

**634 Line Rebuild Project – Foothill Road to Tramway Drive
Draft Environmental Assessment**

LAKE TAHOE BASIN MANAGEMENT UNIT

Douglas County, Nevada

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Glossary of Terms

Angle Structures	Utility poles used for orienting the transmission line toward a different direction through an “angle.” Angle poles may also have one or more guy wires and anchors depending upon the degree of the angle.
Conductor	An electrical cable tied between pole structures along a transmission or distribution line.
Distribution Line	Lower voltage power lines often sited near the final stage in the delivery of electricity from the transmission system to end users.
Distribution Structure	Power equipment along a transmission or distribution line that includes the pole structure, and other equipment needed to deliver electrical power to an area.
Guy Wire	A tensioned cable on pole structures used to support unbalanced lateral loads.
H-Frame Structure	A two-pole structure design that allows the transmission line to span longer distances over varying topography (i.e. deep ravines, mountain peaks).
Non-Specular	Mechanically or chemically treated aluminum surfaces applied to conductors to reduce reflectivity.
Pull Site	The area at each end of a section of the transmission line used to string together the conductor between the pole structures using stringing pulleys.
Sock Line	A small and light cable used to pull a conductor through pole structures to the next pulling site. Also the line used to pull the conductor between junction enclosures through the buried conduit in the underground portion.
Staging Area	Location where vehicles, equipment, and construction materials and supplies are stored and assembled before use.
Tangent Structures	Also known as “line” towers, these structures are the most common poles along a distribution line.
Transmission Line	High voltage lines that carry electricity over long distances, such as from a power station to a city or from a grid to a city.
Traveler	A pulley used during installation of the conductors. It functions by pulling the conductor through the pole structure to the pull site.

Acronyms and Abbreviations

AAQS	Ambient Air Quality Standards
ABAAS	Architectural Barriers Act Accessibility Standards
ACSR	Aluminum Conductor Steel Reinforced
AMSL	Above Mean Sea Level
AQCR	Air Quality Control Region
BA	Biological Assessment
BAPC	Bureau of Air Pollution Control
BAQP	Bureau of Air Quality Planning
BCC	Birds of Conservation Concern
BE	Biological Evaluation
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
BO	Biological Opinion
BWPC	Bureau of Water Pollution Control
BWQP	Bureau of Water Quality Planning
CAA	Clean Air Act
CAMPO	Carson Area Metropolitan Planning Organization
CEQ	Council on Environmental Quality
CESA	Cumulative Effects Study Area
CFR	Code of Federal Regulations
CTC	California Tahoe Conservancy
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationships
CWPP	Community Wildfire Protection Plan
DBH	Diameter at Breast Height
DN	Decision Notice
DPS	Distinct Population Segment
DR	Decision Record
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
EPM	Environmental Protection Measure
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FIRM	Flood Insurance Rate Map
FONSI	Finding of No Significant Impact
FPD	Fire Protection District

FSH	Forest Service Handbook
FSM	Forest Service Manual
FSORAG	Forest Service Outdoor Recreation Accessibility Guidelines
GID	General Improvement District
GIS	Geographic Information System
IPAC	Information for Planning and Conservation Assessment
KGR	Kingsbury Grade Road
kV	Kilovolt
LOP	Limited Operating Period
LRMP	Land and Resource Management Planning
LRWQCB	Lahontan Regional Water Quality Control Board
LTAB	Lake Tahoe Air Basin
LTBMU	Lake Tahoe Basin Management Unit
MBTA	Migratory Bird Treaty Act
MDB&M	Mount Diablo Base and Meridian
MIS	Management Indicator Species
MMP	Mitigation Monitoring Program
MOU	Memorandum of Understanding
NAAQS	National Ambient Air Quality Standards
NAC	Nevada Administrative Code
NAPCP	Nevada Air Pollution Control Program
NASF	National Association of State Foresters
NDEP	Nevada Division of Environmental Protection
NDF	Nevada Division of Forestry
NDOA	Nevada Department of Agriculture
NDOT	Nevada Department of Transportation
NDOW	Nevada Division of Wildlife
NDSL	Nevada Division of State Lands
NDSP	Nevada Division of State Parks
NEHRP	National Earthquake Hazards Reduction Program
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NFMA	National Forest Management Act
NFS	National Forest System
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NNHP	Nevada Natural Heritage Program
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NRS	Nevada Revised Statute
NVE	NV Energy

NWI	National Wetland Inventory
OHV	Off-highway Vehicle
PCT	Pacific Crest Trail
PPOD	Preliminary Plan of Development
RFFA	Reasonably Foreseeable Future Actions
ROD	Record of Decision
ROS	Recreation Opportunity Spectrum
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SIO	Scenic Integrity Objective
SIP	State Implementation Plan
SMS	Scenic Management System
SNFPA	Sierra Nevada Forest Plan Amendment
SNYLF	Sierra Nevada Yellow-Legged Frog
SOPA	Schedule of Proposed Actions
SR	State Route
SSTMA	South Shore Transportation Management Association
STPUD	South Tahoe Public Utility District
SUP	Special Use Permit
SWPPP	Stormwater Pollution Prevention Plan
T&R	Township and Range
TDFPD	Tahoe-Douglas Fire Protection District
TDTD	Tahoe-Douglas Transportation District
TEPCS	Threatened, Endangered, Proposed Candidate and Sensitive
TMPO	Tahoe Metropolitan Planning Organization
TRPA	Tahoe Regional Planning Agency
TRT	Tahoe Rim Trail
TTD	Tahoe Transportation District
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
VMS	Visual Management System
VQO	Visual Quality Objectives
WOUS	Waters of the United States
WRCC	Western Regional Climate Center

Executive Summary

NV Energy (NVE), the project applicant, currently owns, operates, and maintains an existing 2.67-mile, 60-kilovolt (kV) transmission line, known as the 634 Line from Foothill Road in the Carson Valley to Tramway Drive near the Heavenly Valley Ski Resort in Douglas County, Nevada. The existing single-pole 60 kV transmission line was placed into service in 1956.

NVE proposes to reconstruct the 2.67-mile portion of the 634 Line at 120 kV standards to meet current avian protection construction guidelines; however, the transmission line would continue to be operated at 60 kV. NVE also proposes to reconstruct the 634 Line to provide reliable electrical capacity, ensure the existing facilities meet current federal and state electricity regulations and safety standards, reduce the risk of wildland fire and wind hazards associated with the existing poles and encroaching vegetation along the line; and provide more efficient and reliable accessibility for operation and maintenance activities.

A 1.65-mile portion of the 634 Line would be located on private land and a 1.02-mile portion would be located on National Forest System (NFS) lands managed by the Lake Tahoe Basin Management Unit (LTBMU). In order to rebuild this portion of the 634 Line, NVE is requesting an amendment to its Master Special Use Permit (TOI 401402) to revise a permanent Right-of-Way (ROW) grant. NVE proposes to widen the existing ROW grant from 50 feet to 90 feet along approximately 5,297 feet of the existing 5,375 feet ROW corridor on NFS lands, thereby increasing the existing ROW by 4.72 acres.

