Historic Park (High Potential Historic Site)	N/A	1 Existing Access Road (Fort Churchill Rd)	None (not visible)	None	None	None
Buckland Station	N/A	1 Existing Access Road (US 95)	None	None	None	None
CALL: Carson Route (High Potential Segment)	12.1	6 Existing Access Roads 3 Existing Access Roads Requiring Improvements 2 Transmission lines	Minor <sup>a</sup>	None	Minor <sup>b</sup>	Minor <sup>c</sup>
CALL: Carson Route – Dry Route (High Potential Segment)	8.8	3 Existing Access Roads 1 Existing Access Roads Requiring Improvements 1 Transmission Line	Minor	None	Minor	Minor
CALL: Carson Route – Wet Route (High Potential Segment)	8.9	3 Existing Access Roads 1 Existing Road Requiring Improvements 1 Transmission Line	Minor	None	Minor	Minor



<b>NHT-Designated Resources</b>	<b>Length of NHT with Views of Proposed Action (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: Carson Route (i.e., Carson River Route)	20.4	42 Existing Access Roads 8 Existing Access Roads Requiring Improvements 1 New Access Road 3 Transmission Lines	Minor	Moderate <sup>d</sup>	Minor	Minor
POEX: Carson Route (i.e., Primary Route)	19.7	41 Existing Access Roads 5 Existing Road Requiring Improvements 1 New Road 3 Transmission Lines	Minor	Moderate	Minor	Minor
US 50 Auto Tour Route and Waysides	25.4	3 Transmission Lines	Minor	None	Minor	Minor
Central Overland Emigrant Route – Simpson Route #35E	47	9 Transmission Lines 36 Existing Access Roads 32 Existing Road Requiring Improvements	Minor	Moderate	Minor	Minor

*Table Acronyms:* CALI – California National Historic Trail; IAU – Inventory Analysis Unit; N/A – Not Applicable; NHT – National Historic Trail; POEX – Pony Express National Historic Trail; US – United States

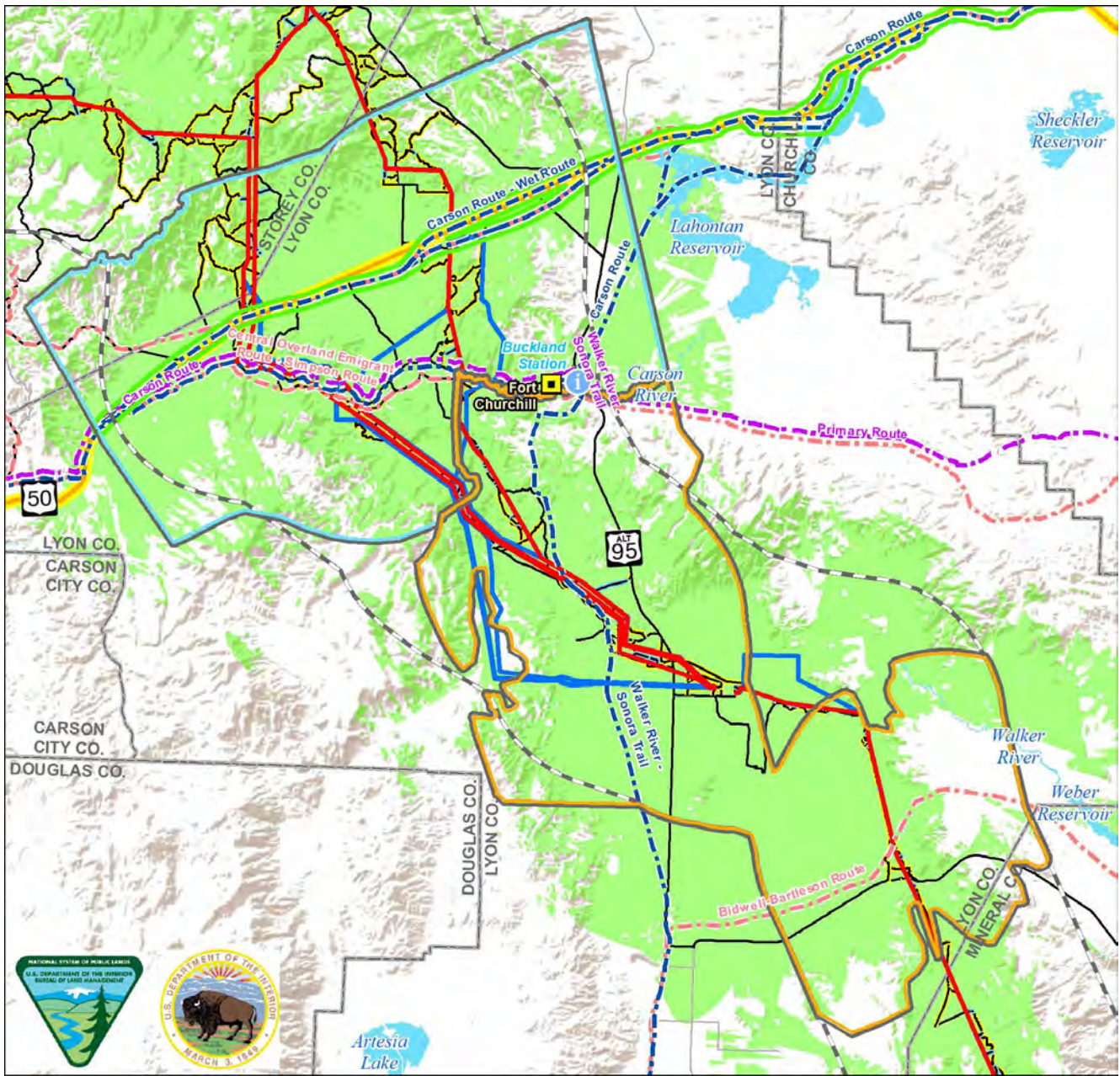
*Table Notes:* <sup>a</sup>The magnitude of the contrast produced by the GLWP would be low as compared to other features and patterns in the viewshed per contrast ratings. The GLWP components would introduce elements/patterns common in the landscape that would be visually subordinate. Views of the GLWP would be relatively short in duration.

<sup>b</sup>National Trail recreation and travel management opportunities and settings would be modified minimally by the GLWP. 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 by the GLWP. Contributing qualities would continue to define the character of the trail.

<sup>d</sup>The magnitude of contrast produced by the GLWP would attract attention and the GLWP components would be visually prominent in the views from NHT 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.

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 addition to the presence of overhead distribution lines of varying sizes and streetlight structures on both sides of the highway. In the MG from the Carson Route and the Simpson Route #35E segments, the Proposed Action would not be seen.

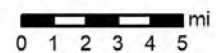


**Legend**

- High Potential Site (NPS 2021)
- National Historic Trail Point of Interest
- NHT<sup>1</sup> California National Historic Trail (NPS 2021) (55)
- NHT<sup>1</sup> Pony Express National Historic Trail (NPS 2021)
- NHT<sup>1</sup> California High Potential Segment (NPS 2021)
- NHT<sup>3</sup> Auto Tour Route (NPS 2022)
- Feasible and Suitable Segments Under Study (NPS 2021)
- 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
- Viewshed of Proposed Action Transmission Line Route
- 5-Mile Buffer of Proposed Action



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 3-34. Viewshed of the Proposed Action and Affected NHTs**

The three 345-kV transmission lines would cross the Carson River segment of the California NHT, the Pony Express NHT and the Simpson Route #35E through a portion of the Carson River Valley with Class B scenic quality, natural resource values, rich history, recreational settings, interpretive opportunities, and a historic setting that remains intact (refer to Figure 3-35). Each of these landscape elements and the resulting opportunities for vicarious experiences, such as the Pony Express Annual Re-Ride, would be impacted. Effects would be most pronounced for 5.5 miles where two of the 345-kV transmission lines would be parallel and cross 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 density of the cottonwoods (both in summer and winter) and other riparian vegetation associated with 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 trail because of the dense riparian vegetation in the river corridor and the adjacent mountainous terrain which backdrops the views from the trail. North and south of the Carson River, the three 345-kV transmission lines would be visually prominent when viewed in the FG and MG from the Carson River segment of the California NHT, the Pony Express NHT and Simpson Route #35 because the GLWP would add three transmission lines where only one parallel H-frame and a distribution line exists and there is no vegetation to potentially screen the views of the overhead lines and new structures.

Beyond the NHT analysis area, the three 345-kV transmission line may be visible at distances of up to 10 miles, but notable impacts that would be discernible to the casual observer would occur only up to five miles away from the proposed transmission line. Beyond five miles the visual setting would appear to retain intactness because the scale of the mountains, Carson River riparian vegetation, and other landforms in the setting are more dominant than the addition of the transmission lines would be. Refer to Section 3.15 Visual Resources for additional discussion of visual impacts to the California and Pony Express NHTs.

Views from the Carson River segment of the California NHT and Pony Express NHT and the Simpson Route #35E resulting from Proposed Action's O&M activities would result in the same impacts as the O&M impacts common to all Action Alternatives.

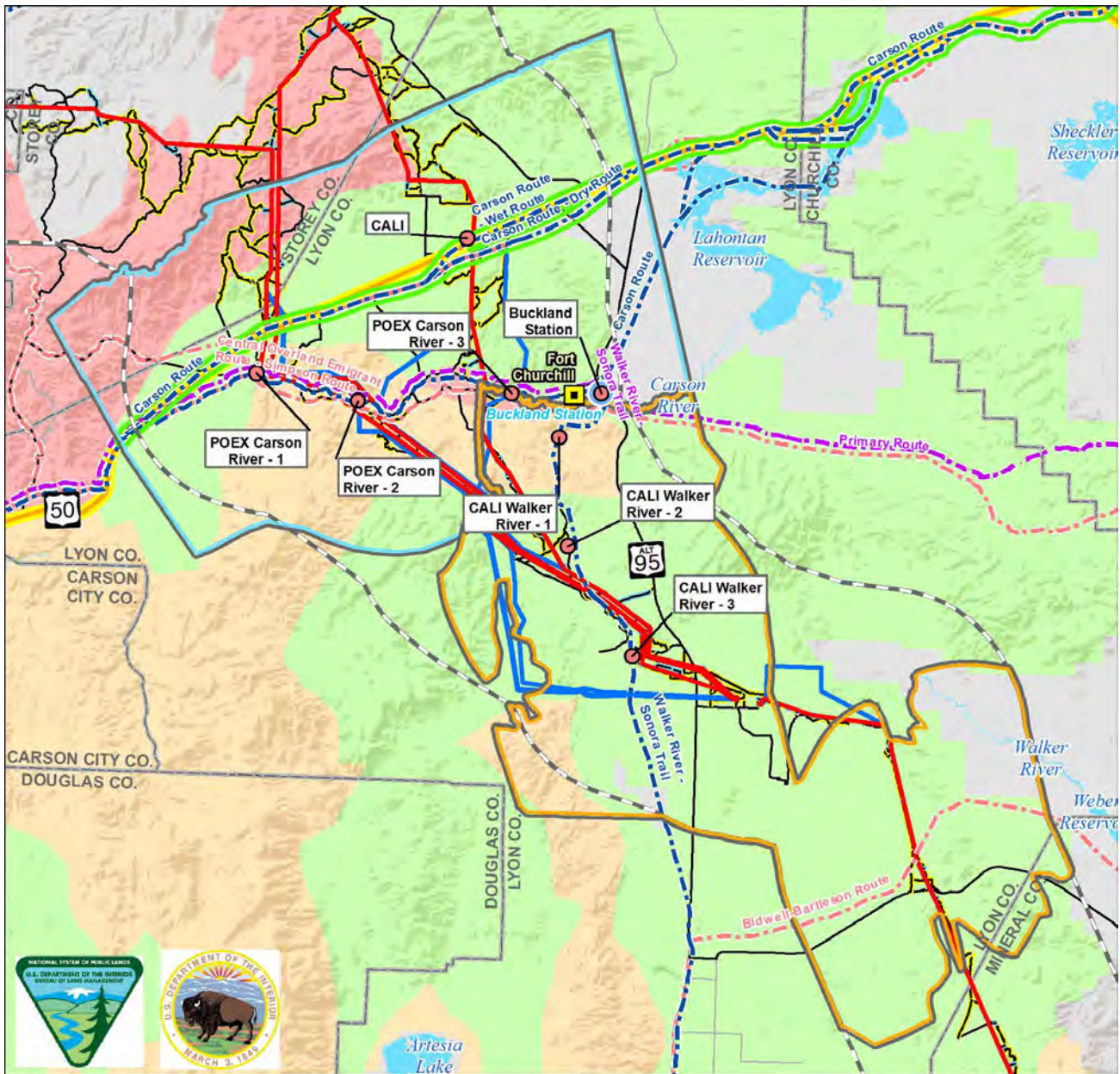
### **Walker River NHT IAU (California and Pony Express NHTs)**

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

The California NHT Walker River-Sonora Route would be physically crossed by three larger, 345-kV steel H-frame transmission lines in one location where one parallel, H-frame transmission line currently exists. The Proposed Action crosses the Walker River-Sonora Route on private land that would not be subject to a Class III cultural resources survey and report until after publication of the ROD using the process outlined in 36 CFR 800.8(c). When right-of-entry is obtained from private landowners for the GLWP, all private lands in the DAPE would be inventoried for cultural resources prior to construction and/or monitored during construction (Section 3.6 Cultural Resources). The Pony Express would not be physically crossed by the 345-kV transmission lines in the northeast portion of the IAU. Refer to Figure 3-35 for location of the Walker River-Sonora Route segment crossings, KOPs, and historic properties. Refer to Table 3-75 for summary of the impacts on the Walker River IAU by the Proposed Action.

The northern portion of the Walker River-Sonora Route segment that parallels an unnamed drainage through the Pine Nut Mountains (Visual Analysis Unit [VAU] CCDO-026), Desert Mountains (VAU CCDO-040) and Adrian Valley (VAU CCDO-039) described in Appendix M NHT Inventory and Assessment Report and Appendix P BLM Visual Resource Analysis Information. The setting is enclosed by foothills and

mountains and views are focused on the incised drainage. The Desert Mountains and Adrian Valley retain integrity of setting and feeling and a recreation setting that supports vicarious experiences. These



**Legend**

- Key Observation Point (KOP)
  - High Potential Site (NPS 2021)
  - National Historic Trail Point of Interest
  - NHT<sup>1</sup> California National Historic Trail (Linear KOP, NPS 2021)
  - NHT<sup>1</sup> Pony Express National Historic Trail (Linear KOP, NPS 2021)
  - NHT<sup>1</sup> California High Potential Segment (NPS 2021)
  - NHT<sup>3</sup> Auto Tour Route (Linear KOP, NPS 2022)
  - Feasible and Suitable Segments Under Study (NPS 2021)
  - 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
  - 5-mile Buffer of Proposed Action
- Scenic Quality Rating Code**
- A - 18.5 or More Total 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

0 1 2 3 4 5 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 3-35. Carson River NHT IAU and Walker River NHT IAU – KOPs and Scenic Quality Rating Unit (SQRUs)**

**Table 3-75. Proposed Action Impacts to Walker River IAU Segments**

NHT-Designated Resources	Length of NHT with Views of Proposed Action (miles)	Number of Proposed Action Crossings	Scenic Impacts	Cultural and Historic Impacts	Recreational Impacts	Natural Impacts
CALI: Walker River – Sonora Route	18.6	1 Existing Access Roads 4 Existing Road Requiring Improvements 3 Transmission Lines	Moderate <sup>a</sup>	Moderate <sup>a</sup>	Moderate <sup>b</sup>	Minor <sup>c</sup>
POEX: Primary Route	0.5	1 Existing Access Road 0 Transmission Lines	Minor <sup>d</sup>	Moderate	Minor <sup>e</sup>	Minor
POEX: Carson Route	0.3	0 Access Roads 0 Transmission Lines	Minor	None	Minor	Minor
Central Overland Emigrant Route – Bidwell-Bartleson Route #39	8.7	1 Transmission Line 0 Existing Access Roads 4 Existing Road Requiring Improvements	Minor	Moderate	Minor	Minor

*Table Acronyms:* CALI – California National Historic Trail; NHT – National Historic Trail; POEX – Pony Express National Historic Trail

*Table Notes:* <sup>a</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>b</sup>National Trail recreation and travel management opportunities and settings would be modified minimally by the GLWP. 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 by the GLWP. Contributing qualities would continue to define the character of the trail.

<sup>d</sup>The magnitude of contrast produced by the GLWP would attract attention and the GLWP components would be visually prominent in the views from NHT 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>e</sup>National Trail recreation and travel management opportunities and settings would be modified minimally by the GLWP. Contributing qualities would continue to define the character of the trail.

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 and in the FG would be continuous, partially obstructed at times due to the hilly terrain, and predominantly backdropped against the Desert and Pine Nut Mountain ranges. In the MG, views of the 345-kV H-frame transmission lines would be more intermittent and obstructed. Effects would be most pronounced for 4.5 miles where the three 345-kV transmission lines parallel and cross the Walker-Sonora Route.

At the southern end of the Adrian Valley where the Mason Valley opens to view, the Fort Churchill Substation would be seen in the MG of the trail and would be visually recognizable. However, because of the existing built features (Fort Churchill Generating Station and existing transmission lines), the new substation would not alter the characteristic landscape. Here the visual setting would appear to be intact

because of the presence of multiple similar built features and the scale of the mountains and other landforms in the setting are more dominant than the proposed transmission lines and ancillary GLWP components.

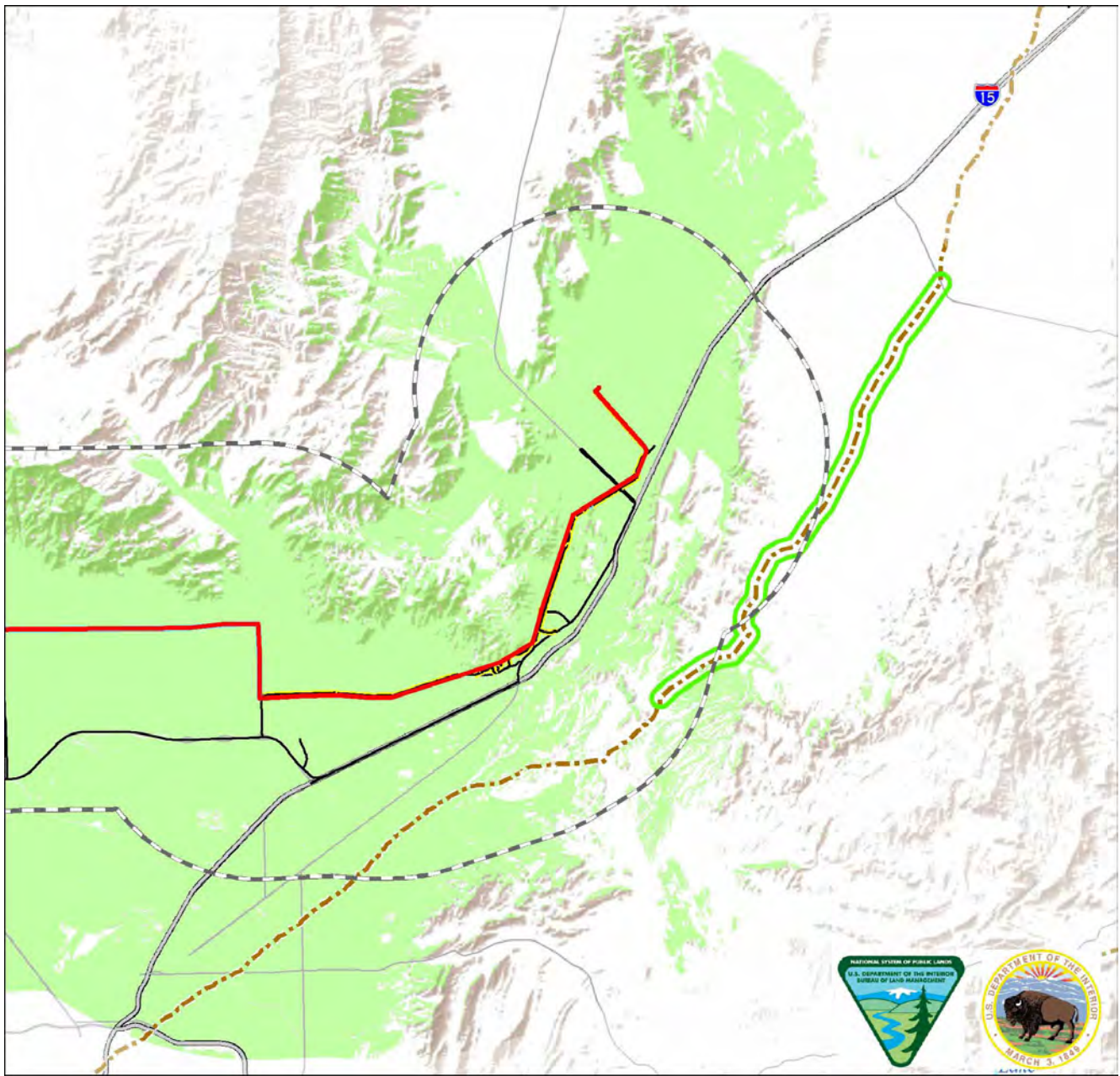
The southern portion of the Walker River-Sonora Route segment occurs in an open, flat basin with views of multiple existing transmission lines in all directions. The three new 345-kV transmission lines would be seen in context with an existing wood H-frame transmission line but would be substantially taller and more dominant in the FG. Where the Proposed Action is within one mile of the NHT, it would begin to dominate the recreational experience for five linear miles. 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. Refer to Section 3.15 Visual Resources for additional discussion of visual impacts to the California and Pony Express NHTs.

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 Walker River Valley is undeveloped with no transmission lines, while the western entry to the Mason Valley contains one lattice and one H-frame transmission line. The Proposed Action transmission line crosses 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 at and east of the crossing by the larger proposed structures and road improvements where integrity of setting and feeling and a desired recreation setting supports vicarious experiences (refer to photorealistic simulation for KOP 170 in Appendix P). The Bidwell-Bartleson Route #39 then continues west through the Mason Valley to Yerington where multiple transmission and distribution lines; the Fort Churchill power generating station; agricultural and urban land uses; and road networks dominate the NHT experience and effects from the Proposed Action would be negligible.

### **Old Spanish Trail NHT Segments**



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

The Old Spanish NHT's Northern Route would be approximately three miles from the nearest portion of the Proposed Action. See Figure 3-36 for a viewshed of the Proposed Action near the Old Spanish NHT. No ancillary GLWP components would be visible from the NHT. Any part of the Old Spanish NHT within the GLWP's 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 Air Force Base, I-15 and highway traffic, and urbanization from the Las Vegas metropolitan area (refer to Table 3-76).



**Legend**

- Old Spanish National Historic Trail( NPS 2021)
- Existing Access Road
- Existing Access Road Requiring Improvement
- New Access Road
- Proposed Action Transmission Line
- Viewshed of Proposed Action Transmission Line Route
- 5-mile Buffer of Proposed Action

  
 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 3-36. Viewshed of the Proposed Action and the Old Spanish Trail NHT**

**Table 3-76. Proposed Action Impacts to Old Spanish NHT Segments**

<b>NHT- Designated Resources</b>	<b>Length of NHT with Views of Proposed Action (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 Acronyms:* NHT – National Historic Trail

*Table Notes:* <sup>a</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.

**Conformance of the Proposed Action with the National Trails System Act Section 7(c)**

The Proposed Action would permanently change the desired scenic, recreational, cultural and (to a lesser extent) natural resources, qualities, values, and associated settings for portions of the California and Pony Express NHT’s Carson Route group and California NHT Walker River segment group. 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 visible immediate foreground (FG); 3) two of the three Proposed Action 345-kV transmission routes follow existing transmission line(s); and 4) no identified trail traces would be directly affected. Approximately 27.4 miles (99 percent) of the three Carson Route high-potential route segments, 20.4 miles (61 percent) of the Carson River Route, 18.6 miles (100 percent) of the Walker River-Sonora Route, and 19.7 (60 percent) of the Pony Express NHT would be considered incompatible within the NHT analysis area. Impacts from the Proposed Action would be reduced with the implementation of the EMMs BIO-16, BIO-35, CON-8, CON-15, CULT-4, CULT-6, OPS-1, OPS-3, REC-20, VIS-1 to VIS-22, and the Cultural Resources Mitigation Plan (Appendix K). Effects to the remaining California and Old Spanish NHT segments would not rise to the level of incompatibility or substantial interference. The BLM will continue to consult with NPS, the Oregon California Trail Association and National Pony Express Association on the GLWP.

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

Prior to construction of GLWP, the Proponent would field verify NHT trail traces per BLM Manual 6280 where the permanent ROW area would cross within 0.25 miles of NHTs on private lands that have not been subject to a Class III cultural resources survey. The Proponent would provide the BLM with documentation of the presence (and trail condition) or absence of NHT trail traces within the permanent ROW area on private lands within 0.25 miles of NHTs. If NHT condition category I or II trail traces are located, no new road blading would be allowed, and access would be restricted to overland use only in order to protect verified NHT trail traces.

**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 (refer to Table 3-77). Neither the



transmission line nor ancillary GLWP components would be visible from the Old Spanish NHT (Figure 3-36). There would no impacts on the views from the Old Spanish Trail during construction, O&M, or decommissioning of the Losee Transmission Alternative A or the Proposed Action.

**Table 3-77. Losee Transmission Alternative A Impacts to the Old Spanish NHT Segment**

NHT- Designated Resources	Length of NHT with Views of Proposed Action (miles)	Length of NHT within Losee Transmission Alternative A Viewshed (miles)	Number of Losee Transmission Alternative A Crossings	Scenic Impacts	Cultural and Historic Impacts	Recreational Impacts	Natural Impacts
Northern Route	0	0	0	None	None	None	None

Table Acronyms: NHT – National Historic Trail

**Conformance of the Losee Transmission Line Route Group with the National Trails System Act Section 7(c)**

Effects to the remaining Old Spanish NHT from the Losee Transmission Alternative A would not rise to the level of incompatibility or substantial interference.

**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 trails.

**3.12.4.6 Direct and Indirect Impacts of Mason Valley WMA Transmission Line Route Group**

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

The Mason Valley Transmission Alternative A and the Proposed Action would create a change in the landscape character of the Mason Valley VAU in the MG and may begin to attract attention because of the form of the guyed lattice structures and the approximately 371-acre Fort Churchill Substation. The existing rural development and Fort Churchill power generating station would help to reduce the impact of the visual change in the setting. There would be no views of the Mason Valley Transmission Alternative A or the comparable Proposed Action from the FG of the NHT. 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 0.6 miles when traveling northbound (NB) and 0.4 miles traveling southbound (SB) in the MG only). The presence of the Mason Valley WMA Transmission Alternative A and Proposed Action within the MG views from the California NHT may attract attention in the existing setting.

**Conformance of the Mason Valley WMA Transmission Line Route Group with the National Trails System Act Section 7(c)**

The Mason Valley 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 . Neither the Proposed Action nor the Mason Valley

Transmission Alternative A would 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 would be limited to the MG; and 3) no identified trail traces would be directly affected. Impacts from the Proposed Action would be reduced with the implementation of the EMMs BIO-16, BIO-35, CON-8, CON-15, CULT-4, CULT-6, OPS-1, OPS-3, REC-20, VIS-1 to VIS-22, and the Cultural Resources Mitigation 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 Carson River Transmission Alternative A would shift the Fort Churchill to Comstock Meadows #2 345-kV transmission line to cross the California and Pony Express NHTs and Simpson Route #35E along the Carson River at generally the same location as the Fort Churchill to Comstock Meadows #1 transmission line, consolidating the crossing locations and reducing impacts as compared to the Proposed Action (refer to Table 3-78). When compared to the Proposed Action, NHT recreationists' views within the FG of the Carson River Transmission Alternative A would be consolidated with the Fort Churchill to Comstock Meadows #1 transmission alignment and would result in less overall effects in the immediate FG to the scenic, cultural and historic, recreational, and natural setting and vicarious experience as a whole. The Carson River Transmission Alternative A would be lower in elevation and not skylined and the visual and historical setting would appear to be more intact because the scale of the mountains and other landforms in the setting is more dominant than the addition of the proposed transmission lines would be. The majority of the Carson River Transmission Alternative A would be farther away from the Walker River Segment of the California NHT than the comparable segment of the Proposed Action, and closer to the US 50 NHT segments. Refer to Section 3.15 Visual Resources for additional discussion of visual impacts to the California and Pony Express NHTs from Carson River Transmission Alternative A.

**Table 3-78. Carson River Transmission Alternative A Impacts to California and Pony Express NHT Segments**

NHT-Designated Resources	Length of NHT within Carson River Alternative A Viewshed (miles)	Number of Carson River Alternative A Crossings <sup>a</sup>	Scenic Impacts	Cultural and Historic Impacts	Recreational Impacts	Natural Impacts
Fort Churchill State Historic Park (High Potential Historic Site)	NA	0 Transmission Line	None	None	None	None
Buckland Station	NA	0 Transmission Line	None	None	None	None
CALI: Carson Route (High Potential Segment)	4.5	0 Transmission Line	Minor <sup>b</sup>	None	None	None
CALI: Carson Route	4.5	0 Transmission Line	Minor	None	None	None
CALI: Carson Route – Dry Route (High Potential Segment)	1.6	0 Transmission Line	Minor	Minor	Minor <sup>c</sup>	Minor <sup>d</sup>

<b>NHT-Designated Resources</b>	<b>Length of NHT within Carson River Alternative A Viewshed (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>
CALI: Carson Route – Wet Route (High Potential Segment)	1.8	0 Transmission Line	Minor	None	Minor	Minor
CALI: Carson Route (i.e., Carson River Route)	11	1 Transmission Line	Minor	Moderate <sup>e</sup>	Minor	Minor
POEX: Carson Route (i.e., Primary Route)	11	1 Transmission Line	Minor	Moderate	Minor	Minor
US 50 Auto Tour Route and Waysides	6	0 Transmission Line	Minor	None	Minor	Minor
CALI: Central Overland Emigrant Route – Simpson Route #35E	19	1 Transmission Line	Minor	Minor	Minor	Minor

*Table Acronyms:* CALI – California National Historic Trail; NA – Not applicable; NHT – National Historic Trail; POEX – Pony Express National Historic Trail; US – United States

*Table Notes:* <sup>a</sup>Existing, improved, and new access road crossings are provided for the Proposed Action only.

<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. 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>NHT recreation and travel management opportunities and settings would be modified minimally by the GLWP. 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 by the GLWP. Contributing qualities would continue to define the character of the trail.

<sup>e</sup>The magnitude of contrast produced by the GLWP would attract attention and the GLWP components would be visually prominent in the views from NHT 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.

Both the Carson River Transmission Alternative C and the Proposed Action ascend and descend Churchill Butte and would be visible for similar distances along the US 50 and Carson River NHT segments. The Carson River Transmission Alternative C would be visible from nearly half of the Fort Churchill State Historic Park across the FG and MG, a high potential historic site. The Carson River Transmission Alternative C would be higher in elevation and potentially skylined, though the visual setting would appear to be intact because the scale of the mountains and other landforms in the setting is more dominant than the addition of the proposed transmission lines would be. Impacts to the Fort Churchill Historic State Park viewsheds are discussed in more detail in Section 3.15 Visual Resources.

The three Carson River Transmission Alternative C's 345-kV transmission lines would head directly west for approximately 7.9 miles, crossing the Walker River Sonora Trail 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 (VAU CCDO-037) is characterized by a natural setting of wetlands, sloughs, sagebrush, and riparian vegetation, which assist in screening MG views. Both the Adrian Valley and this portion of the Mason Valley have similar integrity of setting and feeling. The impacts of Carson River Transmission Alternative C would have fewer effects because the perpendicular crossings reduce the extent of impacts to 0.5-mile on either side, as compared to the Proposed Action which parallels the Walker River-Sonora Route for approximately 4.5 miles (refer to Table 3-79). Refer to Section 3.15 Visual Resources for additional discussion of visual impacts to the California and Pony Express NHTs.

Impacts from the Carson River Transmission Alternatives A and C would be reduced with the implementation of the EMMs BIO-16, BIO-35, CON-8, CON-15, CULT-4, CULT-6, OPS-1, OPS-3, REC-20, VIS-1 to VIS-22, and the Cultural Resources Mitigation Plan (Appendix K).

**Table 3-79. Carson River Transmission Alternative C Impacts to California and Pony Express NHT Segments**

<b>NHT-Designated Resources</b>	<b>Length of NHT within Carson River Alternative C Viewshed (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 State Historic Park (High Potential Historic Site)	N/A	0 Transmission Line	Moderate <sup>b</sup>	Moderate	Minor <sup>d</sup>	None
Buckland Station	N/A	0 Transmission Line	Minor	Minor	Minor	None
CALI: Carson Route (High Potential Segment)	11.2	1 Transmission Line	Minor <sup>d</sup>	Minor <sup>d</sup>	Minor	None
CALI: Carson Route	11.2	1 Transmission Line	Minor	Minor	Minor	Minor <sup>d</sup>
CALI: Carson Route – Dry Route (High Potential Segment)	8.1	1 Transmission Line	Minor	Minor	Minor	Minor
CALI: Carson Route – Wet Route (High Potential Segment)	8.1	0 Transmission Line	Minor	None	None	None
CALI: Carson Route (i.e., Carson River Route)	17.7	1 Transmission Line	Minor	Moderate <sup>e</sup>	Minor	Minor
POEX: Carson Route (i.e., Primary Route)	17.3	1 Transmission Line	Minor	Moderate	Minor	Minor
US 50 Auto Tour Route and Waysides	22.2	0 Transmission Line	Minor	Minor	None	None
CALI: Central Overland Emigrant Route – Simpson Route #35E	47.4	1 Transmission Line	Moderate	Moderate	Minor	Minor

*Table Acronyms:* CALI – California National Historic Trail; N/A – Not applicable; NHT – National Historic Trail; POEX – Pony Express National Historic Trail; US – United States

*Table Notes:* <sup>a</sup>Existing, improved, and new access road crossings are provided for the Proposed Action only.

<sup>b</sup>The magnitude of contrast produced by the GLWP would attract attention and the GLWP components would be visually prominent in the views from NHT 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>c</sup>National Trail recreation and travel management opportunities and settings would be modified minimally by the GLWP. Contributing qualities would continue to define the character of the trail.

<sup>d</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>e</sup>Natural resources, including any key contributing qualities and characteristics, would have subtle effects by the GLWP. Contributing qualities would continue to define the character of the trail.

## **Conformance Statement for Carson River Transmission Route Group with the National Trails System Act Section 7(c)**

Carson River Transmission Alternatives A and C would result in less overall effects in the immediate FG to the scenic, cultural and historic, recreational, and natural setting and vicarious experience as a whole than the comparable segments of the Proposed Action. These effects would be most pronounced where Carson River Transmission Alternatives A and C cross the Carson River and where Carson River Transmission Alternatives C crosses the northwestern Mason Valley. Carson River Transmission Alternatives A and C 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 nor 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 visible immediate foreground (FG); 3) portions of Alternatives A and C follow an existing transmission line(s); and 4) no identified trail traces would be directly affected. Impacts from the Carson River Transmission Alternatives A and C would be reduced with the implementation of Mitigation Measure NHT-1; the EMMs BIO-16, BIO-35, CON-8, CON-15, CULT-4, CULT-6, OPS-1, OPS-3, REC-20, VIS-1 to VIS-22; and the Cultural Resources Mitigation 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.

### **3.13 Land Use, Realty, and Indian Trust Assets**

Land use is assessed by analyzing current land activities, land ownership, and land-use designations in adopted plans and policies. A land use assessment must also consider legal guarantees or limitations such as those provided by easements, deeds, ROWs, claims, leases, licenses, and permits. Federally managed lands are not zoned, but they may be encumbered by easements, ROWs, mining claims, and/or permits. Transportation infrastructure, recreation, and Indian Trust Assets (ITAs) are also discussed in this section. Special designation areas provide additional protection for areas with unique natural, historic, scenic, or recreational resources and are addressed in Section 3.11 Special Designation Areas.

#### **3.13.1 Issues Identified for Analysis**

- 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?
- What would the impacts be on Death Valley National Park?
- How would the GLWP affect mining claims, mining operations and activities, and future mineral interests?
- What impacts would GLWP have on military installations and airspace as well as how it would contribute to air navigation hazards during and after construction?
- How would the GLWP affect Indian Trust Assets?

- What would the impacts be on public and private property access during construction of the GLWP?
- How would slow moving construction vehicles impact public travel time, safety, and future road maintenance requirements?

### **3.13.2 Analysis Area and Methodology**

#### **Analysis Area**

The general analysis area for land use and realty is defined as a 10-mile buffer from the transmission line centerline, which would include the associated facilities and the Action Alternatives and equates to approximately 8,459 square miles (5,413,810 acres). This analysis area will be referred to as the land use analysis area. The recreation and transportation analysis areas are defined as a 5-mile buffer from the transmission line centerline and consists approximately 4,306 square miles (2,755,542 acres) The wild horses and burros (horse/burro) analysis area is defined as 0.5 mile from the temporary ROW area and encompasses 1,255 square miles (803,079) acres.

#### **Methodology**

Information was obtained from various federal, state, and local agency staff and documents, including BLM RMPs, city and county land use plans, and aerial imagery for the land use analysis area.

### **3.13.3 Affected Environment**

#### **3.13.3.1 Land Use and Site Management Plans**

Federal land uses in the land use analysis area are governed by various land use plans. These plans typically establish goals, objectives, and standards that apply to the land and resources managed. To ensure the best balance of uses and resource protections for public lands, federal agencies undertake extensive land-use planning through a collaborative approach with local, state, and Tribal governments; the public; and stakeholder groups. The documents provide land use planning and management direction on a broad scale and guide future actions on federal land. Land use plans are the basis for every on-the-ground action the agency undertakes. As required by NEPA and FLPMA, BLM-administered lands that are not designated for special management must be managed under the principles of multiple use and sustained yield.

#### **Federal**

##### **Red Rock Canyon National Conservation Area Resource Management Plan**

The approximately 198,000-acre Red Rock Canyon NCA is located approximately 15 miles west of Las Vegas and is managed by the BLM. The Red Rock Canyon NCA is a popular location for public recreation and leisure due to unique geological and ecological characteristics and its proximity to a major population center. The geologic features include a 3,000-foot escarpment running north-south along the west side of Red Rock Canyon NCA . The majority of the management emphasis along the boundary of the Red Rock Canyon NCA adjacent to US 95 is for development that is consistent with the natural environment where the recreational experience is based on the natural setting. There are no existing or planned designated Red Rock Canyon NCA recreation facilities within the land use analysis area (BLM 2005b).

### **La Madre Mountain Wilderness Area Wilderness Management Plan**

The La Madre Mountain Wilderness is one of the largest wilderness areas in southern Nevada, encompassing 47,180 acres just west of Las Vegas. Portions of this vast wilderness are within the Red Rock Canyon NCA and the USFS-managed Spring Mountains NRA and Humboldt-Toiyabe National Forest. With elevation ranging from 3,600 feet to 9,600 feet, the La Madre Mountain Wilderness supports a wide variety of plant and wildlife and a number of prehistoric sites including pictographs, petroglyphs, agave roasting pits, and rock shelters. The management plan acknowledges that numerous ROWs have been authorized and allows for transmission lines, substations, communication sites, access roads, and microwave towers throughout the area surrounding the wilderness. The La Madre Mountain Wilderness Management Plan notes that the ROWs for these actions will continue (BLM and USFS 2013).

### **Department of Energy – National Nuclear Security Administration/Nevada National Security Site**

As part of the DOE, the National Nuclear Security Administration (NNSA) oversees the Nevada National Security Site (NNSS) located on approximately 1,355 square miles in Nye County, approximately 65 miles northwest of Las Vegas. The NNSS is a national laboratory supporting the NNSA's nuclear weapons Stockpile Stewardship Programs; national defense programs; and national security research, development, and training programs; as well as other federal agencies' programs (NNSS 2022). Approximately 30,699.4 acres (approximately four percent) of the NNSS is located within the GLWP corridor north of US 95 between Indian Springs and Amargosa Valley. The NNSS is a secured DOE installation and not open to the public.

### **Spotted Range Communication Site Management Plan**

The Spotted Range is a BLM-administered communication site located adjacent to US 95 approximately 60 miles northwest of Las Vegas. It is on an unnamed mountain ridge at an elevation of 4,190 feet. Because the 1998 Las Vegas RMP does not discuss specific details needed for the management of this communication site in close proximity to the NNSA, a Spotted Range Communication Site Management Plan was developed to provide an outline for future development. The Spotted Range Communication Site Management Plan specifies a maximum tower height of 104 feet and that all new towers would be self-supporting with no guy lines. Additionally, communication antennas are to be mounted as low as possible to reduce visual impacts, must have a non-reflective surface, and colors or covers must be pre-approved by the BLM. The operation of equipment must not interfere with US government radio or electronic operations at the NNSS (BLM 2010).

### **Desert National Wildlife Refuge Comprehensive Conservation Plan**

Desert NWR is located less than 10 miles north of Las Vegas and encompasses more than 1.6 million acres, making it the largest refuge in the continental US. Established in 1936, the refuge provides one of the largest contiguous blocks of habitat for desert bighorn sheep in the country and one of its primary objectives to protect the sheep and other wildlife. The comprehensive conservation plan for the Desert NWR is intended to provide a clear and comprehensive statement of the desired future conditions and to ensure public input in refuge management decisions. The 15-year plan recommends fencing along the eastern boundary of the Desert NWR, where appropriate, as well as the permanent closure of illegal roads and rehabilitation of damaged habitat along the southern and eastern boundaries adjacent to Las Vegas (USFWS 2009).

### **Ash Meadows National Wildlife Refuge Comprehensive Conservation Plan**

Ash Meadows National Wildlife Refuge (Ash Meadows NWR) is located northwest of Pahrump in the Amargosa Valley and encompasses approximately 24,000 acres. Established in 1984, the refuge provides spring-fed wetlands and alkaline desert upland habitat for at least 25 plants and animals found nowhere

else in the world. The Ash Meadows NWR has a greater concentration of endemic life than any other local area in the US and the second greatest concentration in North America. The Ash Meadows NWR also contains nearly 300 known prehistoric and/or historic sites. The Ash Meadows National Wildlife Refuge Comprehensive Conservation Plan's primary goal for species management is to restore and maintain viable populations of all endemic, endangered, and threatened species within the refuge's Mojave Desert oasis ecosystem (USFWS 2009). Since 1979, water-management decisions have been in place to protect spring discharges to this area and restricts water right application approvals in the Amargosa Desert Basin (NDWR 2008).

### **Death Valley General Management Plan**

Death Valley National Monument was established in 1933 and changed to Death Valley National Park (DEVA) by Congressional action in 1994. The National Park includes all of Death Valley, a 156-mile-long north/south-trending trough that formed between two major block-faulted mountain ranges. While the majority of DEVA is in California, a small portion is in Nye and Esmeralda counties. US 95 parallels the DEVA's eastern boundary. The National Park is the lowest point in the western hemisphere and one of the hottest places on earth. It has plant and wildlife species that occur nowhere else in the world. Over 1.7 million people visited DEVA in 2019. In the 2002 Death Valley General Management Plan, the NPS committed to working with adjacent land managers to encourage compatible adjacent land uses. Additionally, one of the NPS's overall management goals is to protect and maintain the visual quality of the landscape and the built environment of the DEVA (NPS 2002).

### **Indian Trust Assets**

Indian Trust Assets are legal interests in property held in trust by the U.S. for federally recognized Native American tribes or individual Native Americans. An ITA has three components: 1) the trustee, 2) the beneficiary, and 3) the trust asset. An ITA may include land, minerals, federally reserved hunting and fishing rights, federally reserved water rights, and instream flows associated with trust land. The BIA has a responsibility to protect and maintain rights reserved by or granted to Native American Tribes or Native American individuals by treaties, statutes, and executive orders. These are sometimes further interpreted through court decisions and regulations.

Agencies are required to actively engage federally recognized tribal governments and consult with such Tribes on a government-to-government level when their action may affect an ITA (FR Vol. 59, No. 85, May 4, 1994, 22951–2). The DOI is required to “protect and preserve Indian trust assets from loss, damage, unlawful alienation, waste, and depletion” (Interior, Secretarial Order 3215). It is the general policy of the DOI to perform its activities and programs in such a way as to protect ITAs and avoid effects whenever possible.

Common ITAs within the GLWP area are the reservations and Public Domain Allotments. There are three federally recognized Tribes within the GLWP area. Timbisha Shoshone Tribe (formerly Death Valley Timbisha Shoshone) maintains approximately 7,500 acres of land in California and Nevada with the Timbisha Homeland Act, which created the first Tribal reservation within a National Park. The Timbisha Shoshone Tribe owns an approximately 3,012-acre parcel of land along US 95 near Scotty's Junction at the intersection of SR 267 in Nye County. The Walker River Paiute Tribe of the Walker River governs approximately 325,000 acres in Mineral County around Walker Lake. The Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony – Snow Mountain Reservation is located in Clark County and is approximately 4,050 acres.



## State of Nevada

Various state agencies have properties within the land use analysis area. These properties include state recreational areas and parks, a wildlife management area, and correctional and National Guard facilities. Lahontan and Walker River State Recreation Areas, Fort Churchill State Historic Park, and Dayton and Ice Age state parks are state-managed recreation facilities within the land use analysis area. The Lahontan State Recreation Area and Dayton State Park are located off of US 50 near Fallon and Dayton, respectively. These locations offer recreational opportunities such as camping, picnicking, and hiking. Fort Churchill State Historic Park, sited along the Carson River, was built in 1861 to provide protection for early settlers and guard the Pony Express mail runs. Walker Lake State Recreation Area, off of US 95, is located on the west shore of Walker Lake and was previously a Nevada State Park. Nevada’s newest state park, Ice Age Fossils, will provide educational programming in North Las Vegas. Mason Valley WMA is in Mason Valley in Lyon County about 75 miles southeast of Reno. The 13,375 acres of the WMA encompasses the Walker River floodplain, which provides habitat for fish and wildlife species including osprey and pelicans.

Three correctional facilities, Southern Desert Correctional Center, Three Lakes Valley Conservation Camp, and High Desert State Prison are located adjacent to the US 95, approximately eight miles southeast of Indian Springs. The Nevada National Guard Floyd Edsall Training Center, which includes the North Las Vegas Readiness and Center Clark County Armory, is in North Las Vegas. Information on management of these facilities is not readily available, therefore any management goals or objectives that the individual facilities may have related to GLWP are not addressed.

## County Plans

The policies relevant to the GLWP in the current Clark, Esmeralda, Lyon, Mineral, Nye, Storey and Washoe county master plans are provided in Appendix N (County Master Plans).

## Local

The policies relevant to the GLWP in the current cities of Las Vegas, Reno, and Sparks master plans are provided in Appendix O (City Master Plans).

### 3.13.3.2 Land Use Conditions

Located in southwestern Nevada, the land use analysis area encompasses land owned, managed, and/or administered by federal, state, local agencies, and private landowners (Table 3-80). Federal agencies administer 81 percent of the land within the GLWP area, the State of Nevada administers approximately 2 percent, local agencies administer approximately one percent, and approximately 14 percent is privately owned. Major communities within the land use analysis area are described in Table 3-81. Existing and future land use categories that occur within the land use analysis area are listed in Table 3-82. Land use conditions are described below in terms of general segments for ease of discussion.

**Table 3-80. Land Ownership within GLWP Area**

<b>Land Manager/ Owner<sup>a</sup></b>	<b>Total Acres</b>	<b>Percent of Total Acres</b>
BIA	89,617.2	3
BLM	1,876,831.3	70
Bureau of Reclamation	80.3	<1
City of Las Vegas	1,789.3	<1
Clark County, NV	19,444.3	1
Department of Defense	158,472.7	6

Land Manager/ Owner <sup>a</sup>	Total Acres	Percent of Total Acres
Department of Energy	30,700.0	1
US Fish and Wildlife Service	71,936.4	3
USDA Forest Service	2,186.5	<1
National Park Service	22,986.4	1
Nevada State <sup>b</sup>	52,201.1	2
Private	347,995.2	13
<b>Total</b>	<b>2,674,240.7</b>	<b>100</b>

*Table Acronyms:* BIA – Bureau of Indian Affairs; BLM – Bureau of Land Management; GLWP – Greenlink West Project; NV – Nevada; US – United States; USDA – US Department of Agriculture

*Table Notes:* <sup>a</sup>Land ownership data includes the area within five miles of the Proposed Action 525/345-kV transmission lines.

<sup>b</sup>Nevada State ownership includes water area associated with Walker Lake and Carson, Walker, and Truckee rivers.

**Table 3-81. Communities within the GLWP Land Use Analysis Area**

County	Community	Description
Clark	North Las Vegas	An incorporated city adjacent to Las Vegas. In 2019, North Las Vegas had a population of 251,984 and a total of 82,145 housing units <sup>a</sup> . North Las Vegas supports the surrounding area with public libraries, primary and secondary schools, higher education facilities, and police and fire services <sup>b</sup> .
Clark	Las Vegas	An incorporated city located near the Nevada and Arizona state line in southeastern Nevada. Las Vegas had a population of 651,297 and a total of 258,593 housing units <sup>a</sup> in 2019. Las Vegas supports the surrounding area with more than 68 public parks, six community centers, public libraries, police and fire services, primary and secondary schools, and higher education facilities <sup>b</sup> .
Clark	Indian Springs	Located approximately 36 miles east of Las Vegas area, Indian Springs had a population of 1,114 and a total of 415 housing units <sup>a</sup> in 2019. Indian Springs supports the surrounding area with a kindergarten to 12 <sup>th</sup> grade school, two public parks, and a civic center along with Clark County Fire Station #83 (Clark County 2021).
Esmeralda	Goldfield CDP	Located approximately 247 miles southeast of Carson City along US 95, Goldfield had a population of 298 and a total of 288 housing units <sup>a</sup> in 2019. This historic mining town is a Census-designated Place (CDP) that supports the surrounding area with an elementary and high school, a community center, and the Goldfield Fire Department <sup>c</sup> .
Esmeralda	Silver Peak CDP	Located approximately 150 miles southeast of Carson City, Silver Peak had a population of 142 and a total of 137 housing units <sup>a</sup> in 2019. Silver Peak supports the surrounding area with a library and community center <sup>c</sup> .
Lyon	Dayton	Located approximately 10 miles northeast of the Carson City area, Dayton had a population of 9,363 and a total of 3,747 housing units <sup>a</sup> in 2019. Dayton supports the surrounding area with a high school, four elementary/intermediate schools, three public parks, Dayton State Park, a Lyon County Sheriff Station, and the Sutro Fire Department Station 35.
Lyon	Silver City	Located approximately 10 miles northeast of the Carson City area, Silver City had a population of 158 and a total of 88 housing units <sup>a</sup> in 2019. Silver City has an outdoor performance stage, post office, volunteer library, and a community center and park <sup>d</sup> .
Lyon	Silver Springs	Located approximately 33 miles northeast of Carson City, Silver Springs had a population of 5,073 and a total of 2,415 housing units <sup>a</sup> in 2019. Silver Springs is a CDP and supports the surrounding area with one private and two public high schools, an elementary school, a public park, the Lahontan State Recreation Area, a Lyon County Sheriff Station, and the Silver Springs Volunteer Fire Department Station 32.
Lyon	Stagecoach	Located approximately 25 miles northeast of Carson City, Stagecoach had a population of 1,920 and a total of 878 housing units <sup>a</sup> in 2019. The Stagecoach Volunteer Fire Department 37 supports the community and surrounding area.
Lyon	Yerington	Located approximately 35 miles southeast of Carson City, Yerington had a population of 3,137 and a total of 1,619 housing units <sup>a</sup> in 2019. Yerington is a CDP and supports the surrounding area with four public parks, two medical centers, a high school, two elementary/intermediate schools, a public library, a City Hall, the Yerington Police Department, a Nevada Highway Patrol station, and the Yerington/Mason Valley Fire Department Stations 1 and 2.

County	Community	Description
Mineral	Hawthorne	Located approximately 76 miles southeast Carson City, Hawthorne had a population of 2,686 and a total of 1,877 housing units <sup>a</sup> in 2019. Hawthorne is a CDP and supports the surrounding area with a general hospital, high school, a junior high school, an elementary school, two public parks, a public library, the Mineral County government offices, the Mineral County sheriff station, and the Mineral County Fire Department station.
Mineral	Mina	Located approximately 104 miles southeast of Carson City, Mina had a population of 182 and a total of 177 housing units <sup>a</sup> in 2019. Mina supports the surrounding area with the Mina Volunteer Fire Department.
Mineral	Schurz	Located approximately 53 miles southeast of Carson City, Schurz had a population of 1,026 and a total of 410 housing units <sup>a</sup> in 2019. Schurz supports the surrounding area with a hospital, an elementary school, and the Schurz Fire Department.
Mineral	Walker Lake	Located approximately miles 65 southeast of Carson City, Walker Lake had a population of 310 and a total of 250 housing units <sup>a</sup> in 2019. Walker Lake supports the surrounding area the Walker Lake State Recreation Area and the Walker Lake Volunteer Fire Department.
Nye	Beatty	Located approximately 103 miles northwest of Las Vegas, Beatty had a population of 804 and a total of 644 housing units <sup>a</sup> in 2019. Beatty supports the surrounding area with a high school, a middle school, an elementary school, a public park, a public library, the Beatty Town Office, a Nye County Sherriff station, the Beatty Volunteer Ambulance Service, and the Beatty Fire Department.
Storey	Virginia City	Located approximately 11 miles northeast of the Carson City area, Virginia City had a population of 779 and a total of 443 housing units <sup>a</sup> in 2019. Virginia City supports the surrounding area with high school, a middle school, an elementary school, a public park, a public library, a Storey County Sheriff station, and the Storey County Fire Department Station 1.
Washoe	Reno	An incorporated city located approximately 25 miles north of Carson City, Reno had a population of 255,624 and a total of 116,026 housing units <sup>a</sup> in 2019. Reno supports the surrounding area with several healthcare facilities, public parks, community centers, public libraries, police and fire services, and primary and secondary schools as well as higher education facilities.
Washoe	Sparks	An incorporated city located approximately 25 miles north of Carson City, Sparks had a population of 105,011 and a total of 40,027 housing units <sup>a</sup> in 2019. Sparks supports the surrounding area with several healthcare facilities, public parks, community centers, public libraries, police and fire services, primary and secondary schools, and higher education facilities.

*Table Acronyms:* CDP – Census-designated Place, GLWP – Greenlink West Project; US – United States

*Table Notes:* <sup>a</sup>Source: <https://censusreporter.org/profiles/>

<sup>b</sup>Source: [https://en.wikipedia.org/wiki/North\\_Las\\_Vegas,\\_Nevada](https://en.wikipedia.org/wiki/North_Las_Vegas,_Nevada) and [https://en.wikipedia.org/wiki/Las\\_Vegas](https://en.wikipedia.org/wiki/Las_Vegas)

<sup>c</sup>Source: <https://www.accessesmeralda.com/communities/goldfield.php> and [https://www.accessesmeralda.com/communities/silver\\_peak.php](https://www.accessesmeralda.com/communities/silver_peak.php)

<sup>d</sup>Source: <https://westernmininghistory.com/towns/nevada/silver-city2/>

**Table 3-82. Land Use Categories within the Land Use Analysis Area**

Land Use Category	Land Use Category Definition
Residential	Low, medium, and high density single-family residential, multi-family residential (e.g., apartment complex), rural residential, and mobile home parks.
Commercial	Restaurants, gas stations, banks, grocery stores, motels and hotels, and other retail businesses. Within the GLWP area, concentrations of commercial use mainly occur in populated areas (e.g., Indian Springs, Yerington, and Reno) and along major transportation corridors (e.g., I-80, I-15, US 95, and US 50).
Grazing/Multi-Use/Vacant	All land uses that did not fit under a specific category or were not specifically designated for a specific use by the responsible jurisdiction or land management agency.
Industrial	Warehouse businesses, manufacturing companies, storage facilities, and other uses. Industrial uses occur near populated areas such as Las Vegas, North Las Vegas, and Sparks.
Public/Quasi Public	Places of worship (e.g., churches) community centers, and libraries. Public/quasi-public uses occur near populated areas such as Beatty and Hawthorne.
School/Educational Facilities	Pre-schools, primary schools, secondary schools, and higher education facilities. Schools/educational facilities are typically located near population centers such as Goldfield and Dayton
Air Facilities	Airports, airstrips, and heliports, such as the Reno International Airport.
Military	Managed by the DOD and includes bases and firing ranges such as Nellis and Creech Air Force Bases.

<b>Land Use Category</b>	<b>Land Use Category Definition</b>
Agriculture	Ranching, farming, and dairy operations. Agricultural land uses within the land use analysis area are primarily ranching and grazing.
Utilities	Power plants, substations, transmission lines, pipelines, canals, designated utility corridors, and solar farms. Utility land uses are found throughout the land use analysis area and include pending ROW applications for renewable energy projects proposed on BLM-managed lands.
Communication Facilities	Cellular, radio, and television facilities. A variety of communication facilities are scattered throughout the land use analysis corridor including Pilot Peak, Spotted Range, and Montezuma microwave sites.
Transportation	Minor roads (county highways, city streets); major roads (interstates, state highways); railroads; trails; etc. Though transportation land uses occur throughout the land use analysis area, the main features are I-15, I-580, US 95, and the UPRR.
Recreation	Federal, state, and local recreational trails and designated OHV areas. Recreation land uses within the land use analysis area include BLM SRMAs designated for multiple recreational activities such as rock climbing and bouldering
Parks/Preservation	Federal, state, and local parks, open areas, and areas protected from development. Parks and preservation areas within the land use analysis area include the Fort Churchill State Historic Park, TUSK, Red Rock Canyon National Conservation Area, Mason Valley WMA, and Desert NWR.

*Table Acronyms:* BLM – Bureau of Land Management; DOD – Department of Defense; GLWP – Greenlink West Project; I – Interstate; NWR – National Wildlife Refuge; OHV – Off-highway vehicle; ROW – Right-of-way; SRMA – Special Resource Management Area; TUSK – Tule Springs Fossil Beds National Monument; UPRR – Union Pacific Railroad; US – United States; WMA – Wildlife Management Area

### **Harry Allen Substation to Indian Springs**

Starting near the Harry Allen Substation, the land use analysis area encompasses a heavy industrial area adjacent to the City of North Las Vegas’ Apex Industrial Area, the Moapa Indian Reservation, and Nellis Air Force Base. At this southernmost section of the land use analysis area, land uses consist of power-generating plants, solar facilities, substations, and major transportation infrastructure such as I-15, US 93, Clark County Route 215 Beltway, and the UPRR. The analysis area includes the Nevada National Guard’s Small Arms Range, the future UNLV North Campus, and portions of the Desert NWR and Las Vegas Valley SRMA. Before turning north, the land use analysis area contains the urban development associated with the cities of North Las Vegas and Las Vegas, including a variety of land uses such as residential (single and multifamily), park and open space, and educational facilities. Continuing to the west, the existing Northwest Substation in the City of Las Vegas is within the land use analysis area.

### **Indian Springs to Luning**

From the Northwest Substation, the land use analysis area generally angles northwest across the Las Vegas Valley following US 95 and consist primarily of BLM-administered lands, the TUSK, the Las Vegas Paiute’s Snow Mountain Reservation, portions of the Nellis Air Force NTTR, the Red Rock Canyon NCA, and the Humboldt-Toiyabe National Forest/Spring NRA. At Indian Springs, the area includes commercial and residential land uses and the military installation of Creech Air Force Base. From Indian Springs, the land use analysis area crossed through Nye County, runs in a generally western direction following the US 95 alignment, and incorporates a portion of the NNSS as it goes through the sparsely developed Amargosa Valley. Portions of several SDAs are located within the land use analysis area near Amargosa Valley, including the Mount Stirling Wilderness Study Area and the Big Dune, Amargosa Mesquite, and Ash Meadows ACECs.

The land use analysis area turns north just past the Big Dune SRMA/ACEC. Major land uses continue to be BLM-administered lands, the NNSS, and the NTTR. In addition, the community of Beatty is also within the land use analysis area and includes residential, commercial, and light industrial land uses. North of Beatty,

the land use analysis area turns to the northwest towards Scotty's Junction and primarily contains BLM-administered lands and portions of the NTTR, Grapevine and Queer Mountains Wilderness Study Areas, and DEVA. At Scotty's Junction, the land use analysis area includes the Timbisha Shoshone Indian Reservation and crosses the Sarcobatus Flat before entering Esmeralda County.

In Esmeralda County, the land use analysis area includes the mining communities of Silver Peak and Goldfield and consists primarily of BLM-administered lands. There is a large mining operation at Silver Peak (Albemarle Silver Peak Lithium Operations) and a portion of it is within the land use analysis area. Continuing northwest, the land use analysis area continues to consist primarily of BLM-administered lands, generally following US 95 into Mineral County and through Mina and Luning. In these two rural communities, land use is predominately residential, although there are airstrips in each of the unincorporated communities.

### **Luning to Mason Valley**

Past Luning, the land use analysis area generally heads north and continues to contain primarily BLM-administered land and the US 95 transportation corridor until reaching the community of Hawthorne. In this portion of the land use analysis area there are residential, commercial, industrial, and military installation (Hawthorne Army Depot) land uses. Walker Lake is a natural lake located along the east side of the Wassuk Range. The lakeshore is predominately undeveloped except for the small, unincorporated community of Walker Lake and the Walker Lake Recreation Area. The Walker Lake Recreation Area contains developed recreation facilities along the lake's western and southern shores managed jointly by the BLM, Mineral County, and Walker Lake Paiute Tribe. A segment of the UPRR is located on the east side of the lake. The Walker River Indian Reservation is located on the east and north sides of the lake. Past the reservation, the analysis area continues northwest towards the community of Schurz in Mineral County then over the Wassuk Range towards the City of Yerington in the Mason Valley as it enters Lyon County. These populated areas have a variety of residential, commercial, light industrial, and agricultural land uses. The Fort Churchill Generating Facility is in Mason Valley along with a portion of the Mason Valley WMA. From the Mason Valley area, the land use analysis area heads northwest through predominately BLM-administered lands, crossing the Carson River.

### **Mason Valley to Reno**

North of the Carson River, the land use analysis area is comprised of predominately privately owned land and includes the US 50 transportation corridor in Storey County. Along this portion of the US 50 transportation corridor are the communities of Silver Springs, Stagecoach, Dayton, and Virginia City with residential, commercial, industrial, agricultural, and mining land uses. Past US 50, the land use analysis area splits into two areas, one toward the Comstock Meadows Substation to the north and one to the Mira Loma Substation to the northwest. The area towards the Comstock Meadows Substation is within a portion of Storey County's McCarran Area Plan. According to the Storey County Master Plan, this industrial center is a major regional hub for distribution, alternative energy production, and light and heavy industrial uses including the Tesla lithium-ion battery manufacturing "Gigafactory" (Storey County 2016).

The land use analysis area that heads northwest encompasses the Mira Loma Substation and the southern edge of the cities of Reno and Sparks in Washoe County. This area of the City of Reno includes the Reno-Tahoe International Airport, I-80, and I-580 in addition to residential, light industrial, and commercial land uses. In addition, near the Mira Loma Substation the land use analysis area includes the Steamboat Hot Springs Geyser Basin, Virginia Range Williams Combleaf Habitat ACEC, and a portion of the Carson Ranger District of the Humboldt-Toiyabe National Forest.

### 3.13.3.3 Recreation

Notable recreation areas within the recreation analysis area include BLM-designated Special Recreation Management Areas (SRMAs) (Walker Lake SRMA, Big Dune SRMA, Las Vegas Valley SRMA, and Nellis Dunes SRMA), other federal designations (TUSK, Red Rock Canyon NCA, and Desert NWR); state designations (Mason Valley WMA, Ice Age Fossils State Park, and Fort Churchill State Historic Park); local designations (Floyd Lamb Park at Tule Springs); and other SDAs (Coyote Springs ACEC, La Madre Mountain Wilderness Area, Mount Stirling Wilderness Study Area (WSA), Amargosa Mesquite ACEC, Big Dune ACEC, Timber Mountain Caldera ACEC, Grapevine Mountains WSA, Gabbs Valley Range WSA, and Steamboat Hot Springs Geyser Basin ACEC). Special Designation Areas are discussed in detail in Section 3.11 Special Designation Areas.

Outside of these special designations and management areas, there are few designated recreation facilities, such as campgrounds, that occur within the recreation analysis area. However, there are opportunities for dispersed recreation activities, such as mountain biking, wildlife viewing, hunting, fishing, camping, hiking, and OHV use throughout the recreation analysis area. The Nevada Department of Conservation and Natural Resources administers the Nevada Off-Highway Vehicles Program, which provides grants to fund OHV-related projects throughout the state. The Nevada Off-Highway Vehicles Program provides OHV route maps by county in cooperation with land-management agencies like the BLM and the USFS. The suggested OHV trails use existing roads to provide recreational experiences in a variety of terrain. In addition, the BLM and the NPS can authorize Special Recreation Permits (SRPs) and Special Use Permits (SUPs), respectively, for specific events and activities on federally administered lands such as the Vegas to Reno OHV race.

The NDOW manages hunting in Nevada through three regional offices, each overseeing hunting in a series of Game Management Units (GMUs) and Hunting Units (HUs), within each GMU. Major big game species that are hunted statewide include antelope, black bear, bighorn sheep, elk, mountain goat, and mule deer. Within the recreation analysis area, there are two regional offices (Southern and Western), eight GMUs, and 19 HUs. Table 3-83 lists the GMUs within the recreation analysis area and summarizes the hunting data associated with those GMUs.

**Table 3-83. Game Management Unit and Hunting Data within Recreation Analysis Area**

GMU ID No.	Total No. of HU(s) in GMU	Total No. of HU Crossed by GLWP in GMU	Crossed HU ID No(s).	General Hunting Season(s) Associated with GMU <sup>a</sup>	Total GMU Hunting Tag Count <sup>b</sup>	Total GMU Hunting Days <sup>c</sup>
19	4	1	195	<ul style="list-style-type: none"> <li>Black Bear: September 15 to December 1</li> <li>Mule Deer: August 10 to November 2</li> </ul>	325	1815
20	8	6	202, 203, 205, 206, 207, and 208	<ul style="list-style-type: none"> <li>Antelope: August 1 to October 30</li> <li>Desert Bighorn Sheep: October 15 to January 1</li> <li>Mule Deer: August 10 to September 9 and November 5 to January 1</li> </ul>	284	1356

GMU ID No.	Total No. of HU(s) in GMU	Total No. of HU Crossed by GLWP in GMU	Crossed HU ID No(s).	General Hunting Season(s) Associated with GMU <sup>a</sup>	Total GMU Hunting Tag Count <sup>b</sup>	Total GMU Hunting Days <sup>c</sup>
21	3	3	211, 212, and 213	<ul style="list-style-type: none"> <li>• Antelope: August to October 4</li> <li>• Desert Bighorn Sheep: October to January 1</li> <li>• Mule Deer: August 10 to November 30</li> </ul>	120	711
24	5	1	244	<ul style="list-style-type: none"> <li>• Desert Bighorn Sheep: November to February 20</li> <li>• Elk: August 25 to November 20</li> <li>• Mule Deer: August 10 to October 31</li> </ul>	147	997
25	4	3	252, 253, and 254	<ul style="list-style-type: none"> <li>• Antelope: August 1 to October 4</li> <li>• Desert Bighorn Sheep: November 19 to February 20</li> <li>• Elk: August 1 to January 1</li> <li>• Mule Deer: August 10 to November 2</li> </ul>	97	433
26	9	2	261 and 262	<ul style="list-style-type: none"> <li>• Desert Bighorn Sheep: October 16 to February 20</li> <li>• Elk: August 25 to November 5</li> <li>• Mule Deer: August 10 to November 30</li> </ul>	228	1229
28	6	2	280 and 286	<ul style="list-style-type: none"> <li>• Desert Bighorn Sheep: November 20 to February 20</li> </ul>	13	76
29	1	1	291	<ul style="list-style-type: none"> <li>• Mule Deer: August 10 to November 30</li> </ul>	108	523

*Table Acronyms:* GLWP – Greenlink West Project; GMU – Game Management Unit; HU – Hunting Unit; ID – Identification; No. – Number.

*Table Notes:* <sup>a</sup>General hunting seasons were calculated using the earliest date to the latest date in all HU(s) for each game species in the respective GMU, even though individual HU(s) may differ, and no specific HU(s) may match the season exactly. Hunting seasons that have and relate to specific regulations (i.e., Mule Deer Junior Antlered or Antlerless, Landowner Damage Compensation Mule Deer, and Landowner Damage Compensation Antelope) have not been included.

<sup>b</sup>Total hunting tag counts represent a sum of all hunting tags for all game animals in the game GMU.

<sup>c</sup>Total hunting days are calculated by multiplying the total days of all the hunting seasons by the total number of hunting tags and rounded to the nearest whole number.

*Table Source:* (NDOW 2022b)

### 3.13.3.4 Solar Energy Zones/Designated Lease Areas

In response to increasing interest in the development of renewable energy resources, in 2012 the BLM and DOE prepared a programmatic solar EIS and identified SEZs in six southwestern states (BLM and DOE 2012). A SEZ is an area with few impediments to utility-scale production of solar energy. The decision included incorporating land use allocations along with programmatic and SEZ-specific design features into BLM land use plans in the six-state area. The land use plan amendments included the identification of exclusion areas, and variance areas (BLM-managed lands that are outside the SEZs and not otherwise excluded by the BLM Solar Energy Program) for utility-scale solar energy ROWs. There are two SEZs within the land use analysis area: Amargosa Valley in Nye County and Gold Point in Esmeralda County. The Amargosa Valley SEZs has a total developable area of 8,479 acres and Gold Point SEZ has a total developable area of 4,596 acres.

### 3.13.3.5 Linear Facilities

Linear utility corridors are designated as such by federal, state, or county agencies but are usually determined through coordination between multiple agencies to help ensure continuity of the corridors between different jurisdictions or land ownership. Utility corridors are areas where existing utilities are located and provide an opportunity to place new facilities in parallel corridors, which in turn helps to minimize overall impacts. Existing linear features within the land use analysis area include transmission lines, pipelines, highways, railroads, and irrigation ditches. The existing transmission lines associated with the Proponent's electrical system in the land use analysis area are shown in Figure 3-37. Existing irrigation ditches are found primarily in Lyon County where the ditches originate from the Walker River and carry water to agricultural fields (Lyon County 2021b). Irrigation ditches are also found in Amargosa Valley. In the Nye County Comprehensive Master Plan, one objective of these linear facilities is to ensure water supplies and a secure source for irrigation to meet the goals of maintaining agriculture as a principal economic base. Historic ditches are also found in the land use analysis area and are described in Section 3.6 Cultural Resources.

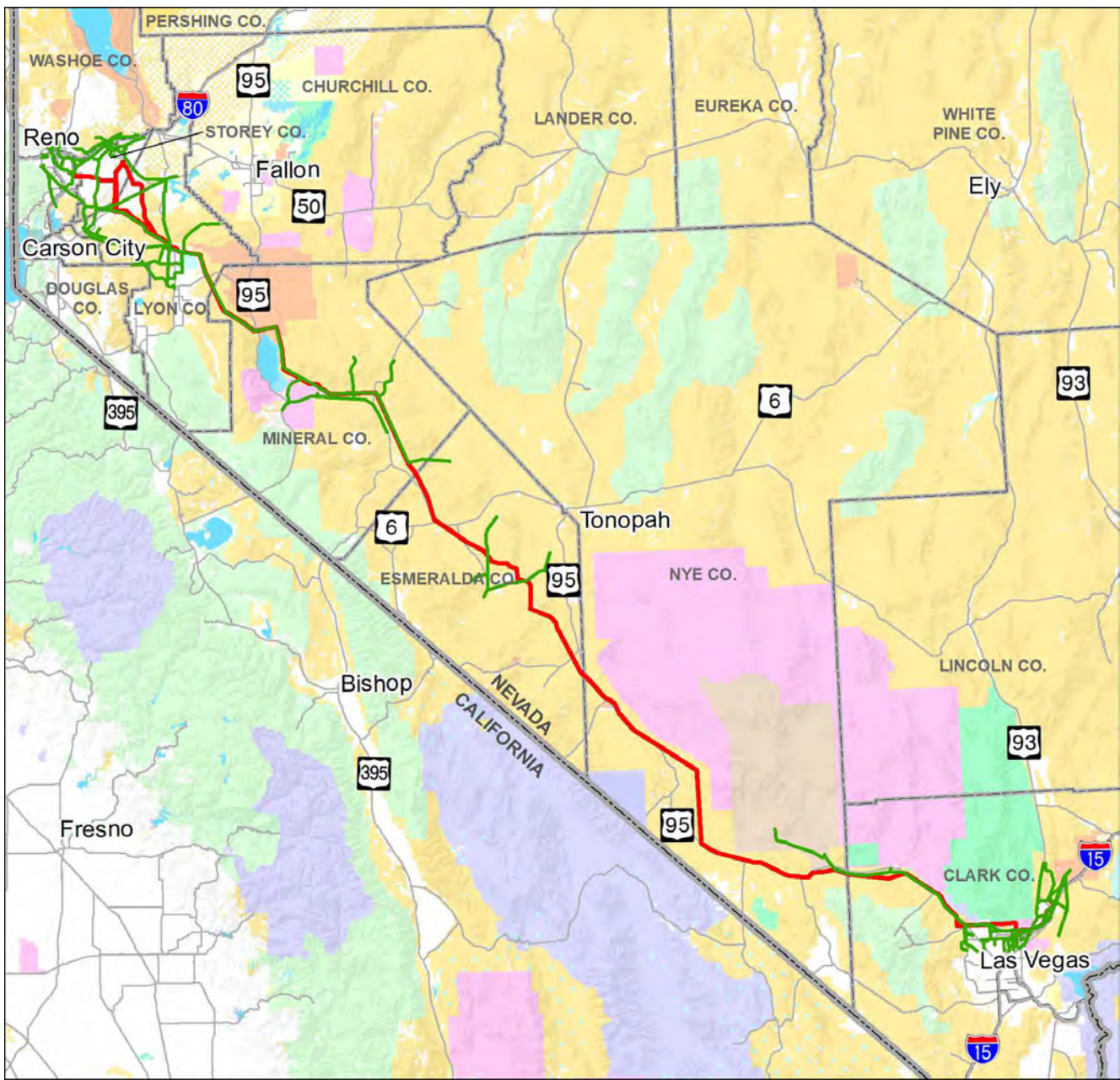
### 3.13.3.6 Section 368 of the Energy Policy Act Of 2005/West-wide Energy Corridor

Section 368 of the EAct (PL 109-58), enacted August 8, 2005, directed the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior to 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 WVEC 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 3-38.

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, but not on state 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" and are corridors that would have environmental impacts, extensive mitigation measures or would require preparation of EIS, alternative corridor considerations or Land Use Plan Amendments (LUPAs). This EIS is serving as that analysis for some of the corridors of concern as described below.



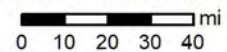


**Legend**

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

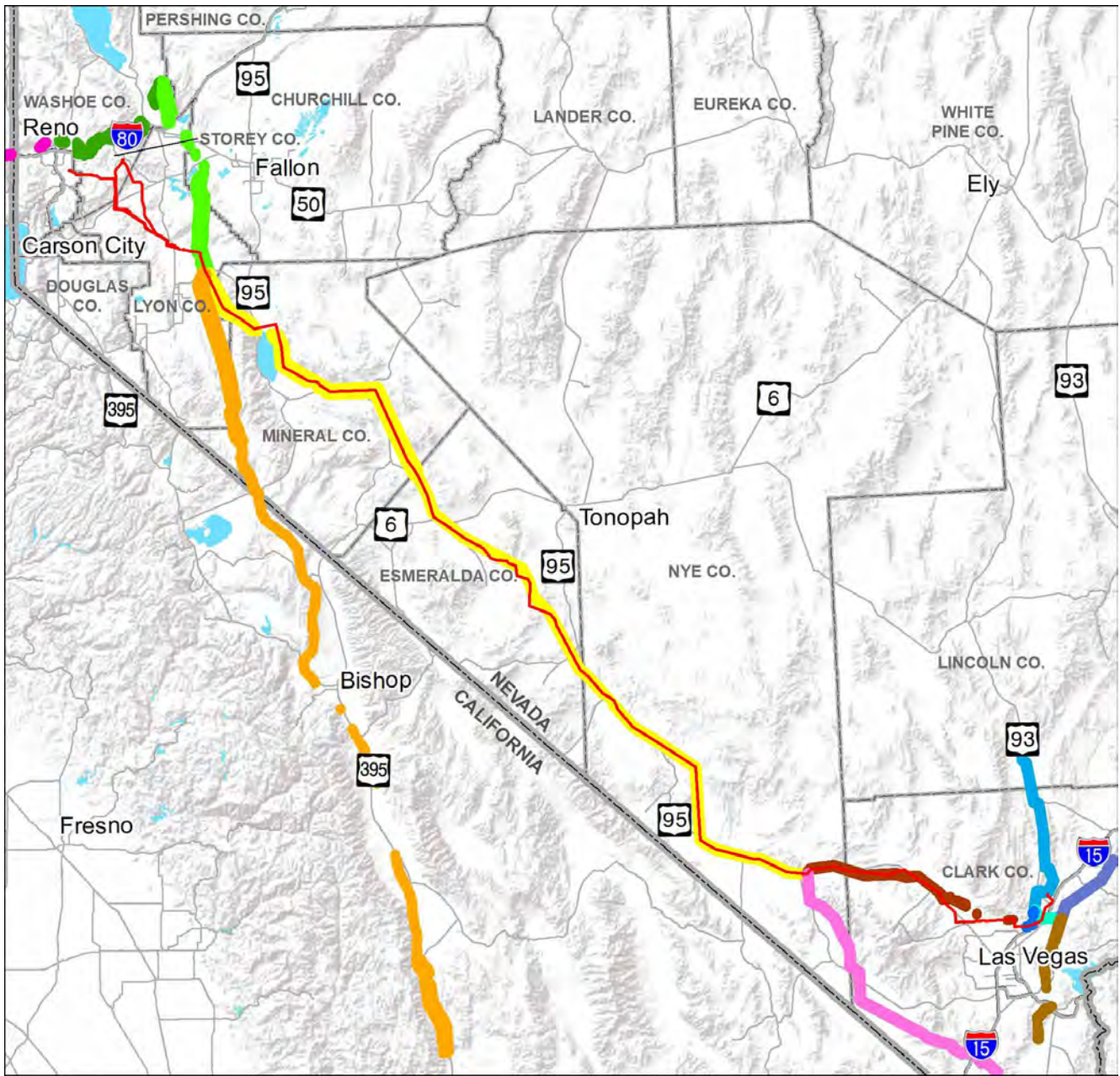


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













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

**Figure 3-37. Existing Electrical Transmission System**

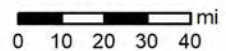


**Legend**

 Proposed Action Transmission Line	 WWEC 6-15	 224-225
	 15-17	 37-223 (S)
 17-18	 37-232	
 18-224	 37-39	
 18-23	 39-113	
 223-224	 39-231	



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 3-38. West-wide Energy Corridors**

**WWEC 6-15**

The WWEC 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 and 27 miles long of designated corridor (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 three miles of six hydroelectric power plants. Corridor 6-15 is not considered a corridor of concern (DOE 2020).

**WWEC 15-17**

Corridor 15-17 connects multiple WWECs to provide pathway from California across northwestern Nevada, spans from around Reno-Sparks, over the Virginia Mountains, and to the area east of the Pyramid Lake Indian Reservation. The corridor is two miles wide and 20 miles long (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).

**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 two miles wide and 32 miles long (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 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 NTTR and Las Vegas, and connects multiple WWECs. The corridor width ranges from 3,500-feet to two 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 seven miles of the Gold Point SEZ, and within 15 miles of the Millers SEZ. Additionally, Corridor 18-224 contains a solar power plant and is within 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 corridor connects multiple WWECs from Oregon to southern California. The corridor width ranges from 1,320-feet to two miles wide and is 171 miles long (240 miles long including gaps of non-BLM-administered lands) and is multi-modal, including existing 115-kV, 138-kV, and 345-kV transmission lines as well as US 395. Corridor 18-23 is within 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 Air Force Base (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 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 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 two 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 three miles (seven 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 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 width ranges from 2,640-feet to 3,500-feet and is 60 miles long (there are no non-BLM-administered land gaps) and is multi-modal, including gas pipelines, 69-kV and 500-kV transmission lines, as well as 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 nine 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).

**WVEC 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 60 miles long (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).

**WVEC 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 23 miles long (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).

**3.13.3.7 Grazing and Rangeland**

Land within the land use analysis area is mainly federally owned and largely undeveloped. Grazing allotments on public lands consider the type of forage available for livestock. Grazing permits are required for livestock use on public lands. Rangeland improvements such as spring developments, wells, storage tanks, fence lines, and dirt tanks have been developed to provide water for livestock and wildlife. There are 25 existing BLM grazing allotments encompassing within the GLWP area (within five miles of the centerlines of the transmission lines) on BLM-administered lands encompassing 3,781,696 acres (5,090 square miles) (refer to Table 3-84; Figure 3-39 and Figure 3-40) (BLM 2021b). Smaller-scale private agricultural operations and dairy farms within the land use analysis area mainly occur near populated areas. The BLM also manages portions of its land as wild horse and burro herd areas and HMAs under the Wild Free-Roaming Horses and Burros Act of 1971 (refer to the Wild Horse and Burros section in Section 3.13.3.8)

**Table 3-84. Grazing Allotments on BLM-Administered Lands within the GLWP Area<sup>a</sup>**

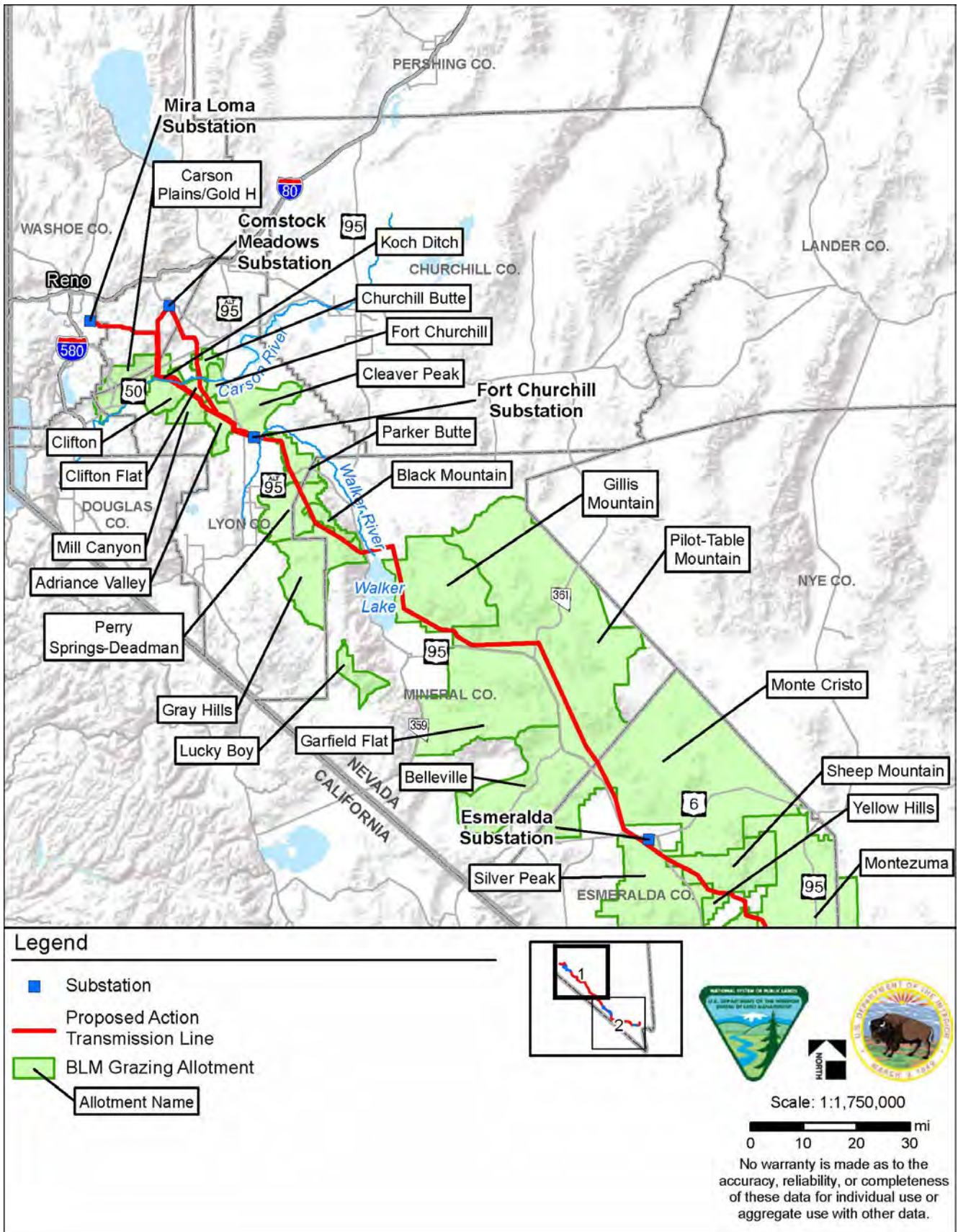
Allotment Name	Allotment Number	Total Allotment Acres
Adriance Valley	3000	27,352.8
Belleville	3511	166,349.2
Black Mountain	3507	14,319.9
Carson Plains/Gold H	3513	52,025.3
Churchill Butte	3008	11,829.3
Cleaver Peak	3010	51,664.2
Clifton	3519	26,871.5
Clifton Flat	3011	7,551.8

<b>Allotment Name</b>	<b>Allotment Number</b>	<b>Total Allotment Acres</b>
Fort Churchill	3023	15,765.9
Garfield Flat	3535	236,661.8
Gillis Mountain	3536	170,628.6
Gray Hills	3539	105,451.2
Koch Ditch	3552	1,923.2
Lucky Boy	3557	23,883.0
Magruder Mtn	99	674,909.8
Mill Canyon	3563	19,399.7
Monte Cristo	145	504,140.8
Montezuma	94	339,199.6
Parker Butte	3572	30,781.4
Perry Springs-Deadman	3573	62,830.1
Pilot-Table Mountain	3574	538,321.6
Razorback	93	266,329.0
Sheep Mountain	100	91,424.5
Silver Peak	97	277,092.0
Yellow Hills	20101	64,989.4

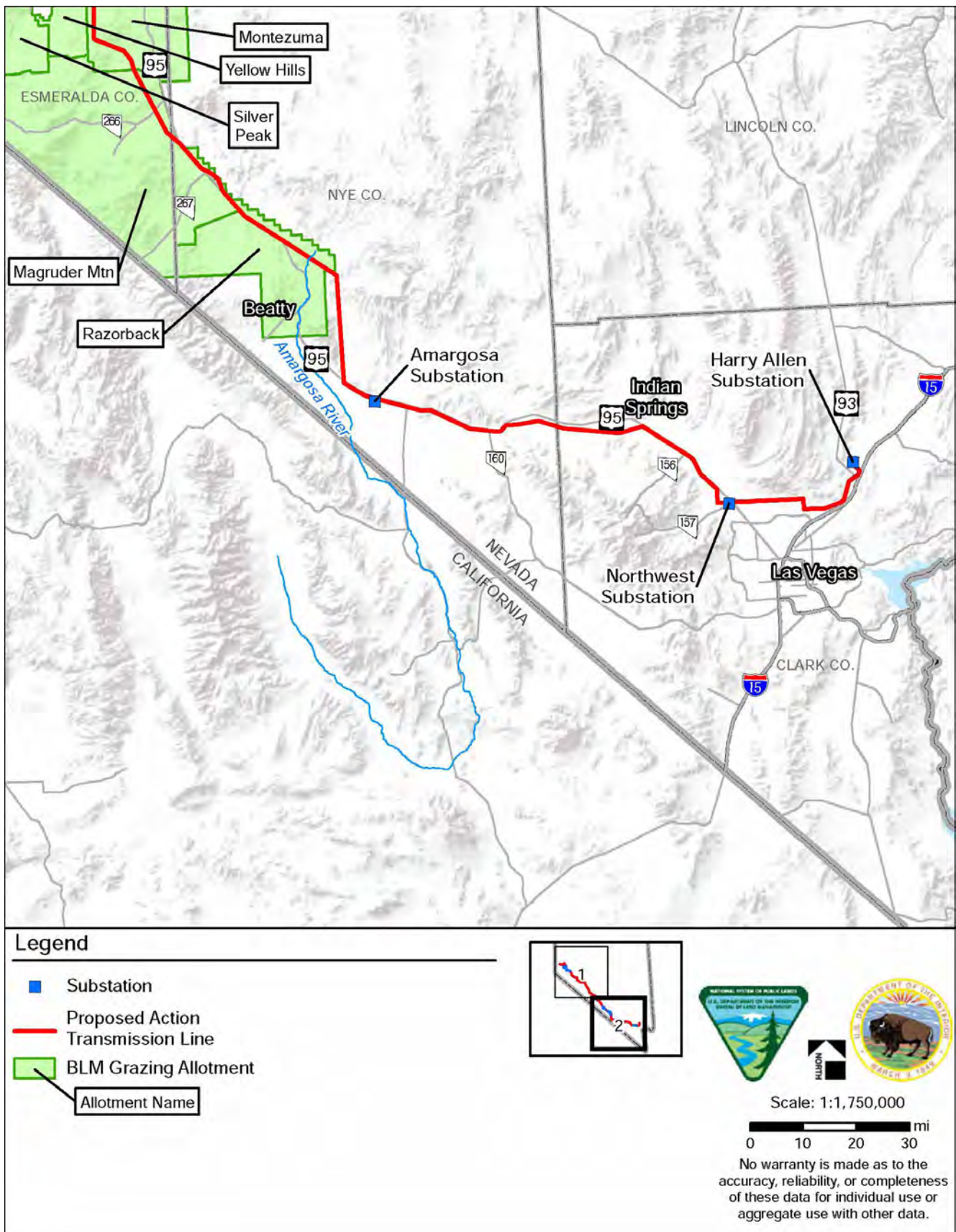
*Table Acronyms:* BLM – Bureau of Land Management; GLWP – Greenlink West Project

*Table Notes:* <sup>a</sup>Grazing allotments within five miles of the Proposed Action 525-kV/345-kV transmission lines.

*Table Source:* (BLM 2021b).