The Proposed Action (Proposed Action Alternative) consists of several permanent components: 1) the replacement or topping of the 52 existing wooden poles that are approximately 45 feet tall with a combination of 23 steel single-poles and seven new H-frame and three-pole steel structures that would be 65 to 80 feet tall; 2) the construction of a new 0.18-mile long roadway within the middle third of the line; and 3) the completion of road improvements along the existing roadway between Foothill Road and the bottom third of the line that intersects with Kingsbury Grade. A detailed summary of the Proposed Action Alternative and the alternatives considered, but eliminated from the Environmental Assessment (EA) analysis is provided in Chapter 2.0, *Description of Proposed Action and Alternatives* of this EA.

An environmental contractor on behalf of the United States Forest Service (USFS) – LTBMU, the lead agency under the National Environmental Policy Act (NEPA) prepared this EA for the NVE 634 Line Rebuild Project in compliance with NEPA of 1969, as amended (42 United States Code [U.S.C.] Section 4321 et seq), the Council of Environmental Quality (CEQ) regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), the Forest Service Manual 1950, and the USFS NEPA procedures (10 CFR Part 1021 and 1022 and 36 CFR Part 220). The EA was also prepared in compliance with the Forest Service Handbook (FSH 1909.15) (USFS 2012). The LTBMU determined that an EA was needed to effectively analyze the proposal to rebuild the 634 Line and to evaluate the project impacts that would occur on federal NFS lands.

The EA discloses the direct, indirect, and cumulative effects that would result from the authorization and implementation of the Proposed Action Alternative and the No Action Alternative. It lists Environmental Protection Measures (EPMs), as well as mitigation measures that are intended to eliminate or reduce potential effects to the following environmental resources: Air Quality, Botanical Resources, Fire Hazards, Geological Resources, Invasive Plants, Recreation, Visual Resources, Water Resources, and Wildlife. Through the inclusion of EPMs and mitigation measures for the Proposed Action Alternative, the effects to most resources were determined to be minor, and moderate for wildlife resources. More information on the effects analysis is included in Chapter 3.0, *Affected Environment and Environmental Consequences*.

1.0 Introduction

1.1 Background

The National Environmental Policy Act (NEPA) is a federal statute requiring the identification and analysis of potential environmental impacts associated with proposed federal actions before those actions are taken. The intent of NEPA is to help federal agency officials make well-informed decisions based on an understanding of the potential environmental consequences of a project, and to take actions to protect, restore, or enhance the environment. NEPA established the Council on Environmental Quality (CEQ), which is charged with the development of implementing regulations and ensuring federal agency compliance with NEPA.

The United States Department of Agriculture (USDA) Forest Service (USFS) – Lake Tahoe Basin Management Unit (LTBMU) is preparing an environmental document for the Sierra Pacific Power Company d/b/a NV Energy (NVE) 634 Line Rebuild Project. The LTBMU prepared an Environmental Assessment (EA) in compliance with NEPA of 1969, as amended (42 United States Code [U.S.C.] Section 4321 et seq.), the CEQ regulations for implementing the procedural provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), the Forest Service Manual 1950, and the USFS NEPA procedures (10 CFR Part 1021 and 1022 and 36 CFR Part 220). The EA was also prepared in compliance with the Forest Service Handbook (FSH 1909.15) (USFS 2012). The LTBMU determined that an EA was needed to analyze the proposal to rebuild the 634 Line and to evaluate the project impacts that would occur on federal National Forest System (NFS) lands. The EA discloses the direct, indirect, and cumulative environmental impacts that would result from the authorization and implementation of the Proposed Action and Alternatives. Additional documentation including more detailed analyses of the Proposed Action Alternative and the No Action Alternative may be found in the project record located at the LTBMU Forest Supervisor’s Office in South Lake Tahoe, California.

1.2 Summary of Proposed Action

NVE, the project applicant, proposes to reconstruct a 2.67-mile portion of the 634 Line from Foothill Road in the Carson Valley to Tramway Drive near the Heavenly Valley Ski Resort in Douglas County, Nevada (see Figure 1 in Appendix A). The project would be constructed at 120 kV standards to meet current avian protection construction guidelines¹; however, the transmission line would continue to be operated at 60 kV. A 1.65-mile portion of the 634 Line would be located on private land and a 1.02-mile portion would be located on NFS lands managed by the LTBMU. NVE proposes to widen the existing permanent Right-of-Way (ROW) grant from 50 feet to 90 feet along approximately 5,297 feet of the existing 5,375 feet ROW corridor on NFS lands. In order to rebuild this portion of the 634 Line, NVE is requesting an amendment to their Master Special Use Permit (SUP) (TOI 401402) to include a revised ROW that increases the existing ROW by 4.72 acres (see details below). The current permit covers 43.93 acres of NVE-managed power lines and 7.92 acres of public roadways in Douglas and Washoe counties, and Carson City Rural Area, Nevada. The permit area includes the 634 Line and is referenced as the “Minden to Tahoe Line” in the permit (USFS 2009).

The Proposed Action (Proposed Action Alternative) consists of several permanent components: 1) the replacement or topping of the 52 existing wooden poles that are approximately 45 feet tall with a combination of 23 steel single-poles and seven new H-frame and three-pole steel structures that would be 65 to 80 feet tall; 2) the construction of a new 0.18-mile long roadway

¹ Suggested Practices for Avian Protection of Power Lines: The State of the Art in 2006, Avian Power Line Interaction Committee, 2006

within the middle third of the line; and 3) the completion of road improvements along the existing roadway between Foothill Road and the bottom third of the line near the valley floor that intersects with Kingsbury Grade. The existing ROW within NFS lands occurs within approximately 6.22 acres; the revised ROW would encompass approximately 10.94 acres, increasing the ROW corridor by approximately 4.72 acres.

1.3 Location

The 2.67-mile portion of the 634 Line to be rebuilt is located on the eastern slope of the Sierra Nevada Mountains, adjacent to Carson Valley in Douglas County, Nevada. The project begins at Foothill Road at 4,800 feet above mean sea level (AMSL), and approximately 1 mile south of the intersection of Foothill Road and State Highway 757 (Muller Road) near Minden. The 634 Line travels uphill, crossing and paralleling State Route 207 (SR 207, Kingsbury Grade) through Sections 19, 27, 28, 29, and 30 of Township 13 North, Range 19 East (T13N, R19E) of the Mount Diablo Base and Meridian (MDB&M); the Line crosses SR 207 at three separate locations at the bottom half of the project. The project ends on the top of Daggett Pass at approximately 7,500 feet AMSL adjacent to a knoll on the west side of Tramway Drive near the Upper Kingsbury community, outside the Lake Tahoe Basin. The existing transmission line continues on to Liberty Energy's Stateline substation, which is within the Lake Tahoe Basin. Approximately 1.65 miles of the transmission line occur on private land; approximately 1.02 miles of the transmission line occur on NFS lands.

The 634 Line is the only high voltage transmission line serving the Kingsbury substation, which provides electricity to the Heavenly Valley Ski Resort and surrounding area. The transmission line also provides a secondary electrical feed to the Stateline substation.

1.4 Project History

The existing single-pole 60 kV transmission line was placed into service in 1956. Although some poles have been replaced during its nearly 60 years of service, many of the poles, insulators, and conductors (i.e. electrical wires) still date to this era. NVE has experienced multiple outages on the portion of the line proposed for replacement due to equipment deterioration and vegetation- and weather-related events. In 2012, NVE replaced three poles along the 634 Line; one pole had caught fire due to electrical tracking through the old insulator. Currently, this section of the transmission line is considered an unacceptable fire risk. The proposed improvements would reduce the likelihood of power outages associated with high winds, downed trees, forest fires, and snow loading. Rebuilding the transmission line would also improve access to the line for maintenance, emergency response, and repair activities.

1.5 Purpose and Need for Action

The purpose of the project is to rebuild and upgrade a portion of the existing 634 Line in order to provide reliable electrical transmission to the Heavenly Valley area and to reduce existing fire liability associated with a portion of the current line. NVE must also ensure its facilities meet current federal and state electricity regulations and safety standards, provide accessibility for maintenance and emergency access, and are resistant to wildfire hazards, wind, and other environmental hazards. The need to reconstruct the transmission line is due to recent wildfire and wind incidents, ongoing maintenance issues, and the age of the structures. Therefore, the 634 Line Rebuild project has the following objectives:

1. Provide reliable electrical capacity to assure adequate service to customers within the Heavenly Valley and surrounding area;

2. Ensure the existing facilities meet current federal and state electricity regulations and safety standards;
3. Reduce the risk of wildland fire and wind hazards associated with the existing poles and encroaching vegetation along the line; and
4. Provide more efficient and reliable accessibility for operation and maintenance activities.

Rebuilding the existing 634 Line would provide reliable electrical capacity, and replacing the existing wood poles with steel poles would reduce the risk of wildland, wind, and snow loading hazards. In addition, widening the existing ROW would reduce wildfire risk and the risk of damage from encroaching vegetation. Finally, replacing existing single poles along the middle third of the line with new H-frame structures would reduce the number of access roadways and pole structures from 30 to seven along this portion of the line. Improving vehicular access to the 634 Line for annual inspections and routine maintenance would also improve the line's resistance to power outages.

1.6 Land Management Plan Conformance

The implementation of the Proposed Action Alternative would be consistent with established land use plans and relevant laws, regulations, policies, program guidance, and other applicable permitting requirements. Specifically, the implementation of the Proposed Action Alternative would be consistent with the 1988 LTBMU Land and Resource Management Plan (Forest Plan), summarized below.

LTBMU Forest Plan

The National Forest Management Act (NFMA) requires the development of long-range land and resource management plans. The LTBMU Forest Plan was approved in 1988 to comply with this Act. Since that time it has been amended several times, including the Sierra Nevada Forest Plan Amendment (SNFPA) in 2004. The LTBMU Forest Plan provides guidance for all natural resource management activities, and requires all projects and activities proposed on NFS lands administered by LTBMU to be consistent with the plan.

This project complies with the Forest Plan, as amended, and the 2013 Revisions to the Land and Resource Management Plan (LRMP). The Revisions to the LTBMU Forest Plan are currently undergoing environmental review. Because the timing of adoption and implementation of the Forest Plan revision is unknown at this time, the Proposed Action Alternative complies with specific guidance provided in the 1988 LTBMU Forest Plan and the 2004 SNFPA. Below is a summary of the specific guidelines in the LTBMU Forest Plan and SNFPA that apply to the Proposed Project Alternative.

Chapter III. Summary of the Analysis of the Management Situation

Chapter III. *Summary of the Analysis of the Management Situation* (Chapter D, *The Resource Environment*, Section 10, *Lands*, and Subsection C, *Non-recreational Special Uses and Utility Corridors*) summarizes non-recreational special uses, utility corridor conditions, and general guidelines. According to the section, no corridors are designated for major utilities because of the significance of the Tahoe Basin's recreational and scenic resources and the difficulty of maintaining water quality. However, the section states "increasing urban development generates the greatest demand for special uses of national forest land." The plan anticipates that future demand will probably be for utility lines, communication facilities, and access to private land.

Chapter IV. Management Direction

Management goals and objectives, practices, prescriptions, and overall area direction related to utility corridors is provided in Chapter IV, *Management Direction* of the LTBMU Forest Plan.

Section B. Land Uses Goal

- Allow occupancy and use of the land for public and private purposes through issuance of a special use permit or easement where the use would be consistent with other goals.

Section E. Management Practices and Forestwide Standards and Guidelines

Subsection 36, Lands/Special Land Use (Non-Recreation)

Under Subsection 36, *Lands/Special Land Use (Non-Recreation)*, the USFS includes guidelines for the administration of facilities or activities that involve authorized occupancy or use of national forest land for a variety of purposes, including ROW for public and private roads, utility services, electronic communications, and other uses. The section also specifies direction related to utility infrastructure in the following standards and guidelines:

- Locate all types of transmission lines outside of view areas where possible and require joint use of existing ROW unless the proponent can clearly show joint use is not practical.
- Install power distribution lines up to 33 kV underground in existing or new roadway prisms unless the proponent can clearly show that this is not practical or another method of installation would cause less long-term environmental damage.
- Ensure that existing above ground utilities will normally be undergrounded by priorities established in the R-5 Underground Master Plan.
- Coordinate the review of applications for power licenses with the Federal Energy Regulatory Commission (FERC), Tahoe Regional Planning Agency (TRPA), and other agencies. Process applications for uses associated with a license through special use procedures.
- Require a permit applicant to obtain permission to cross private land where a public ROW does not exist.

Subsection 38, Rights-of-Way

Under Subsection 38, *Rights-of-Way*, the USFS includes guidelines for the acquisition of easements for public access across privately owned land including road, trails, and utility rights-of-way. The section also specifies direction related to utility infrastructure ROW in the following standards and guidelines:

- Acquire ROW for roads, trails, or utilities where those of State, county, municipal, or special service jurisdictions are inadequate for USFS use.
- Obtain full public access except in the few instances where administrative access will be sufficient.

Subsection 44, Road Construction and Reconstruction

Under Subsection 44, *Road Construction and Reconstruction*, the USFS includes guidelines to assist the planning and construction of permanent roads necessary to access the resources in the forest that would apply to any new roads necessary for the Proposed Action Alternative. The section specifies direction related to roads (for utility corridors) in the following standards:

- Prohibit road building in areas of high mass soil instability. Areas of moderate instability will be engineered to protect water quality and scenic value. Site-specific geotechnical analysis will be used to provide recommendations for road building.
- Limit construction to slopes of less than 30% except for short segments where necessary to bridge steep terrain within otherwise moderately sloped areas. Allow reconstruction of roads on slopes exceeding 30% where Best Management Practices (BMPs) are fully utilized to mitigate impacts.