**Figure 3-39. Grazing Allotments (1 of 2)**



**Figure 3-40. Grazing Allotments (2 of 2)**



### **3.13.3.8 Wild Horses and Burros**

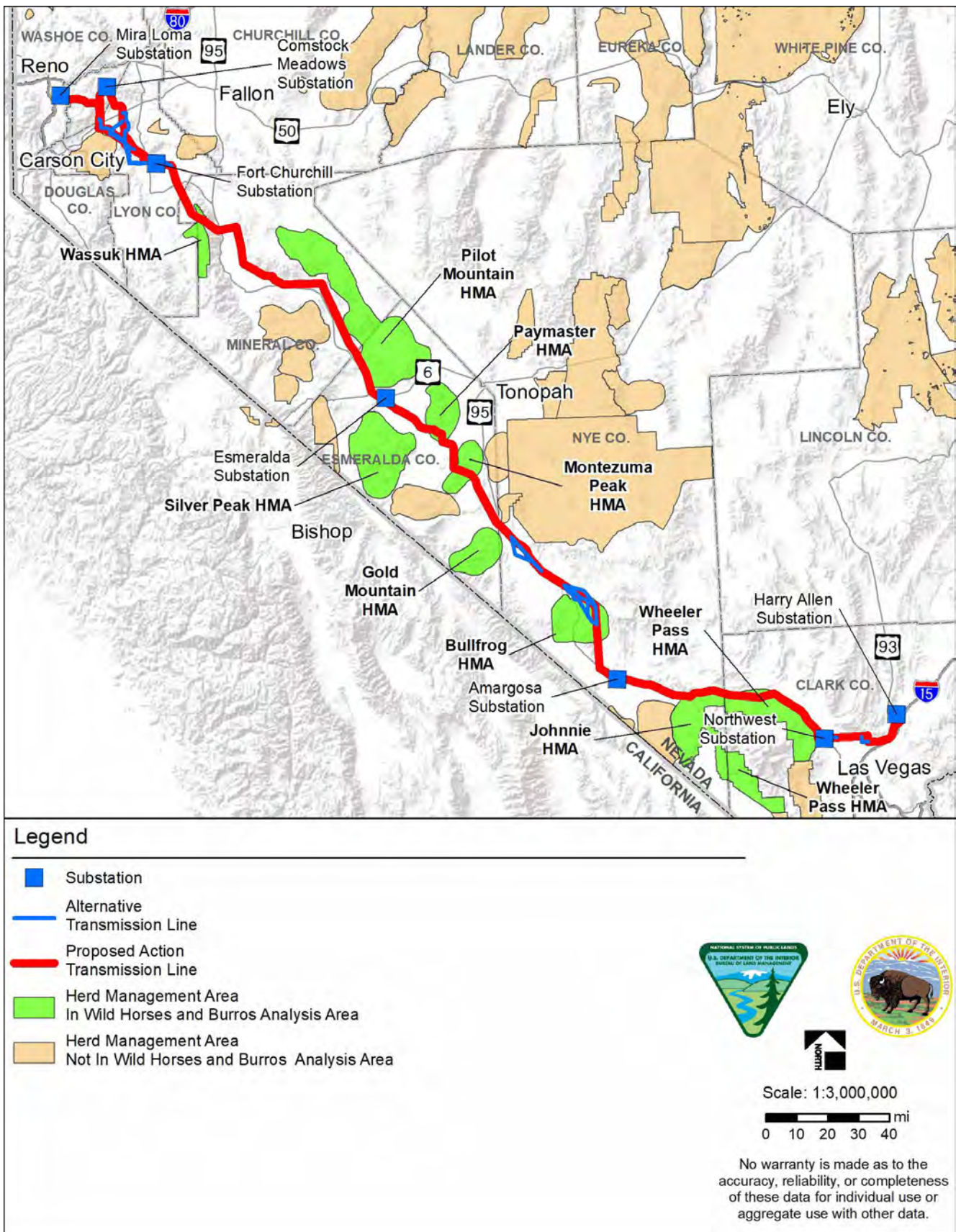
Wild horses and burros receive species-specific management under the BLM's Wild Horse and Burro Program (BLM 2022e) in accordance with the Wild Free-Roaming Horses and Burros Act of 1971 (WFRHBA). Under the BLM's Wild Horse and Burro Program, the BLM manages free-roaming wild horses and burros on BLM-administered lands as part of its multiple-use mission, with the goal of supporting healthy wild horses and burros on healthy public rangelands. Herd management areas (HMAs) are designated in 10 western states to protect and preserve the herds of wild horses and burros on public lands in areas where the herds were located when it was passed in 1971. This analysis includes an assessment of impacts to the nine HMAs which occur within the horse/burro analysis area (BLM 2021b).

Wild horses and burros protected under the WFRHBA occur within the horse/burro analysis area. The horse/burro analysis area intersects nine occupied HMAs (refer to Figure 3-41). The BLM sets Appropriate Management Levels (AMLs) for wild horses and burros in the respective RMPs. Per the 1997 Tonopah RMP, the Bullfrog HMA's AML is 12 horses and 195 burro, Gold Mountain HMA's AML is 50 horses, Paymaster HMA's AML is 48 horses, Montezuma Peak HMA 's AML is 13 horses, and Silver Peak HMA's AML is 312 horses. Johnnie HMA's AML is 50 horses and 85 burros (BLM 1998b). Pilot Mountain HMA's AML is 228 to 346 horses and Wassuk HMA's AML is 109 to 165 horses (BLM 2001). Wheeler Pass HMA's AML is 47-66 horses and 20-35 burros (BLM 2014).

Bullfrog HMA, which occurs near the town of Beatty, manages an estimated population of 204 burros; Gold Mountain HMA, which occurs southwest of Scotty's Junction, manages a dwindling population of eight horses and one burro; and Johnnie HMA, which occurs near the town of Johnnie, manages an estimated population of 43 horse and 199 burros. Montezuma Peak HMA, which occurs near the town of Montezuma, manages an estimated population of 64 horses and 112 burros; Paymaster HMA, which occurs east of the town of Weepah, manages an estimated population of 25 horses and 28 burros; and Pilot Mountain HMA, which occurs at the Pilot Mountains, manages an estimated population of 576 horses. Silver Peak HMA, which occurs at the Silver Peak Range, manages an estimated population of 120 horses; Wassuk HMA, which occurs along the Wassuk Range, manages an estimated population of 100 horses; and the Wheeler Pass HMA, which occurs south of the town of Indian Springs, manages an estimated population of 25 horses and 190 burros (BLM 2023).

### **3.13.3.9 Land Use Authorizations**

The BLM has authorized various land uses under FLPMA within the GLWP area, which are listed in Table 3-85. The BLM administers the majority of the federal lands within the GLWP area, approximately 70 percent. Any land use authorizations by other federal agencies that would be impacted by the GLWP would include similar types of projects including utilities, pipelines, and renewable energy facilities.



**Figure 3-41. BLM Herd Management Areas**

**Table 3-85. BLM Land Use Authorizations within the GLWP Area<sup>a</sup>**

<b>Contact Name/Holder of ROW</b>	<b>ROW Grant Number</b>	<b>Case Type</b>
Air Force	NVN-054351	ROW Telephone & Telegraph Federal Facility
Air Liquide Hydrogen Energy US, LLC	NVN-099564	ROW Road
Allied Building Materials	NVN-043366	ROW Road
American Towers Inc.	NVN-090322	ROW Communication Site
Arizona Nevada Tower Corporation	NVN-086317	ROW Communication Site
Chemical Lime Co	NVN-006012	ROW Water
City of Las Vegas	NVN-083860	ROW Road
City of North Las Vegas	NVN-053584	ROW Water Facility
City of Yerington	NVN-093739	Sale Public Lands
Clark County Reg Flood	NVN-078751	ROW Other
Corps of Engineers	NVN-063129	ROW Telephone & Telegraph
Corps of Engineers	NVN-047795	ROW Road
Corps of Engineers and Southern Pacific	NVN-060243	Railroad Stations
Corvus Gold Nevada Incorporated	NVN-099359	ROW Road
Department of Energy	NVN-077586	ROW Other
Department of Energy Environmental Management	NVN-062545	ROW Road Federal Facility
Department of Energy Office of Civilian Radioactive Waste Management	NVN-047748	ROW Other Federal Facility
Desert Farms, Incorporated	NVN-084014	ROW Water Facility
DesertLink, LLC	NVN-086359	ROW Power Transmission
Diamond Apex, LLC	NVN-085762	ROW Road
Esmerelda County	NVN-054385	ROW Road Under RS 2477
Esmerelda County Sheriff	NVN-059784	ROW Communication Site
Esmerelda County Road Department	NVN-084176	ROW Road
Federal Highway Administration and Nevada Department of Transportation	NVN-082993	Material Sites (Sec. 317)
Frontier Communications/Citizens Telecommunication	NVN-012654	ROW Communication Site 1911
FTV Communication	NVN-062093	ROW Telephone & Telegraph
Genscape Incorporated	NVN-088585	ROW Communication Site
GridLiance West, LLC	NVN-095159	ROW Power Transmission Line
Harry Allen Solar, LLC	NVN-093321	ROW Solar Dev Facility
Hawthorne Utilities	NVN-060552	ROW Temporary Use Permits
Holly Energy Partners	NVN-082385	ROW O&G Pipeline
Kern River Gas Transmission Company	NVN-093887	ROW Other
Los Angeles & Salt Lake Railroad CO	NVCC-000360	Railroad Stations
Los Angeles Department of Water & Power	NVN-001018	ROW Power Tran Line
MCI Communication Services Incorporated ROW Department and MCO Worldcom Network Services Inc	NVN-043923	ROW Telephone & Telegraph
Mineral County	NVN-031194	ROW Water Facility
Mountain View Solar, LLC	NVN-090989	ROW Power Transmission

Contact Name/Holder of ROW	ROW Grant Number	Case Type
AT&T Nevada	NVN-073706	ROW Telephone & Telegraph
Nevada Department of Transportation	NVCC-0021218	Federal Aid Highway (Sec 17)
Nevada Hospital Association and Switch	NVN-090056	ROW Power Tran
Nevada System of Higher Education	NVN-093798-02	ROW Power Facilities
Nye County	NVN-066239-01	Sale SNPLMA
Nye County Nuclear Waste Repository	NVN-062848	ROW Water Facility
Nye County Public Works Department	NVN-092776	ROW Road
Ormat Nevada Incorporated	NVN-086594	ROW Water Facility
Playa Solar 2, LLC	NVN-093306	ROW Solar Development Facility
Qwest Communications Company, LLC	NVN-091896	ROW Telephone & Telegraph
Ready Mix Incorporated	NVN-075571	ROW Water Facility
Silver State Energy Association	NVN-086357	ROW Power Transmission
Southern Nevada Water Authority	NVN-061878	ROW Water Facility
Southern Pacific	NVCC-001259	Unknown
Southwest Gas Corporation	NVN-054088	ROW O&G Pipeline
US Geological Survey	NVN-095673	ROW Water Facility
University of Nevada Reno	NVN-062888	ROW Other
Valley Electric Association	NVN-094785	ROW Telephone & Telegraph
WAPA	NVN-065524	ROW Power Transmission
Weston Adams, MMESA 319, LLC	NVN-098060	Permits Sec. 302

*Table Acronyms:* O&G – oil and gas; ROW – right-of-way; RS – Revised Statute; SNPLMA – Southern Nevada Public Land Management Act; US – United States; WAPA – Western Areas Power Administration

*Table Notes:* <sup>a</sup>Authorized land uses within five-miles of the Proposed Action 525/345-kV transmission lines.

*Table Source:* Nevada State Office Adjacent ROW Holder Letters (April 16, 2021)

### 3.13.3.10 Military Installations and Airspace

Nellis AFB, a part of the US Air Force's Air Combat Command, is located approximately 11 miles south of the Harry Allen Substation. The base itself covers more than 14,000 acres, with an additional 7,700 square miles of airspace north and east of the restricted range available for military flight operations. Nellis AFB is a major focal point for advanced combat aviation training. Its mission is accomplished through an array of aircraft, including fighters, bombers, refuelers, and aircraft used for transport, close-air-support, command-and-control and combat search-and-rescue. As part of the US Air Force Warfare Center (USAFWC), units at Nellis AFB provide training for composite strike forces that include every type of aircraft in the US Air Force inventory, along with air and ground units of the Army, Navy, Marines, and air units from allied nations. The 57th Wing is the operational element of the USAFWC. The 99th Air Base Wing and NTTR are other USAFWC units at Nellis AFB.

The NTTR organization is responsible for developing, maintaining, and operating facilities on the NTTR to satisfy requirements for a realistic combat environment. The NTTR occupies 2.9 million acres of land, 5,000 square miles of airspace which is restricted from civilian air traffic over-flight and another 7,000 square miles of Military Operating Area, or MOA, which is shared with civilian aircraft (<https://www.nellis.af.mil/About/Fact-Sheets/Display/Article/284174/nellis-air-force-base/> and <https://www.nellis.af.mil/Units/NTTR/>). In accordance with Section 3016 of the Military Lands Withdrawal Act of 1999, Public Law No. 106-65 (MLWA), the Department of the Air Force has notified Congress of a

continuing military need for the NTTR land withdrawal in coordination with the DOD and plans to submit a legislative proposal through the DOI to extend the NTTR land withdrawal ([http://www.nttrleis.com/final\\_documents.aspx](http://www.nttrleis.com/final_documents.aspx)). The NTTR is over capacity by 165 percent and Range 77A is transitioning from an electronic combat range to an active bombing range. A 17,960-acre federal land transfer for Range 77A is being planned that would extend the NTTR withdrawn land (Communication with DAF, NTTR/XPIN, January 18, 2022) (refer to Figure 3-42).

According to information provided by Nellis AFB, MTRs are flight corridors used to practice high-speed, low-altitude training that generally occurs below 10,000 feet at speeds in excess of 250 nautical mph. The MTRs are described by a centerline, with defined horizontal limits on either side of the centerline and vertical limits expressed as minimum and maximum altitudes along the flight track. Visual Routes (VR) are MTRs flown under FAA visual flight rules, where the military conducts operational and training flights.

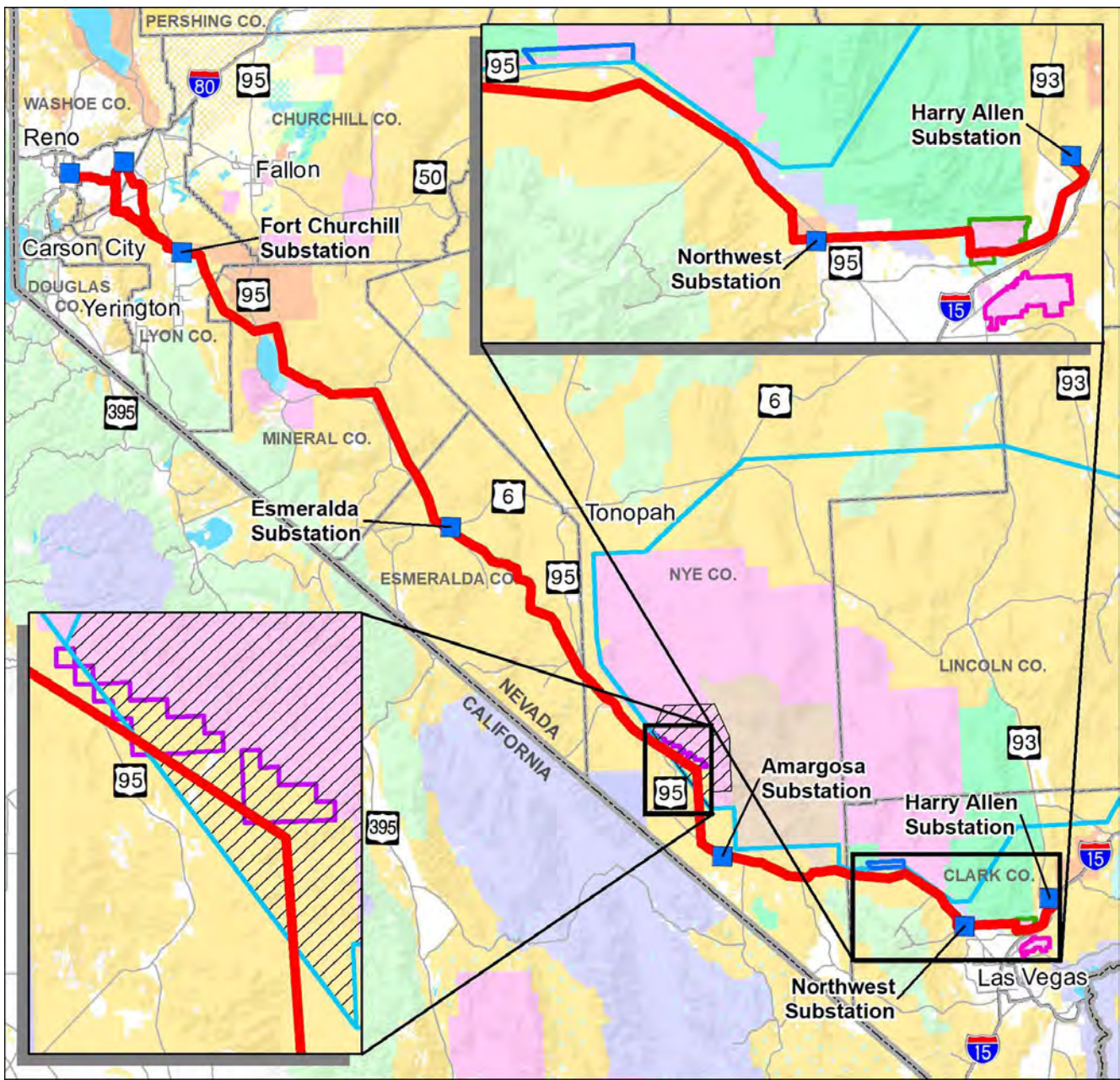
Creech Air Force Base, Nevada, is home to the famed “Hunters,” of the 432d Wing and 432d Air Expeditionary Wing. Located off US 95 in Indian Springs, the base includes an area of 2,300 acres. The Hunters conduct remotely piloted aircraft initial qualification training for aircrew, intelligence, weather, and maintenance personnel. The remotely piloted MQ-1B Predator and MQ-9 Reaper aircraft provide real-time reconnaissance, surveillance, and precision attack against fixed and time-critical targets (<https://www.creech.af.mil/About-Us/Fact-Sheets/Display/Article/449127/history-of-creech-air-force-base/>).

### **3.13.3.11 Mining and Mining Claims**

Active mines and mining operations are identified within the geology/mineral analysis area (five-mile buffer from the transmission line centerline). According to the NBMG, there are 50 mining districts within the geology/mineral analysis area where mining occurs and within which specific mines are located (Figure 3-23 and Figure 3-24). The majority of the districts contain metallic minerals and rocks, such as Mount Grant District, which encompasses the Wassuk Range. There are 15 active mines within geology/mineral analysis area including metal (gold) mines, a geothermal production site in Mason Valley, and industrial mineral mines (sulfur, cinder, and alum). There are also geothermal wells located in Esmeralda, Mineral, Lyon, and Washoe counties. Coal is found in isolated localities in several counties in Nevada, but there are no commercially mineable coal seams in the state (USGS and NBMG 1964). Although a number of test wells for oil and gas have been drilled in Clark County, no commercial oil and gas production has been found (Garside and Hess 2007). Active mining claims are found throughout the GLWP area. There are approximately 32,252 mining claims within the GLWP area (NDOM 2022).

### **3.13.3.12 Transportation Infrastructure**

Transportation infrastructure resources include primary and secondary roadways, airports, and railroads within the transportation analysis area. Primary roadways for this analysis are defined as interstates, US, and state highways. There are three interstate highways (I-15, I-80, and I-580), six US highways (US 6, US 50, US 93, US 95, US 95A, and US 395A), and 22 state highways within the GLWP area. These primary roadways can support high-travel speeds and traffic volumes and have various types of usage, levels of service, and traffic counts. Currently, US 95 is the major highway route connecting Las Vegas and Reno and is classified as principal arterial (roadways that serve corridor movements having trip length and travel density characteristics indicative of substantial statewide or interstate travel) (FHWA 2013; NDOT 2020b). The majority of the transportation analysis area is characterized by rural and uninhabited areas served by county and BLM roads, most of which are lightly traveled unpaved roads. These secondary roadway



**Legend**

- |  |  |
|--|--|
| <span style="color: blue;">■</span> Substation   | <span style="background-color: yellow; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bureau of Land Management     |
| <span style="color: red;">—</span> Proposed Action   | <span style="background-color: #d2b48c; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Department of Energy         |
| <span style="color: red; font-weight: bold;">—</span> Transmission Line  | <span style="background-color: #ffff00; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Bureau of Reclamation        |
| <span style="border: 2px solid cyan; display: inline-block; width: 15px; height: 10px;"></span> Nevada Test and Training Range Restricted Airspace           | <span style="background-color: #ffccff; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Department of Defense        |
| <span style="border: 2px solid cyan; display: inline-block; width: 15px; height: 10px;"></span> Nevada Test and Training Range Range 77A Restricted Airspace | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> US Fish and Wildlife Service |
| <span style="border: 2px solid green; display: inline-block; width: 15px; height: 10px;"></span> Nellis Small Arms Range                                     | <span style="background-color: #90ee90; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> US Forest Service            |
| <span style="border: 2px solid magenta; display: inline-block; width: 15px; height: 10px;"></span> Nevada Test and Training Range Expansion                  | <span style="background-color: #ffcc99; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> Indian Reservation           |
| <span style="border: 2px solid magenta; display: inline-block; width: 15px; height: 10px;"></span> Nellis Air Force Base                                     | <span style="background-color: #ccccff; border: 1px solid black; display: inline-block; width: 15px; height: 10px;"></span> National Park Service        |
| <span style="border: 2px solid blue; display: inline-block; width: 15px; height: 10px;"></span> Creech Tower Airspace  | <span style="border: 1px solid cyan; display: inline-block; width: 15px; height: 10px;"></span> State  |
|  | <span style="border: 1px solid white; display: inline-block; width: 15px; height: 10px;"></span> Private   |
|  | <span style="background-color: cyan; border: 1px solid cyan; display: inline-block; width: 15px; height: 10px;"></span> 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 3-42. NTR Restricted Airspace and Range 77 Proposed Expansion**

networks provide greater access within the transportation analysis area than the primary roadways and are designed to carry lower volumes at lower speeds than primary roadway network. There are approximately 3,584.0 miles of existing state- and county-maintained roadways in the transportation analysis area (NDOT 2022).

There are six airports located within the transportation analysis area; there are no known proposed airports (NDOT 2017). Silver Springs and Reno-Tahoe International airports are public-use airports. Mina and Lida Junction airports are managed by the BLM; Lida Junction Airport is leased to Esmeralda County. The remaining two, Nellis and Creech, are airfields owned and operated by the US Air Force.

There is one transcontinental railroad within the transportation analysis area. A portion of the UPRR South Central Route that goes from Los Angeles to Salt Lake City runs west of, and parallel to, I-15 approximately 2.8 miles south of the Harry-Allen Substation. The UPRR also owns and operates the Mina Branch, which previously went from Hazen to Mina. The Mina Branch now ends near Wabuska where it connects to Open Mountain Energy, LLC's Wabuska Geothermal Power Plant. From Wabuska, the railroad extends to the Hawthorne Army Depot and is referred to as the Thorne Branch. The US Army owns and operates this 54-mile branch line and uses it for classified military shipments. Currently, there are no rails from Hawthorne to Mina.

### **3.13.4 Environmental Consequences**

Existing and planned land use, land use plans, and realty impacts could occur because of the construction, O&M, and decommissioning of the GLWP and would be caused by the displacement or alteration of existing and planned land uses. Potential land use impacts are described as the physical, operational, or social changes that could potentially occur to a land use. Changes could be brought about by the easements and ROWs needed to develop the GLWP and the construction, physical presence, and operation of the GLWP as well as the management and maintenance of the ROW, if authorized. The potential for change from introducing the GLWP differs from one land use category to another with respect to what might be altered and to what extent. Direct effects to land uses were assessed by impacts that would displace, alter, or otherwise physically affect any existing, developing, or planned residential, commercial, industrial, agricultural, or institutional use. In addition, any alterations or otherwise physical effect to any established, designated or planned park, recreation, preservation, or educational-use area were evaluated. Effects to applicable comprehensive and regional plans and/or approved, adopted, or officially stated policies, goals, or operations of communities or governmental agencies were also assessed. Specific amendments to BLM land use plans are provided in Chapter 4 Resource Management Plan Amendments. Any crossing or paralleling of existing utilities would be a matter of technical coordination and realty agreements with the affected utilities, and these impacts were not assessed in this EIS.

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

It is anticipated that under the No Action Alternative, the current uses and trends for the resource would continue to occur. There would be no impacts to land use, realty, and Indian Trust Assets attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

### 3.13.4.2 Direct and Indirect Impacts Common to All Action Alternatives

#### Land Uses and Land Use Plans

##### **Construction**

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 when construction equipment would move materials throughout the temporary ROW area. Installation of the new transmission line structures and ancillary components would also temporarily disturb these land uses.

##### **Operations and Maintenance**

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 federal and/or state 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.

Death Valley National Park would be approximately 6.0 miles from the closest Action Alternative. There would be no direct impact to DEVA or its management. While portions of the Action Alternatives may be visible from DEVA, it would not be visual discernible or attract attention of the park visitors because of the distance from the park to the transmission line, intermittent visibility of the transmission line, and the presence of the Yucca and Timber mountains in the background.

##### **Decommissioning**

In the event the GLWP is decommissioned, project components would be removed, and disturbed areas would be reclaimed. Foundations would be removed to below the ground-surface level. Post-operations decommissioning of the transmission line would cause similar levels of disturbance and disruption as construction, but to a lesser extent. However, once reclamation is complete, areas would be restored to the prior condition. New and improved access roads constructed by the Proponent would be maintained as permanent based on agreement with the landowner/administrator. For example, the BLM would determine whether the permanent roads on BLM-administered land would be open to the public. Roads would be maintained to the level required by applicable regulations.

#### Recreation

##### **Construction and Decommissioning**

Construction activities would not permanently restrict the use of or access to any existing recreation opportunities or activities. The construction of the GLWP would temporarily alter the recreation settings and experience in areas that do not already include existing, similar structures. Any GLWP-related activities and vehicle traffic during construction and decommissioning may reduce the appeal for dispersed recreational activities. Dispersed recreation activities such as hiking, camping, bird watching, or equestrian use would be temporarily affected as construction noises, visual disturbances, and/or the presence of other humans could detract from these recreation opportunities and activities. Any potential construction-related impacts on recreation opportunities, activities, and experiences would be localized and short-term. Some unauthorized OHV use could occur during construction when workers are not present (such as on weekends or in between construction phases).



Hunting opportunities may be displaced during the construction and decommissioning of the GLWP, however the areas within GMUs that are outside of the temporary and permanent ROWs would remain available for hunting, subject to applicable laws and regulations. For hunting seasons that occur year-round, hunting activities would be displaced to areas outside of temporary and permanent ROWs for worker's safety. Human presence and construction activities would likely cause some wildlife species to temporarily avoid these areas. The number of hunting permits that are issued in individual GMUs would not change as a result of construction of the GLWP. The availability to hunt in GMUs included within the recreation analysis area and the number of hunting permits per GMU would not be affected by the GLWP because the temporary and permanent ROWs would represent less than 0.2 percent and 0.1 percent, respectively, of the acres for any given GMU. Hunter days would not change under any Action Alternative, since hunting could persist elsewhere in the GMU. In addition, many of the wildlife species being hunted would likely not be present during construction due to increased noise and human activity. Following construction activities, the area outside of the permanent ROW area would return to existing conditions, wildlife most likely would no longer avoid the areas, and any construction impacts to hunting would cease. The total impacts to GMUs would generally be the same across all Action Alternatives and would impact less than one percent of the acreage for any given GMU.

### **Operations and Maintenance**

The GLWP access and maintenance roads would also provide increased access for recreational opportunities associated with all Action Alternatives, could alter the OHV use patterns in the area, and are 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 "wildcat" and user-created route proliferation. An increase in "wildcat" and user-created trails would conflict with federal land management agencies OHV-use strategies, creating management challenges and potentially increasing 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 or state). Activities associated with the O&M phase of GLWP would have no impact on the use of the existing OHV routes. Impacts to recreation settings and hunting during O&M would be the same as described under common to all Action Alternatives' construction impacts noted above.

### **Grazing and Rangeland**

#### **Construction and Decommissioning**

During construction activities, access to areas currently used for livestock grazing may be temporarily restricted. These areas would be identified in advance of construction, and any needed restrictions and the method of restriction (e.g., fencing, gates) would be coordinated with the respective landowner or grazing permittee on BLM-administered lands (refer to EMM PHS-2 in Appendix C). Construction activities related to the Action Alternatives could affect livestock grazing by temporarily reducing forage and displacing livestock. Areas not affected by permanent facilities would be reclaimed immediately following completion of construction as described in Section 3.2 General Vegetation. The use of helicopters during construction activities may displace livestock where it occurs. Construction may also affect livestock control and distribution if a gate is left open or a fence is damaged. Construction crews would repair any damaged fences or gates immediately to ensure livestock are adequately controlled. Degradation of forage by noxious weed introduction during construction would be prevented by implementation of the Noxious Weed Management Plan (NV Energy 2022).

Range improvements, which include fences, gates, cattle guards, and stock tanks, could be removed or disturbed because of construction-related activities. Additional impacts could occur through potential damage to fences, gates, and cattle guards, resulting in the accidental release of livestock. Long-term range monitoring sites could be removed or disturbed because of construction-related activities. Implementation of EMMs would avoid or minimize impacts to range improvements (refer to Appendix C EMMs AG-1 to AG-12).

### **Operations and Maintenance**

Improvements to existing roads and the construction of new roads could result in increased vehicle traffic and potentially increased vehicle speeds by the motorists using these roads. Increased vehicle traffic and speeds may increase the potential for livestock/vehicle collisions. Any new access roads in grazing areas could result in livestock using roads as travel routes but also could provide alternate access to grazing allotments, water resources, grazing facilities, and livestock if the access roads are retained for public use. New roads could also result in increased access to grazing allotments and increased vandalism.

### **Wild Horses and Burros**

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

Within HMAs, construction-and decommissioning-related activities may result in wild horses and burro herds being displaced from their preferred grazing areas and mortality or injury of individual animals from heavy equipment and higher volume of vehicles in remote areas. In addition, impacts on the wild horses and burros within the temporary ROW area would result in habitat degradation, specifically through the introduction and spread of invasive plant species and noxious weeds and habitat fragmentation due to increased anthropogenic disturbance. Ongoing O&M activities associated with the Action Alternatives could result in mortality or injury of wild horses and burros from vehicles traveling on access roads and transmission and distribution line inspection and vegetation maintenance. Other impacts on wild horses and burros 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 these animals from the local areas. Impacts during decommissioning would be similar to those described for the construction phase, though to a lesser extent. After reclamation of disturbed areas, vegetation would be restored to pre-construction conditions over the long-term.

### **Military Installations and Airspace**

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

The construction of the transmission towers would impact the use of the restricted airspace and planned military training operations by the Action Alternatives that would be located within this portion of the land use analysis area. The O&M of the transmission towers would impact military operations in Range 77A restricted airspace and military training operations in the proposed legislative lands withdrawal. The Action Alternatives would conflict with MTRs and airspace restrictions that include both visual and instrument routes for the NTTR. One of the training routes has a base operating elevation of ground level and, as such, the transmission tower structures would create military airspace obstructions. 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 obtaining any necessary authorizations and approvals prior to entering restricted airspace (refer to EMM COM-22 in Appendix C).

## **Mining and Mining Claims**

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

The BLM's granting of a utility ROW does not alter a mining claim holders' right to explore and/or develop and extract minerals. There are exploration drilling plans of operations that have been approved by the BLM and there are no known patented mining claims<sup>13</sup> that would be crossed by the Action Alternatives. Unpatented mining claims would be crossed within the temporary and permanent ROW areas by the Action Alternatives. Because the final GLWP route would be sited such that impacts to active mining operations are avoided, construction activities would cause no direct impacts to operating mines and mining districts. Overhead transmission lines typically have little impact to mining operations. Span lengths are such that access to minerals can be accomplished between spans. Should open pit mining be planned, structures can be left on "islands," or the mining interests can have the transmission line locally rerouted.

If encountered within the temporary or permanent ROW, abandoned sites may trigger regulatory requirements under the Clean Water Act; Resource Conservation and Recovery Act; and the Comprehensive Environmental Response, Compensation, and Liability Act if soils and drainage are handled. These abandoned sites would be avoided if possible or managed per regulatory requirements if they cannot be avoided.

### **Operations and Maintenance**

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). 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. Appropriate siting and avoidance of mineral producing sites should reduce impacts associated with access to and extraction of mineral resources. While mineral resource conflicts may arise in association with the Action Alternatives, these conflicts would be minimized through negotiations between the Proponent and the claimant with valid existing rights.

None of the Action Alternatives are 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 electric and magnetic fields. Effects from electric and magnetic fields would be dealt with the identification and delineation of existing underground metallic pipelines or well casings in the vicinity of the GLWP.

## **Transportation Infrastructure**

### **Construction and Decommissioning**

Both new and existing roads would enable access to the ROW and structure sites for construction of the GLWP. Existing roads (both paved and unpaved) would be the primary means to access the GLWP for

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<sup>13</sup> A patented mining claim is one that the federal government has passed its title to the claimant, giving the claimant exclusive title to the locatable minerals, and in most cases, the surface and all resources (<https://www.blm.gov/programs/energy-and-minerals/mining-and-minerals/locatable-minerals/patents> )

construction. Some existing improved and unimproved dirt roads may require widening or other improvements to accommodate construction equipment.

The greatest impacts to transportation resources would occur over the short-term. Construction-related traffic would be generated by new access road construction and improvement of existing roads, transmission line structure foundation installation, structure hauling and erection, wire stringing, restoration, and clean-up activities. Large trucks and potentially oversized loads would deliver equipment during construction. Construction traffic would create intermittent short-term delays because large construction vehicles and oversized load deliveries would move slower than normal traffic. Incidental impacts could occur during construction related to slow-moving GLWP vehicles on steep roads with limited sight distance. Pipeline and other utility line crossings could require special reviews by utilities or private parties to prevent road or utility damage. The Proponent would obtain oversize/overweight permits from state, county, and local roadway authorities to transport heavy equipment and transmission structures.

Impacts from access road improvements would be greatest in areas with improvements occurring such as widening, installing drainage crossings, and intersection work to accommodate oversized equipment and vehicles. Where road improvements occur, partial lane closure, the use of flaggers, and reduced speeds are expected over the short-term. In some cases, road improvements may require incidental road closures and/or detours that temporarily create access difficulties and/or restrictions that limit access to public and private property. Adherence to EMMs (Appendix C – PHS-6 and TRAF\_TRANS-1 to TRAF\_TRANS 4) would help to limit and plan for any incidental closures.

Construction activities would create short-term incidental increases in local traffic, but it is not expected to create substantial congestion for extended periods because of the relatively broad distribution of construction traffic throughout the day. A sustained decrease in the level of service for roads within the GLWP area would not occur as a result of the construction activities. The improvements to some existing roads would improve travel and safety for users. Changes such as roadway widening would improve sight distances for motorists and drainage improvements would reduce maintenance requirements and help minimize water on roads after weather events. Increased access and improved travel conditions would result from roadway network improvements as construction proceeds. This would incrementally improve emergency response times and could provide access to previously inaccessible areas.

The construction of new access roads would generally not result in traffic impacts except where they tie into existing roads. New road construction would benefit transportation networks overall by improving connectivity, but this benefit would be negligible given the locations and relatively small number of new roads constructed (approximately 88 miles) over the entire GLWP area.

Temporary, short-term traffic delays during construction could also occur at locations where transmission lines would intersect existing roads. Road traffic interruption is not anticipated during conductor-stringing and tensioning activities unless required under the terms and conditions of a specific road or highway-crossing permit. For public protection during stringing activities, temporary guard structures would be erected at road crossing locations where necessary. As described in the GLWP Preliminary POD, these temporary guard structures would be placed on either side of the road to prevent shield wire, conductors, or equipment from falling on underlying facilities and disrupting traffic. Depending on topography and state, federal, or local restrictions, it may be necessary for the guard structure access locations to be within the road ROW, although the preference is for the access to be outside of the road ROW. Pilot lines would be pulled from tower to tower by either a helicopter (most commonly) or land-operated equipment. Using a helicopter would minimize or prevent impacts to road traffic. For safety and efficiency,

conductor stringing and tensioning activities would typically occur during daylight hours and coincide, to the extent practical, with periods of low traffic (NV Energy 2022).

### **Operations and Maintenance**

Over the long-term, impacts to transportation resources from O&M would be less than the short-term impacts associated with construction because travel volume during the O&M phase would be substantially lower and more distributed over time. Road maintenance agreements with the applicable roadway authorities may be required. Due to compliance with EMMs (Appendix C – PHS-6 and TRAF\_TRANS-1 to TRAF\_TRANS 4), regulations, laws, and permit requirements, there would be no hazardous conditions for motorists and pedestrians. Impacts associated with normal travel to and from the transmission line for inspections and repairs would be negligible. Incidental travel time delays are not expected to influence emergency response times or local travel.

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

##### **Indian Trust Assets**

The Proposed Action would be located on, and run along the south and west sides of, the Snow Mountain Reservation for approximately 5.1 miles (123.6 acres). This location of the transmission corridor was determined through coordination with the Las Vegas Paiute Tribe to parallel an upcoming transmission line relocation project the Las Vegas Paiute Tribe is completing. The Proposed Action would be located northeast of the Timbisha Shoshone Reservation approximately 0.3 miles from the northeast corner of the reservation to 0.4 miles from the southeast corner of the reservation. The Proposed Action would therefore not impact any Indian Trust Assets on the Timbisha Shoshone Reservation. The Proposed Action would be located on the Walker River Indian Reservation adjacent to east and north sides of Walker Lake. This segment of the Proposed Action would run parallel to an existing power line but would not share the existing ROW. A new ROW/lease agreement for approximately 8.3 miles (201.2 acres) would be required from the Walker River Paiute/BIA.

By virtue of the use and encumbrance of the land, the Proposed Action at the Snow Mountain and Walker River would impact Indian Trust Assets. 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 use of the land by the Tribe for grazing or other activities that do not conflict with the transmission line use, other than the specific structure locations. Any aggregate material proposed for extraction from the reservation is considered an Indian Trust Asset, although no aggregate material is anticipated to be removed from reservation lands.

##### **Land Uses and Land Use Plans**

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

Seventy-six percent of the temporary ROW area would be on BLM-administered land and 18 percent would be on private land. The private land within the temporary ROW area is currently vacant/grazing land and is planned generally for open space, recreation, agriculture, industrial, and mixed uses. In addition, construction activities associated with the Proposed Action would cross a portion of the TUSK, the State's prison complex (Three Lakes Valley Conservation Camp and Southern Desert Correctional Center), and Mason Valley WMA. Tribal lands crossed by the Proposed Action's temporary ROW area include the Las Vegas Paiute-Snow Mountain and Walker River Paiute Reservations. The construction of the Proposed

Action would have a short-term impact but would not eliminate the existing land uses within the temporary ROW after reclamation of the area not encompassed in the permanent ROW. The majority of the existing uses may be re-established/continued within the permanent ROW area. The Proposed Action would limit but not eliminate the use of the Nellis AFB Small Arms Range; the Nevada National Guard Floyd Edsall Training Center; TUSK; the State's prison complex; Mason Valley WMA; or lands associated with the Las Vegas Paiute-Snow Mountain and Walker River Paiute Reservation lands within the permanent ROW area.

Some of the segments of the Proposed Action transmission lines would follow existing corridors established by the respective BLM DO or FO and the WWEC established by the BLM. There would be segments of the WWEC that would require revisions with the implementation of the GLWP. These changes would be addressed in Chapter 4 Resource Management Plan Amendments.

## **Recreation**

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

Construction and decommissioning of the GLWP would not prohibit any recreation activities that were available previously to the public except at the site-specific locations during construction or decommissioning activities to minimize any intentional destructive acts and/or for public safety. Construction equipment and vehicles would cross OHV routes and several of the routes would be used as access roads. Across the seven counties in which the GLWP would be located, approximately 39 named and 105 unnamed OHV routes would be crossed by the Proposed Action transmission line alignment. Of these, several routes would be crossed by the proposed transmission line multiple times including Old State Route 2C in Mineral County (crossed five times); Pearl Spring Road in Esmeralda County (crossed four times); Fort Churchill Road and Wabuska Road in Lyon County and Jackson Wash Road in Esmeralda County (each crossed three times); and Lousetown Road in Storey County, Racetrack Road and Saga Road in Nye County, and Road 276 in Esmeralda County (each crossed two times). No long-term OHV route closures would be required for construction or decommissioning, and impacts associated with these activities would be temporary and cease once activities are completed. Although no closures would be required, the Proponent would coordinate with the respective federal ROW agencies regarding their construction- and decommissioning-related activities to reduce any recreation impacts. These impacts would be temporary and cease once construction or decommissioning activities are completed. With the construction of approximately 88 miles of new road and approximately 783 miles of maintenance roads within the ROW, OHV users could be drawn to areas that were once inaccessible due to the increased connectivity.

The Proposed Action may impact Special Recreation Permit (SRP) events, depending on the timing and location of construction- and decommissioning-related activities and the specific SRP event details. These impacts would be temporary and cease once the construction- and decommissioning-related activities are completed. The Proponent would initiate coordination with the federal ROW agencies to determine if conflicts are anticipated and what avoidance or minimization of impacts could be implemented, based on the final timing and location of construction and decommissioning activities.

Temporary ROW area within GMUs, associated with the Proposed Action, would be essentially one percent or less of the total GMU area for all GMUs in the recreation analysis area. Impacts to hunting and GMUs during O&M would all be less than one percent (refer to Table 3-86).

**Table 3-86. Proposed Action Acres of Game Management Unit within Temporary and Permanent ROW Areas**

GMU ID No.	Acres	Temporary ROW Area (acres)	Temporary ROW Area (percentage)	Permanent ROW Area (acres)	Permanent ROW Area (percentage)
19	771,997.5	6,795.5	0.9	1,368.3	0.2
20	3,544,068.3	11,668.5	0.3	3,722.1	0.1
21	2,231,673.2	7,559.9	0.3	2,272.1	0.1
24	2,261,316.6	305.3	<0.1	99.4	<0.1
25	1,618,182.3	6,641.5	0.4	2,061.1	0.1
26	3,701,650.7	5,894.6	0.2	1,877.8	0.1
28	1,573,013.3	2,232.5	0.1	754.1	<0.1
29	495,823.4	5,915.6	1.2	1,520.1	0.3
<b>Total</b>	<b>16,197,725.3</b>	<b>41,118.8</b>	<b>0.3</b>	<b>11,797.2</b>	<b>0.1</b>

*Table Acronyms: GMU – Game Management Unit; ID – Identification; No. – Number; ROW – Right-of-way*

During O&M, the GLWP would not prohibit any recreation activities that were available previously to the public except at site specific fenced facility locations. These site-specific locations would include the substations and amplifier and microwave radio sites that would be fenced to minimize any intentional destructive acts and/or for public safety.

### Grazing and Rangeland

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

Disturbance within grazing allotments would cause a 0.6 percent reduction of the total forage available in the grazing allotments within the Proposed Action’s temporary ROW area (refer to Table 3-87). The greatest disturbance during construction would occur in the Koch Ditch Allotment; 23 percent of the allotment would be potentially disturbed within the temporary ROW and eight percent of this allotment within the permanent ROW.

**Table 3-87. Proposed Action Acres of Grazing Allotments within Temporary and Permanent ROW Areas**

Allotment Name	Allotment Number	Acres	Temporary ROW Area (acres)	Temporary ROW Area (percentage)	Permanent ROW Area (acres)	Permanent ROW Area (percentage)
Adriance Valley	3000	27,352.8	2,357.4	7	749.0	3
Belleville	3511	166,349.2	0.1	<1	0	<1
Black Mountain	3507	14,319.9	722.8	3	144.2	1
Carson Plains/ Gold H	3513	52,025.3	926.4	1	242.4	<1
Churchill Butte	3008	11,829.3	536.8	3	110.6	1
Cleaver Peak	3010	51,664.2	247.3	<1	92.4	<1
Clifton	3519	26,871.5	552.7	1	128.6	<1
Clifton Flat	3011	7,551.8	993.6	11	268.1	4
Fort Churchill	3023	15,765.9	303.8	1	75.7	<1
Garfield Flat	3535	236,661.8	0.0	<1	0	0
Gillis Mountain	3536	170,628.6	1,642.7	1	541.7	<1

Allotment Name	Allotment Number	Acres	Temporary ROW Area (acres)	Temporary ROW Area (percentage)	Permanent ROW Area (acres)	Permanent ROW Area (percentage)
Gray Hills	3539	10,5451.2	1,219.5	1	265.8	<1
Koch Ditch	3552	1,923.2	827.0	23	151.8	8
Lucky Boy	3557	2,3883.0	63.2	<1	23.2	<1
Magruder Mtn	99	674,909.8	2,105.9	<1	626.1	<1
Mill Canyon	3563	19,399.7	152.4	1	36.3	<1
Monte Cristo	145	50,4140.8	787.0	<1	257.6	<1
Montezuma	94	33,9199.6	1,859.0	<1	524.2	<1
Parker Butte	3572	30,781.4	936.7	3	270.3	1
Perry Springs-Deadman	3573	62,830.1	541.8	1	151.2	<1
Pilot-Table Mountain	3574	538,321.6	4,350.3	1	1,401.1	<1
Razorback	93	26,6329.0	2,422.6	1	775.9	<1
Sheep Mountain	100	91,424.5	1,107.1	1	372.3	<1
Silver Peak	97	27,7092.0	1,143.7	<1	436.3	<1
Yellow Hills	20101	64,989.4	538.0	1	147.3	<1
<b>Total</b>	-	<b>3,781,695.8</b>	<b>26,338.0</b>	<b>&lt;1</b>	<b>7,792.2</b>	<b>&lt;1</b>

Table Acronyms: ROW – Right-of-way

During O&M, rangeland and pasture occupied by fenced components such as the substations would no longer be available for grazing. The estimated acres of grazing allotments that would be affected within the permanent ROW area by the Proposed Action account for 0.2 percent of the total allotment acres and a reduction of one percent or less for each of the individual allotments except for three allotments (Adriance Valley [three percent], Clifton Flat [four percent], and Koch Ditch [eight percent] (refer to Table 3-87). Any potential losses of forage and associated animal unit months (i.e., the amount of forage required by one animal unit for one month) because of the Proposed Action would not be enough to warrant adjusting the grazing permit associated with individual grazing allotments. The amount of permanent loss of available rangeland that would make livestock production uneconomical is not anticipated to occur because of the small number of acres impacted relative to the number of acres in each allotment.

## Wild Horses and Burros

### Construction, Operations and Maintenance, and Decommissioning

The construction, O&M, and decommissioning-related wild horses and burros impacts would be same to those discussed in the impacts of the common to all Action Alternatives described above. The permanent ROW area associated with the Proposed Action would encompass approximately 2,084 acres of HMAs (less than 1 percent of the total acreages for the nine HMAs).



**Table 3-88. Proposed Action Acres of BLM Herd Management Areas within Temporary and Permanent ROW Areas**

<b>Herd Management Areas</b>	<b>Acres</b>	<b>Temporary ROW Area (acres)</b>	<b>Temporary ROW Area (percentage)</b>	<b>Permanent ROW Area (acres)</b>	<b>Permanent ROW Area (percentage)</b>
Bullfrog	157,180	2,103.1	1.3	506.8	< 1
Gold Mountain	107,638	0.9	< 1	0.9	< 1
Johnnie	179,368	1,175.6	< 1	330.9	< 1
Montezuma Peak	77,876	677.9	< 1	176.6	< 1
Paymaster	100,590	553.5	< 1	184.6	< 1
Pilot Mountain	477,133	46.7	< 1	23.8	< 1
Silver Peak	242,462	0.1	< 1	0.0	< 1
Wassuk	51,743	198.1	< 1	44.1	< 1
Wheeler Pass	275,575	2,528.4	< 1	817.0	< 1
<b>Total</b>	<b>1,669,565</b>	<b>7,284.3</b>	<b>0.4</b>	<b>2,084.7</b>	<b>0.1</b>

**Mining and Mining Claims**

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

The construction, O&M, and decommissioning-related mining and mining claim impacts would be same to those discussed in the impacts of the common to all Action Alternatives described above. Approximately 86.9 miles (18 percent) of the Proposed Action would cross through sections containing mining claims.

**Military Installations and Airspace**

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

Approximately 15.6 miles (3 percent) of the Proposed Action would cross the NTTR Range 77A restricted airspace in addition to approximately 2.9 miles (0.6 percent) of the Proposed Action that would cross the planned administrative lands withdrawal. The construction of the transmission towers would impact the use of the restricted airspace and planned military training operations. In addition, construction activities associated with the Proposed Action would cross a portion of the Nellis AFB Small Arms Range and the Nevada National Guard Floyd Edsall Training Center. The Proposed Action’s construction activities would be adjacent to existing transmission lines within the Nellis AFB Small Arms Range and Nevada National Guard Floyd Edsall Training Center.

The O&M of the GLWP transmission towers would impact military operations in Range 77A restricted airspace and military training operations in the proposed legislative lands withdrawal. The Proposed Action would conflict with MTRs and airspace restrictions that include both visual and instrument routes for the NTTR. One of the training routes has a base operating elevation of ground level and, as such, the transmission tower structures would create military airspace obstructions. The potential training route obstructions created by the tower structures would create impacts on military operations that are not mitigatable.

**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 land use, realty, and Indian Trust Assets with the implementation of the EMMs in Appendix C.

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

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

The Losee Transmission Alternative A would follow an existing transmission line before turning north on the extension of Losee Road to connect to the extension of Moccasin Road. This alternative would cross through the middle of the planned UNLV campus and be further away from the Nellis AFB Small Arms Range. There would be no construction-related impacts to this area since 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, and the UNLV campus and the GLWP would be planned concurrently. In comparison, the Proposed Action would impact the Nellis AFB Small Arms Range because the GLWP would restrict use of the western portion of the range. 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.

#### **3.13.4.5 Direct and Indirect Impacts from TUSK Transmission Line Route Group**

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

This two Action Alternatives would be immediately adjacent to two existing transmission lines and residential development on the southern boundary of the TUSK along Moccasin Road. The TUSK Transmission Alternative B and the Proposed Action would both alter land uses within the TUSK. As previously noted, the NPS is in the process of developing a General Management Plan and until completion of the General Management Plan, the NPS has a Foundational Document to provide basic guidance for planning and management decisions. Currently, there are no existing facilities such as visitor center, restrooms, or permanent trails established within the TUSK. Within the temporary/permanent ROW area of these two Action Alternatives is the Durango Loop Trail and a 12-space parking area and kiosk. The parking area and kiosk are located along Moccasin Road at the intersection with Durango Drive. The Durango Loop Trail is a temporary non-motorized 2.2-mile loop trail that is primarily accessed from the Moccasin Road parking area.

The centerline of the TUSK Transmission Alternative B would be 120 feet north of the boundary at Moccasin Road and would have a permanent ROW area of approximately 36.4 acres within the TUSK while the Proposed Action would have approximately 19.1 acres of permanent ROW area within the TUSK. Approximately 0.4 miles (18 percent) of the Durango Loop Trail would be temporarily closed during the estimated three months of construction of the TUSK Transmission Alternative B as compared to 0.3 miles (14 percent) of the trail impacted by the Proposed Action during construction. Once the construction activities are completed, the use of this portion of the Durango Loop Trail would resume under either Action Alternative. The kiosk and parking area would temporarily be closed to visitors during construction of TUSK Transmission Alternative B. Decommissioning impacts would be similar to construction impacts to the trail, parking area, and kiosk for this transmission alternative. The parking area would need to be relocated under the Proposed Action; however, the kiosk like the Durango Loop Trail, would remain open and accessible to the visitor during O&M.

Neither the TUSK Transmission Alternative B nor the Proposed Action would cross through areas containing mining claims, grazing allotments, HMAs, or restricted military airspace. There would be no impact from the TUSK Transmission Alternative B or the Proposed Action on these land uses.

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

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

The Beatty Transmission Alternative A would cross over approximately 0.6 acres of the privately owned 7J Ranch. There would be no transmission towers constructed on the Ranch and no long-term loss of use on the private property under Beatty Transmission Alternative A, but a 200-foot permanent ROW would be needed for Beatty Transmission Alternative A for O&M of the proposed transmission line. The comparable segment of the Proposed Action for Beatty Transmission Alternative A would disturb approximately 27.2 acres of the 7J Ranch in the temporary ROW area and approximately 9.3 acres of the 7J Ranch in the permanent ROW area. According to the Ranch's management objective, the Proposed Action would alter land uses in these areas. Of the approximately 18.1-mile-long Beatty Transmission Alternative A, 86 percent (15.7 miles) would be within the NTTR's Range 77A restricted airspace. Approximately 2.9 miles (16 percent) of the approximately 18.1-mile-long transmission alternative would cross through the planned administrative lands withdrawal. Approximately 15.6 miles (three percent) of the comparable segment of the Proposed Action would cross the NTTR Range 77A restricted airspace in addition to approximately 2.9 miles (0.6 percent) of the comparable segment of the Proposed Action that would cross the planned administrative lands withdrawal. The Beatty Transmission Alternative A and the Proposed Action would impact the existing private land uses as well as the NTTR's Range 77A restricted airspace and planned administrative land withdrawal area military training operations.

The 18.8-mile long Beatty Transmission Alternative C would cross entirely within BLM-administered lands. Of the approximately 18.8-mile-long Beatty Transmission Alternative C, 93 percent (17.4 miles) would be within the NTTR's Range 77A restricted airspace. In addition, of this approximately 18.8-mile-long transmission alternative, approximately 7.9 miles (42 percent) of the route would cross the planned administrative lands withdrawal. Similar to the Beatty Transmission Alternative A, approximately 15.6 miles (3 percent) of the comparable segment of the Proposed Action would cross the NTTR Range 77A restricted airspace in addition to approximately 2.9 miles (0.6 percent) of the comparable segment of the Proposed Action that would cross the planned administrative lands withdrawal.

The 17.0-mile long Beatty Transmission Alternative G would cross entirely within BLM-administered lands and this transmission alternative would not cross the NTTR's Range 77A restricted airspace or the planned administrative lands withdrawal area. Approximately 15.6 miles (3 percent) of the comparable segment of the Proposed Action would cross the NTTR Range 77A restricted airspace in addition to approximately 2.9 miles (0.6 percent) of the comparable segment of the Proposed Action that would cross the planned administrative lands withdrawal.

The 18.5-mile long Beatty Transmission Alternative K would cross entirely within BLM-administered lands. Of the approximately 18.5-mile-long Beatty Transmission Alternative K, 52 percent (9.7 miles) would be within the NTTR's Range 77A restricted airspace. In addition, of this approximately 18.5-mile-long transmission alternative, approximately 1.7 miles (9 percent) of the route would cross the planned administrative lands withdrawal. Similar to the other Beatty transmission alternatives, approximately 15.6 miles (3 percent) of the comparable segment of the Proposed Action would cross the NTTR Range 77A restricted airspace in addition to approximately 2.9 miles (0.6 percent) of the comparable segment of the Proposed Action that would cross the planned administrative lands withdrawal.

Each of the Beatty transmission alternatives and the Proposed Action would cross the Beatty Trail System and in addition, several of the OHV routes would be used as access roads for the construction, O&M, and decommissioning of these Action Alternatives. Table 3-89 lists the OHV routes that would be crossed by

the various Beatty transmission alternatives and the Proposed Action. Depending on the alternative, access road improvement could occur on portions of Upper Coffey Ranch Road, Beatty Wash Road, Thompson Mine Road, and Joshua Hollow Road. These impacts on the use of the Beatty Trail System would be temporary and cease once construction and decommissioning activities are completed.

The 157,181-acre Bullfrog HMA would be crossed by each of the Beatty transmission alternatives. Beatty Transmission Alternative A would disturb approximately 1,278.9 acres, Beatty Transmission Alternative C approximately 1,086.7 acres, Beatty Transmission Alternative G approximately 1,564.4 acres, Beatty Transmission Alternative K 1,339.8 acres, and the comparable segment of the Proposed Action approximately 1,287.4 acres. Each of the Beatty Action Alternatives would affect less than one percent of the Bullfrog HMA.

Each of the Beatty Action Alternatives would cross sections containing mining claims. Approximately 13.5 miles (75 percent) of the Beatty Transmission Alternative A would cross sections containing mining claims, approximately 13 miles (76 percent) of Beatty Transmission Alternatives G, 13 miles (70 percent) of Beatty Transmission Alternative K, and 13 miles (72 percent) of the Proposed Action would cross mining claim sections. Beatty Transmission Alternative C would have the least miles of the Beatty Transmission alternatives that would cross sections containing mining claims, approximately 10.6 miles (56 percent).

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

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

The Scotty's Junction Transmission Alternative A would disturb approximately 36.9 acres of vacant private land within the temporary ROW area and approximately 12.3 acres of vacant private land within the permanent ROW area. There are no Nye County planned future land uses for this unincorporated area and this transmission alternative would not cross the Timbisha Shoshone Reservation. Scotty's Junction Transmission Alternative A would cross a less developable area of the private land because of the existing drainages and as a result, would have negligible impacts on the existing land use on private lands.

The Scotty's Junction Transmission Alternative B would disturb approximately 198.8 acres of vacant private land within the temporary ROW area and approximately 66.3 acres of vacant private land within the permanent ROW area. This alternative would cross the Timbisha Shoshone Reservation and result in approximately 118.0 acres of disturbance in the temporary ROW area and 39.3 acres of the permanent ROW area on the Reservation. Although it would be compatible, Scotty's Junction Transmission Alternative B would potentially limit commercial land uses on Timbisha Shoshone Reservation. This Action Alternative would impact future development options because of the limitation on private and Tribal lands.

The Proposed Action would avoid the Timbisha Shoshone Reservation. This Action Alternative would disturb approximately 210.9 acres of vacant private land in the temporary ROW area and approximately 69.8 acres of vacant private land in the permanent ROW area. The Proposed Action would not restrict development options and would have negligible impacts to the existing use on private lands.

**Table 3-89. Beatty and Carson River Transmission Alternatives OHV Route Crossings**

<b>OHV Route</b>	<b>Beatty Transmission Alt. A</b>	<b>Beatty Transmission Alt. C</b>	<b>Beatty Transmission Alt. G</b>	<b>Beatty Transmission Alt. K</b>	<b>Beatty Transmission Group – Proposed Action</b>	<b>Carson River Transmission Alt. A</b>	<b>Carson River Transmission Alt. A – Proposed Action</b>	<b>Carson River Transmission Alt. C</b>	<b>Carson Transmission Alt. C – Proposed Action</b>
Beatty Wash Rd.	1	1	1	1	1	-	-	-	-
Bombing Range Rd.	1	1	2	1	1	-	-	-	-
Break A Heart Rd.	-	-	-	-	-	1	-	-	-
Burro Gulch	-	-	1	-	-	-	-	-	-
Churchill Canyon Rd	-	-	-	-	-	-	-	2	-
Colson Pond Rd.	-	-	1	-	-	-	-	-	-
Cross Country Trail	-	-	-	1	-	-	-	-	-
Fleur De Lis Rd.	1	-	1	1	1	-	-	-	-
Fluorspar Rd	-	-	1	1	-	-	-	-	-
Fort Churchill Rd.	-	-	-	-	-	2	1	2	4
Gallagher Pass Rd	-	-	-	-	-	-	-	3	-
Micro Ave	-	-	-	-	-	-	-	2	-
N. Beatty Wash Rd.	-	-	1	1	-	-	-	-	-
North Colson Pond Rd	1	-	-	3	1	-	-	-	-
Oasis Bench Rd.	2	-	-	2	1	-	-	-	-
Oasis Mountain Rd.	-	-	6	-	-	-	-	-	-
Racetrack Rd.	2	3	-	1	2	-	-	-	-
Thompson Mine Rd	-	-	1	1	-	-	-	-	-
Upper Coffer Ranch Rd.	-	-	1	-	-	-	-	-	-
Wabuska Rd.	-	-	-	-	-	-	-	-	3

<b>OHV Route</b>	<b>Beatty Transmission Alt. A</b>	<b>Beatty Transmission Alt. C</b>	<b>Beatty Transmission Alt. G</b>	<b>Beatty Transmission Alt. K</b>	<b>Beatty Transmission Group – Proposed Action</b>	<b>Carson River Transmission Alt. A</b>	<b>Carson River Transmission Alt. A – Proposed Action</b>	<b>Carson River Transmission Alt. C</b>	<b>Carson Transmission Alt. C – Proposed Action</b>
Unnamed	-	-	-	-	-	10	8	56	43
<b>Total Number of Crossings</b>	<b>8</b>	<b>5</b>	<b>16</b>	<b>13</b>	<b>7</b>	<b>13</b>	<b>9</b>	<b>65</b>	<b>50</b>

*Table Acronyms:* Alt. – Alternative; OHV – Off-highway vehicle; Rd. – Road

### **3.13.4.8 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 disturb approximately 14.9 acres of Mason Valley WMA within the temporary ROW area and approximately 5.0 acres of the WMA within the permanent ROW area. It is anticipated that there would be one structure within the WMA to turn the 525-kV transmission line as it enters the proposed Fort Churchill Substation. The comparable segment of 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 Mason Valley WMA Transmission Alternative A and the Proposed Action would cross less than one percent of the WMA and would not prohibit the existing use of the WMA. In comparison, the Mason Valley WMA Transmission Alternative A would cross 0.2 miles of the WMA while the Proposed Action would cross 3.4 miles and have potentially up to 15 structures within the WMA. Neither the Mason Valley WMA Transmission Alternative A nor the Proposed Action would cross through sections containing mining claims.

### **3.13.4.9 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

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

There are no special management or restrictive land management plans, restricted airspace, or HMAs within the Carson River portion of the land use analysis area. The Carson River Transmission Alternative A would disturb approximately 310.5 acres of undeveloped/vacant private land within the temporary ROW area and approximately 103.3 acres of private land within the permanent ROW area. According to the Lyon County Master Plan, the Carson River Transmission Alternative A area is predominantly planned for rural residential land uses and the transmission line would be considered a compatible use. The Carson River Transmission Alternative A would create short-term disturbances during construction and decommissioning and would be compatible with adjacent land uses over the long-term. The comparable segment of the Proposed Action would disturb approximately 110.0 acres of private land in the temporary ROW area and approximately 37.5 acres of private land in the permanent ROW area. Because of the minimal long-term loss of use, the existing and planned land uses would be able to continue, and the GLWP would be a compatible use with the implementation of the comparable segment of the Proposed Action.

The Carson River Transmission Alternative C would disturb approximately 1,199.7 acres of undeveloped/vacant private land within the temporary ROW area and approximately 475.9 acres of private land within the permanent ROW area. The Carson River Transmission Alternative C area is also predominantly planned for rural residential land uses and the transmission line would be considered a compatible use according to the Lyon County Master Plan. The Carson River Transmission Alternative C would create short-term disturbances during construction and decommissioning and would be compatible with adjacent land uses over the long-term. The comparable segment of 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 Carson River Transmission Alternatives A and C and their comparable segments of the Proposed Action would cross several of the OHV routes; some of the routes would be used as access roads for the construction, O&M, and decommissioning of the GLWP. Table 3-89 lists the OHV routes that would be

crossed by the Carson River Transmission Alternatives A and C and their comparable segments of the Proposed Action.

Each of the Carson River transmission alternatives would cross sections containing mining claims. Approximately 0.4 miles (three percent) of the Carson River Transmission Alternative A and approximately 0.8 miles (eight percent) of the Proposed Action would cross sections containing mining claims. Approximately 7.1 miles (nine percent) of the Carson River Transmission Alternative C would cross sections containing mining claims and approximately 2.3 miles (three percent) of the Proposed Action would route across sections with mining claims.

#### **3.13.4.10 Direct and Indirect Impacts of the Amargosa Substation Group**

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

Both Amargosa substation alternatives would be located on BLM-administered lands less than 0.7 mile from US 95. Dispersed recreation uses in the vicinity of the substation locations could be temporarily disrupted by noise, dust, and traffic as a result of activities associated with making improvements to existing access roads or when heavy construction equipment is brought in to build the substation. There would be no impacts to existing BLM land use authorizations such as grazing allotments from either AS-1 or AS-2 (Proposed Action).

#### **3.13.4.11 Direct and Indirect Impacts from Esmeralda Substation Group**

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

All of the Esmeralda Substation alternatives would be located on BLM-administered lands. ES-1 would be approximately 2.6 miles from US 95, and ES-2 (Proposed Action) and ES-3 would be located less than 0.6 miles from US 95 and SR 265 respectively. Dispersed recreation uses in the vicinity of the substation locations could be temporarily disrupted by noise, dust, and traffic because of activities associated with making improvements to existing access roads or when heavy construction equipment is brought in to build the substation.

The ES-1 would temporarily disturb approximately 199.8 acres (0.04 percent) of the Pilot-Table Mountain grazing allotment (refer to Table 3-84 for grazing allotment acres) and would result in a permanent reduction of 130.5 acres (0.02 percent) of the total grazing forage. ES-2 (Proposed Action) would temporarily disturb approximately 157.5 acres (0.06 percent) of the Silver Peak grazing allotment and would result in a permanent reduction of 152.3 acres (0.05 percent) of the total grazing. The ES-3 would disturb two grazing allotments: Sheep Mountain and Silver Peak. This substation alternative would temporarily disturb approximately 167.7 acres (0.2 percent) and 25.8 acres (0.01 percent) of the Sheep Mountain and Silver Peak grazing allotments, respectively. The ES-3 would result in a permanent reduction of 122.3 acres (0.1 percent) and 12.7 acres (0.004 percent) of the total forage available in the grazing in the Sheep Mountain and Silver Peak grazing allotments, respectively. Impacts to livestock grazing would be the same as the impacts described from the Proposed Action. Implementation of EMMs would avoid or minimize impacts to range improvements (refer to Appendix C EMMs AG-1 to AG-12).

#### **3.13.4.12 Direct and Indirect Impacts from Amargosa Microwave Group**

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

AM-1 would be located on approximately 1.0 acres of vacant private land in the unincorporated community of Amargosa Valley near the California-Nevada state line. There are no Nye County planned future land



uses for this unincorporated area. During construction and decommissioning activities, residents of Amargosa Valley would experience noise, dust, and increase traffic along SR 373. AM-1 would eliminate any future commercial and residential land uses from being developed on this approximately 1.0-acre parcel.

AM-2 (Proposed Action) would be located on approximately 3.4 acres of BLM-administered lands near Amargosa Valley. Dispersed recreation uses at this location could be temporarily disrupted by noise, dust, and increased traffic along SR 373 traffic as a result of construction and decommissioning activities when heavy construction equipment is brought in to build or remove the microwave facility. A fence would be placed around the AM-2 (Proposed Action) site for public safety and any future recreational activities or other BLM land use authorization would be prohibited on the approximately 3.4 acres (0.00003 percent of the SNDO). There would be no impacts to existing BLM land use authorizations such as grazing allotments.

### **3.14 Water Resources**

This section presents an overview of the surface water, groundwater, floodplains, wetlands, and riparian resources within the GLWP area that may be affected by construction, O&M, and decommissioning. Water resources include perennial streams and rivers (continually flowing), intermittent streams (seasonal flows), ephemeral streams (flowing in response to precipitation events), groundwater within watersheds, and springs. Groundwater is water found underground in the cracks and spaces in soil, sand, and rock. Groundwater is stored in and moves slowly through geologic formations called aquifers. A 100-year floodplain is defined as an area that will be inundated by a flood event that has a one percent chance of being equaled or exceeded in any given year. Wetlands are generally defined as areas inundated by water at a frequency and duration sufficient to support vegetation that is typically adapted for propagation and growth in saturated soil. Riparian areas are lands that occur along the edges of rivers, streams, lakes, and other water bodies. These riparian areas have plant species, soil types, and topography that are distinctive when compared to the surrounding, drier upland area.

#### **3.14.1 Issues Identified for Analysis**

- Would ground-disturbing activities affect surface waters such as the Walker and Carson rivers, including water quality, quantity, and hydrologic behavior of surface waters?
- Would GLWP construction, operations, and maintenance affect groundwater levels, contamination, or ability to recharge?
- How would the GLWP impact natural springs, such as the Species Spring area?
- How would construction, O&M, and decommissioning of the GLWP affect riparian and wetland areas?

#### **3.14.2 Analysis Area and Methodology**

##### **3.14.2.1 Analysis Area**

The analysis area for water resources is defined as the area crossed by the GLWP five-mile radius analysis area, equates to approximately 4,306 square miles (2,755,542 acres), and is within the Basin and Range Physiographic Province and the Great Basin hydrographic region.

### **3.14.2.2 Methodology**

Information for the water resources existing conditions was obtained from the scientific literature and from government agencies and institutions, including the BLM, EPA, USGS, NDEP, and NDWR.

The Clean Water Act (CWA) (33 USC 1251–1387) is the primary law that protects surface water quality through methods to limit regulatory and non-regulatory pollution discharge. Water quality is defined in relation to its specified and/or beneficial uses, such as human consumption and fisheries, and is measured by its chemical, physical, biological, and radiological characteristics. All waters in Nevada are property of the public in the state and are subject to laws described in Nevada Revised Statutes (NRS), Chapters 532 through 538. The NDWR, led by the State Engineer, is the agency responsible for managing groundwater resources.

Executive Order 11988, Floodplain Management (EO No. 11988, 3 CFR 1 1977) requires an evaluation of impacts to floodplains for all federal actions and directs federal entities to reduce floodplain impacts and minimize flood risks to human safety. The 100-year floodplain was used to determine where flooding may be a hazard to the GLWP. Federal Emergency Management Agency (FEMA) data was available for counties with the GLWP area except Esmeralda County. All counties within the GLWP area, except Esmeralda County, participate in the National Flood Insurance Program created through the National Flood Insurance Act of 1968.

Executive Order 11990, Protection of Wetlands (EO No. 11990, 3 CFR 1 1977) requires federal actions to evaluate effects to wetlands and to minimize impacts. Riparian areas are water-dependent ecosystems bordering streams, springs, and lakes. They form ecological links between the terrestrial and aquatic components of the landscape. Wetlands and riparian areas provide important ecological functions, including flood water attenuation, wildlife habitat, sediment trapping, and nutrient retention (BLM 2007).

Riparian areas within the GLWP area were identified using the SWReGAP land cover 2021 data for the various riparian plant communities, most common to the area is the Great Basin Foothill and Lower Montane Riparian Woodland and Shrubland community. Freshwater Emergent and Forested/Shrubs Wetlands areas were identified using data from the USFWS National Wetlands Inventory (NWI). The NWI wetland data is derived from aerial photography that varies greatly in scale, resolution, and time of acquisition. Wetland mapping may differ in size and composition from actual ground conditions.

Executive Order 11990 (EO No. 11990, 3 CFR 1 1977) provides wetland protections. All waters in Nevada are the property of the public in the state and are subject to the laws described in NRS, Chapters 532 through 538. The NDWR, led by the State Engineer, is the agency responsible for managing groundwater resources.

### **3.14.3 Affected Environment**

As previously noted, the GLWP analysis area is within the Basin and Range physiographic province. The topography of the Great Basin province is characterized by isolated, generally north-south-trending mountain ranges separated by arid to semi-arid alluvial basins with surface waters internally draining. Many of the basins have playas in their lowest depressions that are left by the evaporation of intermittent lakes. Parts of some of the valleys have become encrusted to a depth of several inches with alkaline salts, which cover the surface as a powdery crust (NSWP 1999; Planert and Williams 1995).

### **3.14.3.1 Surface Waters**

The USGS National Hydrography Dataset (NHD), a GIS dataset that represents the surface water drainage network of named streams, rivers, canals, lakes, and reservoirs in the US, was used to identify watersheds occurring in the water resources analysis area. The NHD divided and subdivided the country into progressively smaller hydrologic units based on surface features (USGS 2022c). For this analysis, the standard fourth-level, 8-digit HUC system (subbasins) was used. The GLWP area encompasses portions of 13 HUC-8 subbasins. These include the Cactus-Sacrobatus Flat (HUC 16060013), East Walker (HUC 16050303), Fishlake-Soda Spring Valley (HUC 16060010), Las Vegas (HUC 15010015), Middle Carson (HUC 16050202), Muddy (HUC 15010012), Ralston-Stone Cabin Valleys (HUC 16060011), Sand Spring-Tikaboo Valley (HUC 16060014), Southern Big Smoky Valley (HUC 16060003), Truckee (HUC 16050102), Upper Amargosa (HUC 18090202), Walker (HUC 16050303), and Walker Lake (HUC 16050304) subbasins.

Each subbasin/watershed contains numerous streams and washes, most of which are not perennial throughout their length. Based on the USGS NHD, the temporary area of disturbance would cross approximately 3,394 washes/streams (USGS 2022b). The Carson and Walker rivers are the two main perennial rivers and Walker Lake is the only major lake in the GLWP area. The Carson River flows from the eastern slopes of the Sierra Nevada in California and terminates in the Carson Sink, approximately 43 miles northeast of the existing Comstock Meadows Substation. The Walker River, with its headwaters in California, flows into Nevada and terminates at Walker Lake. Walker Lake is a natural terminal lake with no outlet and a total storage of just over 2.1 million acre-feet (NSWP 1999).

The Nevada 2020-2022 Water Quality Integrated Report prepared by the NDEP identified five streams and one lake that did not meet state water quality standards (refer to as impaired waters) within the GLWP area. Bonanza Creek (NV08-CK-53-01) and Virginia Creek/Six-mile Canyon Creek (NV08-CR-53-00) are considered impaired waters; both are in the Middle Carson subbasin along with Carson River (NV08-CR-11-00) in the Carson River Basin. The causes of impairment for 1.5 miles of Bonanza Creek are heavy metals, sulfates, and total dissolved solids levels and acidity that exceed water quality standards. For 5.5 miles of Virginia Creek/Six-mile Canyon Creek, total dissolved solids level and acidity exceed water quality standards. Just over 25 miles of the Carson River from Dayton Bridge to Lahontan Reservoir exceeds phosphorus, total suspended solids, and turbidity water quality standards. Approximately 19.6 miles of Lagomarsino Creek (Long Valley Creek) in the Truckee River Basin exceeds water quality standards for metals and acidity. None of the three creeks have an EPA-approved total maximum daily load (TMDL), which is the allowable loading of a particular parameter from all pollutant sources established at a level necessary to comply with applicable water quality standards that protect the beneficial uses of Nevada's waterbodies. The state is mandated by federal regulations (40 CFR Part 130.7) to set priorities for impaired waters and develop TMDLs; these streams have been identified as a low priority. Approximately 23.6 miles of the Walker River from the confluence of the East and West Forks of the Walker River to the boundary of the Walker River Indian Reservation along with Walker Lake in the Walker River Basin are also impaired. Walker River levels of total suspended solids and Walker Lake exceeds total dissolved solids exceed water quality standards. Carson and Walker Rivers and Walker Lakes have an EPA-approved TMDL (NDEP 2022).

### **3.14.3.2 Groundwater**

The NDWR and the USGS have divided the state into 14 major hydrographic (valley) regions and 232 hydrographic basins. The water resources analysis area would cross portions of six of the hydrographic regions and 35 of the hydrographic basins. The hydrographic regions include Truckee (Region 6), Carson (Region 8), Walker (Region 9), and Colorado (Region 13) rivers, Death Valley (Region 14), and Central

(Region 10) regions (NDWR 2022). Principal groundwater aquifers, collectively called the Basin and Range aquifers, are basin-fill aquifers, carbonate-rock aquifers, and volcanic-rock aquifers. The basin-fill deposits form the most productive aquifers and are generally in individual alluvial basins that are drained internally and are separated by low mountains. Basin fill aquifers are considered highly permeable and primarily consist of unconsolidated to moderately consolidated, well to poorly sorted beds of gravel, sand, silt, and clay deposited on alluvial fans, pediments, flood plains, and playas (USGS 1995). Most of the water resources analysis area lies over the Basin and Range basin-fill aquifers (NDWR 2022).

Basins are rarely hydraulically connected in the subsurface by fractures or solution openings in the underlying bedrock (Planert and Williams 1995). Many of the valleys and basins drain internally, meaning that water from precipitation that falls within the basin recharges the aquifer and ultimately discharges to the land surface and evaporates within the basin. Only the Colorado River Basin drains to the sea (NSWP 1999). There are 41 active groundwater monitoring wells within a mile radius of the temporary ROW area. These wells have been monitored on average for the past 10 years and the depth-to-groundwater ranges from approximately 611 feet near the existing Harry Allen Substation, 224 feet in the Amargosa Valley, and 642 feet near the Comstock Meadows Substation. Around Mason Valley, the groundwater levels measured from active wells are substantially shallower and less than 10 feet in some areas (NDWR 2022).

The GLWP area is approximately 11 miles north of the Ash Meadows NWR and Devils Hole. Devils Hole is a detached unit of Death Valley National Park and is the only naturally occurring population of the endangered Devils Hole pupfish. Since 1979, water management decisions have been in place to protect spring discharges to this area and restricts water right application in the Amargosa Desert Basin, which is in the Death Valley (14) hydrographic region. The latest Order 1197 stated that new water right applications in the Amargosa Desert Basin would be denied, as would any application seeking to change the point of diversion closer to Devils Hole defined by a 25-mile radius around Devils Hole (NDWR 2008).

Established under Section 1424(e) of the US Safe Drinking Water Act, the US EPA's Sole Source Aquifer Program allows for EPA environmental review of any action that is financially assisted by federal grants or federal loan guarantees. Actions are evaluated to determine whether they have the potential to contaminate a sole source aquifer. The EPA defines a sole source aquifer as one "that supplies at least 50 percent of the drinking water consumed in the area overlying the aquifer. These areas may have no alternative drinking water source(s) that could physically, legally, and economically supply all those who depend on the aquifer for drinking water" There are no sole source aquifers within the GLWP area (EPA 2022c).

### **3.14.3.3 Floodplains**

Within the water resources analysis area in Clark County, there are areas along the Las Vegas Wash and its ephemeral tributaries that are within a 100-year floodplain. There are several defined 100-year floodplains near Beatty and Tonopah in Nye County associated with the Amargosa River and the Beatty, Fortymile, Rock Valley, Tolicha, and Tonopah washes. In Mineral County, besides the Walker River, there are 100-year floodplains associated with Cottonwood and Dry creeks as well as the Lateral Two-A Canal. In Lyon County, 100-year floodplains have been defined along the Carson and Walker rivers and in association with Buckland, Merritt, Houghman and Howard, and Sand Ridge ditches. The Truckee River and Long Valley and Red Ravine creeks also have associated 100-year floodplains in Storey County (FEMA 2022).

### **3.14.3.4 Wetlands and Riparian Areas**

There are approximately 14,053.1 acres of riparian vegetation and 15,958.5 acres of wetlands within the water resource analysis area (Figure 3-44 and Figure 3-44). In addition to riparian and wetland plant communities, numerous intermittent washes and drainages exist within the temporary ROW area. If determined to be under the USACE jurisdiction as waters of the US (WUS) and if these are unable to be avoided during final engineering design of the selected alternative, these would require protection or compensatory mitigation, pursuant to the CWA. Section 404 of the CWA establishes a permit program for the discharge of dredged or fill material into WUS, including wetlands. Named intermittent washes that are likely to require permitting under Section 404 of the CWA include Beatty, China, Fortymile, Jackson, and Rock Valley washes.

## **3.14.4 Environmental Consequences**

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

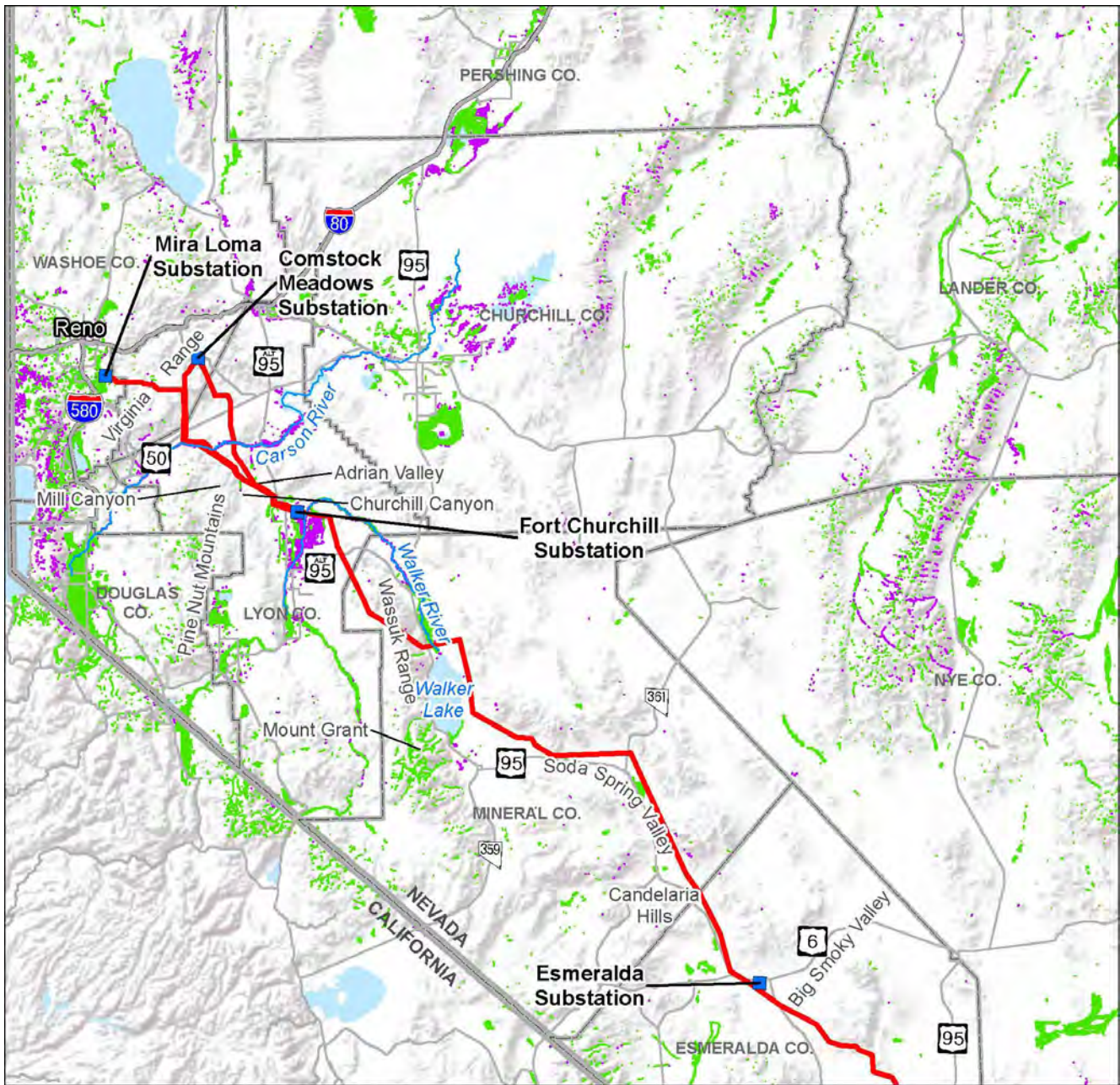
It is anticipated that under the No Action Alternative, the current uses and trends for water resources would continue to occur. There would be no impacts to water resources attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

### **3.14.4.2 Direct and Indirect Impacts Common to All Action Alternatives**

## **Surface Water Resources**

### **Construction**

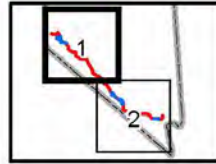
Impacts on surface water resources would be largely limited to construction of new roads and crossings or improvements to existing roads and crossings. The Action Alternatives would be designed and constructed in a way that minimizes or avoids impacts on surface water resources. There are no assigned site-specific crossing types and road crossings would depend on site-specific conditions. These crossings could require placing temporary or permanent fill into the channel and structures that support the crossing and protect water resources, such as culverts. Bridges and major culverts would be located, designed, constructed, and maintained according to standards that preserve or improve streambed gradients and velocities to allow fish passage and that minimize erosion and sediment damage to adjacent properties and to abate pollution of surface and ground water resources. Culverts would require in-stream work that may temporarily cause an increase in localized erosion and sedimentation in the waterbody at the construction site with sedimentation effects extending downstream. Other impacts from culverts may include scouring, changes in channel geometry and gradient, aggradation or degradation of the stream channel, and changes to habitat for aquatic fauna. Modification to stream banks could result in vegetation removal. Sedimentation potential may increase, depending upon the extent of disturbance and recontouring needed. Stormwater discharge and quantity of sedimentation to surface-water resources are often correlated to these types of project-related disturbance.



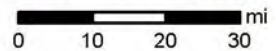
Source: Riparian Vegetation SWReGAP (SWReGAP.org 2021)  
 Wetland Vegetation NWI (USFWS 2022)

**Legend**

- Substation
- Proposed Action Transmission Line
- Riparian Vegetation
- Wetland Vegetation

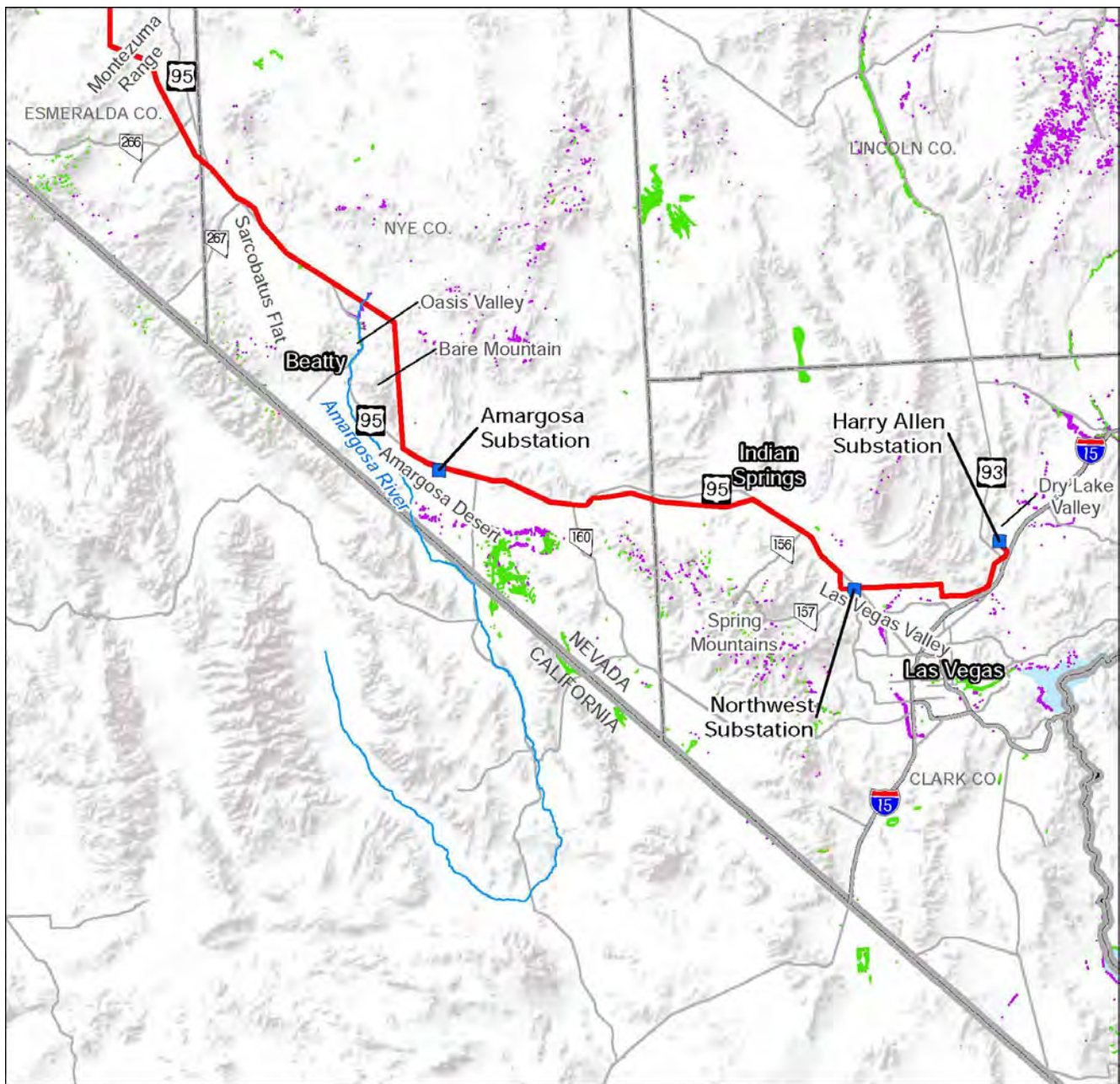


Scale: 1:1,750,000



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

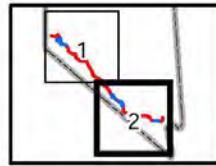
**Figure 3-43. Riparian and Wetland Vegetation (1of 2)**



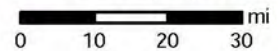
Source: Riparian Vegetation SWReGAP (SWReGAP.org 2021)  
 Wetland Vegetation NWI (USFWS 2022)

**Legend**

- Substation
- Proposed Action Transmission Line
- Riparian Vegetation
- Wetland Vegetation



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 3-44. Riparian and Wetland Vegetation (2 of 2)**

Additional effects to surface water resources would be associated with ground-disturbing activities such as clearing, grubbing, and blading to remove vegetation for construction of amplifier, microwave, substation sites, and transmission line structures. These activities would mobilize fugitive dust and destabilize soils in some places. Mobilization of fugitive dust and erosion may result in sediment discharge into water resources. Increased sedimentation indirectly related to ground-disturbing activities potentially could degrade the functional capacity of water resources by discharging higher rates of sediment into the system than can be attenuated, filtered, and/or immobilized under normal circumstances. These effects would only be seen where unexpected circumstances, such as non-typical storm events, compromise the erosion-control design features or if the erosion control measures are not properly installed and maintained.

Other indirect effects on surface water resources could be attributed to accidental spills of environmentally harmful substances. Accidental spills or disposal of harmful materials used during construction could wash into and pollute surface water. Materials such as diesel fuel, gasoline, lubrication oil, or hydraulic fluid could contaminate water resources. The Preliminary POD includes procedures for promptly reporting and cleaning up spills generated during construction. The Proponent has committed to environmental protective measures that include measures for temporary and permanent erosion and sediment controls to be used during construction and O&M of the GLWP and a SWPPP (NV Energy 2022). These measures would also include spill-prevention practices, requirements for refueling and equipment operation near waterbodies, procedures for emergency response and incident reporting, and training requirements. Actions taken in accordance with these environmental protective measures would minimize impacts to surface water.

Necessary road improvements for construction would yield some indirect beneficial effects on surface water resources. Where applicable, existing roads would be utilized and improved rather than constructing new access roads and comparative surface disturbance and subsequent indirect effects on surface water resources would be reduced.

Work performed below the ordinary high-water mark in streams determined to be WUS may require a Section 404 CWA permit issued by the US Army Corps of Engineers (USACE). The CWA requires that impacts resulting from these crossings are avoided or minimized to the extent possible. Depending on the area, if impacts caused by dredge or fill material placed in WUS, an Individual Permit or a Nationwide Permit 57 Electric Utility Line and Telecommunication Activities may be required.

### **Operations and Maintenance**

The impacts from O&M on surface water would be less in magnitude compared to construction impacts, but longer in duration. Impacts to surface water from road crossings include erosion of streambanks and sedimentation of road runoff from stormwater. Culverts may get blocked by debris in streams and cause water to back up and flood areas. Stormwater design elements, SOPs, and BMPs—including erosion and sediment control structures and new culverts—would require inspection, maintenance, and repairs throughout the GLWP's operational life to minimize surface water soil erosion or sedimentation. Permanent stabilization measures would be implemented in conformance with state and federal water-quality regulations. Permanent improvements to crossing structures could result in temporary minor discharges of sediment but could reduce long-term impacts associated with maintenance.

In accordance with the electrical system standards and regulations, the Proponent must manage vegetation to protect electrical distribution and transmission lines, provide reliable energy delivery, maintain access to the lines, ensure the safety of the public and electrical workers, and protect environmental resources (FERC 2013; Institute of Electrical and Electronics Engineers 2011; NERC 2013).



Incompatible vegetation treatments within the overhead transmission line corridor could affect water resources quality and quantity using manual, mechanical, and/or herbicide treatments. Vegetation removal and disposal activities would include the use of tracked or wheeled vehicles and field crews. Hand and machine equipment, such as chainsaws, may be used for manual and mechanical removal. Manual and mechanical vegetation removal could cause short-term effects on surface water by increasing surface runoff, promoting erosion and sedimentation, reducing shading and increasing water temperature, and limiting the amount of organic debris entering water bodies. As the vegetation regrows, the risk of erosion and runoff and increased water temperatures would be reduced.

Mechanical method effects on water quality may also include soil compaction by heavy equipment, which would increase the likelihood of surface runoff by reducing the soil's infiltration capacity. However, leaving debris in place would limit any detrimental effects on infiltration rates and sedimentation into streams. There could be risks to water quality from fuel leaks and spills associated with the use of heavy machinery or mechanized equipment. Fuel releases would be more likely to affect surface water than groundwater and would have the greatest effects to water quality if fuel was released directly into the water (BLM 2007).

The Action Alternatives may result in impacts on surface water resources from the use of herbicides as part of the management of incompatible vegetation within the transmission line permanent ROW. The 2007 and 2016 Herbicide Programmatic EISs provide detailed analysis of potential water resources impacts associated with the application of herbicides (pages 4-24 through 4-36 BLM 2007; pages 4-14 through 4-21 BLM 2016a). Additional analysis on effects of vegetation treatment including manual, mechanical, and herbicide treatments are also presented in the 2007 Herbicide Programmatic Environmental Report on pages 4-20 through 4-27 (BLM 2007). The detailed discussion of the analyses is not repeated in this EIS and is incorporated by reference and summarized in this document. Only the respective land-management agency's-approved herbicides would be used, which may also include the application of herbicides approved for pre-emergent use by the respective agency. The GLWP would not include any activities associated with herbicide application different from those analyzed in the 2007 and 2016 Herbicide PEISs. Consequently, there is no potential for new or modified short-term direct or indirect impacts on water resources from the GLWP that have not been disclosed in prior environmental documentation.

The GLWP would not include the application of herbicides directly to surface waters. Therefore, no direct impacts to surface quality are anticipated. In areas of the permanent ROW near surface waters, herbicides registered for aquatic use would be used. Buffer zones would be established between treatment areas and water bodies to minimize impacts; the width of the buffer zones would be developed based on herbicide- and site-specific criteria. The use of herbicides to control incompatible vegetation could have short-term, indirect impact on water quality. Surface water quality could be indirectly affected by runoff, leaching, and drift of herbicides. The application of herbicides must be relatively persistent in order to have the potential for surface water runoff.

Localized increase in runoff and sediment yield into waterbodies may be expected due to surface disturbance and decreased canopy with the removal of incompatible vegetation within the permanent transmission line ROW. Adherence to product labels, the use of buffers, and proper application techniques would reduce the potential for herbicides to impact water quality. Additionally, herbicides application would be completed by or under the direction of a licensed applicator, which would substantially reduce the potential for spills to occur. Any unintended spills would be cleaned up immediately, and promptly reported to the federal ROW agency in accordance with the appropriate ROW agreements. Herbicide applied directly to source plant material also has limited potential to be absorbed by the soil and migrate

to surface waters or into groundwater aquifers. The routine vegetation maintenance requirement for the GLWP would decrease over time resulting in less area needing treatment and a reduction in the number of equipment, vehicles, and field crews within the transmission line permanent ROW.

### **Decommissioning**

During decommissioning, all structures would be removed. The federal ROW agencies, other land managers, or property owners would be contacted about the final disposition of roads installed for the GLWP. Reclamation would include recontouring to blend with the surrounding landscape and decompaction of soils and revegetation.

## **Groundwater Resources**

### **Construction**

Compared to surface water, subsurface water or groundwater resources are less susceptible to impacts associated with the Action Alternatives. The Action Alternatives have the potential to impact groundwater resources in areas of shallow groundwater (groundwater that is near the surface) where placement of structures could come in contact with the water table. Impacts to groundwater resources include accidental contamination during structure placement or accidental spills of environmentally harmful liquids that could potentially percolate into shallow groundwater. Groundwater well data from the NDWR shows that groundwater depths in the GLWP vary from just below ground level to depths of 500 feet or more. The majority of the Action Alternatives are in areas where groundwater is unlikely to be encountered during construction activities. The Action Alternatives would not come into contact with groundwater deeper than 40 feet (i.e., the depth of the deepest structure foundations considered for GLWP). There is shallow groundwater in some low-lying areas along floodplains and in river bottoms such as near Mason Valley.

Water would be necessary for construction of the transmission lines, new access roads, and existing roads needing improvement. Water would be used for mixing cement concrete and for dust control on service or access roads. Water for dust control provides a benefit by preventing air-quality degradation. The water would be procured from a municipal source or from commercial sources. The annual estimate of water use over the life of the GLWP construction is provided in Table 3-90. The water estimates for transmission line construction along all segments would be about 305,000 to 460,000 gallons per day (a typical construction water truck holds approximately 4,000 to 5,000 gallons). The water estimates for the construction of new access road and existing access road improvements would be about 75,000 to 110,000 gallons per day, microwave radio facilities would be about 200,000 to 300,000 gallons per day, and amplifier sites would be about 10,000 to 15,000 gallons per day. Water estimates for substation construction (new and expanded substations) would range from an estimated total of 55.8 million gallons to 83.6 million gallons. A federal ROW agency-approved palliative would be used in Mojave desert tortoise habitat and for dust control in other areas with an estimated total of 14.1 million gallons. The water estimates are dependent on a number of factors (weather, soil type, length of construction, construction sequencing, and others) and the actual construction water usage would likely vary from these preliminary estimates. No new water rights or water wells would be required. No measurable changes to water levels of downstream hydrological systems are expected. Water necessary for the construction of the Action Alternatives is not anticipated to affect existing groundwater levels.

**Table 3-90. GLWP Component Estimated Annual Construction Water Use**

<b>GLWP Component</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>	<b>Year 6</b>	<b>Year 7</b>
Laydown/ Construction Yards-Gallons (Acre-feet)	0	251,594,800 (772)	269,193,400 (826)	215,094,000 (660)	72,349,800 (222)	71,698,000 (220)	325,900 (1)
Substations- Gallons (Acre-feet)	110,789 (0.34)	48,885,000 (150)	14,013,700 (43)	7,495,700 (23)	0	0	0
Transmission Lines/Amplifier Sites-Gallons (Acre-feet)	0	117,324,000 (360)	167,838,500 (515)	98,421,800 (302)	0	29,656,900 (91)	0
Microwave Radio Site-Gallons (Acre- feet)		12,384,200 (38)	69,090,800 (212)	17,924,500 (55)	0	0	0
Distribution Lines- Gallons (Acre-feet)	0	1,955,400 (6)	325,900 (1)	0	0	0	0
Annual Total Gallons	110,789	432,143,400	520,462,300	338,936,000	72,349,800	101,354,900	325,900
Annual Total Acre- feet	0.34	1,272	1,597	1,040	222	311	1

*Table Notes:* Laydown yards assume 4,000 gallons a day per acre per duration of site operations. This is a conservative estimate since the bulk of the laydown yard sites would likely be rocked at some point and the whole site would not need dust control every day. The transmission line estimates assume the application of water 6 times (0.1 inch) a day for 30 days for each 1-mile stretch and includes water for foundations. The bulk of the water on the microwave radio sites would be tied into watering the access roads. The amplifier site would be included in the line water estimates. Distribution line dust control is considered to be negligible. (L. Simpkins, personal communication, NV Energy, February 2, 2023)

Any blasting associated with construction within 500 feet of registered wells would be avoided to the maximum extent possible. In addition, construction of transmission structures would be a minimum of 200 feet away from any registered wells to avoid damage to a well from vibration during construction activities.

**Operations and Maintenance**

Water used for O&M would be acquired from existing municipal or commercial sources. Water usage for O&M would be minimal, including washing vehicles and spot cleaning insulators. To prevent the spread of noxious weeds, O&M vehicles may need to be washed between uses. The insulators used for the transmission line are glass and polymer and may need to be spot cleaned. Compared to glass insulators, polymer insulators need washing less frequently. No measurable changes to water levels of downstream hydrological systems are expected. Water necessary for the O&M of GLWP is not anticipated to affect existing groundwater levels. Groundwater would not be directly impacted during transmission line operation because all operations activities would occur above the ground surface, and there would be measures in place to protect against chemical spills (NV Energy 2022).

The Action Alternatives may result in impacts on groundwater from the use of herbicides as part of the management of incompatible vegetation within the transmission line permanent ROW. Even if an herbicide has a runoff or leaching potential, the likelihood of the herbicide reaching groundwater aquifers would depend on site characteristics. Herbicides that are highly water soluble, relatively persistent, and not readily adsorbed by soil particles have the greatest potential for movement into the groundwater. The Action Alternatives would have no direct impact on groundwater quantity; no groundwater would be used in the application of herbicides. Indirect impacts to groundwater quality from use of selected herbicides would not be detectable.

## **Decommissioning**

For GLWP decommissioning, water would be used for localized dust control. Foundations would be abandoned in place or cut off below ground surface and buried. This would make contact with groundwater less likely than during construction. Groundwater would not be affected during the decommissioning activities associated with the Action Alternatives.

## **Floodplains**

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

The Proponent would place new structures outside of floodplains where possible. Micrositing during the final design of GLWP facilities would take flood hazards into account to minimize flood damage risk to structures. All structures within a flood hazard area subject to scour or lateral movement of a stream channel would be protected by burial beneath the 100-year scour depth, setback from the channel bank, or protection by bank stabilization measures. New structures would be located and designed so as not to impede flood flows. During O&M, spot repair of sites subject to flooding or scouring would occur to prevent damage to both GLWP structures and nearby property. The Action Alternatives would not modify the floodwater, substantially alter the floodplain, or divert floodwaters to areas previously outside the 100-year floodplain.

Due to heavy rains, localized areas of flooding can occur in other areas outside the 100-year floodplains mapped by FEMA. It is reasonable to assume that all watercourses that convey natural flows, whether or not mapped as floodplains or flood hazard areas, present some level of flood hazard. The flood hazard is not limited to inundation; bank erosion and bed scour (a lowering or destabilization of the channel bed during a flow event) are also hazards that can occur due to flooding.

The permanent footprint of the transmission tower structures (typically 100 by 100 feet or 0.2 acre) would equate to a small percentage of the high-risk flood hazard area. All long-term ancillary GLWP components sites are located outside mapped FEMA floodplains. With implementation of appropriate EMMs (refer to Appendix C. EMMs HYDRO\_WQ-12 and HYDRO\_WQ-14), the risk of flood damage to GLWP infrastructure and the risk of project-caused flood damage to other properties by impacting flood flows would be negligible for the GLWP.

## **Wetlands and Riparian Areas**

### **Construction**

Effects to wetlands and riparian areas would be associated with ground-disturbing activities such as clearing, grubbing, and blading to remove vegetation. These activities would mobilize fugitive dust and destabilize soils in some places. Mobilization of fugitive dust and erosion may result in the discharge of sediment to surface waters. Increased sedimentation indirectly related to ground-disturbing activities potentially could degrade the functional capacity of wetlands and riparian areas, by discharging higher rates of sediment into the system than can be attenuated, filtered, and/or immobilized under normal circumstances. These effects would only be seen where unexpected circumstances such as non-typical storm events, compromise the erosion-control design features or if the erosion control measures are not properly installed and maintained. Similar to water resources, other indirect effects on wetlands and riparian areas could be attributed to accidental spills of environmentally harmful substances. The GLWP POD includes procedures for promptly reporting and cleaning up spills generated during construction. Refer to Appendix C (EMMs HYDRO\_WQ-19, HYDRO\_WQ-23, and HAZMAT\_WASTE-1 to HAZMAT\_WASTE-24) for information related to pre-construction surveys and/or avoidance measures related to wetlands

and riparian areas. Actions taken in accordance with these environmental protective measures would minimize impacts to surface water. Work performed in wetlands determined to be WUS may require a Section 404 CWA permit issued by the USACE. The GLWP may require an Individual Permit or a Nationwide Permit 57 – Electric Utility Line and Telecommunication Activities depending on the area of impacts to WUS.

### **Operations and Maintenance**

Impacts to wetlands and riparian areas from road crossings include sedimentation of road runoff from stormwater. Culverts may get blocked by debris in streams causing water to back up and flood areas. Permanent crossing structure improvements could result in temporary minor sediment discharges but could reduce long-term impacts associated with maintenance. Manual treatments of incompatible vegetation within the overhead transmission line corridors would only occur at the margin of an emergent wetland, not within inundated or flooded wetlands. Riparian vegetation communities within the permanent ROW primarily consist of broad-leaved and deciduous forested communities. Riparian and forested wetland vegetation within the permanent ROW would be maintained at a low height with targeted manual treatment of trees, tall shrubs, and other woody vegetation. Routine vegetation maintenance in riparian portions of the ROW would tend to be more frequent than in upland areas because the vegetation tends to be relatively fast growing and capable of resprouting easily from cut stumps. In most cases, incompatible vegetation near a wetland or riparian area could be removed without disturbing non-targeted species. There would be no overland travel or ATV use within wetlands in the permanent ROW area. Vehicles would remain on existing roads and crews would walk to remove incompatible vegetation. Foot traffic within wetlands may trample some vegetation and result in some soil compaction. However, these impacts would be short-term and negligible. Standing on and traversing streambanks and dry wash banks has the potential to destabilize soil and create the potential for localized erosion. Fuel and lubricant spills from using chainsaws and trimmers would be contained or cleaned up before contamination spread to surrounding sensitive areas.

Only herbicides approved for use within riparian areas and wetlands would be applied in those areas. Most aquatic herbicides are non-selective and could cause impacts to non-target wetland and riparian species. To minimize impacts to non-targeted species, herbicide application would be limited to backpack sprayers in wetlands and riparian areas. Impacts to non-targeted species would also be minimized by using appropriate herbicide-free buffer zones for herbicides not labeled for aquatic use based on risk assessment guidance, with minimum widths of 10 feet for hand spray applications. Risks to wetlands and riparian areas from surface runoff would be influenced by precipitation rates, soil types, and proximity to the application area. Some herbicides (e.g., sulfometuron methyl) that adsorb into soil particles could be carried off-site. These impacts would be localized and considered minor, short-term effects. Successful control of incompatible vegetation in wetlands and riparian areas would lead to improved conditions in these habitats over the long-term. The eventual growth of compatible vegetation in treated areas would moderate water temperatures, buffer the input of sediment and herbicides from runoff, and promote bank stability in riparian areas.

Unintentional applications and spills could have detrimental effects for wetlands and riparian systems. Accidental spills near wetland and riparian areas could be particularly damaging to wetland and riparian vegetation. The Proponent's licensed applicator would supervise the application process to ensure that proper techniques, cleanup, personal protective equipment, and safety procedures are followed. The licensed applicator would comply with the operational and spill contingency plan prepared during the pesticide-use proposals process.

With the use of herbicides, the frequency of the routine vegetation maintenance in wetland and riparian areas would decrease over time resulting in less area needing treatment and a reduction in the equipment, vehicles, and field crews within the permanent ROW area. The eventual growth of compatible vegetation in treated areas would moderate water temperatures, buffer the input of sediment and herbicides from runoff, and promote bank stability in riparian areas.

### **Decommissioning**

Land managers or property owners would be contacted about the final disposition of roads installed for the GLWP. Reclamation would include recontouring to blend with the surrounding landscape and decompaction of soils and revegetation.

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

### **Surface Water and Groundwater**

#### **Construction**

The construction-related water resources impacts would be same to those discussed in the impacts common to all Action Alternatives described above. Impacts on surface water resources would be largely limited to construction of new roads and crossings or improvements to existing roads and crossings. Approximately 18 perennial, 25 intermittent, and 3,115 ephemeral surface waters would be crossed by the Proposed Action within the temporary ROW area.

The Proposed Action would be designed and constructed in a way that minimizes or eliminates impacts on the impaired waters that would be crossed. The proposed access road that would be adjacent to and crossed over Virginia and Bonanza creeks would not need improvement, therefore no construction activities would occur in the vicinity of impaired waters of these two creeks. The 345-kV lines would cross the impaired sections of the Carson River and Lagomarsino Creek, while the 525-kV line would cross the impaired section of the Walker River. The Proposed Action would not cross any portion of Walker Lake. The Proposed Action would not contribute to the sources of impairment or affect designated beneficial uses for impaired waters in the temporary ROW area. The conditions of the SWPPP would be met in and around these listed water bodies during construction. During operations, there would be no potential to increase loading of any impaired parameters or exceed an established water quality standard because the permit conditions would be met.

Water would be necessary for construction of the substation, microwave, and amplifier sites in the Proposed Action. The Proponent has stated the required water will be procured from municipal sources or from commercial sources (NV Energy 2022). No new water rights or water wells would be required. No measurable changes to water levels of downstream hydrological systems are expected. Water necessary for the construction of the substations and other ancillary facilities associated with the GLWP is not anticipated to affect existing groundwater levels.

#### **Operations and Maintenance**

The O&M-related surface water and groundwater impacts would be same to those discussed in the impacts of the common to all Action Alternatives described above including the potential effects associated with the removal and treatment of incompatible vegetation within the transmission line permanent ROW. The permanent ROW area for O&M would be, on average, approximately 34 percent of the temporary ROW area. For this reason, the erosion effects during the O&M phase would be less than for construction phase but would persist for a much longer time. Approximately 11 perennial,

22 intermittent, and 2,739 ephemeral surface waters would be crossed by the Proposed Action within the permanent ROW area (USGS 2022c).

Insulating mineral oil is used during O&M in some electrical equipment at substations, such as transformers, and some reactors and circuit breakers. The GLWP Preliminary POD indicates that oil-filled equipment would be placed within secondary containment structures to ensure that oil spills would not impact soil or groundwater. The containment structures take many forms, depending on site requirements, environmental conditions, and regulatory restrictions. Different varieties of containment structures include artificially lined sumps of sufficient volume to contain oil spills, and oil water separators. The Proponent would adhere to state requirements for containment of hazardous materials.

### **Decommissioning**

The decommissioning related surface water and groundwater impacts would be same to those discussed in the impacts of the common to all Action Alternatives and specifically for the Proposed Action described above for construction.

### **Floodplains**

#### **Construction, Operations and Management, and Decommissioning**

The construction, O&M, and decommissioning impacts to floodplains would be same as those discussed in the impacts common to all Action Alternatives described above. The FEMA floodplain data identifies 81 percent (approximately 38,173.2 acres) of the temporary ROW area (approximately 47,146.4 acres) as occurring within Zone X (unshaded) (areas of minimal flood hazard) or Zone D (undetermined risk areas). High flood risk areas (Zones A, AE, and AO) are found within approximately three percent (approximately 1,408.3 acres) of the temporary ROW area. Approximately 16 percent (approximately 7,557.4 acres) of the temporary ROW area is unmapped. Construction activities associated with the Proposed Action may occur in the high flood risk areas. For the Proposed Action, approximately three percent (approximately 445.7 acres) of long-term ROW area (approximately 13,717.7 acres) would occur in high flood risk areas. Encroachment of a GLWP structure into a floodplain could result in flooding of, or erosion damage to, the encroaching structure; diversion of flows and increased flood risk for adjacent property; or increased erosion on adjacent property (FEMA 2022).

### **Wetlands and Riparian Areas**

#### **Construction**

The construction-related impacts to wetlands and riparian areas would be same as those discussed in the impacts common to all Action Alternatives described above. Construction could affect approximately 120.1 acres of riparian areas within the temporary ROW area (refer to Table 3-91). Within the respective hydrographic basins, less than three percent of the riparian vegetation in the Dayton Valley Basin and less than one percent of the riparian vegetation in the Mason Valley would potentially be impacted during construction. Approximately 76 percent of the 120.1 acres within the temporary ROW are in the transmission line disturbance area; 12 percent of this would be associated with new access road and Fort Churchill Substation construction. The Proposed Action could affect approximately 214.5 acres of wetlands within the temporary ROW area, which would be less than one percent of the wetlands in each of the Mason Valley, Walker Lake Valley, Columbus Salt Marsh Valley, Churchill Valley, Sarcobatus Flat, and Soda Spring Valley basins. Of the 214.5 acres of wetlands within the temporary ROW area that may be disturbed, approximately 92 percent would be within the temporary ROW area for the construction of

transmission lines, which means that the wetlands would most likely not be impacted since the structure location can be adjusted to avoid the wetlands.

**Table 3-91. Proposed Action Acres of Wetland and Riparian Areas within Temporary and Permanent ROW by Basin**

<b>Basin</b>	<b>Total Wetland within Basin (acres)</b>	<b>Total Wetland Acres within Temporary ROW (acres)</b>	<b>Total Wetland Acres within Permanent ROW (acres)</b>	<b>Total Riparian Acres within Basin (acres)</b>	<b>Total Riparian within Temporary ROW (acres)</b>	<b>Total Riparian within Permanent ROW (acres)</b>
Mason Valley Basin	9,411.8	-	-	8,888.1	-	-
-Access Roads	-	4.9	2.4	-	0.7	0.5
-Substation	-	0.0	0.0	-	14.9	14.9
-Transmission Lines	-	51.4	22.1	-	29.2	13.4
Walker Lake Valley Basin	52,244.7	-	-	-	-	-
-Access Roads	-	5.3	1.4	-	-	-
-Transmission Lines	-	32.4	10.7	-	-	-
Columbus Salt Marsh Valley Basin	23,004.3	-	-	-	-	-
-Access Roads	-	0.6	0.1	-	-	-
-Transmission Lines	-	0.0	0.0	-	-	-
Churchill Valley	12,558.6	-	-	-	-	-
-Access Roads	-	5.6	1.9	-	-	-
-Transmission Lines	-	91.6	35.4	-	-	-
Sarcobatus Flat Basin	12,094.6	-	-	-	-	-
-Access Roads	-	0.0	0.0	-	-	-
-Transmission Lines	-	3.1	0.0	-	-	-
Soda Spring Valley Basin	8,613.8	-	-	-	-	-
-Access Roads	-	0.0	-	-	-	-
-Transmission Lines	-	19.6	5.8	-	-	-
Dayton Valley Basin	-	-	-	2,790.8	-	-
-Access Roads	-	-	-	-	13.5	3.9
-Transmission Lines	-	-	-	-	61.8	13.1
<b>Total</b>	<b>117,927.8</b>	<b>214.5</b>	<b>79.8</b>	<b>11,678.9</b>	<b>120.1</b>	<b>45.8</b>

Table Acronyms: GLWP – Greenlink West Project; ROW – right-of-way

Riparian and wetland vegetation could be indirectly affected by changes in stream morphology, soil erosion and sedimentation, surface and/or groundwater contamination, and fugitive dust. The Proposed Action would unlikely lead to measurable changes in soil erosion and sedimentation or to cause measurable changes in water quality due to contamination. The Proposed Action would also unlikely lead



to measurable changes in the structure, function, or stability of floodplains, which is where most riparian vegetation is located. Fugitive dust generated by ground disturbance during construction and by vehicles and equipment travelling on unpaved roads could repeatedly blanket riparian vegetation, which could impair photosynthesis and lead to injury or vegetation mortality. Dust-control measures would be implemented to minimize potential effects from fugitive dust. Impacts would be avoided to the greatest extent practicable, and any potential disturbance to the jurisdictional wetlands would be mitigated as part of the CWA Section 404 permit. The 404 permits would be approved by the USACE prior to any ground-disturbing activities and would include required measures to mitigate any loss of jurisdictional wetlands.

### **Operations and Maintenance**

The O&M-related wetland and riparian area impacts would be same to those discussed in the impacts common to all Action Alternatives described above including the potential effects associated with the removal and treatment of incompatible vegetation within the permanent ROW. The Proposed Action could permanently affect approximately 45.8 acres of riparian vegetation and 79.8 acres of wetlands (refer to Table 3-91), which would be less than one percent of the riparian and wetland vegetation within the respective hydrographic basins. Of the riparian and wetland areas within the permanent ROW area that may be disturbed, approximately 93 percent and 59 percent, respectively, would be for the construction of transmission lines, which means that the riparian vegetation and wetlands would most likely not be impacted since the structure location can be adjusted to avoid these areas. The Fort Churchill Substation would permanently remove less than one percent of riparian vegetation in the Mason Valley Basin. Any potential disturbance to the delineated wetlands or WUS would be mitigated as part of the CWA Section 404 permit obtained prior to any ground-disturbing activities.

Insulating mineral oil is used during O&M in some electrical equipment at substations, such as transformers, and some reactors and circuit breakers. The Proponent would adhere to state requirements for containment of hazardous materials.

### **Decommissioning**

The decommissioning-related wetland and riparian area impacts would be same to those discussed in the impacts of the common to all Action Alternatives and specifically for the Proposed Action described above for construction.

### **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 water resources with the implementation of EMMS BIO-18, BIO-44, BIO-45, CON-7, CON-11, DECOM-7, GEO-SOIL-8, HAZMAT-WASTE-12, and HYDRO\_WQ 1 to HYDRO\_WQ-23.

#### **3.14.4.4 Direct and Indirect Impacts from Losse and TUSK Transmission Line Route Groups**

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

There would be no discernible difference in acres of temporary and permanent ROW area (approximately two percent difference) between the Loose Transmission Alternative A and the associated portion of the Proposed Action. The potential to cause an increase in localized erosion and sedimentation during the construction would be similar between these two Action Alternatives. The Losee Transmission Alternative A would potentially cross 46 percent more ephemeral washes during construction and 44 percent more of these ephemeral washes within the permanent ROW area than the Proposed Action (refer to Table 3-92). Similarly, there would be no difference between the Tusk Transmission Alternative B and the Proposed Action in acres of permanent ROW area. The TUSK Transmission Alternative B would potentially cross

19 percent fewer ephemeral washes during construction but would have similar numbers to the Proposed Action of these ephemeral washes waters permanently effected (refer to Table 3-92).

**Table 3-92. Action Alternative and Proposed Action Comparison of Surface Water Effects**

<b>Transmission Line Route Group Action Alternatives</b>	<b>Temporary ROW Number of Total Surface Water Crossings<sup>a</sup></b>	<b>Permanent ROW Number of Total Surface Water Crossings</b>	<b>Temporary ROW Areas in High Flood Risk Area (acres)</b>	<b>Permanent ROW Areas in High Flood Risk Area (acres)</b>
Losee Transmission Alternative A	128	55	-	-
Losee – Proposed Action	69	31	-	-
TUSK Transmission Alternative B	44	15	0.3	-
TUSK – Proposed Action	54	16	9.1	-3-52
Beatty Transmission Alternative A	111	42	51.8	15.7
Beatty Transmission Alternative C	115	49	17.8	4.4
Beatty Transmission Alternative G	102	38	37.1	6.1
Beatty Transmission Alternative K	123	44	59.6	16.8
Beatty – Proposed Action	110	43	54.6	16.8
Scotty’s Junction Transmission Alternative A	212	81	11.6	3.7
Scotty’s Junction Transmission Alternative B	185	68	13.0	3.9
Scotty’s Junction – Proposed Action	154	64	17.6	5.4
Mason Valley WMA Transmission Alternative A	13	6	94.1	15.8
Mason Valley WMA – Proposed Action	17	8	207.9	69.3
Carson River Transmission Alternative A <sup>b</sup>	53	24	39.0	10.1
Carson River – Proposed Action Compared to Carson River Transmission Alternative A <sup>b</sup>	40	18	38.5	8.2
Carson River Transmission Alternative C	235	101	336.1	134.3
Carson River – Proposed Action Compared to Carson River Transmission Alternative C	308	123	439.5	142.9

*Table Acronyms:* ROW – Right-of-way; TUSK – Tule Springs Fossil Beds National Monument; WMA – Wildlife Management Area

*Table Notes:* <sup>a</sup>Surface water crossings include canals/ditches, known, but nonspecific connectors, the connection between the inflow and outflow points of an in-line open water body, and ephemeral, perennial, and intermittent surface water features as defined by the USGS National Hydrograph Dataset.

<sup>b</sup> Refers only to the 345-kV Fort Churchill to Comstock Meadows #2 transmission line.

Based on the SWReGAP land cover 2021 data and the NWI wetland data, there are no wetlands or riparian vegetation present within the temporary or permanent ROW areas for the Loose Transmission Alternative A, TUSK Transmission Alternative B, or the Proposed Action.

### **3.14.4.5 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

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

There would be no discernible difference (less than four percent) between the Beatty Transmission Alternatives A, C, and K relative to the Proposed Action in terms of temporary and permanent ROW area acres (refer to Table 3-92). Beatty Transmission Alternative G would have the potential to create 16 percent more acres of temporary ROW than the Proposed Action but would have 6 percent less acres of permanent ROW. The potential to cause an increase in localized erosion and sedimentation during construction would be similar in comparison among these four Action Alternatives (excluding the Proposed Action) within the Amargosa River and Beatty Wash subbasins. The Beatty Transmission Alternative A could essentially cross the same number of ephemeral and intermittent washes during construction as well as disturbing essentially the same number of crossings within the permanent ROW than the Proposed Action. Compared to the Proposed Action, the Beatty Transmission Alternative C would potentially cross 4 percent more ephemeral and intermittent washes during construction and 12 percent more of these ephemeral and intermittent washes waters within the permanent ROW. The Proposed Action would potentially cross 7 percent less ephemeral and intermittent washes during construction and 12 percent less of these ephemeral and intermittent washes waters within the permanent ROW than the Beatty Transmission Alternative G. The Beatty Transmission Alternative K would potentially cross 11 percent more ephemeral and intermittent washes during construction than the Proposed Action, however, these two alternatives would disturb essentially the same number of crossings with the permanent ROW.

The Beatty Transmission Alternatives A and K and the Proposed Action would be similar in the amount of acres within the temporary and permanent ROW areas in high flood risk floodplain areas. The Proposed Action would potentially disturb more acres within the temporary and permanent ROW areas (approximately 67 percent and 75 percent, respectively) in high flood risk areas than Beatty Transmission Alternative C. Similarly, the Proposed Action would have 32 percent and 64 percent more high flood risk areas within the temporary and permanent ROW areas, respectively, than Beatty Transmission Alternative G.

Based on the SWReGAP land cover 2021 data and the NWI wetland data, there are no wetlands or riparian vegetation present within the temporary or permanent ROW areas for the Beatty Transmission Alternatives A, C, G, and K and the Proposed Action with respect to wetlands and riparian vegetation.

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

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

The Scotty's Junction Transmission Alternative A would potentially cross approximately 27 percent more ephemeral and intermittent washes during construction and 21 percent more of these ephemeral and intermittent washes within the permanent ROW area than the Proposed Action (refer to Table 3-92). The Scotty's Junction Transmission Alternative B would potentially cross 17 percent fewer ephemeral and intermittent washes during construction and six percent fewer of these ephemeral and intermittent washes waters within the permanent ROW area as compared to the Proposed Action. There would be discernible difference between the Scotty's Junction Transmission Alternatives A and B relative to the Proposed Action in terms of temporary and permanent ROW area acres (refer to Table 3-92). The potential to cause an increase in localized erosion and sedimentation during construction would be similar in comparison among these three Action Alternatives.

Based on the SWReGAP land cover 2021 data and the NWI wetland data, there are no wetlands or riparian vegetation present in the temporary or permanent ROW areas for the Scotty's Junction Transmission Alternatives A and B or the Proposed Action with respect to wetlands and riparian vegetation.

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

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

In comparison, there would be notable increase in the acres within the temporary and permanent ROW areas (approximately 24 percent and 25 percent greater, respectively) between the Mason Valley WMA Transmission Alternative A relative to the Proposed Action (refer to Table 3-92). Sedimentation potential may increase, depending upon the extent of disturbance and recontouring needed with the implementation of Mason Valley WMA Transmission Alternative A. There would be greater ground-disturbing activities and more vegetation removal associated with the Mason Valley WMA Transmission Alternative A and increased potential for sedimentation relative to the comparable segment to the Proposed Action. Although longer, Mason Valley WMA Transmission Alternative A would cross the Walker River, a main perennial river in Nevada, and several of the local ditches in this area of GLWP. The Proposed Action would cross the Walker River and the Perk and Joggle sloughs as well as local ditches.

The Proposed Action would have approximately 55 percent more high flood risk areas than the Mason Valley WMA Transmission Alternative A. Similarly, the Proposed Action would have approximately 77 percent more high flood risk areas than the Mason Valley WMA Transmission Alternative A (refer to Table 3-92).

There are approximately 8,888.1 acres of riparian vegetation and 9,429.0 acres of wetlands within the Mason Valley Basin. Mason Valley WMA Transmission Alternative A would have approximately 12.8 acres and approximately 2.0 acres of riparian vegetation within the temporary and permanent ROW areas, respectively. The Proposed Action would have approximately 15.6 acres and approximately 6.0 acres of riparian vegetation within the temporary and permanent ROW areas, respectively. The Mason Valley Transmission Alternative A would also not cross any NWI-mapped wetlands, while the Proposed Action may impact approximately 9.6 acres of wetlands during construction and 3.2 acres within the permanent ROW area within the Mason Valley Basin, which would represent impact to less than one percent of these areas within the basin.

#### **3.14.4.8 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

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

Carson River Transmission Alternative A, which is the single 345-kV Fort Churchill to Comstock Meadows #2 transmission line, would have approximately 1,546 acres and approximately 349 acres within the temporary and permanent ROW areas, respectively, for the three 345-kV transmission lines. The Proposed Action would result in approximately 872 acres (44 percent less) and approximately 246 acres (30 percent less) within the temporary and permanent ROW areas, respectively, for the Carson River Transmission Alternative A/Fort Churchill to Comstock Meadows #2 transmission line (refer to Table 3-92). There would be greater ground-disturbing activities with vegetation removal associated with the Carson River Transmission Alternative A/Fort Churchill to Comstock Meadows #2 transmission line and increased potential for sedimentation as compared to the comparable segment of the Proposed Action. The Carson River Transmission Alternative A/Fort Churchill to Comstock Meadows #2 transmission line would cross

25 percent more ephemeral washes within the temporary ROW and 25 percent more of these ephemeral washes within the permanent ROW than the Proposed Action (refer to Table 3-92).

Although, compared to the Proposed Action, Carson River Transmission Alternative A/Fort Churchill to Comstock Meadows #2 transmission line would be a longer route, collectively the three 345-kV lines would cross the river in close proximity to each other, which would reduce the spatial impacts to the Carson River riparian corridor. With the Proposed Action, the 345-kV Fort Churchill to Comstock Meadows #2 line would cross the Carson River approximately 4.1 miles upstream from the remaining two 345-kV lines.

There are no NWI-mapped wetlands associated with the Carson River Transmission Alternative A or the comparable segment of the Proposed Action. There are approximately 2,790.8 acres of riparian vegetation within the Dayton Valley Basin. The Carson River Transmission Alternative A would have less temporary ROW area (approximately 18.2 acres) with riparian vegetation than the Proposed Action (approximately 24.0 acres). The acres of permanent ROW area associated with the Carson River Transmission Alternative A (4.6 acres) would be slightly less than the comparable segment of the Proposed Action (5.0 acres) (refer to Table 3-92). Although Carson River Transmission Alternative A would be a longer route than the Proposed Action, the three 345-kV lines would cross the river in close proximity to each other, which would reduce the spatial impacts to the Carson River riparian corridor. In the Proposed Action, the Carson River Transmission Alternative A would cross the Carson River approximately 4.1 miles upstream from the other two 345-kV lines.

The Carson River Transmission Alternative C would be a longer route compared to the Proposed Action, approximately 82.5 miles versus 71.8 miles. Carson River Transmission Alternative C would have approximately 6,280.8 acres within the temporary ROW area and approximately 1,933.2 acres within the permanent ROW area for the three 345-kV transmission lines. The comparable segment of the Proposed Action would have approximately 6,440.8 acres of temporary ROW area (2 percent more acres) and approximately 1,740.0 acres (10 percent more) of permanent ROW area than for the Carson River Transmission Alternative C. There would be greater ground-disturbing activities with vegetation removal associated with the comparable segment of the Proposed Action. The Carson River Transmission Alternative C would cross 24 percent less ephemeral washes within the temporary ROW area and 18 percent less of these ephemeral washes would be within the permanent ROW area than the Proposed Action (refer to Table 3-92).

There are no NWI-mapped wetlands associated with the Carson River Transmission Alternative C or the comparable segment of the Proposed Action. There are approximately 2,790.8 acres of riparian vegetation within the Dayton Valley Basin. The Carson River Transmission Alternative C would contain less acres within the temporary ROW area (approximately 21.2 acres) than the comparable segment of the Proposed Action (approximately 61.8 acres) within basin. The acres of permanent ROW associated with the Carson River Transmission Alternative C (18.7 acres) would be slightly less than the Proposed Action (20.5 acres) (refer to Table 3-92). In the comparable segment of the Proposed Action, the Fort Churchill to Comstock Meadows #2 transmission line would cross the Carson River approximately 4.5 miles upstream from the other two 345-kV lines. In the Carson River Transmission Alternative C's Fort Churchill to Comstock Meadows #2 transmission line would cross the Carson River approximately 6.5 miles up from the other two 345-kV lines.

#### **3.14.4.9 Direct and Indirect Impacts from Amargosa Substation Group**

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

AS-2 (Proposed Action) would not disturb any ephemeral washes, while AS-1 would have 13 ephemeral washes and 110 ephemeral washes in the temporary and permanent ROW areas, respectively. The potential to cause an increase in localized erosion and sedimentation during the construction would be greater with AS-1 than with AS-2 (Proposed Action).

Based on the SWReGAP land cover 2021 data and the NWI wetland data, there are no wetlands or riparian vegetation present in the temporary or permanent ROW for AS-1 or AS-2 (Proposed Action).

#### **3.14.4.10 Direct and Indirect Impacts from Esmeralda Substation Group**

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

The potential to cause an increase in localized erosion and sedimentation would be greater with ES-3 as compared to the other two substation alternatives. ES-1 would have 8 ephemeral washes and 9 ephemeral washes in the temporary and permanent ROW areas, respectively. ES-2 (Proposed Action) would cross 11 ephemeral washes and 5 ephemeral washes in the temporary and permanent ROW areas, respectively. Compared to ES-2 (Proposed Action), 27 percent less ephemeral washes would be in the temporary ROW area and 44 percent less ephemeral washes would be in the permanent ROW area in ES-1. ES-3 would cross 16 ephemeral washes and 12 ephemeral washes in the temporary and permanent ROW areas, respectively. In comparison, ES-3 would cross 50 percent and 58 percent more ephemeral washes in the temporary and permanent ROW areas, respectively, than ES-1. Compared to ES-2 (Proposed Action), 31 percent and 25 percent more ephemeral washes would be in the temporary and permanent ROW areas, respectively, in ES-3 (refer to Table 3-92).

Based on the SWReGAP land cover 2021 data and the NWI wetland data, there are no wetlands or riparian vegetation present in the temporary or permanent ROW areas for ES-1, ES-2 (Proposed Action), or ES-3.

#### **3.14.4.11 Direct and Indirect Impacts from Amargosa Microwave Group**

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

There are no surface water resources identified that occur within the AM-1 or AM-2 (Proposed Action) sites. Based on the SWReGAP land cover 2021 data and the NWI wetland data, there are also no wetlands or riparian vegetation present in the AM-1 or AM-2 (Proposed Action) sites. Therefore, there would be no impact to water resources from the construction, O&M, and decommissioning of either of these microwave alternatives.

### **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 level of visual change would occur to scenic views from sensitive viewing platforms?

- Do the Action Alternatives conform to the VRM Class objectives established in the RMP?
- What are the impacts to the viewshed of TUSK?
- What is the magnitude of change to the existing landscape characteristics and to the inherent scenic quality of the GLWP area?
- What is the magnitude of the change in views from the designated scenic byways within the GLWP area?

### **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 transmission line centerline and equates to approximately 2,755,542 acres. The five-mile distance is based on a combination of research, the type of GLWP components being assessed, and characteristic landscape. Research conducted by Sullivan, et al. (2014) found that 500-kV lattice towers were judged to be noticeable to casual observers at distances of up to 10 miles. Based on the characteristic landscape for this project, it was determined that the proposed transmission line may be visible at distances of up to 10 miles, but that impacts would be discernible to the casual observer only up to 5 miles away from the proposed transmission line. The FG distance zone is defined as the area up to 3 miles from the proposed GLWP transmission lines or the Sensitive Viewing Platforms (SVPs), the middleground (MG) distance zone is the area from 3 miles 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 VRM program establishes national policy and procedures for implementing a systematic and objective process to inventory and manage scenic (visual) values. 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, as well as providing the visual resource baseline from which to measure impacts that a proposed project may have on these values. Existing VRIs for the three BLM DOs that were available and 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, such as the DOD, were subject to a GLWP-specific scenic quality evaluation that was completed for those areas.

The BLM is in the process of updating the VRI information for several DOs across lands administered by the BLM in Nevada, some of which overlap the visual resources analysis area. Due to the concurrent timing of the VRI update process and this EIS, the updated VRI data was not available in time to incorporate into the Draft EIS and the analysis of impacts from the Action Alternatives but will be incorporated into the Final EIS. The general conclusion regarding scenic quality values that can be made from an initial review of the updated VRI data, as compared to the existing VRI data, is that there was predominantly a reduction of Class A landscapes and an increase in Class C landscapes within the visual resource analysis area. The specific scenic quality rating shifts that occurred were approximately 60,521.2 acres (2.2 percent of the visual resource analysis area) decreasing from Class A to Class B-rated landscapes, approximately

6,980.0 acres (0.3 percent of the visual resource analysis area) decreasing from Class A to Class C-rated landscapes, approximately 120,186.8 acres (4.4 percent of the visual resource analysis area) decreasing from Class B to Class C-rated landscapes, and approximately 58,086.7 acres (2.1 percent of the visual resource analysis area) increasing from Class C to Class B-rated landscapes. These specific shifts came from a combination of changes in the overall scenic quality rating scores for existing units, from entirely new units being added and existing units being removed completely, and from boundary adjustments where portions of existing scenic quality rating units were re-aligned and re-assigned to different units in the updated VRI data.

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 VRI Scenic Quality Rating Units (SQRUs), where available. The VAUs describe the existing landscape character (baseline conditions) based on the landform and vegetation elements as well as 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 (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, reflect 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., residential area or scenic overlook) or linear locations (e.g., highway or trail). 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 the magnitude of change in the landscape character, scenic quality, and 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.

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 key observation points (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 is in view. Using the contrast rating forms, considering environmental factors, and photorealistic simulations, the determination was made as to whether the GLWP would be in conformance with the DOs VRM objectives. 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).

### **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 best management practices 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 titled 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 were selected by the NPS along with three additional viewpoints 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 impacts of the GLWP includes 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 a 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 make additional visual impact assessments and 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 GLWP transmission line proposed alignment, including all project components and ancillary

facilities. 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 lies within the Basin and Range physiographic province, which 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 86 VAUs were delineated to reflect the existing landscape character and scenic quality within the visual resource analysis area (refer to Figure 3-46 and Table 3-47). Table 3-93 Visual Analysis Unit Categories describes the major VAU categories and detailed description of the VAUs is provided in Appendix P.

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 166,546 acres were evaluated as Class A, 1,203,564 acres were evaluated as Class B, and 1,394,329 acres were evaluated as Class C<sup>14</sup>. Mapping related to scenic quality is in Appendix P.

### **3.15.4 Environmental Consequences**

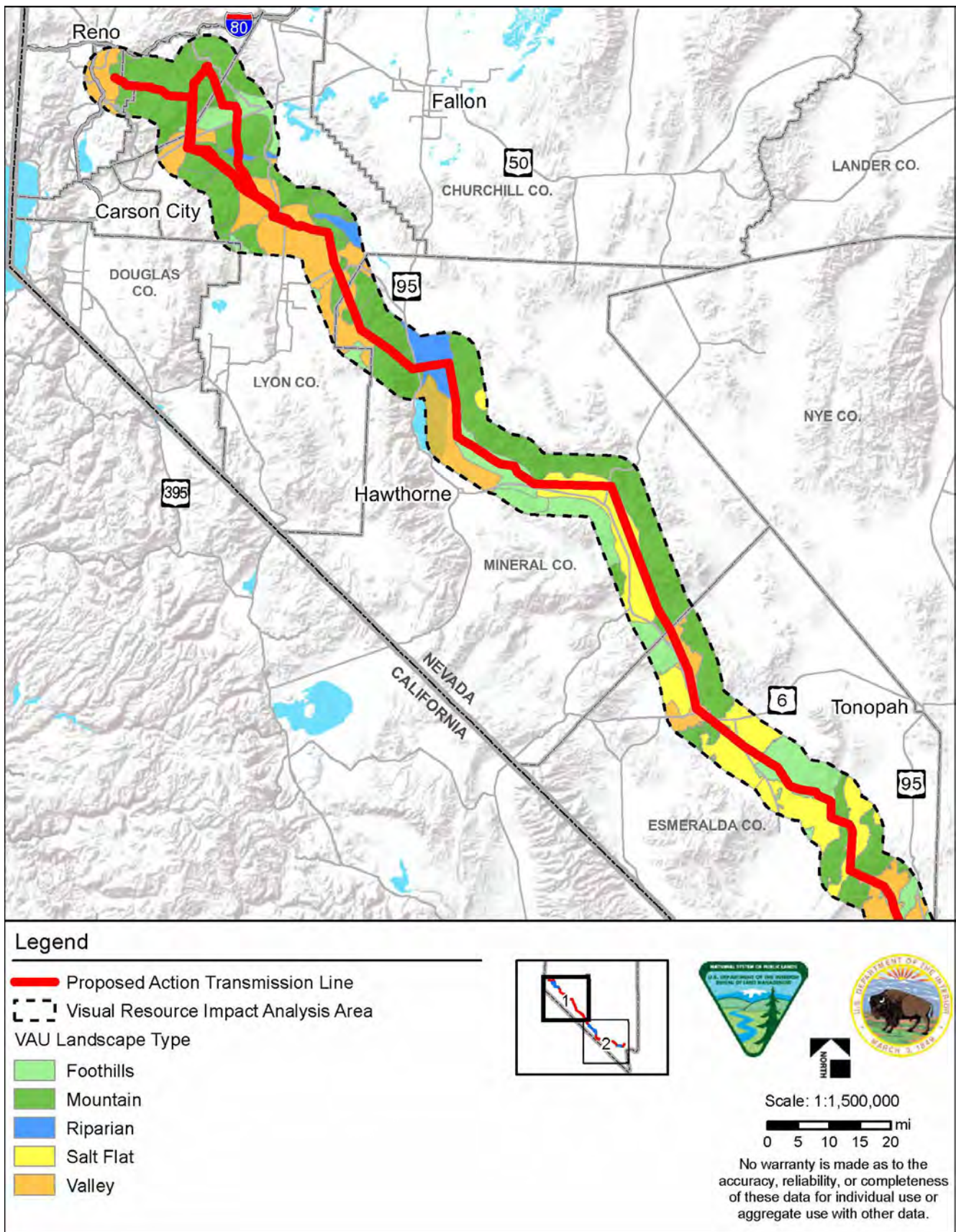
The environmental consequences from the Action Alternatives and No Action Alternative on visual resources were assessed by determining the magnitude of change in the landscape character, scenic quality, and views from the sensitive viewing locations. An analysis of visual dominance, scale, and contrast 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**

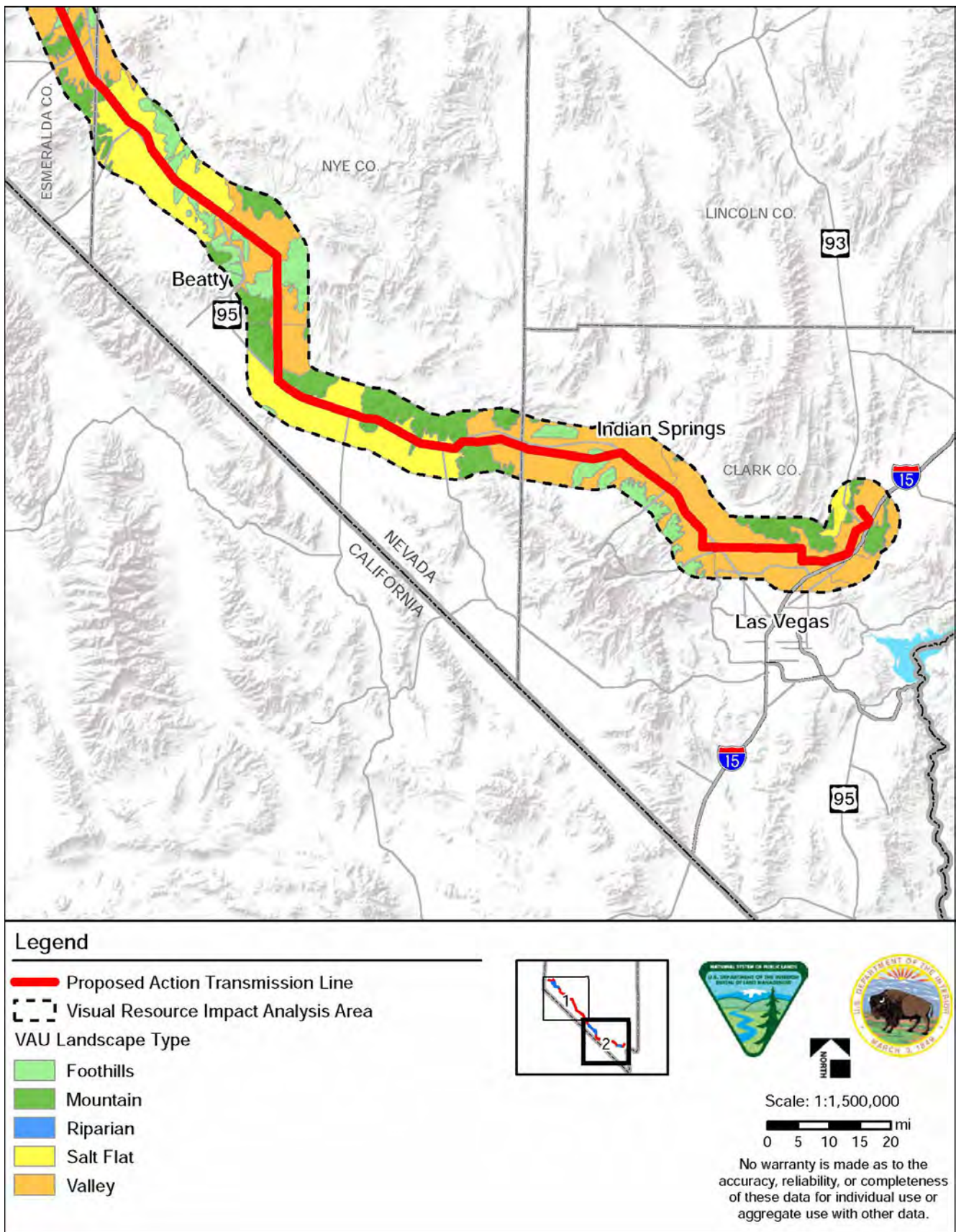
It is anticipated that under the No Action Alternative, the current uses and trends for the resources would continue to occur. There would be no impacts to visual resources attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

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<sup>14</sup> Approximately 16,075 acres were not evaluated for scenic quality that were within the visual resource analysis area because the landscape is located on DOD lands and were 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 area than the visual resource analysis area by approximately one percent.





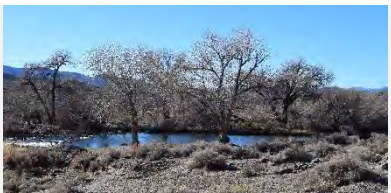


**Figure 3-45. Visual Analysis Unit Categories within the Visual Resource Analysis Area (1 of 2)**



**Figure 3-46. Visual Analysis Unit Categories within the Visual Resource Analysis Area (2 of 2)**

**Table 3-93. Visual Analysis Unit Categories**

VAU Category	Number of VAUs	Total Acres of VAU <sup>a</sup>	Percent of Analysis Area	Description of VAU Characteristics	Characteristic Photo
Mountain/Range	39	919,122.0	33	Large and prominent landforms with high vertical relief with a variety of vegetation	
Valley/Basin	19	906,643.0	33	Flat to rolling with few to no landforms with one or two major vegetation types	
Foothills	18	346,914.5	12	Low- to moderate-height landforms in a variety of sizes and shapes with varying vegetation	
Salt Flat/Dry Lake	8	559,222.6	20	Flat and sandy with exposed salt deposits with sparse vegetation	
Riparian Corridor	2	48,712.3	2	Concave and meandering with a great variety of vegetation	

*Table Acronyms:* VAU – visual analysis unit

*Table Notes:* <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 area than the visual resource analysis area by approximately one percent.

### 3.15.4.2 Sensitive Viewing Platforms

Table 3-94 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 several 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 the cities’ built environments and lack of discernible views of the GLWP 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. State Route 360 had average ADT volumes of less than 900 vehicles in 2021 according to NDOT and SR 774 had no traffic volume information because of historically low traffic volume (NDOT 2020c). 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 to 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, The Nature Conservancy (TNC) 7J Ranch, TUSK, and Walker Lake SRMA.

**Table 3-94. Sensitive Viewing Platform Selection Rationale**

<b>SVP Category</b>	<b>Visual Platform Type</b>	<b>List of Visual Platform Selections</b>	<b>Rationale for Selection</b>
Communities	Stationary	Beatty, Indian Springs, Luning, Mina, Yerington, Dayton, Silver Springs, and Stagecoach	Communities/residential areas
Highways	Linear	CR 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 Snow Mountain Reservation, Moapa Paiute Indian Reservation, Timbisha Shoshone Reservation, and Walker River Paiute Indian Reservation	Native American communities
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, Ice Age Fossils State Park, La Madre Mountain Wilderness Area, Mason Valley WMA, Mount Stirling WSA, Red Rock Canyon NCA, Spring Mountains NRA, TNC 7J Ranch, TUSK, Walker Lake SRMA, and Willie McCool Regional Park	Special designation and recreation areas

*Table Acronyms:* CR – County Road; I – Interstate; NCA – National Conservation Area; NHT – National Historic Trail; NM – National Monument; NRA – National Recreation Area; NWR – National Wildlife Refuge; SDA – Special Designation Area; SR – State Route; SRMA – Special Recreation Management Area; TNC – The Nature Conservancy; SVP – Sensitive Viewing Platform; TUSK – Tule Springs Fossil Beds National Monument; US – United States; WSA – Wilderness Study Area  
*Table Notes:* <sup>a</sup> Nevada-designated scenic byway

### 3.15.4.3 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 the removal of vegetation, fugitive dust generated by the construction of GLWP components, and movement and presence of heavy equipment. Construction activities would introduce forms, lines, colors, textures, and movements that are not common in the non-urban landscape and would attract attention. Depending on the terrain, vegetation, and the built features present in the landscape, the construction activities would introduce form, line, color, or texture, not common in the landscape that would begin to dominate or would demand attention in the existing setting. For 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 that are 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 the 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 the 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>15</sup>. In the MG of the SVPs, much of the ground disturbance from the construction and decommissioning activities associated with the GLWP would not 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 ancillary GLWP components would vary depending on the existing landscape character and environmental factors, such as the distance to GLWP components, visibility conditions, and scale.

### **Decommissioning**

The impacts associated with the decommissioning process would be similar to the construction-related effects for the Action Alternatives, but to a lesser extent. 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, transmission line stringing, and material stockpiles. The decommissioning activities would introduce forms, lines, colors, and textures that would temporarily attract attention and create strong contrast with the existing setting. In addition, 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 be readily apparent at that distance.

## **3.15.4.4 Direct and Indirect Impacts from the 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**

Of the 86 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 71 VAUs (83 percent). These impacts from the Proposed Action on landscape character would occur predominantly in the Mountain/Range VAU category (approximately 51 percent), followed by the Foothills VAU category (approximately 23 percent), Valley/Basin VAU category (approximately 20 percent), Salt Flat/Dry Lake VAU category (approximately 4 percent), and Riparian Corridor VAU category (approximately 3 percent).

The Proposed Action would result in changes to landscape character in 14 of the 86 VAUs (16 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 14 VAUs are located north of Las

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<sup>15</sup> A viewshed is an area of landscape that is visible to the human eye from a fixed vantage point.

Vegas and south of the US 95-SR 360 junction, as well as south of the Carson River, in predominantly Mountain/Range, Valley/Basin, and Salt Flat/Dry Lake 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 the level of contrast with existing built features and the scale of the GLWP in the setting.

In 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 considered in the Valley/Basin VAU category and is located near Beatty in Crater Flat.

### **Scenic Quality**

Within the Proposed Action permanent ROW area, there are approximately 1,061.6 acres of Class A Scenery (Class A) landscapes (seven percent), 4,736.4 acres of Class B Scenery (Class B) landscapes (33 percent), and 8,452.3 acres of Class C Scenery (Class C) landscapes (59 percent). Of the permanent ROW area in Class A landscapes, 97 percent of the impacts would occur in the Mountain/Range VAU category. Of the Class B landscapes, 59 percent of the impacts would occur in the Valley/Basin VAU category and 32 percent would occur in the Mountain/Range VAU category within the permanent ROW area. Of the permanent ROW area in Class C landscapes, 39 percent would occur in the Salt Flat/Dry Lake VAU category and 37 percent would occur in the Valley/Basin VAU category.

Of the 86 VAUs, the Proposed Action would have no impact to or no apparent change to the existing scenic quality, or it would slightly reduce the scenic quality rating from existing conditions (negative 0.5 numerical rating change) of impact to the scenic quality in the FG of 74 VAUs (86 percent). 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 nine VAUs (10 percent). These nine 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 nine 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 (e.g., from a Class B to a Class C) in three of the 86 VAUs (three percent). These VAUs are located around Beatty in Crater Flat and Oasis Valley and southeast of Silver Peak in the Montezuma Range, in Valley/Basin and Mountain/Range VAU categories. In these three VAUs, the characteristic landscape would appear to be altered. The GLWP would be visually dominant because there would be continuous skylined views of the transmission line structures, there are few built features present in these landscapes (primarily unpaved roads), and contrast in terms of form, line, and texture of the Proposed Action would be strong.

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 areas of BLM 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 (excluding the designated scenic byways) 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 3-95 provides the list of the 10 highways and a summary of the impacts created by the Proposed Action; no further detailed discussion of these SVPs is 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 3-96 through Table 3-98.

### **SR 156**

SR 156, also known as Mt. Charleston/Lee Canyon Road, is a state-designated scenic byway in Clark County that would be crossed by 525-kV transmission line at approximately MM 17.4-CL. No ancillary GLWP 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 in comparison 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 the 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 motorist 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. Refer to Table 3-96 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 nearest portion of the GLWP 525-kV transmission line. The existing Northwest Substation is approximately 0.4 miles away from SR 157 and the proposed 16.9-acre expansion of this substation would be visible in the FG of the highway. Eastbound (EB) and westbound (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 visual setting would change as a result of the Proposed Action because of the expansion of the existing substation and introduction of additional monopole structures, which would noticeably increase the magnitude of built features. However, the expansion of the Northwest Substation and tower structures would add features that are already 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 it would not increase the magnitude of the built features in the setting. Similar to SR 156, the most scenic portions of the highway lie in the 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 3-96 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 the urban development of Reno, which includes multistory residential/commercial development and existing distribution lines and stop light structures along with street lighting and adjacent mining operations. 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 the SB 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. 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 3-98 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 GLWP 525-kV transmission line would cross SR 160 at approximately MM 37-NY, SR 265 at approximately MM 16.5-ES, SR 266 at approximately MM 37.8-ES, and US 6 at approximately MM 21-ES. 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 structure compared to other elements and patterns in the landscape. Traveling at the posted speed limits, ranging from 60 to 70 mph, the duration of the view within the immediate FG would be approximately one minute or less. Refer to Table 3-97 for summary of the impacts on views from SR 265 by the Proposed Action.

The Proposed Action's 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 relative undeveloped viewshed. 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 GLWP components would be approximately 5 minutes on SR 160, 36 minutes on SR 265, 7 minutes on SR 266, and approximately 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 2.5 miles or 3 minutes and approximately 1.1 miles or for 1 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 from SR 265 would be less than 0.5 miles and less than a minute in duration. The entire substation facility would be visible from NB SR 265 in the FG. In addition, EB motorists in the FG and MG on US 6 would also see the entire ES-2 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 for approximately 1.3 miles or 1 minute and approximately 3.5 miles or for 3 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 1.6 miles or for 1 minute. Refer to Table 3-97 for summary of the impacts on views from SR 265, SR 266, and US 6 by the Proposed Action.

**Table 3-95. Proposed Action Impacts on Views from CR 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> (miles)</b>	<b>Visible Transmission Line in FG of SVP (miles)</b>	<b>Total Transmission Line in MG of SVP<sup>a</sup> (miles)</b>	<b>Visible Transmission Line in MG of SVP (miles)</b>	<b>Duration of View of Transmission Line Seen from SVP<sup>b</sup> (minutes)</b>	<b>Visibility Conditions</b>	<b>Existing Setting Conditions<sup>c</sup></b>	<b>Change to Visual Setting</b>
CR 215 EB	9.0	9.0	15.5	10.5	13	Backdropped	Substantially Developed	Relatively Unchanged
CR 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
US 50 EB	23.2	20.7	13.2	8.0	13	Skylined and Backdropped	Substantially Developed	Not Visually Discernible

Highway SVP	Total Transmission Line in FG of SVP <sup>a</sup> (miles)	Visible Transmission Line in FG of SVP (miles)	Total Transmission Line in MG of SVP <sup>a</sup> (miles)	Visible Transmission Line in MG of SVP (miles)	Duration of View of Transmission Line Seen from SVP <sup>b</sup> (minutes)	Visibility Conditions	Existing Setting Conditions <sup>c</sup>	Change to Visual Setting
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 Acronyms:* CR – County Road; EB – eastbound; FG – foreground; I – Interstate; MG – middleground; NB – northbound; PA – Proposed Action; SB – southbound; SR – State Route; SVP – sensitive viewing platform; US – United States; WB – westbound

*Table Notes:* <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 miles per hour 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 of the 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 miles per hour.

<sup>c</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscapes are considered to have landscapes where the built features that dominant the elements and patterns in the setting. 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 3-96. Proposed Action Impacts on Views from SR 156, SR 157, and SR 267**

Impact Considerations	SR 156 NB	SR 156 SB	SR 157 EB	SR 157 WB	SR 267 EB	SR 267 WB
Total Transmission Line in FG of SVP <sup>a</sup> (miles)	6.2	6.2	8.4	8.4	6.1	6.1
Visible Transmission Line in FG of SVP (miles)	6.2	4.6	8.4	5.0	6.1	-
Total Transmission Line in MG of SVP <sup>a</sup> (miles)	4.1	4.1	4.2	4.2	4.2	4.2
Visible Transmission Line in MG of SVP (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> (minutes)	6	<1	9	4	5	-
Acres of Ancillary Components in FG of SVP	-	-	16.9	16.9	-	-
Acres of Ancillary Components Visible in FG of SVP	-	-	16.9	16.9	-	-
Miles of Distribution Line in FG of SVP	-	-	-	-	-	-
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

<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>
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 Acronyms:* EB – eastbound; FG – foreground; MG – middleground; NB – northbound; PA – Proposed Action; SB – southbound; SR – State Route; SVP – sensitive viewing platform; WB – westbound

*Table Notes:* <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 miles per hour used to calculate duration is based on the 2019 Nevada Speed Limit Map prepared by NDOT (NDOT 2019). If there are multiple speed limits within the visual resource analysis area, the lower of the speed limit was used.

<sup>c</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscape are considered to have landscapes where the built features that dominant the elements and patterns in the setting. 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 3-97. Proposed Action Impacts on Views from SR 265, SR 266, SR 267, and US 6**

<b>Impact Considerations</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>	<b>SR 160 NB</b>	<b>SR 160 SB</b>
Total Transmission Line in FG of SVP <sup>a</sup> (miles)	17.3	17.3	6.4	6.4	11.6	11.6	6.4	6.4
Miles of Transmission Line Visible in FG of SVP	17.3	15.2	6.3	6.3	11.6	11.6	6.0	3.2
Total Transmission Line in MG of SVP <sup>a</sup> (miles)	5.1	5.1	4.2	4.2	4.8	4.8	4.1	4.1
Miles of Transmission Line Visible in MG of SVP	2.4	2.3	2.1	2.1	4.2	4.8	2.8	0
Duration of View of Transmission Line Seen from SVP <sup>b</sup> (minutes)	19	17	5	2	13	8	4	<1
Acres of Ancillary GLWP Components in FG of SVP	109.1	109.1	-	-	109.1	109.1	-	-
Acres Visible of Ancillary GLWP Components in FG of SVP	109.1	0	-	-	109.1	109.1	-	-

<b>Impact Considerations</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>	<b>SR 160 NB</b>	<b>SR 160 SB</b>
Miles of Distribution Line in FG of SVP	0.5	0.5	-	-	0.5	0.5	-	-
Miles of Distribution Line Visible in FG of SVP	0.5	0	-	-	0.5	0.5	-	-
Visibility Conditions <sup>c</sup>	Backdropped/Skylined	Backdropped	Backdropped/Skylined	Skylined	Backdropped	Not Visible	Backdropped	Skylined
Existing Setting Conditions	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped	Undeveloped
Change to Visual Setting FG	Visually Prominent	Visually Prominent	Visually Prominent/Attract Attention	Visually Prominent/Attract Attention	Visually Dominant	No Change	Visually Prominent/Attract Attention	Visually Dominant
Change to Visual Setting MG	Visual Discernible/Would Not Attract Attention	Visual Discernible/Would Not Attract Attention	Not Visually Discernible	Not Visually Discernible	Not Visually Discernible	No Change	Visual Discernible/Would Not Attract Attention	No Change

*Table Acronyms:* EB – eastbound; FG = foreground; MG – middleground; NB – northbound; PA – Proposed Action; SB – southbound; SR – State Route; SVP – sensitive viewing platform; US – United States; WB – westbound

*Table Notes:* <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 miles per hour 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 of the 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 landscapes where the built features that dominant the elements and patterns in the setting. 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 3-98. 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> (miles)	-	-	201.3	201.3	32.0	32.0
Miles of Transmission Line Visible in FG of SVP	-	-	188.8	191.8	29.8	27.3
Total Transmission Line in MG of SVP <sup>a</sup> (miles)	3.2	3.2	35.0	35.0	24.8	24.8
Miles of Transmission Line Visible in MG of SVP	3.0	-	14.1	19.9	16.4	16.3
Duration of View of Transmission Line Seen from SVP <sup>b</sup> (minutes)	<1	-	192.0	192.0	17.0	15.0

<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>
Acres of Ancillary GLWP Components in FG of SVP	-	-	110.8	110.8	360.3	360.3
Acres Visible of Ancillary GLWP Components in FG of SVP	-	-	110.8	110.8	360.3	360.3
Miles of Distribution Line in FG of SVP	-	-	10.4	10.4	-	-
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 Acronyms:* EB – eastbound; FG – foreground; GLWP – Greenlink West Project; MG – middleground; NB – northbound; PA – Proposed Action; SB – southbound; SR – State Route; SVP – sensitive viewing platform; US – United States; WB – westbound

*Table Notes:* <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 miles per hour 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 of the speed limit was used. For US 95, a speed limit of 70 miles per hour 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 landscapes are considered to have landscapes where the built features that dominant the elements and patterns in the setting. 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.

### **SR 267**

SR 267 would be approximately 0.3 miles from the nearest portion of the 525-kV transmission line. No ancillary GLWP 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 4.5 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 3-97 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 from North Las Vegas to just north of Walker Lake. The 525-kV transmission line would cross the highway seven times, at approximately MM 93.1-CL, MM 44.2-NY, MM 76.0-NY, MM 85.0-NY, MM 96.4-NY, MM 20.0-ES, and MM 74.2-MI. 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 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 GLWP components from US 95 would be approximately 3 hours across approximately 215 miles of the highway in the visual resource analysis area. Refer to Table 3-98 for summary of the impacts on views from US 95 by the Proposed Action.

In addition to the crossings, for approximately 28.4 miles the GLWP 525-kV transmission line would run generally parallel to the highway within the immediate FG. The GLWP 525-kV transmission line 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 ancillary GLWP 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 near other high-voltage transmission lines and smaller distribution lines for approximately 56.7 miles in the FG but beyond the immediate FG. 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), 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) would be built, the new 106 acre facility 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 and may attract 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 MM 4.0-LY, the 345-kV Mira Loma transmission line at approximately MM 23.8-LY, the 345-kV Comstock Meadows #1 at approximately MM 24.3-LY, and the 345-kV Comstock Meadows #2 at approximately MM 24.4-LY. 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 a speed limit of 60 miles per hour, the duration of the view within the immediate FG at these crossings would be less than one minute. Refer to Table 3-98 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 that would be 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 the contrast in size and form as 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 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 within the FG would be visually discernable and begin to attract attention within the visual setting. 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 eight of the nine Community SVPs are summarized in Table 3-99. The community of Beatty, the remaining Community SVP, is discussed in more detail below.

#### ***Beatty***

The Proposed Action, at its nearest location, would be approximately 0.6 miles from the Beatty SVP. A total of approximately 9.5 miles (two percent) of the Proposed Action would be visible from this viewpoint and no ancillary GLWP components would be visible. Views of the Proposed Action would be predominantly backdropped against mountainous terrain and seen intermittently. There would be

approximately 6.1 miles of transmission line visible in the FG and approximately 3.4 miles of transmission line visible in the MG from Beatty SVP.

The Beatty SVP totals approximately 11,321.5 acres; the Proposed Action would be visible from approximately 17 percent of the SVP. Approximately 963.4 acres (nine percent) of the SVP would have views of the Proposed Action in the FG area and 928.7 acres (eight percent) would have views in the MG area. Within the FG of the Beatty 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 would not attract attention because it would not be readily discernible in the landscape from the MG of the Beatty SVP.

### **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 3-100 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 park area. 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 GLWP 525-kV transmission lines. Discussed in more detail below are the remaining six SDA SVPs: TUSK, Desert NWR, Big Dune SRMA, Mason Valley WMA, TNC 7J Ranch, and Walker Lake SRMA—where the Proposed Action would be visually prominent or dominate the setting.

#### ***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. Within the visual resource analysis area, the TUSK SVP totals approximately 22,716.2 acres of which the Proposed Action would be visible from approximately 22,697.2 (100 percent) of the SVP. Approximately 20,775.8 acres (92 percent) of the TUSK within the visual resource analysis area would have views of the Proposed Action in the FG and approximately 1,921.5 acres (9 percent) would have views in the MG from this SVP.

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 (16.9 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 (essentially south of the Las Vegas Paiute Snow Mountain Reservation) 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 elements that are common in the urbanized landscape. North of the Las Vegas Paiute Snow Mountain Reservation, the adjacent landscape 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***

From the Desert NWR Visitor Center viewpoint, there would be no components of the Proposed Action within the FG, however, 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 Desert NWR Visitor Center viewpoint because the open lattice design of the transmission line tower would blend with the background of the Spring Mountains.

Within the visual resource analysis area, the Desert NWR SVP totals approximately 99,076.4 acres of which the Proposed Action would be visible from approximately 80,016.2 acres (81 percent) of the SVP.

Approximately 26,619.3 (27 percent) acres of the Desert NWR within the visual resource analysis area would have views of the Proposed Action in the FG and approximately 53,396.9 acres (54 percent) would have views in the MG from this SVP. Additionally, approximately 49.6 miles of the Proposed Action would be visible within the FG of this SVP and approximately 24.3 miles would be visible in the MG of this SVP.

### ***Big Dune SRMA***

Approximately 7.9 miles of the Proposed Action would be visible in the FG from the Big Dune SRMA SVP and 3.9 miles in the MG. Additionally, the approximately 109-acre proposed AS-2 would be entirely visible in the FG of the SRMA. Within the visual resource analysis area, the Big Dune SRMA SVP totals approximately 9,615.7 acres of which the Proposed Action would be visible from approximately 9,358.9 (97 percent) of the SVP. Approximately 5,024.9 acres (52 percent) of the Big Dune SRMA within the visual resource analysis area would have views of the Proposed Action in the FG and approximately 4,334.0 acres (45 percent) would have views in the MG from this SVP. In the FG of the Big Dune SRMA, the Proposed Action would begin to attract attention within the visual setting because of the introduction of the size, scale, forms, lines, and textures of the AS-2 and would create discernible contrast that is not common in the landscape. The Proposed Action would be discernible by the casual observer but would not attract attention in the MG of the Big Dune SRMA because of the size and scale of the AS-2 in the generally expansive landscape but would be backdropped by the Yucca and Skull mountains.

### ***Mason Valley WMA***

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 from the Mason Valley WMA SVP and 7.1 miles in the MG. Additionally, approximately 233.8 acres of the 360-acre proposed Fort Churchill Substation (65 percent) would be visible in the FG of the WMA and 126.5 acres (35 percent) would be visible in the MG. Within the visual resource analysis area, the Mason Valley WMA SVP totals approximately 15,263.3 acres of which the Proposed Action would be visible from the entire Mason Valley WMA. Approximately 11,530.1 acres (76 percent) of the WMA within the visual resource analysis area would have views of the Proposed Action in the FG of the SVP and 3,733.2 acres (24 percent) in the MG. 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 what is 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.

### ***TNC 7J Ranch***

Approximately 9.5 miles of the Proposed Action would be visible from the TNC 7J Ranch Overlook and Ponds viewpoints; no ancillary GLWP components would be visible from the Ranch. Approximately 3.1

miles of the Proposed Action would be visible within the FG of the TNC 7J Ranch Overlook viewpoint. The Proposed Action would not be visible in the MG from the TNC 7J Ranch Overlook. Within the visual resource analysis area, the TNC 7J Ranch SVP totals approximately 1,094.0 acres of which the Proposed Action would be visible from approximately 922.1 acres (84 percent of the TNC 7J Ranch, in the FG of this SVP. The TNC 7J Ranch SVP is not located in the MG of this SVP. Additionally, approximately 6.7 miles of the Proposed Action would be visible within the FG of this SVP and approximately 3.4 miles would be visible in the MG.

From the Ranch Ponds viewpoint, approximately 3.9 miles of the Proposed Action within the FG of this viewpoint would be visible and 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 TNC 7J Ranch Overlook and Ponds viewpoints would attract attention, be visually prominent, and begin to dominate the visual setting. The visual setting would appear to be 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. Refer to Appendix P for photorealistic simulations of the Proposed Action from the TNC 7J Ranch Overlook and Ponds viewpoints.

### ***Walker Lake SRMA***

No ancillary GLWP components would be visible from this Walker Lake SRMA. From the Sand Dune Point Day Use Area viewpoint, approximately 5.3 miles of the Proposed Action within the FG of this viewpoint would be visible and 4.2 miles within the MG of this viewpoint would be visible. Within the visual resource analysis area, the Walker Lake SRMA SVP totals approximately 49,806.5 acres of which the Proposed Action would be visible from approximately 42,332.2 acres (85 percent) of the SVP. Approximately 35,468.0 (71 percent) acres of the Walker Lake SRMA within the visual resource analysis area would have views of the Proposed Action in the FG and approximately 6,865.1 acres (14 percent) would have views in the MG from this SVP. Additionally, approximately 28.0 miles of the Proposed Action would be visible within the FG of this SVP and approximately 2.8 miles would be visible in the MG.

Views of the 525-kV transmission line visible in the FG from the Sand Dune Point Day Use Area would attract attention and be visually prominent, more so 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 mountains. The Proposed Action would not be visually discernible by the casual observer in the MG of Sand Dune Point Day Use Area viewpoint because the open lattice design of the transmission line structures would blend with the background of the Gillis Range.

**Effects on Views From Sensitive Viewing Platforms – National Historic Trails.** Impacts to all three NHT SVPs are discussed in detail for each NHT below and summarized in Table 3-101.

### ***Old Spanish NHT***

The 525-kV transmission line would be approximately three miles from the nearest portion of the Old Spanish NHT. No ancillary GLWP components 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 the city of North Las Vegas.

### **California NHT**

Each of the three 345-kV transmission lines would intersect 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 would 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 and the scale of the landforms in the setting are more dominant than the proposed 345-kV transmission lines would be. In the MG, views of the GLWP components would be more intermittent but otherwise similar.

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 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 travelling 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 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.

**Table 3-99. Proposed Action Impacts on Views from Sensitive Viewing Platforms – Communities**

<b>Community SVP</b>	<b>Percent of SVP with Views in FG</b>	<b>Transmission Line Visible in FG (miles)</b>	<b>Percent of SVP with Views in MG</b>	<b>Transmission Line Visible in MG (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 Acronyms:* EB – eastbound; FG – foreground; MG – middleground; NB – northbound; PA – Proposed Action; SB – southbound; SVP – sensitive viewing platform; WB – westbound

*Table Notes:* <sup>a</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscape are considered to have landscapes where the built features that dominant the elements and patterns in the setting. 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 3-100. Proposed Action Impacts on Views from Sensitive Viewing Platforms – Special Designation Areas**

<b>SDA SVP</b>	<b>Percent of SVP with Views in FG</b>	<b>Transmission Line Visible in FG (miles)</b>	<b>Percent of SVP with Views in MG</b>	<b>Transmission Line Visible in MG (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	5.4	-	11.5	Backdropped	Substantially Developed	Noticeably Altered
Fort Churchill State Historic Park	11	2.7	21	1.1	Backdropped	Undeveloped	Relatively Unchanged
Gabbs Valley Range WSA	-	-	1	4.7	Backdropped	Partially Developed	Relatively Unchanged
Ice Age Fossils State Park	99	6.8	-	4	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

SDA SVP	Percent of SVP with Views in FG	Transmission Line Visible in FG (miles)	Percent of SVP with Views in MG	Transmission Line Visible in MG (miles)	Visibility Conditions	Setting Conditions <sup>a</sup>	Change in Visual Setting
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 Acronyms:* FG – foreground; MG – middleground; NCA – National Conservation Area; NRA – National Recreation Area; SDA – Special Designation Area; SRMA – Special Recreation Management SVP –sensitive viewing platform; WSA –wilderness study area

*Table Notes:* <sup>a</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscape are considered to have landscapes where the built features that dominant the elements and patterns in the setting. 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 3-101. Proposed Action Impacts on Views from California, Old Spanish, and Pony Express National Historic Trails**

NHT SVP	Transmission Line in FG of SVP (miles)	Visible Transmission Line in FG of SVP (miles)	Transmission Line in MG of SVP (miles)	Visible Transmission Line in MG of SVP (miles)	Duration of View of Transmission Line Seen from SVP (hours) <sup>a</sup>	Visibility Conditions	Existing Setting Conditions <sup>c</sup>	Change to Visual Setting
OLSP NHT EB	0.3	0.3	12.5	8.5	2.1	Backdropped	Substantially Developed	Relatively Unchanged
OLSP NHT WB	0.3	-	12.5	0.1	2.1	Backdropped	Substantially Developed	Relatively Unchanged
CA NHT EB <sup>b</sup>	77.0	68.3	17.3	10.6	19.8	Backdropped	Partially Developed	Relatively Unchanged
CA NHT WB <sup>b</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	Backdropped	Partially Developed	Relatively Unchanged

*Table Acronyms:* CA – California National Historic Trail; EB – eastbound; 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 Notes:* <sup>a</sup>The duration of travel is based on a rate of travel estimated at three miles per hour.

<sup>b</sup>The 370.8-acre Fort Churchill Substation expansion area would be within the MG and visible from the CA NHT in the EB and WB directions.

<sup>c</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscape are considered to have landscapes where the built features that dominant the elements and patterns in the setting. 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.

### ***Pony Express NHT***

The 345-kV transmission lines would intersect portions of the Pony Express NHT. No ancillary GLWP 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 to be noticeably altered because the GLWP 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 travelling 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.

### **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 3-102. Photorealistic simulations of views of the Proposed Action from Las Vegas and Walker River Paiute reservations 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 Paiute 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 Paiute Reservation.

### **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 in Appendix C (refer to VIS-1 to VIS-22).

#### **3.15.4.5 Proposed Action Conformance with BLM VRM Objectives**

The BLM has developed measurable standards for managing the visual resources of its administered lands. In its planning process, the BLM weighs visual and competing resource values to allocate the VRM classes with associated management class objectives for a given area's visual setting, as part of the VRM process. The three DOs RMPs identify approximately 5,532.2 acres (less than 1 percent of the visual resource analysis area) to be managed as VRM Class I, 58,640.7 acres (2 percent of the visual resource analysis area) to be managed as VRM Class II, 715,622.5 acres (26 percent of the visual resource analysis area) to be managed as VRM Class III, and 1,136,753.6 acres (41 percent of the visual resource analysis area) to be managed as VRM Class IV. The remainder of the visual resource analysis area is unclassified for VRM (837,996.7 acres or 30 percent).

Within the permanent ROW area for the Proposed Action, approximately 12.4 acres (less than 1 percent) occur on lands managed as VRM Class II, 3,754.7 acres (26 percent) occur on VRM Class III, and 5,269.4 acres (37 percent) occur on VRM Class IV (refer to Figure 3-47 and Figure 3-48). The remainder of the permanent disturbance associated with the Proposed Action (5,137.1 acres or 36 percent) occurs on lands that are unclassified for VRM. Based on the contrast rating evaluation (BLM 1986b) conducted for the Proposed Action, the magnitude of impact determined whether or not the Proposed Action would be in conformance with the established objectives (Table 3-103). The contrast rating and environmental



factors worksheets for each KOP assessing BLM-administered lands are included in Appendix P, along with the related photorealistic simulations.

Based on the results of the Contrast Rating Form evaluation per BLM Manual 8431 (BLM 1986b), the Proposed Action would create moderate contrast in VRM Class II areas and 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 which the Proposed Action is viewed from the KOP (Table 3-104). 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, SR 373 KOPs, and within the FG of US 95 KOP at the location of AS-2 and therefore, would not be in conformance with the VRM Class III management objectives. Additionally, the Proposed Action would begin to attract attention and create a moderate contrast within the FG area of the Walker Lake SRMA Sand Dune Point Day Use Area KOP and therefore, would not be in conformance with the VRM Class II management objectives. Because the Proposed Action would not meet the VRM Class II and Class III management objectives as allocated in the CCDO RMP and SNDO RMP, respectively, land-use plan amendments would be required. The Proposed Action would meet VRM Class III and IV management objectives from all other KOPs. Three KOPs (I-580, SR 426, and SR 431) 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, nine KOPs (Fort Churchill State Historic Park, SR 360, SR 361, US 95A, Mina, Luning, Yerington, Gabbs Valley WSA, and Buckland Station) would have views of the Proposed Action but the portions that occur on BLM-administered lands would not be visible or are unclassified for VRM and as such conformance with VRM objectives is either not relevant or was not made.

**Table 3-102. Proposed Action Impacts on Views from Las Vegas Paiute, Moapa Paiute, Timbisha Shoshone, and Walker River Paiute Tribes**

Tribe SVP	Percent of SVP with Views in FG	Transmission Line Visible in FG (miles)	Percent of SVP with Views in MG	Transmission Line Visible in MG (miles)	Visibility Conditions	Setting Conditions <sup>a</sup>	Change in Visual Setting
Las Vegas Paiute	100	11.3	-	4.0	Predominantly Skylined	Partially Developed	Relatively Unchanged
Moapa Paiute	-	-	<1	0.9	Backdropped	Substantially Developed	Relatively Unchanged
Timbisha Shoshone	100	9.5	-	4.1	Backdropped	Partially Developed	Noticeably Altered
Walker River Paiute	10	32.7	5	13.0	Backdropped	Partially Developed	Relatively Unchanged

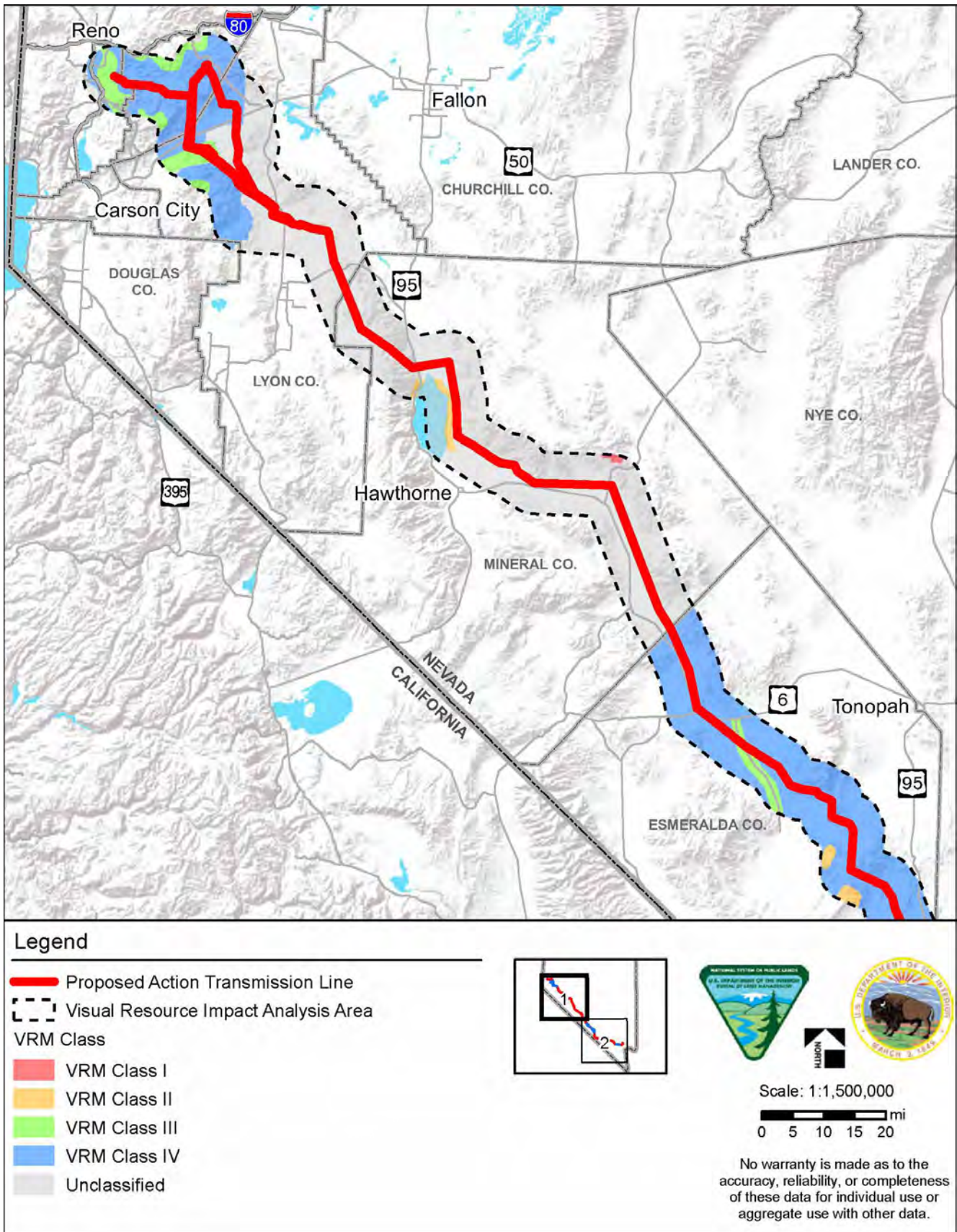
*Table Acronyms:* FG – foreground; MG – middleground; SVP – sensitive viewing platform

<sup>a</sup>Existing setting conditions categorizes the landscape as developed, substantially developed, partially developed, or undeveloped. Developed landscape are considered to have landscapes where the built features that dominant the elements and patterns in the setting. 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.