Subsection 45, Temporary Road Construction

Under Subsection 45, *Temporary Road Construction*, the USFS includes guidelines to assist the planning and construction of temporary roads. The section specifies direction related to temporary roads (for utility corridors) in the following standards and guidelines:

- Construct temporary roads where there is only a one-time need for a transportation facility. Obliterate road and return to resource production within one year of the use when the one-time need is fulfilled.
- Locate and design temporary roads with the least amount of cut and fill, and the fewest stream or water channel crossings, so that the land can be restored with no permanent impact.

Subsection 46, Road Maintenance

Under Subsection 46, *Road Maintenance*, the USFS includes guidelines to protect road investment. The section specifies direction related to temporary roads (for utility corridors) in the following standards and guidelines:

- Stabilize cut and fill slopes, protect drainage structures and drainage ways, provide sediment trapping devices, install infiltration trenches.
- Obliterate and stabilize unneeded roads.

Other forestwide standards and guidelines may also apply to the Proposed Action Alternative related to facility construction and reconstruction, fire prevention, fire detection and suppression, fuel treatment, law enforcement, and forest pest management.

Section F. Management Prescriptions

Management prescriptions, defined as management practices and intensities selected and scheduled for application on a specific area to attain multiple use and other goals and objectives, also apply to the Proposed Action Alternative. For the Proposed Action Alternative, most management prescriptions or practices must be evaluated on a case-by-case basis to determine if they would occur.

Section G. Management Area Direction

Land in the Tahoe Basin is divided into 21 management areas based upon the characteristics of the land and either existing patterns of use or potential future opportunities. Similarly, direction is provided by management area. The Proposed Action Alternative would occur within the Heavenly Management Area, therefore, the associated management area prescriptions, standards, and guidelines would apply, as needed.

2004 Sierra Nevada Forest Plan Amendment

The 1988 LTBMU Forest Plan has been amended since it was written with the most significant changes made in January 2004 by the SNFPA. This document contains supplemental information on management direction affecting the Lake Tahoe Basin. The majority of the amended

management goals, objectives, and standards and guidelines focus on natural resource management associated with fire and fuels management, habitat connectivity, noxious weed management, and sensitive species protection measures. Specific components of the Proposed Action Alternative, including the implementation of BMPs and other protection measures would be consistent with the 2004 SNFPA.

1.7 Public Involvement

The scoping process allows the public to identify issues, concerns, and potential impacts from proposed projects that require detailed environmental analysis. The process typically involves internal scoping among representatives at the lead agency and external scoping for other governmental agencies and the general public.

Internal Scoping

On March 5, 2015 the LTBMU conducted internal scoping for the Proposed Action Alternative. USFS and United States Fish and Wildlife Service (USFWS) resource specialists reviewed the Proposed Action Alternative and alternatives and determined the appropriate scope of the environmental resources that needed to be carried forward for further analysis in this EA. Environmental resources that were not present, or were determined to be present but not affected, were not carried forward for further analysis. Environmental resources that were present and potentially affected were carried forward for further analysis. Resources carried forward for further analysis included Air Quality, Botanical Resources, Fire Hazards, Geological Resources, Invasive Plants, Recreation, Visual Resources, Water Resources, and Wildlife.

External Scoping

External public scoping was conducted between May 1, 2015 and May 30, 2015. Federal, state, and local agencies and representatives, as well as all landowners whose parcels are crossed by the 634 Line received an agency scoping invitation letter for the proposed 634 Line Rebuild project. A public scoping letter was also published in various local newspapers and websites, announcing the beginning and end of the public scoping period. A public scoping notice was published twice in the *Tahoe Daily Tribune* and *The Record Courier*, on May 1, 2015 and again on May 15, 2015. The public scoping notice was also posted on the Nevada Clearinghouse, NV Energy, and LTBMU websites. Mailings were sent to various federal, state, bi-state, and local agencies, as well as to private property owners within the proposed ROW. The notice was issued to inform agencies and the public that an EA would be prepared for the project, and to solicit input from agencies and the public on the scope of the environmental analysis. During this period, the LTBMU received the following comment letters:

1. One comment from a member of the public requesting additional project information;
2. One comment from Heavenly Mountain Resort supporting the general project proposal;
3. One comment from the Nevada Division of State Lands (NDSL) recommending outdoor lighting measures if nighttime lighting is proposed; and
4. One comment from the Nevada State Historic Preservation Office (NV SHPO) noting that the utility infrastructure is greater than 50 years old and the agency awaits the initiation of Section 106 consultation under the National Historic Preservation Act (NHPA) of 1966.

Tribal consultation for the proposed project has also been conducted in accordance with NHPA and Executive Order (EO) 13175 to maintain the USFS's government-to-government relationship

between tribes. The LTBMU initiated informal consultation with the NV SHPO on July 9, 2015 by submitting the Draft Cultural Resources Report for review and comment. On October 1, 2015, the LTBMU received input and concurrence on the Draft Cultural Resources Report from NV SHPO (NV SHPO 2015). Likewise, in October 2015, the LTBMU initiated consultation with potential tribes, specifically the Washoe Tribe of California and Nevada (USFS 2015f). On December 2, 2015, the LTBMU received input from the Washoe Tribe of California and Nevada regarding the need to protect one sensitive cultural resource located near the proposed project roadways (USFS 2015f). The LTBMU has determined that NVE can flag and avoid this sensitive cultural resource during project construction and operation. All input received during the scoping period has been considered and incorporated into this EA.

1.8 Decision Framework

The LTBMU is the lead agency under NEPA, and the Forest Supervisor is the Responsible Official for this project. Given the purpose and need, the Forest Supervisor would review the Proposed Action Alternative in order to: 1) decide whether to grant or deny NVE's request to amend the Master Special Use Permit (SUP) (TOI 401402) to rebuild the existing 634 Line that traverses NFS lands administered by the USFS-LTBMU; 2) consider a revised ROW to accommodate new H-frame structures within the middle portion of the line; and 3) subsequently grant the revised ROW with modifications to the existing Master SUP based on the analysis contained in this EA. The LTBMU must also determine whether to re-issue and amend the Master SUP for the proposed transmission line rebuild to bring NVE's facilities under current authorization within the revised ROW and an updated Operation and Maintenance Plan. The LTBMU may include terms and conditions, stipulations, and additional or modified mitigation measures it determines to be in the public interest, which may include modifying the proposed use or changing the route or location of the proposed facilities (43 CFR 2805.10[a][1]). If the LTBMU approves the revised ROW and re-issues the Master SUP, the approval would allow the construction and operation of the proposed rebuild of the 634 Line.

The LTBMU requires the preparation of an EA to ensure the proposed project complies with NEPA and various federal laws, including the NFMA. This Act requires the development of long-range land and resource management plans. The LTBMU Forest Plan was approved in 1988 as required by this Act. It has been amended several times, including the SNFPA in 2004. As mentioned earlier, the amended SNFPA provides for guidance for all natural resource management activities. The Act requires all projects and activities to be consistent with the Forest Plan. Therefore, a Forest Plan consistency analysis of standards, guidelines, and management areas was completed for the project and it was determined that the project is consistent with management direction in the Forest Plan as well as the SNFPA.