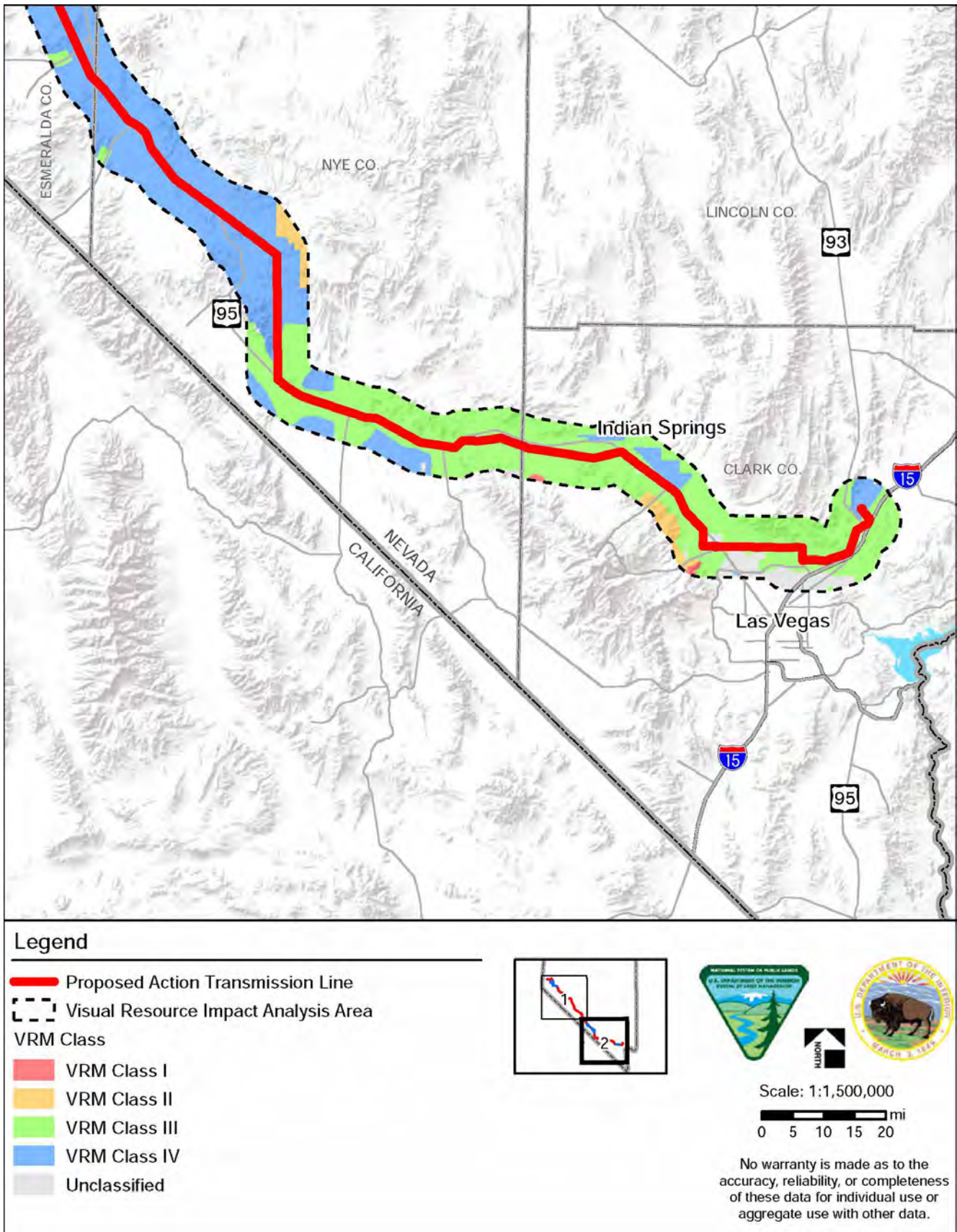
**Table 3-103. BLM Visual Resource Management Class Objectives**

VRM Class	Management Objective
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 Acronyms:* BLM – Bureau of Land Management; VRM – Visual Resource Management



**Figure 3-47. VRM Classifications within the Visual Resource Analysis Area (1 of 2)**



**Figure 3-48. VRM Classifications within the Visual Resource Analysis Area (2 of 2)**

**Table 3-104. BLM Conformance by KOP for the Proposed Action**

KOP	VRM Class	Visible Permanent Disturbance (acres)	Contrast Rating	Conformance
CR 215	III	256.1	Weak	Meets
I-15	III	283.6	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	108.0	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	502.4	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	155.5	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	402.0	Strong	Meets
US 93	III	182.1	None	Meets
US 93	IV	25.9	None	Meets
US 95	III	1,411.7	Strong	Does not Meet
US 95	III	888.9	Weak to Moderate	Meets
US 95	IV	1,714.1	Weak to Moderate	Meets
Ice Age Fossils State Park Visitor Center	III	148.2	Weak	Meets
Desert NWR Visitor Center	III	189.1	None	Meets
Walker Lake SRMA/Sand Dune Point Day Use Area	II	9.3	Moderate	Does Not Meet
California NHT	III	72.7	Weak	Meets
California NHT	IV	108.8	Weak	Meets
Old Spanish NHT	III	130.8	None <sup>b</sup>	Meets
Pony Express NHT	III	72.7	Weak	Meets
Pony Express NHT	IV	108.2	Weak	Meets
<b>Total Acres of Nonconformance</b>	<b>II</b>	<b>9.3</b>	<b>N/A</b>	<b>N/A</b>
<b>Total Acres of Nonconformance</b>	<b>III</b>	<b>1,541.9</b>	<b>N/A</b>	<b>N/A</b>

*Table Acronyms:* BLM – Bureau of Land Management; CR – County Road; I – Interstate; KOP – key observation point; N/A – not applicable; NHT – National Historic Trail; NWR – National Wildlife Refuge; SRMA – Special Recreation Management Area; US – United States; VRM = Visual Resource Management

*Table Notes:* <sup>a</sup>Acreages of VRM III nonconformance associated with SR 156, SR 160, and SR 373 are also accounted 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.

<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.

### 3.15.4.6 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 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 VAU (SNDO-017). 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. There would be no apparent change in scenic quality with either transmission line alternative. Within the Losee Transmission Alternative A permanent ROW area, approximately 97.8 acres of Class C landscapes would be impacted, compared to 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 in the FG and MG of the 525-kV transmission lines.

**Effects on Views From Sensitive Viewing Platforms – Highways.** Under the Losee Transmission Alternative A, highways SVPs that could have views of the alternative include I-15 and CR 215. There would be 23.2 miles of I-15 within the visual resource analysis area and 17.3 miles of CR 215. From I-15 traveling NB and SB and CR 215 traveling EB and WB, motorists would see approximately 3.6 miles and 3.3 miles, respectively, of the Losee Transmission Alternative A, compared to 3.1 miles and 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 8.3 miles or for approximately eight minutes. From CR 215 traveling EB and WB, motorists would see approximately 4.0 miles in both travel directions of the Losee Transmission Alternative A, compared to 4.1 miles in both travel directions for the Proposed Action. Motorists traveling along CR 215 would have views of the Losee Transmission Alternative A for a total (combined travel direction) of 10.3 miles or for approximately 10 minutes. When compared to the Proposed Action, the difference in the duration of views of the Losee Transmission Alternative A from I-15 and CR -215 would not be noticeable. More of the Losee Transmission Alternative A would be seen in the FG of the two highways than the Proposed Action. Views of the Losee Transmission Alternative A as well as the Proposed Action would be intermittent because of the urbanized setting and would not attract attention from motorists traveling along I-15 and CR 215.

#### **Effect on Views from Sensitive Viewing Platforms – Special Designation Areas.**

***Ice Age Fossils State Park.*** The Losee Transmission Alternative A and the Proposed Action would be located in the MG only, more than three miles from the Ice Age Fossils State Park. The Losee Transmission Alternative A would be visible from approximately 254.6 acres, or 79 percent, of the Ice Age Fossils State Park, as compared to the Proposed Action, which would be visible from approximately 154.4 acres, or 48 percent, of the state park. Approximately 2.8 miles of the Losee Transmission Alternative A would be seen by park visitors and 0.9 miles of the Proposed Action would be seen. The Losee Transmission Alternative would be recognizable but would not attract the attention of the casual observer because of the distance to the 525-kV transmission line and the presence of other transmission lines in the state park's viewshed.

***TUSK.*** 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 1,384.0 acres, or 6 percent, of the TUSK in the FG and approximately 1,720.5 acre, or 8 percent, of the

TUSK in the MG. This is compared to the Proposed Action, which would be visible from approximately 1,022.8.0 acres, or 5 percent, of the TUSK in the FG and 1,939.9 acres, or 9 percent, of the TUSK in the MG. Approximately 3.8 miles of the Losee Transmission Alternative A would be seen by Monument visitors in the FG and 0.3 miles in the MG. Approximately, 1.1 miles of the Proposed Action would be seen by visitors in the FG and 3.0 miles in the MG would be seen. The Losee Transmission Alternative A would be recognizable but would not attract the attention of the casual observer because the distance to the 525-kv transmission line and the presence of other transmission lines and build 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 that would be visible from I-15, CR 215, Ice Age Fossils State Park, and TUSK are managed as VRM Class III. Losee Transmission Alternative A 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, the Losee Transmission Alternative A would be in conformance with the VRM Class III designated landscape.

#### **3.15.4.7 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 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 VAU (SNDO-017). 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. Because the landscape within the FG of the TUSK Transmission Alternative B would be altered with the introduction of the guyed lattice structures through the Las Vegas Valley VAU, the scenic quality rating would be reduced compared to the Proposed Action. There would be no apparent change in scenic quality with either transmission line alternative in the MG. Both the TUSK Transmission Alternative B and Proposed Action would permanent ROW area would impact approximately 37.1 acres of Class C landscapes.

**Effects on Views from Sensitive Viewing Platforms – Highways.** Under the TUSK Transmission Alternative B, highways SVPs that would have views of the alternative include US 95, SR 157, and CR 215. From US 95, SR 157, and CR 215, motorists would see approximately 1.5 miles of the TUSK Transmission Alternative B from each of the highways and the same number of miles of the Proposed Action. Motorists traveling along US 95 would have views of the TUSK Transmission Alternative B for a total (combined travel direction) of 9.0 miles or for approximately 8 minutes. On SR 157, the motorists traveling along this highway would have views of the TUSK Transmission Alternative B for a total of 3.6 miles or for approximately 3 minutes in the EB travel direction only. Motorists traveling along CR 215 would have MG views of the TUSK Transmission Alternative B for a total (combined travel direction) of 4.0 miles or for approximately 4 minutes.

Compared to the Proposed Action, the difference in the duration of views of the TUSK Transmission Alternative B from US 95, SR 157, and CR 215 would not be noticeable. Both the TUSK Transmission Alternative B and Proposed Action would be seen in the FG of the US 95 and SR 157, only in the MG of

CR 215, and only in the NB/EB direction along SR 157. Views of the TUSK Transmission Alternative B and the Proposed Action would be intermittent because of the urbanized setting and would not attract attention from motorists traveling along US 95, SR 157, and CR 215.

**Effect on Views from Sensitive Viewing Platforms – Special Designation Areas.** Under the TUSK Transmission Alternative B, 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 (Table 3-100). 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. Compared to the Proposed Action, 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 from the National Monument. 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.

#### **3.15.4.8 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.

**Landscape Character and Scenic Quality.** Beatty Transmission Alternative A and the Proposed Action would cross through Crater Flat (BMDO-124), 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, Yucca Mountain Foothills, Oasis Valley, and Sarcobatus Flat. Beatty Transmission Alternatives G and K would cross through 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 would be 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 be 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 through 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 282.5 acres of Class B landscapes for the Beatty Transmission Alternative A, 266.5 acres of Class B landscapes for Beatty Transmission Alternative C, 179.3 acres of Class B landscapes for Beatty Transmission Alternative G, and 263.1 acres of Class B landscapes for Beatty Transmission Alternative K, as compared to 290.0 acres of Class B landscapes for the Proposed Action that would be impacted within the permanent ROW area. Because the landscape within the FG of the transmission line 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 impacted. Under the Proposed Action, approximately 3 percent more Class B landscape would be impacted than Beatty Transmission Alternative A, 12 percent less than the Beatty Transmission Alternative C, 61 percent more than Beatty Transmission Alternative G, and 10 percent more than Beatty Transmission Alternative K. Additionally, there are approximately 123.7 acres of Class C landscapes that would be impacted within the permanent ROW area by the Beatty Transmission Alternative A, 85.6 acres of Class C landscapes by the Beatty Transmission Alternative C, 197.3 acres of Class C landscapes by the Beatty Transmission Alternative G, and 147.6 acres of Class C landscapes for the Beatty Transmission Alternative K, as compared to 114.3 acres of Class C landscapes for the Proposed Action. The Proposed Action would affect 8 percent less of the Class C landscape as compared to Beatty Transmission Alternative A, 34 percent more than the Beatty Transmission Alternative C, 42 percent less than the Beatty Transmission Alternative G, and 23 percent less than the Beatty Transmission Alternative K. The Beatty Transmission Alternatives A, C, G, and K 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 8.3 miles of the transmission line SB. Motorists would see approximately 4.6 miles of the Beatty Transmission Alternative A traveling NB and 8.6 miles of this alternative traveling SB. Motorists would see approximately 5.1 miles of the Beatty Transmission Alternative C traveling NB and 7.5 miles traveling SB. Motorists would see approximately 9.8 miles of the Beatty Transmission Alternative G traveling NB and 11.8 miles of this alternative traveling SB. Motorists would see approximately 6.7 miles of the Beatty Transmission Alternative K traveling NB and 12.3 miles of this alternative traveling SB.

Motorists traveling along US 95 would have views of the Proposed Action and Beatty Transmission Alternative A for a total (combined travel direction) of approximately 16.8 miles or for 14 minutes within the FG and approximately 2.3 miles or 2 minutes in the MG of the highway. Comparatively, motorists would have views of Beatty Transmission Alternative C for 10.6 miles (9 minutes) in the FG and 6.0 miles (5 minutes) in the MG; Beatty Alternative Transmission G for 26.5 miles (23 minutes) in the FG and 4.1 miles (4 minutes) in the MG; and Beatty Transmission Alternative K for 18.9 miles (16 minutes) in the FG and 7.0 miles (6 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 when compared to the Proposed Action. Compared to the Proposed Action, motorists would see nearly 50 percent more of Beatty Transmission Alternative K and more than double the amount of Beatty Transmission Alternative G in the NB direction and approximately 40 percent more in the SB direction. Under the Beatty Transmission Alternative G, and to a lesser extent Beatty Transmission Alternative K, the difference in the duration of views of the 525-kV transmission line from US 95 in the FG, when compared to the Proposed Action, would be notably longer. Whereas compared to the Proposed Action, Beatty Transmission Alternative C would be noticeably shorter.

**Effects on Views from Sensitive Viewing Platforms – Communities.** Approximately 971.3 acres or 9 percent would have views of the Beatty Transmission Alternative A within the FG and 766.5 acres or 7 percent within the MG of the Beatty SVP. Approximately 161.2 acres or one percent would have views of the Beatty Transmission Alternative C within the FG and 1,312.6 acres or 12 percent within the

MG of the Beatty SVP. Approximately 4,761.7 acres or 42 percent would have views of the Beatty Transmission Alternative G within the FG and 1,419.8 acres or 13 percent within the MG of the Beatty SVP. Approximately 2,377.7 acres or 21 percent would have views of the Beatty Transmission Alternative K within the FG and 1,930.1 acres or 17 percent within the MG of the Beatty SVP. This is compared to the Proposed Action where approximately 940.8 acres or 8 percent would have views of the transmission line within the FG and 784.8 acres or 7 percent within the MG of the Beatty SVP.

The portions of the Beatty Transmission Alternative A and the Proposed Action visible within the FG of the Beatty 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 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.

### **Beatty Transmission Line Route Group Conformance with BLM VRM Objectives**

The BLM-administered lands associated with the Beatty Transmission Alternatives A, C, G, and K that would be visible from this portion of the US 95 are managed as VRM Class IV. Beatty Transmission Alternatives A, C, G, and K 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, and K 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.

#### **3.15.4.9 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 the 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 alternative.

**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 transmission line 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 low-profile buildings clustered round the US 95-SR 267 junction. The more varied terrain within the Sarcobatus Hills VAU would help to reduce the magnitude of the visual change in the characteristic landscape. 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 395.2 acres of Class C landscapes for Scotty's Junction Transmission Alternative A and 361.7 acres of Class C landscapes for Scotty's Junction Transmission Alternative B, compared to 375.1 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 Proposed Action would affect five percent less of the Class C landscape as compared to Scotty's Junction Transmission Alternative A and four percent more than Scotty's Junction Transmission Alternative B. The impact to scenic quality would be similar in the Sarcobatus Hills VAU between the Scotty's Junction Transmission Alternative 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, which would be essentially the same as the Proposed Action (approximately 15.1 miles). Motorists would see approximately 14.8 miles of the Scotty's Junction Transmission Alternative B when traveling NB or SB, which would be similar to 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 35.6 miles or for approximately 39 minutes within the FG and approximately 3.0 miles or 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 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 the Scotty's Junction Transmission Alternative B when traveling EB and 4.8 miles traveling WB as compared to the Proposed Action (approximately 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 9.2 miles or for approximately 10 minutes and MG views in the NB travel direction of 1.8 miles or for approximately 2 minutes, as compared to the Proposed Action of 5.7 miles and 6 minutes in the FG and 2.1 miles and 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 3.1 miles or for approximately 3 minutes and MG views in the NB travel direction for 2.2 miles or for approximately 2 minutes, similar to the Proposed Action of 2.9 miles and 3 minutes in the FG and 2.0 miles and 2 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 – Native American Tribes.** Under the Scotty's Junction Transmission Alternatives A and B, the Timbisha Shoshone Reservation would be the only community that would have views of the alternatives in this portion of the visual resource analysis area. The Timbisha Shoshone community is located entirely within the FG of all three alternatives and, as such, would have no MG views of Scotty's Junction Transmission Alternatives A and B, as well as 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 community would see approximately 10.4 miles of Scotty's Junction Transmission Alternative A in the FG and 2.6 miles of the alternative in the MG. Approximately 9.2 miles in the FG and 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 2.4 miles in the MG. Because the majority of views of Scotty's Junction Transmission Alternatives A and B as well as 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 this portion 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.

#### **3.15.4.10 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 the 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 Mason Valley WMA Transmission Alternative A and the Proposed Action would cross through the Mason Valley (CCDO-037) and Parker Butte (CCDO-041) VAUs. Both of the transmission line alternatives, along with the 371-acre Fort Churchill Substation, 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 and size of the substation. 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 WMA Valley Transmission Alternative A and the Proposed Action would create a change in the landscape that would begin to attract attention in the MG. 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 118.4 acres of Class C landscapes for the Proposed Action. 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 and Parker Butte VAUs. The Mason Valley WMA Transmission Alternative A would affect 30 percent more of the Class C landscape as compared to the Proposed Action.

**Effects on Views from Sensitive Viewing Platforms – Highways.** The US 95A SVP would be the only highway SVP that would have views of Mason Valley WMA Alternative A and the comparable segment of 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 slightly 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) for 5.8 miles along the highway or for approximately 6 minutes within the FG and approximately 4.1 miles or 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 change from the existing setting because of the form and scale of the guyed lattice structures and presence of other transmission lines and development, such as the existing power generating station in close proximity to US 95A.

**Effects on Views from Sensitive Viewing Platforms – Special Designation Areas.** Within the visual resource analysis area, approximately, 14,700.8 acres (84 percent) of the Mason Valley WMA would have views of the Mason Valley Transmission Alternative A. Approximately 9,916.1 acres (56 percent) of the Mason Valley WMA would have views of the Mason Valley WMA Transmission Alternative A within the FG and 4,748.7 acres (27 percent) within the MG of the WMA. Similarly, the Proposed Action would be seen from approximately 15,045.0 acres (86 percent) of the Mason Valley WMA, of which 10,778.8 acres (61 percent) within the FG and 4,266.2 acres (24 percent) would have views within the MG of the WMA. 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.

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 the transmission structures.

**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 (approximately 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 6.6 miles along the NHT or for approximately 2 hours 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.

**Effects on Views from Sensitive Viewing Platforms – Native America Tribes.** Under the Mason Valley WMA Transmission Alternative A, the Walker River Paiute Indian Reservation would have views of the Mason Valley WMA Transmission Alternative A and the Proposed Action in this portion of the visual resource analysis area. Approximately one percent of the Reservation would have views of the Mason

Valley WMA Transmission Alternative A and the Proposed Action within both the FG and MG. 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 would see approximately 6.3 miles of Mason Valley WMA Alternative A in the FG and 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 as well as the Proposed Action would be from the FG of the Walker River Paiute Indian Reservation SVP, the effects on views would be a recognizable change from the existing setting where the transmission lines would be visually subordinate to other 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.

### **3.15.4.11 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 the 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 Alternative A and the comparable segment of the Proposed Action would cross through the Adrian Valley (CCDO-039), Mill Canyon (CCDO-027), Table Mountain (CCDO-024), and Churchill Butte (CCDO-022) VAUs. Carson River Transmission Alternative C and the comparable segment of the Proposed Action would also cross the Carson River (CCDO-023) and Carson Plains (CCDO-021) VAUs. Each of the Carson River transmission alternatives would create a change that would begin to attract attention through Adrian Valley, Mill Canyon, Churchill Butte, and Carson River VAUs, as applicable. In the Table Mountain VAU, the Carson River Transmission Alternatives A and C and the Proposed Action would result in similar changes and attract attention because the 525-kV transmission line would introduce built features not common in the landscape that would begin to dominate the setting. In the Carson Plains VAU, Carson River Alternative C and the comparable segment of the Proposed Action would create a subtle change and would not attract attention.

The Carson River Transmission Alternative A permanent ROW would impact 163.3 acres of Class B landscapes and 185.3 acres of Class C landscapes. The comparable segment of the Proposed Action would impact approximately 28.2 acres of Class A landscapes, 82.9 acres of Class B landscapes, and 134.9 acres of Class C landscapes. The Carson River Transmission Alternative A would impact approximately 42 percent more land than the comparable segment of the Proposed Action. However, the Carson River Transmission Alternative A would not impact Class A landscapes, whereas the comparable segment of the Proposed Action would cross Class A landscapes. Class A landscapes represent approximately four percent of the landscapes within the visual resource analysis area and are the landscapes with the highest scenic value.

The Carson River Transmission Alternative C permanent ROW area would impact approximately 28.2 acres of Class A landscapes, 539.5 acres of Class B landscapes, and 1,365.6 acres of Class C landscapes. The comparable segment of the Proposed Action would impact approximately 28.2 acres of Class A landscapes, 557.1 acres of Class B landscapes, and 1,154.7 acres of Class C landscapes. The Carson River Transmission Alternative C would impact approximately 11 percent more land than the comparable segment of the Proposed Action and both would impact the same amount of Class A landscapes.

The scenic quality of the landscape within the FG of the Carson River Transmission Alternatives A and C would be noticeably altered through the Adrian Valley, Mill Canyon, Table Mountain, and Churchill Butte VAUs and in the MG, the magnitude of the impact would be negligible. Carson River Transmission Alternative C would also noticeably alter the scenic quality of the Carson River VAU in the FG and subtly alter the scenic quality of the Carson River VAU in the MG and the Carson Plains VAU in the FG and MG.

**Effects on Views from Sensitive Viewing Platforms – Highways.** Under the Carson River Transmission Alternative A and C, highways SVPs that would have views of the alternative include US 50 and US 95A. From US 50, motorists would see approximately 2.7 miles of the Carson River Transmission Alternative A traveling EB and 4.4 miles traveling WB. Motorists on US 50 would see approximately 1.4 miles of the comparable segment of the Proposed Action when traveling EB and would not see the proposed 345-kV 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) for approximately 6.0 miles along the highway or for 6 minutes within the FG and approximately 5.7 miles or 5 minutes in the MG. The comparable segment of the Proposed Action would be seen only in the MG by motorists traveling along US 50 for a total (combined travel direction) of approximately 3.6 miles or 3 minutes.

From US 95A, motorists would see approximately 3.5 miles of the Carson River Transmission Alternative A traveling NB and approximately 3.3 miles of this alternative traveling SB. Motorists on US 95A would see the comparable segment of the Proposed Action for approximately 5.0 miles traveling NB and 3.2 miles traveling SB. Traveling along US 95A, motorists would have views of the Carson River Transmission Alternative A for a total (combined travel direction) of approximately 6.1 miles along the highway or for 6 minutes only within the MG. Similarly, the comparable segment of the Proposed Action would be seen in the MG only by motorists for approximately 6.3 miles or 6 minutes while traveling along US 95A.

Under the Carson River Transmission Alternative C, motorists on US 50 would see approximately 8.1 miles of this transmission alternative traveling EB and 13.7 miles of this alternative traveling WB. Motorists on US 50 would see approximately 14.2 miles of the comparable segment of the Proposed Action when traveling EB and 12.5 miles traveling WB. Motorists traveling along US 50 would have views of the Carson River Transmission Alternative C for a total (combined travel direction) of approximately 22.3 miles along the highway or for 21 minutes within the FG and approximately 6.7 miles or 6 minutes in the MG. The comparable segment of the Proposed Action would be seen for a total (combined travel direction) of approximately 21.9 miles along the highway or for 20 minutes within the FG and approximately 6.0 miles or 6 minutes in the MG.

Under the Carson River Transmission Alternative C, from US 95A, motorists would see approximately 24.7 miles of the Carson River Transmission Alternative C traveling NB and approximately 23.6 miles of this alternative traveling SB. Motorists on US 95A would see the comparable segment of the Proposed

Action for approximately 37.0 miles traveling NB and 30.9 miles traveling SB. Motorists traveling along US 95A would have views of the Carson River Transmission Alternative C for a total (combined travel direction) for approximately 11.0 miles along the highway or for 10 minutes within the FG and approximately 13.7 miles or 13 minutes in the MG. The comparable segment of the Proposed Action would be seen only in the MG by motorists traveling along US 95A for a total (combined travel direction) of approximately 17.0 miles or 16 minutes within the FG and approximately 9.8 miles or 9 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 and Stagecoach. Approximately 45.4 acres, or less than 1 percent, would have views of the Carson River Transmission Alternative A within the FG and 375.15 acres or 2 percent within the MG of the Dayton SVP. This alternative would not be visually discernible and would not attract the attention of the casual observer. Approximately 2,124.3 acres or 40 percent would have views of the Carson River Transmission Alternative A within the FG and 2,947.8 acres or 55 percent within the MG of the Stagecoach SVP. This is compared to 120.3 acres or two percent that would have views of the comparable segment of the Proposed Action within the FG and 27.2 acres or one percent within the MG of the Stagecoach SVP. Carson River Transmission Alternative A would be visually discernible and would begin to attract the attention of the casual observer. The effects on views from Dayton and Stagecoach from the Carson River Transmission Alternative A would be greater than the comparable segment of the Proposed Action.

Approximately 2,267.2 acres, or 10 percent, would have views of the Carson River Transmission Alternative C within the FG and 4,839.9 acres or 22 percent within the MG of the Dayton SVP. This alternative would be noticeable but would not attract the attention of the casual observer. The comparable segment of the Proposed Action for either alternative would not be seen from the Dayton SVP.

Approximately 3,683.0 acres or 69 percent would have views of the Carson River Transmission Alternative C within the FG and 1,479.5 acres or 28 percent within the MG of the Stagecoach SVP. This is compared to 4,062.5 acres or 76 percent would have views of the comparable segment of the Proposed Action within the FG and 1,278.1 acres or 24 percent within the MG of the Stagecoach SVP. Carson River Transmission Alternative C would be visually discernible and would begin to attract the attention of the casual observer. The effects on views from Dayton and Stagecoach from the Carson River Transmission Alternative C would be overall similar but with less impacts in the FG than the comparable segment of the Proposed Action.

**Effects on Views from Sensitive Viewing Platforms – Special Designation Areas.** From the Fort Churchill State Historic Park Visitor Center viewpoint, Carson River Transmission Alternative A would not be visible but approximately 1.2 miles of the comparable segment of the Proposed Action would be visible in the MG only.

Approximately 278.2 acres, or five percent, of the Fort Churchill State Historic Park would have views of the Carson River Transmission Alternative A within the MG of the state park. There would be no views of this alternative in the FG. Approximately 3.0 miles of the Carson River Transmission Alternative A would be visible from the MG of the Fort Churchill State Historic Park. The comparable segment of the Proposed Action would be seen from approximately 601.7 acres, or 11 percent, within the FG and 925.4 acres or 17 percent within the MG of this SDA. Approximately 2.7 miles of the



comparable segment of the Proposed Action would be visible from the FG and 0.7 miles from the MG of the state park. The Carson River Transmission Alternative A would not attract attention when viewed from Fort Churchill State Historic Park because of the distance (approximately 4.5 miles from the state park) and the dense Carson River riparian corridor and varied terrain found between the state park and the 345-kV transmission line. The comparable segment of the Proposed Action would be visible in the FG as well as the MG of the Fort Churchill State Historic Park and would begin to attract attention.

From the Fort Churchill State Historic Park Visitor Center, approximately 1.7 miles of the Carson River Transmission Alternative C would be visible in the FG and 0.5 miles in the MG, compared to approximately 1.2 miles of the comparable segment of the Proposed Action in the MG only.

Under Carson River Transmission Alternative C, approximately 1,182.1 acres, or 22 percent, of the Fort Churchill State Historic Park would have views of the alternative within the FG and 1,186.5 acres, or 22 percent, in the MG from the state park. Approximately 4.9 miles of the Carson River Transmission Alternative C would be visible from the FG of the Fort Churchill State Historic Park. The comparable segment of the Proposed Action would be seen from approximately 603.4 acres, or 11 percent, within the FG and 1,118.0 acres or 21 percent within the MG of this SDA. Approximately 2.7 miles of the comparable segment of the Proposed Action would be visible from the FG and 1.1 miles from the MG of the state park. The Carson River Transmission Alternative C would attract attention when viewed from Fort Churchill State Historic Park because of the river crossing directly adjacent to the state park and the addition of a 345-kV transmission line where one does not currently exist. The comparable segment of the Proposed Action would be visible in the FG as well as the MG of the Fort Churchill State Historic Park and would begin to attract attention.

**Effects on Views from Sensitive Viewing Platforms – National Historic Trails.** Under the Carson River Transmission Alternative A, NHT SVPs that would have views of the alternative include the California NHT and the Pony Express NHT. From the California NHT, the casual observer would see approximately 10.5 miles of the Carson River Transmission Alternative A traveling NB and 12.1 miles traveling SB, which would be more than the comparable segment of the Proposed Action (approximately 9.8 miles traveling NB and 6.8 miles traveling SB). Recreationists walking along the California NHT would have views of the Carson River Transmission Alternative A for a total (combined travel direction) of 34.1 miles along the NHT or for approximately 11 hours within the FG and 5.7 miles or 2 hours within the MG of the NHT. The comparable segment of the Proposed Action would be viewed for a shorter duration of 23.0 miles along the NHT or for approximately 8 hours within the FG and 6.5 miles or 2 hours within the MG of the NHT. The presence of the Carson River Transmission Alternative A and comparable segment of the Proposed Action within the FG and MG views from the California NHT would be visually discernible and may attract attention from the existing setting. Almost all of the Carson River Transmission Alternative A would be further away from the Walker River Segment of the California NHT than the comparable segment of the Proposed Action, and closer to the US 50 Segment.

From the Pony Express NHT, the casual observer would see approximately 7.0 miles of the Carson River Transmission Alternative A traveling EB and 8.4 miles traveling WB, which would be more than the comparable segment of the Proposed Action (approximately 5.3 miles traveling EB and 4.2 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 13.1 miles along the NHT or for approximately 4 hours within the FG and 2.2 miles or less than an hour within the MG of the NHT. The comparable segment of the Proposed Action would be viewed for a shorter duration of 10.1 miles

along the NHT or for approximately 3 hours within the FG and 1.8 miles or less than an hour within the MG of the NHT. The presence of the Carson River Transmission Alternative A within the FG and MG views from the Pony Express NHT would be visually discernible and may attract attention from the existing setting. The comparable segment of the Proposed Action would be seen less from the Pony Express NHT and for a shorter duration along the NHT than the Carson River Transmission Alternative A.

Under the Carson River Transmission Alternative C, NHT SVPs that would have views of the alternative include the California NHT and the Pony Express NHT. Under the Carson River Transmission Alternative C, from the California NHT, the casual observer would see approximately 56.0 miles of the alternative traveling NB and 60.3 miles traveling SB, which would be less than the comparable segment of the Proposed Action (approximately 63.8 miles traveling NB and 61.7 miles traveling SB). Recreationists walking along the California NHT would have views of the Carson River Transmission Alternative C for a total (combined travel direction) of 82.0 miles along the NHT or for approximately 27 hours within the FG and 14.6 miles or 5 hours within the MG of the NHT. The comparable segment of the Proposed Action would be viewed for a slightly shorter duration in the FG (79.4 miles along the NHT or for approximately 26 hours) and longer in the MG (17.6 miles or 6 hours) of the NHT. The presence of the Carson River Transmission Alternative C and comparable segment of the Proposed Action within the FG and MG views from the California NHT would be visually discernible and may attract attention from the existing setting. Almost all of the Carson River Transmission Alternative C would be further away from the Walker River Segment of the California NHT than the comparable segment of the Proposed Action, and closer to the US 50 Segment.

Under the Carson River Transmission Alternative C, from the Pony Express NHT, the casual observer would see approximately 24.6 miles of the alternative traveling EB and 21.6 miles traveling WB, which would be similar but slightly less than the comparable segment of the Proposed Action (approximately 25.3 miles traveling EB and 22.6 miles traveling WB). Recreationists walking along the Pony Express NHT would have views of the Carson River Transmission Alternative C for a total (combined travel direction) of 26.5 miles along the NHT or for approximately 9 hours within the FG and 4.1 miles or approximately 1 hour within the MG of the NHT. The comparable segment of the Proposed Action would be viewed for a similar duration overall of 27.3 miles along the NHT or for approximately 9 hours within the FG and 3.2 miles or approximately 1 hour within the MG of the NHT. The presence of the Carson River Transmission Alternative C within the FG and MG views from the Pony Express NHT would be visually discernible and may attract attention from the existing setting. The comparable segment of the Proposed Action would be seen more from the Pony Express NHT but for an overall similar duration along the NHT than the Carson River Transmission Alternative C.

### **Carson River Transmission Line Route Group Conformance with BLM VRM Objectives**

The BLM-administered lands associated with the Carson River Transmission Alternative A and portions of Carson River Transmission Alternative C are unclassified for VRM and, as such, conformance determinations with VRM objectives are not applicable. The BLM-administered lands with VRM classifications associated with the Carson River Transmission Alternative C that would be visible from US 50, US 95A, Dayton, Stagecoach, Fort Churchill State Historic Park, California NHT, and Pony Express NHT are managed as VRM Class III and IV. Carson River Transmission Alternative 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 Alternative C would be in conformance with the VRM Class III and IV designated landscapes.

#### **3.15.4.12 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 as the Proposed Action transmission line and to each other during construction and decommissioning activities.

**Landscape Character and Scenic Quality.** Both of the Amargosa Substation alternatives would be located on BLM-administered lands, less than 0.7 mile 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. Approximately 109 acres of Class C landscapes would be impacted by AS-1 or 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). Changes to the landscape character in the MG of either substation would begin to attract attention and would slightly lower the scenic quality rating. Both of the AS-1 and AS-2 (Proposed Action) would dominate the visual setting and the landscape would appear to be altered to the casual observer in the FG of the respective substations.

**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. Motorists travelling along US 95 would have views of the AS-1 for a total (combined travel direction) of approximately 6.1 miles or for 5 minutes within the FG and for a total (combined travel direction) of approximately 2.8 miles or for 2 minutes in the MG. Similarly, US 95 motorists would have views of the AS-2 (Proposed Action) for a total (combined travel direction) of approximately 6.1 miles along the highway, or 5 minutes, within the FG and for a total (combined travel direction) of approximately 3.0 miles or, 3 minutes, in the MG. Both the AS-1 and AS-2 (Proposed Action) would dominate the visual setting and the landscape would appear to be altered to the casual observer within the FG of US 95.

**Effects on Views from Sensitive Viewing Platforms – Special Designation Areas.** Both of the Amargosa Substation alternatives would be visible from the Big Dune SRMA. Approximately 2,912.3 acres (25 percent) of the SRMA would have views of AS-1 in the FG and approximately 2,718.2 acres (24 percent) would have views in the MG from this SVP. Comparatively, AS-2 (Proposed Action) would be visible from 601.6 acres (5 percent) of the SRMA in the FG and 5,731.1 acres (50 percent) in the M. Overall, both the AS-1 and AS-2 (Proposed Action) would have similar impacts and a similar percentage of the Big Dune SRMA would have views of both Amargosa substation alternatives (49 percent for AS-1 versus 55 percent for AS-2 [Proposed Action]). However, AS-2 (Proposed Action) would have much less visibility in the FG of the SRMA, which would reduce the overall contrast associated with this alternative and 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 not be in conformance with the VRM Class III management objectives.

#### **3.15.4.13 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 Proposed Action transmission line and to each other during construction and decommissioning activities.

**Landscape Character and Scenic Quality.** The ES-1 would be located on BLM-administered lands 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). 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, demand attention, and the landscape would appear to be altered in the FG of the substations, which would reduce the scenic quality rating. Approximately 109 acres of Class C landscapes would be impacted by ES-1, ES-2 (Proposed Action), and ES-3, respectively.

**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. ES-3 would be located over five miles from US 6 (outside of the MG) and not visually discernible in the landscape from the highways. 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 4.5 miles or for 4 minutes within the FG and for approximately 4.3 miles or for 4 minutes in the MG traveling SB only. ES-1 would not be visible traveling in the NB direction on US 95.

Similarly, the entire ES-2 (Proposed Action) substation facility would be visible when traveling in either direction on US 6 and only in the NB travel direction when traveling on SR 265. Traveling along SR 265, motorists would have views of the ES-2 (Proposed Action) for a total (combined travel direction) of approximately 2.9 miles or for 3 minutes within the FG and for approximately 1.1 miles or for 1 minute in the MG traveling NB only. 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.

State Route 265 motorists would have views of ES-3 for a total (combined travel direction) of approximately 5.1 miles or for 6 minutes within the FG and for approximately 2.4 miles or for 2 minutes in the MG. 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.

##### **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.

#### **3.15.4.14 Direct and Indirect Impacts from Amargosa Microwave Group**

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

The Amargosa Microwave Group 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 other Proposed Action ancillary facilities, and to each other, during construction and decommissioning activities.

**Landscape Character and Scenic Quality.** AM-1 would be located on approximately 2.3 acres of vacant 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 from Sensitive Viewing Platforms – Highways.** 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 travelling along SR 373 would have views of the AM-1 and AM-2 (Proposed Action) for a total (combined travel direction) of approximately 2.9 miles, or 2 minutes, within the FG and for a total (SB direction only) of approximately 16.3 miles or for 13 minutes in the MG. These numbers reflect that the SR 373 platform begins at the California 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.

**Effects on Views from Sensitive Viewing Platforms – Communities.** 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.

#### **3.15.4.15 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 as a mitigation measure to the guyed lattice structures (with the exception of the use of monopoles as part of the Proposed Action approximately between the Nellis Small Arms Range and the northwest boundary of the Las Vegas Paiute Snow Mountain Reservation) 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 in 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.** Within the Mojave desert tortoise recovery units, the tubular H-frame structures would cross through 18 different VAUs: eight Valley/Basin, five Mountain/Range, three Foothills, and two Salt Flat/Dry Lake VAU categories. Within the designated PACs located in the Mount Grant PMU, the tubular H-frame structures would cross the Paiute Spring VAU (CCDO-050), which is considered a 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 structure 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. 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 in the immediate FG to FG distance zone and when skylined, the impact would extend to the MG. Scenic quality ratings would be further reduced, as compared to the guyed lattice structures, because there would be a greater number of taller H-frame structures, these tubular towers would not blend 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 3-96 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 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 MM 37-NY, SR 265 at approximately MM 16.5-ES, and SR 266 at approximately MM 37.8-ES. 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, as 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, as 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, 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 MM 93.1-CL, MM 44.2-NY, MM 76.0-NY, MM 85.0-NY, MM 96.4-NY, MM 20.0-ES, and MM 74.2-MI. Within the immediate FG from the crossing 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 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 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 of the motorists as compared to the Proposed Action because it 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 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 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 as compared to the Proposed Action because of its 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 TNC 7J Ranch 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 the city of North Las Vegas.

**Effects on Views from Sensitive Viewing Platforms – Native American Tribes.** There would be similar impacts to the views from Las Vegas Paiute Indian Snow Mountain Reservation from the H-frame structures as the guyed lattice structures. Changes to views from either tower structure would range from negligible to visually recognizable and beginning to attract attention.

### **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-managed lands only, out to five 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 three 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 3-49 (TUSK Visual Impact Assessment Viewpoints):

- Aliante/Horse (TUSK Viewpoint #7)<sup>16</sup> – View looking into the TUSK at the Tule Springs Expedition National Register Site. This viewpoint is also a designated entrance to the TUSK and hikers enter at this point including 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.

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<sup>16</sup> The TUSK viewpoint number is the preassigned number given to the viewpoint location as part of the inventory planning.

- Golden Triangle Trailhead (TUSK Viewpoints #22 and #23). Viewpoint will be 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 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 “bow-tie” configuration, divided into a north and south unit, which is connected by a narrow central corridor. The north unit encompasses the Corn Creek Flat area and is surrounded mainly by Las Vegas Paiute Snow Mountain Reservation 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 the City of 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 center, 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 12-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 use by the public prior to the designation of the Monument in 2014. The NPS provided the information in Table 3-105 based on their general knowledge of the existing TUSK visitors.

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.

**Table 3-105. TUSK General User Groups, Sensitivity, Location, and Visitation Levels**

User Group	Sensitivity	Locations	Visitation Levels	Use Duration
Regular visitors	High	<ul style="list-style-type: none"> <li>• Durango Loop trailhead</li> <li>• Aliante Loop trailhead</li> <li>• Adjacent residents to the Monument</li> <li>• Equestrian community</li> <li>• Future Golden Triangle trailhead</li> </ul>	<ul style="list-style-type: none"> <li>• Generally high levels of visitation at viewpoints; often used as launch points.</li> </ul>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>
Casual visitors	Medium	<ul style="list-style-type: none"> <li>• Durango Loop trailhead</li> <li>• Aliante Loop trailhead</li> <li>• Future Corn Creek Road MM 102-103 kiosk</li> </ul>	<ul style="list-style-type: none"> <li>• Moderate to high levels of visitation that change over the year (lower in hot summer).</li> </ul>	<ul style="list-style-type: none"> <li>• 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 they ride into the backcountry more often than some users.</li> </ul>
Critical observers	High	<ul style="list-style-type: none"> <li>• Backcountry areas where year-round birding and wildlife viewing occur</li> <li>• Las Vegas Paiute Snow Mountain Reservation (Monument-wide)</li> <li>• Corn Creek Road kiosk and Corn Creek Road to Desert NWR</li> </ul>	<ul style="list-style-type: none"> <li>• Usually lower levels of visitors/users.</li> </ul>	<ul style="list-style-type: none"> <li>• Short to moderate duration at specific viewpoints but spend extended periods of time in landscape.</li> </ul>

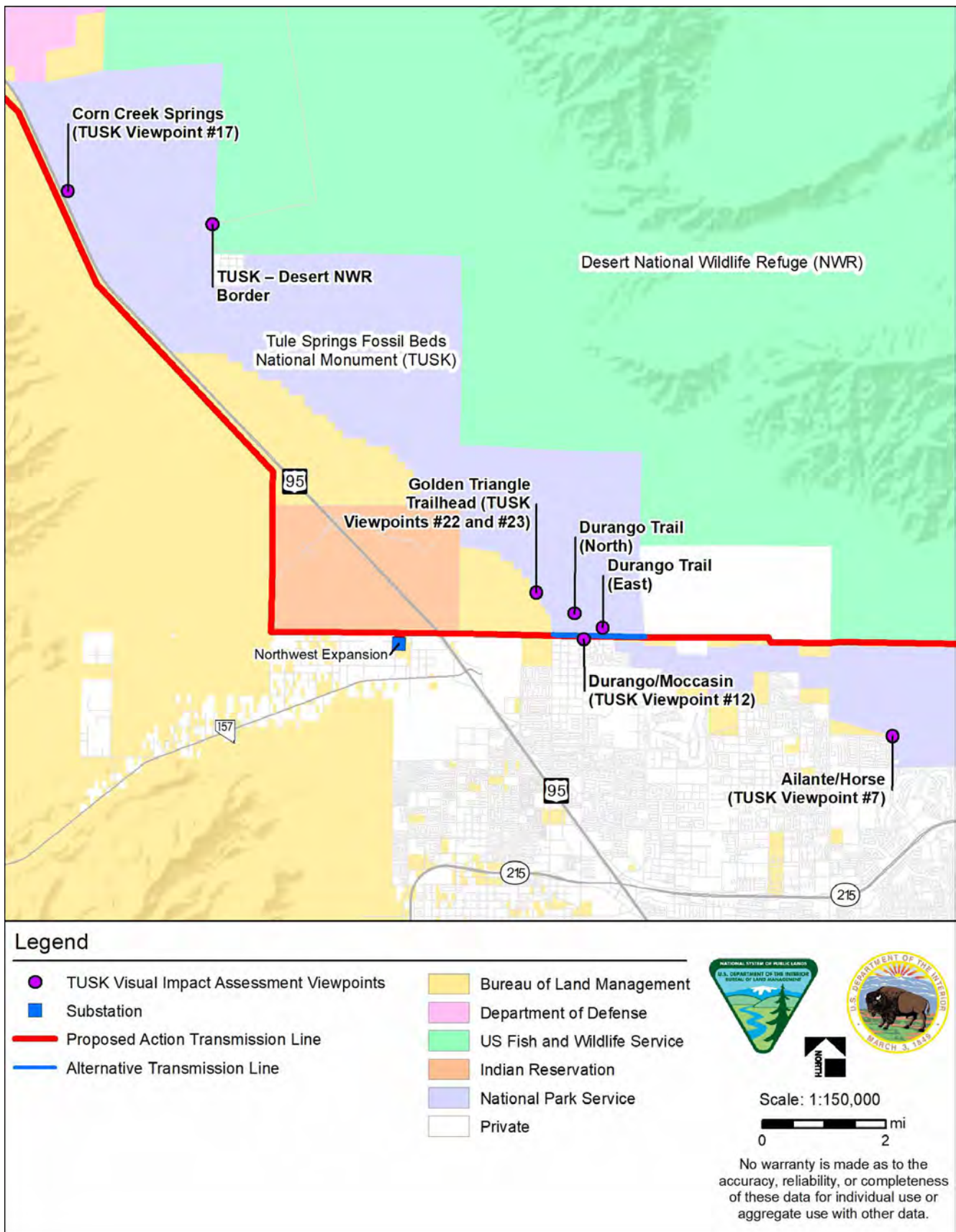
Table Source: Personal communication, Erin Eichenberg and Mark Meyer, NPS, December 14, 2022

### 3.15.5.4 Environmental Consequences.

The NPS VIA Visual Change Assessment provided in Appendix Q summarizes the change in the viewshed from each of the seven viewpoints by the construction, O&M, and decommissioning of the relevant Action Alternatives. The 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.

#### 3.15.5.1 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 with the No Action Alternative.



**Figure 3-49. TUSK Visual Impact Assessment Viewpoints**

### 3.15.5.1 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 as 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 experience or expectations of hikers moving in either direction along the Aliante Trail or for those 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 5 feet within the TUSK and in the immediate foreground (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 structures 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 those 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 Monument 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 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 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 of existing 230-kV and 525-kV transmission lines. It would, however, be slightly closer (55 feet from the 230-kV and 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 visitor's 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 (i.e., biker, hiker, or 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 as noted in the Foundation Document are 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 Trail with the construction of the Proposed Action.

**Durango Trail (North)**. The Proposed Action would construct 525-kV vertical monopole structures approximately 5 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, 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 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 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 mile away from the Golden Triangle Trailhead Viewpoint and approximately 55 feet from existing 230-kV and 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 of 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 towards 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 Las Vegas metropolitan area. The predominant adjacent land uses are the Desert NWR and the Nevada Testing and Training Range. 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 structure 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 towards 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 the 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.

### **3.15.5.2 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 as 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 the 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 Monument 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 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 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 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.

The Proposed Action would be visible to users along the Durango Loop Trail traveling in either direction, and the regular visitor's 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 (i.e., 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 one of 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 the TUSK and 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 and approximately 55 feet from the existing 230-kV and 205 feet from the 525-kV transmission lines. 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, 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 almost be 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 towards 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.

### **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, as compared to the Proposed Action, because of its 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 experience of entering the 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 the 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 also 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 not 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**

This section addresses impacts from the Action and No Action Alternatives during construction, O&M, and decommissioning. The section analyzes the impacts the GLWP's activities could have on

population, economic conditions, housing, tourism, outdoor recreation, tax revenues, property values, education, public services, and Environmental Justice (EJ) populations.

Federal agencies are required to identify and consider how agency actions and policies may affect low-income and minority populations. Title VI of the Civil Rights Act of 1964 and related statutes ensure that individuals are not excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, or disability. Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, directs federal agencies that programs, policies, and activities not have a disproportionately high and adverse human health and environmental effect on minority and low income populations.

The Presidential Memorandum released with EO 12898 directed all federal agencies to analyze EJ as part of their NEPA reviews. Environmental justice is the fair treatment and meaningful involvement of all potentially affected people—regardless of race, color, national origin, or income—when the federal government develops, implements, and enforces environmental laws, regulations, and policies. Federal agencies are required to identify low-income and minority populations that may constitute EJ populations and to consider whether BLM management decisions may result in disproportionately high and adverse human health or environmental effects to these populations. This section describes the existing EJ conditions within closest proximity to the GLWP area, including portions of Clark, Esmeralda, Lyon, Mineral, Nye, Storey, and Washoe counties.

Should potentially adverse impacts attributable to the GLWP fall disproportionately on these populations, EJ impacts would result. The required analysis involves screening the GLWP area to determine if EJ populations exist, and to assess the degree to which those populations might be expanding within the area. The analysis further involves determining whether there would be impacts, and if they would disproportionately affect any EJ populations.

### **3.16.1 Issues Identified for Analysis**

- Would the GLWP affect property values and local electricity rates?
- How would the GLWP affect local quality of life and costs compared to any small benefit?
- How would the GLWP benefit the economy of small towns and rural counties along the transmission line?
- Would there be sufficient housing and services during the construction and decommissioning phase of the GLWP?
- What access impacts would there be during construction to the communities, businesses, and residences?
- How would the ground disturbance and the presence of construction crews and equipment, noise generated by construction, and increased vehicle traffic and fugitive dust affect residents, business owners, and visitors' expectations of BLM-managed lands?
- How would the GLWP affect the underserved communities, and would these impacts be disproportionately adverse?
- How would jobs during construction and O&M affect local unemployment rates, population, and housing availability of the underserved communities within the GLWP area?
- How much would the GLWP affect local electricity rates in underserved communities within the GLWP area?

### **3.16.2 Analysis Area and Methodology**

#### **Analysis Area**

For socioeconomic resources, key project-related variables used in this analysis are at the county and state level. Construction employment and spending estimates are disaggregated by county primarily based on the share of overall construction that would occur in that county. These estimates represent the best available information and a reasonable approximation of the likely distribution of impacts but should not be considered precise forecasts. In most cases, estimated impacts are compared with existing conditions. The socioeconomic analysis area for socioeconomics is defined as the seven counties—Clark, Nye, Esmeralda, Mineral, Lyon, Storey, and Washoe—that GLWP would pass through and equates to approximately 27,181,260 acres.

The EJ analysis area investigated for EJ populations includes all census block groups that intersect a 1-mile buffer around the transmission line centerline. The EJ analysis area includes 30 census tracts and 46 block groups, totaling approximately 10,893,323 acres or 17,201 square miles. The census tracts and block group data were used to determine the presence or absence of EJ populations. Census tracts are relatively permanent geographic subdivisions used for recording census information and do not cross county boundaries. Block groups are geographic subdivisions of census tracts and comprise a compact and contiguous cluster of census blocks, which are the smallest subdivisions used by the Census Bureau.

#### **Methodology**

The potential effects of the GLWP are evaluated with respect to the key aspects of the socioeconomic environment, including population, economic conditions, tourism, recreation, housing, tax revenues, property values, education, and public services. These evaluations employ different resource-specific analysis methods, which are described in their respective sections. Social and economic effects of the GLWP's construction, O&M, and decommissioning were also assessed using the IMPLAN model. IMPLAN uses an input-output analysis to estimate the effects within the GLWP socioeconomic analysis area. For the IMPLAN model, effects are also assessed in other areas (i.e., the rest of the State) in terms of employment, labor income, and tax revenue. The full IMPLAN analysis conducted for GLWP is available in Appendix R.

State and local governments were contacted for data on potentially affected community services including solid-waste management, police, fire protection and emergency response, health care, and schools. The effects of the GLWP are evaluated with respect to the key aspects of the socioeconomic environment, including demographic characteristics, housing, economic conditions, property values, community services, and tax revenues. These evaluations employ different resource-specific analysis methods that are described in their respective sections.

The potential effects of the GLWP are evaluated with respect to EJ populations, which include race, ethnicity, and poverty data. To determine the presence of EJ populations this section uses data acquired from the U.S. Census Bureau's American Community Survey (ACS) census data. While the 2020 redistricting data is currently available, the decennial census data will not be available until May of 2023, therefore the ACS data is the only available dataset. Because ACS data are collected continuously, it is not always comparable to data collected from the decennial census.

While US decennial census provides counts of people for the purpose of Congressional apportionment, the primary purpose of the ACS is to measure the changing social and economic characteristics of the

US population. As a result, the ACS does not provide official counts of the population in between censuses. Instead, the US Census Bureau's Population Estimates program continue to be the official source for annual population totals, by age, race, Hispanic origin, and gender. The ACS estimates are therefore controlled to match the US Census Bureau's annual population estimates, by age, sex, race, and Hispanic origin. Although the questions used in the ACS are similar to those included on the decennial census, there are some important differences. The main difference is that the decennial census provides a snapshot of the U.S. population once every 10 years and the ACS data provides a continually updated data set. Census block groups that intersect the EJ analysis area are used to collect demographic and economic data. Census block groups were used as the geographic units for accessing available data from the EPA EJ Screen.

Guidance from CEQ suggests that an EJ population may be identified if "the minority population percentage of the affected area exceeds 50 percent, or if the minority population percentage of the affected area is meaningfully greater than the minority population in the general population or other appropriate unit of geographic analysis" (CEQ 1997). Minority populations are defined as "individual(s) who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic Origin; or Hispanic" (ibid). In order to set a conservative threshold for identifying potential EJ populations, those who were American Indian or Alaskan Native, Asian, Black, other race, or two or more races were aggregated and divided by the total population for each census block group to determine which areas were greater than 50 percent minority. It is important to note that the "other race" US Census category consists of all single race populations other than White, Black or African American, American Indian or Alaska Native, Asian, and Native Hawaiian or Other Pacific Islander race categories. This category comprises write-in entries and could include Hispanic or Latino populations if the respondent considered this to be their race.

A Tribal population is defined as any American Indian or Alaska Native. Membership in a federally recognized tribe is not required. For EJ purposes, the definition is notably broader: "a person having origins in any of the original peoples of North and South America (including Central America), and who maintains tribal affiliation or community attachment (BLM 2019)."

Minority populations in the EJ analysis area were identified using two types of analysis: 1) a 50 percent analysis and 2) a "meaningfully greater" analysis. First, the 50 percent analysis was conducted by determining the total percentage of minority individuals residing within the geographic unit of analysis (in this case, census block groups). If the percentage of minorities met or exceeded 50 percent of the total population, then it was considered to be a minority population. A meaningfully greater analysis was subsequently conducted to identify additional minority populations that did not meet the 50 percent analysis criteria. The meaningfully greater analysis was conducted by comparing the minority populations in the census block groups to the reference population at the county level. If the census block group minority population met or exceeded 110 percent of the county minority population, then it was considered to be a minority population. Together, the populations identified using both analyses are considered to be the minority populations for the EJ analysis area.

The EPA has recently redefined low-income. Low-income, as defined by EPA, is the percentage of a census block group's population, in households, where the household income is less than or equal to twice the federal poverty level. However, this data was not available at the census block group-level for the EJ analysis area. Low-income populations in the EJ analysis area were identified by comparing the US Census Bureau 2020 data for total household income in the past 12 months of all family members with the poverty threshold appropriate for that family size and composition. If the total

family income was less than the threshold, then the householder together with every member of his or her family were considered as having low income. The total number of all people in this category, as a proportion of the total census block group population, are then compared with the county poverty rate. This census block groups with higher poverty rates than the county reference level are considered low-income populations for the EJ analysis.

Tribal communities are defined as the Federal American Indian reservations, which are areas that have been set aside by the US for the use of tribes, the exterior boundaries of which are more particularly defined in the final tribal treaties, agreements, executive orders, federal statutes, secretarial orders, or judicial determinations. The USCensus Bureau recognizes federal reservations (and associated off-reservation trust lands) as territory over which American Indian tribes have primary governmental authority. The Census Bureau contacts representatives of American Indian tribal governments to identify the boundaries for federal reservations through its annual Boundary and Annexation Survey. Federal reservations may cross state and all other area boundaries. The total Federal American Indian reservation populations within the EJ analysis area are considered the Tribal communities for this analysis.

In addition to the US Census Bureau data, the BLM Socioeconomic Profile (SEP) tool was also used to provide an overview of socioeconomic conditions relevant to public land management. The SEP includes county-level indicators and describes the relationship between activities authorized on BLM-administered lands and surrounding communities. The SEP data is retrieved and assessed by the specific BLM FO. The geographic level of analysis within each of the specific data sets retrieved was determined to be less useful and too generalized for the EJ analysis that is being conducted at the census block group level and therefore could misrepresent the population characteristics. These data reports have been filed as part of the project record.

### **3.16.3 Affected Environment**

#### **Socioeconomic Resources**

This section discusses aspects of the environment that could be impacted by the Action Alternatives. This section includes a discussion of the issues that have driven the analysis, summary of the socioeconomic and EJ analysis areas considered, and characteristics of the existing conditions within the socioeconomic and EJ analysis areas. The approximate GLWP length within each county identified in Table 3-106. The length of transmission line by county ranges from 5 miles in Washoe County to approximately 104 miles in Nye County.

**Table 3-106. Miles of Access Roads and Distribution and Transmission Lines in the Socioeconomic and EJ Analysis Areas**

County	Access Road <sup>a</sup> (miles)	Distribution Line (miles)	Transmission Line (miles)	Total (miles)
Clark	73.1	0.0	72.6	145.7
Esmeralda	62.9	13.1	78.8	154.8
Lyon	107.2	0.0	93.8	201.0
Mineral	145.4	10.6	87.6	243.6
Nye	75.3	3.5	104.1	182.9
Storey	80.9	0.0	31.6	112.5
Washoe	1.6	0.0	3.4	5.0
<b>Grand Total</b>	<b>546.3</b>	<b>27.1</b>	<b>471.9</b>	<b>1,045.5</b>

*Table Note:* <sup>a</sup>Access road miles calculated here include miles of new access roads and miles of existing roads with proposed improvements. Due to rounding errors, total miles and grand totals differ slightly.

### Environmental Justice Populations

Table 3-107 identified the census tract and block groups, total population for the block groups, and the acreage associated with the census block groups being evaluated within the EJ analysis area.

**Table 3-107. Population by Census Tract and Block Group**

County	Census Tract	Block Group	2020 Population	Block Group Acreage
Clark	32.29	1	5,019	1,910.9
Clark	33.12	1	3,497	387.4
Clark	33.14	1	2,492	750.9
Clark	33.14	3	2,173	2,421.6
Clark	33.16	1	2,182	938.1
Clark	33.16	2	1,012	489.9
Clark	36.49	1	1,867	5,123.0
Clark	36.57	1	2,595	6,030.8
Clark	56.13	4	306	572,610.5
Clark	58.18	1	5,206	129,058.0
Clark	58.18	2	912	1,021.1
Clark	58.72	1	7,482	82,898.6
Clark	59.02	1	1,125	1,325,806.8
Clark	75.00	1	1,194	436,872.5
Clark	78.02	1	2	29,915.3
Nye	9603.00	1	1,495	565,758.7
Nye	9603.00	2	583	465,935.9
Nye	9604.11	1	1,608	263,955.0
Nye	9805.00	1	0	2,677,452.8
Esmeralda	9501.00	1	729	2,295,367.4
Mineral	9707.00	2	448	86,709.3
Mineral	9708.00	1	869	1,158,812.1



County	Census Tract	Block Group	2020 Population	Block Group Acreage
Lyon	9602.03	1	1,795	1,679.7
Lyon	9602.03	2	1,177	80,555.5
Lyon	9602.04	2	696	66,015.5
Lyon	9602.06	2	865	162,205.1
Lyon	9603.03	2	1,699	108,041.3
Lyon	9603.04	1	2,263	2,401.3
Lyon	9603.04	2	2,624	1,984.1
Lyon	9609.02	1	1,032	116,574.2
Lyon	9609.02	2	1,060	43,081.2
Lyon	9609.02	3	767	28,975.6
Storey	9702.00	1	1,147	86,709.3
Storey	9702.00	2	2,017	69,832.4
Washoe	21.03	1	1,322	3,007.6
Washoe	21.04	1	959	987.3
Washoe	21.04	2	969	517.5
Washoe	21.04	3	1,934	448.0
Washoe	22.10	2	1,305	189.5
Washoe	22.10	3	2,054	7,634.7
Washoe	22.13	2	1,306	77.6
Washoe	22.13	4	718	106.1
Washoe	22.13	5	1,274	110.8
Washoe	22.14	1	1,067	1,539.1
Washoe	22.17	1	677	163.5
Washoe	22.17	3	780	259.0

Table Source: (US Census Bureau 2020a) (Public Law 94-171)

### 3.16.4 Characteristics of the Existing Socioeconomic Conditions

#### 3.16.4.1 Population

In 2020, the seven counties in the socioeconomic analysis area had a total estimated population of 2.9 million (Table 3-108). Population varied widely in the seven counties in the socioeconomic analysis area and was highest at the southeast end (Clark County) and the northwest end (Washoe County). Nearly 80 percent of the population resided in Clark County in 2020 within the socioeconomic analysis area. The cities of Las Vegas and North Las Vegas, with 2020 populations of 644,954 and 247,248 respectively, were in Clark County (US Census Bureau 2020a). The Clark County cities of Boulder City, Henderson, and Mesquite, have a combined total population of 345,090. The second most-populated county within the socioeconomic analysis, with 17 percent of the area’s total population, is Washoe County. Washoe County includes Reno and had 250,903 residents in 2020.

**Table 3-108. 2020 Population by County**

County	Population	Percent of Population	Size (acres)
Clark County	2,141,574	79	5,159,040
Esmeralda County	930	0	2,296,960
Lyon County	53,155	2	1,290,240
Mineral County	4,448	0	2,440,320
Nye County	43,705	2	11,621,760
Storey County	3,941	0	168,960
Washoe County	450,486	17	4,192,640
<b>Total</b>	<b>2,872,166</b>	<b>100</b>	<b>27,169,920</b>

Table Source: (US Census Bureau 2020a) (CO-EST2021-POP-32)

Compared to Clark County, the combined populations of Esmeralda, Story, Mineral, Nye, and Lyon counties represented approximately 4 percent of the total population in the socioeconomic analysis area in 2020. The largest city in these five counties is Pahrump located in Nye County, with a population of 38,390 in 2020.

### Age

As with population totals, the age of residents in the socioeconomic analysis area varies by county. As Table 3-109 indicates, the two most populated counties, Clark and Washoe, have younger median populations than the more rural counties. The median ages for Clark and Washoe counties remained approximately a year apart between 2018 and 2021. Both are under 38.7, the median age for Nevada, and 38.8, the median age in the US in 2021 (US Census Bureau 2021). Clark and Washoe counties were notably younger than the remaining counties, which ranged from 43.6 in Lyon to 55.8 in Esmeralda counties in 2021.

In terms of trends, the median age in Clark, Esmeralda, Nye, Storey, and Washoe counties all grew older between 2018 and 2021. Esmeralda County's median age grew by 7.5 years between 2018 and 2021. By contrast, Storey County's median age grew by one year, Clark's grew by 0.5 years, Washoe's by 0.4 years, and Nye's by 0.2 years. Two counties, Lyon and Mineral, saw median ages decrease between 2018. Mineral's median age dropped by 5.3 years, while Lyon's dropped by 0.5 years. Table 3-109 and Table 3-110 provide age breakdowns by county.

**Table 3-109. 2018 – 2021 Median Age in Years by County**

Area	Median Age 2018	Median Age 2019	Median Age 2020	Median Age 2021
Clark County	37.1	37.3	37.5	37.6
Esmeralda County	48.3	55.4	54.6	55.8
Lyon County	44.1	43.7	43.9	43.6
Mineral County	50.1	52.9	53.3	44.8
Nye County	52.7	53.1	53.1	52.9
Storey County	52.9	50.9	53.0	53.9
Washoe County	38.1	38.4	38.5	38.5

Table Source: (US Census Bureau 2020a).

**Table 3-110. 2020 Age by County**

Area	Under 18 Years	18– 34 Years	35 – 44 Years	45 – 64 Years	Over 65 Years
Clark County	516,696	516,778	297,743	537,116	330,177
Esmeralda County	138	129	129	258	262
Lyon County	11,796	9,767	6,028	14,838	11,778
Mineral County	702	889	336	1,355	1,348
Nye County	7,722	6,355	4,333	12,916	13,634
Storey County	679	473	474	1,221	1,292
Washoe County	100,439	107,594	54,964	118,757	75,922

Table Source: (US Census Bureau 2020a)

### Race and Ethnicity

Table 3-111 identifies the diversity within the socioeconomic and EJ analysis areas. Within the EJ analysis area, Table 3-111 values show that seven of the 46 census block groups (approximately 15 percent) do not meet the threshold to contain minority populations while the remaining 39 census block groups (85 percent) do contain minority populations. Clark County contains the greatest number of minorities, mainly due to having the largest population. This county is by far the most diverse within the EJ analysis area and included more than 61 percent White, approximately 11 percent Black or African American, more than 10 percent Asian American residents, and 12 percent identifying as “other race.” However, proportionally Mineral County contains the highest minority population based on having six separate minority population groups throughout the two tract-block groups (9707.00-2 and 9708.00-1). Within Mineral County, the greatest minority population consists of Native Indian and Alaska Native. Conversely, Esmeralda County contains the lowest minority population based on having only one minority population group throughout one tract-block group (9501.00-1).

In Washoe County, the state’s second most diverse county, the White population stood at more than 79 percent. Storey County was the least diverse, with more than 89 percent White residents. Except for the approximately six percent of residents whose heritage is made up of two or more races, all other ethnicities did not exceed two percent. The largest population of Native Americans is in Mineral County, with 23 percent for the county average. The two largest block groups of Native Indian and Alaska Native within the EJ analysis area are 9708.00-1 in Mineral County at 64 percent and 9609.02-2 in Lyon County at with 44 percent; in all other counties and individual census block groups, the population was between 1 and 6 percent.

Hispanic is considered an ethnicity, not a separate race; Hispanics are considered minorities regardless of their racial self-affiliation. Table 3-112 identifies the population of Hispanic and percent of total population of Hispanic for the counties as well as census block groups that are within the socioeconomic and EJ analysis areas. The data set used to identify the total population of Hispanic of Latino is different from the data set that identifies race and therefore the total populations will differ. The percent of total population is used for consistency and comparison purposes.

While more than a quarter of Washoe County’s population was Hispanic or Latino, diversity among each of the other races and ethnicities in this county did not exceed six percent. Storey County was the least diverse, with just over 8 percent Hispanic or Latino. Except for the approximately six percent of residents whose heritage is made up of two or more races, all other ethnicities did not exceed 2 percent. The largest population of Native Americans was in Mineral County, with 23 percent; in all other counties, the population was between 1 and 3 percent.

Within the EJ analysis area, 6 of the 46 tract-block groups (approximately 13 percent) meet the threshold to contain Hispanic or Latino minority populations. The remaining 40 tract-block groups do not contain Hispanic or Latino minority populations. The minority populations are found in Clark, Nye, Lyon, and Storey counties. Esmeralda, Mineral, and Washoe counties do not contain minority populations. Tract-block group 36.49-1 within Clark County contains the largest Hispanic population (691 individuals) and is also the greatest proportion (37 percent).

**Table 3-111. 2020 Racial Distribution within the Socioeconomic and EJ Analysis Areas**

Location (Tract-Block Group)	Population	White Alone Number (percent)	Black or African American Number (percent)	Native Indian and Alaska Native Number (percent)	Asian Alone Number (percent)	Native Hawaiian or Pacific Islander Number (percent)	Other Race Number (percent)	Two or More Races Number (percent)
Clark County	2,141,574	1,299,138(61)	245,827(11)	16,590(1)	205,824(10)	15,846(1)	246,907(12)	111,442(5)
32.29-1	4,721	3,253(69)	<b>793(17)</b>	<b>45(1)</b>	245(5)	0(0)	111(2)	<b>274(6)</b>
33.12-1	3,497	2,587(74)	163(5)	0(0)	65(2)	0(0)	292(8)	<b>390(11)</b>
33.14-1	2,120	1,313(62)	<b>289(14)</b>	0(0)	124(6)	0(0)	151(7)	<b>243(11)</b>
33.14-3	1,943	1,652(85)	0(0)	<b>37(2)</b>	57(3)	<b>126(6)</b>	35(2)	36(2)
33.16-1	2,442	1,812(74)	268(11)	8(0)	95(4)	0(0)	55(2)	<b>204(8)</b>
33.16-2	1,385	917(66)	79(6)	<b>33(2)</b>	9(1)	<b>220(16)</b>	0(0)	<b>127(9)</b>
36.49-1	2,563	891(35)	<b>418(16)</b>	0(0)	<b>601(23)</b>	<b>42(2)</b>	176(7)	<b>435(17)</b>
36.57-1	3,249	1,123(35)	<b>1,210(37)</b>	24(1)	120(4)	0(0)	350(11)	<b>422(13)</b>
56.13-4	167	167(100)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
58.18-1	5,525	1,787(32)	<b>1,967(36)</b>	<b>211(4)</b>	75(1)	<b>98(2)</b>	<b>769(14)</b>	<b>618(11)</b>
58.18-2	794	627(79)	0(0)	0(0)	0(0)	0(0)	59(7)	<b>108(14)</b>
58.72-1	5,743	3,865(67)	44(1)	0(0)	<b>769(13)</b>	0(0)	316(6)	<b>749(13)</b>
59.02-1	670	4668(70)	66(10)	<b>41(6)</b>	0(0)	0(0)	0(0)	<b>95(14)</b>
75.00-1	1,222	976(80)	58(5)	<b>36(3)</b>	53(4)	0(0)	36(3)	63(5)
78.02-1	0	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
Nye County	43,705	36,290(83)	1,053(2)	651(1)	728(2)	166(0)	3,334(8)	1,483(3)
9603.00-1	2,062	1,424(69)	0(0)	<b>96(5)</b>	13(1)	0(0)	<b>303(15)</b>	<b>226(11)</b>
9603.00-2	414	283(68)	<b>47(11)</b>	0(0)	0(0)	0(0)	0(0)	<b>84(20)</b>
9604.11-1	1,370	932(68)	0(0)	0(0)	0(0)	0(0)	<b>406(30)</b>	32(2)
9805.00-1	0	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
Esmeralda County	981	931(95)	11(1)	7(1)	0(0)	0(0)	31(3)	1(0)
9501.00-1	987	931(94)	11(1)	4(0)	0(0)	0(0)	0(0)	<b>41(4)</b>
Mineral County	4,448	2,975(67)	111(2)	1,005(23)	129(3)	0(0)	54(1)	174(4)
9707.00-2	1,227	1,007(82)	<b>58(5)</b>	1(0)	39(3)	0(0)	<b>25(2)</b>	<b>97(8)</b>
9708.00-1	1,183	257(22)	<b>53(4)</b>	<b>761(64)</b>	0(0)	0(0)	<b>86(7)</b>	26(2)
Lyon County	53,155	45,271(85)	537(1)	1,556(3)	593(1)	84(0)	3,099(6)	2,015(4)
9602.03-1	1,795	1,725(96)	0(0)	0(0)	0(0)	0(0)	0(0)	70(4)
9602.03-2	693	527(76)	<b>79(11)</b>	0(0)	0(0)	0(0)	<b>79(11)</b>	8(1)
9602.04-2	733	576(79)	0(0)	0(0)	<b>17(2)</b>	0(0)	<b>140(19)</b>	0(0)

Location (Tract-Block Group)	Population	White Alone Number (percent)	Black or African American Number (percent)	Native Indian and Alaska Native Number (percent)	Asian Alone Number (percent)	Native Hawaiian or Pacific Islander Number (percent)	Other Race Number (percent)	Two or More Races Number (percent)
9602.06-2	457	416(91)	0(0)	0(0)	0(0)	0(0)	41(9)	0(0)
9603.03-2	1,109	1,007(91)	0(0)	0(0)	55(5)	0(0)	0(0)	47(4)
9603.04-1	2,042	1,887(92)	0(0)	15(1)	41(2)	0(0)	0(0)	99(5)
9603.04-2	2,300	1,910(83)	0(0)	64(3)	14(1)	40(2)	153(7)	119(5)
9609.02-1	1,351	1,351(100)	0(0)	0(0)	0(0)	0(0)	0(0)	0(0)
9609.02-2	947	374(39)	7(1)	417(44)	13(1)	20(2)	7(1)	109(12)
9609.02-3	1,038	890(86)	24(2)	0(0)	0(0)	0(0)	6(1)	118(11)
Storey County	3,941	3,519(89)	32(1)	75(2)	38(1)	0(0)	14(0)	263(7)
9702.00-1	1,253	741(59)	97(8)	0(0)	47(4)	0(0)	0(0)	368(29)
9702.00-2	1,989	1,879(94)	0(0)	6(0)	0(0)	0(0)	8(0)	96(5)
Washoe County	450,486	355,208(79)	10,330(2)	7,048(2)	23,612(5)	2,802(1)	31,573(7)	19,913(4)
21.03-1	1,472	1,190(81)	40(3)	0(0)	67(5)	0(0)	0(0)	175(12)
21.04-1	959	728(76)	0(0)	10(1)	118(12)	0(0)	65(7)	38(4)
21.04-2	969	874(90)	0(0)	8(1)	64(7)	5(1)	0(0)	18(2)
21.04-3	1,934	1,519(79)	11(1)	80(4)	10(1)	0(0)	181(9)	133(7)
22.10-2	1,024	729(71)	0(0)	0(0)	171(17)	5(0)	0(0)	119(12)
22.10-3	2,250	1,850(82)	5(0)	4(0)	2(0)	0(0)	0(0)	389(17)
22.13-2	911	644(71)	0(0)	0(0)	130(14)	0(0)	22(2)	115(13)
22.13-4	718	709(99)	0(0)	0(0)	9(1)	0(0)	0(0)	0(0)
22.13-5	1,274	1,117(88)	0(0)	0(0)	72(6)	0(0)	0(0)	85(7)
22.14-1	860	590(69)	68(8)	22(3)	180(21)	0(0)	0(0)	0(0)
22.17-1	458	314(69)	0(0)	0(0)	69(15)	0(0)	18(4)	57(12)
22.17-3	1,139	377(33)	38(3)	45(4)	449(39)	0(0)	0(0)	230(20)

Table Acronyms: GLWP – Greenlink West Project; US – United States

Table Source: (US Census Bureau 2020a)

Table Note: Bolded values are those that are considered minority populations, as defined in the methodology section above. Since race and ethnicity are not mutually exclusive, persons comprising the Hispanic or Latino group will also fall into one of the racial categories. Therefore, rows will add up to more than 100 percent.

**Table 3-112. Hispanic Population**

<b>Location (Tract-Block Group)</b>	<b>Population</b>	<b>Hispanic or Latino Number (percent)</b>	<b>Not Hispanic or Latino Number (percent)</b>
Clark County	2,265,461	701,416(31)	1,564,045(69)
32.29-1	5,019	939(19)	4,080(81)
33.12-1	2,869	475(17)	2,394(83)
33.14-1	2,492	432(17)	2,060(83)
33.14-3	2,173	294(14)	1,879(86)
33.16-1	2,182	348(16)	1,834(84)
33.16-2	1,012	169(17)	843(83)
36.49-1	1,867	<b>691(37)</b>	1,928(74)
36.57-1	2,595	667(26)	1,928(74)
56.13-4	306	30(10)	276(90)
58.18-1	5,206	1,274(24)	3,932(76)
58.18-2	912	150(16)	762(84)
58.72-1	7,482	710(9)	6,772(91)
59.02-1	1,125	350(31)	775(69)
75.00-1	1,194	116(10)	1,078(90)
78.02-1	2	0(0)	2(100)
Nye County	51,591	7,927(15)	43,664(85)
9603.00-1	1,495	<b>545(36)</b>	950(64)
9603.00-2	583	<b>114(20)</b>	469(80)
9604.11-1	1,608	250(16)	1,358(84)
9805.00-1	0	0(0)	0(0)
Esmeralda County	729	139(19)	590(81)
9501.00-1	729	139(19)	590(81)
Mineral County	4,554	508(11)	4,046(89)
9707.00-2	1,446	160(11)	1,286(89)
9708.00-1	869	87(10)	782(90)
Lyon County	59,235	10,339(17)	48,896(83)
9602.03-1	1,282	123(10)	1,159(90)
9602.03-2	1,177	104(9)	1,073(91)
9602.04-2	696	76(11)	620(89)
9602.06-2	865	66(8)	799(92)
9603.03-2	1,699	225(13)	1,474(87)
9603.04-1	2,263	347(15)	1,916(85)
9603.04-2	2,624	384(15)	2,240(85)
9609.02-1	1,032	155(15)	877(85)
9609.02-2	1,060	<b>233(22)</b>	827(78)
9609.02-3	767	<b>185(24)</b>	582(76)
Storey County	4,104	340(8)	3,764(92)
9702.00-1	1,147	<b>166(14)</b>	981(86)
9702.00-2	2,017	134(7)	1,883(93)
Washoe County	486,492	122,204(25)	364,288(75)
21.03-1	1,322	117(9)	1,205(91)
21.04-1	1,108	91(8)	1,017(92)
21.04-2	1,076	231(21)	845(79)
21.04-3	1,293	268(21)	1,025(79)
22.10-2	1,305	115(9)	1,190(91)
22.10-3	2,054	179(9)	1,875(91)

<b>Location (Tract-Block Group)</b>	<b>Population</b>	<b>Hispanic or Latino Number (percent)</b>	<b>Not Hispanic or Latino Number (percent)</b>
22.13-2	1,306	201(15)	1,105(85)
22.13-4	796	89(11)	707(89)
22.13-5	1,542	284(18)	1,258(82)
22.14-1	1,067	169(16)	898(84)
22.17-1	677	39(6)	638(94)
22.17-3	780	91(12)	689(88)

Table Source: (US Census Bureau 2020a)

Table Note: Bolded values are those that are considered minority populations, as defined in the methodology section above.

### 3.16.4.2 Economic Conditions

#### Employment and Income

Table 3-113 shows the labor force in the socioeconomic analysis area. Clark County has the largest labor force, followed by Washoe, Lyon, and Nye counties. Table 3-114 shows the unemployment rate by county between 2018 and 2021. Based on US Census data, unemployment rates across the study area range from 3 percent to 12 percent. The largest unemployment rate is in Mineral County. Between 2018 and 2021, unemployment increased in all but three counties (Lyon, Mineral, and Washoe).

**Table 3-113. 2020 Labor Force and Unemployment Rates for Persons Aged 16 and Over by County**

<b>County</b>	<b>Civilian Labor Force</b>	<b>Civilian Employed</b>	<b>Civilian Unemployed</b>	<b>Armed Forces Labor Force</b>
Clark	1,122,869	1,044,351	78,518	7,404
Esmeralda	406	394	12	0
Lyon	25,295	23,278	2,017	98
Mineral	1,721	1,512	209	0
Nye	16,657	15,215	1,442	0
Storey	1,557	1500	57	47
Washoe	248,918	235,897	13,021	681
<b>Total</b>	<b>2,059,498</b>	<b>1,316,526</b>	<b>140,269</b>	<b>8,230</b>

Table Source: (US Census Bureau 2020a)

**Table 3-114. 2018 – 2021 Unemployment Rate by County**

<b>County</b>	<b>2018 Unemployment Rate (percent)</b>	<b>2019 Unemployment Rate (percent)</b>	<b>2020 Unemployment Rate (percent)</b>	<b>2021 Unemployment Rate (percent)</b>
Clark	7	6	7	8
Esmeralda	2	3	3	5
Lyon	9	7	8	8
Mineral	15	11	12	13
Nye	9	10	9	10
Storey	4	3	4	5
Washoe	6	5	5	5

Table Source: (US Census Bureau 2020a)



## Employment and Labor Force

Table 3-115 shows labor force for 2020 by industry. The arts, entertainment, recreation, accommodations, and food services sectors are the largest in the socioeconomic analysis area, followed by the education, health care, and social assistance sectors. The retail trade and the professional, scientific, and technical services sector are also important to county economies.

## Income

Table 3-116 illustrates income by county. Storey and Washoe counties have higher median household incomes and higher median family incomes than the State. Mineral and Esmeralda counties have the lowest median household incomes, while Mineral and Nye counties have the lowest family incomes. Washoe County is the only county in the GLWP socioeconomic and EJ analysis areas that had median non-family incomes greater than that for the State. Mineral and Esmeralda counties have the lowest median non-family incomes. Mineral and Esmeralda counties have the lowest per capita income in the socioeconomic and EJ analysis areas.

**Table 3-115. 2020 Labor Force by County**

Sector	Clark County	Esmeralda County	Lyon County	Mineral County	Nye County	Storey County	Washoe County	Total
All sectors	1,044,351	394	23,278	1,512	15,215	1,500	235,897	1,322,147
Agriculture, Forestry, Fishing, Hunting	3,040	129	530	25	1,435	9	1,957	7,125
Construction	72,716	33	1,918	94	1,269	114	18,593	94,737
Manufacturing	38,489	5	2,966	80	856	112	19,728	62,236
Wholesale Trade	19,211	3	998	23	186	47	7,519	27,987
Retail Trade	121,304	27	3,239	145	2,032	135	26,90	126,882
Transportation, Warehouse, and Utilities	65,664	9	1,836	84	853	80	14,579	83,105
Information	16,593	3	204	22	173	60	3,431	20,486
Finance, Insurance, Real Estate	60,781	3	748	54	484	120	13,251	74,441
Professional, Scientific, Technical	124,758	16	1,735	123	1,618	211	27,486	155,947
Education, Health Care, Social Assistance	163,275	50	3,383	335	1,729	162	45,608	214,542
Arts, Entertainment, Recreation, Accommodations and Food Services	273,026	21	2,707	130	3,023	261	35,481	314,649
Other Services	49,316	88	1,193	96	695	103	10,175	61,666
Public Administration	36,178	7	1,821	301	862	86	11,139	50,394

Table Source: (US Census Bureau 2020b)

**Table 3-116. 2020 Income by County in Dollars**

	<b>Clark County</b>	<b>Esmeralda County</b>	<b>Lyon County</b>	<b>Mineral County</b>	<b>Nye County</b>	<b>Storey County</b>	<b>Washoe County</b>	<b>Nevada</b>	<b>US</b>
<b>Total Households</b>	809,206	515	21,726	1,938	19,253	1,704	186,116	1,130,011	122,354,219
<b>Median household income</b>	\$61,048	\$31,845	\$58,814	\$31,500	\$47,308	\$64,000	\$68,272	\$62,043	\$64,994
<b>Total Families</b>	516,891	208	14,411	955	11,719	1,048	115,905	720,213	78,849,830
<b>Median family income</b>	\$71,896	\$58,125	\$71,405	\$49,659	\$55,969	\$90,429	\$84,192	\$74,077	\$80,069
<b>Per capita income</b>	\$31,651	\$23,192	\$29,865	\$21,746	\$25,622	\$39,758	\$37,689	\$32,629	\$35,384
<b>Total non-family households</b>	292,135	307	7,315	983	7,534	656	70,211	409,798	42,504,389
<b>Median non- family income</b>	\$40,178	\$20,919	\$37,236	\$18,031	\$30,948	\$34,722	\$43,707	\$40,355	\$57,648

*Table Source: (US Census Bureau 2020a).*

## Poverty

Table 3-117 shows incomes that fell below federal poverty levels in from 2018 to 2021. In 2020, the poverty threshold for an individual living alone was \$13,171. For a family of four, the poverty threshold was \$26,496 (US Census Bureau 2021). If the income for a family of four was below \$26,496, each person in the household was considered to be below the poverty level. For the purposes of identifying low-income populations within the EJ analysis area, all census tracts with an equal or greater percentage of population below the poverty level was considered a potential EJ population.

Mineral and Nye counties consistently had the highest poverty rates during this period. Poverty rates in all counties except Esmeralda and Storey trended down between 2018 and 2021, following the pattern of the overall state. In 2018, only three counties—Clark, Mineral, and Nye—exceeded the state’s poverty rate. By 2021, four counties—Clark, Esmeralda, Mineral, and Nye—exceeded the state’s poverty rate.

**Table 3-117. 2018 – 2021 Percentage of People with Income Below Poverty Level by County**

Area	2018 (percent)	2019 (percent)	2020 (percent)	2021 (percent)
Clark County	14	14	13	14
Esmeralda County	7	9	13	13
Lyon County	12	12	10	10
Mineral County	24	20	21	20
Nye County	16	16	15	16
Storey County	8	8	9	12
Washoe County	12	11	11	11
State of Nevada	14	13	13	13

*Table Source:* (US Census Bureau 2020a)

Within the EJ analysis area, 16 of the 46 tract-block groups (approximately 35 percent) meet the threshold to contain households below the poverty level (Table 3-118). The remaining 30 census block groups do not contain households below the poverty level. The proportion of low-income populations is highest in Lyon County with 60 percent (6 out of 10) of the census block groups in the county being identified as low-income populations. The proportion of low-income populations is lowest in Washoe County with eight percent of the census block groups (1 out of 12) in the county being identified as low-income populations. The highest total percentage of low-income populations identified is in the 9708.00-1 census block group in Mineral County, which includes Hawthorne, Nevada. This census block group has a low-income percentage that is 11 percent higher than any other census block group in the EJ analysis area. At the county-level, when compared to the State, four of the seven counties in the EJ analysis area are considered low-income populations (Table 3-119). The highest proportion of low-income populations occurs in Mineral County and the lowest occurs in Storey County.

**Table 3-118. Households Below Poverty Level**

<b>Location (Tract-Block Group)</b>	<b>Households</b>	<b>Number of Households Below Poverty Level (percent)</b>	<b>Number of Households Above Poverty Level (percent)</b>
Clark County	516,891	50,629(10)	466,262(90)
32.29-1	1,278	33(3)	1,245(97)
33.12-1	842	78(9)	764(91)
33.14-1	537	40(7)	497(93)
33.14-3	848	11(1)	837(99)
33.16-1	483	<b>111(23)</b>	372(77)
33.16-2	380	8(2)	372(98)
36.49-1	651	53(8)	598(92)
36.57-1	1,097	<b>179(16)</b>	918(84)
56.13-4	138	0(0)	138(100)
58.18-1	3	0(0)	3(100)
58.18-2	305	<b>51(17)</b>	254(83)
58.72-1	1,555	55(4)	1,500(96)
59.02-1	269	<b>37(14)</b>	232(86)
75.00-1	426	15(4)	411(96)
78.02-1	0	0(0)	0(0)
Nye County	11,719	1,368(12)	10,351(88)
9603.00-1	720	<b>172(24)</b>	548(76)
9603.00-2	328	64(20)	264(80)
9604.11-1	719	<b>115(16)</b>	604(84)
9805.00-1	0	0(0)	0(0)
Esmeralda County	208	14(7)	194(93)
9501.00-1	515	<b>108(21)</b>	407(79)
Mineral County	955	131(14)	824(86)
9707.00-2	249	0(0)	249(100)
9708.00-1	451	<b>156(35)</b>	295(65)
Lyon County	14,411	944(7)	13,467(93)
9602.03-1	713	<b>99(14)</b>	614(86)
9602.03-2	328	20(6)	308(94)
9602.04-2	195	8(4)	187(96)
9602.06-2	302	<b>54(18)</b>	248(82)
9603.03-2	516	10(2)	506(98)
9603.04-1	961	<b>68(7)</b>	893(93)
9603.04-2	694	89(13)	605(87)
9609.02-1	421	<b>28(7)</b>	393(79)
9609.02-2	468	<b>100(21)</b>	368(79)
9609.02-3	388	<b>92(24)</b>	296(76)
Storey County	1,048	63(6)	985(94)
9702.00-1	600	28(5)	572(95)
9702.00-2	830	<b>87(10)</b>	743(90)
Washoe County	115,905	7,502(6)	108,403(94)
21.03-1	507	6(1)	501(99)
21.04-1	499	9(2)	490(98)
21.04-2	619	<b>84(14)</b>	535(86)
21.04-3	600	18(3)	582(97)

Location (Tract-Block Group)	Households	Number of Households Below Poverty Level (percent)	Number of Households Above Poverty Level (percent)
22.10-2	307	5(2)	302(98)
22.10-3	735	13(2)	722(98)
22.13-2	312	0(0)	312(100)
22.13-4	455	29(6)	426(94)
22.13-5	348	0(0)	348(100)
22.14-1	487	10(2)	477(98)
2217-1	219	0(0)	219(100)
2217-3	202	0(0)	202(100)

Table Source: (US Census Bureau 2018, 2020a)

Table Note: Bolded values are those that are considered low-income populations, as defined in the methodology section above.

**Table 3-119. Households Below Poverty Level**

Location	Population for Whom Poverty Status is Determined	Below Poverty	Percent of Population below Poverty
Nevada	2,987,817	381,695	13
Clark County	2,202,490	294,149	<b>13</b>
Esmeralda County	1,024	135	<b>13</b>
Lyon County	55,409	5,639	10
Mineral County	4,418	920	<b>21</b>
Nye County	44,724	7,372	<b>17</b>
Storey County	4,070	376	9
Washoe County	457,747	49,946	11

Table Source: (US Census Bureau 2018).

Table Note: Bolded values are those that are considered minority populations, as defined in the methodology section above.

### 3.16.4.3 Tourism and Outdoor Recreation

#### Tourism

Tourism generated \$62.5 billion in total economic impact in Nevada in 2021. This total was up 70 percent from the previous year, which was dominated by the COVID-19 pandemic. The \$62.5 billion impact included 355,361 (19 percent) of jobs and \$4.4 billion in state and local taxes. The gaming, retail, lodging, transportation, food and beverage, and recreation sectors all benefited from visitor spending. At the county level, the economic impact of tourism shows a wide variation, ranging from under \$1 million in Esmeralda County up to more than \$34.6 billion in Clark County. The value of state and local taxes and percent of jobs in the area earned from tourism shows similar variation (see Table 3-120).

**Table 3-120. 2021 Total Economic Impact of Tourism by County**

Area	Visitor Spending (in millions)	Percent of Jobs in the Area	State and Local Taxes (in millions)
Clark County	\$34,668.6	23.4	\$3,781.7
Esmeralda County	\$0.9	3.7	\$0.2
Lyon County	\$78.2	11.2	\$14.8

Area	Visitor Spending (in millions)	Percent of Jobs in the Area	State and Local Taxes (in millions)
Mineral County	\$7.8	9.9	\$1.3
Nye County	\$111.7	15.5	\$16.9
Storey County	\$9.3	1.1	\$1.1
Washoe County	\$2,838.8	13.8	\$403.5

Table Source: (Nevada Industry Partners 2022a, 2022b)

Data on tourist activities was not available by county, but tourists to Washoe and Clark counties reported that gaming was a substantial driver for their visitation. In more rural counties, tourists reported activities such as road trips/scenic drives, visiting historic sites, and attending state or national parks and recreation areas at a much higher rate than in the regions that included Las Vegas and Reno (Nevada Industry Partners 2022b).

### Outdoor Recreation

Outdoor recreation is both popular and an important contributor to Nevada’s economy. Almost 60 percent of Nevada citizens participate in outdoor recreation at least once a year and more than 14 million people visited Nevada national parks, national recreation areas, and state parks in 2019 (Get Outdoors Nevada 2021). Outdoor recreation supported 50,563 jobs and contributed between 2 and 3 percent to the state’s gross domestic product (GDP) in 2021 (US Bureau of Economic Analysis 2021). Table 3-121 shows the economic value added to Nevada’s economy by sector.

**Table 3-121. 2021 Outdoor Recreation Value Added to the Nevada Economy by Sector**

Sector	Value Added (in Thousands)
Private Industries	\$4,326,968
Manufacturing	\$130,609
Retail Trade	\$1,365,893
Finance, Insurance, Real Estate, Rental, and Leasing	\$273,131
Arts, Entertainment, and Recreation	\$475,950
Accommodation and Food Services	\$873,659
All Other Private Industries	\$1,207,728
Government	\$551,075
<b>Total Outdoor Recreation Industries</b>	<b>\$4,878,044</b>

Table Source: (US Bureau of Economic Analysis 2021)

Table Note: Estimates are based on the 2012 North American Industry Classification System.

### Recreational Resources

More than 87 percent of Nevada is public land open for recreational purposes with limited exceptions (Get Outdoors Nevada 2021). The seven counties in the socioeconomic analysis area such as DEVA; TUSK; Inyo and Humboldt-Toiyabe National Forests; Red Rock Canyon, Black Mountain Pistone, and Sloan Canyon NCAs; and the Desert and Ash Meadows NWRs. Multiple national trails traverse the analysis area, including the California, Old Spanish, and Pony Express NHTs.