As a federal lead agency, the LTBMU is also responsible for compliance with Section 7 (c) of the federal Endangered Species Act (ESA), Section 106 of the NHPA, as well as compliance with other federal laws such as the Migratory Bird Treaty Act (MBTA), the Bald and Golden Eagle Protection Act (BGEPA), and the Clean Water Act (CWA). The analysis in the EA will determine whether the Proposed Action Alternative, including the proponent's environmental protection measures (EPMs), would result in significant impacts on the human and natural environment, as defined by CEQ regulations and the *Forest Service Handbook* (FSH 1909.15, NEPA Handbook). If the analysis shows that significant impacts would be expected, preparation of an Environmental Impact Statement (EIS) would be required for the project to advance. However, if no significant impacts are anticipated, the LTBMU would issue a Finding of No Significant Impact (FONSI).

Following the circulation of the Public Review EA and comment period, the LTBMU will consider comments submitted by the public, interested organizations, and government agencies, and will respond to all substantive comments. Based on the public input, the Forest Supervisor will select

a preferred alternative and prepare a Final EA. Prior to the issuance of a Decision Notice (DN)/FONSI, and pursuant to 36 CFR 218, the project-level proposed action would be subject to a pre-decisional administrative review process, commonly referred to as an objection process. Under this process, individuals and entities may file objections after an environmental analysis document is completed and before a decision document such as a Decision Notice (DR)/FONSI is signed.

An objection is a written document seeking a pre-decisional administrative review of a project or activity implementing a land management plan. The objection process builds on early participation and collaboration efforts and is intended to resolve concerns before a decision is made. It also includes the completion of a formal objection response by a higher-level line officer (i.e., Reviewing Officer) above the Forest Supervisor proposing to sign the project decision. A decision cannot be issued on a project until a Reviewing Officer has responded to all pending objections. A written response is typically issued within 45 days following the end of the objection-filing period for project-level actions.

Once the objection process has been completed, the decisions to be issued by the Forest Supervisor would include: 1) selection of either the Proposed Action Alternative, the No Action Alternative, or a combination of the two alternatives; 2) finalization of easements and ROW agreements through NFS lands; and 3) implementation of authorization on NFS lands and necessary USFS easements and the revised ROW. Douglas County will issue a separate project decision for activities within the lands under their jurisdiction, if required.

2.0 Description of the Proposed Action and Alternatives

NEPA requires the consideration of alternatives other than the proposed action. Specifically, it states that agencies must “study, develop, and describe appropriate alternatives to recommend courses of action in any proposal that involves unresolved conflicts concerning alternative uses of available resources.” (42 U.S.C. 4332). The alternatives should address the issue(s) the proposed action attempts to achieve, but using other methods, and should consider technical and economic factors. The purpose of this chapter is to provide information on the Proposed Action Alternative and the No Action Alternative.

To support the decision-making process, one action alternative (Alternative 1) was developed that complies with NEPA requirements for an EA and meets the underlying purpose and need for the project. The EA also describes and evaluates the No Action Alternative (Alternative 2) to provide decision makers and the public with an overview of what could reasonably be expected to occur if the action alternative were not approved and implemented. Alternatives considered but not analyzed in detail are also summarized. Other alternatives were eliminated because they were either infeasible to construct, or do not meet the majority of the project objectives.

2.1 Alternatives Carried Forward for Further Analysis

Alternative 1 - Proposed Action Alternative

NVE proposes to replace and reconstruct a 2.67-mile portion of the 634 Line with a combination of single-pole and two-pole H-frame tangent structures and 3-pole angle structures. The H-frame and three-pole angle structures are proposed within the middle third of the project, to traverse the topographically challenging Kingsbury Grade. The transmission line would be rebuilt to 120 kV standards but would continue to be operated at 60 kV. Approximately 1.65 miles of the transmission line occur on private lands; approximately 1.02 miles occur on public NFS land. Assuming a 90-foot ROW corridor within the NFS lands and a 50-foot ROW corridor within the private lands, the entire project area encompasses approximately 21.13 acres; approximately 11.12 acres occur on NFS land and approximately 10 acres occur on private land. The portion of the line from Foothill Road to roughly the first intersection with SR 207 and the portion of the line from Kingsbury Tap to Tramway Drive would be reconstructed with a single-pole design within the existing 60 kV ROW. The single-pole construction is being maintained at the beginning and ending third of the rebuild section to avoid impacting two residential parcels and to accommodate an existing distribution underbuild line at the end of Foothill Road that services a Nevada Department of Transportation (NDOT) weather station near Kingsbury Grade. The new H-frame structures would be strategically placed within approximately the middle third of the new alignment to allow the transmission line to span the numerous road crossings, canyons, and drainages, reducing the number of structures from the current 30 to 7 along this portion of the line.

Location

The 2.67-mile portion of the 634 Line to be rebuilt is located on the eastern slope of the Sierra Nevada Mountains, adjacent to Carson Valley in Douglas County, Nevada. The 634 Line Rebuild project begins at Foothill Road at 4,800 feet AMSL, and approximately one mile south of the intersection of Foothill Road and State Highway 757 (Muller Road) near Minden. The 634 Line travels uphill, crossing and paralleling SR 207 through sections 19, 27, 28, 29, and 30 of T13N, R19E of the MDB&M, and ends on the top of Daggett Pass at approximately 7,500 feet AMSL near Kingsbury, Nevada, outside the Lake Tahoe Basin.

The 634 Line originates at the Buckeye substation and continues on to Liberty Energy’s Stateline substation (see Figure 1 in Appendix A). The project area is predominantly forested, with dispersed areas of residential and tourism-related land uses at either end of the transmission line.

Existing System

Facilities

The 634 Line was installed in 1956 from the Buckeye substation north of Minden, Nevada to the Stateline substation near Stateline, Nevada. In the late 1980s a new transmission line to the Kingsbury substation was “tapped” from the 634 Line. Due to challenging terrain and difficult access, maintenance on the transmission line has been limited to vegetation management and the occasional replacement of downed or damaged poles. The eastern side of the Kingsbury Grade portion of the line has experienced numerous outages and an occasional pole fire, prompting the proposed project.

The entire portion of the 634 Line to be rebuilt currently measures 2.67 miles long and consists of 52 single-pole structures traversing mountainous terrain that includes multiple hilltops, canyons, drainages, and ravines (see Figure 2 in Appendix A). Most existing poles are approximately 45 feet tall. The single-pole 60 kV transmission line has one Charter Communications fiber optic underbuild for the length of the proposed rebuild section, and an electrical distribution line underbuild from Foothill Road to approximately the first Kingsbury Grade crossing.

Existing Permanent Right of Way

NVE currently holds easements from the LTBMU and various private landowners who own properties crossed by the existing 634 Line. The widths of the existing centerline easements on private lands vary, but average approximately 50 feet. For the 1.02-mile portion of the transmission line on the NFS lands, the existing 634 Line ROW measures 50 feet wide and 5,375 feet long. The ROW encompasses approximately 6.22 acres. This ROW is incorporated within NVE’s Master SUP Number TOI 401402. For the 1.67-mile portion of the transmission line on private lands, the existing 634 Line ROW measures 50 feet wide and 8,820 feet long. The ROW encompasses approximately 10.12 acres. Because this portion of the line is outside NFS lands, it does not require NEPA compliance and LTBMU approval. Douglas County would provide the necessary review and approval for all project activities within their jurisdiction, if required. Table 2-1 summarizes the length, width, and acreage of the existing ROW within public and private lands.