In addition to federal recreation resources, federally recognized Tribal lands also offer recreational opportunities. In the socioeconomic analysis area, the Walker River Paiute Tribe offers public access to the Walker River, which has fisheries and recreational opportunities. The Las Vegas Paiute Tribe has a golf

course on its lands. State and local recreational resources are also important. The Nevada State Parks Department has designated 13 state parks in Clark, Lyon, Mineral, Nye, and Washoe counties, and counties and municipalities also offer regional and local parks and other recreational facilities.

### 3.16.4.4 Tribal Populations and Households

The socioeconomic and EJ analysis areas include three separate tribal reservations, including the Las Vegas Paiute Snow Mountain, Timbisha Shoshone, and Walker River Indian Reservation. Each reservation is found within one of the census block groups, although the block groups extend beyond the reservation boundaries and may be so much larger than the total population and characteristics from the tribal may be slightly unnoticed. For example, the Las Vegas Paiute Tribe is location in the census block group 75.00-1, where the total block group acreage is approximately 436,872.5 acres. Of this acreage, the reservation is approximately 4,050 acres, or 0.9 percent of the entire census block group. Timbisha Shoshone reservation within Nevada includes a 3,012 acre parcel inside the census block group 9603.00-2, which is 465,935.9 acres. Therefore, the Timbisha Shoshone Reservation represents approximately 0.6 percent of the entire census block group. Similarly, the Walker River Indian Reservation is 325,000 acres, located in census block groups 9708.00-1 and 9708.00-2, which total 2,317,228.0 acres. Therefore, the reservation represents approximately 1 percent of the total census block groups. Table 3-122 identifies the total population recorded for each reservation, reservation size, and the distribution of age amongst the residents.

**Table 3-122. Population, Age, and Sex on Tribal Lands**

Location/ Geography	Reservation (acres)	Total Population Number	Male Number (percent)	Female Number (percent)	18 years and over Number (percent)	65 years and over Number (ercent)
Las Vegas Paiute Snow Mountain Reservation	4,050	111	57(51)	54(49)	75(68)	6(5)
Timbisha Shoshone Reservation and Off-Reservation Trust Land, CA-NV	3,012	15	8(53)	7(88)	15(20)	9(60)
Walker River Reservation	325,000	1,142	544(48)	598(52)	846(74)	198(17)

*Table Source:* (US Census Bureau 2021)

*Table Note:* Timbisha Shoshone Tribe maintains approximately 7,500 acres of land in California and Nevada. The Timbisha Shoshone Tribe owns an approximately 3,012-acre parcel of land in Nye County. The Walker River Paiute Tribe of the Walker River governs approximately 325,000 acres in Mineral County. The Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony – Snow Mountain Reservation is approximately 4,050 acres located in Clark County.

Total population ranges from 1,142 for Walker River Paiute Tribe to 111 for the Las Vegas Paiute Tribe and 15 for the Timbisha Shoshone Tribe. The median ages for the Walker River and Las Vegas Paiute Tribe are similar at 32.2 and 31.5 years, respectively. By contrast, the Timbi-Sha Shoshone Tribe’s median age is 74.8 years. The average size of Table 3-123 provides details of housing characteristics for each nation.

**Table 3-123. Tribal Housing**

	<b>Total Housing Units</b>	<b>Total Owner-Occupied Housing Units</b>	<b>Total Renter-Occupied Housing Units</b>	<b>Total Vacant Housing Units</b>
Las Vegas Paiute Tribe	37	25	5	7
Timbisha Shoshone	16	5	3	8
Walker River Paiute Tribe	417	244	118	55

Table Source: 2017-2021 American Community Survey 5-Year Estimates.

Table 3-124 shows race based on the three Native American tribes: Las Vegas Paiute, Timbisha Shoshone Reservation, and Walker River Reservation.

**Table 3-124. Race on Tribal Lands**

<b>Title</b>	<b>Las Vegas Paiute (number [percent])</b>	<b>Timbi-Sha Shoshone Reservation and Off-Reservation Trust Land, CA-NV (number [percent])</b>	<b>Walker River Reservation (number [percent])</b>
One race	74(67)	15(100)	1,121(98)
Two or more races	37(33)	0(0)	21(2)
White	15(14)	0(0)	127(11)
Black or African American	0(0)	0(0)	59(5)
American Indian and Alaska Native	58(52)	15(100)	929(81)
Asian	0(0)	0(0)	0(0)
Native Hawaiian and Other Pacific Islander	0(0)	0(0)	0(0)
Some other race	1(1)	0(0)	6(1)
Hispanic or Latino (of any race)	30(27)	0(0)	140(12)
Mexican	22(20)	0(0)	106(9)
Puerto Rican	0(0)	0(0)	34(3)
Cuban	0(0)	0(0)	0(0)
Other Hispanic or Latino	8(7)	0(0)	0(0)
Not Hispanic or Latino	81(73)	15(100)	1,002(88)

Table Source: (US Census Bureau 2021).

### 3.16.4.5 Tax Revenues

Nevada General Fund revenues are derived from several sources including sales tax, which made up the largest source of revenue at approximately \$2.4 billion (29 percent) from 2019 – 2021. The next largest source of revenue and largest major fund source is the Gaming Percentage Fee Tax at approximately \$1.5 billion (18 percent). Combined (and before tax credits), these two taxes account for almost half (47.1 percent) of General Fund revenues. The Modified Business Tax (MBT) – Non-Financial Business Tax accounts for \$1.2 billion (14 percent) of the General Fund revenues, the Insurance Premium Tax accounts for \$788 million (10 percent). All other major General Fund revenues represent five percent or less of the total and include the Commerce Tax (enacted in 2015) at five percent, Cigarette Tax (four percent), Live Entertainment Tax (LET)–Gaming Tax (three percent), Real Property Transfer Tax (RPTT) (two percent), and



each the MBT – Financial Businesses Tax and the MBT – Mining Businesses Tax (one percent) (Guinn Center 2021).

State revenue income tax is assessed at a rate of 6.85 percent and the state sales tax is assessed at a rate of 4.6 percent. Local jurisdictions may also levy taxes including local sales and use taxes, county option sales taxes, city or town option taxes, and taxes levied specifically to support transit and highways, or public facilities (refer to Table 3-125).

**Table 3-125. Sales Tax Rates by County**

County	State Tax (percent)	County-wide Tax (percent)	Maximum Tax (percent)
Clark	4.6	3.775	8.375
Esmeralda	4.6	2.25	6.85
Lyon	4.6	2.50	7.10
Mineral	4.6	2.25	6.85
Nye	4.6	3.00	7.60
Storey	4.6	3.00	7.60
Washoe	4.6	3.665	8.265

Table Source: (Guinn Center 2021)

Table Note: Some cities and local governments in Lyon County collect additional local sales taxes, which can be as high as 0.5 percent.

The composition of revenue sources varies across departments. For example, the General Fund is the primary source of revenue that funds the Department of Education and the Nevada System of Higher Education. The Federal Fund is the primary source of revenue for the Department of Health and Human Services, USDA, and Department of Employment, Training, and Rehabilitation.

### 3.16.4.6 Social Conditions

#### Housing

Table 3-126 shows total housing stock, vacancy status, ownership, rental vacancy rates, and median gross rents and home values for the counties in the socioeconomic analysis area. In all counties, the number of homeowners exceeds renters, though the numbers are almost evenly split in Esmeralda County. Rental vacancy rates range from zero in Storey County to 10 percent in Esmeralda County. Median monthly gross rents were lowest in Mineral County at \$582, followed by Esmeralda and Storey counties at \$700 and \$704, respectively. Clark and Washoe counties had the highest median monthly gross rents at \$1,181 and \$1,150, respectively. Owner-occupied home values ranged from a high of \$149,500 in Washoe County, more than three times that of Esmeralda County’s \$47,400.

**Table 3-126. Socioeconomic Analysis Area Housing Availability**

Housing Characteristics	State of Nevada	Clark County	Esmeralda County	Lyon County	Mineral County	Nye County	Storey County	Washoe County
Total Housing Units	1,268,533	912,465	932	23,697	2,697	22,448	1,969	201,401
Occupied	1,130,011	809,026	515	21,726	1,938	19,253	1,7040	186,116
Vacant	138,522	103,439	417	1,971	759	3,195	265	15,285
Owner-Occupied Housing Units	644,864	443,247	260	15,865	1,414	13,771	1,644	107,732
Renter-Occupied Housing Units	485,147	365,779	255	5,861	524	5,482	60	78,384
Rental Vacancy Rate	7	8	10	5	9	4	0	5

Housing Characteristics	State of Nevada	Clark County	Esmeralda County	Lyon County	Mineral County	Nye County	Storey County	Washoe County
Median Gross Rent (2020 ACS Estimate)	\$1,159	\$1,181	\$700	\$1,062	\$582	\$821	\$704	\$1,150
Median Value of Owner-Occupied Housing (2020 ACS Estimate)	\$290,200	\$285,100	\$81,100	\$238,600	\$99,900	\$172,300	\$264,000	\$360,500

Table Acronyms: ACS – American Community Survey; GLWP – Greenlink West Project

Table Source: (US Census Bureau 2020a)

### Recreational Vehicle Parks

Recreational vehicle (RV) parks are important as a recreational resource and potential temporary housing option during GLWP construction. Table 3-127 identifies the number of RV parks and available spaces by county, which are most numerous in the more highly populated Clark and Washoe counties. Data was compiled from multiple websites, including Goodsam.com and travelnevada.com. The number of spaces represent the total approximate number of spaces available at the identified RV parks in each county, not the number that would necessarily be available to rent.

**Table 3-127. Socioeconomic Analysis Area RV Parks**

County	Number of RV Parks <sup>a</sup>	Estimated Number of RV Spaces <sup>b</sup>
Clark	17	3,977
Esmeralda	1	14
Lyon	5	387
Mineral	2	84
Nye	7	990
Storey	2	265
Washoe	13	1,554

Table Source: See Appendix X

Table Notes: <sup>a</sup> This data was compiled from travel websites and does not necessarily account for all RV parks in the GLWP socioeconomic analysis area.

<sup>b</sup> These estimates represent the total number of spaces available at the identified RV parks, not necessarily the number that will be available to rent.

### Hotels and Motels

Hotel and motel accommodations for each county are listed in Table 3-128. This data is drawn from sources such as the Las Vegas Convention and Visitors Bureau, travel websites such as travelnevada.com, and hotel staff. They do not necessarily account for all existing hotel, motel, and bed and breakfast rooms in the socioeconomic analysis area. An estimated average 68 percent occupancy was assumed based on data provided by the Las Vegas Convention and Visitors Bureau and hotel staff.

**Table 3-128. Hotels and Motels by County**

Area	Number of Hotels	Number of Rooms <sup>a</sup>	Estimated Number of Available Rooms <sup>b</sup>
Clark	302	151,352	48,432
Esmeralda	3	11	7
Lyon	5	276	187
Mineral	2	125	85
Nye	10	583	396

Area	Number of Hotels	Number of Rooms <sup>a</sup>	Estimated Number of Available Rooms <sup>b</sup>
Storey	11	194	131
Washoe	21	13411	9,119

Table Source: See Appendix X

Table Note: <sup>a</sup>This data was compiled from travel websites and does not necessarily account for all hotels and hotel rooms in the socioeconomic analysis area.

<sup>b</sup>The estimated number of rooms assumes an average 68 percent occupancy rate.

### Property Values

Table 3-129 presents the number of landowners with properties within 0.5 mile of the Proposed Action. The effect of nearby high-voltage transmission lines on residential property values has been studied for nearly 70 years. Findings have been mixed; this variation in findings may have to do with study methodology, study size, and the unique characteristics of individual properties. Studies that primarily rely on property owner surveys tend to show more negative impacts than market response studies (those that measure sales of comparable properties). Market response studies tend to have a relatively small sample size (Chalmers 2012). Additionally, most studies have been done in urban or suburban areas versus rural areas (Headwaters Economics 2012). Finally, the unique characteristics of each property, affect the value of properties in the proximity of the line. Study results range between no effect and slight adverse effect. These adverse effects include lower sales prices and taking a longer time to sell than comparable properties that are not near a high-voltage transmission line.

**Table 3-129. Property Owners within Half Mile of Proposed Action**

County	Property Owners <sup>a</sup> within Half mile of Proposed Action
Clark	1,314
Esmeralda	4
Lyon	318
Mineral	2
Nye	23
Storey	160
Washoe	51

Table Source: (Clark County 2021a; Esmeralda County 2021; Lyon County 2021a; Mineral County 2022; Nye County 2021; Storey County 2022; Washoe County 2021)

Table Notes: <sup>a</sup>Property owners identified only include private and municipal landowners. Parcels owned by federal land managing agencies are not included. Landowners were identified based on available data on county assessor websites.

Factors that influence residential property values near transmission lines include:

- Proximity to line structures.
- Type and size of high-voltage transmission line structures.
- Visibility conditions of the line (unobstructed views; partially screen views by vegetation or landform).
- Appearance of right of way or easement landscaping.
- Whether the right of way is used as a recreational amenity.
- Concern over the effects of electromagnetic fields.

(Jackson and Pitts 2007, 2010) summarize the following on the impacts of high-voltage transmission lines:

- When negative impacts are present, studies report an average decline of prices from 2 to 9 percent.
- Value diminution is attributable to the visual unattractiveness of the lines, potential health hazards, disturbing sounds, and safety concerns.
- Impacts diminish as the distance between the high-voltage transmission lines and the affected properties increase and disappear completely at a distance of 200 feet from the lines (0.04 miles).
- Where views of transmission lines and towers are unobstructed, adverse impacts can extend up to 0.25 mile.
- If high-voltage transmission line structures are at least partially screened from view by vegetation or landforms, any adverse effects are reduced considerably.
- Value diminution attributed to high-voltage transmission line proximity is temporary and usually decreases over time, disappearing completely in 4 to 10 years.

A study by Chalmers analyzed nearly 600 miles of a 500-kV line across Montana (Chalmers 2012). Chalmers' research reports on sales dynamics involving properties within 500 feet (almost 0.1 of a mile) of the centerline of the Colstrip to Townsend, Townsend to Taft, and Taft to Hot Springs 500-kV lines that sold between 2000 and 2010. He found that circumstances can affect vulnerability to transmission line impacts in rural settings, including:

- When a property's sole use is residential, its vulnerability to price impacts from a transmission line increases.
- As property size increases, vulnerability to adverse market impacts from a transmission line decreases.
- If substitutes are available (additional housing in an area), vulnerability to price impacts and marketing delays can increase.

Although extents vary, the Chalmers study noted that there were indications of price impacts and market delays associated with the 500-kV line on small rural residential parcels. The same report did not find evidence of transmission line impact on sales involving producing agricultural properties and based on a small number of case studies, found no identifiable impact on the sales of agricultural lands that have the potential for recreation-related development due to proximity to recreational amenities from the presence of the high-voltage transmission line.

Studies of impacts during periods of physical change, such as new transmission line construction or structural rebuilds, generally reveal greater short-term impacts than long-term effects. However, most studies have concluded that other factors (e.g., general location, size of property or structure, property condition and improvements) are far more important criteria than the presence or absence of transmission lines in determining the value of residential real estate.

### **Education/Public Schools**

County school districts administer public schools in the socioeconomic analysis area. As may be expected, counties with larger populations had a larger number of schools, and lesser-populated counties had fewer schools (refer to Table 3-130).

**Table 3-130. Schools in the Socioeconomic Analysis Area**

<b>County</b>	<b>Pre-K/ Elementary</b>	<b>Elementary</b>	<b>K-8</b>	<b>Middle/ Junior High</b>	<b>Junior/ Senior High</b>	<b>High School</b>	<b>K-12</b>	<b>Special Education</b>	<b>Adult Education</b>
Clark	2	242	1	59	17	54	1	4	3
Esmeralda		3	0	0	0	1	0	0	0
Lyon		10	0	3	0	5	0	1	1
Mineral		2	0	1	0	1	0	0	1
Nye		13	0	8	0	6	0	0	1
Storey		2	0	1	0	1	0	0	0
Washoe		68	2	16	0	17	5	2	3

*Table Source:* (Nevada Department of Education 2023)

## Law Enforcement

The number of law enforcement personnel varies according to population, with the highest number of personnel in the highly populated Clark County and the lowest number in the least-populated Esmeralda County. Response times also vary widely, but can be lengthy (between 30 and 60 minutes) in the rural Esmeralda, Mineral, and Storey counties. Refer to Table 3-131 for the number of law enforcement personnel and the average response time within the socioeconomic analysis area.

**Table 3-131. Law Enforcement in the Socioeconomic Analysis Area**

Department	Number of Law Enforcement Personnel	Average Response Time	Sheriff
Clark	3,387	7 minutes	Kevin McMahill
Esmeralda	5	15 – 30 minutes	Nicholas C. Dondero
Lyon	84	Pending	Brad Pope
Mineral	14	5 – 60 minutes	Bill Ferguson
Nye	58	13 minutes	Joe McGill
Storey	30	2 – 30 minutes	Michael S. Cullen
Washoe	430	19 minutes	Darin Balaam

*Table Source:*(Clark County 2023; ECSD 2023; Esmeralda County 2023; LCSD 2023; LVMPD 2021; Lyon County 2023; MCSD 2022; Mineral County 2023; NCSD 2022; Nye County 2023; SCSD 2023; Storey County 2023; Washoe County 2023; WCSD 2022)

*Table Note:* Times have been rounded to the next whole minute.

## Fire Services

The GLWP would cross through the jurisdiction of 42 fire departments (Table 3-132 through Table 3-138). These departments were initially identified by contacting offices with jurisdiction over the counties that the GLWP would cross. No agency tracks the service areas of these departments. It is likely that there are gaps in fire protection services in some areas of the proposed route. In these cases, the closest or best-situated fire district would likely respond.

Some local fire districts have established mutual-aid agreements to ensure cooperation in situations when mutual aid would be beneficial. These agreements dictate that the decision of which district should respond is based on which is best suited and situated. This means that the district that is closest to the fire may not be the one that responds. Response times to a fire would vary within the socioeconomic analysis area depending on distance, access, and available staff and equipment. Some of the GLWP would cross open remote lands where access is often limited and response times may take longer than in more developed areas.

**Table 3-132. Clark County Fire Protection Agencies in the Socioeconomic Analysis Area**

Agency	Number of Stations	Paid Staff	Volunteer Staff
Boulder County Fire Department	1	24	0
Henderson Fire Department	11	244	0
Indian Springs Volunteer	2	0	21
Clark County Fire Department	42	655	171
Las Vegas Fire & Rescue	19	515	0

Agency	Number of Stations	Paid Staff	Volunteer Staff
Mesquite Fire & Rescue	3	24	0
Nellis AFB Fire Department	7	418	1
North Las Vegas Fire Department	8	141	0

Table Source: (US Fire Administration 2022)

**Table 3-133. Esmeralda County Fire Protection Agencies in the Socioeconomic Analysis Area**

Agency	Number of Stations	Paid Staff	Volunteer Staff
Fish Lake Valley Fire Department	1	0	14
Gold Point Volunteer Fire Department	1	0	6
Goldfield Volunteer Fire Department	1	0	9
Silver Peak Fire Department	1	0	10

Table Source: (US Fire Administration 2022)

**Table 3-134. Lyon County Fire Protection Agencies in the Socioeconomic Analysis Area**

Agency	Number of Stations	Paid Staff	Volunteer Staff
Central Lyon County	7	25	15
North Lyon County	2	9	25
Smith Valley Fire Protection District	3	0	18
Mason Valley Fire Protection District	2	5	35

Table Source: (US Fire Administration 2022)

**Table 3-135. Mineral County Fire Protection Agencies in the Socioeconomic Analysis Area**

Agency	Number of Stations	Paid Staff	Volunteer Staff
Day & Zimmermann Hawthorne Corporation Fire & Emergency	2	24	0
Mineral County	5	4	52
Luning Volunteer	1	0	7
Walker River Volunteer	1	0	10
Walker Lake Volunteer	1	0	10

Table Source: (US Fire Administration 2022)

**Table 3-136. Nye County Fire Protection Agencies in the Socioeconomic Analysis Area**

Agency	Number of Stations	Paid Staff	Volunteer Staff
Amargosa Volunteer	2	1	23
Crystal Volunteer	1	0	6
Gabbs Volunteer	1	0	10
Manhattan Volunteer	1	0	7
Nevada National Security Site	2	70	0
Pahrump Valley Fire & Rescue	4	24	20
Tonopah	1	1	25

Table Source: (US Fire Administration 2022)

**Table 3-137. Storey County Fire Protection Agencies in the Socioeconomic Analysis Area**

Agency	Number of Stations	Paid Staff	Volunteer Staff
Largomarsino Volunteer	4	2	13
Storey County	4	24	38

Table Source: (US Fire Administration 2022)

**Table 3-138. Washoe County Fire Protection Agencies in the Socioeconomic Analysis Area**

Agency	Number of Stations	Paid Staff	Volunteer Staff
Gerlach Volunteer	1	0	8
North Lake Tahoe Fire Protection District	3	50	0
Cold Springs Valley Volunteer	3	0	28
Nevada Air National Guard	1	9	0
Peavine Volunteer	1	0	20
Pleasant Valley Volunteer	2	0	16
Reno	19	250	100
Reno/Tahoe International Airport	1	20	0
Truckee Meadows Fire Protection District	24	105	148
City of Sparks	5	87	0
Hungry Valley	1	0	0
Washoe Valley	1	0	12

Table Source: (US Fire Administration 2022)

### Health Care

There are numerous types of medical care facilities within the socioeconomic analysis area. All counties except Esmeralda and Storey are served by a mix of hospitals, private medical facilities, and rural clinics. Rural clinics are located in cities with populations under 25,000 or counties with populations under 100,000. Table 3-139 identifies the number of hospitals and rural clinics in each county in the analysis area.

**Table 3-139. Hospitals and Rural Clinics by County**

County	Hospitals	Rural Clinics
Clark	15	3
Esmeralda	0	0
Lyon	1	6
Mineral	1	1
Nye	1	1
Storey	0	0
Washoe	5	1

Table Source: (Nevada Division of Public and Behavior Health 2023)

Time to care (travel time to the nearest medical facility) is dependent on several factors, including location where the injury took place, the number of nearby medical facilities, and the type of medical facility required. Time to care in Clark County, which has 15 hospitals and 3 rural clinics, is much shorter than Esmeralda or Storey counties, who do not have hospitals or rural clinics. Table 3-140 provides estimated time to care at hospitals using ground transport. Additionally, all hospitals in Clark and Washoe counties have the capability to provide air ambulance services via helicopter for severe/traumatic injuries and can provide Level I care (most comprehensive trauma care center). Helipads are available in Mineral and Nye



counties at medical facilities able to provide Level IV or V care. Level IV or V care centers provide initial care and stabilization of a traumatic injury then transfer patients to a higher level of trauma care; Level V centers may not be open 24-hours a day (ESO 2021). Helicopter transport would cut down time to care by an estimated 20 to 60 minutes. Helicopter transport would be facilitated by the fact that 84 helipads would be located approximately every five miles along the line.

**Table 3-140. Estimated Time to Care at Hospitals in the Socioeconomic Analysis Area**

County	Time to Care
Clark	12 – 36 minutes
Esmeralda	40 – 180 minutes
Lyon	50 – 90 minutes
Mineral	90 – 270 minutes
Nye	40 – 140 minutes
Storey	14 – 36 minutes
Washoe	17 – 22 minutes

*Table Source:* In House Analysis

*Table Note:* All time to care estimations consider access road availability, speed limits, traffic, and assume the method of transportation would be ground transport. Time to care estimations for Esmeralda and Nye counties, which do not have hospitals or rural clinics, were taken from the westernmost, middle, and easternmost points of the county to the nearest hospital in another county.

### 3.16.4.7 Non-Market Values and Quality of Life

Many resources associated with public lands provide quality of life and social value that may not be reflected in market prices (i.e., have non-market value). Non-market social values include appreciation for areas that are ecologically or culturally unique or sensitive, scenic, undisturbed, free of pollution, and that provide opportunities for quiet recreation or convey a “sense of place”—the idea that people attach meaning to places and grow emotionally attached to them (Krasny 2020). Benefits derived from natural amenities have been credited with increasing the attractiveness of communities across the West (Lewis et al. 2001).

Non-market values can generally be classified into two categories, those derived from the direct use of natural resources and those from non-use. Non-market use values are realized from the consumptive and non-consumptive use of natural resources. Although the use of non-market goods may require consumption, the personal enjoyment and satisfaction people derive from these goods exceed any monetary costs incurred with use. These personal benefits may be attained from recreational experiences, aesthetic enjoyment, artistic or spiritual inspiration, and emotional comfort derived from natural settings.

Natural resources possess additional values beyond those associated with their current use. These passive-use values include existence, option, and bequest values. Existence values are the amount society is willing to pay to guarantee that an asset simply exists. In addition to implicit existence values, society's willingness to pay to preserve resources for future use attaches additional passive-use values. The potential future benefits people would receive to visit undeveloped lands along the GLWP area are referred to as option values when future use is expected to occur within the same generation, and bequest values when preservation allows future generations to benefit from the resource use. Along the proposed transmission line bequest and option values might exist for numerous native plant and animal species, wild and scenic landscapes, and recreational areas.

A review of comments submitted to date by agencies, organizations, and members of the general public indicated that the scenic, recreational, and wilderness characteristics of land in the study area are important to local residents and other stakeholders. Many comments received during the public workshop meetings on the GLWP expressed an appreciation for these non-market values either generally or in reference to specific locations. A summary of non-market values and issues can be found in the scoping report on the BLM's ePlanning website at: <https://eplanning.blm.gov/eplanning-ui/project/2017391/510>.

Although lands proposed for development may possess non-market values, use and non-use non-market values are difficult to quantify and assign monetary values to. Methods for measuring these values can be controversial and difficult to apply. While it is not feasible to estimate nonmarket values, it is important to recognize that the true value of natural resources include both market and nonmarket values in order to make informed land management decisions.

### **3.16.5 Environmental Consequences**

The environmental consequences analysis evaluates how the social and economic effects of the construction, O&M, and eventual decommissioning phases of the GLWP are distributed throughout the socioeconomic analysis areas. Socioeconomic impacts are described and quantified where possible. However, where quantification of impacts was not possible, the analysis includes a qualitative discussion of possible effects. This section presents the impacts under the No Action Alternative and then compares the impacts that would be different for each Action Alternative, which were evaluated using the IMPLAN model. Alternative costs are within approximately one percent of the Proposed Action costs. Because this difference is so small, separate IMPLAN models were not created for the alternatives. The full IMPLAN analysis conducted for GLWP is available in Appendix R.

Estimates of construction and operation workforce were included in the IMPLAN analysis and used to describe the impacts on regional employment and population. Changes in employment and population were then used to evaluate other local impacts, such as housing, emergency services, schools, and other public and community services. Anticipated changes in sales and property tax revenues associated with construction, operations, and decommissioning of the GLWP were estimated using IMPLAN and are presented by county.

#### **3.16.5.1 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 socioeconomic impacts or impacts to EJ populations attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

#### **3.16.5.2 Direct and Indirect Impacts Common to All Action Alternatives**

### **Socioeconomic Resources**

#### **Construction**

Total construction costs of the GLWP are estimated to be approximately \$1.35 billion (2020 dollars), including labor, materials, and land purchases. Of that amount, about \$351.3 million, or about 26 percent of total project purchases, would occur within the State. The remainder would come from sources outside the state. Construction activity would generate about 570 FTE jobs, more than \$165.3 million in labor income, and approximately \$461.5 million in economic output for the State of Nevada over the

construction period. Effects to individual counties would vary substantially, ranging from about \$10.5 million in total output in Storey County to almost \$151.0 million in total output in Clark and Washoe counties over the construction period (refer to Table 3-141). Construction benefits would be temporary, generally occurring within the three-year construction timeframe. Esmeralda County would experience the largest economic boost from the GLWP construction in terms of percentage increase in economic conditions, mainly due to its relatively small baseline economy. Although Clark and Washoe counties would see the largest amount of GLWP-generated output, the percentage benefits are small (about one-half percent or less) due to the relatively large economies in those areas.

**Table 3-141. Fire Protection Agencies in the Socioeconomic and EJ Analysis Areas**

County	Employment (annual FTEs)	Labor Income	Value Added	Output
Direct (Clark)	13	\$5,838,000	\$14,808,000	\$85,067,000
Total (Clark)	133	\$26,568,000	\$52,472,000	\$150,780,000
Direct (Esmeralda)	48	\$21,128,000	\$26,051,000	\$26,051,000
Total (Esmeralda)	53	\$21,312,000	\$27,704,000	\$29,149,000
Direct (Lyon)	42	\$18,658,000	\$23,005,000	\$23,005,000
Total (Lyon)	56	\$19,896,000	\$26,675,000	\$29,245,000
Direct (Mineral)	55	\$24,227,000	\$29,872,000	\$29,872,000
Total (Mineral)	63	\$25,105,000	\$33,211,000	\$34,997,000
Direct (Nye)	74	\$32,900,000	\$40,565,000	\$40,565,000
Total (Nye)	100	\$35,659,000	\$47,136,000	\$52,301,000
Direct (Storey)	18	\$8,178,000	\$10,084,000	\$10,084,000
Total (Storey)	19	\$8,265,000	\$10,317,000	\$10,514,000
Direct (Washoe)	13	\$5,838,000	\$11,933,000	\$82,263,000
Total (Washoe)	139	\$27,554,000	\$52,133,000	\$150,900,000
Direct (State of Nevada)	264	\$116,769,000	\$15,617,000	\$296,907,000
Total (State of Nevada)	570	\$165,345,000	\$251,756,000	\$461,489,000

*Table Acronyms:* GLWP – Greenlink West Project; FTE – Full-time employees

*Table Source:* (Harvey Economics 2022)

*Table Notes:* 1) Employment is presented on an annual basis; labor income, value added, and output are totals for the three-year construction period; 2) Value added includes labor income, certain tax revenues and other miscellaneous items; Direct output is the sum of total costs by county and the additional use tax collected by counties on out-of-state purchases; 4) Total effects in Clark and Washoe counties include the effects of sales tax generated by the purchase of materials and supplies in those areas.

### **Population**

The GLWP would be constructed primarily by contract personnel, with the Proponent responsible for administration and inspection. The construction workforce would consist of laborers, craftspeople, supervisory personnel, support personnel, and construction management personnel who would perform the construction tasks. Construction of the GLWP would require at least 50 to 70 workers at any given time, with a maximum of 250 workers during peak construction. Construction is expected to take place year-round as weather and conditions allow. The GLWP is expected to create a short-term demand for workers, resulting in short-term population increases during construction that would likely place short-term demands on some rural county services.

The progression of construction activity along the corridor would result in temporary population increases in communities along the corridor. The peak population increase associated with each segment likely would be dispersed across more than one community. Typically, the increase associated with surveying,

staking, and road construction would be approximately 10 to 20 workers and progress rapidly requiring workers to shift their temporary place of residence to the next community within days or weeks. The influx would climb as pad construction, tower assembly and erection, and stringing activities occur and decline once complete.

Few non-employed spouses, family members, or friends typically accompany transmission line construction workers. Given the proximity of the GLWP to nearby communities, the existing highway access to/from those communities, and the pace of construction, a peak population influx of approximately 100 to 125 workers in any given community would be anticipated. The presence of the construction work force would be most apparent during the evenings in the communities because the work sites are commonly in rural areas away from the communities and the work is taking place during daylight hours.

### ***Employment and Income***

Based on 2020 wage data from the Bureau of Labor Statistics (BLS) for the Power and Communication System Construction industry, the equivalent of an estimated average annual 264 FTEs would be required for construction of the Proposed Action during each year of the construction phase. A range of skills and trades would be required for construction, suggesting a range of hourly rates or annual compensation. The average wage per construction worker is estimated at about \$85,000 per year for full-time work, not including benefits.

Jobs would be temporary, geographically dispersed along each spread, and filled through a combination of temporary hiring and extended hours for existing employees and proprietors. The affected workers and business owners would realize increases in income during the period of increased demand. Many of the secondary jobs would be associated with eating and drinking places, motels and RV campgrounds, convenience stores/fueling stations, and grocery stores.

Construction of the Action Alternatives would generate economic activity from project-related expenditures for materials and supplies. The GLWP would also employ construction workers, who would most likely spend much of their income within the socioeconomic analysis area, which would increase output in the sectors that provide consumer goods and services. The proportion of workers likely to come from outside the socioeconomic analysis area would vary by Engineering, Procurement, and Construction (EPC) contract and over the construction period because the mix of labor categories or skills would vary. For the purposes of analysis, the Proponent estimates that during peak construction periods 264 FTEs would be required per year.

### ***Housing***

Construction of the GLWP would increase demand for temporary housing in local communities, with the timing and magnitude of demand corresponding to the construction in the vicinity and presence of non-resident workers. The overall housing need would consist of demand for a few ownership units and conventional single-family and apartment rentals, but primarily demand for RV/camper parking spots and hotel/motel rooms. Rental property owners and local lodging establishments meeting the needs of construction workers would realize increased revenues.

The GLWP-related demand for temporary housing in nearby communities could compete with the housing needs from seasonal demands associated with business travel and tourism. The supply of temporary lodging is relatively large but often fully occupied during periods of peak demand. Therefore, construction may contribute to temporary shortages and may result in work force commuting to/from other

communities. At the same time, project-related demand during the times of low tourism/travel would benefit from local lodging, dining, and convenience shopping demands from GLWP workers.

There are many smaller communities across the GLWP area that may host temporary construction workers due to their location relative to the construction areas, highway accessibility, availability of motels and RV/camper campgrounds, or other less formal capacity to accommodate RVs/campers. Local businesses would see short-term increases in activity levels. Increases in business for local restaurants and convenience stores would have a positive increase in sales while the increased crowding may deter local residents. Increases in local traffic and other effects on lifestyles may also be temporarily affected. To some extent, local perceptions of the beneficial or adverse character of such effects could vary based on whether the activity and demands occur during periods of low or high seasonal tourism, travel and outdoor recreation activity. In any case, these changes would be temporary and little population increase is anticipated in conjunction with the GLWP. Demand for RV/campground spots may compete with other tourism demands during peak tourism periods.

Many non-local construction workers may provide their own housing in the form of RVs or pop-up trailers, with the remaining non-local workers expected to require rental housing (apartments, houses, mobile homes) and motel or hotel rooms. Construction workers, particularly those working in less populated areas, would be expected to commute longer distances to the job site. Existing housing resources, rental housing, hotels and motels, and RV spaces tend to be concentrated in and around the larger communities in the socioeconomic analysis areas.

One-way commuting distances of 30 to 50 miles from the place of lodging to the active worksite are not uncommon for construction of transmission lines and other linear projects. Nonetheless, due to the mobile nature of transmission line construction and the length of each segment, virtually all direct construction workers would qualify as non-residents at some time during construction, relocating temporarily to communities near the current work site and relying on private RV/campgrounds and motels for housing. When available, some public campgrounds may be used, although such campgrounds tend to have length-of-stay limits. In rural areas or smaller communities, contractors may negotiate with ranchers and private landowners to park their RVs on their property during construction. The combination of construction activity occurring over an extended corridor, expansion and contraction of the work force during the mid-portion of the schedule, and geographic dispersion of temporary residency, would result in lower secondary job and income generation for the transmission lines than for the substations.

### ***Tourism***

The construction phase of the GLWP is not expected to have measurable impacts on the temporary and permanent ROW area as a tourist destination. Construction is unlikely to interfere with the types of activities tourists pursue when they vacation near the ROW area. Any effects are likely to be both temporary and negligible.

### ***Outdoor Recreation***

During construction, the GLWP would not prohibit hunting or other dispersed recreation activities. The GLWP-related activities and vehicle traffic occurring during construction and decommissioning may reduce the appeal for dispersed recreational activities including hunting, OHV use, camping, and hiking. These activities may occur near active construction and along key road access corridors, resulting in short-term impacts. Temporary effects on local communities may also occur due to effects on outdoor recreation. These may include disruption of access or routes. Other types of conflicts with big game hunting or scheduled OHV or other recreation events may occur as construction proceeds along the corridor. The

location, timing, extent, and opportunities to reduce the severity of such conflicts would be addressed through coordination between the Proponent and local communities and the EMMs identified in Appendix C. EMMs – PHS-3 to PHS-8 and ROAD-5.

The construction of new and improved access roads may increase the potential for unauthorized OHV use and illegal dumping. New and improved roads would also provide increased access for recreational opportunities, resulting in long-term impacts to recreation resources associated with all Action Alternatives. Refer to Section 3.15 Visual Resources, for a discussion of the impacts from the Action alternatives on visual resources at various recreation sites within the GLWP area.

### ***Recreational Resources***

The socioeconomic analysis area have many recreational resources that serve as recreational destinations. These include national monuments, federal, state and local parks, various SDAs, and other recreational facilities. The construction of the GLWP may create temporary effects, such as short-term limitations to roadway access or temporary disturbance of wildlife habitat, that may affect the public's use of these resources.

While not all Tribal lands are open for recreation, the Walker River Paiute Tribe offers public access to the Walker River. No socioeconomic impact due to construction is anticipated to affect the Walker River Paiute Reservation lands; the Tribe would receive ROW lease payments. The Las Vegas Paiute Tribe, which offers a golf course on its lands, is also not expected to experience effects from construction.

### ***Tribal Households and Communities***

The GLWP is not anticipated to have any effects on or access to subsistence lands. However, government-to-government consultation is ongoing. Construction of the GLWP may temporarily restrict access to areas of the GLWP within which Native American Tribes procure subsistence resources such as gathered plants, small and large game, and fish. Noise and human activity from construction of the GLWP may disturb animals that constitute subsistence resources, causing them to temporarily leave the area. Once construction and rehabilitation activities are complete, animals are anticipated to return to these disturbed areas. Construction and rehabilitation activities may impact wildlife-related sustenance activities temporarily but are not anticipated to have long-term impacts. While there is no data to quantify the percent contribution to Tribal household or community income represented by these resources, effects on natural resources and restricted access during construction could have short-term effects on Tribal household and community income.

### ***Tax Revenues***

Sales and use tax revenues generated by the Proposed Action are estimated at \$39,549,000. These include taxes paid directly by the Proponent and those paid by Nevada-based contractors in Nevada. For Clark and Washoe counties, revenues include both sales tax on items purchased within those counties and use tax on items purchased outside the state. Construction of the transmission line would generate temporary sales and use taxes associated with the purchases of materials and supplies associated with the transmission line system and sales and lodging taxes on purchases by construction workers.

### ***Property Values***

Residential property values may be affected by the construction of the GLWP. Studies demonstrate that effects are likely to range from none to slightly adverse. Adverse effects are more likely when properties are only used for residential use, are very close to the transmission line, and lack landscape or topography that screens the transmission line from view. The variation of effect on property values is highly individualized to specific properties.

### ***Education and Public Schools***

No effect to public school enrollment is anticipated during the construction of the GLWP since construction activities at any given location would not be long enough to have construction workers enroll their children in a local school.

### ***Law Enforcement, Fire Protection, and Emergency Services***

Construction of the transmission line and associated component facilities would result in temporary increased demand on law enforcement, fire departments, and emergency medical responders across the region. Response time to accidents or other calls for service in rural locations would vary in length of time, the demands could stress the capabilities of volunteer-based responders and could reduce service coverage in other portions of a responder's service area.

Construction of the GLWP may present opportunities for crimes such as theft of construction materials and equipment. Much of the burden for law enforcement would fall to the respective state patrols and county sheriffs. Due to the short-term nature of the increased demand increases in staffing would be unlikely. Construction of new access roads and improvements to existing access roads may also require law enforcement assistance for activities such as traffic control. As a result, the GLWP may result in higher demands on law enforcement, although these demands are expected to be low and to come to an end once construction is complete.

Construction of the GLWP could result in increased fire risk if EMMs are not followed. This increased risk has the potential to increase demand for fire protection services while construction is ongoing. However, the demand for additional fire services is expected to be low during construction because the contract would be required to follow the established EMMs and is anticipated to end when construction is complete (Appendix C. EMMs FIRE-2, FIRE-5, FIRE-13, and FIRE-14).

### ***Non-Market Values***

The effects of the GLWP on non-market values are assessed in the sections of this EIS that address NHT and biological, cultural and visual resources. The sense of place, defined as both the emotional attachment people have for a place and the meaning they give to it, may be disrupted temporarily during construction. Monetary values are not assigned to these services, but this does not lessen their importance in consideration of the effects of the GLWP.

### **Operations and Maintenance**

Total O&M costs are estimated to be approximately \$1.2 million per year (2020 dollars), including labor costs associated with approximately six FTEs and all materials and supplies. All O&M expenditures would be made within the State. The analysis assumes that annual O&M costs would be evenly split between Total benefits to employment, income and economic output associated with property tax generation for each county in Year 1 (first year of operations), Year 30 (last year of operations) and on average over the 30-year operational period range from an annual output from \$490,000 in Washoe County to \$3,344,000 in Nye County (see Appendix R). Total benefits in any year reflect the property taxes paid directly by GLWP, as well as the effects of those revenues to counties. Total economic benefits of GLWP during O&M include direct (e.g., jobs generated), indirect (e.g., meals purchased by workers, lodging for workers), and induced (e.g., use of revenue by establishments where workers have purchased goods and services) effects generated within each county. Nye County would experience the largest economic benefit from GLWP operations due to the generation of property tax revenues. The counties within the GLWP footprint would realize between \$605,000 (Washoe County) and \$3.3 million (Nye County) in economic benefits due to GLWP operations each year. Esmeralda County would experience the largest economic boost from GLWP

operations in terms of percentage increase in economic conditions, mainly due to its very small baseline economy. The remaining counties within the GLWP footprint would realize benefits of less than one percent on an annual basis, as compared to baseline economic conditions.

Electric rates for the Proponent's customers would increase to cover the costs associated with the GLWP. Specific changes in rates for different customer types, including residential, commercial, wholesale, and other customers served by the Proponent, are unknown at this time. A rate case specific to the GLWP would be conducted by the PUCN at a later date. That process includes considerable review and evaluation by the PUCN, as well as substantial public input.

### ***Population***

Once construction is complete, the O&M of the transmission line and its associated facilities would be completed by the Proponent's staff. The GLWP facilities would be monitored and controlled remotely from anywhere within the socioeconomic analysis area. The Action Alternatives not anticipated to have any measurable effect on population within the socioeconomic analysis area.

### ***Employment and Income***

The GLWP facility O&M would generate a total of approximately six FTEs and about \$2.1 million in annual economic output (accounting for employee compensation and other business activity). In addition to the six FTEs and spending directly associated with operational activities, GLWP operations would generate another four FTEs, an additional \$220,000 in labor income, and an additional \$900,000 in economic output via indirect and induced economic activity. The FTEs generated during the GLWP O&M are expected to come from the socioeconomic analysis area.

### ***Housing***

Once construction is complete, the O&M of the transmission line and its associated facilities would be completed by the Proponent's staff. The new GLWP facilities would be monitored and controlled remotely from anywhere within the socioeconomic analysis area. The FTEs generated during the GLWP O&M are expected to come from the socioeconomic analysis area, therefore no new housing would be necessary. The GLWP is not anticipated to have any measurable effect on long-term housing availability within the socioeconomic analysis area.

### ***Tourism***

Activities associated with tourism would not be impacted during O&M. Tourists would continue to have access to scenic drives, historic sites, state and national parks and recreation areas such as DEVA, Fort Churchill Historic State Park, and Mt. Charleston Scenic Byway. Activities associated with O&M would typically be short in duration and dispersed throughout the socioeconomic analysis area.

### ***Outdoor Recreation and Recreational Resources***

The GLWP O&M is not anticipated to have any impact on outdoor recreation or recreational resources in the socioeconomic analysis area. Activities associated with outdoor recreation or recreational resources would not be impacted during O&M. Recreational users would continue to have access to existing recreational resources such as OHV routes, HUs, GMUs, and various NRAs and NWRs. Activities associated with O&M would typically be short in duration and dispersed throughout the socioeconomic analysis area.

### ***Tribal Households and Communities***

The GLWP O&M is not expected to restrict access to certain areas or result in changes to vegetation, disruption to fish, or disruption to small and large game populations, which could affect the Tribes' ability to procure subsistence resources. Additional coordination with the Tribes through government-to-



government consultation and additional discussion will be included once consultation has been completed.

### ***Tax Revenues***

If county-specific sales and use taxes are applied to all materials and supplies costs, Clark and Washoe counties would each receive increases in tax revenues during the O&M period. Property tax revenues attributed to individual counties range from about \$110,000 per year up to about \$3.2 million per year, on an average annual basis. While development of other commercial and residential properties within the transmission line easement is prescribed, property owners and the Proponent would continue to pay property taxes on the underlying land and associated improvements.

The State of Nevada requires employers subject to Nevada unemployment compensation law to pay a modified business tax on total gross wages, less employee health care benefits paid by the employer. The current tax rate for most “General Business” employers is 1.378 percent. This analysis is based on the understanding that this tax would apply only to the Proponent’s permanent operational employees and wages related to the GLWP and not to the temporary workers and wages associated with construction. Based on the small number of anticipated GLWP O&M employees (6 FTEs), the additional amount of modified business tax paid by the Proponent due to GLWP operations would be less than \$10,000 per year. This amount would have no measurable effect on State tax coffers or operations, and Modified Business Tax revenues to the State were not modeled in IMPLAN.

According to the State of Nevada Department of Taxation, “Commerce Tax is a tax on a privilege of engaging in business in Nevada. Each business entity whose Nevada gross revenue in a taxable year exceeds \$4 million is required to file the Commerce Tax return.” Therefore, changes in the amount of commerce tax paid by the Proponent would be based on changes in the Proponent’s revenues specifically associated with the operation of the GLWP. If revenues resulting from GLWP operations would be small, i.e., less than two percent, as compared to current revenue generation of both companies, that amount would be considered de minimis, or having no measurable effect on State tax coffers or operations. Based on this analysis, commerce tax revenues were not modeled in IMPLAN.

As previously discussed, all counties in the socioeconomic analysis area would be consistent and benefit throughout the O&M period of the GLWP. These benefits are expected to decrease over time but to remain substantial throughout the GLWP’s ROW grant/permit period.

### ***Property Values***

While effects to residential property values are expected to range from no effect to a slightly negative effect, research suggests that negative effects are likely to reduce over time. It is likely homeowners may be able to help mitigate any negative effects through landscaping that is designed to screen the line and associated facilities from view.

The GLWP would generate annual property taxes within the affected counties. Estimates of property taxes paid by the Proponent during the first year of operations are based on application of a 1.13 percent average property tax rate to the initial net book value of the GLWP (equal to the total construction costs). In subsequent years of operations, an annual depreciation rate of 1.6 percent was applied to the initial tax estimate.

### ***Education and Public Schools***

No effect is anticipated on public school enrollment due to GLWP O&M. The GLWP facilities would be monitored and controlled remotely from anywhere within the socioeconomic analysis area during O&M.

The Action Alternatives not anticipated to have any measurable effect on population within the socioeconomic analysis area and no increase in public school enrollment would occur.

### ***Law Enforcement, Fire Protection, and Emergency Services***

No effect is anticipated on law enforcement, fire protection, or emergency services due to O&M. Since the GLWP is not anticipated to have any measurable effect on population within the socioeconomic analysis area, there would be no increased demand on law enforcement, fire departments, and emergency medical responders.

### ***Non-market Values***

Potential effects on the quality-of-life of local residents and visitors are due to changes in aesthetics, scenic vistas, rural character, sense of place, access, and potential indirect effects on adjacent and future land use associated with the location of the transmission line. In general, such effects tend to create dissatisfaction among landowners, local residents, and visitors who value the current landscape. The EMMs have been included to address such issues (Appendix C – VIS-1 to VIS-22) and additional resource specific discussion are found in Sections 3.11 Special Designation Areas, Land Use and Realty, and 3.15 Visual Resources.

### **Decommissioning**

The BLM is assuming that decommissioning would occur over a five-year period immediately following the O&M phase. The GLWP components would be removed during the first year of decommissioning, with restoration work and monitoring occurring thereafter. Total decommissioning costs are estimated to be approximately \$160 million (in 2020 dollars); about half of that amount would be labor costs and half would be spent on materials and supplies. All labor and materials/ supplies are assumed to come from within the State. Half of all costs are expected to occur in Clark County and half in Washoe County. Benefits generated by decommissioning GLWP would be temporary. Most benefits are expected to occur within the first year of the decommissioning phase. The total estimated benefit generated by decommissioning is \$278,751,000. Clark and Washoe counties are expected to benefit almost equally (\$138,949,000 for Clark and \$137,604,000 for Washoe). While Clark and Washoe counties are expected to benefit almost equally from the decommissioning of the GLWP, it is estimated that Washoe would see a larger percentage increase in economic benefits as a percentage of baseline employment, income and economic activity because its overall economy is smaller than that of Clark County.

### ***Population***

Decommissioning impacts would result in temporary population effects similar to those during construction: temporary direct and secondary job gains, short-term population increase with demands on housing and local facilities and services. These impacts would be shorter in duration and smaller scale than those associated with construction.

### ***Employment and Income***

Decommissioning the GLWP is expected to have effects similar to those during construction: short-term demand for workers while deconstructing the facilities. These impacts would be of much shorter duration and smaller scale than those associated with construction. Decommissioning activities would require approximately 540 FTEs over the entire decommissioning period, The majority of those jobs would occur within, and be limited to, the first year of decommissioning. Approximately \$80 million in direct labor income would be generated during decommissioning.

### ***Housing, Tourism, Outdoor Recreation, Recreational Resources, and Tribal Households and Communities***

Decommissioning the GLWP is expected to have similar effects as during construction: short-term demand for housing, tourism, outdoor recreation, recreational resources, and Tribal households and communities,

while construction crews complete the decommissioning activities. These impacts would be shorter in duration and smaller scale than those associated with construction activities.

### ***Tax Revenues***

As previously discussed, most tax revenues are expected to occur in the first year of the five-year decommissioning process. Sales taxes generated by the materials and supplies for decommissioning, are expected to be evenly split between Clark and Washoe counties, is \$6,144,737.

### ***Property Values***

Decommissioning the GLWP is likely to have no effect on most residential property values, though some properties may see a slight increase in values if they are close to the line and have an unscreened view. Because of the highly variable relationship between residential property values and proximity to the lines, it is impossible to characterize the degree of positive effect that may occur.

### ***Education and Public Schools***

No effect is anticipated on public school enrollment due to decommissioning the GLWP. Decommissioning activities at any given location would not be long enough to have construction workers enroll their children in a local school.

### ***Law Enforcement, Fire Protection, and Emergency Services***

Decommissioning the GLWP is expected to have effects similar to those during construction and may result in a negligible increase in demand for law enforcement due to a small increase in the possibility of crimes like theft of construction equipment and materials. This effect would be eliminated early in the five-year decommissioning phase when deconstruction of the line would be completed.

### ***Non-market Values***

Decommissioning impacts would result in effects similar to those during construction. These impacts likely would be of much shorter duration and smaller scale than those associated with construction.

### **Environmental Justice Populations**

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

The GLWP area is mostly undeveloped with an overall rural character and relatively low population densities. Impacts from construction, O&M, and decommissioning would be similar to all residents, business owners and employees, and visitors. The GLWP 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. Access to schools, public facilities, medical centers, and local public parks outside the project limits would be maintained during construction.

The construction, O&M, and decommissioning of the GLWP would result in short- and long-term, negligible impacts to local communities and populations. The GLWP would cross block groups where EJ populations were identified, but no disproportionate impacts to minority and/or low-income population would occur.

#### **3.16.5.3 Direct and Indirect Impacts from the Proposed Action**

The construction, O&M, and decommissioning-related impacts created by the Proposed Action on the socioeconomic resources and EJ populations would be the same as those discussed in the impacts common to all Action Alternatives described 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 socioeconomic resources or EJ populations with the implementation of the EMMs in Appendix C. (EMMs PHS-3 to PHS-8 and ROAD-5, FIRE-2, FIRE-5, FIRE-13, and FIRE-14).

#### **3.16.6 Direct and Indirect Impacts from Losee, TUSK, Beatty, and Mason Valley WMA Transmission Line Route Groups**

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

The impacts of the Losee, TUSK, Beatty, and Mason Valley WMA transmission alternatives on the socioeconomic resources within the socioeconomic and EJ analysis areas would have no distinguishing differences from the Proposed Action. Each varies slightly regarding the acquisition of private lands.

#### **3.16.7 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 impacts with the exception of the amount of public, private, and Tribal lands. The Scotty's Junction Transmission Alternative A would bypass the Timbisha Shoshone Reservation lands to the southwest and would not require BIA to issue a ROW. Therefore, the Tribe would not receive lease income for the property/easement. Additionally, Scotty's Junction Transmission Alternative A would require the acquisition of 2.9 miles (70.3 acres) of private land as compared Scotty's Junction Transmission Alternative B requiring 0.5 miles (12.1 acres). Scotty's Junction Transmission Alternative B would parallel US 95, remaining parallel to an existing utility line, and require a ROW from BIA for the Timbisha Shoshone. The Timbisha Shoshone would benefit from the generation of lease income associated with Scotty's Junction Transmission Alternative B and the creation of jobs associated with tribal monitors. The Scotty's Junction Transmission Proposed Action would bypass the Timbisha Shoshone reservation lands to the northeast and would require the acquisition of approximately 2.7 miles (65.5 acres) of private lands. The Proposed Action would not require a ROW from the BIA and therefore the Tribe would not receive lease income for the property/easement. The final lease payments would be developed in association with the Tribe and BIA realty.

#### **3.16.8 Direct and Indirect Impacts from Carson River Transmission Line Route Group**

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

Carson River Transmission Alternative A would include approximately 471.4 acres of private land and would involve easements across private lands. This alternative would require an easement over the life of the project or purchase of the affected property from the private landowner(s), which would require compensation. The compensation would be a beneficial economic impact that would vary based on the landowner/parcel. The comparable segment of the Proposed Action would encompass approximately 170.5 acres of private lands.

#### **3.16.9 Direct and Indirect Impacts from Amargosa and Esmeralda Substation Groups**

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

The impacts of the Amargosa and Esmeralda substation alternatives on the socioeconomic and EJ analysis areas would have no distinguishing differences from the impacts common to all Action Alternatives during construction, O&M, and decommissioning activities.

### **3.16.10 Direct and Indirect Impacts from Amargosa Microwave Group**

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

The Amargosa Microwave Alternatives 1 and 2 would be located approximately 15.4 miles from the Proposed Action 525-kV transmission line and would have no distinguishing differences from the Proposed Action during construction, O&M, and decommissioning activities.

#### **3.16.11 Impacts from Anti-Perching/Nesting Mitigation Measure**

The BLM added an anti-perching/nesting measure to mitigate some of the impacts of the Proposed Action on the Bi-State sage-grouse and Mojave desert tortoise species. The anti-perching/nesting mitigation measure would convert approximately 151 miles 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 to 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. 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 without the mitigation measures (an increase of approximately 25 percent of structures under the anti-perching/nesting mitigation measures). Adding anti-perching/nesting mitigation measures to the construction, O&M, and decommissioning of the GLWP adds substantial costs. The equivalent of an estimated average annual 296 FTEs would be required for construction of the GLWP including the desert tortoise mitigation during each year of the construction phase, an increase of 32 FTEs per year.

#### **Construction**

Total GLWP construction costs, including anti-perching/nesting mitigation measures, are estimated to be approximately \$1.55 billion (2020 dollars), including labor, materials, and land purchases. The anti-perching/nesting mitigation measures would add about \$14.1 million in construction labor costs and about \$185.9 million in materials costs (including about \$25 million purchased in Nevada). Sales and use taxes would increase during construction with the anti-perching/nesting mitigation measures included, reaching an estimated \$45,781,000 for all counties in the GLWP area, compared to \$39,549,000 if mitigation measures are not included.

Construction activities, including the use of 525-kV H-frame structures, would generate about 648 FTE jobs, over \$187 million in labor income and approximately \$530 million in economic output in the State over the course of the three-year construction period. Effects to individual counties would vary substantially, ranging from about \$11.9 million in total output in Storey County to about \$175 million in total output in Clark and Washoe counties over the construction period. Esmeralda County would experience the largest economic boost from GLWP construction in terms of percentage increase in economic conditions, mainly due to its relatively small baseline economy. Although Clark and Washoe counties would see the largest amount of project-generated output, the percentage benefits are small (about one-half percent or less) due to the relatively large economies in those areas.

#### **Operations and Maintenance**

The economic effects of GLWP O&M activities would be unchanged with the anti-perching/nesting mitigation measures included. Impacts to modified business tax revenues and commerce tax revenues would also remain approximately the same. However, because the 525-kV H-frame structures increase the

project value, property tax revenues would be greater, amounting to \$404,382,000 over the assumed 30-year operation period.

As is the case without the inclusion of anti-perching/nesting mitigation measures, Nye County would experience the largest benefit from GLWP operations due to increased property tax revenues at an estimated \$3.7 million. Washoe County would realize an estimated \$549,000. Total economic benefits of GLWP include the effects of O&M activities and average annual property tax revenues. With the inclusion of the anti-perching/nesting mitigation measures, effects to individual counties would range from about \$677,000 in total output in Storey County to more than \$3.7 million in total output in Nye County annually. Esmeralda County would experience the largest economic boost from GLWP operations in terms of percentage increase in economic conditions, mainly due to its very small baseline economy. Other counties within the GLWP footprint would realize benefits of less than one percent on an annual basis, as compared to baseline economic conditions.

### **Decommissioning**

The costs and economic effects of decommissioning would be unchanged with the inclusion of the 525-kV H-frame structures required for the anti-perching/nesting mitigation measures.

## **3.17 Public Health and Safety**

This section describes the potential impacts to public health and safety and includes noise, fire management, and hazardous waste materials related to the construction, operation, and decommissioning of the Action Alternatives. Discussion includes audible noise, environmental contamination, fire, hazardous materials, and other concerns related to public health and safety.

### **3.17.1 Issues Identified for Analysis**

- How would construction, O&M, and decommissioning of the GLWP affect public health and safety, noise, fire management, and hazardous waste materials?

### **3.17.2 Analysis Area and Methodology**

#### **Analysis Area**

The analysis area for public health and safety is defined as the 0.5-mile radius from the Proposed Action temporary ROW area, which equates to approximately 1,255 square miles (803,079 acres). This analysis area will be referred to as the public health/safety analysis area.

#### **Methodology**

Publicly available databases were reviewed to obtain information regarding Superfund sites and leaking underground storage tanks (LUST). The Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) contains data on potentially hazardous waste sites that have been reported to the EPA. These EPA databases were reviewed to identify known hazardous waste areas within the GLWP vicinity that may affect public health and safety. The EPA administered the Resource Conservation and Recovery Act of 1976 (RCRA) which regulates the generation, treatment, storage, and disposal of hazardous waste. Databases from the EPA and Nevada were reviewed to identify hazardous waste sites within the GLWP vicinity.

Noise is generally defined as unwanted or objectionable sound. In determining noise impacts, the major factor is the activity's proximity to the sensitive receptors detecting the sounds. Human response to noise

is subjective and can vary greatly from person to person. Factors that can influence individual response include the loudness, frequency, and time pattern; the amount of background noise present before an intruding noise; and the nature of the activity (e.g., sleeping) that the noise affects. There are no federal, state, or local regulatory requirements for the audible noise level from transmission lines.

Fire management has implications across numerous administrative boundaries. Federal and state management plans do not typically have jurisdiction outside their respective planning areas. However, fire protection and management across different administrative boundaries is often conducted under cooperative agreements between federal and state or local agencies.

### **3.17.3 Affected Environment**

#### **Public Health and Safety**

The public health/safety area includes numerous high-voltage lines in established energy corridors and crosses many jurisdictions including lands managed by the BLM, BIA, NPS, USFWS, DOE, DOD, state land, and county and city lands. Depending on the specific location, a number of public health and safety regulations may be applicable. Industrial construction and routine workplace operations are governed by the OSHA of 1970, particularly 29 CFR 1910 (general industry standards) and 29 CFR 1926 (construction industry standards). Electric transmission projects may affect public health and safety during construction, O&M, and decommissioning. Potential health and safety concerns related to GLWP include occupational hazards, electric and magnetic fields (EMFs) and corona, emergency response, public health, and intentionally destructive acts.

#### **Noise**

The majority of the public health/safety analysis area is undeveloped, and its overall character is considered rural and remote with background noise typical of such settings. Existing noise sources in the health/safety analysis area include road traffic, air traffic (Nellis and Creech Air Force Bases), and industrial activities. In more developed areas, such as portions of the analysis area located closer to cities and towns, additional noise sources could exist and be more prominent.

#### **Fire Management**

Federal agencies conduct a broad range of actions to protect the public, natural landscapes, wildlife habitat, and recreational areas. The national BLM Fire program focuses on public safety and consists of fire suppression, preparedness, predictive services, vegetative fuels management, prescribed fire, community assistance and protection, and fire prevention education.

The BLM Nevada Fire and Aviation is tasked with fire management of the BLM lands in the public health/safety analysis area. The BLM DOs in the public health/safety analysis area have approved FMPs, which describe how and where wildland fires will be managed and what suppression strategies and tactics are appropriate—from aggressive suppression to management flexibility—depending on the specific DO and its identified goals (BLM 2020, 2021a, 2021d). Where there are Tribal lands held in trust by the BIA or NPS-managed lands, those federal agencies would address and manage wildland fires commensurate with their applicable adopted FMP, as applicable. The BIA Division of Wildland Fire Management provides wildland fire protection and ecosystem improvement to federal trust lands held in trust for federally-recognized Tribes and individual Indians. The BIA promotes self-determination and self-governance with federally-recognized Tribes through Public Law 93-638, which allows those Tribes to operate federal programs, such as wildland fire management programs, as their own to meet Tribal and BIA missions. The

NPS requires FMPs for all parks with burnable vegetation and is guided by the specific NPS unit's existing planning documents, such as the general management plan (GMP) and resource stewardship strategy. The planning process for the TUSK GMP is currently underway and will guide the management of the lands for the next 20 years or longer, including the management of wildland fires.

### **Hazardous Waste Materials**

Federal ROW agencies manage public lands in a manner aimed at minimizing or preventing threats to human health and natural resources. The BLM's Hazard Management and Resource Restoration Program supports the DOI's goal of protecting lives, resources, and property, and improving the health of landscapes and watersheds (BLM 2022d). The public health/safety analysis area encompasses a wide variety of land uses including mining, agricultural, commercial, military, and rural and suburban residential uses. Current or historical land-use activities provide indicators of potential hazardous materials (refer to 40 CFR 261.3) use and storage. Sites of potential environmental and human health concerns due to the possible presence of hazardous materials or waste include utility infrastructure; aboveground and underground storage tanks; historical mining sites; ammunitions storage facilities; and industrial/commercial facilities known to store, generate, transport, or dispose of hazardous materials.

### **3.17.4 Environmental Consequences**

#### **3.17.4.1 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 public health and safety, noise, fire management, or hazardous waste material impacts attributed to the construction, O&M, and decommissioning of the GLWP with the No Action Alternative.

#### **3.17.4.2 Direct and Indirect Impacts Common to All Action Alternatives**

### **Public Health and Safety**

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

Most of the occupational hazards associated with the construction of transmission facilities are similar to those of heavy construction and electric power industries. They include physical hazards such as risk of injury from equipment handling, extreme weather exposure, risks associated with working at extreme heights, and fire- and electrical-related risks such as electric shock and burns; biological hazards such as harmful interactions with plants and animals; and chemical hazards such as exposure to hazardous substances. Induced current and electric arcing pose a potential occupational hazard at electric transmission facilities. During O&M, occupational hazards are similar to those for construction, although fewer workers would be involved in O&M than in construction. Potential health and safety hazards include exposure to hazardous materials and electric shock. Decommissioning activities would be similar to construction activities and would require compliance with the GLWP Health and Safety Plan (NV Energy 2022) as well as OSHA and Nevada OSHA guidelines, which would minimize potential health and safety impacts on GLWP personnel. Occupational hazards during construction, O&M, and decommissioning of the GLWP would be minimized with implementation of EMMs (refer to Appendix C. EMMs CON-6, DECOM-11, DECOM-14, HAZMAT\_WASTE-1 to HAZMAT\_WASTE-23, POD-15, HEALTH\_SAFE-1 to HEALTH\_SAFE-4, and PHS-1 to PHS-8) compliance with the Health and Safety Plan, as well as OSHA and Nevada OSHA guidelines.

While there are currently no laws regulating levels of EMFs, there is public concern regarding possible health hazards from the delivery and use of electric power. Electrical transmission and distribution systems



are not the only sources of magnetic fields. Electric and magnetic fields occur both naturally and as a result of human activity. Naturally occurring EMFs are caused by the weather and the earth's geomagnetic field, but EMFs are also present wherever electricity is used, such as in household appliances, cell phones, and computers as well as, transmission lines. Electric fields from power lines are directly dependent on the line voltage (i.e., field strength is reduced as the distance from the source increases). Magnetic fields associated with transmission lines are created when current flows through power lines. They can also interfere with computer monitors, cardiac pacemakers, and defibrillators. Corona, a luminous electrical discharge from a transmission line, is caused by electric current arcing across two or more points along transmission line conductors. It can be seen as bluish tufts or streamers surrounding the conductor and, generally, a hissing sound can be heard. Numerous years of studies on the health effects from EMF have generated various conclusions on the scientific evidence of EMF exposures posing a health risk. Impacts from EMFs and corona would occur after the GLWP has been constructed. The GLWP facilities would predominantly be located away from residential areas where EMF or corona impacts would occur. However, where proposed facilities would be located near residential areas, existing transmission lines are already in place and the addition of the GLWP would not measurably increase any impacts to nearby residents.

Evacuation of a large number of construction workers and personnel from the public health/safety analysis area could be required during an emergency. The Action Alternatives would cross several routes identified in Nevada's Joint Information Center (JIC) county evacuation routes and shelter maps (The Official State of Nevada Website 2022). Identified evacuation routes that would be crossed in Clark and Mineral counties include US 95, in Nye County US 95, SR 160, SR 373, and SR 374, in Esmeralda County US 95, SR 266, and SR 265, and in Lyon County US 95A and US 50. No identified evacuation routes would be crossed by the Action Alternatives in Storey or Washoe counties. The construction of the Action Alternatives would not involve closure of any identified evacuation routes.

During O&M, the Action Alternatives would not cause road closures or impair access to local roads; new and improved access roads would be maintained as permanent during O&M. Decommissioning activities would be similar to construction activities, but to a lesser extent. Construction, O&M, and decommissioning of the Action Alternatives would not result in any long-term impacts on emergency response activities within the public health/safety analysis area. According to OSHA standards (29 CFR 1910.38[a]), risk to on-site workers would be minimized by implementing an Emergency Action Plan to address evacuation.

Coccidioidomycosis, commonly known as valley fever, is a disease of the lungs common in the southwestern United States and northwestern Mexico. Valley fever is a naturally occurring potential public health hazard in the GLWP area. Fugitive dust generated during construction, O&M, and decommissioning could contain *Coccidioides* fungal spores that may be present in desert soils. Workers, residents, or visitors to an area with ground disturbance have the potential to contract valley fever from exposure to disturbed soils that may contain fungal spores. The EMMs (refer to Appendix C. EMMs AIR-1 to AIR-16) includes several fugitive dust-control methods, which would minimize the risk of exposure to valley fever for workers and the public as a result of construction, O&M, and decommissioning.

Asbestos is a known human carcinogen with no known safe levels of exposure. The primary route of exposure for people is through air. Naturally occurring asbestos refers to asbestos found as a natural component of rocks and soils and is found in many states. The source of the naturally occurring asbestos in Southern Nevada is granite bedrock, and sediments and soils that have eroded from these rocks—particularly soils formed on alluvial fans (deposits of sediment eroded from the granite), and in sediment

found in active washes (stream drainages) and dry lakebeds (UNLV 2023). Soils and sediments represent the most likely source for dust containing naturally occurring asbestos. Any activity or natural wind that generates dust from soils that contain asbestos will put the fibers in the air and increase the risk that people will be exposed. Research conducted by the University of Las Vegas (Buck et al. 2018) shows that the known and potential locations of naturally occurring asbestos in Nevada occur to the south and east of Las Vegas in Clark County. The Action Alternative would occur several miles to the north and west of these areas and would not cause ground disturbance in soils with known or potential naturally occurring asbestos. Wind can cause naturally occurring asbestos to be transported beyond the known and potential distributions of the source soils, but in much lower concentrations. The construction of the Action Alternatives would generate solid waste. All handling and processing of construction debris, including hazardous and non-hazardous materials, would be in accordance with applicable regulatory requirements as described in the EMMs (refer to Appendix C. CON-1 to CON-22, HAZMAT\_WASTE-1 to HAZMAT\_WASTE 24, HEALTH\_SAFE-1 to HEALTH\_SAFE-4, and PHS-1 to PHS-8). Construction, O&M, and decommissioning would result in the disposal of scrap metal, wood, concrete, defective or broken electrical materials, and other debris such as batteries and used oil. Recyclable materials would be removed from the waste stream and recycled. To ensure that wastes would be disposed of in accordance with laws and to minimize potential effects, a Waste and Hazardous Materials Management Plan is required to be prepared and implemented prior to operation.

As with any energy infrastructure, the GLWP could be a target of intentionally destructive acts including vandalism, theft, sabotage, and/or terrorism. Acts of vandalism and theft are more likely to occur than acts of sabotage and terrorism; they are most likely to occur at remote areas and substations. Theft frequently involves equipment and salvageable metal at substations and switchyards. Vandalism often includes shooting insulators. Sabotage and terrorism would most likely include destruction of key transmission line components with the intent of interrupting the electrical grid. Impacts from intentional destructive acts could range from no noticeable effect on electrical service to a disruption of service. Cameras, signs, and regular inspections of the permanent ROW area by O&M personnel would be used as needed to prevent theft, vandalism, and unauthorized access. Additionally, safety and security lighting and security fencing would be installed at each substation, microwave site, and amplifier site.

The risk to workers or the public from intentionally destructive acts during construction would be low, as public access to the construction and staging areas would be controlled by security and fencing. Impacts associated with intentionally destructive acts during O&M would be reduced by the security measures included in the design of the GLWP. Once decommissioning occurs, the risk of the GLWP being a target of intentionally destructive acts would be eliminated. Responses to intentional destructive acts would be implemented in accordance with the emergency response plan. Impacts associated with intentional destructive acts are expected to be minimal with the implementation of regular ROW monitoring, cameras, signage, and fencing, as well as the emergency response plan.

## **Noise**

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

During construction, noise would be generated by the equipment used for grading, vegetation removal, tower assembly and erection, wire pulling and splicing, equipment installation, and rehabilitation of temporarily disturbed areas. Noise from these activities would continuously rise and fall based on the specific activity being completed. When determining the impacts of noise from construction, the important factor is the proximity of the activity to wildlife and/or the persons detecting the sound. Noise

associated with construction activities may also impact adjacent land uses, where quiet settings are valued. Wildlife would likely avoid temporary construction disturbance (discussed in Section 3.5 General Wildlife). Where construction would occur near more populated areas, the noise from equipment might be audible, but would be short in duration. Noise associated with decommissioning of the GLWP would be similar to the construction phase, but to a lesser degree. Human activity and noise associated with the GLWP would cease after decommissioning activities are completed.

Three types of noise are often associated with operational transmission lines: noise from the transmission lines and towers; noise from activities for routine inspection and maintenance of the facilities; and noise from substation facilities. Transmission line noise, which includes corona, aeolian (produced by wind), and insulator noise, can be generated throughout the transmission line route. Corona noise is the most common noise associated with transmission lines and is heard as a crackling or hissing sound. Corona discharge is essentially the sound of minor electrical leakage from the conductor. Transmission line noise emissions are usually not clearly audible to a person on the ground below an overhead conductor unless conditions are wet, damp, or foggy due to elevated corona discharge from water droplets collecting on the conductor's surface. When corona occurs on 525-kV transmission line conductors, it is accompanied by an audible snapping sound. If there is enough corona activity on the line, many small snaps from corona sources along a conductor may be sufficient to produce discernible audible noise (sizzling or crackle) at the edge of the ROW. If there is sufficient corona activity, audible noise could be noticed within a few hundred feet of the proposed transmission line. The noise intensity would be most pronounced directly beneath line conductors and would decrease with increased distance from the transmission line.

Aeolian noise is produced by wind as it passes obstacles in the landscape, such as trees or buildings. Wind blowing through a steel tower or wires of an overhead transmission line can also produce aeolian noise. Fixed objects, such as buildings and wires, cause humming or other constant sounds called aeolian tones; moving objects, such as twigs and leaves, cause irregular sounds. A wind that flows over a cylinder or stretched wire produces a sound the frequency (pitch) of which is a function of wind speed and the diameter of the cylinder or wire and is generally a low frequency.

Insulator noise is similar to corona, but it is not dependent on weather. It is caused by dirty, nicked, or cracked insulators and is mainly a problem with older ceramic or glass insulators. New polymer insulators minimize this type of noise. In some cases, new conductors have the potential to be perceptibly noisier initially due to the oil used in the manufacturing process retaining water droplets on the line.

The noise generated by routine maintenance and vegetation removal would be temporary and cease once activities have been completed. Noise generated by the transmission lines and substations would be generated throughout the life of the GLWP and more likely to be heard immediately adjacent to the GLWP components.

## **Fire Management**

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

Wildland fires may be ignited naturally, accidentally, or intentionally at any location where there are suitable environmental conditions and fuels for combustion. Although wildland fire is a natural component of many ecosystems, unplanned fires may threaten life, property, resources, and infrastructure. Incidents involving the Action Alternatives, such as vehicle and aircraft collisions or failure of any GLWP components, cannot be predicted. Further information regarding wildland fire risk for the BLM-administered lands within the public health/safety analysis area can be found in the specific DO FMPs. Additionally, Secretarial

Order 3285 directs the BLM to consider climate change in all resource management planning activities. The DO FMPs each describe the ways in which fire management activities and resources have and would be further adapted to a changing climate. With the implementation of the GLWP Fire Management Plan to be included in the Final POD, electrical line minimum ground clearance requirements, and EMMs (refer to Appendix C EMMs FIRE-1 to FIRE-16), the risk of wildland fires from the Action Alternatives would be minimized. All unplanned fires will have an initial response and the suppression duties will be performed in conjunction with other state, federal, and local fire-suppression resources.

Vegetation removal could reduce the potential for wildland fires by temporarily removing vegetative fuel sources and creating fuel breaks on BLM-administered land within the public health and safety analysis area and permanently removing vegetative fuel sources and creating fuel breaks within the permanent ROW area. However, recent research on sagebrush ecosystems has shown that while fuel breaks may be effective in the short-term, removing native vegetation could cause invasive species to colonize the newly available open tracts of land (Shinneman et al. 2019). The result of invasive species colonization could lead to an increased wildland fire risk over the long-term in the fuel break areas unless the invasive plant populations are properly managed. The new and improved access roads would increase the mileage of all roads within the GLWP area, which could aid in fire-suppression efforts of wildland fires as well and increase the potential for ignitions from public use. As part of the COM Plan, a Fire Prevention and Suppression Plan would be developed for the GLWP. The objectives of this Plan are to reduce the chance of a fire being ignited, prevent the loss of life and/or property by fire, and identify initial suppression strategies should a fire be ignited. Additionally, it would provide the Proponent's construction personnel, construction contractors and crew, and the public with information and guidelines to assist them in recognizing, reporting, and controlling fire hazards. The Fire Prevention and Suppression Plan would not direct vegetation maintenance within the GLWP temporary or permanent ROWs for fire prevention purposes; all vegetation maintenance would be implemented as part of the Integrated Weed Management Plan. With the implementation of the GLWP Fire Prevention and Suppression Plan, to be included in the Final POD, and EMMs (refer to Appendix C. EMMs FIRE-1 to FIRE-16) (specifically related to wildland fire, noxious and invasive species, and vegetation), the potential for the ignition and spread of wildland fires due to GLWP activities would be minimized. The construction, O&M, and decommissioning of the Action Alternatives would have no impacts on fire management goals and strategy and response to wildland fire in the three DOs.

## **Hazardous Waste Materials**

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

Within the public health/safety analysis area, there are approximately 15 known brownfield properties (EPA 2022a). A brownfield property is a property where the presence or potential presence of a hazardous substance, pollutant, or contaminant may exist and would need to be mediated before the land could be expanded, redeveloped, or reused (EPA 2022a). There are approximately 43 known RCRA permitted sites within the public health/safety analysis area that report to the Nevada Division of Environmental Protection (NDEP), because they generate, transport, treat, and/or dispose of hazardous waste. In Hawthorne, there is a Superfund non-National Priority List site (the Hawthorne Army Ammunition Pit), meaning that it is not considered a national priority among the known releases or threatened releases of hazardous substances, pollutants, or contaminants (EPA 2022a). The proposed substations, amplifier, and microwave sites would not be located near any of the known hazardous materials sites.

In addition to the presence of hazardous materials already found within the public health/safety area, the implementation of the GLWP would result in the use of regulated and hazardous materials and creation of solid waste during construction, O&M, and decommissioning. The hazardous materials proposed for use are described in the Preliminary POD and include, among others, materials such as fuels (e.g., gasoline, diesel fuel), lubricants, cleaning solvents, paints, and explosives (NV Energy 2022). The exact quantities of these materials proposed for use have not yet been determined. Impacts would be associated with the release of hazardous materials to the environment from the improper use, storage, or disposal of hazardous materials. To reduce or prevent environmental impacts, all laws, ordinances, and regulations relating to hazardous wastes would be adhered to and applicable EMMs (refer to Appendix C. HAZMAT\_WASTE-1 to HAZMAT\_WASTE-24) associated with hazardous materials and wastes would be implemented. There would be no distinction between any of the Action Alternatives related to the GLWP component siting or the use, handling, or storage of hazardous wastes.

#### **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 public health and safety, noise, fire management, and hazardous waste materials with the implementation of the EMMs in Appendix C.

#### **3.17.4.3 Direct and Indirect Impacts from Proposed Action, Losee, TUSK, Mason Valley, and Carson River Transmission Line Route Groups; Amargosa and Esmeralda Substation Groups; and Amargosa Microwave Group**

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

Construction, O&M, and decommissioning related impacts associated with Losee, TUSK, Mason Valley, and Carson River Transmission alternatives and the Proposed Action along with the Amargosa and Esmeralda Substation and Amargosa Radio Microwave alternatives would be similar to those discussed in the impacts on public health and safety common to all Action Alternatives described above.

#### **3.17.4.4 Direct and Indirect Impacts from Beatty Transmission Line Route Group**

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

The public health and safety impacts associated with Beatty transmission alternatives would be similar to those discussed in impacts on public health and safety common to all Action Alternatives described above. Ranches are scattered throughout Oasis Valley and depending on the location, residents most likely may hear construction-related noise. Some of the residents in Oasis Valley may be less likely to hear construction-related noise because the intermittent landforms would act as noise barriers. Traffic noise from US 95 could mask the construction noise related to the Beatty transmission alternatives for those residents along the highway. Beatty Transmission Alternatives C would be located closest to the NTTR and over 0.3 miles from any ranch existing structure. Beatty Transmission Alternatives A and K would cross over the 7J Ranch with Alternative K being approximately 0.6 miles away from the existing ranch buildings and Alternative A approximately 1.0 mile away. Construction activities and related noise associated with Beatty Transmission Alternative G would be more noticeable to the residents in the area southeast of Oasis Mountain because of the proximity of the transmission line (less 0.1 mile).

The presence of workers and vehicles during O&M would not be readily noticeable to the residents because of the lower volume and frequency of workers and vehicles over a longer period of time as compared to during construction. Except for the infrequent monitoring of the lines with helicopters, noise

levels during O&M would be the closest to ambient levels. Noise-related activities during decommissioning would be similar to construction generated noise levels but would be of shorter duration.

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

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

The construction, O&M, and decommissioning-related risks related to public health and safety created by the Scotty's Junction Transmission Alternatives A and B would be similar to those discussed in the impacts common to all Action Alternatives described above. The level of construction-related noise associated with Scotty's Junction transmission alternatives would differ from each alternative and as well, from the comparable segment of the Proposed Action. Scotty's Junction Transmission Alternative A would be furthest away from the existing scattered residents along US 95 as compared to the Proposed Action and Scotty's Junction Transmission Alternative B. Scotty's Junction Transmission Alternative B would be located along the south side of US 95, closest to dozen or so clusters of residential structures than the Proposed Action. Traffic noise from US 95 could mask the construction noise related to the Scotty's Junction Transmission Alternative B for those residents along the highway. There would be no distinct difference among the Scotty's Junction transmission alternatives or the Proposed Action in terms of noise levels during O&M activities. The presence of workers and vehicles during O&M would not be readily noticeable to the residents because of the relative low volume and frequency of workers and vehicles over a longer period of time. The O&M workers and vehicles would not be distinguishable from the high volume of truck traffic already on US 95.

#### **3.17.4.6 Impacts from Anti-Perching/Nesting Mitigation Measure**

The anti-perching/nesting mitigation measures would have no distinct impact differences for public health and safety, noise, fire management, and hazardous waste materials. The visual effects from the change in structure type in Mojave desert tortoise and Bi-state sage-grouse habitat is discussed in Section 3.15 Visual Resources.

### **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 reasonably foreseeable actions (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>17</sup> that would result from the construction and operation of the GLWP, combined with past, present, or other RFFAs. The determination of what past, present, and RFFAs to consider in the impact analysis is based on the resources being

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<sup>17</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.

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 EIS. 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 cumulative effects' analysis area (CEAA) for each resource and relevant period. The next step is to identify and describe past, present, future, and RFFAs that are similar in kind and effect as the Action Alternatives or have considerable impact to environmental resources to which the Action Alternatives' effects will cumulatively contribute. The last step is to evaluate the Action Alternatives for the potential to have cumulative contributions to environmental effects that could affect the environment.

The Action Alternatives traverse various ecological zones and jurisdictions, both natural and built features, and lands 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.

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 analysis 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.

### **3.18.2 Timeframe of Effects and Cumulative Effects Analysis Area**

#### **3.18.2.1 Timeframe of Effects**

Past, present, future, 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. The No Action Alternative indicates the federal ROW agencies would not grant or permit a ROW, the GLWP

facilities, including transmission lines and ancillary project components would not be built, and the existing environmental conditions (including the identification of past and present actions, events, and occurrences as described in 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 restoration). Long-term impacts are impacts that would be greater than eight years.

The proposed GLWP has 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 timeframe of decommissioning 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 being analyzed. Table 3-142 provides the defined CEAA for the Action Alternatives by resource and are graphically represented in Appendix T. Figures T-1 through Figure T-17 illustrate the CEAA for each of the resources analyzed for cumulative effects.

**Table 3-142. Cumulative Effects Analysis Areas (CEAAs)**

Resource	Definition of CEAA	Total Acres of CEAA	Acres of Proposed Action in CEAA	Proposed Action Percent of Total CEAA
Cultural Resources	3 miles from centerline of GLWP transmission lines.	1,718,064	13,711	0.8
Earth Resources-Mineral Resources	1-mile buffer from mining districts crossed by the GLWP	2,107,492	6,006	0.3
Earth Resources-Soil Resources	0.5-mile buffer from high wind and water soil erosion, Prime and Unique Farmland, biological crusts potential areas	753,393	6,830	0.9
Federally Listed Species – Bi-State Sage-Grouse (proposed listing)	PMUs (Pine Nuts, Mount Grant, White Mountains)	3,027,327	1,870	0.1
Federally Listed Species – Lahontan Cutthroat Trout	HUC-10 watersheds crossed by the GLWP that contain Walker and Carson Rivers	6,412,975	13,717	0.2
Federally Listed Species – Mojave Desert Tortoise	Northeastern and Eastern Mojave Recovery Units	15,817,572	5,089	<0.1
Federally Listed Wildlife – Southwestern Willow Flycatcher, Yellow-Billed Cuckoo, and Yuma Ridgway’s Rail	5-mile buffer from temporary ROW area for Action Alternatives	3,050,020	13,717	0.4
General Wildlife	5-mile buffer from temporary ROW area for Action Alternatives	3,050,020	13,717	0.4
Golden Eagles	10-mile buffer from temporary ROW area for Action Alternatives	6,404,365	13,707	0.2
Land Use and Realty	County boundaries, the seven counties in which the GLWP would be located	27,181,260	13,717	0.1



Resource	Definition of CEAA	Total Acres of CEAA	Acres of Proposed Action in CEAA	Proposed Action Percent of Total CEAA
National Historic Trails and Trails Under Study for Congressional Designation	Locations where NHTs are within 5 miles from centerlines of GLWP transmission line.	625,647	3,298	0.5
Paleontological Resources	High potential yield classification areas crossed by the GLWP transmission line.	31,439	299	1.0
Public Health and Safety	Population areas (incorporated town/cities and census designated places) and temporary ROW area with 0.5-mile buffer around population areas and ROW.	935,576	13,717	1.5
Socioeconomic Resources, EJ, Air Quality, and Climate	County boundaries; the seven counties in which the GLWP would be located.	27,181,260	13,689	0.1
Special Designation Area	5-mile buffer from boundary of special designation area.	5,923,384	6,709	0.1
Special Status Fish Species	HUC-10 watersheds crossed by the GLWP	6,412,975	13,717	0.2
Special Status Plants	5-mile buffer from temporary ROW area for Action Alternatives	3,050,020	13,717	0.4
Special Status Wildlife	5-mile buffer from temporary ROW area for Action Alternatives	3,050,020	13,717	0.4
General Vegetation	5-mile buffer from temporary ROW area for Action Alternatives	3,050,020	13,717	0.4
Visual Resources	5 miles from centerline of GLWP transmission lines.	2,755,540	13,689	0.5
Water Resources – Surface and Ground-Water	HUC-8 watersheds crossed by the GLWP	17,136,078	13,709	0.9
Water Resources – Wetlands and Riparian Areas	HUC-10 watersheds crossed by the GLWP	6,412,975	13,717	0.2

### 3.18.3 Past and Present Actions

The cumulative effects analysis does not attempt to quantify the effects of past human actions and present 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 (i.e., transportation, mining, general construction), vicinity (rural, semi-rural, unknown, urban), and land use (existing roadway, existing facility, previously disturbed, undeveloped, unknown). Knowing the vicinity and land use for projects is important in helping to determine the cumulative impact that an action may have. 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 the identification of 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 being made 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 RFFA along with a brief description of each project within the CEAs. Figure T-17 to Figure T-25 in Appendix T provides 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 51 pending applications for solar projects proposed over potentially 309,271 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.

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 a nominated 58,000 acres ACEC. Other RFFAs and management activities occurring in the CEAs that are highly probable 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 occurring 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**

- The purpose of GLWP as stated in Section 1.2 is to provide redundancy, reliability and resiliency of electrical power to the Reno-Sparks area.
- The construction of the GLWP is not predicated on the development of the 51 pending applications for solar projects or any other RFFAs along the approximately 472-mile transmission route.
- The actual acres of the RFFAs most likely would 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 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.
- The extent to which the projects RFFAs would be developed concurrently is difficult to predict and is dependent numerous factors:
  - some may be in design stage;
  - others undergoing NEPA evaluation;
  - and other RFFAs may be authorized but construction is not underway.

Therefore, it is assumed that the RFFAs would not occur simultaneously.

- The RFFAs located on federally-administered lands or that use federal funds would be subject to environmental review (NEPA, NHPA, ESA, etc.) and would be required to incorporate measures to minimize adverse impacts.
- RFFAs listed in Appendix T are regardless of land ownership. Because the State of Nevada does not have an environmental quality act, how each RFFA on non-federal lands would impact a resource is more uncertain because there are no documents available that are similar to an EIS under the NEPA.
- 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**

##### **Past, Present, and RFFAs Cumulative Impacts**

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

The major types of past, present, and RFFAs that could contribute to cumulative impacts to Mojave desert tortoise include transmission lines, renewable energy development, mining and mineral exploration operations, roadways, and commercial, industrial, and residential development. There are roughly 70 known RFFAs that were identified within the Mojave desert tortoise CEA (or tortoise CEA) that would occur primarily in Clark and Nye counties. The RFFAs that would encompass the most land area would be the 33 proposed solar projects estimated at 211,890 acres, which is approximately 1 percent of the 15.8 million-acre tortoise CEA. After the solar projects, roadway/transportation projects that are planned primarily in the Las Vegas metropolitan area make up the largest number of RFFAs within the CEA. One of the RFFAs within the CEA is a nomination for the 58,000-acre Cactus Springs ACEC near Indian Springs that proposes to preserve Mojave desert tortoise habitat as well as 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 desert tortoise and permanent habitat loss across large areas, such as urbanization, large-scale renewable energy projects, and those that fragment and degrade habitats, such as roads and mining and mineral exploration projects. The past, present, and RFFAs have and would also result in desert tortoise mortality and injury due to collisions with vehicles and crushing of burrows and eggs, harassment during translocation of tortoises away from construction activities, and an increase in predation from unintentional roosting and foraging structures. The 2011 Mojave Desert Tortoise Recovery Plan (USFWS 2011) recognized the reallocation of public lands for solar development would adversely affect 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 conjunction with the 17 solar RFFAs (an estimated 109,984 acres) in the area between Indian Springs and Amargosa Valley is anticipated to result in impacts on Mojave desert tortoise populations from habitat

loss, fragmentation, and loss of connectivity causing restriction of gene flow between regional populations. The Indian Springs area is identified in a recent study on Mojave desert tortoise connectivity (Averill-Murray et al. 2021) as an important linkage area to link core habitats that are fragmented across linear barriers (in this case, US 95). The remaining solar RFFAs (an estimated 101,906 acres) 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 are proposed to be located on BLM-administered lands, and the actual acres that would be authorized by the BLM would be less than the estimated 211,890 acres. The nominated Cactus Springs ACEC, if designated through a land use planning process and management decision would exclude (prohibit) solar development, could protect approximately 52 percent of the estimated 109,984 acres of proposed solar development between Indian Springs and Amargosa Valley, benefiting local populations of Mojave desert tortoise near Indian Springs over the long-term. ESA compliance that requires payment into a mitigation fund for each RFFA in Mohave desert tortoise habitat would 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 respective habitats.

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

The major types of past, present, and RFFAs that could contribute to cumulative impacts to Bi-State sage-grouse include transmission lines and other infrastructure projects, mining, livestock grazing and rangeland management, recreation, and commercial, industrial, and residential development. The proposed rule for listing of the Bi-State sage-grouse (USFWS 2013c) identified the presence of invasive plant species and noxious weeds as one of the primary threats to the species, with other identified threats including urbanization, mining, and renewable energy development. When combined with past and present conditions and other threats such as wildfire and recreation, these threats interact in such a way as to fragment and isolate populations and would be most noticeable in the White Mountains and Pine Nuts 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 are 15 known RFFAs within the Bi-State sage-grouse CEAA and include mining, treatment of invasive plant species and noxious weeds, and renewable energy development projects. The treatment of invasive and noxious weeds in the Mount Grant PMU would improve habitat conditions for the Bi-State sage-grouse. Of the identified RFFAs, seven are large 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 a reduction in available habitat for Bi-State sage-grouse, though would not likely contribute to reductions in connectivity because the activities are at the eastern end of the species habitat and do not bisect existing populations in the Bi-State sage-grouse CEAA. In combination, past, present, and RFFAs would result in cumulative impacts to the Bi-State sage-grouse and their respective habitats with the associated CEAA.

### **Lahontan Cutthroat Trout**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to Lahontan cutthroat trout include projects that alter stream discharge, channels, and morphology, degrade water quality, reduce lake levels, and introduce non-native fish species. These alternations are typically associated with agriculture, livestock grazing, mining, urban development, logging, highway and road construction, dam building or decommissioning, and discharge from wastewater treatment facilities (USFWS 1995b).

The CEAA for Lahontan cutthroat trout includes four RFFAs; one that proposes to decommission Eldorado Dam, an underground fiber cable installation project, one project that involves the treatment of invasive plant species and noxious weeds, and an Economic Development Plan for Walker River. 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 nor is it occupied by Lahontan cutthroat trout; therefore, this RFFA would have no impact on the species. The underground fiber cable project would be located at the eastern end of Reno approximately 12 miles of the Carson River and would not have any impact on Lahontan cutthroat trout or its habitat. 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 restoration 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 its habitat 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 urbanization and development, agriculture, grazing, recreation, 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, changes in exotic and non-native plant species (e.g., *Tamarix* sp.), and increase in human activity resulting in disturbance.

The CEAA for southwestern willow flycatcher, yellow-billed cuckoo, and Yuma Ridgway's rail includes five urban development/improvement projects involving homes, buildings near Reno, Nevada, 17 roadway/transportation construction and improvement projects (mostly around Las Vegas and Reno), two telecommunication facilities projects, two geothermal projects, three power line/energy projects (one near Las Vegas, one near Reno, and one near Silver Peak), five mining projects, and one habitat restoration project near Indian Springs. The RFFAs also includes 33 pending applications for solar facility projects with 9 near the Proposed Action's Esmeralda substation, 15 near the Proposed Action's Amargosa and Northwest Expansion substations, and 3 near the Harry Allen Substation. The solar generation facilities and power line, utility, energy, telecommunication, transportation, and mining projects are not located within suitable riparian or wetland habitat for these three riparian obligate birds species and are not anticipated to impact breeding and foraging habitat for these species. The construction activities, urbanization, increased vehicle use, and human presence associated with these projects may disturb these birds while migrating and flying between suitable habitats. 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 with the associated CEAA.

### **Action Alternatives Contribution to Cumulative Impacts**

#### **Mojave Desert Tortoise**

The implementation of the Action Alternatives would result in localized adverse impacts on Mojave desert tortoise that would include mortality and injury from handling and relocation of tortoise, vehicles, and/or disturbance to burrow and from increased predation by ravens foraging from transmission line structures. The implementation of EMMs (see Appendix C. EMMs MDT-1 to MDT-5), the Raven Management Plan, and the desert tortoise mitigation measure requiring use of tubular structures and bird deterrents on structures in Mojave desert tortoise habitat, would reduce impacts of the GLWP on 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. Due to the size of the temporary and permanent ROW areas of the Action Alternatives in comparison to the Mojave desert tortoise CEAA (approximately 0.1 percent) and implementation of the various measures identified in the EMMs and the anti-perching/nesting mitigation to reduce impacts noted above, the Action Alternatives would have a negligible contribution to cumulative effects on the Mojave desert tortoise within the associated CEAA.

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

The implementation of the Action Alternatives would result in impacts on Bi-State sage-grouse that would include 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 (see Appendix C. EMMs BSSG-1 to BSSG-16), the Bird and Bat Conservation Strategy, and the Bi-State sage-grouse mitigation measure requiring use of tubular structures and bird deterrents on structures in the Pine Nuts PMU and within PACs in the Mount Grant PMU would decrease the impacts of the on Bi-State sage-grouse within the CEAA.

The Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts effects on Bi-State sage-grouse within the associated CEAA. The Action Alternatives would result in a negligible contribution to cumulative effects on the Bi-State sage-grouse within the Bi-State sage-grouse CEAA because of the size of the disturbance of the Action Alternatives in comparison to the Bi-State sage-grouse CEAA (approximately 0.1 percent) and implementation of the EMMs, as well as the anti-perching/nesting mitigation measures to reduce impacts.

### **Lahontan Cutthroat Trout**

The Action Alternatives may result in impacts on the Lahontan cutthroat trout's habitat 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 (see Appendix C. EMMs BIO-35, CON-11, CON-15, HYDRO\_WQ-9, HYDRO\_WQ-23, and OPS-13). The effects of the Action Alternatives, when combined with past, present, and RFFAs. 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, and rehabilitation and restoration of habitat from the RFFA projects that involve treatment of invasive plant species and noxious weeds under the Economic Development Plan for Walker River. Due to the size of the temporary and permanent disturbance of the Action Alternatives in comparison to the Lahontan cutthroat trout CEAA (approximately 0.2 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 within the associated 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 cross the Carson River, and the 525-kV line crosses 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 (see Appendix C. EMMs BIO-1 to BIO-2, BIO-4 to BIO-6, BIO-10 to BIO 11, BIO-14 to 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, or Yuma Ridgway's rail. The Action Alternatives would disturb approximately 0.4 percent of the southwestern willow flycatcher, yellow-billed cuckoo, or Yuma Ridgway's rail's habitat within the associated CEAA and would implement measures to reduce impacts to this federally list species and its habitat. The Action Alternatives, therefore, would have a negligible contribution to cumulative effects on southwestern willow flycatcher, yellow-billed cuckoo, or Yuma Ridgway's rail and their respective habitats.

#### **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 federally listed species. However, the GLWP would not be constructed and there would be no contribution by the GLWP to cumulative impacts to federally listed species within the associated CEAA.

#### **3.18.6.2 Special Status Species**

The major past, present, and RFFAs that could contribute to cumulative impacts to special status species fall into five main categories: solar facilities, transportation, power transmission, geothermal, 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, vehicular collisions, release of toxins to aquatic resources, and water consumption.

#### **Past, Present, and RFFAs Cumulative Impacts**

##### **Special Status Plants**

There are approximately 68 known RFFAs that were identified within the special status plants CEAA including 33 pending applications for solar projects, 18 transportation projects, 5 mining projects, 4 utility and communications projects, 3 conservation/restoration projects, 3 general construction projects, 1 master planning project, and 1 water reclamation facility expansion. The majority of impacts to special status plants would occur as a result of permanent habitat loss or degradation due to urbanization, large-scale renewable energy projects, transportation projects, and mining and mineral exploration. The RFFAs that would encompass the largest areas would be the 33 pending applications for solar projects estimated at 188,752.7 acres, which is approximately 5.6 percent of the special status plant species CEAA.

The concentration of pending solar project RFFAs is located south of US 95 between the Nevada National Security Site and the Ash Meadows NWR occurs in proximity (<0.5 mile) to 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 dust and introductions of invasives), alterations of behavior patterns of the species pollinators and herbivores, and removal of additional pollinator habitat.

In addition to the white-margined beardtongue, the RFFAs could impact other special status plant species through ground-disturbing activities that remove vegetation and have the potential to remove individual special status plants or localized plant populations. Special status plants may also be crushed by construction equipment or personnel, degradation and fragment 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, and impacts to plant pollinator species caused by vegetation clearing and other project-related disturbances that may in turn reduce the species' ability to reproduce and colonize new areas. The RFFAs may include preconstruction surveys, avoidance buffers, and monitoring of special status plant populations to reduce impacts. Special status plants with a narrow habitat range or are endemic only to 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 plant and their respective habitat within the associated CEAA.

### **Special Status Terrestrial Wildlife**

There are approximately 68 known RFFAs that were identified 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, large-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 occur, notably in the vicinity of Beatty, Big Smoky Valley, Amargosa Desert, Indian Springs Valley, and Las Vegas Valley. These areas include 40 RFFAs with 19 pending applications for solar projects, 10 transportation projects, 5 mining projects, 2 telecommunications projects, 1 transmission line project, 1 habitat restoration project, 1 post fire recovery project, and the proposed designation of the nominated Cactus Springs ACEC.

Approximately 150 square miles within and adjacent to the Amargosa Desert occurs within pending solar project RFFAs. Populations of special status terrestrial wildlife that may be affected by habitat loss or direct impacts to species due to these RFFAs include common chuckwalla, Great Basin collared lizard, long-nosed leopard lizard, Mohave desert sidewinder, and desert iguana, Allen's big-eared bat, burrowing owl, Brazilian (Mexican) free-tailed bat, among others. Three RFFAs would occur near populations of Amargosa toad, which could be impacted if heavy metals were released into waterways and if there were sustained draw-downs to surface water and/or in groundwater levels by the RFFAs.

The three mining RFFAs near Beatty would occur near or within the Oasis Valley IBA. Migrating and resident birds and bats could be impacted by water consumption during mining operations if these activities were to reduce the amount of surface water and hydrophytic vegetation along the Amargosa River.

The remaining RFFAs located between Goldfield and Reno include 28 cumulative RFFAs around Esmeralda, Soda Springs Valley, along the Wassuk and Virginia Ranges, and in the vicinity of Reno and Carson City. These projects include 14 pending applications for solar projects, 6 transportation projects, 5 construction and urbanization projects, 3 energy projects, and one water reclamation project. Populations of special status terrestrial wildlife that may be affected by habitat loss due to these RFFAs include bighorn sheep, Great Basin collared lizard, greater short-horned lizard, pale kangaroo mouse, northern leopard frog, monarch butterfly, western red-tailed skink, Allen's big-eared bat, big brown bat, Brewer's sparrow, Brazilian (Mexican) free-tailed bat, among others.

A cluster pending of solar project RFFAs would be located in the vicinity of Big Dune and Lava Dune, the only two locations where Giuliani's dune scarab and large aegialian scarab are known to occur. One of these RFFAs, Orken Solar, would be located to the south-southwest of Big Dune, and as such, construction of the Orken Solar project may interfere with sand transport to the dune. The Orken, Amber Clearway, Titus Canyon, Virgo, Busted Butt, Jackpot, and Amargosa West solar facilities may collectively impact



35,306 acres and would be located to the south-southwest of Lava Dune. These pending solar RFFAs could form a nearly contiguous block where ground disturbance may occur and/or facilities constructed. Their construction could alter sand transport to Lava Dune. Actions that could alter sand transport to Big Dune and Lava Dune have the potential to alter the habitat available for these two scarab species, potentially resulting in population-level effects. Cumulatively, these RFFAs may result in a trend toward federal listing or loss of viability of Giuliani's dune scarab and large aegialian scarab. In combination, past, present, and RFFAs would result in cumulative impacts to special status terrestrial wildlife and their respective habitat within the associated CEAA.

### **Special Status Aquatic Species**

There are approximately 90 known RFFAs that were identified within the special status fish species CEAA. The majority of these projects do not occur near perennial water sources that support special status fish species. The 37 pending solar project applications and remaining 47 other RFFAs not near aquatic habitats within the special status fish species CEAA do not occur within or adjacent to aquatic habitats. Project activities associated with these remaining projects may include ground disturbance and runoff within the watershed of aquatic habitats; however, these projects are unlikely to impact to special status fish species or their habitat. Six RFFAs occur near aquatic habitats within the special status fish species CEAA, including a water reclamation and expansion project and transportation project near the Truckee River, integrated pest management for treatment of invasive plant species and noxious weeds throughout the BLM Stillwater FO, which includes the Carson River, two mining exploration projects in the mountains above Bodie Creek and Rough Creek, and a spring habitat restoration project in the Springs Mountains.

The water reclamation project, spring habitat restoration project, and pest management project would improve aquatic habitats for special status fish species. The water reclamation and spring habitat restoration project may also temporarily impact fish during restoration activities, which would then be offset long-term through restoration of the aquatic habitats. The transportation project and mining exploration projects could impact special status fish by the 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 fish 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 Beatty, Big Smoky Valley, Amargosa Desert, Indian Springs Valley, and Las Vegas Valley. Cumulative impacts to populations would also be greater within high value habitat areas such as IBAs. The Springs Mountains, Mount Grant, and Walker Lake IBAs would not be subject to cumulative impacts as a result of RFAAs. Three mining RFAAs occur near or within the Oasis Valley IBA. Migrating and resident birds and bats could be adversely impacted by water consumption during mining operations if these activities were to reduce the amount of surface water and hydrophytic vegetation along the Amargosa River.

## **Action Alternatives Contribution to Cumulative Impacts**

### **Special Status Plants**

The Action Alternatives would result in impacts ranging from negligible to impacts only to the individual on 41 special status plants due to the potential for individuals to be removed or destroyed and because of localized habitat degradation. Of the 41 special status plants that may be impacted by the Action Alternatives, 14 special status plants are known to occur within the footprint of one or more projects

components of the Action Alternatives and individual plants and local plant populations would be impacted by construction, O&M, and decommissioning of the GLWP. Five of the 14 special status plant species that are known to occur within the special status plant species analysis area for the Action Alternatives (black woolleypod, Clokey buckwheat, Tonopah milkvetch, white bearpoppy, and white-margined beardtongue) would occur within the footprint of one or more RFFAs. 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.

The Action Alternatives, and past, present, and the RFFAs would result in 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 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 on special status plant species would be negligible because of the size of the disturbance of the Action Alternatives in comparison to the special status plant species CEAA (approximately 0.4 percent) is small and implementation of 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.

### **Special Status Terrestrial Wildlife**

The Action Alternatives would result in impacts, ranging from undetectable to impacts only to the individual, on 29 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 to Lava Dune, which is one of two locations where Giuliani's dune scarab and large aegialian scarab are known to occur. Construction of the AS-2 (Proposed Action) in particular may interfere with sand transport to Lava Dune and may alter habitat for these two beetles. Construction of the AS-1 instead would avoid impacts to Giuliani's dune scarab and large aegialian scarab at Lava Dune. Tubular H-frames constructed with implementation of the anti-perching/nesting mitigation may impact beetle habitat at Lava Dune more than the lattice structures that would otherwise be constructed.

Cumulatively, the Action Alternatives and the RFFAs would result in impacts ranging from impacts only to individuals to impacts to local populations for the majority of these special status wildlife species. The Action Alternatives contribution to these cumulative effects on special status terrestrial wildlife species would be negligible because of the size of the disturbance of the Action Alternatives in comparison to the special status terrestrial wildlife CEAA (approximately 0.1 percent) is small and implementation of EMMs (Appendix C. BIO-1 through BIO-9, BIO-11, BIO-14 through BIO-20, BIO-24 through BIO-31, and BIO-34 through BIO-37) and the Bird and Bat Conservation Strategy would minimize and avoid impacts.

### **Special Status Aquatic Species**

The Action Alternatives would result in short-term and long-term impacts, ranging from undetectable to impacts only to the individual, driven predominantly by localized habitat degradation on six special status fish species. Impacts on special status fish species would be avoided and minimized through implementation of EMMs (Appendix C. EMMs BIO-35, CON-11, CON-15, HYDRO\_WQ-9, HYDRO\_WQ-23, and OPS-13). 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 aquatic habitats, as well as improvements to habitat from the RFFA projects that involve treatment of invasive plant species and noxious weeds and aquatic habitat restoration. Due to the size of the temporary and permanent ROW areas of the Action Alternatives in comparison to the special status fish species CEAA (approximately 0.2 percent) and implementation of the above referenced measures to reduce impacts, the Action

Alternatives would result in a negligible contribution to cumulative effects on species status fish species within the associated CEAA.

### **Special Status Bird and Bat Species**

The Action Alternatives would result in short and long-term impacts, ranging from undetectable to population-level impacts, to 57 special status birds and bats due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, and increased predation. Cumulatively, the Action Alternatives and the RFAAs would result in short- and long-term impacts ranging from impacts only to individuals to impacts to local populations of special status birds and bats. RFAAs are not anticipated to result in cumulative impacts to pinyon jays because few RFAAs occur within the northwestern portion of the CEAA where most of the pinyon-juniper pinyon jay habitat is found.

### **No Action Alternative Contribution to Cumulative Impacts**

The RFAAs 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 there would be no contribution by the GLWP to cumulative impacts to the special status species.

#### **3.18.6.3 General Wildlife**

The major types of past, present, and RFAAs that could contribute to cumulative impacts to general wildlife include transmission lines, renewable energy development, mining and mineral exploration operations, roadways, and commercial, industrial, and residential development. There are approximately 74 known RFAAs that were identified within the general wildlife CEAA. The RFAAs that would encompass the most land area would be the 37 pending solar project applications estimated at 188,753 acres, which is approximately 5.6 percent of the 3,350,020-acre general wildlife CEAA. The RFFA solar projects and roadway/transportation projects are primarily located in the Amargosa Desert, Big Smoky Valley, and along the Carson River basin. One of the RFAAs within the general wildlife CEAA is a nomination proposing to designate the estimated 58,000-acre Cactus Springs ACEC near Indian Springs that proposes to specifically preserve Mojave desert tortoise habitat, and if designated through a land use planning process and management decision would exclude (prohibit) solar development, 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 or their habitats are associated with actions that result in vehicle mortality, permanent habitat loss across large areas, such as urbanization, large-scale renewable energy projects, and those that fragment and degrade habitats, such as roads and mining and mineral exploration projects. The RFAAs would result in increases in anthropogenic disturbance (i.e., 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 and increases in predation due to increases in predatory detection from increased dispersal from home ranges. The habitat loss and fragmentation due to the 37 pending solar RFAAs primarily within the Amargosa Desert and Big Smokey Valley is anticipated to result in impacts to general wildlife habitat, winter ranges, and movement corridors for big game species. In combination, past, present, and RFAAs would result in

cumulative impacts to the general wildlife and their respective movement corridors within the associated CEAA.

### **Action Alternatives Contribution to Cumulative Impacts**

The implementation of the Action Alternatives would result in vehicle mortality, permanent habitat loss across large areas, such as urbanization, large-scale renewable energy projects, and those that fragment and degrade habitats, such as roads and mining and mineral exploration projects. Requiring use of tubular structures and bird deterrents on structures in Mojave desert tortoise and sage grouse habitat would decrease the impacts of the GLWP on general wildlife prey species.

Cumulatively, the effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in impacts ranging from impacts only to individuals to impacts to local populations within the general wildlife CEAA. Due to the size of the temporary and permanent disturbance of the Action Alternatives in comparison to the general wildlife CEAA (approximately 0.4 percent) and implementation of the EMMs (see Appendix C. EMMs MDT-1 to MDT-5), Bird and Bat Conservation Strategy, Integrated Weed Management Plan, and the Raven Management Plan, the Action Alternatives would result in a negligible contribution to cumulative effects on the general wildlife 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 general wildlife. However, the GLWP would not be constructed and there would be no contribution by the GLWP to cumulative impacts to the general wildlife.

#### **3.18.6.4 Golden Eagles**

The major types of past, present, and RFFAs that could contribute to cumulative impacts to golden eagles include commercial, industrial, and residential development, utility development, roads, vegetation management, 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 temporary avoidance of the construction area by foraging eagles 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 and 2012), and siting projects away from active golden eagle nests.

Currently, there are 114 RFFAs identified within the golden eagle CEAA. These RFFAs primarily occur in Clark, Esmeralda, and Nye counties and the majority of them would involve proposed transportation and renewable energy projects. The 50-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 37 pending applications for solar projects would encompass an

estimated 229,994 acres of land, which is approximately 4 percent of the 6.4-million-acre golden eagle CEAA. Solar projects are normally sited on fairly level terrain that is not typically suitable for golden eagle nesting habitat but may provide high quality foraging habitat for golden eagles. Additionally, many of the proposed solar projects would be located within 2 miles of nests that were found during GLWP raptor nest surveys that may be suitable for eagle nesting in addition to being in proximity to cliff and canyon habitat that is typically utilized by golden eagles for breeding. Golden eagles may be present flying over, perching, and foraging near any of the proposed solar projects. The RFFA solar facilities would result in a loss of foraging habitat. In combination, past, present, and RFFAs would result in cumulative impacts golden eagles from construction activity and foraging habitat degradation. Approximately 85 percent of the golden eagle CEAA encompasses federally-administered lands and would have measures implemented to minimize potential effects to the eagles and their respective habitats.

#### **Action Alternatives Contribution to Cumulative Impacts**

The Action Alternatives could result in changes in golden eagle habitat that is not anticipated to result in a decrease in productivity, nest abandonment, or eagle survival. Any impacts that would be associated with noise, visual disturbance, human presence, injury from transmission wire collision, or impacts on eagle breeding activities would be minimized through implementation of EMMs (see Appendix C. EMMs MDT-1 to MDT-5). The Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts on golden eagles within the associated CEAA. Because of the implementation of the measures noted above, the Action Alternatives would result in a negligible contribution to cumulative effects on golden eagles 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 there would be no contribution by the GLWP to cumulative impacts to the golden eagles or their habitat.

#### **3.18.6.5 General Vegetation**

The major types of past, present, and RFFAs within the general vegetation CEAA that could contribute to cumulative impacts include projects mining, renewable energy development, transportation, transmission lines, and commercial, industrial, and residential development. There are approximately 74 known RFFAs that were identified within the general vegetation CEAA that occur throughout the GLWP. The RFFAs that would encompass the most land would be the 37 proposed solar projects estimated at 188,752.7 acres, which is approximately 5.6 percent of the general vegetation CEAA. Effects from the RFFAs could result from permanent vegetation removal during construction activities and from the fragmentation of connected vegetation types. As vegetation communities become smaller and more fragmented, they become more susceptible to invasive species and noxious weeds. Habitat loss, degradation, and fragmentation have already occurred in the general vegetation CEAA by other transmission lines, roads, highways, and development. The primary source of impacts to vegetation is surface disturbance during construction. Measures may include trimming and drive and crush of vegetation rather than complete vegetation removal, minimizing the removal of impact vegetation resources such as riparian vegetation, where possible, and controlling the introduction and spread of invasive plant species and noxious weeds. In combination, past, present, and RFFAs would result in cumulative impacts on general vegetation.

### **Action Alternatives Contribution to Cumulative Impacts**

The implementation of the Action Alternatives would result in minimal loss of vegetation communities from construction of the transmission lines, new substations and amplifier sites, temporary work areas, and new access roads. There would also be the potential for the introduction and spread of invasive plant species and noxious weeds. The implementation of EMMs (see Appendix C. EMMs BIO-17, OPS-4, and REC-19) and the Integrated Weed Management Plan 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 result in a negligible contribution to cumulative effects on general vegetation within the associated CEAA because of the size of the temporary and permanent ROW areas of the Action Alternatives in comparison to the general vegetation CEAA (approximately 0.4 percent) and implementation of the EMMs and Integrated Weed Management Plan noted above,

### **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 there would be no contribution by the GLWP to cumulative impacts to vegetation with the general vegetation CEAA.

#### **3.18.6.6 Cultural Resources**

Approximately three percent of the 1,689,405-acre cultural resources CEAA has been subject to a cultural resources inventory (the area of potential effects). There are likely additional undocumented cultural resources within the CEAA. The major types of past, present, and reasonably foreseeable future projects or actions within the cultural resources CEAA that could contribute cumulatively to impacts to cultural resources include projects for commercial, industrial, and residential development, transportation, utilities, mining, and renewable energy developments. These types of projects may directly impact cultural resources through physical disturbance or major visual intrusion. 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. Projects led by the NDOT or federal agencies would consider impacts to cultural resources and measures to avoid, reduce or mitigate impacts on important cultural resources are likely to be implemented in accordance with Section 106 of the NHPA. Compliance with Section 106 ensures avoidance, minimization, or mitigation of impacts to cultural resources at the project level.

There are 50 known RFFAs identified 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 that would encompass the most land area would be the 31 pending applications for solar projects estimated at 120,164 acres, which would encompass approximately 3 percent of the 1,689,405-acre cultural resources CEAA. These renewable energy RFFAs are large, landscape scale projects that would be located in undeveloped areas and could have impacts to cultural resources. All of the solar RFFAs would be located on BLM-administered lands and would be individually subject to compliance with Section 106 of the NHPA. Any impacts on cultural resources would be avoided or mitigated to the maximum extent practicable. 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. Mitigation measures for archaeological sites typically include data recovery efforts such as systematic excavation and/or intensive surface mapping and artifact inventory. For historical-period sites, mitigation measures typically include archival research and the preparation of a historic context and/or architectural documentation. In addition, one of the RFFAs, the nomination for Cactus Spring ACEC, could help protect cultural resources in the nominated 58,000-acre near Indian Springs. The ACEC nomination intent 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.

#### **Action Alternatives Contribution to Cumulative Impacts**

Of the 1,689,405-acre cultural resource CEAA, 13,682 acres, or less than one percent are within the Action Alternatives area of potential effect. The cultural resources that would be directly affected by the Action Alternatives are a small fraction of a percent of the cultural resources within the CEAA, and impacts on those resources would be avoided, minimized, or mitigated to the maximum 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 affect a very small percentage of the CEAA (less than one percent) and would also be subject to compliance with Section 106 of the NHPA. 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 in 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 there would be no contribution by the GLWP to cumulative impacts to cultural resources within the cultural resources CEAA.

#### **3.18.6.7 Paleontological Resources**

The paleontological resources CEAA is defined as high potential fossil yield classification (PFYC) areas crossed by the GLWP transmission lines. This CEAA totals 31,439 acres and is concentrated in two general locations –TUSK and the Silverpeak area, from south of Mina to west of Goldfield. Approximately one percent of the paleontological resources CEAA has been subject to an inventory with the GLWP. There are likely additional undocumented paleontological resources within the paleontological resources CEAA. Similar to cultural resources, the major types of past, present, and reasonably foreseeable future projects or actions within the paleontological resources CEAA that could contribute cumulatively to impacts to paleontological resources include projects involving ground disturbing activities such as for 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-managing 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 are six identified RFFAs (one transportation and five renewable energy projects) within the paleontological resources CEAA and all would be subject to federal oversight. The future transportation project is an amendment to an existing BLM ROW in a developed, urbanized location and is not expected to impact paleontological resources. The pending renewable energy projects, four solar and one geothermal project, would encompass a total of 8,390 acres or 27 percent of the CEAA north of Silverpeak. These would create ground disturbance on undeveloped BLM-administered lands in an area of high PFYC. The pending geothermal and solar RFFAs would be subject to compliance with the PRPA. 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.

#### **Action Alternatives Contribution to Cumulative Impacts**

Of the 31,439-acre paleontological resources CEAA, 299 acres or 1 percent would be within the paleontological resources CEAA. The paleontological resources that would be affected by the Proposed Action and the TUSK Transmission Alternative B 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 maximum extent practicable. A paleontological monitoring and mitigation plan and worker's environmental awareness training plan would be developed and implemented for the GLWP.

The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in 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 Proposed Action and the TUSK Transmission Alternative B 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 in 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 there would be no contribution by the GLWP to cumulative impacts to paleontological resources with the paleontological resources CEAA.

### **3.18.6.8 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, overhead transmission lines, communication towers, and commercial, industrial, and residential development. These actions generally result in a transformation of the natural landscape to a more developed setting when viewed during both day and night conditions over the long-term. There are roughly 36 known RFFAs that were identified within the NHT CEAA; the majority of them are future transportation related projects in the Reno and Las Vegas metropolitan area where the setting has been substantially altered to an urban setting. The expansion of residential areas would increase the footprint of developed areas through the addition of structures, roads, and electrical distribution lines. The expanded developed area would be particularly evident during nighttime conditions, when lighting would extend for a considerable distance



from the developed area. Based on the existing vicinity and land use of the RFFAs in the NHT CEAA, as well as the viewshed analyses that were completed for the NHT alignments, two RFFAs, Pine Nut Solar and Yerington Anaconda Mine Site Disposal projects, may contribute to overall cumulative impacts to NHT resources. 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 since 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 for decades depending on the scale and intensity of the wildfire. In combination, past, present, and RFFAs would result in cumulative impacts to the settings of 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 be dependent of the visibility of the GLWP components from the NHT alignments. Based on the analysis of potential effects in this EIS, the Action Alternatives would alter the landscape elements predominantly through the incremental modification to the associated visual settings and desired recreation setting characteristics 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 in 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 there would be no contribution by the GLWP to cumulative impacts to NHTs and Trails Under Study for Congressional Designation within the NHT CEAA.

#### **3.18.6.9 Land Use and Realty**

Past and present actions have established the current land use patterns within the land use and realty CEAA, and the RFFAs identified in Table T-2 in Appendix T would be expected to continue to influence these patterns. Land in this CEAA is largely undeveloped and is characterized by vacant desert lands, and by areas used for grazing, transportation corridors, utilities, and recreation. The past and present actions have introduced predominantly livestock grazing, renewable energy, electrical transmission, mining operations, and transportation system improvement uses throughout the area, with commercial and residential uses near the Las Vegas, North Las Vegas, Reno, and Sparks metropolitan areas. The types of projects or actions that could contribute to cumulative impacts to existing land use and realty authorizations include the renewable energy projects, mining operations, utilities, and development projects. Development projects may have impacts during construction when additional truck and heavy equipment traffic is added to local traffic where the infrastructure may not the capacity to accommodate or withstand the volume or type of vehicles.

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 (i.e., undeveloped land that is converted to a transmission line ROW, solar energy facility, etc.). As development occurs, the rural environment on private lands would

become increasingly more residential, commercial, and industrial. The overall cumulative impact of these developments is generally consistent with the long-term management planning tools such as BLM RMPs and numerous state, county, and municipal-level long-range planning documents. In addition, past and present actions included the establishment of DOD land, operations at Nellis and Creech Air Force Bases and the NTTR. Because Nellis and Creech Air Force bases 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 area built to support this type of development. Continued renewable energy development, including new solar and geothermal facilities, transmission lines, substations, and roads that would be built for these projects, would result in the permanent conversion of undeveloped land to an energy production use. Within the land use and realty CEAA, the BLM has received ROW applications for 51 solar projects on approximately 309,271 acres of BLM-administered lands. Sixty-eight percent (209,975 acres) of the pending applications for solar projects would be located in the SNDO, 30 percent (93,033 acres) in BMDO, and four percent (12,786) in CCDO. This represents approximately 2 percent of the BLM-administered lands in SNDO, and less than 1 percent of the BLM-administered lands in BMDO and CCDO. Of these 51 pending solar projects, 16 would be located in Clark County and 18 in Nye County. Both county's comprehensive land use plans recognize their suitability for renewable energy projects and encourage responsible development of the renewable energy projects (Clark County 2021b; Nye County 2011).

The development of these solar and other renewable energy and mining operation projects would 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 long-term cumulative impact on available rangeland, potentially resulting in a reduction in grazing leases. The proposed Orken Solar facility would overlap with the Big Dune SRMA and three other proposed facilities, South Solar Ridge, Bonanza, and Kawich solar, would be located within the nominated Cactus Springs ACEC. In addition, the dispersed recreation including hunting, OHV use, and hiking would be eliminated within the fenced area of each renewable energy facility. The cumulative regional impact on rangeland and recreation would be considered to have a slight change or alteration of the use because of the vast amount of land currently available for grazing and recreation within the SNDO specifically (9,905,816 acres within the SNDO) and within the land use and realty CEAA (27,181,260 acres within this CEAA).

Of the 200 RFFAs identified in the land use and realty CEAA, the 51 pending applications for solar projects would collectively have the greatest impact on future land patterns as well as having the potential to encumber future easements, ROWS, mining claims, and special use permits. The number of pending solar projects and the approximately 309,271 acres of BLM-administered lands that may be authorized for a single use is notable compared to the number and scale of past and present renewable energy facilities. However, future solar energy land use represents less than 1 percent of the CEAA and one percent of the BLM-administered lands in BMDO, CCDO, and SNDO collectively (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.

### **Action Alternatives Contribution to Cumulative Impacts**

Impacts created by the Proposed Action within the permanent ROW area would occur where the 525-kV transmission line would cross the TUSK and Mason Valley WMA SMAs. The Proposed Action at these

locations would alter current use of the land but would not eliminate future use of the lands. The Proposed Action and Beatty Transmission Alternatives A and C would limit the use of the portion of the NTTR Range 77A restricted airspace and the planned NTTR administrative lands withdrawal areas and their respective training operations, not only within the permanent ROW area but also to areas adjacent to the proposed transmission line. The direct impacts of the remaining Action Alternatives would be the same as the Proposed Action with two exceptions. The Beatty Transmission Alternative K, which would avoid impacts to the planned NTTR proposed legislative withdrawal and Beatty Transmission Alternative G, which would avoid impacts to both the planned NTTR proposed legislative withdrawal and the NTTR Range 77A restricted airspace.

The construction of the RFFAs would contribute to the modification of the pattern of land use. The collocation of the GLWP within the WWECs would benefit land uses by consolidating the overall impact of utility infrastructure. As previously noted, the purpose of GLWP is to provide redundancy, reliability and resiliency of electrical power to the Reno-Sparks area. Its construction is not predicated on the development of the 51 pending applications for solar projects along the 525-kV transmission route. The suitability for renewable energy projects is stated in both Nye and Clark counties' comprehensive land use plans. If the ROW application for GLWP is denied, the solar facilities would look at other means to distribute their generated power.

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 in 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 there would be no contribution by the GLWP to cumulative impacts to land use and realty authorization within the land use and realty CEAA.

#### **3.18.6.10 Visual Resources**

The major types of past, present, and RFFAs that could contribute to impacts to visual resources include transmission lines, renewable energy development, mining and mineral exploration operations, and commercial, industrial, and residential development. The combination of these past, present, and future actions generally result in a change in the characteristic landscape from a natural setting to a more developed setting when viewed during both day and night conditions over the long-term. There are roughly 64 known RFFAs that were identified within the visual resource CEAA that would occur primarily in Clark, Nye, Esmeralda, Storey, and Washoe counties. Of the 64 RFFAs, 19 would occur within lands under the county or municipal jurisdiction or as part of the NDOT highway system. The expansion of residential areas would expand the footprint of developed areas through the addition of structures, roads, and electrical distribution lines. The expanded developed area would be particularly evident during nighttime conditions, when lighting would extend for a substantial distance from the developed area.

Forty-five of the RFFAs within the visual resources CEAA would be located on lands administered by the BLM and would include solar, geothermal, and mining projects. The 33 pending applications for solar projects would be located predominantly in undeveloped areas and would generally be grouped in two

general areas – in the Amargosa Valley between Indian Springs and Beatty and in the Big Smoky Valley north of Silver Peak. In total, these proposed solar projects would encompass an estimated 178,714 acres, or approximately 7 percent, of the total 2,723,452 acres of the visual resources CEAA. Future BLM efforts such as the Cherrywood Emergency Stabilization and Rehabilitation project and the nomination of the Cactus Springs ACEC would help to implement measures to reduce impacts to visual resources since the purpose of these RFFAs is to remediate previous impacts to the landscape and visual setting or conserve landscapes.

Of the 64 RFFAs identified in the visual resource CEAA, the solar, geothermal, and mining projects would collectively result in greater noticeable change to the characteristic landscape, scenic quality, and views from sensitive viewing platforms as compared to the other RFFAs. However, these future projects represent only seven percent of the CEAA and less than one percent of the BLM-administered lands in BMDO, CCDO, and SNDO collectively. In combination, past, present, and RFFAs would result in cumulative impacts within the visual resource CEAA. In addition, solar, geothermal, and mining projects built on landscapes on BLM-administered lands designated as VRM Class II or Class III, may not be in conformance with the management classification and may require RMP amendments.

#### **All Action Alternatives Contribution to Cumulative Impacts**

The impacts from the GLWP on the existing landscape character, scenic quality, and views from SVPs would vary depending on the setting, presence of existing built features, visibility conditions, and distance to and the contrast created by the components of the Action Alternatives. At specific locations within the visual resource analysis area, 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 A or Class B scenic landscapes in areas with little or no built features or when the viewer would be within the immediate FG of the GLWP components. Based on the analysis of potential effects in this EIS, the Action Alternatives would have impacts to visual resources that would vary from landscapes that appear unchanged and views of the GLWP that would not attract attention to landscapes that appear severely altered and views of the GLWP from sensitive viewing platforms that would demand attention and dominate within 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 GLWP area, visual impacts 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 in 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 there would be no contribution by the GLWP to cumulative impacts to visual resources within the visual resources CEAA.

### **3.18.6.11 Socioeconomic Resources and Environmental Justice**

Past and present actions have established the socioeconomic resources and EJ populations within this CEAA, and the RFFAs identified in Table T-2 in Appendix T would be expected to continue to influence these resources. The past and present actions have introduced predominantly livestock grazing, renewable

energy, electrical transmission, mining operations, and transportation system improvement uses throughout the area, with scattered smaller commercial and residential areas through the corridor and more developed commercial, residential, and industrial area near the Las Vegas, North Las Vegas, Reno, and Sparks metropolitan areas.

The types of RFFAs that could contribute to cumulative impacts on socioeconomic resources and EJ populations include a variety of development projects such as renewable energy projects, mining operations, utilities, transportation, commercial and residential development, and oil and gas projects. The past, present, and RFFAs in the socioeconomic resources and EJ populations (socioeconomic/EJ) CEAA have, and would continue to have, beneficial effects on the socioeconomic resources and EJ populations with the potential to employ local workers, which reduces unemployment and increases earnings. Payroll and sales taxes generated from this local employment base and purchase of materials produce additional revenue for the municipalities, counties, and the State. Additionally, revenue is generated by construction crews staying in local accommodation 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 RFFA's may overlap in time such that the cumulative projects would affect demands on temporary housing. Projects include concurrent construction of potential solar projects or other renewable energy projects, transmission lines and pipelines, as well as mining projects that require temporary housing and services for many nonlocal workers. The existing infrastructure within the local communities and counties may be limited and struggle to accommodate new workers from concurrent project 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 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, those located along the interstate and other major highway corridors, and near popular outdoor recreation destinations. Counties with renewable energy development activity include Esmeralda and Clark counties.

The RFFAs would not typically increase the permanent population or residency but would have slight temporary increase during construction and decommissioning. The overall cumulative impact of these developments is generally consistent with the long-term management planning tools such as BLM RMPs and numerous state, county, and municipal-level long-range planning documents.

Construction of several major future road improvements in the socioeconomic resources and EJ population CEAA would have a similar contribution to the regional economy. The Las Vegas Metropolitan Area has been one of the fastest growing regions in the country over the past several decades. Robust growth is expected to continue in 2023 and 2024 as the area recovers from the Covid-19 pandemic. Beginning in 2025, growth will begin to moderate and eventually fall below the national population growth rate by 2055 (UNLV 2022). Despite the long-term forecast, a substantial amount of community development, including residential and commercial construction along with expansion of public facilities and services, will be necessary to accommodate anticipated growth in the short and medium term. While this would also contribute to increasing employment, income, and public revenues within the region, it would place increasing demands on public facilities and services and would require increased spending by state and local governments to meet the needs of the growing population. Given the large number of

RFFAs currently proposed within the socioeconomic resources and EJ population CEAA and the likelihood that additional projects would be planned and constructed over the 30-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. Developers are already struggling to meet the increased demand for affordable housing (Wolford 2022).

Additional projects in the socioeconomic/EJ CEAA that contribute to the cumulative impacts on the socioeconomic resources include the development of energy-related projects and the associated transportation and utility infrastructure. Continued renewable energy development, including the transmission lines, substations, and roads that would be built for these projects, would result in the permanent conversion of undeveloped land to energy production use. Within the socioeconomic/EJ CEAA, the BLM has received ROW applications for 51 solar projects on approximately 309,271 acres of BLM-administered lands. Sixty-eight percent (209,975 acres) of the proposed solar facilities would be located in the SNDO around Amargosa Valley, Indian Springs, and the Moapa River Indian Reservation. Thirty percent (93,033 acres) for the solar projects would be in BMDO, approximately 20 miles west of Tonopah and the remaining four percent (12,786 acres) would be in CCDO approximately 10 miles to the east and north Yerington. This represents approximately 2 percent of the BLM-administered lands in SNDO, and less than one percent of the BLM-administered lands in BMDO and CCDO. 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 51 solar projects would employ approximately 12,750 temporary and 255 permanent employees. The known renewable energy projects in the socioeconomic/EJ CEAA are assumed to be constructed sequential rather than concurrent and therefore the number of temporary employees at one time would be reduced but the employment opportunity duration would be extended. Additionally, the known development projects would be mostly clustered in certain locations and therefore the local communities, mentioned above, that are in close proximity to the developments would have the greatest impacts.

Cumulative effects that could be expected to impact socioeconomic resources and EJ populations include the creation of jobs, generation of tax revenues, increases in the demand for local housing, transportation systems, businesses, and public services such as schools, emergency services, and various utilities. Because the construction of renewable energy projects requires a large number of workers compared to the operations phase, cumulative impacts are expected to be highest during construction. The timing of these effects is largely dependent on the construction of individual projects, which is uncertain; thus, impacts could vary greatly, especially if projects are developed simultaneously.

The development of these solar and other renewable energy and mining operation projects would remove areas from recreation opportunities. These types of RFFAs on BLM-administered lands within the socioeconomic resources and EJ population CEAA would create cumulative impacts on available recreational lands. The proposed Orken Solar facility would overlap with the Big Dune SRMA and three other proposed facilities, South Solar Ridge, Bonanza, and Kawich solar, would be located on the nominated Cactus Springs ACEC. In addition, the 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 would be considered to have a negligible effect of the use because of the vast amount of land currently available for recreational opportunities within the SNDO specifically (2 percent of SNDO) and within the entire socioeconomic/EJ CEAA (0.8 percent of area impacted).

Of the RFFAs identified in the socioeconomic/EJ CEAA, the 51 pending applications for solar projects and 12 energy and fuel reduction projects would collectively have the greatest impact on future socioeconomic conditions. Future solar energy land use represents less than one percent of the socioeconomic/EJ CEAA and less than one percent of the BLM-administered lands in BMDO, CCDO, and SNDO collectively. In combination, past, present, and RFFAs would result in cumulative impacts on socioeconomic resources and EJ population within the socioeconomic/EJ CEAA.

### **Action Alternatives Contribution to Cumulative Impacts**

The impacts from the GLWP on the socioeconomic resources and EJ populations would vary depending on many factors including the length of the transmission line segment and the number of ancillary facilities in a certain area/region as it relates to the number of construction workers necessary, and the length of time construction workers spend in an area. The magnitude of impact would be similar with each of the Action Alternatives, although alternatives may vary slightly in alignment or placement, they are not regional alterations. Some of the Action Alternatives may have differences which would result in the alignment in closer proximity to a community or residents and would differ in the acreage of ROW required from public or private entities. The Proposed Action and the Scotty's Junction Transmission Alternative A would cross tribal lands where a lease agreement would be necessary and lease income would be provided to the Tribe for the land, creating a beneficial socioeconomic revenue for the Tribes. The Proposed Action would have impacts on socioeconomic resources from the increase 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 lease revenue generated by the GLWP would be consistent throughout construction, O&M, and decommissioning. The number of proposed projects and the approximate distribution of projects in the GLWP area is substantial compared to the number and scale of past and present renewable energy facilities. The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts on socioeconomic resources 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 in 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 there would be no contribution by the GLWP to cumulative impacts to socioeconomic resources and EJ populations within the socioeconomic/EJ CEAA.

#### **3.18.6.12 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 transmission lines, renewable energy development, mining and mineral exploration operations, roadways, and commercial development. There are 83 known RFFA's within the public health and safety CEAA that would occur; 46 would occur within urban areas, 1 within a semi-rural area, and 35 within rural areas. Cumulatively, 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-four of the RFFAs are transportation projects, 42 of which would occur along existing transportation routes involve roadway improvements, in both

urban areas such the cities of Las Vegas, North Las Vegas, Sparks, and Reno and also in rural areas along state routes. Twenty-six of the 83 RFFAs are pending applications for solar development projects that would occur primarily on BLM-administered lands. The solar RFFAs alone cover approximately 32,107 acres of the 935,575.8-acre public health and safety CEAA (just over 3 percent). The majority of the solar projects occur within more rural areas including Amargosa Valley between Indian Springs and Beatty, Big Smoky Valley north of Silver Peak, near Moapa, and southeast of Pahrump. These areas are largely undeveloped areas and along state highways.

The RFFAs would result in changes in impacts to public health and safety that would be largely associated with workers during construction, O&M, and decommissioning (as applicable). These include physical hazards such as risk of injury from equipment, weather exposure, risks associated with working at extreme heights, and fire- and electrical-related risks; biological hazards; and chemical hazards such as exposure to hazardous substances. Risks to public health and safety would be greatest during construction and would generally decrease once construction is completed. Roadway improvements promote connectivity and can improve public health and safety by providing alternative transportation routes where none existed previously, or the existing routes were not providing acceptable levels of service for the traveling public.

Since nearly all 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. Transportation RFFA impacts such as travel delays would be the greatest where widening and other major roadway actions are occurring in developed areas such as near the cities of Las Vegas, North Las Vegas, Sparks, and Reno. Noise associated with mining activities would continue for the duration of the mining operations and ROW agreements.

Fire can result from nearly all construction activities due to blasting activities, operation of combustion engines, workers smoking, and other practices that could inadvertently ignite vegetation. There would be a risk of fire associated with solar facility operation and battery storage from equipment failure. As part of typical solar development, it is expected that the solar RFFAs would all result in the removal or crushing of incompatible vegetation to accommodate the solar arrays and access routes, which would reduce fire risk.

All RFFAs have the potential to result in some hazardous waste as a result of construction activities as well as typical O&M. Many of the RFFAs are expected to involve the use, storage, and disposal of hazardous waste. Mining projects are expected to result in the greatest waste due to the regular mining operations. Improper disposal and handling of hazardous materials has the potential to result in accidental releases. Many RFFAs would be located on federally managed or state lands and 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.

### **Action Alternatives Contribution to Cumulative Impacts**

The Action Alternatives would result in negligible impacts to public health and safety, use, handling, or the storage of hazardous waste, and fire management. Noise would occur during construction where project components would be built, during O&M from project components and for facility and vegetation maintenance, and during decommissioning for the removal of GLWP components. With the implementation of the EMMs (see Appendix C. EMMs HEALTH\_SAFE-1 to HEALTH\_SAFE-4), there would be negligible direct and indirect impacts to public health and safety.



The effects of the Action Alternatives, when combined with past, present, and RFFAs, would result in cumulative impacts to public health and safety within the associated CEAA. Due to the size and location of the temporary and permanent ROW areas of the Action Alternatives in comparison to the public health and safety CEAA and implementation of the EMMs referenced above, 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 in 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 there would be no contribution by the GLWP to cumulative impacts to public health and safety within the associated CEAA.

#### **3.18.6.13 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 future projects towards areas of greater geological hazard. Construction of RFFA projects 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.

There are seven solar facilities proposed that would be located directly south and southeast of the Lava Dune, one of two notable geologic sand dune features within the geology/mineral resource analysis area. The Orken, Amber Clearway, Titus Canyon, Virgo, Busted Butt, Jackpot, and Amargosa West solar facility would roughly cover 35,306 acres. Cumulatively, these would affect the sand deposition rate and pattern to this dune and potentially to Big Dune 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 proportional disturbance to the soils surface. The use of land through activities such as mining, ranching, roads, solar projects, transmission lines, and OHV use have all shaped the current condition of the soil resources. The impacts of present actions in the soil resources CEAA would be very similar to the past actions. 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 29 RFFAs (refer to Table T-2 in Appendix T) that would have the potential to disturb an estimated 109,695 acres (15 percent) of soils CEAA that have high wind and water erosion rates or that may impact prime and unique farmlands. The majority of these RFFAs would be in association with the 25 pending applications for solar projects, which could impact up to 102,116 acres. The largest of the proposed solar projects would potentially disturb 7,084 acres on sensitive soils.

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 proposed solar and mining projects. Fourteen proposed solar projects (approximately 22,331 acres) and 15 other RFFAs (3,016

acres) would cumulatively affect up to 1.2 percent of the mineral resources CEAA. Of the 15 other RFFAs, Crown , Mother Load, Gemfield, and Brown and Gold Quarries are proposed mining operations that could add to the cumulative effects to mineral resources. Because active mining encompasses only a small fraction of those mining districts, and because the projects are likely to cover only a fraction of the mining districts they cross, there would be no obvious 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, because measures would be implemented, and agencies' regulations adhered to in order to minimize the effects of geological hazards and routine wind and water erosion. In addition, the combination, the GLWP, past, present, and RFFAs would have relatively small (less than 2 percent) of potential disturbance to the mining districts within the mineral resources CEAA. The solar RFFAs could have a cumulative effect on the Lava Dune's sand deposition rate and pattern 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' sand.

### **All Action Alternatives Contribution to Cumulative Impacts**

Through implementation of EMMs (refer to Appendix C. EMMs COM-12, COM-14, COM-17, DECOM-4, HYDRO\_WQ-12, HYDRO\_WQ-14, HYDRO\_WQ-16, and HYDRO\_WQ-20), the risk of damage from seismicity, landslides, flood damage or subsidence from the Action Alternatives would be reduced. Construction of the Proposed Action may impact the sand transport to Lava Dune because the project components would be located along the south side of US 95. Since the strongest winds consistently come from the south-southeast, the Amargosa Substation Alternative 2 and the Proposed Action's 525-kv transmission structures would extend above ground level and could interrupt sand transport.

Approximately 40 percent of the temporary ROW area and 41 percent of the permanent ROW area would not be disturbed by the GLWP transmission line construction, access roads, temporary use areas, and the other ancillary facilities. There would be long-term loss of soil productivity on acres not reclaimed during the life of the GLWP. Approximately 40,449.6 acres (86 percent) of soils within the temporary ROW area and 11,402.4 acres (83 percent) within the permanent ROW area are considered to have low water erosion susceptibility. The soil orders associated within the temporary and permanent ROW areas have wind erosion ratings that indicate that the soils generally have a low susceptibility to wind erosion. Impacts to soil quality may be 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 because of reclamation efforts. Adherence to EMMs (refer to Appendix C. EMMs GEO\_SOIL-1 to SOIL-12, COM-14, and HYDRO\_WQ-20) would minimize soil resources impacts.

Transmission lines typically have little impact on mining operations. Span lengths are such that access to minerals can be accomplished between spans. Should open pit mining be planned, structures can be left on 'islands,' or the mining interests can have the transmission line locally re-routed. While lines can and are routinely moved to accommodate development, the cost for moving lines is borne by those wanting to relocate them. The GLWP ROW would be on the surface only. It would not affect any claims or entries unless the presence of the line limited access to develop the claim or occurrence during construction. Operations and Maintenance of the GLWP would not directly 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 GLWP, when combined with past, present, and RFFAs, would result in cumulative effects on earth resources. In addition to the GLWP disturbing less than one percent of the mineral and soil resources CEAA and the implementation of the EMMs noted above, co-locating the GLWP with WVEC would also reduce the cumulative effects to earth resources. The GLWP 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 there would be no contribution by the GLWP to cumulative impacts to earth resources within the earth resources CEAA.

#### **3.18.6.14 Water Resources**

The CEAs for cumulative impacts to water resources are HUC8 watersheds for surface water and groundwater and HUC10 watersheds for wetlands and riparian areas. With respect to water resources overall, impacts can be cumulative if they occur nearby in the same watershed or on the same water body, and there is a project-related impact in that same watershed or water body. The water resources and wetland and riparian area CEAs used for analyzing potential cumulative impacts to water resources includes the immediate drainage area associated with water bodies and floodplains that are also crossed by the GLWP.

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 ground water CEAA include 44 pending applications for solar projects (268,504 acres) and another 114 RFFAs that consist of a variety of transportation (345 miles), mining (3,095 acres), geothermal energy (118,314 acres), and other miscellaneous projects (6,774 acres). Future actions that could contribute to cumulative effects to wetlands and water resources within the wetlands and riparian area CEAA include 37 proposed solar facilities (214,813 acres) and another 57 RFFAs that consist of a variety of transportation (170 miles), mining (3,095 acres), geothermal energy (118,314 acres), and other miscellaneous projects (5,405 acres). The nominated 58,000-acre Cactus Springs ACEC that has been nominated near Indian Springs depending on management decisions made if designated, would protect water resources. Most of these projects 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 2 percent and 4 percent of the surface water and ground water and wetland and riparian area CEAs.

#### **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 construction of amplifier, microwave, substation sites, and transmission line structures. The effects from the GLWP on surface water resources could be attributed to accidental spills of environmentally harmful substances into surface water. 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 (refer to Appendix C. EMMs HYDRO\_WQ-12 and HYDRO\_WQ-14, EMMs HAZMAT\_WASTE-1 to HAZMAT\_WASTE-24, BIO-18, BIO-43, BIO-45, CON-7, CON-11, DECOM-7, GEO-SOIL-8, and HYDRO\_WQ 1 to HYDRO\_WQ-23). Actions taken in accordance with these environmental protective measures 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 that would be used with the permanent ROW 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 facilities 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 GLWP would impact 1 percent of the surface water and groundwater resources CEAA (17,136,078 acres) and 0.2 percent of the wetland and riparian resources CEAA (6,412,975 acres). The GLWP would result in a negligible contribution to cumulative effects on water resources within the 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 water resources. However, the GLWP would not be constructed and there would be no contribution by the GLWP to cumulative impacts to earth resources within the associated CEAA.

#### **3.18.6.15 Special Designation Area**

Cumulative impacts to the specific areas of the SDAs including LWCs would be limited to those 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 WSA, due to their special designation and specific management prescriptions, which 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 foreground (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 may have cumulative effects on SDAs include 23 pending applications for solar projects (approximately 85,768 acres) and 65 other RFFAs (151,539 acres) would cumulatively affect up to

3 percent of the SDA CEAA. Of the 65 other RFFAs, 2 mining projects, 141 miles of transportation related projects, and 63,408 acres of projects ranging from residential development to transmission lines to a 58,000-acre nominated ACEC. The existing inventoried LWC units in the CEAA would be affected by the RFFAs because it could split areas within the existing inventoried LWC units into separate parcels or reduce them in size below the 5,000-acre requirement by placement of built structures and roads. The RFFAs that may have cumulative effects on 10 existing inventoried LWC units (246,597 acres) would include 13 solar projects (13,082 acres) and 4 miscellaneous projects (2 mining, 1 geothermal, and 1 containment project) estimated at 4,740 acres. This would represent a reduction of approximately 8 percent of the existing inventoried LWC units within the BLM CCDO and SNDO.

The combined past, present, and RFFAs would result in negligible cumulative impacts to SDAs within the SDA CEAA, because the respective agencies' management plans and policies would be adhered to prior to implementation. In addition, the combination, past, present, and RFFAs would have relatively small (less than 1 percent) of potential disturbance to the CEAA.

### **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 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 that would be 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, 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.

Where the Action Alternatives would intersect inventoried LWC units, there would be impacts from construction and O&M activities 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 brush-clearing) that occurs adjacent to a given 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 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, 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, because the respective agencies' management plans and policies would be adhered to prior to implementation. In addition, the combination, past, present, and RFFAs with the GLWP would have less than 1 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.

#### **3.18.6.16 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 seven county boundaries that the GLWP would be located. The cumulative impact analysis for air quality considers the NAAQS set by the EPA and for climate change and GHG emissions it 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 resulting from fossil fuel combustion totaled 36.4 million tons in 2017. Of these, activities related to the generation of electric power accounted for 12.9 million tons 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, mining, roadways, and renewable energy development. These types of projects may directly impact air quality, climate change, and GHG emissions through project construction activities. Certain developments such as industrial and/or manufacturing facilities, transportation, and mining, may also impact air quality during O&M but to a lesser degree than construction. There are approximately 200 known RFFAs that were identified within the air CEAA. The RFFAs that would encompass the most land would be the 51 pending applications for solar projects estimated at 309,271 acres, which is approximately 1.2 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. In combination, past, present, and RFFAs would result in negligible cumulative impacts.

### **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 of the facilities. Construction would result in temporary GHG emissions from fuel combustion and fugitive dust raised by construction and maintenance vehicles, as well as 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 is 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 towards NAAQS nonattainment.

Decommissioning would result in gaseous emissions; however, emissions would be less than those associated with construction. 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

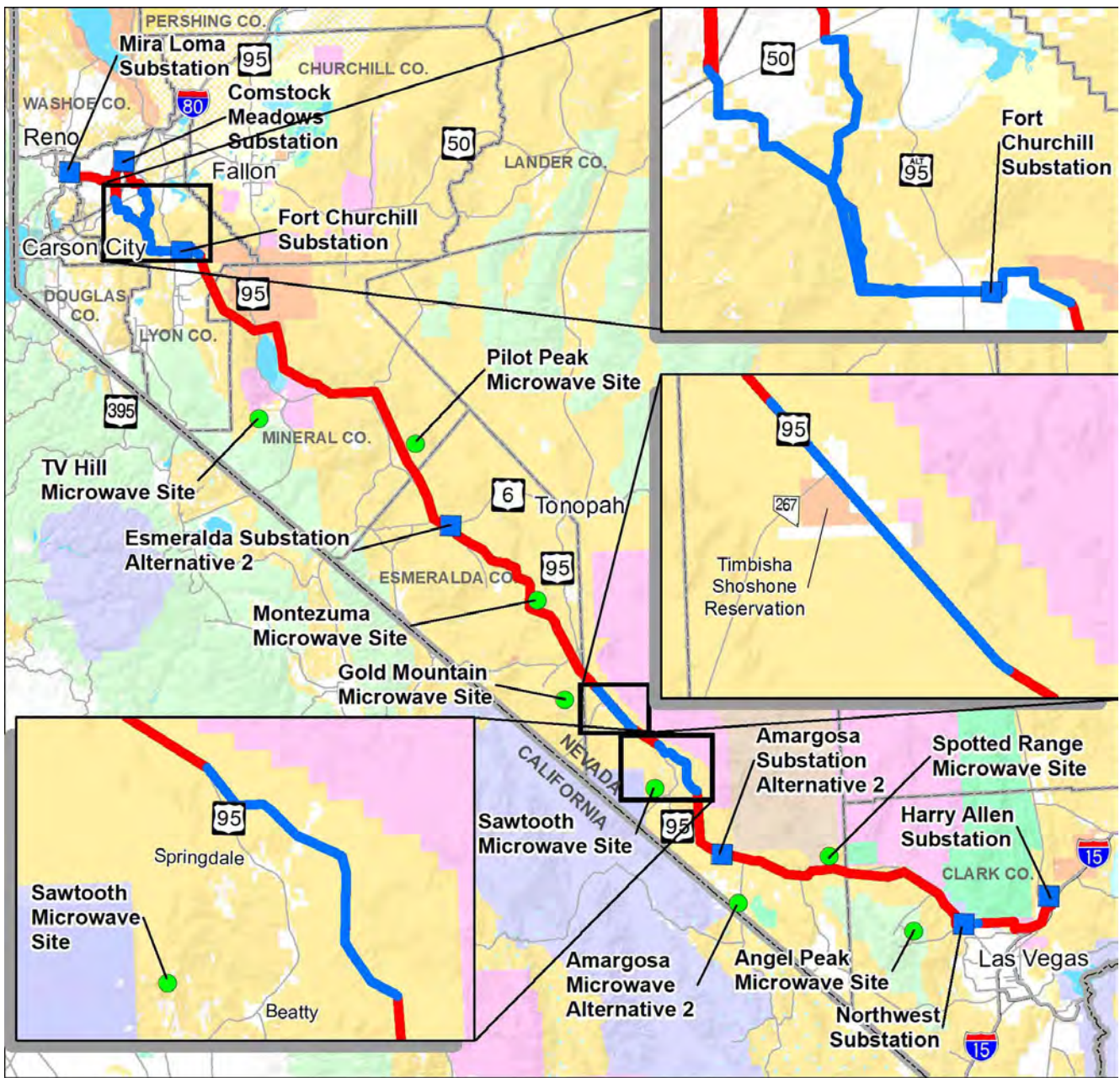
The RFFAs would be implemented, and other development and management trends and patterns would continue in the No Action Alternative. As previously described, these actions along with past and present projects would result in cumulative impacts to air quality, climate change, and GHG emissions. However, the GLWP would not be constructed and there would be no contribution by the GLWP to cumulative impacts to air quality, climate change, and GHG emissions within the associated CEAA.

### 3.19 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, substation, and microwave alternatives (noted below in Table 3-143). The BLM Preferred Alternative is illustrated in Figure 3-50.

**Table 3-143. BLM Preferred Alternative**

Action Alternative
Beatty Transmission Alternative K
Scotty’s Junction Transmission Alternative B
Mason Valley WMA Transmission Alternative A
Carson River Transmission Alternative C
Amargosa Substation – 2
Esmeralda Substation – 2
Amargosa Microwave Alternative – 2

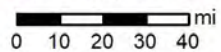


**Legend**

- Microwave Site
- Substation
- Proposed Action Incorporated as part of BLM Preferred Alternative
- Specific Transmission Line Alternatives 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 3-50. BLM Preferred Alternative**



### **3.20 Comparison of Impacts by Alternative**

Table 3-144 through Table 3-148 provide a summarized comparison of land ownership and key resource impacts, as presented in detail in Chapter 3, associated with each of the transmission route, substation, and microwave group alternatives.

**Table 3-144. Comparison of Alternatives for the Losee and TUSK Transmission Line Route Groups**

Resource/Use Impact	Losee Proposed Action	Losee Transmission Alternative A	TUSK Proposed Action	TUSK Transmission Alternative B
<b>Land Ownership (miles)</b>	Total: 4.0 • BLM: 1.0 • NDSL: 3.0	Total: 4.1 • BLM: 3.0 • NDSL: 1.1	Total: 1.5 • NPS: 1.5	Total: 1.5 • NPS: 1.5 • BLM: <0.1
<b>Land Ownership (temporary ROW acres)</b>	Total: 302.3 • BLM: 53.5 • DOD: 42.2 • NDSL: 156.4 • USFWS: 50.2	Total: 297.0 • BLM: 215.8 • DOD: <0.1 • NDSL: 79.6 • USFWS: 1.5 • Private: 0.2	Total: 115.6 • BLM: 22.0 • County: 2.0 • NPS: 56.2 • Private: 35.4	Total: 115.6 • BLM: 14.6 • County: 2.5 • NPS: 77.0 • Private: 1.4
<b>Land Ownership (permanent ROW acres)</b>	Total: 99.4 • BLM: 25.2 • DOD: 3.3 • NDSL: 69.4 • USFWS: 1.5	Total: 97.8 • BLM: 71.9 • NDSL: 25.9	Total: 36.4 • BLM: 5.9 • County: 0.3 • NPS: 19.1 • Private: 11.2	Total: 36.4 • NPS: 36.4
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitat?	No impact to Bi-State sage-grouse, Lahontan cutthroat trout, southwestern willow flycatcher, Yellow-billed cuckoo, or Yuma Ridgway's Rail.  The Losee Proposed Action would cross through Mojave desert tortoise suitable and occupied habitat. Surveys identified 18 tortoise burrows, one live tortoise, and one tortoise carcass within the Losee Proposed Action survey area. The Losee Proposed Action includes four tortoise burrows in the temporary ROW area and no burrows in the permanent ROW area.	Same as the Losee Proposed Action, except Mojave desert tortoise surveys identified 10 tortoise burrows and one tortoise carcass within the survey area of Losee Transmission Alternative A. The Losee Transmission Alternative A includes eight tortoise burrows within the temporary ROW area and no burrows in the permanent ROW area.	No impact to Bi-State sage-grouse, Lahontan cutthroat trout, southwestern willow flycatcher, Yellow-billed cuckoo, or Yuma Ridgway's Rail.  The TUSK Proposed Action would cross through Mojave desert tortoise suitable habitat.	No impact to Bi-State sage-grouse, Lahontan cutthroat trout, southwestern willow flycatcher, Yellow-billed cuckoo, or Yuma Ridgway's Rail.  Because the TUSK Transmission Alternative B and the TUSK Proposed Action are close in proximity to each other, the Mojave desert tortoise survey results indicate no notable difference between these two TUSK transmission alternatives. However, the lattice structures of TUSK Transmission Alternative B would increase the potential for raven predation on Mojave desert tortoise in and around TUSK lands, resulting in long-term impacts on tortoise populations.
<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?	The Losee Proposed Action is anticipated to have minimal impact to native vegetation communities due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area.  The Losee Proposed Action is anticipated to have a negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.  The Losee Proposed Action is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.	Same as the Proposed Losee Action, except the Losee Transmission Alternative A would result in up to approximately 5.3 acres less temporary ROW and 1.6 acres less of permanent ROW on vegetation in comparison to the Losee Proposed Action.	The TUSK Proposed Action is anticipated to have minimal impact to native vegetation communities due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area.  The TUSK Proposed Action is anticipated to have a negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.  The TUSK Proposed Action is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.	Same as the Proposed TUSK Action.
<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?	Special status plant, wildlife, and bird and bat species could occur within the Losee Proposed Action area. No special status aquatic species suitable or occupied habitat would occur.  The Losee Proposed Action would include approximately 302.3 acres of temporary ROW and 99.4 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.	Same as the Losee Proposed Action, except the Losee Transmission Alternative A would include approximately 297.0 acres of temporary ROW and 97.8 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.	Special status plant, wildlife, and bird and bat species could occur within the TUSK Proposed Action area. No special status aquatic species suitable or occupied habitat would occur.  TUSK the Proposed Action would include approximately 19.1 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.	Same as the TUSK Proposed Action, except the TUSK Transmission Alternative B would include approximately 36.4 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat
<b>Bald and Golden Eagles:</b> How would construction, O&M, and decommissioning of the GLWP affect Bald and Golden Eagles?	No impact.	No impact.	No impact.	No impact.

Resource/Use Impact	Losee Proposed Action	Losee Transmission Alternative A	TUSK Proposed Action	TUSK Transmission Alternative B
<b>General Wildlife:</b> How would construction, O&M, and decommissioning of the GLWP affect general wildlife?	The Losee Proposed Action would result in short and long-term impacts on general wildlife due to localized habitat loss and degradation from 99.4 acres within the permanent ROW area.	The Losee Transmission Alternative A would result in short and long-term impacts on general wildlife due to localized habitat loss and degradation from 97.8 acres within the permanent ROW area.	The TUSK Proposed Action would result in short and long-term impacts on general wildlife due to localized habitat loss and degradation from 19.1 acres within the permanent ROW area.	The TUSK Transmission Alternative B would result in short and long-term impacts on general wildlife due to localized habitat loss and degradation from 36.4 acres within the permanent ROW area.
<b>Cultural Resources:</b> Would historic properties be adversely affected by the construction, O&M, and decommissioning of the GLWP?	Within the Losee Proposed Action Cultural Resource Analysis Area/APE, one cultural resource site/historic property would have adverse effects, two would have no adverse effects, and four would have no effects.	Within the Losee Transmission Alternative A Cultural Resource Analysis Area/APE, one cultural resource site/historic property would have adverse effects, two would have no adverse effects, and five would have no effects.	Within the TUSK Proposed Action Cultural Resource Analysis Area/APE, zero cultural resource sites/historic properties would have adverse effects, two would have no adverse effects, and zero would have no effects.	Within the TUSK Transmission Alternative B Cultural Resource Analysis Area/APE, zero cultural resource sites/historic properties would have adverse effects, two would have no adverse effects, and zero would have no effects.
<b>Native American Religious Concerns:</b> How would sacred sites or Traditional Cultural Properties be affected by construction, O&M, and decommissioning of the GLWP?	No impact.	No impact.	The Moapa Band of Paiutes expressed concern about the GLWP impacting culturally sensitive areas in the TUSK. No archaeological sites were identified during the cultural resources inventory. Additional and continued consultation with the Tribe is needed to identify impacts to culturally sensitive areas in TUSK. This consultation will be led and initiated by BLM in coordination with NPS as the land manager. The consultation will help the BLM to determine if the GLWP would affect Native American religious concerns in the TUSK as well as to avoid or minimize them.	Same as the TUSK Proposed Action.
<b>Paleontological Resources:</b> How would construction, O&M, and decommissioning of the GLWP affect paleontological resources?	The Losee Proposed Action would be underlain by geologic units with unknown (PFYC U) paleontological potentials. The Losee Proposed Action would overlap 302.4 acres of PFYC U units.	Same as the Losee Proposed Action, except Losee Transmission Alternative A would overlap 297.0 acres of PFYC U units.	The TUSK Proposed Action would be underlain by geologic units with a very high (PFYC 5) and unknown (PFYC U) paleontological potentials. The TUSK Proposed Action would overlap 39.2 acres of PFYC 5 units and 76.4 acres of PFYC U units.	Same as the TUSK Proposed Action, except TUSK Transmission Alternative B would overlap 37.4 acres of PFYC 5 units and 78.2 acres of PFYC U units.
<b>Earth Resources:</b> How would construction, O&M, and decommissioning of the GLWP affect the earth resources of geology, soils, and minerals?	The Losee Proposed Action would include approximately 302.3 acres of temporary ROW and 99.4 acres of permanent ROW. Wind and water erosion factors (WEGs from six to eight and K factors from 0.05 to 0.17) are low for the Losee Proposed Action. 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 Losee Proposed Action.	Same as the Losee Proposed Action, except the Losee Transmission Alternative A would include approximately 297.0 acres of temporary ROW and 97.8 acres of permanent ROW.	The TUSK Proposed Action would include approximately 19.1 acres of permanent ROW. Wind and water erosion factors (WEGs from six to eight and K factors from 0.05 to 0.17) are low for the TUSK Proposed Action. 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 TUSK Proposed Action.	The TUSK Transmission Alternative B would include approximately 36.4 acres of permanent ROW. Wind and water erosion factors and impacts to prime farmland are the same as the TUSK Proposed Action.
<b>Air Quality, Climate Change, and Greenhouse Gas Emissions:</b> How would construction, O&M, and decommissioning of the GLWP affect air quality?	The Losee Proposed Action would result in negligible impacts to air quality from low level particulate matter emissions from construction, O&M, and decommissioning activities that may generate fugitive dust (particulates). The construction of the Losee Proposed Action would result in greenhouse gas 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&M.	Same as the Losee Proposed Action.	The TUSK Proposed Action would result in negligible impacts to air quality from low level particulate matter emissions from construction, O&M, and decommissioning activities that may generate fugitive dust (particulates). The construction of the TUSK Proposed Action would result in greenhouse gas 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&M.	Same as the TUSK Proposed Action.
<b>Special Designation Areas:</b> How would construction, O&M, and decommissioning of the GLWP affect special designation areas?	The Losee Proposed Action would not directly affect the Desert NWR but would be located adjacent to its border for approximately two miles, which could increase unauthorized access in the area.	The Losee Transmission Alternative A would be aligned away from the Desert NWR border for approximately two miles, which would reduce the area for unauthorized access to the SDA. This alternative would result in 29 percent less area for unauthorized access potential than the Proposed Action.	The TUSK Proposed Action would cross into and would be parallel to the TUSK boundary for approximately 1.5 miles. The amount of permanent ROW required for the TUSK Proposed Action would be 105 feet within the TUSK boundary and equate to 19.1 acres.	Same as the TUSK Proposed Action, except the TUSK Transmission Alternative B would consist of six guyed-V wire-frame towers located approximately 200 feet within the TUSK. The amount of permanent ROW required for the TUSK Transmission Alternative B would be 200 feet within the TUSK boundary and equate to 36.4 acres.
<b>National Historic Trails and Trails Under Study for Congressional Designation:</b> How would the construction, O&M, and decommissioning of the GLWP	The Losee Proposed Action would be located approximately five miles from the nearest portion of the Old Spanish NHT. Neither the transmission line nor ancillary GLWP components would be visible from the Old Spanish NHT.	Same as the Losee Proposed Action.	No impact.	No impact.

Resource/Use Impact	Losee Proposed Action	Losee Transmission Alternative A	TUSK Proposed Action	TUSK Transmission Alternative B
affect the National Historic Trails (Old Spanish, California, and Pony Express)?				
<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?	<p>The Losee Proposed Action would impact the Nellis AFB Small Arms Range because the GLWP would restrict use of the western portion of the range.</p> <p>There would be no impact to the planned UNLV campus.</p>	<p>The Losee Transmission Alternative A would result in the loss of use of less than one percent of the UNLV campus, and the UNLV campus and the GLWP would be planned concurrently.</p> <p>There would be no impact on the Nellis AFB Small Arms Range.</p>	<p>The TUSK Proposed Action would cross into and would be parallel to the TUSK boundary for approximately 1.5 miles. The amount of permanent ROW required for the TUSK Proposed Action would be 105 feet within the TUSK boundary and equate to 19.1 acres.</p>	<p>Same as the TUSK Proposed Action, except the TUSK Transmission Alternative B would require 200 feet of permanent ROW within the TUSK boundary and equate to 36.4 acres.</p>
<b>Water Resources:</b> How would the construction, O&M, and decommissioning of the GLWP affect water resources?	<p>The Losee Proposed Action would include 69 surface water crossings from the temporary ROW and 31 surface water crossings from the permanent ROW. There would be no acres of disturbance in high flood risk areas.</p>	<p>The Losee Transmission Alternative A would include 128 surface water crossings from the temporary ROW and 55 surface water crossings from the permanent ROW. There would be no acres of disturbance in high flood risk areas.</p>	<p>The TUSK Proposed Action would include 16 surface water crossings from the permanent ROW.</p>	<p>The TUSK Transmission Alternative B would include 15 surface water crossings from the permanent ROW.</p>
<b>Visual Resources:</b> How would the construction, O&M, and decommissioning of the GLWP affect visual resources?	<p>The Losee 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.</p> <p>Under the Losee Proposed Action, highways SVPs that could have views of the alternative include I-15 and CR 215. Motorists traveling along the roadways would have views of the Losee Proposed Action for a total of approximately 8 minutes on I-15 and 10 minutes on CR 215. Views of the Losee Proposed Action would be intermittent because of the urbanized setting and would not attract attention from motorists traveling along I-15 and CR 215.</p> <p>Under the Losee Proposed Action, SDA SVPs that could have views of the alternative include Ice Age Fossils State Park and TUSK. The Losee 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 Losee Proposed Action would be seen by park visitors. The 525-kV transmission line would be recognizable but would not attract the attention of the casual observer because of the distance to the Proposed Action and the presence of other transmission lines in the state park's viewshed.</p> <p>The Losee Proposed Action would be visible from approximately five percent of the TUSK in the FG and nine percent in the MG. Because of the distance to the 525-kV transmission line and the presence of other transmission lines and built features in the TUSK viewshed, the Losee Proposed Action would be recognizable but would not attract the attention of the casual observer.</p> <p>The Losee Proposed Action would be in conformance with the VRM Class III designated landscape.</p>	<p>Same as the Losee Proposed Action, except the Losee Transmission Alternative A permanent ROW area would cross approximately 97.8 acres of Scenic Quality Class C landscapes. More of the Losee Transmission Alternative A would be seen in the FG of the two highways than the Proposed Action.</p> <p>The Losee Transmission Alternative A would be visible from approximately 79 percent of the Ice Age Fossils State Park in the MG. Approximately 2.8 miles of the Losee Transmission Alternative A would be seen by park visitors.</p> <p>The Losee Transmission Alternative A would be visible from approximately six percent of the TUSK in the FG and eight percent in the MG.</p>	<p>The TUSK Proposed Action permanent ROW area would cross approximately 37.1 acres of Scenic Quality Class C landscapes. There would be no apparent change in scenic quality. There would be no apparent change in scenic quality.</p> <p>Under the TUSK Proposed Action, highways SVPs that would have views of the alternative include US 95, SR 157, and CR 215. Motorists traveling along roadways would have views of the TUSK Proposed Action for a total of approximately eight minutes on US 95, three minutes on SR 157, and four minutes on CR 215. Views of the TUSK Proposed Action because of the urbanized setting and would not attract attention from motorists traveling along US 95, SR 157, and CR 215.</p> <p>Under the TUSK Proposed Action, 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. Depending on their location, casual observers within the TUSK SVP would view approximately 33.9 miles of the TUSK Proposed Action in addition to the Northwest Substation expansion (16.9 acres). Views of the 525-kV transmission line visible in the FG and MG from the TUSK north of the urbanized area of North Las Vegas/Las Vegas would not attract attention or be visually discernible in the visual setting because of the existing built features and infrastructure.</p> <p>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 Proposed Action. A NPS TUSK Visual Impact Assessment was conducted, and seven viewpoints were identified through coordination with NPS staff to assess the effect of the GLWP's construction, O&amp;M, and decommissioning activities. The following viewpoints would have views of the TUSK Proposed Action and the Visual Impact Assessment is as follows:</p> <p>Durango/Moccasin (TUSK Viewpoint #12): From the Durango/Moccasin Viewpoint, the Proposed Action would</p>	<p>Same as the TUSK Proposed Action, except 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 from the Monument.</p> <p>Additionally, the NPS TUSK Visual Impact Assessment for TUSK Transmission Alternative B would be as follows:</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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</p>

Resource/Use Impact	Losee Proposed Action	Losee Transmission Alternative A	TUSK Proposed Action	TUSK Transmission Alternative B
			<p>result in weak contrast with the existing features in the landscape.</p> <p>Durango Trail (East): From the Durango Trail (East) Viewpoint, the Proposed Action would not contrast with the existing features in the landscape.</p> <p>Durango Trail (North): From the Durango Trail (North) Viewpoint, the Proposed Action would result in weak contrast with the existing features in the landscape.</p> <p>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.</p>	would begin to attract attention away from the landscape within the TUSK.
<b>Socioeconomic Resources:</b> What impact would the construction, O&M, and decommissioning of the GLWP have on socioeconomic resources e?	The Losee Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the Losee Proposed Action.	The TUSK Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the TUSK Proposed Action.
<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?	<p>The Losee Proposed Action would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects.</p> <p>The noise generated by construction, O&amp;M, and decommissioning would be temporary and cease once activities have been completed.</p> <p>There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.</p>	Same as the Losee Proposed Action.	<p>The TUSK Proposed Action would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects.</p> <p>The noise generated by construction, O&amp;M, and decommissioning would be temporary and cease once activities have been completed.</p> <p>There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.</p>	Same as the TUSK Proposed Action.
<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 Acronyms:* AFB – Air Force Base; APE – Area of Potential Effect; BLM – Bureau of Land Management; CR – County Route; DOD – Department of Defense; FG – Foreground; GLWP – Greenlink West Project; I – Interstate; kV – Kilovolt; MG – Middleground; NAAQS – National Ambient Air Quality Standards; NCA – National Conservation Area; NDSL – Nevada Division of State Lands; 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; SDA – Special Designation Area; SR – State Route; SVP – Sensitive Viewing Platform; TUSK – Tule Springs Fossil Beds National Monument; UNLV – University of Nevada, Las Vegas; US – United States Highway; USFWS – United States Fish and Wildlife Service; VRM – Visual Resource Management; WEG – Wind Erodibility Group; WMA – Wildlife Management 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 3-145. Comparison of Alternatives for the Beatty Transmission Line Route Group**

Resource/Use Impact	Beatty Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K
<b>Land Ownership (miles)</b>	Total: 18.0 • BLM: 17.7 • Private: 0.4	Total: 18.1 • BLM: 18.1 • Private: <0.1	Total: 18.8 • BLM: 18.8	Total: 17.0 • BLM: 17.0	Total: 18.5 • BLM: 18.5 • Private: <0.1
<b>Land Ownership (temporary ROW acres)</b>	Total: 1,686.9 • BLM: 1,659.7 • Private: 27.2	Total: 1,669.8 • BLM: 1,664.7 • Private: 5.1	Total: 1,726.5 • BLM: 1,726.5	Total: 2,007.0 • BLM: 1,973.6 • Private: 33.5	Total: 1,760.8 • BLM: 1,755.7 • Private: 5.1
<b>Land Ownership (permanent ROW acres)</b>	Total: 438.1 • BLM: 428.8 • Private: 9.3	Total: 440.1 • BLM: 439.5 • Private: 0.6	Total: 455.3 • BLM: 455.3	Total: 413.7 • BLM: 413.7	Total: 447.4 • BLM: 446.8 • Private: 0.6
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitat?	No impact to Bi-State Sage-grouse, Lahontan cutthroat trout, southwestern willow flycatcher, Yellow-billed cuckoo, or Yuma Ridgway's Rail.  The Beatty Proposed Action would cross through Mojave desert tortoise suitable and occupied habitat. Surveys identified five tortoise burrows within the Beatty Proposed Action survey area.	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action, except Mojave desert tortoise surveys identified eight tortoise burrows within the survey area of Beatty Transmission Alternative C.	Same as the Beatty Proposed Action, except Mojave desert tortoise surveys identified three tortoise burrows within the survey area of Beatty Transmission Alternative G.	Same as the Beatty Proposed Action, except Mojave desert tortoise surveys identified 17 tortoise burrows within the survey area of Beatty Transmission Alternative K.
<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?	The Beatty Proposed Action is anticipated to have minimal impact to native vegetation due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area.  The Beatty Proposed Action is anticipated to have negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.  The Beatty Proposed Action is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.	Same as the Beatty Proposed Action, except the Beatty Transmission Alternative A would result in up to approximately 17.1 acres less temporary ROW and 2.0 acres less of permanent ROW on vegetation in comparison to the Beatty Proposed Action.	Same as the Beatty Proposed Action, except the Beatty Transmission Alternative C would result in up to approximately 39.6 acres more temporary ROW and 17.2 acres more of permanent ROW on vegetation in comparison to the Beatty Proposed Action.	Same as the Beatty Proposed Action, except the Beatty Transmission Alternative G would result in up to approximately 320.1 acres more temporary ROW and 25.2 acres less of permanent ROW on vegetation in comparison to the Beatty Proposed Action.	Same as the Beatty Proposed Action, except the Beatty Transmission Alternative K would result in up to approximately 73.9 acres more temporary ROW and 9.3 acres more of permanent ROW on vegetation in comparison to the Beatty Proposed Action.
<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?	The Beatty Proposed Action would include approximately 1,686.9 acres of temporary ROW and 438.1 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat. Additionally, approximately 9.6 acres of temporary ROW and 2.0 acres of permanent ROW would occur within wetland habitat. Approximately 50.1 acres of temporary ROW and 16.7 acres of permanent ROW would occur within Important Bird Areas.	Same as the Beatty Proposed Action, except the Beatty Transmission Alternative A would include 1,669.8 acres of temporary ROW and 440.1 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.  Additionally, approximately 36.6 acres of temporary ROW and 11.1 acres of permanent ROW would occur within wetland habitat. Approximately 83.3 acres of temporary ROW and 27.8 acres of permanent ROW would occur within IBAs.	Same as the Beatty Proposed Action, except the Beatty Transmission Alternative C would include 1,726.5 acres of temporary ROW and 455.3 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.  Additionally, approximately 2.4 acres of temporary ROW and no permanent ROW would occur within wetland habitat. No temporary or permanent ROW would occur within Important Bird Areas.	Same as the Beatty Proposed Action, except the Beatty Transmission Alternative G would include 2,007.0 acres of temporary ROW and 413.7 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.  Additionally, approximately 1.3 acres of temporary ROW and no permanent ROW would occur within wetland habitat. Approximately 491.5 acres of temporary ROW and 100.8 acres of permanent ROW would occur within Important Bird Areas.	Same as the Beatty Proposed Action, except the Beatty Transmission Alternative K would include 1,760.8 acres of temporary ROW and 447.4 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.  Additionally, approximately 31.3 acres of temporary ROW and 10.7 acres of permanent ROW would occur within wetland habitat. Approximately 83.3 acres of temporary ROW and 27.8 acres of permanent ROW would occur within Important Bird Areas.
<b>Bald and Golden Eagles:</b> How would construction, O&M, and decommissioning of the GLWP affect Bald and Golden Eagles?	A total of one nest with the potential for supporting golden eagles were identified within the Beatty Proposed Action.	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action, except a total of three nests with the potential for supporting golden eagles were identified within the Beatty Transmission Alternative G.	Same as the Beatty Proposed Action.