Table 2-1. Existing Transmission Line ROW on Public and Private Lands

Transmission Line	Jurisdiction	Right-of-Way Length and Width	Acreage
Existing 60 kV Transmission Line	Public	5,375 feet by 50 feet	6.22 acres
	Private	8,820 feet by 50 feet	10.12 acres

Sources: PPOD 2015; HDR 2015a.

Proposed Permanent Project Components

The Proposed Action Alternative would consist of several permanent components: 1) the replacement of the existing wooden poles with a combination of new steel single-poles, steel H-frame structures, and steel three-pole angle structures; 2) the construction of a new 0.18-mile long roadway within the middle third of the line; and 3) the completion of road improvements along the existing roadway between Foothill Road and the first third of the line that intersects with Kingsbury Grade. The existing ROW within NFS lands occurs within approximately 6.22 acres; the revised ROW would encompass approximately 10.94 acres, increasing the ROW corridor by approximately 4.72 acres. These permanent proposed project improvements are described in more detail below.

Transmission Line Replacement and Rebuild Activities

The Proposed Action Alternative would involve the replacement of 52 wood single poles with 23 steel single poles and 7 steel H-frame and/or three-pole angle structures, resulting in an overall reduction of 22 structures between Foothill Road and Kingsbury Summit (i.e., Tramway Road). Figure 3 illustrates the proposed permanent project components of the 634 Line Rebuild Alternative within the eastern portion of the project alignment. Figure 4 illustrates the proposed permanent project components of the 634 Line Rebuild Alternative within the western portion of the project alignment. The structures would include self-weathering steel poles and steel cross arms with 397.5 Aluminum Conductor Steel Reinforced (ACSR) with 3/8-inch steel shield wire. Figure 5 illustrates an example of an H-frame structure that is similar to the structures proposed to replace the existing single-pole structures within the middle portion of the transmission line for the Proposed Action Alternative. Table 2-2 contains a list of the type and number of structures to be utilized for the project.

Table 2-2. Structure Details

Structure Number	Type	Structure Drawing ID	Height (Above Ground)	Number of Guy/Anchors
P2	Single Pole Light Angle Dead-End Structure	LA288H	70	8/4
P3-7, P11	Single Pole Tangent Structure	ST274H	61-88	0
P8-10	Single Pole Light Angle Structure	LA286H	70-83	2/2
P12	Three Pole Light Angle Dead-End Structure	TT272H_M	65	8/8
P13-P17	Two Pole Tangent H-Frame Structure	DT273H	61-92	0
P18	Three Pole Tangent Dead-End Structure	TT272H_M	47-70	10/10
P19	Single Pole Tap Structure	N/A	79	4/2
P20, P24, P25, P29	Single Pole Tangent Dead-End Structure	LA288H-M	65-70	0
P21-23, P26-28, P31	Single Pole Tangent Structure	ST274H	61-79	0
P30	Single Pole Tangent Structure	ST274H	61	1/1

NOTES: N/A – Not available.

Source: NV Energy 634 Line Rebuild Steel Pole Fabrication Drawings, May 2015.

There are several figures accompanying the Preliminary Plan of Development (PPOD) that illustrate the typical structure drawings for each proposed pole structure listed in Table 2-2 (see Appendix B); the structure drawing ID number corresponds to the type of structure proposed along the transmission corridor (PPOD 2015).

Single-Pole Structures

NVE is proposing to rebuild the top and bottom third of the project alignment with a single-pole design, within the existing ROW. The upgrade would involve replacing 23 existing wood poles with 23 new steel poles. The majority of the new steel poles would be approximately 70 to 80 feet tall (above ground); approximately 25 to 35 feet taller than the existing wood poles, which are

approximately 45 feet tall. The existing poles are spaced between 100 feet to 400 feet apart, based on terrain conditions and existing underbuild. The proposed single poles would maintain similar spacing in the bottom and top thirds of the project. The spacing within the middle third of the line, where H-frames are proposed, would increase approximately 550 feet to 1,880 feet, depending on topography. The diameter of the existing poles range from 12 to 16 inches at the base of the poles. The diameter of the proposed poles would measure approximately 17 to 30 inches at the base of the poles. Poles would be buried approximately 7.5 to 12.5 feet deep, depending on the height of each pole. Typically, the portion of a buried pole is 10% of the height of the pole, plus two feet. Guy wires, which are tensioned cables may be connected to poles in areas that require additional stability.

H-Frame Structures

NVE is proposing to rebuild the middle third with a H-frame design, immediately north of and adjacent to, the existing single pole alignment within the revised ROW (see Figure 5 in Appendix A). The H-frame portion would allow the transmission line to span the deep ravines in the central portion of the project by locating the structures on the peaks along the alignment. The upgrade would involve replacing 30 existing wood poles with seven H-frame and/or three-pole angle structures. The new H-frame and three-pole angle poles would be approximately 47 to 92 feet tall (above ground); approximately 2 to 45 feet taller than the existing wood poles, which are approximately 45 feet tall. The proposed H-frame structures would be spaced approximately 550 feet to 1,880 feet apart, in order to span the ravines' steep topography in the area. The diameter of each leg of the H-frame structure would measure 17 to 30 inches at the base of the poles. Poles would be buried approximately 7.5 to 12.5 feet deep, depending on the height of each pole.

Access Roadways

The total length of the proposed access roadway network is approximately 4.16 miles. The majority of this roadway network consists of USFS-managed dirt roadways and some Douglas County dirt roadways. The Proposed Action Alternative would consist of a 1.09-mile long improved dirt access roadway within the bottom third of the line near the valley floor, a new 0.08-mile long dirt access roadway within the middle third of the line, a network of several existing USFS-managed and County roadways that do not require improvements within the last third of the line, and a 248-foot temporary access roadway to the last pole structure (see Figure 4 in Appendix A).

The existing 1.09-mile long access roadway from Foothill Road to the first intersection with Kingsbury Grade measures approximately 6 feet wide. This roadway includes two segments. The first segment from Foothill Road to the first crossing with Kingsbury Grade measures approximately 3,905 feet long (0.75 miles) by 6 feet wide. The second segment, from the first crossing with Kingsbury Grade that parallels the southwestern edge of the highway measures 1,875 feet long (0.36 miles) by 6 feet wide. NVE proposes to widen this portion of the roadway by approximately two feet, resulting in an eight-foot wide roadway. Therefore, the first roadway segment would result in approximately 7,810 square feet of new disturbance (0.18 acres). The second roadway segment would result in approximately 3,750 square feet of new disturbance (0.09 acres). Improvements would also involve minor grading to the existing dirt roadway.

The new 0.18-mile long access roadway within the middle third of the project area would measure approximately 950 feet long and eight feet wide, resulting in approximately 7,600 square feet of new disturbance (0.17 acres). The remainder of the pole structures would be accessed via a network of approximately three miles of existing public dirt roadways. This network of access roadways would not require major improvements; rather, improvements would be limited to minor vertical grading. Access to the last pole structure would be provided by an eight-foot wide 248-foot

long temporary dirt roadway that would parallel Tramway Drive. This access roadway would be decommissioned and revegetated after project construction.

Existing access is available to most H-frame structure locations. Two structures (Structures P13 and P14) do not have direct access and are proposed to be hand dug. All other H-frame structures have adequate vehicular access. Where improvements are necessary to the existing network of roadways, minimal access road improvements are proposed to be excavated by backhoe or a truck-mounted auger. A majority of the structures, specifically the H-frame section and upper single-pole section, are proposed to be set by helicopter.

The proposed access road network would facilitate construction, maintenance, and routine inspections. None of the access roads are directly adjacent to the existing transmission line, although portions of the roadway near the line are covered under the proposed 90-foot wide ROW.

Right-of-Way Requirements

NVE is requesting a new 90-foot ROW easement for the portion of the 634 Line to be rebuilt with H-frame structures, from both public and private land owners. Where structures are to be rebuilt as single-poles in the existing 634 Line, NVE would maintain the existing center line easement. Table 2-3 compares the total acreage of the existing transmission line ROW to the total acreage of the proposed H-frame ROW.

Table 2-3. Comparison of Existing and Proposed ROW Requirements

Transmission Line	ROW Length and Width	Acreage
Existing 60 kV Transmission Line	5,375 feet by 50 feet	6.22 acres
New H-Frame Transmission Line (Middle Section)	5,297 feet by 90 feet	10.94 acres
Total Increase		4.72 acres

Source: PPOD 2015.

Proposed Temporary Project Features

The following sections describe the temporary project features that would occur within the construction corridor.

Construction Corridor

The construction corridor measures 300-feet wide and encompasses the existing overhead transmission line. It correlates to the project survey area described in the project technical reports (see Appendices E through J). The temporary project features that would occur within this corridor include single-pole and H-frame distribution structure work areas, staging areas, and pull sites. While the project area includes a wider construction corridor, the implementation of most permanent and temporary activities would be limited to specific areas within the proposed 90-foot ROW within NFS lands and the existing 50-foot ROW within private lands. These temporary activities are described below.

Single-Pole Work Locations

23 single-pole work locations are proposed within the project area. Each single-pole work location would measure approximately 2,500 square feet.

H-Frame Work Locations

Seven H-Frame or three pole angle structure work locations are proposed within the project area. Each H-frame work location would measure approximately 10,000 square feet.

Staging Areas

Staging areas are locations where vehicles, equipment, and construction materials and supplies are stored and assembled before use. Three staging areas are proposed within the project area. The first staging area is located at a pull-out along SR 207 near the proposed location for Structure P14. This area is currently a large, gravel parking area on LTBMU land; it measures approximately 0.33 acres. The second staging area is located approximately 0.4 miles northeast of Structure P27 on a 0.25-acre parcel owned by Heavenly Mountain Resort. The parcel is accessible from SR 207. These areas are planned to be used for the staging of poles and equipment. The Kingsbury Grade staging areas may also be suitable for use as landing areas during the helicopter removal of trees. The third staging area is the primary staging area. It consists of a 3.0-acre privately owned gravel pit, located across from David Walley's Hot Springs Resort and Spa in Genoa, Nevada.

Pulling Sites

Once the new single pole and the H-frame structures are in place, the electrical wire (conductor) stringing occurs, which requires equipment at each end of a transmission line section to be strung through the structures using pulleys. Pulling sites are where the wire is pulled through a stringing block or pulley and each structure at each end of a section of a powerline. Pulling sites are typically situated at various intervals along the ROW. There are four pull sites proposed within the project area. Each pull site would measure approximately 300 feet in diameter, resulting in a total of 6.49 acres of temporary surface disturbance.

Comparison of Permanent and Temporary Project Features

Table 2-4 summarizes the permanent and temporary surface disturbances associated with the Proposed Action Alternative which would occur on NFS and private lands.

Table 2-4. Comparison of Permanent and Temporary Project Features

Project Features	Number	Length	Area Required (square feet)	Total Approximate Acreage of Disturbance (acres)	
				Private	Public
Existing Roadways ¹	1	15,816 feet	158,156	0	3.63
Permanent Disturbances					
Access Road Improvement ² Foothill Road to Kingsbury Grade	1	3,905 feet	7,810	0.18	0
Access Road Improvement ³ Southwestern Side of Kingsbury Grade	1	1,875 feet	3,750	0.09	0
New Roadway ⁴ Access to Poles 18 through 24	1	950 feet	7,600	0.17	0
Tree Removal ⁵	Varies	N/A	422,968	4.63	5.08
			Subtotal	5.07	5.08
Temporary Disturbances					
Single-Pole Work Locations ⁶	23	2,500 SF	57,500	1.32	0
H-Frame Work Locations ⁷	7	10,000 SF	70,000	0.46	1.14
Temporary Access Roadway ⁸ Access to Pole 31	1	248 feet	1,984	0	0.05

Project Features	Number	Length	Area Required (square feet)	Total Approximate Acreage of Disturbance (acres)	
				Private	Public
Staging Areas ⁹	3	Varies	155,944	3.25	0.33
Pulling sites ¹⁰	4	300 feet	282,600	6.49	0
			Subtotal	11.52	1.52
			Total	16.59	6.6

NOTES:

N/A – Not applicable.

¹ – There are approximately three miles of existing roadways that would be used to access the transmission line. This EA assumes each roadway measures approximately 10 feet wide, the same assumptions were used in the baseline technical studies. The majority of the existing roadways that do not require improvements are on public USFS-managed lands.

² – The first roadway segment from Foothill Road to the first crossing with Kingsbury Grade measures approximately 3,905 feet long (0.75 miles) and six feet wide; NVE proposes to widen this portion of the roadway by approximately two feet, resulting in an eight-foot wide roadway. The length measurements were calculated based on Geographic Information System (GIS) data provided by NVE.

³ – The second segment from Foothill Road to the first crossing with Kingsbury Grade that parallels the southwestern edge of the highway measures 1,875 feet long (0.36 miles) and six feet wide; NVE proposes to widen this portion of the roadway by approximately two feet, resulting in a eight-foot wide roadway. The length measurements were calculated based on GIS data provided by NVE.

⁴ – The new roadway that would access Poles 18 through 20 would measure 950 feet long and eight feet wide. The length measurements were calculated based on GIS data provided by NVE

⁵ – Tree removal estimates were derived from the Preliminary Plan of Development (PPOD) and the Biological Evaluation of Botanical Species (Table 1 on page 3 of 17). The revised ROW would disturb approximately 5.08 acres on NFS lands and 4.63 acres on private lands.

⁶ – There are 23 single-pole work locations; each location would measure approximately 2,500 square feet.