Resource/Use Impact	Beatty Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K
	<p>There would be a very small loss of foraging habitat for bald eagles because the Beatty Proposed Action does not contain this species' preferred foraging habitat. Impacts to golden eagles associated with noise, visual disturbance, human presence, electrocution, and injury from transmission wire collision are anticipated to be negligible. The Beatty 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.</p>				
<p><b>General Wildlife:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect general wildlife?</p>	<p>The Beatty Proposed Action would result in short and long-term impacts, ranging from undetectable to impacts only to the individual, on general wildlife due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, potential increased predation, and reduced availability of movement corridors.</p> <p>The Beatty Proposed Action would cross the 7J Ranch and result in 9.3 acres of permanent ROW and 27.2 acres of temporary ROW within the 7J Ranch boundary.</p> <p>The Beatty Proposed Action would impact approximately 1.9 acres of permanent ROW and 9.6 acres of temporary ROW would occur within wetland habitat (i.e., marsh and playa).</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative A would result in 0.6 acres of permanent and 5.1 acres of temporary ROW within the 7J Ranch boundary. Additionally, the Beatty Transmission Alternative A would impact approximately 11.1 acres of permanent and 36.3 acres of temporary ROW would occur within wetland habitat (i.e., marsh and playa).</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative C would avoid the 7J Ranch boundary. Additionally, the Beatty Transmission Alternative C would impact approximately 0.0 acres of permanent and 2.4 acres of temporary ROW would occur within wetland habitat (i.e., marsh and playa).</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative G would result in 0 acres of permanent and 33.5 acres of temporary ROW within the 7J Ranch boundary. Additionally, the Beatty Transmission Alternative G would impact approximately 1.3 acres of temporary ROW would occur within wetland habitat (i.e., marsh and playa).</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative K would result in 0.6 acres of permanent and 5.1 acres of temporary ROW within the 7J Ranch boundary. Additionally, the Beatty Transmission Alternative K would impact approximately 10.7 acres of permanent and 31.3 acres of temporary ROW would occur within wetland habitat (i.e., marsh and playa).</p>
<p><b>Cultural Resources:</b> Would historic properties be adversely affected by the construction, O&amp;M, and decommissioning of the GLWP?</p>	<p>Within the Beatty Proposed Action Cultural Resource Analysis Area/APE, 23 cultural resource sites/historic properties would have adverse effects, 17 would have no adverse effects, and 67 would have no effects.</p>	<p>Within the Beatty Transmission Alternative A Cultural Resource Analysis Area/APE, 23 cultural resource sites/historic properties would have adverse effects/, 15 would have no adverse effects, and 61 would have no effects.</p>	<p>Within the Beatty Transmission Alternative C Cultural Resource Analysis Area/APE, 23 cultural resource sites/historic properties would have adverse effects, 14 would have no adverse effects, and 70 would have no effects.</p>	<p>Within the Beatty Transmission Alternative G Cultural Resource Analysis Area/APE, 9 cultural resource sites/historic properties would have adverse effects, 31 would have no adverse effects, and 71 would have no effects.</p>	<p>Within the Beatty Transmission Alternative K Cultural Resource Analysis Area/APE, 14 cultural resource sites/historic properties would have adverse effects, 30 would have no adverse effects, and 59 would have no effects.</p>
<p><b>Native American Religious Concerns:</b> How would sacred sites or Traditional Cultural Properties be affected by construction, O&amp;M, and decommissioning of the GLWP?</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>
<p><b>Paleontological Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect paleontological resources?</p>	<p>The Beatty Proposed Action would be underlain by geologic units with a very low (PFYC 1), low (PFYC 2), and unknown (PFYC U) paleontological potentials. The Beatty Proposed would overlap 5.4 acres of PFYC 1 units, 51.0 acres of PFYC 2 units, and 1,641.9 acres of PFYC U units.</p>	<p>Same as the Beatty Proposed Action, except Beatty Transmission Alternative A would overlap 1,624.9 acres of PFYC U units.</p>	<p>Same as the Beatty Proposed Action, except Beatty Transmission Alternative C would overlap 8.1 acres of PFYC 1 units and 1,687.5 acres of PFYC U units.</p>	<p>Same as the Beatty Proposed Action, except Beatty Transmission Alternative G would overlap 25.5 acres of PFYC 1 units, 15.9 acres of PFYC 2 units, and 1,973.3 acres of PFYC U units.</p>	<p>Same as the Beatty Proposed Action, except Beatty Transmission Alternative K would overlap 24.8 acres of PFYC 1 units, 15.9 acres of PFYC 2 units, and 1,726.4 acres of PFYC U units.</p>
<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>	<p>The Beatty Proposed Action would include approximately 1,686.9 acres of temporary ROW and 438.1 acres of permanent ROW.</p> <p>The WEGs ratings range between five and six (low wind erosion susceptibility) for the soil associated with the Beatty Proposed Action.</p> <p>The K factors range from 0.05 to 0.28, which are considered to have low water erosion and runoff</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative A would include 1,669.8 acres of temporary ROW and 440.1 acres of permanent ROW.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative C would include 1,726.5 acres of temporary ROW and 455.3 acres of permanent ROW.</p> <p>Approximately 99.9 acres farmland of statewide importance, if irrigated soils, would be disturbed within the permanent ROW area by the Beatty Transmission Alternative C.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative G would include 2,007.0 acres of temporary ROW and 413.7 acres of permanent ROW.</p> <p>The temporary and permanent ROW for the Beatty Transmission Alternative G would disturb approximately 1,116.5 acres and 186.0 acres, respectively within the Bare</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative K would include 1,760.8 acres of temporary ROW and 447.4 acres of permanent ROW.</p> <p>Beatty Transmission Alternative K would result in approximately 720.5 acres of temporary ROW area and approximately</p>

Resource/Use Impact	Beatty Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K
	<p>except for less than one percent. One percent of the soil is in the moderate range for water erosion and runoff at 0.37 for the Beatty Proposed Action.</p> <p>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium soils that would be crossed by the Beatty Proposed Action. Approximately 99.9 acres farmland of statewide importance, if irrigated soils, would be disturbed within the permanent ROW area by the Beatty Proposed Action.</p> <p>The Beatty Proposed Action would result in temporary and permanent ROW to the Bare Mountain Mining District of approximately 533.2 acres and 120.9 acres respectively.</p>			<p>Mountain and Bullfrog mining district. It is the only Beatty transmission alternative that would cross two mining districts.</p>	<p>119.9 acres of permanent ROW area in the Bare Mountain Mining District.</p>
<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>	<p>The Beatty 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).</p> <p>The construction of the Beatty Proposed Action would result in greenhouse gas 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.</p>	<p>Same as the Beatty Proposed Action.</p>	<p>Same as the Beatty Proposed Action.</p>	<p>Same as the Beatty Proposed Action.</p>	<p>Same as the Beatty Proposed Action.</p>
<p><b>Special Designation Areas:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect special designation areas?</p>	<p>The Beatty Proposed Action is located within three miles of the Timber Mountain Caldera ACEC. There would be no change in primary use, use patterns, or functions at the Timber Mountain Caldera ACEC and the Proposed Action would not alter the management of the ACEC.</p> <p>The Beatty Proposed Action would intersect one currently inventoried LWC unit, resulting in a 21 percent loss to the unit, but would not reduce the entire unit below the 5,000-acre threshold for LWC units.</p>	<p>Same as the Beatty Proposed Action.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative C is located within 1.5 miles of the Timber Mountain Caldera ACEC.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Proposed Action, except the Beatty Transmission Alternative G would intersect one currently inventoried LWC unit, resulting in a less than one percent loss to the unit.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative C is located within four miles of the Timber Mountain Caldera ACEC.</p> <p>Additionally, the Beatty Transmission Alternative K would intersect one currently inventoried LWC unit, resulting in a less than one percent loss to the unit.</p>
<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 the National Historic Trails (Old Spanish, California, and Pony Express)?</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>
<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>	<p>The Beatty Proposed Action would disturb approximately 27.2 acres of the 7J Ranch in the temporary ROW area and approximately 9.3 acres of the 7J Ranch in the permanent ROW area.</p> <p>Approximately 87 percent (15.6 miles) of the 18.0-mile Beatty Proposed Action would cross the NTTR Range 77A restricted airspace in addition to</p>	<p>There would be no transmission towers constructed on the 7J Ranch and no long-term loss of use on the private property under Beatty Transmission Alternative A, but a 200-foot permanent ROW would be needed for Beatty Transmission Alternative A for the O&amp;M of the proposed transmission line.</p>	<p>The 18.8-mile-long Beatty Transmission Alternative C would cross entirely within BLM-administered lands.</p> <p>Of the approximately 18.8 miles, 93 percent (17.4 miles) would be within the NTTR's Range 77A restricted airspace.</p>	<p>The 17.0-mile-long Beatty Transmission Alternative G would cross entirely within BLM-administered lands and this transmission alternative would not cross the NTTR's Range 77A restricted airspace nor the planned administrative lands withdrawal area.</p>	<p>The 18.5-mile-long Beatty Transmission Alternative K would cross entirely within BLM-administered lands.</p> <p>Of the approximately 18.5-mile-long Beatty Transmission Alternative K, 52 percent (9.7 miles) would be within the NTTR's Range 77A</p>



Resource/Use Impact	Beatty Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K
	<p>approximately 17 percent (3.0 miles) of the Beatty Proposed Action that would cross the NTTR planned administrative lands withdrawal.</p> <p>Approximately 13.0 miles (72 percent) of the Beatty Proposed Action would cross mining claim sections.</p> <p>The Beatty Proposed Action would cross a total of six Beatty Trail System routes, a total of seven times.</p>	<p>Of the approximately 18.1-mile-long Beatty Transmission Alternative A, 87 percent (15.7 miles) would be within the NTTR's Range 77A restricted airspace. Approximately 17 percent (3.0 miles) of this approximately 18.1-mile-long transmission alternative would cross through the NTTR planned administrative lands withdrawal.</p> <p>Approximately 13.5 miles (75 percent) of the Beatty Transmission Alternative A would cross sections containing mining claims.</p> <p>The Beatty Transmission Alternative A would cross a total of six Beatty Trail System routes, a total of eight times.</p>	<p>In addition, of this approximately 18.8-mile-long transmission alternative, approximately 43 percent (8.1 miles) of the route would cross the planned administrative lands withdrawal.</p> <p>Beatty Transmission Alternative C would have the least miles, approximately 10.6 miles (56 percent), of the transmission alignment within sections containing mining claims.</p> <p>The Beatty Transmission Alternative C would cross a total of three Beatty Trail System routes, a total of five times.</p>	<p>Approximately 13.0 miles (76 percent) of Beatty Transmission Alternative G would cross mining claim sections.</p> <p>The Beatty Transmission Alternative G would cross a total of 10 Beatty Trail System routes, a total of 16 times.</p>	<p>restricted airspace but would not cross the planned administrative lands withdrawal.</p> <p>Approximately 13.0 miles (70 percent) of Beatty Transmission Alternative K would cross mining claim sections.</p> <p>The Beatty Transmission Alternative K would cross a total of 10 Beatty Trail System routes, a total of 13 times.</p>
<p><b>Water Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect water resources?</p>	<p>The Beatty Proposed Action would include 110 surface water crossings from the temporary ROW and 43 surface water crossings from the permanent ROW. There would be approximately 54.6 acres in high flood risk areas associated with the temporary ROW area and 16.8 acres associated with the permanent ROW area.</p>	<p>The Beatty Transmission Alternative A would include 111 surface water crossings from the temporary ROW and 42 surface water crossings from the permanent ROW. There would be approximately 51.8 acres in high flood risk areas associated with the temporary ROW area and 15.7 acres associated with the permanent ROW area.</p>	<p>The Beatty Transmission Alternative C would include 115 surface water crossings from the temporary ROW and 49 surface water crossings from the permanent ROW. There would be approximately 17.8 acres in high flood risk areas associated with the temporary ROW area and 4.4 acres associated with the permanent ROW area.</p>	<p>The Beatty Transmission Alternative G would include 102 surface water crossings from the temporary ROW and 38 surface water crossings from the permanent ROW. There would be approximately 37.1 acres in high flood risk areas associated with the temporary ROW area and 6.1 acres associated with the permanent ROW area.</p>	<p>The Beatty Transmission Alternative K would include 123 surface water crossings from the temporary ROW and 44 surface water crossings from the permanent ROW. There would be approximately 59.6 acres in high flood risk areas associated with the temporary ROW area and 16.8 acres associated with the permanent ROW area.</p>
<p><b>Visual Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect visual resources?</p>	<p>The Beatty Proposed Action permanent ROW area would cross approximately 290.0 acres of Scenic Quality Class B landscapes and 114.3 acres of Class C landscapes. The Beatty Proposed Action would demand attention and introduce built features not currently found in the landscape in Crater Flat (BMDO-124) VAU, would attract attention in the Yucca Mountain Foothills (BMDO-123) VAU, would create a change that would begin to attract attention through the Sarcobatus Hills (BMDO-117) VAU, and would begin to dominate the setting in the Sarcobatus Flat (BMDO-115) VAU.</p> <p>Under the Beatty Proposed Action, the US 95 would be the only highway SVP that would have views of the alternative. Motorists traveling along the US 95 would have views of the Beatty Proposed Action for a total of approximately 16 minutes.</p> <p>Under the Beatty Proposed Action, Community SVPs that could have views of the alternative include Beatty. The Beatty Proposed Action would be visible from approximately eight percent in the FG of the Beatty SVP and seven percent within the MG. The portions of the Beatty Proposed Action visible within the FG of the Beatty 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.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative A permanent ROW area would cross approximately 282.5 acres of Scenic Quality Class B landscapes and 123.7 acres of Class C landscapes.</p> <p>The Beatty Transmission Alternative A would be visible from approximately nine percent in the FG of the Beatty SVP and seven percent within the MG.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative C permanent ROW area would cross approximately 330.5 acres of Scenic Quality Class B landscapes and 85.6 acres of Class C landscapes. The Beatty Transmission Alternative C would not cross the Sarcobatus Hills (BMDO-117) VAU.</p> <p>Motorists traveling along the US 95 would have views of the Beatty Transmission Alternative C for a total of approximately 14 minutes.</p> <p>The Beatty Transmission Alternative C would be visible from approximately 1 percent in the FG of the Beatty SVP 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 Alternative A and the Proposed Action.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative G permanent ROW area would cross approximately 179.7 acres of Scenic Quality Class B landscapes and 197.3 acres of Class C landscapes. The Beatty Transmission Alternative G would not cross the Crater Flat (BMDO-124) VAU.</p> <p>Motorists traveling along the US 95 would have views of the Beatty Transmission Alternative G for a total of approximately 27 minutes.</p> <p>The Beatty Transmission Alternative G would be visible from approximately 42 percent in the FG of the Beatty SVP and 13 percent within the MG. Under the 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.</p>	<p>Same as the Beatty Proposed Action, except the Beatty Transmission Alternative K permanent ROW area would cross approximately 263.1 acres of Scenic Quality Class B landscapes and 147.6 acres of Class C landscapes. The Beatty Transmission Alternative K would not cross the Crater Flat (BMDO-124) VAU.</p> <p>Motorists traveling along the US 95 would have views of the Beatty Transmission Alternative K for a total of approximately 22 minutes.</p> <p>The Beatty Transmission Alternative K would be visible from approximately 21 percent in the FG of the Beatty SVP and 17 percent within the MG. Under 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.</p>

Resource/Use Impact	Beatty Proposed Action	Beatty Transmission Alternative A	Beatty Transmission Alternative C	Beatty Transmission Alternative G	Beatty Transmission Alternative K
	The Beatty Proposed Action 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.				
<b>Socioeconomic Resources:</b> What impact would the construction, O&M, and decommissioning of the GLWP have on socioeconomic resources?	The Beatty Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action.
<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?	<p>The Beatty Proposed Action would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects.</p> <p>The noise generated by construction, O&amp;M, and decommissioning would be temporary and cease once activities have been completed.</p> <p>There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.</p>	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action.	Same as the Beatty Proposed Action.
<b>BLM RMP Conformance</b>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Modify WWEC 18-224 to align with the Beatty Proposed Action transmission route between MP 173.0 to MP 178.0. De-designate portions of 18-224 Corridor where the Beatty Proposed Action would be outside of the designated WWEC. Designate new 18-224 Corridor following the Beatty Proposed Action route.</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Modify WWEC 18-224 to align with the Beatty Transmission Alternative A between MP 197.5 to MP 202.6. De-designate portions of 18-224 Corridor where the Beatty Transmission Alternative A would be outside of the designated WWEC. Designate new 18-224 Corridor following the Beatty Transmission Alternative A.</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Modify WWEC 18-224 to align with the Beatty Transmission Alternative C between MP 193.3 to MP 205.2. De-designate portions of 18-224 Corridor where the Beatty Transmission Alternative C would be outside of the designated WWEC. Designate new 18-224 Corridor following Beatty Transmission Alternative C.</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Modify WWEC 18-224 to align with the Beatty Transmission Alternative G between MP 193.3 to MP 211.2. De-designate portions of 18-224 Corridor where the Beatty Transmission Alternative G would be outside of the designated WWEC. Designate new 18-224 Corridor following the Beatty Transmission Alternative G.</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Modify WWEC 18-224 to align with the Beatty Transmission Alternative K between MP 193.3 to MP 197.0. and between MP 202.1 to MP 205.4. De-designate portions of 18-224 Corridor where the Beatty Transmission Alternative K would be outside of the designated WWEC. Designate new 18-224 Corridor following the Beatty Transmission Alternative K.</li> </ul>

*Table Acronyms:* ACEC – Area of Critical Environmental Concern; AFB – Air Force Base; APE – Area of Potential Effect; BLM – Bureau of Land Management; BMDO – Battle Mountain District Office; CR – County Route; DOD – Department of Defense; FG – Foreground; GLWP – Greenlink West Project; I – Interstate; kV – Kilovolt; LWC – Lands With Wilderness Characteristics; MG – Middleground; MP – Milepost; NAAQS – National Ambient Air Quality Standards; NCA – National Conservation Area; NDSL – Nevada Division of State Lands; NHT – National Historic Trail; NPS – National Park Service; NTTR – Nevada Test Training Range; NWR – National Wildlife Refuge; 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; TUSK – Tule Springs Fossil Beds National Monument; UNLV – University of Nevada, Las Vegas; US – United States Highway; USFWS – United States Fish and Wildlife Service; VAU – Visual Assessment Unit; VRM – Visual Resource Management; WEG – Wind Erodibility Group; WMA – Wildlife Management 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 3-146. 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
<b>Land Ownership (miles)</b>	Total: 15.1 • BLM: 12.2 • Private: 2.9	Total: 16.2 • BLM: 15.7 • Private: 0.5	Total: 14.8 • BIA: 1.6 • BLM: 10.5 • Private: 2.7	Total: 4.9 • BLM: 1.2 • Private: 3.7	Total: 7.0 • BLM: 6.0 • Private: 1.0
<b>Land Ownership (temporary ROW acres)</b>	Total: 1,104.8 • BLM: 892.6 • DOD: 1.2 • Private: 210.9	Total: 1,185.3 • BLM: 1,148.3 • Private: 36.9	Total: 1,084.2 • BIA: 118.7 • BLM: 766.8 • Private: 198.8	Total: 359.3 • BLM: 89.3 • NDSL: <0.1 • Private: 269.9	Total: 695.6 • BLM: 520.6 • Private: 175.0
<b>Land Ownership (permanent ROW acres)</b>	Total: 366.8 • BLM: 296.9 • Private: 69.8	Total: 393.7 • BLM: 381.4 • Private: 12.3	Total: 360.0 • BIA: 39.6 • BLM: 254.2 • Private: 66.3	Total: 118.4 • BLM: 29.1 • Private: 89.4	Total: 170.1 • BLM: 145.1 • Private: 25.0
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitat?	No impact to Bi-State Sage-grouse, Lahontan Cutthroat Trout, Southwestern Willow Flycatcher, Yellow-billed Cuckoo, or Yuma Ridgway's Rail.  The Scotty's Junction Proposed Action would cross through Mojave desert tortoise suitable habitat. Surveys for this species identified one Mojave desert tortoise burrow within the survey area of the Scotty's Junction Proposed Action.	Same as the Scotty's Junction Proposed Action.	Same as the Scotty's Junction Proposed Action, except no Mojave desert tortoise or tortoise signs were observed within the survey area for Scotty's Junction Transmission Alternative B.	No impact to Bi-State Sage-grouse, Mojave desert tortoise, Southwestern Willow Flycatcher, Yellow-billed Cuckoo, or Yuma Ridgway's Rail.  The crossing of Walker River for the Mason Valley WMA Proposed Action would contain suitable habitat for Lahontan cutthroat trout. Approximately 15.6 acres of temporary and 6.0 acres of permanent ROW would occur within riparian habitat along the Mason Valley WMA Proposed Action Walker River crossings.	Same as the Mason Valley WMA Proposed Action, but less total impacts to riparian habitat. Approximately 12.8 acres of temporary and 2.0 acres of permanent ROW within riparian habitat for the Mason Valley WMA Transmission Alternative A.
<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?	The Scotty's Junction Proposed Action is anticipated to have minimal impact to native vegetation communities due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area.  The Scotty's Junction Proposed Action is anticipated to have negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.  The Scotty's Junction Proposed Action is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.	Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative A would result in up to approximately 80.6 acres more temporary ROW and 27.0 acres more of permanent ROW on vegetation in comparison to the Scotty's Junction Proposed Action.	Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative B would result in up to approximately 20.5 acres less temporary ROW and 6.7 acres less of permanent ROW on vegetation in comparison to the Scotty's Junction Proposed Action.	The Mason Valley WMA Proposed Action is anticipated to have minimal impact to native vegetation communities relative to the amount that occurs in the vegetation analysis area.  The Mason Valley WMA Proposed Action is anticipated to have negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.  The Mason Valley WMA Proposed Action is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.	Same as the Mason Valley WMA Proposed Action, except The Mason Valley WMA Transmission Alternative A would result in up to approximately 336.3 acres more temporary ROW and 51.7 acres more of permanent ROW on vegetation in comparison to the Mason Valley WMA Proposed Action.

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>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>	<p>Special status plant, wildlife, and bird and bat species could occur within the Scotty's Junction Proposed Action area. No special status aquatic species suitable or occupied habitat would occur.</p> <p>The Scotty's Junction Proposed Action would include approximately 1,104.8 acres of temporary ROW and 366.8 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p>	<p>Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative A would include 1,185.3 acres of temporary ROW and 393.7 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p>	<p>Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative B would include 1,084.2 acres of temporary ROW and 360.0 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p>	<p>Special status plant, wildlife, aquatic wildlife, and bird and bat species could occur within the Mason Valley WMA Proposed Action area.</p> <p>The Mason Valley WMA Proposed Action would include approximately 359.3 acres of temporary ROW and 118.4 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p> <p>Additionally, approximately 15.6 acres of temporary ROW and 6.0 acres of permanent ROW would occur within riparian habitat. The Mason Valley WMA Proposed Action would cross Perk Slough, Joggles Slough, and Perazzo Slough areas that provide high-quality habitat for terrestrial wildlife, particularly special status amphibian species.</p> <p>One raptor nest occurs in proximity to the Proposed Action.</p>	<p>Special status plant, wildlife, aquatic wildlife, and bird and bat species could occur within the Mason Valley WMA Transmission Alternative A area.</p> <p>The Mason Valley WMA Transmission Alternative A would include 695.6 acres of temporary ROW and 170.1 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p> <p>Additionally, approximately 12.8 acres of temporary ROW and 2.0 acres of permanent ROW would occur within riparian habitat. Mason Valley WMA Transmission Alternative A would be located north of the slough features. Mason Valley WMA Transmission Alternative A would avoid two major water resources and the Mason Valley WMA, which provide high-quality habitat and management for special status terrestrial wildlife compared to the Mason Valley WMA Proposed Action. 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; this is because the majority of the Alternative A route would not be located within the Mason Valley WMA.</p> <p>Less than one acre of cliff and canyon bat roosting habitat occurs within the temporary ROW area of Mason Valley WMA Transmission Alternative A, while no cliff and canyon bat roosting habitat would occur within the Mason Valley WMA Proposed Action.</p> <p>One unidentified raptor nest occurs within the permanent ROW area for Mason Valley WMA Transmission Alternative A. This nest, which was identified as inactive, would be directly impacted by Mason Valley WMA Alternative A. No other known raptor nests would occur within the portion of the special status species analysis area. Five raptor nests would occur in proximity to the Mason Valley WMA Transmission Alternative A, with one raptor nest occurring within the temporary ROW of this alternative.</p>
<p><b>Bald and Golden Eagles:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect Bald and Golden Eagles?</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>
<p><b>General Wildlife:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect general wildlife?</p>	<p>The Scotty's Junction Proposed Action would result in short and long-term impacts, ranging from undetectable to impacts only to the individual, on general wildlife due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, potential increased predation, and reduced availability of movement corridors.</p>	<p>Same as the Scotty's Junction Proposed Action.</p>	<p>Same as the Scotty's Junction Proposed Action.</p>	<p>The Mason Valley WMA Proposed Action would result in short and long-term impacts, ranging from undetectable to impacts only to the individual, on general wildlife due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, potential increased predation, and reduced availability of movement corridors.</p>	<p>Same as the Mason Valley WMA Proposed Action, except the Mason Valley WMA Transmission Alternative A would impact approximately 12.8 acres of temporary and 2.0 acres of permanent ROW within riparian habitat.</p> <p>Additionally, the Mason Valley WMA Transmission Alternative A would be located north of the Perk Slough and Joggles Slough features. Fragmentation of high-value general wildlife habitat within the sloughs</p>

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>The Mason Valley WMA Proposed Action would cross the Walker River within the Mason Valley WMA adjacent to an existing railroad river crossing. Approximately 15.6 acres of temporary and 6.0 acres of permanent ROW would occur within riparian habitat along the Walker River crossings.</p> <p>Additionally, the Mason Valley WMA Proposed Action would cross Perk Slough and Joggles Slough, areas that provide high-quality general wildlife habitat.</p>	<p>that would occur under the Proposed Action would not occur under the Mason Valley WMA Transmission Alternative A. Therefore, the Mason Valley WMA Alternative A route would reduce the impacts on general wildlife from construction, O&amp;M, or decommissioning of the GLWP relative to the Proposed Action.</p>
<p><b>Cultural Resources:</b> Would historic properties be adversely affected by the construction, O&amp;M, and decommissioning of the GLWP?</p>	<p>Within the Scotty's Junction Proposed Action Cultural Resource Analysis Area/APE, 13 cultural resource sites/historic properties would be adversely effected, 0 would have no adverse effects, and 52 would have no effects.</p>	<p>Within the Scotty's Junction Transmission Alternative A Cultural Resource Analysis Area/APE, 12 cultural resource sites/historic properties would be adversely effected, 0 would have no adverse effects, and 31 would have no effects.</p>	<p>Within the Scotty's Junction Transmission Alternative B Cultural Resource Analysis Area/APE, 9 cultural resource sites/historic properties would be adversely effected, 0 would have no adverse effects, and 36 would have no effects.</p>	<p>Within the Mason Valley WMA Proposed Action Cultural Resource Analysis Area/APE, four cultural resource sites/historic properties would be adversely effected, two would have no adverse effects, and four would have no effects.</p>	<p>Within the Mason Valley WMA Transmission Alternative A Cultural Resource Analysis Area/APE, 25 cultural resource sites/historic properties would be adversely effected, 1 would have no adverse effects, and 13 would have no effects.</p>
<p><b>Native American Religious Concerns:</b> How would sacred sites or Traditional Cultural Properties be affected by construction, O&amp;M, and decommissioning of the GLWP?</p>	<p>One of the modern prayer locations was identified within the Scotty's Junction Proposed Action. This location would not be obstructed to the east by the Proposed Action. The Proposed Action could possibly obstruct views to the east-southeast. The prayer location is situated within close proximity to US 95 and auditory effects are likely to be greater from traffic, though exceptions under some conditions might apply (i.e., periods of low traffic, high winds).</p>	<p>Same as the Scotty's Junction Proposed Action, except the modern prayer location would not be obstructed to the east-southeast by Scotty's Junction Transmission Alternative A.</p>	<p>Same as the Scotty's Junction Proposed Action, except the modern prayer location would not be obstructed to the east-southeast by Scotty's Junction Transmission Alternative B.</p>	<p>No impact.</p>	<p>No impact.</p>
<p><b>Paleontological Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect paleontological resources?</p>	<p>The Scotty's Junction Proposed Action would be underlain by geologic units with a low (PFYC 2) and unknown (PFYC U) paleontological potentials. The Scotty's Junction Proposed Action would overlap 603.7 acres of PFYC 2 units and 497.3 acres of PFYC U units.</p>	<p>Same as the Scotty's Junction Proposed Action, except Scotty's Junction Transmission Alternative A would overlap 774.1 acres of PFYC 2 units and 409.8 acres of PFYC U units.</p>	<p>Same as the Scotty's Junction Proposed Action, except Scotty's Junction Transmission Alternative B would overlap 618.6 acres of PFYC 2 units and 463.8 acres of PFYC U units.</p>	<p>The Mason Valley WMA Proposed Action would be underlain by geologic units with an unknown (PFYC U) paleontological potential. The Mason Valley WMA Proposed Action would overlap 359.6 acres of PFYC U units.</p>	<p>Same as the Mason Valley WMA Proposed Action, except Mason Valley WMA Transmission Alternative A would overlap 695.6 acres of PFYC U units.</p>
<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>	<p>The Scotty's Junction Proposed Action would include approximately 1,104.8 acres of temporary ROW and 366.8 acres of permanent ROW.</p> <p>Wind erosion susceptibility would be considered low for the Scotty's Junction Proposed Action ranging from 5.0 to 5.9.</p> <p>This portion of the soil resources analysis area has a range of water erosion and runoff rates from low to high.</p> <p>The Scotty's Junction Proposed Action would predominately have soils within the 0.05 to 0.28 range or low water erosion and runoff rates.</p> <p>There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium or</p>	<p>Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative A would include 1,185.3 acres of temporary ROW and 393.7 acres of permanent ROW.</p> <p>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 and approximately 63.4 acres in the permanent ROW) with K factors ranging from 0.43 to 0.49 than the other two alternatives.</p>	<p>Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative B would include 1,084.2 acres of temporary ROW and 360.0 acres of permanent ROW.</p>	<p>The Mason Valley WMA Proposed Action would include approximately 359.3 acres of temporary ROW and 118.4 acres of permanent ROW.</p> <p>Approximately 23 percent (82.9 acres) of the Mason Valley WMA Proposed Action's 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. However, the Mason Valley WMA Proposed Action's permanent ROW area would have approximately 33 percent (39.4 acres) of soils considered to have low wind erosion. The Mason Valley WMA Proposed Action would have a range of water erosion and</p>	<p>Same as the Mason Valley WMA Proposed Action, except the Mason Valley WMA Transmission Alternative A would include 695.6 acres of temporary ROW and 170.1 acres of permanent ROW.</p> <p>Wind erosion susceptibility would be considered moderate for the Mason Valley WMA Transmission Alternative A with WEGs that would range from 3.0 to 3.79 for both temporary and permanent ROW areas.</p> <p>There would be low to moderate K factors for the soils in the permanent ROW area for the Mason Valley WMA Transmission Alternative A.</p> <p>According to the 2020 Lyon County Master Plan for Mason Valley Land Use plan, portions of the Mason Valley WMA Transmission Alternative A (approximately 0.8 miles/19.4 acres) would cross over lands planned for agriculture. The Mason Valley</p>

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
	farmland of statewide importance soils associated with the Scotty's Junction Proposed Action. The Scotty's Junction Proposed Action would not cross any mining districts.			runoff rates from low to high for the temporary and permanent ROW areas. According to the 2020 Lyon County Master Plan for Mason Valley Land Use plan, portions of the Mason Valley Transmission Proposed Action (3.4 miles/82.4 acres) along with a segment of the 345-kV Fort Churchill to Mira Loma transmission line (0.6 miles/11.6 acres) would cross over lands planned for agriculture.	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 this alternative's permanent ROW area.
<b>Air Quality, Climate Change, and Greenhouse Gas Emissions:</b> How would construction, O&M, and decommissioning of the GLWP affect air quality?	The Scotty's Junction Proposed Action would result in negligible impacts to air quality from low level particulate matter emissions from construction, O&M, and decommissioning activities that may generate fugitive dust (particulates). The construction of the Scotty's Junction Proposed Action would result in greenhouse gas 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&M.	Same as the Scotty's Junction Proposed Action.	Same as the Scotty's Junction Proposed Action.	The Mason Valley WMA Proposed Action would result in negligible impacts to air quality from low level particulate matter emissions from construction, O&M, and decommissioning activities that may generate fugitive dust (particulates). The construction of the Mason Valley WMA Proposed Action would result in greenhouse gas 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&M.	Same as the Mason Valley WMA Proposed Action.
<b>Special Designation Areas:</b> How would construction, O&M, and decommissioning of the GLWP affect special designation areas?	The Scotty's Junction Proposed Action would not come within five miles of any SDA. The Scotty's Junction Proposed Action would not impact any currently inventoried LWC units in BLM's Tonopah Field Office.	Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative A would come within 3.2 miles of the Grapevine Mountain WSA, but there would be no effects and 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.	Same as the Scotty's Junction Proposed Action.	The Mason Valley WMA Proposed Action would directly cross the Mason Valley WMA for approximately 3.5 miles following next to a developed railway corridor (Thorne Branch). 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, specifically wetland protection and waterfowl activities. The Proposed Action would create a long-term change in the WMA's primary because of the greater permanent area of ROW (approximately 82.2 acres) and have potentially up to 15 structures within the WMA. The Mason Valley WMA Proposed Action would not impact any currently inventoried LWC units in BLM's CCDO.	The 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 would be required within the WMA. This alternative would create a noticeable short-term change in the primary use of the WMA but would generally be in conformance with the WMA's managing agency policies since there would be no transmission line towers within the SDA. The Mason Valley WMA Transmission Alternative A area of permanent ROW would be approximately 5.0 acres and would have no structures within the WMA. The Mason Valley WMA Transmission Alternative A would not impact any currently inventoried LWC units in BLM's CCDO.
<b>National Historic Trails and Trails Under Study for Congressional Designation:</b> How would the construction, O&M, and decommissioning of the GLWP affect the National Historic Trails (Old Spanish, California, and Pony Express)?	No impact.	No impact.	No impact.	The Mason Valley Proposed Action would create a change in the landscape character of the Mason Valley VAU in the MG and may be to attract attention because of the form of the guyed lattice structures and the approximately 371-acre Fort Churchill Substation. There would be no views of the Mason Valley Proposed Action from the FG of the NHT. From the California NHT	Same as the Mason Valley WMA Proposed Action, except 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 Mason Valley WMA Proposed Action.

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>Walker River Segment, recreationists would have MG views of the Mason Valley WMA Proposed Action for approximately 0.6 miles when traveling NB and 0.4 miles traveling SB in the MG only. The presence of the Mason Valley WMA Proposed Action within the MG views from the California NHT may attract attention in the existing setting.</p> <p>The Mason Valley Proposed Action would permanently change the desired scenic, recreational, cultural and historic, and (to a lesser extent) natural resources, qualities, values, and associated settings of the California NHT Walker River segment. The Proposed Action would be incompatible with but not substantially interfere with the nature, purpose, and primary uses of the NHT.</p>	
<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>	<p>The Scotty's Junction Proposed Action would avoid the Timbisha Shoshone Reservation. Approximately 1.4 miles (nine percent) of the Scotty's Junction Proposed Action would cross sections containing mining claims.</p>	<p>The Scotty's Junction Transmission Alternative A would avoid the Timbisha Shoshone Reservation. Approximately 6.2 miles (38 percent) of the Scotty's Junction Transmission Alternative A would cross sections containing mining claims.</p>	<p>The Scotty's Junction Transmission Alternative B would cross the Timbisha Shoshone Reservation and result in approximately 118.0 acres in the temporary ROW area and 39.3 acres in the permanent ROW area. Scotty's Junction Transmission Alternative B would potentially limit commercial land uses on the Reservation. Approximately 3.0 miles (38 percent) of Scotty's Junction Transmission Alternative B would cross sections containing mining claims.</p>	<p>The Mason Valley WMA Proposed Action would disturb approximately 246.6 acres of the Mason Valley WMA in the ROW area and approximately 82.2 acres of the Mason Valley WMA in the ROW area. The Mason Valley WMA Proposed Action would cross 3.4 miles of the WMA and have potentially up to 15 structures within the WMA.</p>	<p>The Mason Valley WMA Transmission Alternative A would disturb approximately 14.9 acres of Mason Valley WMA within the temporary ROW area and approximately 5.0 acres of the WMA within the GLWP ROW area. It is anticipated that there would be one structure within the WMA to turn the 525-kV transmission line as it enters the proposed Fort Churchill Substation.</p>
<p><b>Water Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect water resources?</p>	<p>The Scotty's Junction Proposed Action would include 154 surface water crossings from the temporary ROW and 64 surface water crossings from the permanent ROW. There would be approximately 17.6 acres in high flood risk areas associated with the temporary ROW area and 5.4 acres associated with the permanent ROW area.</p>	<p>The Scotty's Junction Transmission Alternative A would include 212 surface water crossings from the temporary ROW and 81 surface water crossings from the permanent ROW. There would be approximately 11.6 acres in high flood risk areas associated with the temporary ROW area and 3.7 acres associated with the permanent ROW area.</p>	<p>The Scotty's Junction Transmission Alternative B would include 185 surface water crossings from the temporary ROW and 68 surface water crossings from the permanent ROW. There would be approximately 13.0 acres in high flood risk areas associated with the temporary ROW area and 3.9 acres associated with the permanent ROW area.</p>	<p>The Mason Valley WMA Proposed Action would include 17 surface water crossings from the temporary ROW and 8 surface water crossings from the permanent ROW. There would be approximately 207.9 acres in high flood risk areas associated with the temporary ROW area and 69.3 acres associated with the permanent ROW area.</p>	<p>The Mason Valley WMA Transmission Alternative A would include 13 surface water crossings from the temporary ROW and 6 surface water crossings from the permanent ROW. There would be approximately 94.1 acres in high flood risk areas associated with the temporary ROW area and 15.8 acres associated with the permanent ROW area.</p>
<p><b>Visual Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect visual resources?</p>	<p>The Scotty's Junction Proposed Action permanent ROW area would cross approximately 375.1 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.</p> <p>Under the Scotty's Junction Proposed Action, highways SVPs that could have views of the alternative include US 95 and SR 267. Motorists traveling along the roadways would have views of the Scotty's Junction</p>	<p>Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative A permanent ROW area would cross approximately 395.2 acres of Scenic Quality Class C landscapes.</p> <p>Motorists traveling along SR 267 would have FG views of Scotty's Junction Transmission Alternative A for approximately 12 minutes.</p>	<p>Same as the Scotty's Junction Proposed Action, except the Scotty's Junction Transmission Alternative B permanent ROW area would cross approximately 361.7 acres of Scenic Quality Class C landscapes.</p> <p>Motorists traveling along SR 267 would have FG views of Scotty's Junction Transmission Alternative B for approximately five minutes.</p>	<p>The Mason Valley WMA 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.</p> <p>Under the Mason Valley WMA Proposed Action, the US 95A SVP would be the only highway SVP that would have views of the alternative. Motorists traveling along the</p>	<p>Same as the Mason Valley WMA Proposed Action, except the Mason Valley WMA Transmission Alternative A permanent ROW area would cross approximately 170.1 acres of Scenic Quality Class C landscapes.</p> <p>Motorists traveling along US 95A would have views of Mason Valley WMA Transmission Alternative A for approximately 10 minutes.</p> <p>The Mason Valley WMA Transmission Alternative A would be visible from approximately 83 percent of the Mason Valley WMA.</p>

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>Proposed Action for a total of approximately 33 minutes on US 95 and 8 minutes on SR 267. The Scotty's Junction Proposed Action 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.</p> <p>Under the Scotty's Junction Proposed Action, Native American Tribe SVPs that could have views of the alternative include Timbisha Shoshone community. The Scotty's Junction Proposed Action would be visible from the entire Timbisha Shoshone community (100 percent). The portions of the Scotty's Junction 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.</p> <p>The Scotty's Junction Proposed Action 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.</p>			<p>roadways would have views of Mason Valley WMA Proposed Action for a total of approximately nine minutes on US 95A. The Mason Valley WMA Proposed Action's effect on the FG views from US 95A would be a change from the existing setting because of the form and scale of the guyed lattice structures and presence of other transmission lines and development, such as the existing power generating station in close proximity to US 95A.</p> <p>Under the Mason Valley WMA 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 Mason Valley WMA Proposed Action for a total of approximately two hours. The presence of the Mason Valley WMA Proposed Action would be visually discernible and may attract attention in the existing setting from the California NHT.</p> <p>Under the Mason Valley WMA Proposed Action, SDA SVPs that could have views of the alternative include the Mason Valley WMA. The Mason Valley WMA Proposed Action would be visible from approximately 85 percent of the Mason Valley WMA. The Mason Valley WMA 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 the transmission structures.</p> <p>Under the Mason Valley WMA Proposed Action, Native American Tribe SVPs that could have views of the alternative include Walker River Paiute Indian Reservation. The Mason Valley WMA Proposed Action would be visible from approximately two percent of the Walker River Paiute Indian Reservation. The Mason Valley WMA Proposed Action that would be visible within the FG of the Walker River Paiute Reservation SVP would begin to attract attention.</p>	



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>Socioeconomic Resources:</b> What impact would the construction, O&M, and decommissioning of the GLWP have on socioeconomic resources?	The Scotty's Junction Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the Scotty's Junction Proposed Action.	Same as the Scotty's Junction Proposed Action, except 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.	The BLM-administered lands associated with the Mason Valley WMA Proposed Action are unclassified for VRM and, as such, conformance determinations with VRM objectives are not applicable.  The Mason Valley WMA Proposed Action would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the Mason Valley WMA Proposed Action.
<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?	The Scotty's Junction Proposed Action would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects.  The noise generated by construction, O&M, and decommissioning would be temporary and cease once activities have been completed.  There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.	Same as the Scotty's Junction Proposed Action.	Same as the Scotty's Junction Proposed Action.	The Mason Valley WMA Proposed Action would have negligible impacts to public health and safety, noise, and waste. There would be no impacts to fire management.	Same as the Mason Valley WMA Proposed Action.
<b>BLM RMP Conformance</b>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Modify WWEC 18-224 to align with the Scotty's Junction 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. De-designate portions of 18-224 Corridor where the Scotty's Junction Proposed Action would be outside of the designated WWEC. Designate new 18-224 Corridor following the Scotty's Junction Proposed Action route.</li> </ul>	<ul style="list-style-type: none"> <li>VRM: Conforms</li> <li>WWEC: Modify WWEC 18-224 to align with the Scotty's Junction Transmission Alternative A between MP 170.0 to MP 180.8 De-designate portions of 18-224 Corridor where the Scotty's Junction Transmission Alternative A would be outside of the designated WWEC. Designate new 18-224 Corridor following the Scotty's Junction Transmission Alternative A.</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 Acronyms:* AFB – Air Force Base; APE – Area of Potential Effect; BLM – Bureau of Land Management; CCDO – Carson City District Office; CR – County Route; DOD – Department of Defense; FG – Foreground; GLWP – Greenlink West Project; I – Interstate; kV – Kilovolt; MG – Middleground; MP – Milepost; NAAQS – National Ambient Air Quality Standards; NCA – National Conservation Area; NDSL – Nevada Division of State Lands; 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; SDA – Special Designation Area; SR – State Route; SVP – Sensitive Viewing Platform; TUSK – Tule Springs Fossil Beds National Monument; UNLV – University of Nevada, Las Vegas; US – United States Highway; USFWS – United States Fish and Wildlife Service; VRM – Visual Resource Management; WEG – Wind Erodibility Group; WMA – Wildlife Management 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 3-147. Comparison of Alternatives for the Carson River Transmission Line Route Group**

Resource/Use Impact	Carson River Proposed Action (Alternative A Comparison)	Carson River Transmission Alternative A	Carson River Proposed Action (Alternative C Comparison)	Carson River Transmission Alternative C
<b>Land Ownership (miles)</b>	Total: 10.1 • BLM: 8.6 • Private: 1.5	Total: 14.4 • BLM: 10.1 • Private: 4.2	Total: 71.8 • BLM: 42.9 • Private: 28.8	Total: 82.5 • BLM: 61.1 • Private: 21.5
<b>Land Ownership (temporary ROW acres)</b>	Total: 872.8 • BLM: 739.8 • Private: 133.0	Total: 1,546.3 • BLM: 1,178.2 • Private: 368.1	Total: 6,440.8 • BLM: 4,118.4 • Private: 2,322.4	Total: 6,280.8 • BLM: 5,081.0 • Private: 1,199.7
<b>Land Ownership (permanent ROW acres)</b>	Total: 246.0 • BLM: 208.5 • Private: 37.5	Total: 348.6 • BLM: 245.3 • Private: 103.3	Total: 1,740.0 • BLM: 1,043.1 • Private: 696.9	Total: 1,933.2 • BLM: 1,457.3 • Private: 475.9
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitat?	No impact to Mojave desert tortoise. The Carson River Proposed Action (Alternative A Comparison) Fort Churchill to Comstock Meadow #1 would include approximately 184 acres of permanent ROW and 583 acres of temporary ROW within the Pine Nut PMU. Within Bi-State habitat, there would be approximately 153 acres of permanent ROW and 694 acres of temporary ROW. The Carson River Proposed Action (Alternative A Comparison) river crossing contains suitable habitat for the Lahontan cutthroat trout. Impacts associated with habitat degradation from vegetation removal, soil movement, and runoff would be negligible for the Lahontan cutthroat trout under the Carson River Proposed Action (Alternative A Comparison). The Carson River Proposed Action (Alternative A Comparison) would not impact southwestern willow flycatcher or Yuma Ridgway’s rail breeding behavior or breeding habitat. The Carson River Proposed Action (Alternative A Comparison) would result in insignificant and discountable impacts on yellow-billed cuckoo breeding behavior and breeding habitat where the three 345-kV transmission lines cross the Carson River due to vegetation removal and inspections during the breeding season. The Carson River Proposed Action (Alternative A Comparison) may result in insignificant and discountable impacts on these three federally listed species during construction, O&M, and decommissioning from vegetation removal, human presence, and potential collision with transmission lines.	The Carson River Transmission Alternative A would include approximately 227 acres of permanent ROW and 1,047 acres of temporary ROW within the Pine Nut PMU. Disturbance acreage within Bi-State habitat would be the same as under the Carson River Proposed Action (Alternative A Comparison) Fort Churchill to Comstock Meadow #1. The Carson River Transmission Alternative A would require relatively the same amount of temporary ROW and permanent ROW areas in suitable habitat for the Lahontan cutthroat trout compared to the Carson River Proposed Action (Alternative A Comparison), just in a different location. Impacts associated with Carson River Transmission Alternative A from habitat degradation from vegetation removal, soil movement, and runoff would be the same as the Carson River Proposed Action (Alternative A Comparison). The Carson River Transmission Alternative A would occur outside the range for the southwestern willow flycatcher and Yuma Ridgway’s rail and this alternative would not add to or reduce the impacts on these two birds. The Carson River contains marginal suitable breeding habitat for yellow-billed cuckoo. The Carson River Transmission Alternative A would consolidate the number of 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. Overall, impacts would be similar to the Carson River Proposed Action (Alternative A Comparison).	The Carson River Proposed Action (Alternative C Comparison) Fort Churchill to Comstock Meadow #1 would include approximately 184 acres of permanent ROW and 583 acres of temporary ROW within the Pine Nut PMU. Within Bi-State habitat, there would be approximately 153 acres of permanent ROW and 694 acres of temporary ROW. The Carson River Proposed Action (Alternative C Comparison) would include approximately 89 acres of temporary and 25 acres of permanent ROW in suitable habitat for the Lahontan Cutthroat Trout. Impacts associated with habitat degradation from vegetation removal, soil movement, and runoff would be negligible for the Lahontan cutthroat trout under the Carson River Proposed Action (Alternative C Comparison). The Carson River Proposed Action (Alternative C Comparison) would not impact southwestern willow flycatcher or Yuma Ridgway’s rail breeding behavior or breeding habitat. The Carson River Proposed Action (Alternative C Comparison) would result in insignificant and discountable impacts on yellow-billed cuckoo breeding behavior and breeding habitat where the three 345-kV transmission lines cross the Carson River due to vegetation removal and inspections during the breeding season. The Carson River Proposed Action (Alternative C Comparison) may result in insignificant and discountable impacts on these three federally listed species during construction, O&M, and decommissioning from vegetation removal, human presence, and potential collision with transmission lines.	The Carson River Transmission Alternative C would not directly impact any Bi-State habitat but would include approximately 6.8 acres of temporary ROW in proposed Bi-State sage-grouse critical habitat Unit #1 (Pine Nut). The Carson River Transmission Alternative C includes approximately 64 acres of temporary and 21 acres of permanent ROW in suitable habitat for the Lahontan Cutthroat Trout. Impacts associated with Carson River Transmission Alternative C from habitat degradation from vegetation removal, soil movement, and runoff would be the same as the Carson River Proposed Action (Alternative C Comparison). The Carson River Transmission Alternative C would occur outside the range for the southwestern willow flycatcher and Yuma Ridgway’s rail and this alternative would not add to or reduce the impacts on these two birds. The Carson River contains marginal suitable breeding habitat for yellow-billed cuckoo. The Carson River Transmission Alternative C has two 345-kV lines cross the same corridor as the Carson River Proposed Action (Alternative C Comparison), although, the Comstock Meadows #2 transmission line would cross the Carson River approximately 6.3 miles downstream from the other two transmission lines. Overall, impacts would be similar to the Carson River Proposed Action (Alternative C Comparison).
<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?	The Carson River Proposed Action (Alternative A Comparison) is anticipated to have minimal impact to native vegetation communities due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area . The Carson River Proposed Action (Alternative A Comparison) is anticipated to have negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the	Same as the Carson River Proposed Action (Alternative A Comparison), except the Carson River Transmission Alternative A would result in up to approximately 673.5 acres more temporary ROW and 102.6 acres more of permanent ROW on vegetation than the comparable segment of the Proposed Action (Alternative A Comparison).	The Carson River Proposed Action (Alternative C Comparison) is anticipated to have minimal impact to native vegetation communities due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area. The Carson River Proposed Action (Alternative C Comparison) is anticipated to have negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects.	Same as the Carson River Proposed Action (Alternative C Comparison), except the Carson River Transmission Alternative C would result in up to approximately 101.1 acres less temporary ROW and up to approximately 219.3 acres more of permanent ROW on vegetation than the comparable section of the Proposed Action (Alternative C Comparison).

Resource/Use Impact	Carson River Proposed Action (Alternative A Comparison)	Carson River Transmission Alternative A	Carson River Proposed Action (Alternative C Comparison)	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>	<p>implementation of measures to minimize potential effects.</p> <p>The Carson River Proposed Action (Alternative A Comparison) is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</p> <p>Special status plant, wildlife, aquatic wildlife, and bird and bat species could occur within the Carson River Proposed Action (Alternative A Comparison) area.</p> <p>The Carson River Proposed Action (Alternative A Comparison) would include approximately 872.8 acres of temporary ROW and 246.0 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p> <p>Additionally, as part of the Carson River Proposed Action (Alternative A Comparison), two of the parallel 345-kV transmission lines would cross Churchill Narrows buckwheat range. The third line would bisect the range of the species and impact 3.7 acres (20.7%) of habitat occupied in 2011.</p> <p>Approximately 24.0 acres of permanent ROW would occur within riparian habitat.</p> <p>The Carson River Proposed Action (Alternative A Comparison) would have 1.1 acres of cliff and canyon bat roosting habitat within its temporary ROW area and 0.1 acre within its permanent ROW area. Four raptor nests occur within the special status wildlife analysis area for The Carson River Proposed Action (Alternative A Comparison).</p>	<p>Special status plant, wildlife, aquatic wildlife, and bird and bat species could occur within the Carson River Transmission Alternative A area.</p> <p>The Carson River Transmission Alternative A would include 1,546.3 acres of temporary ROW and 348.6 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p> <p>Additionally, as part of Carson River Transmission Alternative A, all three parallel 345-kV transmission lines cross a corner of the Churchill Narrows buckwheat range. None of the Alternative A transmission lines bisect the range of the buckwheat and occur more than 1,640 feet (500 meters) from occupied areas identified in 2011.</p> <p>Approximately 18.0 acres of permanent ROW would occur within riparian habitat.</p> <p>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 populations, as compared to the Carson River Transmission Alternative A.</p> <p>Carson River Transmission Alternative A would contain, respectively, 5.7 acres and 0.0 acres of cliff and canyon bat roosting habitat within its temporary and permanent ROW areas. Nine raptor nests occur within the special status wildlife analysis area for Carson River Transmission Alternative A.</p> <p>Carson River Transmission Line Alternative A would result in fewer effects to special status birds and bats by reducing habitat fragmentation and exposure to other disturbances such as human presence and noise resulting from a more consolidated crossing of the Carson River than the Proposed Action or Alternative C.</p>	<p>The Carson River Proposed Action (Alternative C Comparison) ) is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.</p> <p>Special status plant, wildlife, aquatic wildlife, and bird and bat species could occur within the Carson River Proposed Action (Alternative C Comparison) area.</p> <p>The Carson River Proposed Action (Alternative C Comparison) would include approximately 6,440.8 acres of temporary ROW and 1,740.0 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p> <p>Additionally, as part of the Carson River Proposed Action (Alternative A Comparison), two of the parallel 345-kV transmission lines would cross Churchill Narrows buckwheat range. The third line would bisect the range of the species and directly impact 3.7 acres (20.7%) of habitat occupied in 2011.</p> <p>The Carson River Proposed Action (Alternative C Comparison) would include approximately 89 acres of temporary ROW and 25 acres of permanent ROW area within riparian, marsh, and playa habitat.</p> <p>The Carson River Proposed Action (Alternative C Comparison) would have 14.6 acres of cliff and canyon bat roosting habitat within the temporary and 2.1 acres within the permanent ROW area. Fourteen raptor nests occur within the special status wildlife analysis area for The Carson River Proposed Action (Alternative C Comparison).</p>	<p>Special status plant, wildlife, aquatic wildlife, and bird and bat species could occur within the Carson River Transmission Alternative C area.</p> <p>The Carson River Transmission Alternative C would include 6,280.8 acres of temporary ROW and 1,933.2 acres of permanent ROW that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.</p> <p>Similar to the Carson River Proposed Action (Alternative C Comparison), two parallel 345-kV transmission lines would cross a corner of the Churchill Narrows buckwheat range under Carson River Transmission Alternative C; however, these two lines would result in fewer impacts to potential habitat because they are collocated within the same ROW and cross a shorter segment of habitat. The third Carson River Transmission Alternative C line would bisect the range of Churchill Narrows buckwheat. This Carson River Transmission Alternative C line would cross a shorter 2.5-mile length of habitat (compared to 5.3 miles under the Carson River Proposed Action [Alternative C Comparison]) but would require a 1,200-foot-wide temporary ROW to accommodate steep terrain (whereas the Carson River Proposed Action [Alternative C Comparison] would mostly require a 600-foot-wide temporary ROW). Notably, Carson River Transmission Alternative C would avoid direct impacts to all populations of Churchill Narrows buckwheat identified in 2011. Portions of the Carson River Transmission Alternative C temporary ROW occur within 1,640 feet (500 meters) of buckwheat populations identified in 2011.</p> <p>The Carson River Transmission Line Alternative C would include approximately 64 acres of temporary ROW and 21 acres of permanent ROW area within riparian, marsh, and playa habitat.</p> <p>The Carson River Transmission Alternative C would contain 15.1 acres of cliff and canyon bat roosting habitat within the temporary and 4.8 acres within the permanent ROW area. Ten raptor nests occur within the special status wildlife analysis area for Carson River Transmission Alternative A.</p>
<p><b>Bald and Golden Eagles:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect Bald and Golden Eagles?</p>	<p>A total of five nests with the potential for supporting golden eagles were identified within the Carson River Proposed Action (Alternative A Comparison).</p> <p>There would be a very small loss of foraging habitat for bald eagles because the Carson River Proposed Action</p>	<p>Same as the Carson River Proposed Action (Alternative C Comparison), except a total of seven nests with the potential for supporting golden eagles were identified within the Carson River Transmission Alternative A.</p>	<p>A total of two nests with the potential for supporting golden eagles were identified within the Carson River Proposed Action (Alternative C Comparison).</p> <p>There would be a very small loss of foraging habitat for bald eagles because the Carson River Proposed Action (Alternative C</p>	<p>Same as the Carson River Proposed Action (Alternative C Comparison), except a total of nine nests with the potential for supporting golden eagles were identified within the Carson River Transmission Alternative C.</p>

Resource/Use Impact	Carson River Proposed Action (Alternative A Comparison)	Carson River Transmission Alternative A	Carson River Proposed Action (Alternative C Comparison)	Carson River Transmission Alternative C
	<p>(Alternative A Comparison) does not contain this species' preferred foraging habitat. Impacts to golden eagles associated with noise, visual disturbance, human presence, electrocution, and injury from transmission wire collision are anticipated to be negligible. The Carson River Proposed Action (Alternative A Comparison) 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.</p>		<p>Comparison) does not contain this species' preferred foraging habitat. Impacts to golden eagles associated with noise, visual disturbance, human presence, electrocution, and injury from transmission wire collision are anticipated to be negligible. The Carson River Proposed Action (Alternative C Comparison) 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.</p>	
<p><b>General Wildlife:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect general wildlife?</p>	<p>The entire stretch of the Carson River in the vicinity of the Carson River Proposed Action (Alternative A Comparison) provides high-value riparian and aquatic habitat for general wildlife and would be impacted by the Carson River Proposed Action (Alternative A Comparison).</p> <p>The Carson River Proposed Action (Alternative A Comparison) Comstock Meadows #2 transmission line would include approximately 24 acres of riparian habitat within its temporary ROW areas and 5 acres within its permanent ROW areas.</p>	<p>Same as the Carson River Proposed Action (Alternative A Comparison), except the Comstock Meadows #2 transmission line under Carson River Transmission Line Alternative A would include approximately 18 acres of riparian habitat within its temporary ROW areas and 5 acres within its permanent ROW areas.</p> <p>The greater separation of the river crossing by the three 345-kV transmission lines in the Carson River Proposed Action (Alternative A Comparison) would expand the predation opportunities on the local terrestrial prey populations as compared to the Carson River Transmission Alternative A. Carson River Transmission Line Alternative A would also result in fewer effects to general wildlife by reducing habitat fragmentation and exposure to other disturbances such as human presence and noise resulting from a more consolidated crossing of the Carson River.</p> <p>Carson River Transmission Line Alternative A would result in fewer effects to general wildlife by reducing habitat fragmentation and exposure to other disturbances such as human presence and noise resulting from a more consolidated crossing of the Carson River than the Carson River Proposed Action (Alternative A Comparison) or Carson River Transmission Alternative C. Carson River Transmission Alternative A would also result in fewer impacts to high-value riparian habitat than the Carson River Proposed Action (Alternative A Comparison).</p>	<p>The entire stretch of the Carson River in the vicinity of the Carson River Proposed Action (Alternative C Comparison) provides high-value riparian and aquatic habitat for general wildlife and would be impacted by the Carson River Proposed Action (Alternative C Comparison).</p> <p>The Carson River Proposed Action (Alternative C Comparison) Comstock Meadows #2 transmission line would include approximately 89 acres of riparian habitat within its temporary ROW areas and 25 acres within its permanent ROW areas.</p>	<p>Same as the Carson River Proposed Action (Alternative C Comparison), except the Comstock Meadows #2 transmission line under Carson River Transmission Line Alternative C would include approximately 64 acres of riparian habitat within its temporary ROW areas and 21 acres within its permanent ROW areas.</p> <p>Carson River Transmission Alternative C would result in fewer impacts to riparian, marsh, and playa habitat than the Carson River Proposed Action (Alternative C Comparison).</p>
<p><b>Cultural Resources:</b> Would historic properties be adversely affected by the construction, O&amp;M, and decommissioning of the GLWP?</p>	<p>Within Carson River Proposed Action (Alternative A Comparison) Cultural Resource Analysis Area/APE, 29 cultural resource sites/historic properties would have adverse effects, 3 would have no adverse effects, and 68 would have no effects.</p>	<p>Within the Carson River Transmission Alternative A Cultural Resource Analysis Area/APE, 28 cultural resource sites/historic properties would have adverse effects, 3 would have no adverse effects, and 63 would have no effects.</p>	<p>Within the Carson River Proposed Action (Alternative C Comparison) Cultural Resource Analysis Area/APE, 29 cultural resource sites/historic properties would have adverse effects, 3 would have no adverse effects, and 68 would have no effects.</p>	<p>Within the Carson River Transmission Alternative C Cultural Resource Analysis Area/APE, 6 cultural resource sites/historic properties would have adverse effects, 9 would have no adverse effects, and 16 would have no effects.</p>
<p><b>Native American Religious Concerns:</b> How would sacred sites or Traditional Cultural Properties be affected by construction, O&amp;M, and decommissioning of the GLWP?</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>
<p><b>Paleontological Resources:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect paleontological resources?</p>	<p>The Carson River Proposed Action (Alternative A Comparison) would be underlain by geologic units with a very low (PFYC 1), low (PFYC 2), and unknown (PFYC U) paleontological potentials. The Carson River</p>	<p>Same as the Carson River Proposed Action (Alternative A Comparison), except the Carson River Transmission Alternative A would overlap 709.7 acres of PFYC 1 units,</p>	<p>The Carson River Proposed Action (Alternative C Comparison) would be underlain by geologic units with a very low (PFYC 1), low (PFYC 2), and unknown (PFYC U) paleontological potentials. The Carson River Proposed Action (Alternative C Comparison) would</p>	<p>Same as the Carson River Proposed Action (Alternative C Comparison), except the Carson River Transmission Alternative C would overlap 2,754.0 acres of PFYC 1 units,</p>

Resource/Use Impact	Carson River Proposed Action (Alternative A Comparison)	Carson River Transmission Alternative A	Carson River Proposed Action (Alternative C Comparison)	Carson River Transmission Alternative C
<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>	<p>Proposed Action (Alternative A Comparison) would overlap 179.1 acres of PFYC 1 units, 465.5 acres of PFYC 2 units, and 228.3 acres of PFYC U units.</p> <p>The Carson River Proposed Action (Alternative A Comparison) would include approximately 872.8 acres of temporary ROW and 246.0 acres of permanent ROW.</p> <p>Wind erosion susceptibility for the Carson River Proposed Action (Alternative A Comparison) Proposed Action's ROW areas would be predominately low but would have approximately 64.5 acres (seven percent) and 10.6 acres (four percent) of high soil wind susceptibility for the temporary and permanent ROW areas, respectively.</p> <p>Less than one percent of the Carson River Proposed Action (Alternative A Comparison) temporary ROW area would have soils that have a high susceptibility to water erosion and runoff.</p> <p>The Carson River Proposed Action (Alternative A Comparison) would remove approximately 24.2 acres of farmland of statewide importance and approximately 3.0 acres of prime farmland if irrigated and reclaimed of excess salts and sodium long-term in the permanent ROW area.</p> <p>The Carson River Proposed Action (Alternative A Comparison) would not cross any mining districts.</p>	<p>432.7 acres of PFYC 2 units, and 404.5 acres of PFYC U units.</p> <p>The Carson River Transmission Alternative A would include 1,546.3 acres of temporary ROW and 348.6 acres of permanent ROW.</p> <p>Wind erosion susceptibility would be considered predominately low for the Carson River Transmission Alternative A with WEGs that would range from 4.2 to 6.67 for both temporary and permanent ROW areas. There would be approximately 203.6 acres and 36.6 acres of moderate soil wind susceptibility, however these areas would be less than 13 percent of the Carson River Transmission Alternative A ROW areas.</p> <p>The Carson River Transmission Alternative A would only have approximately 1.1 acres of soils considered to have high soil erosion and runoff properties.</p> <p>Carson River Transmission Alternative A would have the greater amount of low susceptible soils for erosion and runoff (approximately 1,330.5 acres [86 percent] in the temporary ROW and approximately 278.2 acres [80 percent] in the permanent ROW) with K factors ranging from 0.02 to 0.24 more than the comparable section of the Proposed Action.</p> <p>The Carson River Transmission Alternative A would remove approximately 42.2 acres of farmland of statewide importance and approximately 6.5 acres of prime farmland if irrigated and reclaimed of excess salts and sodium long-term in the permanent ROW area.</p> <p>The Carson River Transmission Alternative A would not cross any mining districts.</p>	<p>overlap 2,488.2 acres of PFYC 1 units, 1,390.8 acres of PFYC 2 units, and 2,561.7 acres of PFYC U units.</p> <p>The Carson River Proposed Action (Alternative C Comparison) would include approximately 6,440.8 acres of temporary ROW and 1,740.0 acres of permanent ROW.</p> <p>All of the soils within the Carson River Proposed Action's (Alternative C Comparison) ROW areas would have low wind erosion susceptibility.</p> <p>The Carson River Proposed Action (Alternative C Comparison) would have approximately 4,504.6 acres (70 percent) in the temporary ROW and approximately 1,080.6 acres (62 percent) in the permanent ROW area that would have soils with low water erosion susceptibility (K factors between 0.02 and 0.24) and less than one percent of the soil in the ROW areas with K factors over 0.4. or soils with high water erosion and runoff rates.</p> <p>The Carson River Proposed Action (Alternative C Comparison) would remove in the permanent ROW area approximately 0.6 acres of prime farmland if irrigated, 51.3 acres of prime farmland if irrigated and drained, and 88.7 acres of prime farmland if reclaimed of excess salts and sodium in addition to 340.4 acres of farmland of statewide importance soils.</p> <p>The Carson River Proposed Action (Alternative C Comparison) permanent ROW area would cross through only the Red Mountain Mining District for approximately 50.0 acres.</p>	<p>1,134.5 acres of PFYC 2 units, and 2,392.3 acres of PFYC U units.</p> <p>The Carson River Transmission Alternative C would include 6,280.8 acres of temporary ROW and 1,933.2 acres of permanent ROW.</p> <p>Carson River Transmission Alternative C would have approximately 5,176.7 acres (82 percent) of soils with K factors between 0.02 and 0.24 and less than one percent of soils with K factors over 0.4 in the permanent ROW.</p> <p>The Carson River Transmission Alternative C would remove in the permanent ROW area approximately 1.4 acres of prime farmland if irrigated, 6.8 acres of prime farmland if irrigated and drained, and 30.8 acres of prime farmland if reclaimed of excess salts and sodium in addition to 575.1 acres of farmland of statewide importance soils.</p> <p>The Carson River Transmission Alternative C would cross two mining districts, Como and Red Mountain, and the permanent ROW area would affect one percent or less of the respective mining districts.</p> <p>The permanent ROW for the Carson River Transmission Alternative C may disturb a total of approximately 36.8 acres and 53.2 acres, respectively within the Como and Red Mountain mining districts.</p>
<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>	<p>The Carson River Proposed Action (Alternative A Comparison) 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).</p> <p>The construction of the Carson River Proposed Action (Alternative A Comparison) would result in greenhouse gas 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.</p>	<p>Same as the Carson River Proposed Action (Alternative A Comparison).</p>	<p>The Carson River Proposed Action (Alternative C Comparison) 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).</p> <p>The construction of the Carson River Proposed Action (Alternative C Comparison) would result in greenhouse gas 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.</p>	<p>Same as the Carson River Proposed Action (Alternative C Comparison).</p>
<p><b>Special Designation Areas:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect special designation areas?</p>	<p>The Carson River Proposed Action (Alternative A Comparison) would be 2.8 miles from the Fort Churchill Historic State Park or Buckland Station. Terrain and riparian vegetation screening along the Carson River limits visibility of this alternative to only a portion of the state parks and their limited visibility would be negligible. There would be no change in primary use, use patterns, or functions at Fort Churchill Historic State Park.</p>	<p>Same as the Carson River Proposed Action (Alternative A Comparison), except the Carson River Transmission Alternative A would be 4.5 miles from the Fort Churchill Historic State Park or Buckland Station.</p>	<p>The Carson River Proposed Action (Alternative C Comparison) would be 2.8 miles from the Fort Churchill Historic State Park or Buckland Station. Terrain and riparian vegetation screening along the Carson River limits visibility of this alternative to only a portion of the state parks and their limited visibility would be negligible. There would be no change in primary use, use patterns, or functions at Fort Churchill Historic State Park.</p>	<p>Same as the Carson River Proposed Action (Alternative C Comparison), except The Carson River Transmission Alternative C is 1.5 miles from Fort Churchill Historic State Park and at a higher elevation with greater potential to be skylined than either the Proposed Action or Carson River Transmission Alternative A. The integrity of feeling and setting unique to the historic park would be adversely affected by Carson River Transmission Alternative C.</p>

Resource/Use Impact	Carson River Proposed Action (Alternative A Comparison)	Carson River Transmission Alternative A	Carson River Proposed Action (Alternative C Comparison)	Carson River Transmission Alternative C
<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 the National Historic Trails (Old Spanish, California, and Pony Express)?</p>	<p>The Carson River Proposed Action (Alternative A Comparison) would add three larger, 345-kV steel H-frame transmission lines to the landscape where one wood H-frame transmission line currently exists. The Carson River Proposed Action (Alternative A Comparison) would permanently change the desired scenic, recreational, cultural and (to a lesser extent) natural resources, qualities, values, and associated settings of the California and Pony Express NHT's Carson Route group and California NHT Walker River segment group. These effects would be most pronounced where the Carson River Proposed Action (Alternative A Comparison) would cross the Carson River and the Adrian Valley. The Carson River Proposed Action (Alternative A Comparison) would be incompatible with but not substantially interfere with the nature, purpose, and primary uses of the NHTs.</p>	<p>The Carson River Transmission Alternative A would shift the Fort Churchill to Comstock Meadows #2 345-kV transmission line to cross the California and Pony Express NHTs and Simpson Route #35E along the Carson River at generally the same location as the Fort Churchill to Comstock Meadows #1 transmission line, thus consolidating the crossing locations and reducing impacts as compared to the Carson River Proposed Action (Alternative A Comparison). Recreationists' views within the FG of the Carson River Transmission Alternative A would be consolidated with the Fort Churchill to Comstock Meadows #1 transmission alignment and would result in less overall effects in the immediate FG to the scenic, cultural and historic, recreational, and natural setting and vicarious experience as a whole. The Carson River Transmission Alternative A would be lower in elevation and not skylined and the visual and historical setting would appear to be more intact because the scale of the mountains and other landforms in the setting is more dominant than the addition of the proposed transmission lines would be. The majority of the Carson River Transmission Alternative A would be farther away from the Walker River Segment of the California NHT than the Carson River Proposed Action (Alternative A Comparison), and closer to the US 50 NHT segments.</p>	<p>The Carson River Proposed Action (Alternative C Comparison) would add three larger, 345-kV steel H-frame transmission lines to the landscape where one wood H-frame transmission line currently exists. The Carson River Proposed Action (Alternative C Comparison) would permanently change the desired scenic, recreational, cultural and (to a lesser extent) natural resources, qualities, values, and associated settings of the California and Pony Express NHT's Carson Route group and California NHT Walker River segment group. These effects would be most pronounced where the Carson River Proposed Action (Alternative C Comparison) would cross the Carson River and the Adrian Valley. The Carson River Proposed Action (Alternative C Comparison) would be incompatible with but not substantially interfere with the nature, purpose, and primary uses of the NHTs. The Carson River Proposed Action Alternative C Comparison) ascends and descends Churchill Butte and would be visible along the US 50 and Carson River NHT segments.</p>	<p>The Carson River Transmission Alternative C would reduce effects in the viewshed as a whole and would meet the desired NHT scenic, cultural and historic, recreational, and natural resources, qualities, and uses. The Carson River Transmission Alternative C ascends and descends Churchill Butte and would be visible along the US 50 and Carson River NHT segments. The Carson River Transmission Alternative C would be visible from nearly half of the Fort Churchill State Historic Park across the FG and MG, a high potential historic site. The Carson River Transmission Alternative C would be higher in elevation and potentially skylined, though the visual setting would appear to be intact because the scale of the mountains and other landforms in the setting is more dominant than the addition of the proposed transmission lines would be. The impacts of Carson River Transmission Alternative C would have fewer effects because the perpendicular crossings reduce the extent of impacts to 0.5-mile on either side, as compared to the Carson River Proposed Action (Alternative C Comparison) which parallels the Walker River-Sonora Route for approximately 4.5 miles.</p>
<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>	<p>The Carson River Proposed Action (Alternative A Comparison) would cross a total of two OHV routes, a total of nine times. Approximately 0.8 miles (eight percent) of the Carson River Proposed Action (Alternative A Comparison) would cross sections containing mining claims.</p>	<p>The Carson River Transmission Alternative A would cross a total of 2 OHV routes, a total of 13 times. Approximately 0.4 miles (three percent) of the Carson River Transmission Alternative A would cross sections containing mining claims.</p>	<p>The Carson River Proposed Action (Alternative C Comparison) would cross a total of 3 OHV routes, a total of 50 times. Approximately 2.3 miles (three percent) of the Carson River Proposed Action (Alternative C Comparison) would cross sections containing mining claims.</p>	<p>The Carson River Transmission Alternative C would cross a total of 5 OHV routes, a total of 65 times. Approximately 7.1 miles (nine percent) of the Carson River Transmission Alternative C would cross sections containing mining claims.</p>
<p><b>Water Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect water resources?</p>	<p>The Carson River Proposed Action (Alternative A Comparison) would include 40 surface water crossings from the temporary ROW and 18 surface water crossings from the permanent ROW. There would be approximately 38.5 acres in high flood risk areas associated with the temporary ROW area and 8.2 acres associated with the permanent ROW area.</p>	<p>The Carson River Transmission Alternative A would include 53 surface water crossings from the temporary ROW and 24 surface water crossings from the permanent ROW. There would be approximately 39.0 acres in high flood risk areas associated with the temporary ROW area and 10.1 acres associated with the permanent ROW area.</p>	<p>The Carson River Proposed Action (Alternative C Comparison) would include 308 surface water crossings from the temporary ROW and 123 surface water crossings from the permanent ROW. There would be approximately 439.5 acres in high flood risk areas associated with the temporary ROW area and 142.9 acres associated with the permanent ROW area.</p>	<p>The Carson River Transmission Alternative C would include 235 surface water crossings from the temporary ROW and 101 surface water crossings from the permanent ROW. There would be approximately 336.1 acres in high flood risk areas associated with the temporary ROW area and 134.3 acres associated with the permanent ROW area.</p>
<p><b>Visual Resources:</b> How would the construction, O&amp;M, and decommissioning of the GLWP affect visual resources?</p>	<p>The Carson River Proposed Action (Alternative A Comparison) permanent ROW area would cross approximately 28.2 acres of Scenic Quality Class A landscapes, 82.9 acres of Class B landscapes, and 134.9 acres of Class C landscapes. The scenic quality of the landscape within the FG of the Carson River Proposed Action (Alternative A Comparison) would be noticeably altered through the Adrian Valley (CCDO-039), Mill Canyon (CCDO-027), Table Mountain (CCDO-024), and Churchill Butte (CCDO-022) VAUs and in the MG, the magnitude of the impact would be negligible. Under the Carson River Proposed Action (Alternative A Comparison), highways SVPs that would have views of</p>	<p>Same as the Carson River Proposed Action (Alternative A Comparison), except the Carson River Transmission Alternative A permanent ROW area would cross approximately 163.3 acres of Scenic Quality Class B landscapes and 185.3 acres of Class C landscapes. The Carson River Transmission Alternative A would impact approximately 42 percent more land than the Carson River Proposed Action (Alternative A Comparison). However, the Carson River Transmission Alternative A would not impact Class A landscapes, whereas the Carson River Proposed Action (Alternative A Comparison) would cross Class A landscapes. Class A landscapes represent approximately four percent of the</p>	<p>The Carson River Proposed Action (Alternative C Comparison) permanent ROW area would cross approximately 28.2 acres of Scenic Quality Class A landscapes, 557.1 acres of Class B landscapes, and 1,154.7 acres of Class C landscapes. The scenic quality of the landscape within the FG of the Carson River Proposed Action (Alternative A Comparison) would be noticeably altered through the Adrian Valley (CCDO-039), Mill Canyon (CCDO-027), Table Mountain (CCDO-024), and Churchill Butte (CCDO-022) VAUs and in the MG, the magnitude of the impact would be negligible. Under the Carson River Proposed Action (Alternative C Comparison), highways SVPs that would have views of the alternative include US 50 and US 95A. Motorists traveling along the</p>	<p>Same as the Carson River Proposed Action (Alternative C Comparison), except the Carson River Transmission Alternative C permanent ROW area would cross approximately 28.2 acres of Scenic Quality Class A landscapes, 539.5 acres of Class B landscapes, and 1,365.6 acres of Class C landscapes. Carson River Transmission Alternative C would also noticeably alter the scenic quality of the Carson River in the FG and subtly alter the scenic quality of the Caron River in the MG and the Carson Plains in the FG and MG. Motorists traveling along the roadways would have views of the Carson River Proposed Action (Alternative C</p>

Resource/Use Impact	Carson River Proposed Action (Alternative A Comparison)	Carson River Transmission Alternative A	Carson River Proposed Action (Alternative C Comparison)	Carson River Transmission Alternative C
	<p>the alternative include US 50 and US 95A. Motorists traveling along the roadways would have views of the Carson River Proposed Action (Alternative A Comparison) for a total of approximately 3 minutes on US 50 and 25 minutes on US 95A.</p> <p>Under the Carson River Proposed Action (Alternative A Comparison), Community SVPs that could have views of the alternative include Dayton and Stagecoach. The Carson River Proposed Action (Alternative A Comparison) would not be visible from the Dayton SVP. The Proposed Action (Alternative A Comparison) would be visible from approximately two percent in the FG of the Stagecoach SVP and one percent within the MG. The portions of the Proposed Action (Alternative A Comparison) visible would not be visually discernible and would not attract the attention of the casual observer. The Proposed Action (Alternative A Comparison) would be visible from approximately less than one percent in the FG of the Stagecoach SVP and two percent within the MG.</p> <p>Under the Carson River Proposed Action (Alternative A Comparison), SDA SVPs that could have views of the alternative include the Fort Churchill State Historic Park Visitor Center viewpoint. The Carson River Proposed Action (Alternative A Comparison) would be visible from this viewpoint in the MG only. Additionally, approximately 11 percent of the Fort Churchill State Historic Park would have views of the Carson River Proposed Action (Alternative A Comparison) within the FG and 17 percent within the MG of the state park. The Carson River Proposed Action (Alternative A Comparison) would be visible in the FG as well as the MG of the Fort Churchill State Historic Park and would begin to attract attention.</p> <p>Under the Carson River Proposed Action (Alternative A Comparison), NHT SVPs that would have views of the alternative include the California NHT and the Pony Express NHT. Recreationists walking along the California NHT would have views of the Carson River Proposed Action (Alternative A Comparison) for a total of approximately 10 hours. The presence of the Carson River Proposed Action (Alternative A Comparison) would be visually discernible and may attract attention in the existing setting from the California NHT. The crossing by the three 345-kV transmission lines of the Carson River Proposed Action (Alternative A Comparison) would occur in three locations of the Carson River Segment of the California NHT.</p> <p>Recreationists walking along the Pony Express NHT would have views of the Carson River Proposed Action (Alternative A Comparison) for a total of approximately four hours. The presence of the Carson River Proposed Action (Alternative A Comparison) would be visually</p>	<p>landscapes within the visual resource analysis area and are the landscapes with the highest scenic value. Motorists traveling along the roadways would have views of the Carson River Transmission Alternative A for a total of approximately 11 minutes on US 50 and 23 minutes on US 95A.</p> <p>The Carson River Transmission Alternative A would be visible from approximately less than one percent in the FG of the Dayton SVP and two percent within the MG. The portions of the Carson River Transmission Alternative A visible would not be visually discernible and would not attract the attention of the casual observer. The Carson River Transmission Alternative A would be visible from approximately less than one percent in the FG of the Dayton SVP and two percent within the MG. The portions of the Carson River Transmission Alternative A visible would not be visually discernible and would not attract the attention of the casual observer. The Carson River Transmission Alternative A would be visible from approximately 40 percent in the FG of the Stagecoach SVP and 55 percent within the MG. The Carson River Transmission Alternative A would be visually discernible and would begin to attract the attention of the casual observer. The effects on views from Dayton and Stagecoach from the Carson River Transmission Alternative A would be greater than the Proposed Action (Alternative A Comparison).</p> <p>The Carson River Transmission Alternative A would not be visible from the Fort Churchill State Historic Park Visitor Center viewpoint. Additionally, approximately five percent of the Fort Churchill State Historic Park would have views of the Carson River Transmission Alternative A within the MG of the state park. The Carson River Transmission Alternative A would not attract attention when viewed from Fort Churchill State Historic Park because of the distance (approximately 4.5 miles from the state park) and the dense Carson River riparian corridor and varied terrain found between the state park and the 345-kV transmission line.</p> <p>Recreationists walking along the California NHT would have views of the Carson River Transmission Alternative A for a total of approximately 13 hours. Almost all of the Carson River Transmission Alternative A would be further away from the Walker River Segment of the California NHT than the Carson River Proposed Action (Alternative A Comparison), and closer to the US 50 Segment. The three 345-kV transmission lines associated with the Carson River Transmission Alternative A would cross the Carson River Segment of the California NHT in two locations.</p>	<p>roadways would have views of the Carson River Proposed Action (Alternative C Comparison) for a total of approximately 26 minutes on US 50 and 25 minutes on US 95A. The Carson River Proposed Action (Alternative C Comparison) effect on the views...</p> <p>The Carson River Proposed Action (Alternative C Comparison) would not be visible from the Dayton SVP. The Proposed Action (Alternative C Comparison) would be visible from approximately 76 percent in the FG of the Stagecoach SVP and 24 percent within the MG.</p> <p>Under the Carson River Proposed Action (Alternative C Comparison), SDA SVPs that could have views of the alternative include the Fort Churchill State Historic Park Visitor Center viewpoint. The Carson River Proposed Action (Alternative C Comparison) would be visible from approximately 11 percent of the Fort Churchill State Historic Park in the FG and 21 percent in the MG. The Carson River Proposed Action (Alternative A Comparison) would be visible in the FG as well as the MG of the Fort Churchill State Historic Park and would begin to attract attention.</p> <p>Under the Carson River Proposed Action (Alternative A Comparison), NHT SVPs that would have views of the alternative include the California NHT and the Pony Express NHT. Recreationists walking along the California NHT would have views of the Carson River Proposed Action (Alternative A Comparison) for a total of approximately 32 hours. The presence of the Carson River Proposed Action (Alternative C Comparison) within the FG and MG views from the California NHT would be visually discernible and may attract attention from the existing setting.</p> <p>Recreationists walking along the Pony Express NHT would have views of the Carson River Proposed Action (Alternative C Comparison) for a total of approximately 10 hours. The presence of the Carson River Proposed Action (Alternative C Comparison) would be visually discernible and may attract attention in the existing setting from the Pony Express NHT.</p> <p>The Carson River Proposed Action (Alternative C Comparison) would be in conformance with the VRM Class III and IV designated landscapes.</p>	<p>Comparison) for a total of approximately 27 minutes on US 50 and 23 minutes on US 95A.</p> <p>The Carson River Transmission Alternative C would be visible from approximately 10 percent in the FG of the Dayton SVP and 22 percent within the MG. The portions of Carson River Transmission Alternative C would be noticeable but would not attract the attention of the casual observer. The Carson River Transmission Alternative C would be visible from approximately 69 percent in the FG of the Stagecoach SVP and 28 percent within the MG. The Carson River Transmission Alternative C would be visually discernible and would begin to attract the attention of the casual observer. The effects on views from Dayton and Stagecoach from the Carson River Transmission Alternative C would be overall similar but with less impacts in the FG than the comparable segment of the Proposed Action (Alternative C Comparison).</p> <p>The Carson River Transmission Alternative C would be visible from approximately 22 percent of the Fort Churchill State Historic Park in the FG and 22 percent in the MG. The Carson River Transmission Alternative C would attract attention when viewed from Fort Churchill State Historic Park because of the river crossing directly adjacent to the state park and the addition of a 345-kV transmission line where one does not currently exist.</p> <p>Recreationists walking along the California NHT would have views of the Carson River Transmission Alternative C for a total of approximately 32 hours but would be for one hour shorter duration in the FG and one hour longer in the MG. Almost all of the Carson River Transmission Alternative C would be further away from the Walker River Segment of the California NHT than the Carson River Proposed Action (Alternative C Comparison), and closer to the US 50 Segment.</p> <p>The Carson River Transmission Alternative C would be seen less from the Pony Express NHT but for an overall similar duration along the NHT than the Carson River Proposed Action (Alternative C Comparison).</p>

Resource/Use Impact	Carson River Proposed Action (Alternative A Comparison)	Carson River Transmission Alternative A	Carson River Proposed Action (Alternative C Comparison)	Carson River Transmission Alternative C
	discernible and may attract attention in the existing setting from the Pony Express NHT. The BLM-administered lands associated with the Carson River Proposed Action (Alternative A Comparison) are unclassified for VRM and, as such, conformance determinations with VRM objectives are not applicable.	Recreationists walking along the Pony Express NHT would have views of the Carson River Transmission Alternative A for a total of approximately five hours. The Carson River Transmission Alternative A would be seen more from the Pony Express NHT.		
<b>Socioeconomic Resources:</b> What impact would the construction, O&M, and decommissioning of the GLWP have on socioeconomic resources?	The Carson River Proposed Action (Alternative A Comparison) would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the Carson River Proposed Action (Alternative A Comparison).	The Carson River Proposed Action (Alternative C Comparison) would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the Carson River Proposed Action (Alternative C Comparison).
<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?	The Carson River Proposed Action (Alternative A Comparison) would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects. The noise generated by construction, O&M, and decommissioning would be temporary and cease once activities have been completed. There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.	Same as the Carson River Proposed Action (Alternative A Comparison).	The Carson River Proposed Action (Alternative C Comparison) would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects. The noise generated by construction, O&M, and decommissioning would be temporary and cease once activities have been completed. There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.	Same as the Carson River Proposed Action (Alternative C Comparison).
<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 Acronyms:* AFB – Air Force Base; APE – Area of Potential Effect; BLM – Bureau of Land Management; CCDO – Carson City District Office; CR – County Route; DOD – Department of Defense; FG – Foreground; GLWP – Greenlink West Project; I – Interstate; kV – Kilovolt; MG – Middleground; NAAQS – National Ambient Air Quality Standards; NCA – National Conservation Area; NDSL – Nevada Division of State Lands; NHT – National Historic Trail; NPS – National Park Service; NWR – National Wildlife Refuge; 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; TUSK – Tule Springs Fossil Beds National Monument; UNLV – University of Nevada, Las Vegas; US – United States Highway; USFWS – United States Fish and Wildlife Service; VRM – Visual Resource Management; WEG – Wind Erodibility Group; WMA – Wildlife Management 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 3-148. 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 (temporary ROW acres)</b>	Total: 109.8 • BLM: 109.8	Total: 109.0 • BLM: 109.0	Total: 108.9 • BLM: 108.9	Total: 109.1 • BLM: 109.1	Total: 108.9 • BLM: 108.9	Total: 2.3 • BLM: 0.1 • Private: 2.2	Total: 2.3 • BLM: 2.3
<b>Land Ownership (permanent ROW acres)</b>	Total: 109.8 • BLM: 109.8	Total: 109.0 • BLM: 109.0	Total: 108.9 • BLM: 108.9	Total: 109.1 • BLM: 109.1	Total: 108.9 • BLM: 108.9	Total: 2.3 • BLM: 0.1 • Private: 2.2	Total: 2.3 • BLM: 2.3
<b>Federally Listed Species:</b> How would construction, O&M, and decommissioning of the GLWP affect federally listed species and their habitat?	Same as the AS-2 (Proposed Action), except Mojave desert tortoise surveys found nine Mojave desert tortoise burrows ranging in classification from Class 1 to Class 5, and Mojave desert tortoise sign at 10 locations within the AS-1 boundary.	No impact to Bi-State Sage-grouse, Lahontan Cutthroat Trout, Southwestern Willow Flycatcher, Yellow-billed Cuckoo, or Yuma Ridgway's Rail. The AS-2 (Proposed Action) would occur within suitable habitat for Mojave desert tortoise. Mojave desert tortoise surveys of the two substation alternatives found seven Class 5 Mojave desert tortoise burrows (poor condition, may be suitable for Mojave desert tortoise) within the AS-2 (Proposed Action) boundary.	Same as the ES-2 (Proposed Action), except for Bi-State Sage-grouse, the ES-1 alternative would be located outside of the Bi-State sage-grouse PMUs and outside of Bi-State habitat.	No impact to Lahontan Cutthroat Trout, Mojave desert tortoise, Southwestern Willow Flycatcher, Yellow-billed Cuckoo, or Yuma Ridgway's Rail. The ES-2 (Proposed Action) would result in disturbance of approximately 109.1 acres within the White Mountains PMU although this substation alternative would be located approximately 8.3 miles from the nearest area of Bi-State habitat located in the Silver Peak Range near Piper Peak.	Same as the Proposed Action (ES-2), except for Bi-State Sage-grouse, the ES-3 alternative would be located outside of the Bi-State sage-grouse PMUs and outside of Bi-State habitat.	Same as the AM-2 (Proposed Action).	No impact to Bi-State Sage-grouse, Lahontan Cutthroat Trout, Southwestern Willow Flycatcher, Yellow-billed Cuckoo, or Yuma Ridgway's Rail. The AM-2 (Proposed Action) would occur within suitable habitat for Mojave desert tortoise. No live tortoise, burrows, carcasses, or sign within the survey area for AM-2 (Proposed Acton).
<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?	Same as the AS-2 (Proposed Action).	The AS-2 (Proposed Action) is anticipated to have minimal impact to native vegetation communities due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area . The AS-2 (Proposed Action) is anticipated to have negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects. The AS-2 (Proposed Action) is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.	Same as the ES-2 (Proposed Action).	The ES-2 (Proposed Action) is anticipated to have minimal impact to native vegetation communities due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area . The ES-2 (Proposed Action) is anticipated to have negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects. The ES-2 (Proposed Action) is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.	Same as the ES-2 (Proposed Action).	Same as the AM-2 (Proposed Action).	The AM-2 (Proposed Action) is anticipated to have minimal impact to native vegetation communities due to the impact to the various vegetation communities relative to the amount that occurs in the vegetation analysis area . The AM-2 (Proposed Action) is anticipated to have negligible impact to the spread and/or introduction of invasive plant species and noxious weeds because of the implementation of measures to minimize potential effects. The AM-2 (Proposed Action) is anticipated to have negligible impacts to forest resources from the reduction of woodland areas and would not result in impacts or modifications to the existing management of forest resources by the federal ROW agencies.
<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?	Same as the AS-2 (Proposed Action), except AS-1 is located 5.2 miles west of Lava Dune and is not anticipated to interfere with sand transport to the dune. As a result, impacts to Giuliani's dune	Special status wildlife and bird and bat species could occur within the AS-2 (Proposed Action) area. No special status plant or aquatic species suitable or occupied habitat would occur. The AS-2 (Proposed Action) boundary would include approximately 109.0 acres	Same as the ES-2 (Proposed Action).	Special status plant, wildlife, and bird and bat species could occur within the ES-2 (Proposed Action) area. No special status aquatic species suitable or occupied habitat would occur.	Same as the ES-2 (Proposed Action).	Same as the AM-2 (Proposed Action).	Special status wildlife and bird and bat species could occur within the AM-2 (Proposed Action) area. No special status plant or aquatic species suitable or occupied habitat would occur. The AM-2 (Proposed Action) boundary would include approximately 2.3 acres

Resource/Use Impact	AS-1	AS-2 (Proposed Action)	ES-1	ES-2 (Proposed Action)	ES-3	AM-1	AM-2 (Proposed Action)
	scarab and large aegialian scarab under the Proposed Action (AS-2) would be avoided by implementation of the AS-1 alternative instead.	that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat. Additionally, construction of AS-2 (Proposed Action) may result in a trend toward federal listing for Giuliani's dune scarab and large aegialian scarab due to its potential to alter sand transport to habitat for these species on Lava Dune.		The ES-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.			that could potentially affect special status species individuals, communities, and/or suitable or occupied habitat.
<b>Bald and Golden Eagles:</b> How would construction, O&M, and decommissioning of the GLWP affect Bald and Golden Eagles?	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
<b>General Wildlife:</b> How would construction, O&M, and decommissioning of the GLWP affect general wildlife?	Same as the AS-2 (Proposed Action).	The AS-2 (Proposed Action) would result in short and long-term impacts, ranging from undetectable to impacts only to the individual, on general wildlife due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, potential increased predation, and reduced availability of movement corridors.	Same as the ES-2 (Proposed Action).	The ES-2 (Proposed Action) would result in short and long-term impacts, ranging from undetectable to impacts only to the individual, on general wildlife due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, potential increased predation, and reduced availability of movement corridors.	Same as the ES-2 (Proposed Action).	Same as the AM-2 (Proposed Action).	The AM-2 (Proposed Action) would result in short and long-term impacts, ranging from undetectable to impacts only to the individual, on general wildlife due to localized habitat loss and degradation, general disturbance due to increased human and vehicular activity, potential increased predation, and reduced availability of movement corridors.
<b>Cultural Resources:</b> Would historic properties be adversely affected by the construction, O&M, and decommissioning of the GLWP?	Within the AS-1 Cultural Resource Analysis Area/APE, one cultural resource sites/historic properties would have adverse effects, zero would have no adverse effects, and four would have no effects.	Within the AS-2 (Proposed Action) Cultural Resource Analysis Area/APE, two cultural resource sites/historic properties would have adverse effects, zero would have no adverse effects, and zero would have no effects.	Within the ES-1 Cultural Resource Analysis Area/APE, zero cultural resource sites/historic properties would have adverse effects, zero would have no adverse effects, and one would have no effects.	Within the ES-2 (Proposed Action) Cultural Resource Analysis Area/APE, zero cultural resource sites/historic properties would have adverse effects, zero would have no adverse effects, and one would have no effects.	Within the ES-3 Cultural Resource Analysis Area/APE, one cultural resource sites/historic properties would have adverse effects, zero would have no adverse effects, and five would have no effects.	Within the AM-1 Cultural Resource Analysis Area/APE, zero cultural resource sites/historic properties would have adverse effects, zero would have no adverse effects, and zero would have no effects.	Within the AM-2 (Proposed Action) Cultural Resource Analysis Area/APE, zero cultural resource sites/historic properties would have adverse effects, zero would have no adverse effects, and one would have no effects.
<b>Native American Religious Concerns:</b> How would sacred sites or Traditional Cultural Properties be affected by construction, O&M, and decommissioning of the GLWP?	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
<b>Paleontological Resources:</b> How would construction, O&M, and decommissioning of the GLWP affect paleontological resources?	Same as the AS-2 (Proposed Action), except the AS-1 would overlap 109.8 acres of PFYC 2 units.	The AS-2 (Proposed Action) would be underlain by geologic units with a low (PFYC 2) paleontological potential. The AS-2 (Proposed Action) would overlap 109.0 acres of PFYC 2 units.	Same as the ES-2 (Proposed Action), except the ES-1 would overlap 108.9 acres of PFYC 2 units.	The ES-2 (Proposed Action) would be underlain by geologic units with a low (PFYC 2) paleontological potential. The ES-2 (Proposed Action) would overlap 109.1 acres of PFYC 2 units.	Same as the ES-2 (Proposed Action), except the ES-3 would overlap 108.9 acres of PFYC 2 units.	The AM-1 would be underlain by geologic units with a low (PFYC 2) paleontological potential. The AM-1 would overlap 2.3 acres of PFYC 2 units.	The AM-2 (Proposed Action) would be underlain by geologic units with a low (PFYC 2) and unknown (PFYC U) paleontological potentials. The AM-2 (Proposed Action) would overlap 1.1 acres of PFYC 2 units and 1.2 acres of PFYC U units.
<b>Earth Resources:</b> How would construction, O&M, and decommissioning of the GLWP affect the earth resources of geology, soils, and minerals?	Same as the AS-2 (Proposed Action), except 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-1 site would not interfere with the sand transport to	The AS-2 (Proposed Action) boundary would include approximately 109.0 acres. Construction of the AS-2 (Proposed Action) may impact the sand transport to Lava Dune. The AS-2 (Proposed Action) would be located along the south side of US 95, which would be approximately 1.2 miles south	Same as the ES-2 (Proposed Action), except approximately 33 percent less of the permanent ROW area would be considered highly susceptible to wind erosion.	The ES-2 (Proposed Action) boundary would include approximately 109.0 acres. Wind erosion susceptibility would be considered high for the entire permanent ROW area of ES-2 (Proposed Action) with	Same as the ES-2 (Proposed Action), except approximately 23 percent of the ES-3 permanent ROW area would have a low soil wind susceptibility rating. The ES-3 would be the only Esmeralda Substation Alternative that would include approximately	Same as the AM-2 (Proposed Action).	The AM-2 (Proposed Action) boundary would include approximately 2.3 acres. Wind and water erosion factors (WEG 5.00 and K factor 0.20) are low for the AM-2 (Proposed Action). There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium or

Resource/Use Impact	AS-1	AS-2 (Proposed Action)	ES-1	ES-2 (Proposed Action)	ES-3	AM-1	AM-2 (Proposed Action)
	<p>either dune formation since the strongest winds, over 14 mph, consistently come from the south-southeast. This substation alternative would be located a substantial distance away from either dune compared to AS-2 (Proposed Action).</p> <p>Wind erosion susceptibility would be considered low for the AS-1 with WEGs that would be 6.0.</p> <p>The AS-1 would include approximately 201.5 acres of temporary and approximately 142.3 acres of permanent ROW areas that are considered farmland of statewide importance, if irrigated.</p>	<p>of this dune. Since the strongest winds consistently come from the south-southeast, portions of AS-2 (Proposed Action) that extend above ground level would intermittently interrupt sand transport. AS-2 (Proposed Action) would be located approximately 3.1 miles east of Big Dune and would not interfere with sand transport to this dune.</p> <p>The AS-2's (Proposed Action) ROW areas would also be low with WEGs ranging from 5.0 to 5.25 soil wind susceptibility. The AS-2 ROW area would have K factor rates of between 0.05 and 0.2 reflecting low susceptible soils for erosion and runoff.</p> <p>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) ROW area. The AS-2 (Proposed Action) would only impact less than 0.2 acre of soil that are considered farmland of statewide importance, if irrigated within its ROW areas.</p> <p>The AS-2 (Proposed Action) would not cross any mining districts.</p>		<p>WEGs that would be no greater than a 2.0.</p> <p>The ES-2 (Proposed Action) ROW area would have soils within low ranges for water erosion and runoff rates. There is no prime farmland if irrigated, irrigated and drained, or irrigated and reclaimed of excess salts and sodium soils associated with the ES-2 (Proposed Action) ROW area. The ES-2 (Proposed Action) would cross the Rhodes Marsh and Coaldale mining districts. The ROW areas would represent less than one percent of the Coaldale Mining District and less than two percent of the Rhodes Marsh Mining District.</p>	<p>15.3 acres of temporary and approximately 7.6 acres of permanent ROW areas that are considered farmland of statewide importance, if irrigated.</p> <p>The ES-3 substation alternative would not cross a mining district.</p>		<p>farmland of statewide importance soils associated with AM-2 (Proposed Action).</p> <p>The AM-2 (Proposed Action) would be within the Ash Meadows Mining District; however, the relatively small amount of acres associated with the AM-2 would be less than one percent of the mining district.</p>
<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>	<p>Same as AS-2 (Proposed Action).</p>	<p>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). The construction of the AS-2 (Proposed Action) would result in greenhouse gas 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.</p>	<p>Same as ES-2 (Proposed Action).</p>	<p>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). The construction of the ES-2 (Proposed Action) would result in greenhouse gas 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.</p>	<p>Same as ES-2 (Proposed Action).</p>	<p>Same as AM-2 (Proposed Action).</p>	<p>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). The construction of the AM-2 (Proposed Action) would result in greenhouse gas 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.</p>
<p><b>Special Designation Areas:</b> How would construction, O&amp;M, and decommissioning of the GLWP affect special designation areas?</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>
<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</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>	<p>No impact.</p>

Resource/Use Impact	AS-1	AS-2 (Proposed Action)	ES-1	ES-2 (Proposed Action)	ES-3	AM-1	AM-2 (Proposed Action)
the National Historic Trails (Old Spanish, California, and Pony Express)? <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?	No impact.	No impact.	The ES-1 would temporarily disturb approximately 199.8 acres (0.04 percent) of the Pilot-Table Mountain grazing allotment and would result in a permanent reduction of 130.5 acres (0.02 percent) of the total grazing forage.	The ES-2 (Proposed Action) would temporarily disturb approximately 157.5 acres (0.06 percent) of the Silver Peak grazing allotment and would result in a permanent reduction of 152.3 acres (0.05 percent) of the total grazing.	The ES-3 would disturb two grazing allotments: Sheep Mountain and Silver Peak. This substation alternative would temporarily disturb approximately 167.7 acres (0.2 percent) and 25.8 acres (0.01 percent) of the Sheep Mountain and Silver Peak grazing allotments, respectively. The ES-3 would result in a permanent reduction of 122.3 acres (0.1 percent) and 12.7 acres (0.004 percent) of the total forage available in the grazing in the Sheep Mountain and Silver Peak grazing allotments, respectively.	No impact.	No impact.
<b>Water Resources:</b> How would the construction, O&M, and decommissioning of the GLWP affect water resources?	The AS-1 would temporarily disturb 13 ephemeral washes and permanently disturb 110 ephemeral washes.	The AS-2 (Proposed Action) would not disturb any ephemeral washes.	The ES-1 would cross 8 ephemeral washes during construction and 9 ephemeral washes waters would be permanently disturbed.	The ES-2 (Proposed Action) would cross 11 ephemeral washes during construction and 5 ephemeral washes waters would be permanently disturbed.	The ES-3 would cross 16 ephemeral washes during construction and 12 ephemeral washes waters would be permanently disturbed.	No impact.	No impact.
<b>Visual Resources:</b> How would the construction, O&M, and decommissioning of the GLWP affect visual resources?	Same as the AS-2 (Proposed Action), except the AS-1 permanent ROW area would cross approximately 109.8 acres of Scenic Quality Class C landscapes. Motorists traveling on US 95 would have views of AS-1 for approximately seven minutes. The AS-1 would be visible from approximately 25 percent of the Big Dune SRMA in the FG and 24 percent in the MG.	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 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 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. Under the AS-2 (Proposed Action), highways SVPs that could have views of the alternative include US 95. 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. Under the AS-2 (Proposed Action), SDA SVPs that could have views of the alternative include Big Dune SRMA. The AS-2 (Proposed Action) would be visible from approximately 5 percent of the Big Dune SRMA in the FG and 50 percent in the MG. The AS-2 (Proposed Action) would dominate the visual setting and	Same as the ES-2 (Proposed Action), except the ES-1 permanent ROW area would cross approximately 108.9 acres of Scenic Quality Class C landscapes. There would be views of ES-1 from US 95. Motorists would see the entire ES-1 substation facility when traveling on US 95. Motorists would have views of the ES-1 for eight minutes. The BLM-administered lands associated with the ES-1 are unclassified for VRM and, as such, conformance determinations with VRM objectives are not applicable.	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 introduce built features that are not common in the setting, demand attention, and the landscape would appear to be altered in the FG of the substations, which would reduce the scenic quality rating. There would be views from ES-2 (Proposed Action) from US 6 (which is concurrent with US 95 northwest of Tonopah), and SR 265. The entire substation facility would be seen from US 6 and SR 265. Motorists traveling on SR 265 would have views of ES-2 (Proposed Action) for approximately four minutes. 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.	Same as the ES-2 (Proposed Action), except the ES-3 permanent ROW area would cross approximately 108.9 acres of Scenic Quality Class C landscapes. 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. SR 265 motorists 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. The ES-3 would demand attention and create strong contrast within the FG area of the SR 265 KOP. Therefore, ES-3	Same as the AM-2 (Proposed Action), except the AM-1 is located on private lands and conformance with BLM VRM objectives do not apply.	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 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. The AM-2 (Proposed Action) would begin to attract attention in the visual setting. Under the AS-2 (Proposed Action), highways SVPs that could have views of the alternative include SR 373. Motorists traveling on SR 373 would have views of AM-2 (Proposed Action) for approximately 15 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. Under the AS-2 (Proposed Action), Community SVPs that could have views of the alternative include 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

Resource/Use Impact	AS-1	AS-2 (Proposed Action)	ES-1	ES-2 (Proposed Action)	ES-3	AM-1	AM-2 (Proposed Action)
		the landscape would appear to be altered to the casual observer in the FG. The AS-2 (Proposed Action) would demand attention and create strong contrast within the FG area of the US 95 KOP. Therefore, AS-2 (Proposed Action) would not be in conformance with the VRM Class III management objectives.		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.	would not be in conformance with the VRM Class III management objectives.		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. The 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.
<b>Socioeconomic Resources:</b> What impact would the construction, O&M, and decommissioning of the GLWP have on socioeconomic resources?	Same as the AS-2 (Proposed Action).	The AS-2 (Proposed Action) would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the ES-2 (Proposed Action).	The ES-2 (Proposed Action) would include short-term economic impacts from the increased demand for public services associated with the construction workforce.	Same as the ES-2 (Proposed Action).	Same as the AM-2 (Proposed Action).	The AM-2 (Proposed Action) would include short-term economic impacts from the increased demand for public services associated with the construction workforce.
<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?	Same as the AS-2 (Proposed Action).	The AS-2 (Proposed Action) would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects. The noise generated by construction, O&M, and decommissioning would be temporary and cease once activities have been completed. There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.	Same as the ES-2 (Proposed Action).	The ES-2 (Proposed Action) would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects. The noise generated by construction, O&M, and decommissioning would be temporary and cease once activities have been completed. There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.	Same as the ES-2 (Proposed Action).	Same as the AM-2 (Proposed Action).	The AM-2 (Proposed Action) would have negligible impacts to public health and safety and waste because of the implementation of measures to minimize potential effects. The noise generated by construction, O&M, and decommissioning would be temporary and cease once activities have been completed. There would be no impacts to fire management because there would be no change to fire management goals and strategy and response to wildland fire.
<b>BLM RMP Conformance</b>	<ul style="list-style-type: none"> <li>VRM: 109.0 acres of nonconformance. Proposed VRM Class change from Class III to Class IV.</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: 109.0 acres of nonconformance. Proposed VRM Class change from Class III to Class IV.</li> <li>WWEC: Conforms</li> </ul>	<ul style="list-style-type: none"> <li>VRM: 108.9 acres of nonconformance. Proposed VRM Class change from Unclassified to Class IV.</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: 108.9 acres of nonconformance. Proposed VRM Class change from Class III to Class IV.</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 Acronyms:* AFB – Air Force Base; AM – Amargosa Microwave; APE – Area of Potential Effect; AS – Amargosa Substation; BLM – Bureau of Land Management; CR – County Route; DOD – Department of Defense; ES – Esmeralda Substation; FG – Foreground; GLWP – Greenlink West Project; I – Interstate; KOP – Key Observation Point; kV – Kilovolt; MG – Middleground; NAAQS – National Ambient Air Quality Standards; NCA – National Conservation Area; NDSL – Nevada Division of State Lands; NHT – National Historic Trail; NPS – National Park Service; NWR – National Wildlife Refuge; 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; TUSK – Tule Springs Fossil Beds National Monument; UNLV – University of Nevada, Las Vegas; US – United States Highway; USFWS – United States Fish and Wildlife Service; VRM – Visual Resource Management; WEG – Wind Erodibility Group; WMA – Wildlife Management Area; 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 Irretrievable 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 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 not be available 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 GLWP is decommissioned. Other irreversible and irretrievable commitments of resources for the GLWP are summarized in Table 3-149.

**Table 3-149. 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 activities	No	Construction phase
Earth Resources – Soils	Soil loss and erosion	Construction activities	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 operation	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 activities	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 Acronyms:* EJ – Environmental Justice; GLWP – Greenlink West Project; 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.

## CHAPTER 4. RESOURCE MANAGEMENT PLAN (LAND USE PLAN AMENDMENTS)

In its decision to issue a ROW grant, the BLM must also consider existing RMPs and other BLM land use plans in terms of how the authorizations and actions proposed 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 to the plan, 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 those plan amendments that best meet multiple use and sustained yield mandates of FLPMA. The Final EIS/RMPA will identify the proposed amendments that the BLM intends to select. Plan amendments would only be implemented for GLWP components that are ultimately authorized. Plans needing 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 2005a).

The BLM plan amendments are subject to public review and procedures outlined in 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 were incorporated into this EIS. 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/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 plans.

This section considers the BLM land use plan amendments associated with the Action Alternatives proposed in Chapter 2. Section 2.7 and residual 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 alternative routes into conformance or be consistent with the agency plan on lands administered by the relevant BLM DOs. Each Action Alternative’s non-conformance 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 large-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 EIS.

#### **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 Consolidated RMPs**

Section 368 of the Energy Policy Act of 2005 (EPA) 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, entitled *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 PEIS 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 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 and determined that potential corridor changes may occur during amendments to land use plans prompted by a project proposing to use a designated corridor (BLM 2021f). 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 requiring plan amendments for the Action Alternatives are shown on Figure 4-1 through Figure 4-10. 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.

The transmission and substation Action Alternatives would not be in conformance with VRM Class II and Class III objectives established in the Las Vegas, Tonopah, and Carson City Consolidated RMPs for the management of visual resource values. The construction and operation of the Action Alternatives’ transmission structures when viewed from the immediate FG distance zone (0 to 0.5 miles) of the identified KOPs 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 for the GLWP to be in VRM conformance with the RMP.

In addition, the EIS/RMPA includes a plan amendment for the Las Vegas, Tonopah, and Carson City 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 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 Consolidated RMPs, respectively from the Action Alternatives including the substation alternatives. The locations of the amendments to the VRM classifications are shown on Figure 4-11 through Figure 4-16.

**Table 4-1. Areas of Proposed Plan Amendments by Action Alternative for Designated WWECs**

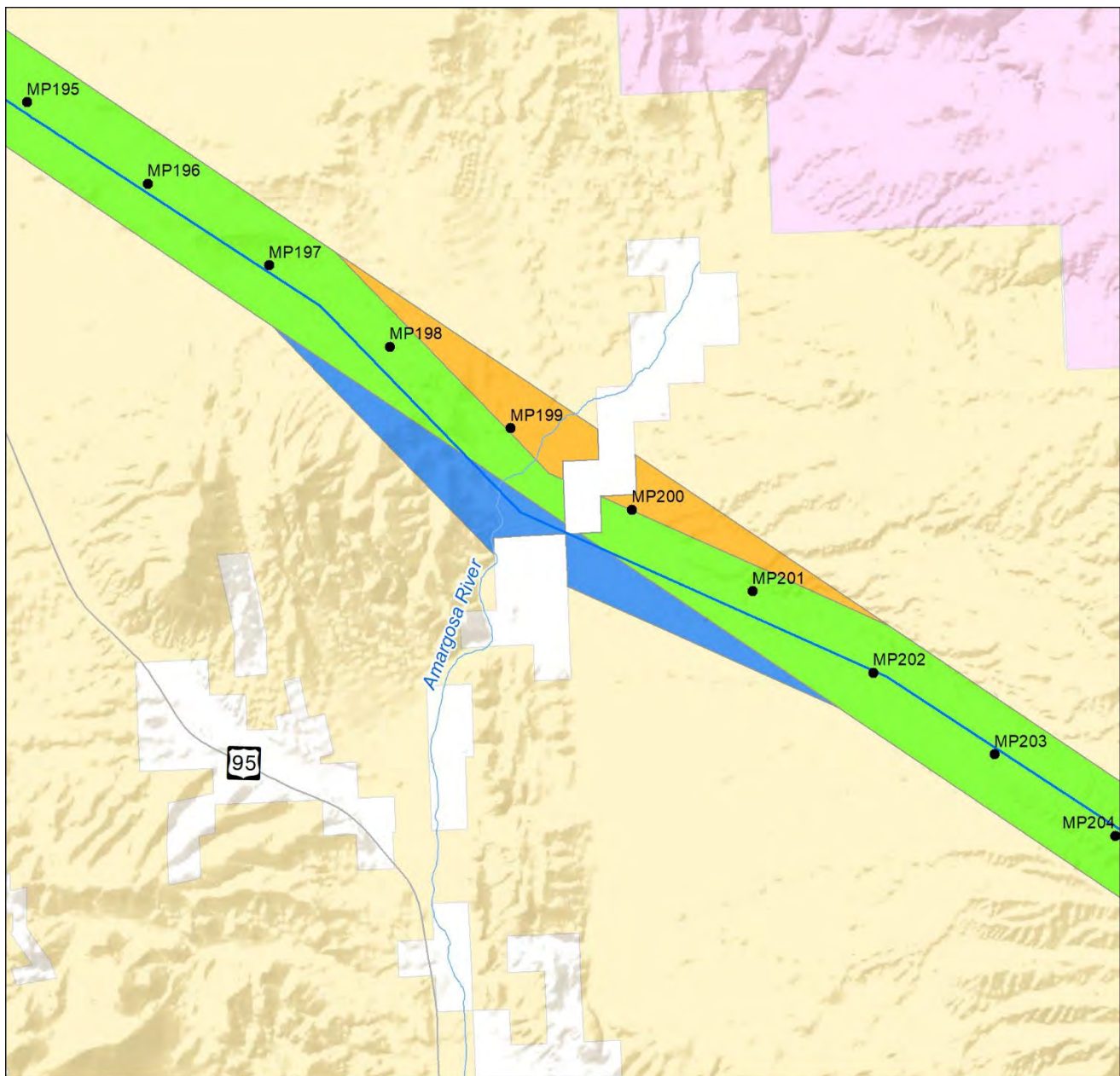
<b>WWEC</b>	<b>RMP</b>	<b>Action Alternative</b>	<b>Non-Conformance Reason</b>	<b>Proposed Amendment</b>	<b>Rationale</b>	<b>Figure Reference</b>
18-224	WWEC Approved RMPA/ROD (2009) and by incorporation and thereby amended, Tonopah RMP (1997)	Beatty Transmission Alternative A	Beatty Transmission Alternative A would be outside WWEC 18-224.	Modify WWEC 18-224 to align with the Beatty Transmission Alternative A between MP 197.5 to MP 202.6. De-designate portions of 18-224 Corridor where the Beatty Transmission Alternative A would be outside of the designated WWEC. Designate new 18-224 Corridor following the Beatty Transmission Alternative A.	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 (2009) and by incorporation and thereby amended, Tonopah RMP (1997)	Beatty Transmission Alternative C	Beatty Transmission Alternative C would be outside WWEC 18-224	Modify WWEC 18-224 to align with the Beatty Transmission Alternative C between MP 193.3 to MP 205.2. De-designate portions of 18-224 Corridor where the Beatty Transmission Alternative C would be outside of the designated WWEC. Designate new 18-224 Corridor following Beatty Transmission Alternative C.	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 (2009) and by incorporation and thereby amended, Tonopah RMP (1997)	Beatty Transmission Alternative G	Beatty Transmission Alternative G would be outside WWEC 18-224	Modify WWEC 18-224 to align with the Beatty Transmission Alternative G between MP 193.3 to MP 211.2. De-designate portions of 18-224 Corridor where the Beatty Transmission Alternative G would be outside of the designated WWEC. Designate new 18-224 Corridor following the Beatty Transmission Alternative G.	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/ energy transport.	Figure 4-3
18-224	WWEC Approved RMPA/ROD (2009) and by incorporation and thereby amended, Tonopah RMP (1997)	Beatty Transmission Alternative K	Beatty Transmission Alternative K would be outside WWEC 18-224	Modify WWEC 18-224 to align with the Beatty Transmission Alternative K between MP 193.3 to MP 197.0. and between MP 202.1 to MP 205.4. De-designate portions of 18-224 Corridor where the Beatty Transmission Alternative K would be outside of the designated WWEC. Designate new 18-224 Corridor following the Beatty Transmission Alternative K.	The modification would follow GLWP ROW, if approved, and would become a preferred route for infrastructure/ energy transport.	Figure 4-4

<b>WWEC</b>	<b>RMP</b>	<b>Action Alternative</b>	<b>Non-Conformance Reason</b>	<b>Proposed Amendment</b>	<b>Rationale</b>	<b>Figure Reference</b>
18-224	WWEC Approved RMPA/ROD (2009) and by incorporation and thereby amended, Tonopah RMP (1997)	Proposed Action	Proposed Action would be outside WWEC 18-224	Modify WWEC 18-224 to align with the Proposed Action transmission route between MP 173.0 to MP 178.0. De-designate portions of 18-224 Corridor where the Proposed Action would be outside of the designated WWEC. Designate new 18-224 Corridor following the Proposed Action route.	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/ energy transport.	Figure 4-5
18-224	WWEC Approved RMPA/ROD (2009) and by incorporation and thereby amended, Tonopah RMP (1997)	Scotty's Junction Transmission Alternative A	Scotty's Junction Transmission Alternative A would be outside WWEC 18-224	Modify WWEC 18-224 to align with the Scotty's Junction Transmission Alternative A between MP 170.0 to MP 180.8 De-designate portions of 18-224 Corridor where the Scotty's Junction Transmission Alternative A would be outside of the designated WWEC. Designate new 18-224 Corridor following the Scotty's Junction Transmission Alternative A.	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/ energy transport.	Figure 4-6
18-224	WWEC Approved RMPA/ROD (2009) and by incorporation and thereby amended, Tonopah RMP (1997)	Proposed Action	Proposed Action would be outside WWEC 18-224	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. De-designate portions of 18-224 Corridor where the Proposed Action would be outside of the designated WWEC. Designate new 18-224 Corridor following the Proposed Action route.	The modification would follow the GLWP ROW, if approved, and would become a preferred route for infrastructure/ energy transport.	Figure 4-7
223-224	WWEC Approved RMPA/ROD (2009) and by incorporation and thereby amended, Las Vegas (1998)	Proposed Action		Remove portion of the WWEC 223-224 within the TUSK (MP 0 to MP 9.3).	The lands withdrawn in 2011 for the TUSK after the signing of the WWEC Approved RMPA/ROD. Designation of the TUSK was done so to protect the paleontological and visual resources as well as the wildlife connectivity, given proximity to Desert NWR.	Figure 4-8

<b>WWEC</b>	<b>RMP</b>	<b>Action Alternative</b>	<b>Non-Conformance Reason</b>	<b>Proposed Amendment</b>	<b>Rationale</b>	<b>Figure Reference</b>
223-224	WWEC Approved RMPA/ROD (2009) and by incorporation and thereby amended, Las Vegas (1998)	Proposed Action	Proposed Action transmission would be outside WWEC 223-224.	Modify WWEC 223-224 to align with the Proposed Action transmission route between MP 10.0 to MP 34.0. De-designate portions of 223-224 Corridor where the Proposed Action would be outside of the designated WWEC. Designate new 223-224 Corridor following the Proposed Action transmission route.	The modification would follow the ROW for the GLWP, if approved, and would become a preferred route for infrastructure/ energy transport.	Figure 4-9
37-223(S)	WWEC Approved RMPA/ROD (2009) and by incorporation and thereby amended, Las Vegas (1998) <sup>a</sup>	Proposed Action	Overhead transmission line proposed in WWEC 37-223(S), which is an underground only designated corridor.	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.	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 by 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 any taller than the existing structures. The April 2022 EPO Act of 2005 Section 368 Energy Corridor Review Final Report: Regions 1-6 (BLM 2022) did not recommend the modification of the portion of WWEC 37-223(S) to permit overhead transmission, constructing the GLWP would meet the intent of the EPO Act to improve reliability and enhance the	Figure 4-10

WWEC	RMP	Action Alternative	Non-Conformance Reason	Proposed Amendment	Rationale	Figure Reference
					<p>capability of the national grid to deliver electricity. In addition, locating the GLWP within the designated corridor with the existing utilities would meet the intent of the WWEC to co-locate 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 2.2.8 and 2.3.15 for more detail analysis of underground EHV 525-kV transmission lines).</p>	

*Table Acronyms:* BLM – Bureau of Land Management; EAct – Energy Policy Act; GLWP – Greenlink West 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:* <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.

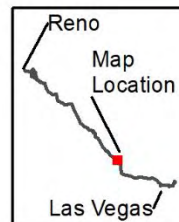
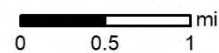


**Legend**

- Betty Transmission Alternative 'A'
- WWEC Milepost
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- Department of Defense

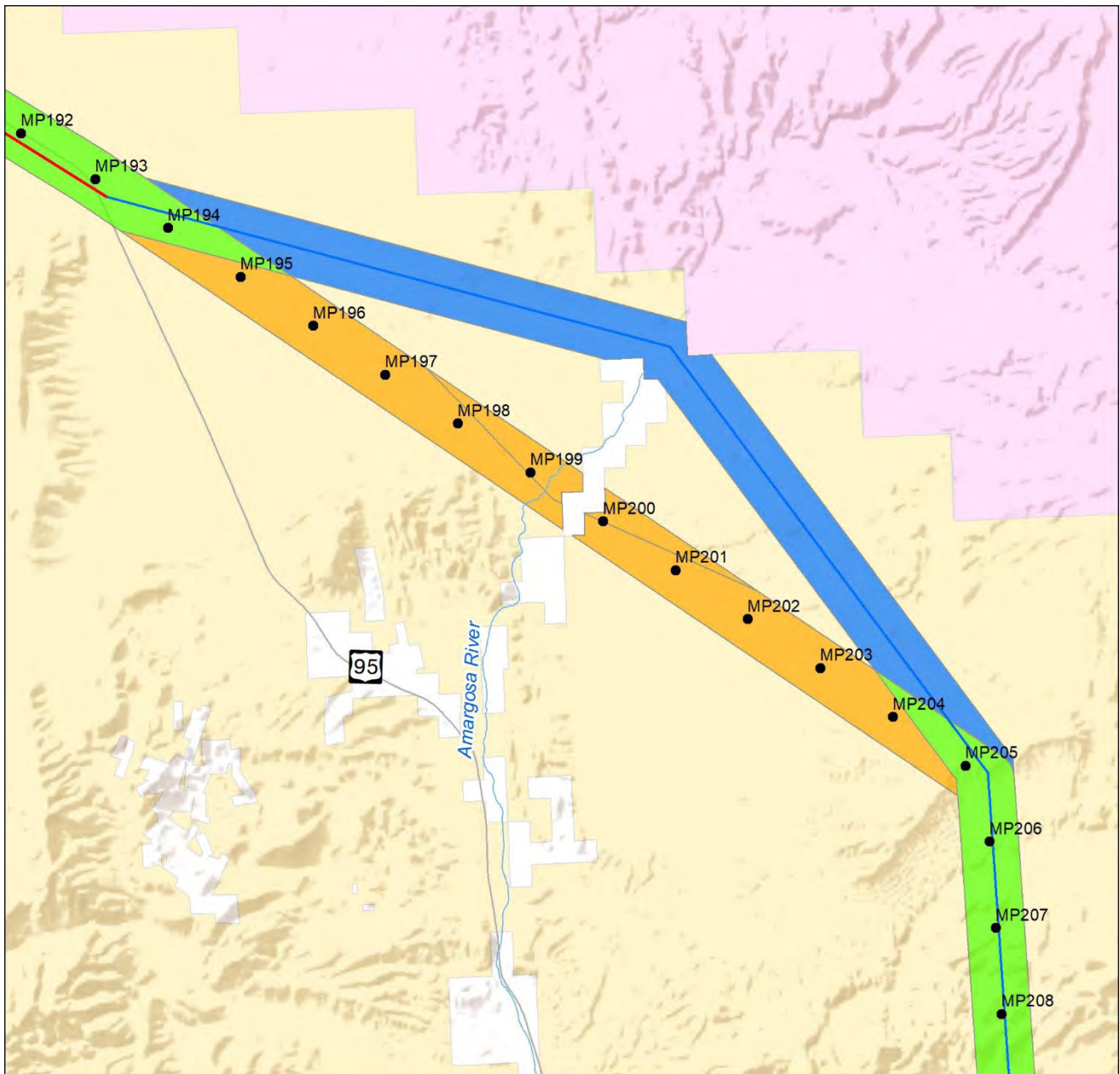


Scale: 1:75,000



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

**Figure 4-1. WWEC 18-224 (MP 197.5 – MP 202.6) Betty Transmission Alternative A Proposed Amendments to Tonopah RMP**

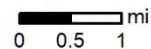


**Legend**

- Betty Transmission Alternative 'C'
- Proposed Action Transmission Line
- WWEC Milepost
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- Department of Defense



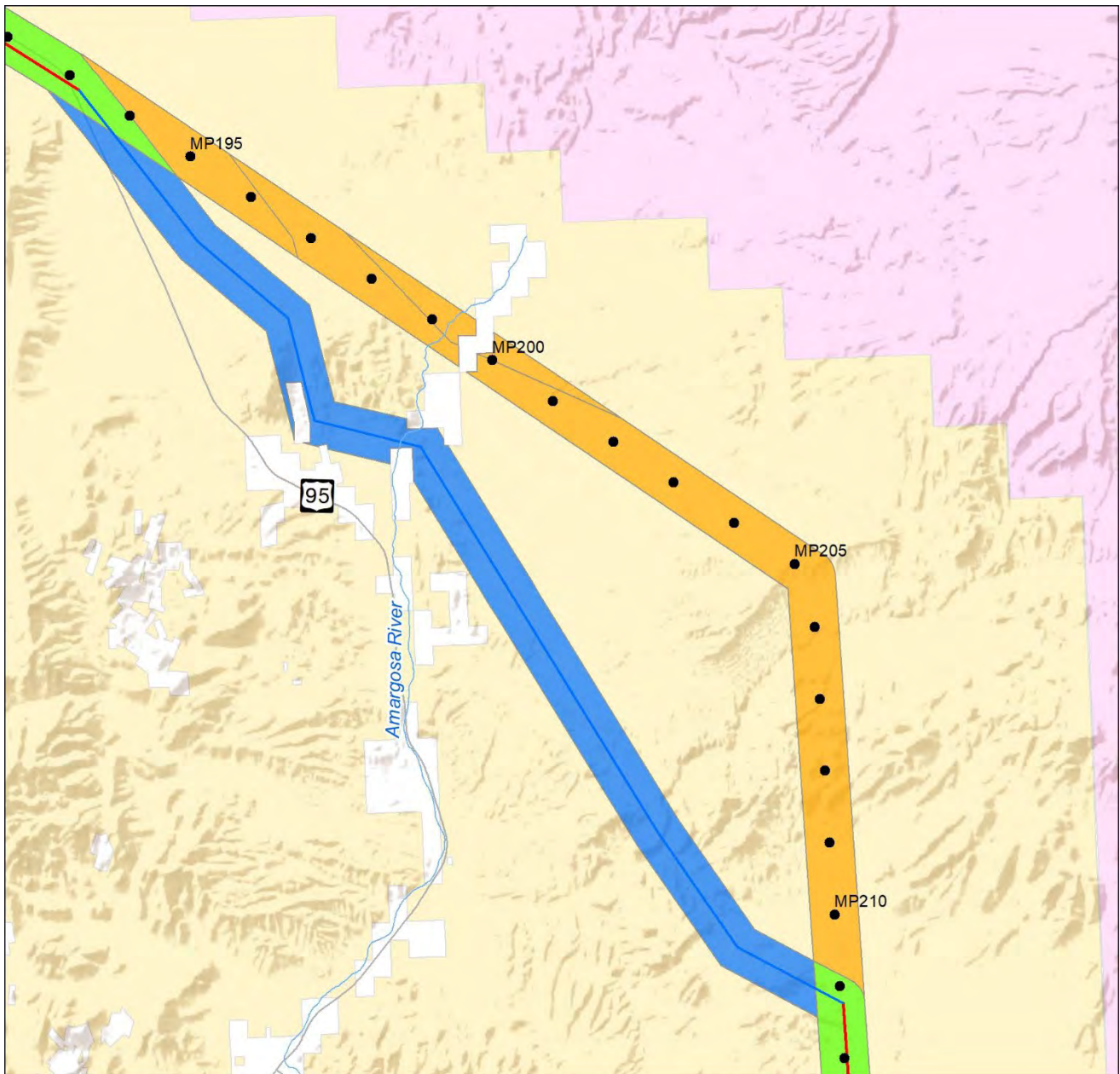
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No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 4-2. WWEC 18-224 (MP 193.3 – MP 205.2) Betty Transmission Alternative C Proposed Amendments to Tonopah RMP**





**Legend**

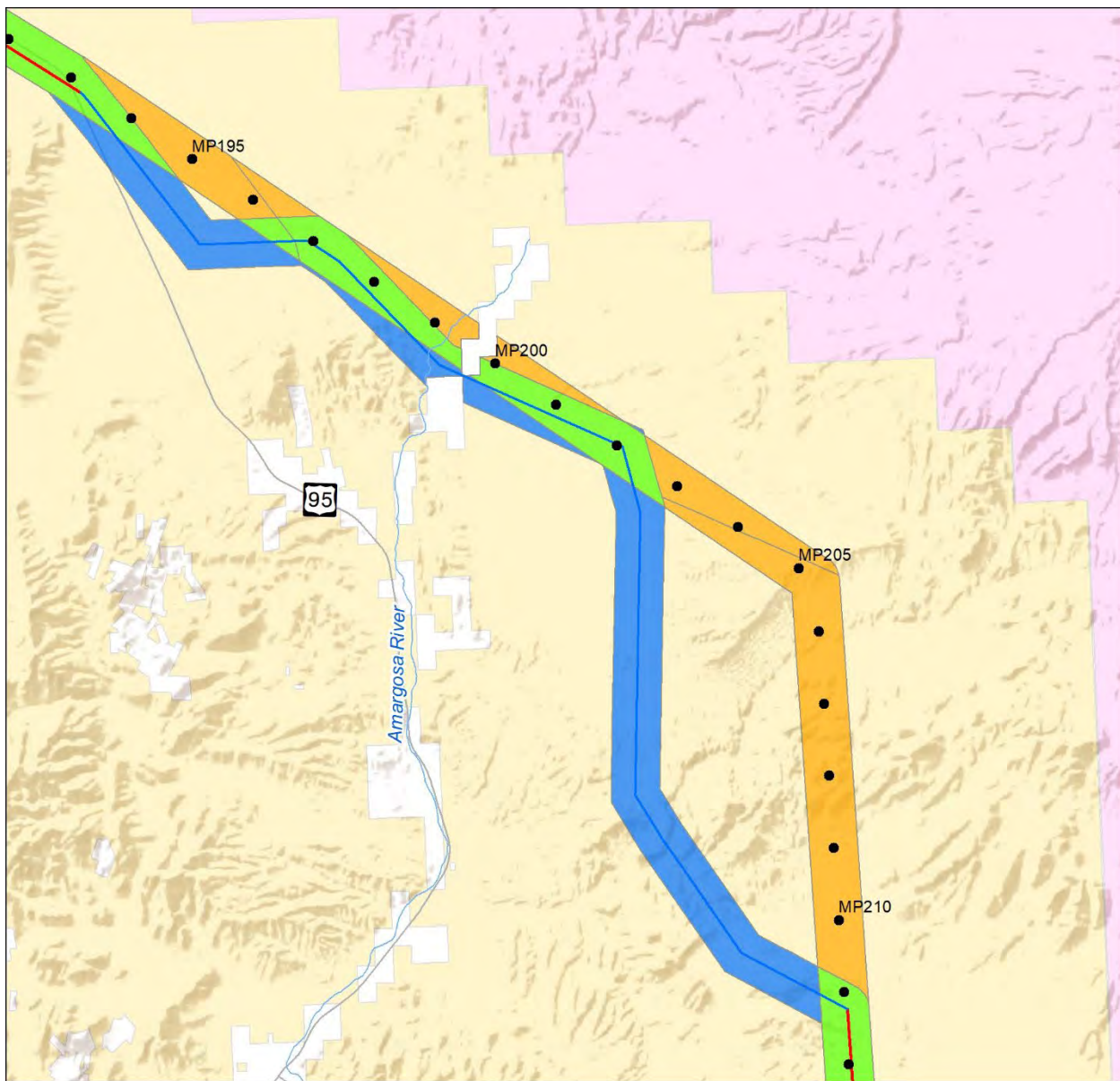
- Beatty Transmission Alternative 'G'
- Proposed Action Transmission Line
- WWEC Milepost
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- Department of Defense



Scale: 1:150,000  
 0 0.5 1 mi

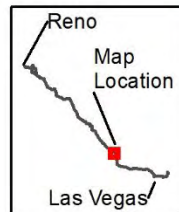
No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

**Figure 4-3. WWEC 18-224 (MP 193.3 – MP 211.2) Beatty Transmission Alternative G Proposed Amendments to Tonopah RMP**

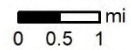


**Legend**

- Beatty Transmission Alternative 'K'
- Proposed Action Transmission Line
- WWEC Milepost
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- Department of Defense

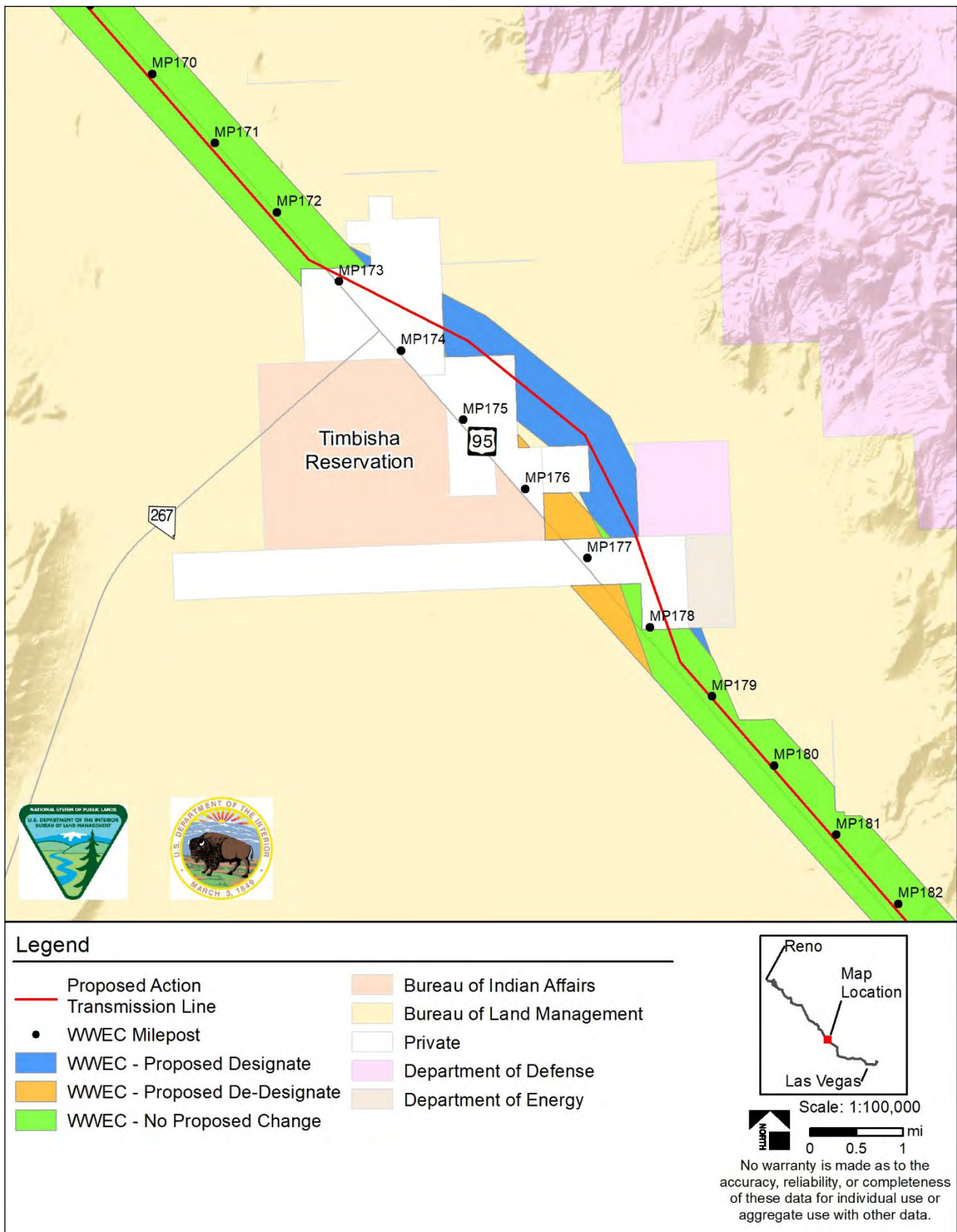


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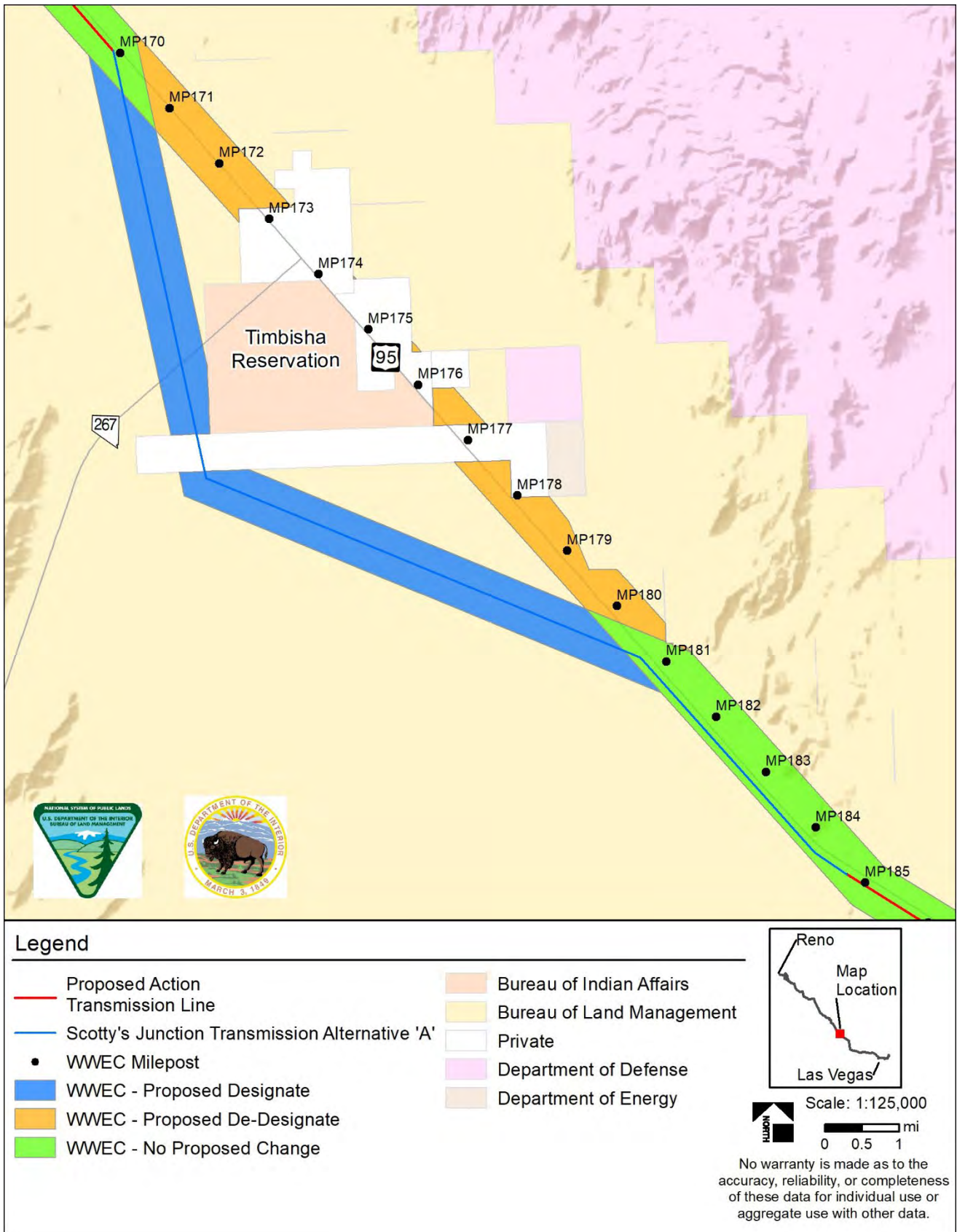


No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

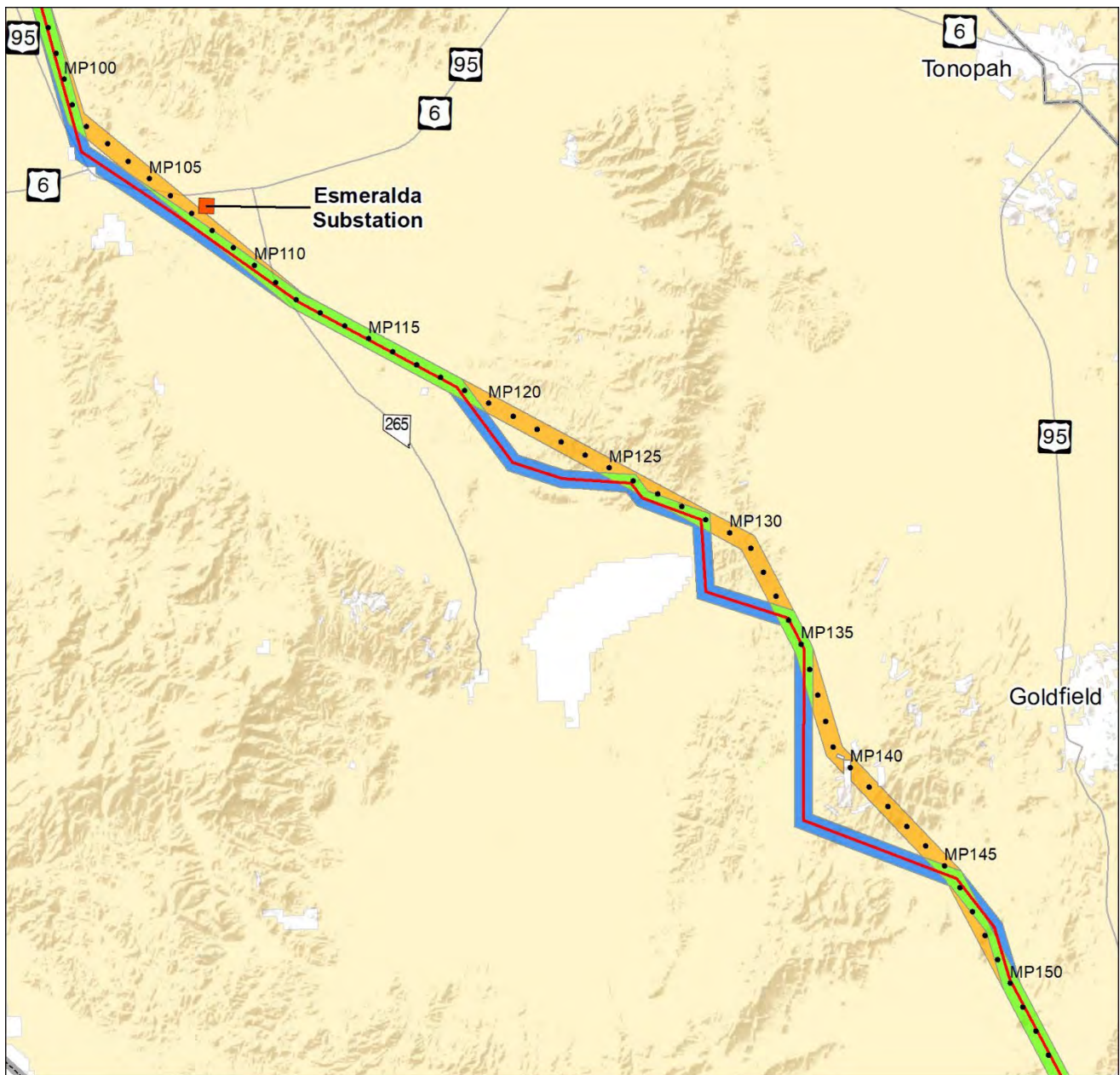
**Figure 4-4. WWEC 18-224 (MP 193.3 – MP 205.4) Beatty Transmission Alternative K Proposed Amendments to Tonopah RMP**



**Figure 4-5. WWEC 18-224 (MP 173.0 – MP 178.0) Proposed Action Proposed Amendments to Tonopah RMP**

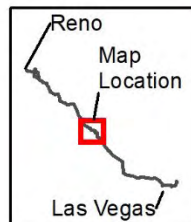


**Figure 4-6. WWEC 18-224 (MP 170.0 – MP 180.8) Scotty's Junction Transmission Alternative A Proposed Amendments to Tonopah RMP**

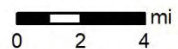


**Legend**

- Proposed Action Transmission Line
- WWEC Milepost
- Preferred Substation
- WWEC - Proposed Designate
- WWEC - Proposed De-Designate
- WWEC - No Proposed Change
- Bureau of Land Management
- Private
- US Forest Service

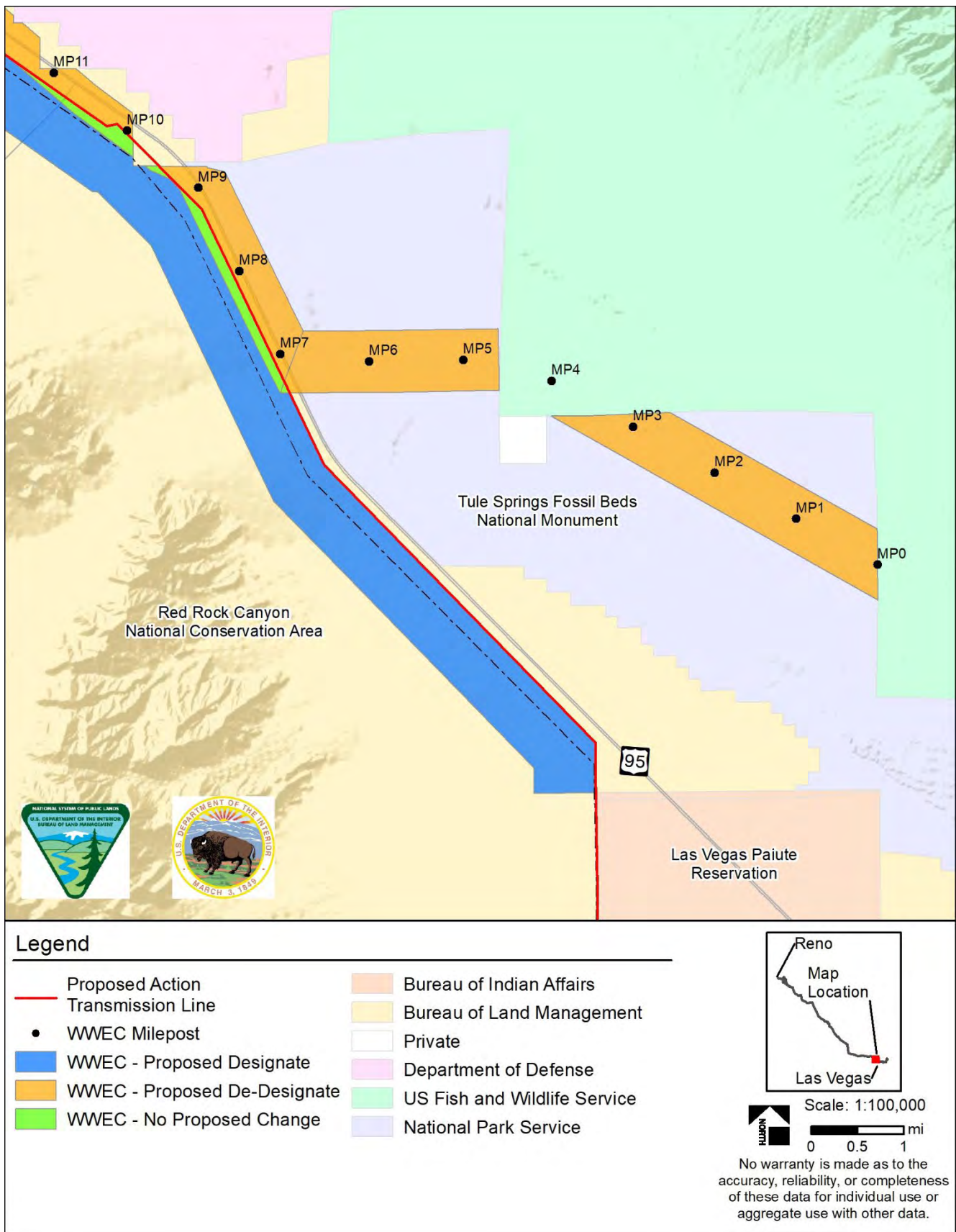


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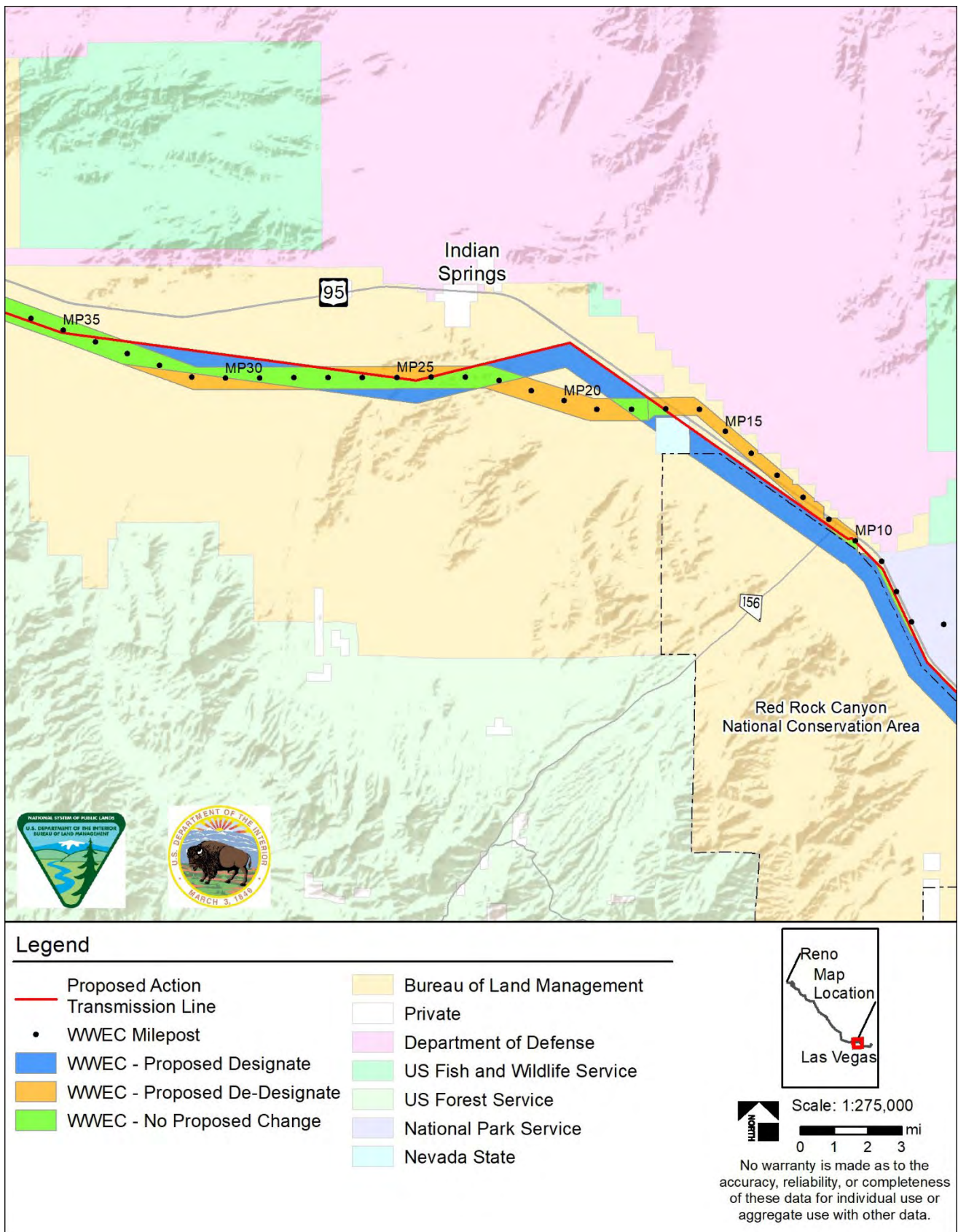


No warranty is made as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data.

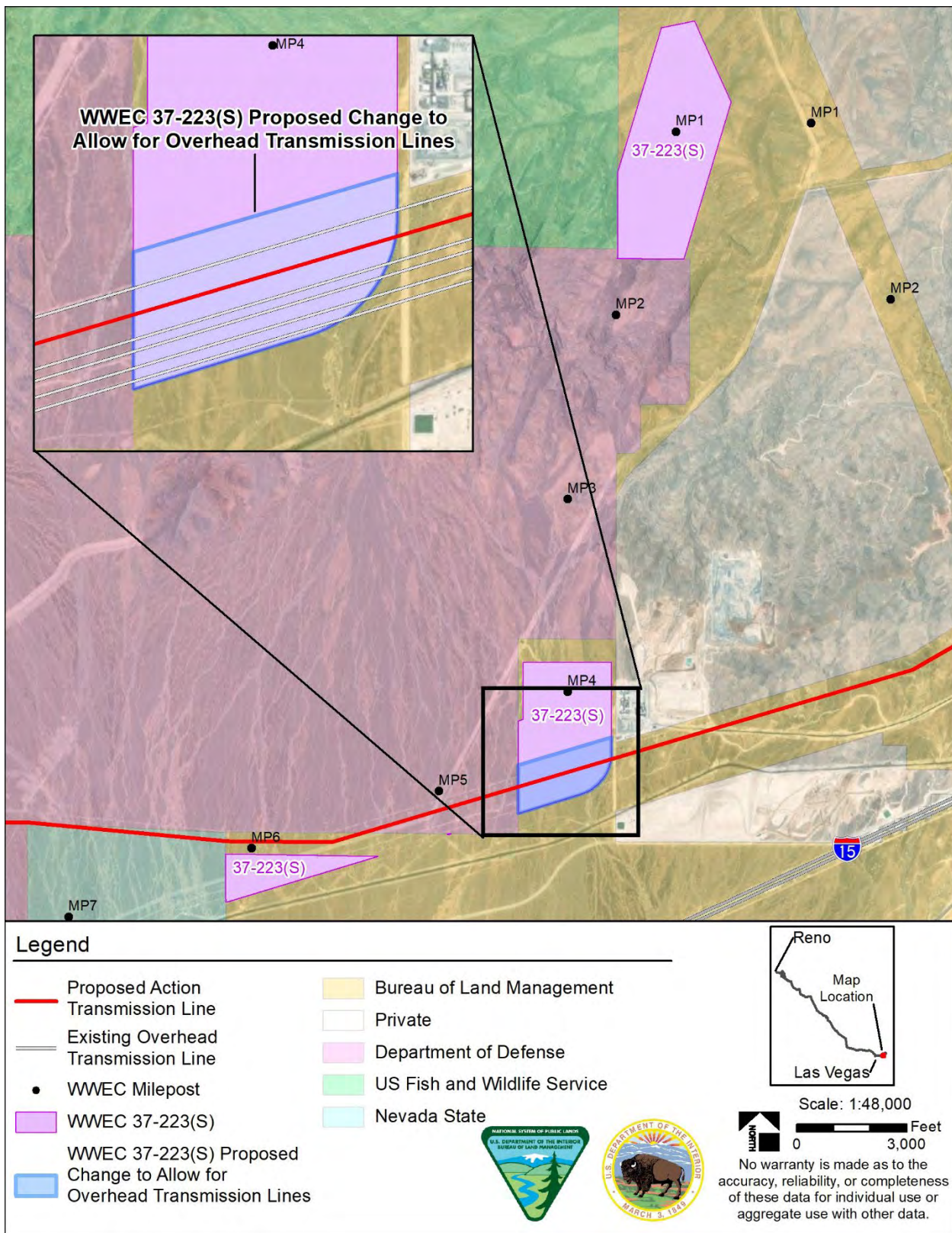
**Figure 4-7. WWEC 18-224 (MP 101.7 – MP 148.4) Proposed Action Proposed Amendments to Tonopah RMP**



**Figure 4-8. WWEC 223-224 (MP 0.0 – MP 9.3) Proposed Action Proposed Amendments to Las Vegas RMP**



**Figure 4-9. WWEC 223-224 (MP 10.0 – MP 34.0) Proposed Action Proposed Amendments to Las Vegas RMP**



**Figure 4-10. 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 (acres)	Current RMP VRM Class (acres)	Proposed RMP VRM Class Change (acres)	Difference from Existing VRM RMP (percent)
Proposed Action	Class III	-33,973	4,331,598	4,297,625	<-1
Proposed Action	Class IV	+33,973	2,579,956	2,613,929	+1
AS-1	Class III	-96	4,331,598	4,331,502	<-1
AS-1	Class IV	+96	2,579,956	2,580,052	+<1

Table Acronyms: AS – Amargosa Substation; RMP – Resource Management Plan; VRM – Visual Resource Management

Table Source: BLM 2022 GIS Data

**Table 4-3. Tonopah RMP VRM Proposed Plan Amendments by Action Alternative**

Action Alternative	VRM Class	Proposed VRM Change (acres)	Current RMP VRM (acres)	Proposed RMP VRM (acres)	Difference from Existing VRM RMP (percent)
Proposed Action	Class III	-1,460	532,993	531,533	<-1
Proposed Action	Class IV	+1,469	9,608,160	9,609,929	+<1
ES-3	Class III	-95	532,993	532,898	<-1
ES-3	Class IV	+95	9,608,160	9,608,255	+<1

Table Acronyms: ES – Esmerelda Substation; RMP – Resource Management Plan; VRM – Visual Resource Management

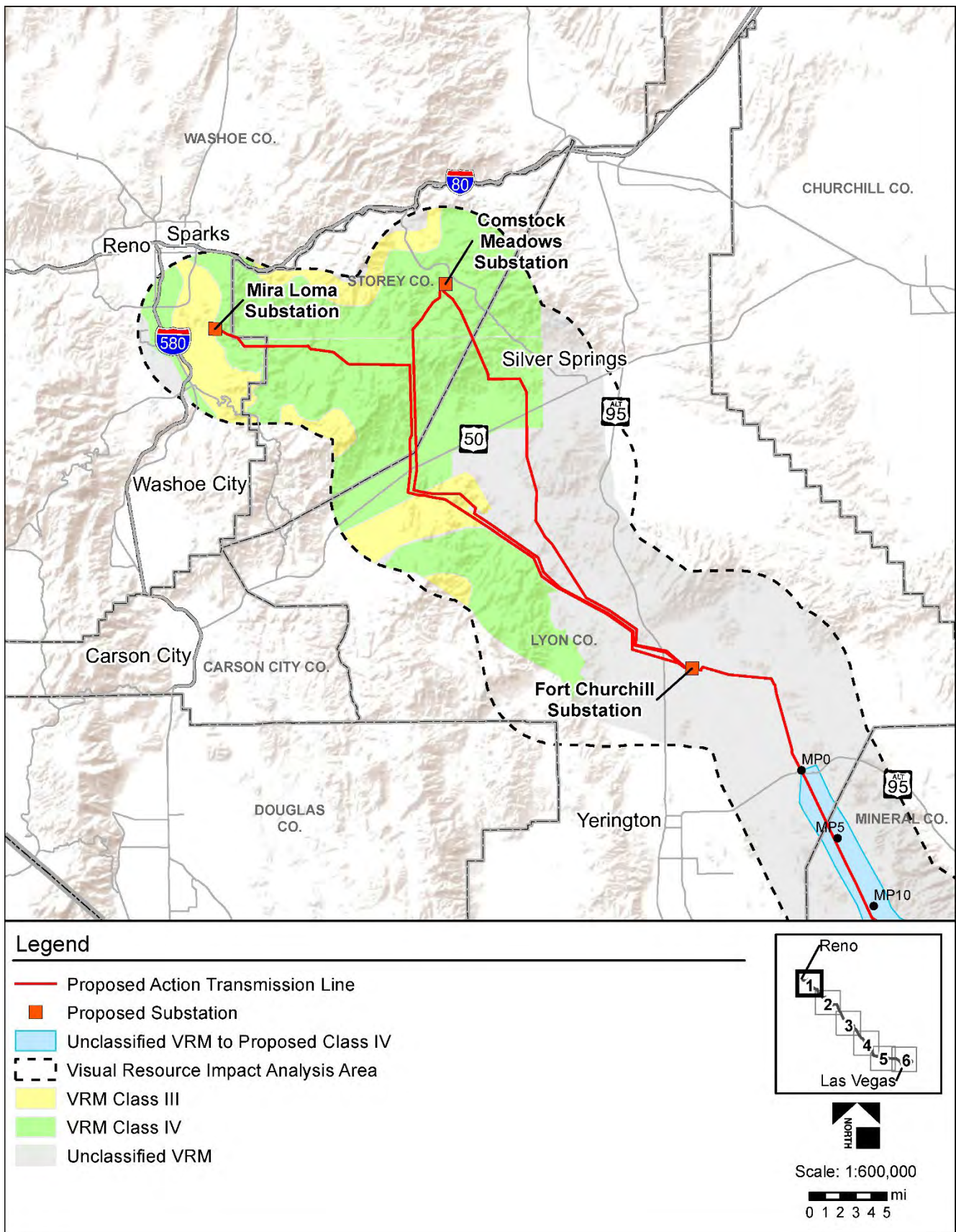
Table Source: BLM 2022 GIS Data

**Table 4-4. Carson City Field Office Consolidated RMP VRM Proposed Plan Amendments by Action Alternative**

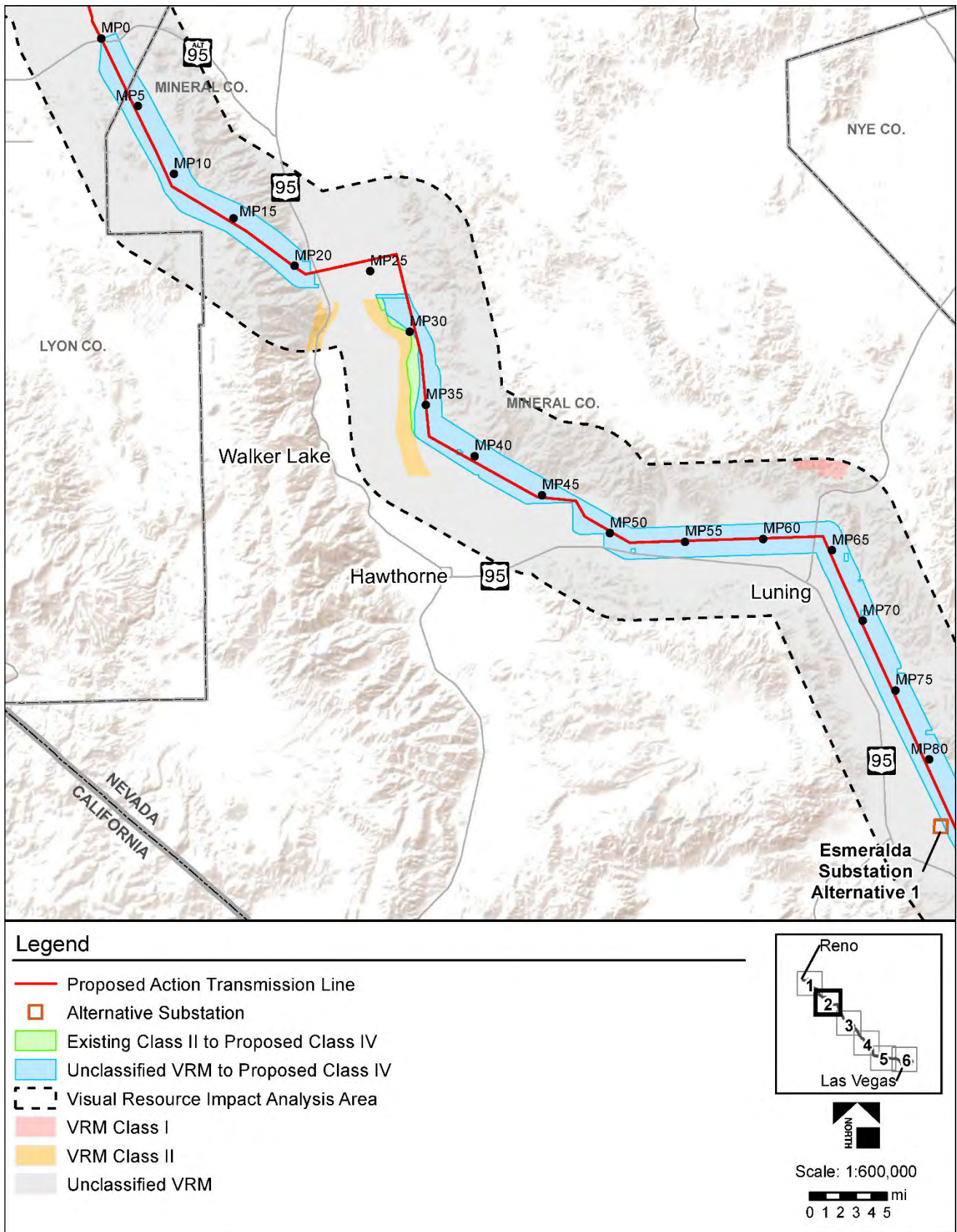
Action Alternative	VRM Class	Proposed VRM Change (acres)	Current RMP VRM (acres)	Proposed RMP VRM (acres)	Difference from Existing VRM RMP (percent)
Proposed Action	Unclassified	-99,059	-	-	-
Proposed Action	Class II	-2,406	55,192	52,786	-4
Proposed Action	Class IV	+101,465	679,471	780,936	+13
ES-1	Unclassified	-95	55,192	55,097	<-1
ES-1	Class IV	+95	679,471	679,566	+<1

Table Acronyms: ES – Esmerelda Substation; RMP – Resource Management Plan; VRM – Visual Resource Management

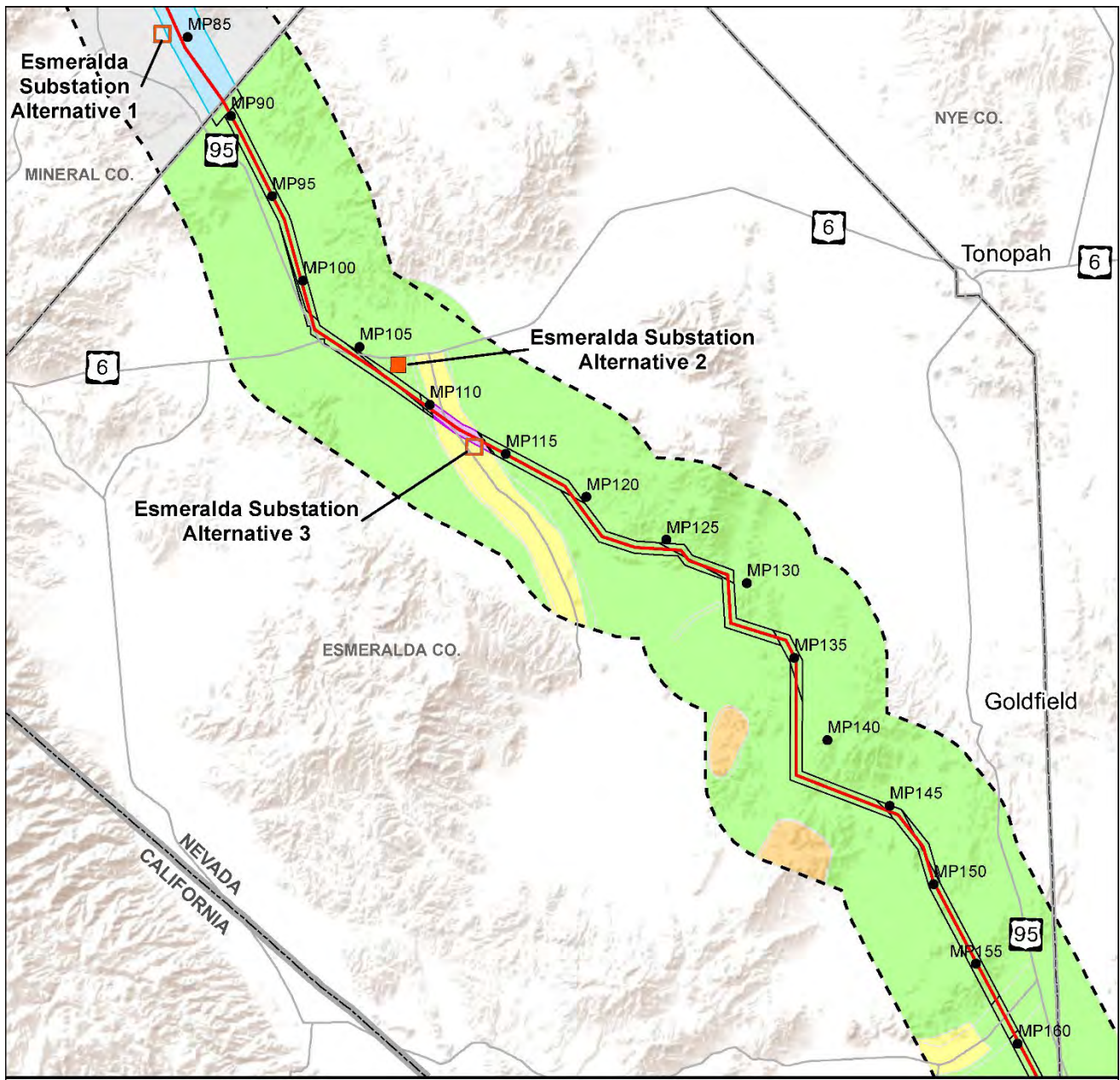
Table Source: BLM 2022 GIS Data



**Figure 4-11. Proposed Action VRM Proposed Amendments to Carson City Consolidated RMP**



**Figure 4-12. Esmeralda Substation Alternatives 1 and 2 (Proposed Action) VRM Proposed Amendments to Carson City Consolidated RMP**



**Legend**

- Proposed Action Transmission Line
- Proposed Substation
- Alternative Substation
- Existing Class III to Proposed Class IV
- Unclassified VRM to Proposed Class IV
- No Class Change
- Visual Resource Impact Analysis Area
- VRM Class II
- VRM Class III
- VRM Class IV
- Unclassified VRM

Reno

1 2 3 4 5 6

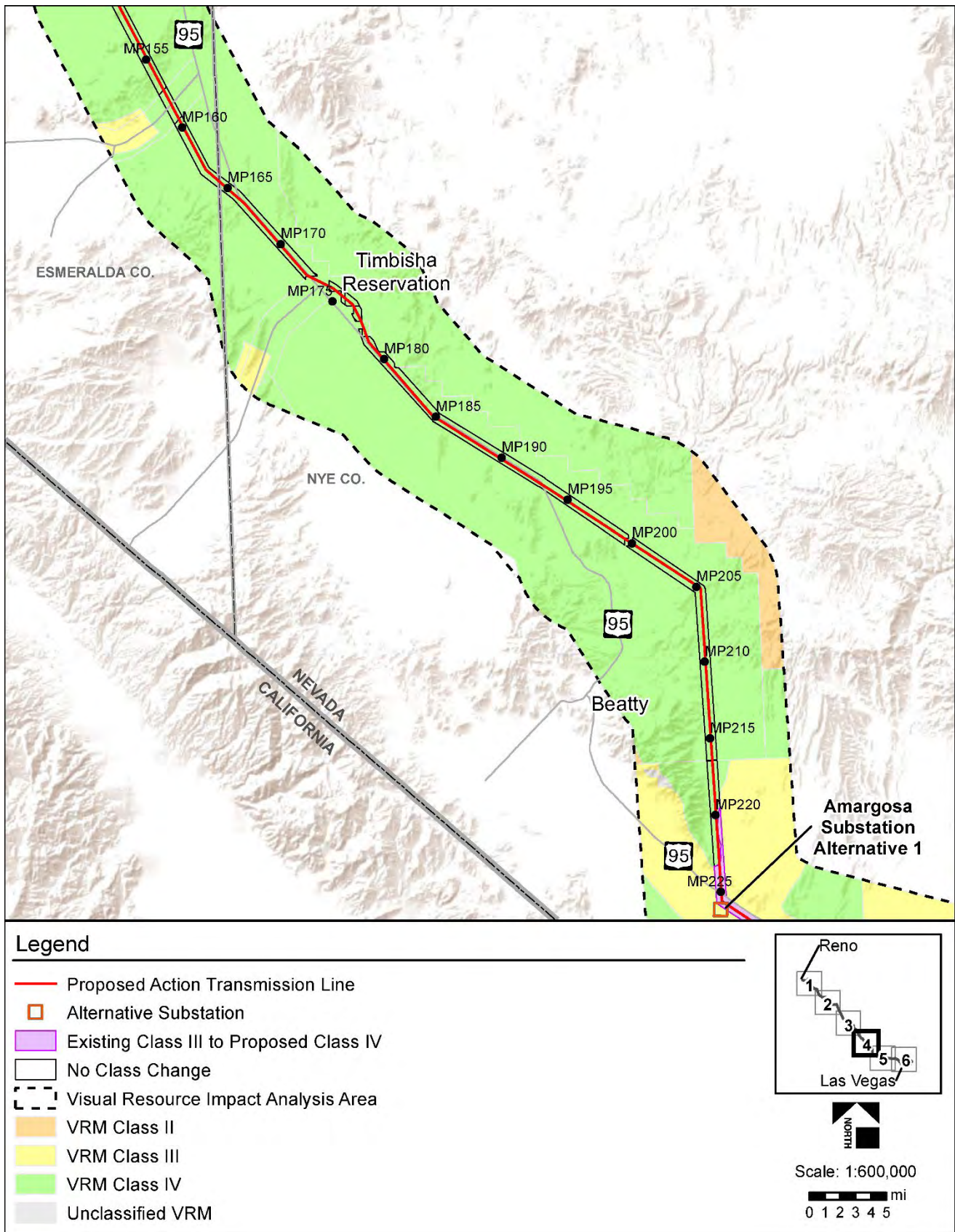
Las Vegas

NORTH

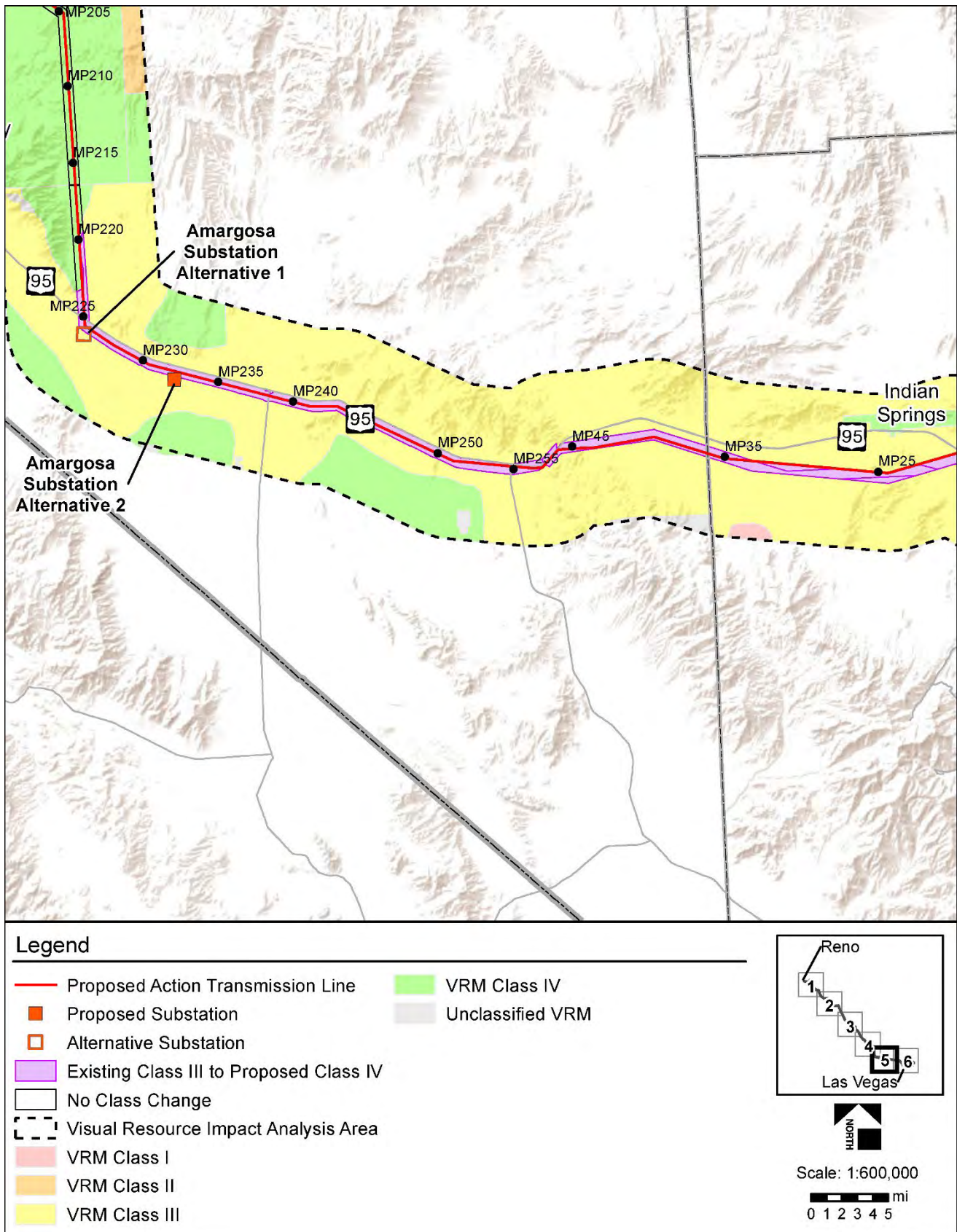
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0 1 2 3 4 5 mi

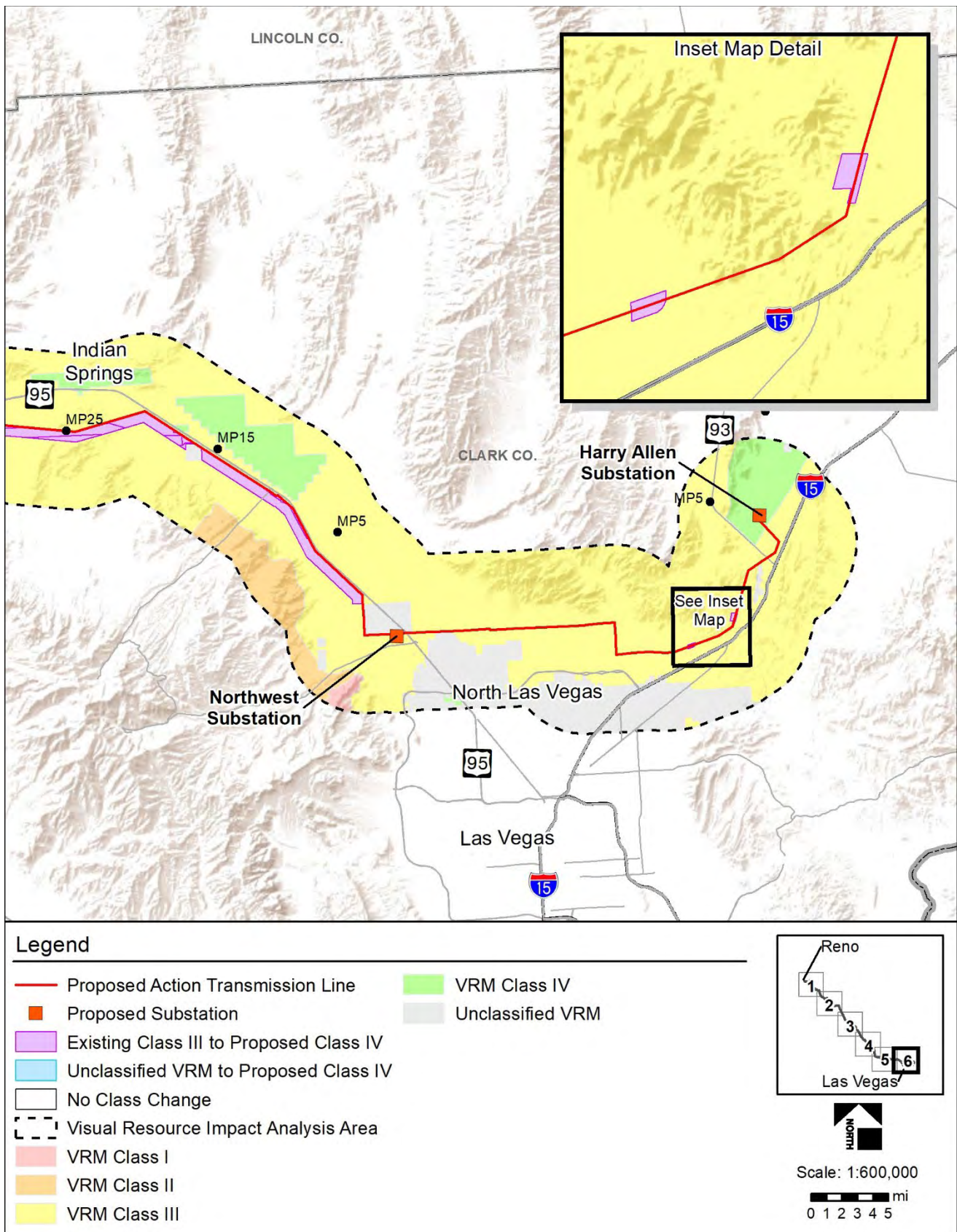
**Figure 4-13. Esmeralda Substation Alternatives 1, 2 (Proposed Action) and 3 VRM Proposed Amendments to Carson City Consolidated and Tonopah RMPs**



**Figure 4-14. Amargosa Substation Alternative 1 and Proposed Action VRM Proposed Amendments to Las Vegas RMP**



**Figure 4-15. Amargosa Substation Alternatives 1 and 2 (Proposed Action) VRM Proposed Amendments to Las Vegas RMP**



**Figure 4-16. WVEC 37-223(S) Proposed Action Proposed Amendments to Las Vegas RMP**

## 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 office 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. ROW applications 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 (i.e., 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 that would indicate potential effects based on the amended designated WWEC and VRM classification resulting from the proposed RMP amendments. The WWEC PEIS assessed potential effects from the designation of the WWECs (BLM and DOE 2008a, 2008b). Where applicable, the analysis from the PEIS 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 activities that disturb the ground, 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, and protective measures generally would 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.



Resource	Potential Effects
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 lands with wilderness characteristics 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.
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 that are 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 instead accept 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 Acronyms:* BLM – Bureau of Land Management; NHPA – National Historic Preservation Act; NHT – National Historic Trail; RMP – Resource Management Plan; ROW – Right-of-way; SDA – Special Designation Area; SHPO – State Historic Preservation Office; VRM – Visual Resource Management; WWEC – West-wide Energy Corridor

## **CHAPTER 5. CONSULTATION AND COORDINATION**

### **5.1 Introduction**

In addition to the planning, analysis, and review activities performed in preparation for this EIS, the BLM is conducting 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, 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 solicit 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 have been gathered and analyzed and that agency policy and public sentiment and values are considered and incorporated.

### **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. 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.

#### **5.2.1 Cooperating Agencies**

The BLM is the lead federal agency responsible for the preparation of the EIS under NEPA. The BLM has decision-making authority to permit construction on affected BLM-managed/administered lands. The federal, state, and local Cooperating Agencies are identified in Chapter 1.

#### **5.2.2 Section 106 Consultation**

The BLM is required to prepare the EIS in coordination with studies or analyses required by the NHPA, as amended (54 USC 300101 et seq.). In accordance with Section 106 (54 USC 306108) of the NHPA, 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 lead federal agency for the undertaking, the BLM has initiated Section 106 consultation. 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.

#### **5.2.3 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. Federal agencies are required by statute and regulation 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.

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). A formal government-to-government virtual meeting with BLM Nevada State Director Jon K. Raby was conducted on March 24, 2022, with representatives from 12 Tribes. Two additional government-to-government meetings are planned with State Director Jon K. Raby. The second meeting will occur on May 23, 2023, and the third will occur before the ROD is issued. The BLM will continue to consult and coordinate with the Tribes listed in Table 5-1 and with any additional Native American Tribes who request government-to-government consultation for the GLWP.

**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>
Big Pine Paiute Tribe	No	Yes	No	Yes
Bishop Paiute Tribe	Yes	Yes	Yes	Yes
Bridgeport Indian Colony	No	Yes	No	Yes
Burns Paiute Tribe	No	Yes	No	Yes
Chemehuevi Indian Tribe	Yes	Yes	Yes	Yes
Colorado River Indian Tribes	Yes	Yes	No	Yes
Confederated Tribes of Warm Springs	No	Yes	No	Yes
Duckwater Shoshone Tribe	No	Yes	No	Yes
Fort Independence Indian Community	No	Yes	No	Yes
Fort McDermitt Paiute and Shoshone Tribes	No	Yes	No	Yes
Fort Mojave Indian Tribe	Yes	Yes	No	Yes
Hualapai Tribe	No	Yes	Yes	Yes
Havasupai Tribe	No	Yes	No	Yes
Hopi Tribe	No	Yes	No	Yes
Hualapai Indian Tribe	No	Yes	No	Yes
Kaibab Band of Paiute Indians	Yes	Yes	Yes	Yes
Las Vegas Paiute Tribe	Yes	Yes	Yes	Yes
Lone Pine Paiute Shoshone Tribe	No	Yes	No	Yes
Lovelock Paiute Tribe	No	Yes	Yes	Yes
Moapa Band of Paiute Indians	Yes	Yes	Yes	Yes
Paiute Indian Tribe of Utah	Yes	Yes	Yes	Yes

<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>
Fallon Paiute-Shoshone Tribe	Yes	Yes	Yes	Yes
Pyramid Lake Paiute Tribe	Yes	Yes	Yes	Yes
Reno-Sparks Indian Colony	Yes	Yes	No	Yes
San Juan Southern Paiute Tribe of Arizona	Yes	Yes	No	Yes
Shoshone-Paiute Tribes of the Duck Valley Indian Reservation	No	Yes	No	Yes
Summit Lake Paiute Tribe	No	Yes	No	Yes
Timbisha Shoshone Tribe	Yes	Yes	Yes	Yes
Twenty-Nine Palms Band of Mission Indians	Yes	Yes	No	Yes
Utu Utu Gwaitu Paiute Tribe	No	Yes	No	Yes
Walker River Paiute Tribe	Yes	Yes	Yes	Yes
Washoe Tribe of Nevada and California	Yes	Yes	No	Yes
Winnemucca Indian Colony	No	Yes	No	Yes
Yerington Paiute Tribe	Yes	Yes	No	Yes
Yomba Shoshone Tribe	Yes	Yes	No	Yes

#### **5.2.4 Other Tribal Coordination**

The Native American Tribes most actively involved in the GLWP include the Duckwater Shoshone, Walker River Paiute, Timbisha Shoshone, 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 have requested consultation on the cultural resources Class III inventory reports. The BLM also coordinated Tribal monitors for the archaeological fieldwork and facilitated field visits to archaeological sites with Tribes. See the Cultural Resources section for more information about consulting and coordinating with Tribes under Section 106 of the NHPA.

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 now 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. These meetings were not considered formal government-to-government consultation and were not conducted for the purposes of NHPA Section 106 consultation. Rather, they were about information sharing and gathering sessions to provide an opportunity for Native American Tribes to ask questions or provide feedback about the GLWP.

### 5.2.5 Scoping Process

The Proponent submitted its initial ROW application to the BLM on September 22, 2020. On April 1, 2022, the BLM published an 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’s NEPA Register at: <https://eplanning.blm.gov/eplanning-ui/project/2017391/510> 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, NV, and at post offices listed in Table 5-2. The scoping comment period was held from May 2, 2022, through June 2, 2022. 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, seven at the Tonopah meeting, and 17 at the Reno meeting.

**Table 5-2. Public Scoping Meeting Flyer Posting Locations**

Location	City	Address
Beatty Post Office	Beatty	600 E Hwy 95 N, Beatty, NV 89003
Gabbs Post Office	Gabbs	101 4th St., Gabbs, NV 89409
Goldfield Post Office	Goldfield	400 S. 4 <sup>th</sup> Street, Goldfield, NV 89013
Hawthorne Post Office	Hawthorne	701 6th St., Hawthorne, NV 89415
Hawthorne Safeway Grocery	Hawthorne	1095 US Hwy 95, 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
Las Vegas Post Office	Las Vegas	6210 N Jones Blvd., Las Vegas, NV 89130-9998
North Las Vegas Post Office	North Las Vegas	4904 Camino Al Norte, North Las Vegas, NV 89031-9998
Neil Road Recreation Center	Reno	3925 Neil Road, Reno, NV 89505
Raley's Grocery	Yerington	176 W Goldfield Ave., Yerington, NV 89447
Silverpeak Post Office	Silverpeak	350 Main St., Silverpeak, 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 St., Yerington, NV 89447
Yerington Post Office	Yerington	811 N Main St., Yerington, NV 89447

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The following individuals from the BLM and the third-party contractor team were responsible for preparing the EIS/RMPA.

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