⁷ – There are six H-frame work locations; each location would measure 10,000 square feet.

⁸ – The roadway segment to the last pole (Pole 31) measures 248 feet long (0.04 miles) and eight feet wide; NVE proposes to remove this roadway following project construction. NVE also proposes to restore and reseed the area disturbed by the temporary roadway.

⁹ – There are three staging areas: the primary area is located on private land (3.0 acres), a second staging area is sited for a pull-out area along the last State Highway 207 crossing with an NDOT ROW that is located on public LTBMU land (0.33 acres), and a third staging area located on a parcel owned by Heavenly Mountain Resort (0.25 acres).

¹⁰ – Each pulling site measures approximately 300 feet in diameter ($A = \pi r^2$); the total area of temporary disturbance is 282,600 SF.

Sources: PPOD 2015; HDR 2015a; Rubicon Environmental Consulting 2014.

Construction Phasing

Construction of the proposed rebuild project would involve four construction stages including: 1) ROW and preconstruction preparation; 2) structure construction and conductor stringing; 3) old 60 kV pole and conductor removal and topping of existing 60 kV poles (topped poles will be purchased by Charter Communications and will accommodate the existing Charter Communications underbuild within the new H-frame section); and 4) ROW restoration. These four construction phases are summarized below.

Phase 1: Right of Way and Pre-construction Preparation

Staking

During this stage, the alignment is staked, including any areas identified as sensitive during biological or cultural surveys or in this EA.

Access Road Improvements

The old Kingsbury Grade Road (KGR) would serve as the principal access road to the project corridor. Multiple spur roads, including USFS-managed, county-managed, and private roadways are available from the KGR to the proposed structure locations. No improvements are required to the KGR; however, some spur roads would require improvements ranging from minor grading to road widening. These improvements were described and estimated in Table 2-4 and are also summarized below.

- Kingsbury Sub Tap road – The access road to the Kingsbury substation tap is located on private property owned by the Heavenly Mountain Resort. This road is barely recognizable, but the initial hillside cuts are evident. NVE proposes to re-open this road to gain access to the tap. The road would have an average width of ten feet and measures approximately 950 feet long.
- Structures P4-P8 Road – The access road to these structures is located on private land. This road is accessible by small trucks and off-highway vehicles (OHVs). The road is currently six feet wide and measures 3,905 feet long. This road would be graded and improved as necessary to allow for construction equipment access to the proposed structure locations. Major reconstruction is not anticipated.
- Structures P9-P12 Road – The access road to these four structures is located on private land. The road is accessible by small trucks and OHVs. This road is currently six feet wide and measures 1,875 feet long. This road would be graded and improved as necessary to allow for construction equipment access to the proposed structure locations. For example, it would be widened by approximately two feet, resulting in an eight-foot wide dirt roadway. Major reconstruction is not anticipated.
- Structure P31 Road – The temporary access road to the last pulling site and Pole 31 is located on a LTBMU parcel overlooking Tramway Drive. The temporary access road would measure approximately 248 feet; it is located close to a segment of the Tahoe Rim Trail (TRT) that begins approximately 250 feet to the west of the proposed pole location; however the temporary access roadway does not overlap with the TRT (see Figure 4 in Appendix A). A previously used temporary roadway in the same approximate location and was decommissioned after previous maintenance work at the structure, and this previously used roadway is no longer visible. The proposed temporary roadway would run parallel to, and approximately 50 feet from Tramway Drive, up the slope leading to the area near the existing pole structure and pulling site. Some minor rock removal and downed tree removal would be required to re-open the road to access the pulling site. Where feasible, the contractor would fence off existing vegetation to minimize removal impacts. The contractor would remove and restore the road upon the conclusion of the project by revegetating the area with hydroseed and mulch.

New Road Construction

New roadway construction is proposed to access Poles 18 through 20. The proposed new roadway is described and estimated in Table 2-5 and also summarized below.

- Structures P18-P20 – A new 0.18-mile long access roadway within the middle third of the project area would measure approximately 950 feet long and eight feet wide, resulting in approximately 7,600 square feet of new disturbance (0.17 acres).

Tree Removal

Preparation of the proposed ROW through a forested area would involve tree removal. Based on a tree inventory, a contractor would open the new ROW, removing those trees identified within the

conductor zone, hazard zone, structure locations, and work areas, including wire stringing and pulling locations.

Tree removal within the project area would be accomplished via a settlement timber sale arranged by the USFS and NVE and its contractors. Tree removal operations would be conducted via whole tree yarding whenever possible to limit surface fuels generation. Mechanical equipment such as a skidder or tractor could be used for removal outside of sensitive areas and where access is available.

Phase 2: Structure Construction and Conductor Stringing

The reconstruction of the 634 Line that occurs within the existing ROW would require a phased construction approach in order to keep the Kingsbury substation energized throughout the construction. Following the ROW preparation step, the rebuilt transmission line would be reconstructed in the following phased order:

1. Installation of the motor-operated tap structure (for Kingsbury Substation line tap) and connection with the existing line to the east;
2. Removal of the existing 60 kV poles and conductors west of the tap to Tramway Drive;
3. Installation of the new 60 kV poles and conductors west of the tap to Tramway Drive;
4. Energizing the new 60 kV from the tap westward;
5. Removal of the existing 60 kV poles and conductors from the tap to Foothill Road;
6. Installation of the single pole structures at the Foothill Road end of the project alignment;
7. Installation of the H-frame structures;
8. Installation of the 60 kV conductors, from the tap to Foothill Road.
9. Energizing the new 60 kV from the tap to Foothill Road.

All structure components would be delivered and assembled at the nearest staging area. From the staging area, the structures would be delivered to each pole location by helicopter.

In order to install the two-pole H-frame tangent and three-pole angle structures, two to three holes would be excavated for each structure. A single pole hole would be required for single pole structures. All holes for structure poles would be augered or excavated to a diameter of approximately three feet. Guy wire soil anchors for angle and dead-end structures would require excavations approximately 9 to 10 feet long, three feet wide and approximately six feet deep. Auguring (utilizing a truck-mounted auger) is the preferred method of excavation for pole installation. Backhoe excavation may be used as an alternative excavation method, as access availability and geological conditions require. Where access is not available to mechanized equipment, the holes would be dug by hand. Chemical cracking or blasting may be employed in structure locations with significant bedrock. Typical drawings of these structures are included in the PPOD (see Appendix B).

Prior to installing the conductor, temporary wood guard structures would be installed at road crossings and other locations where the conductor could come in contact with existing electrical and communications facilities or vehicular and/or pedestrian traffic, in the event that the line accidentally falls. An auger or backhoe will excavate the holes where the guard structures would be installed and a crane or line truck would lift the structures into place. The temporary guard structures would be removed after the completion of the conductor stringing activities and holes would be backfilled with excavated soils. Flagger may temporarily hold traffic at road crossings during stringing activities.

At wire stringing sites located adjacent to Structure P1, Structure P12, Structure P19 and Structure P31, a sock line (large cable) would be installed using the travelers, which are pulleys used during installation of the conductors located at the ends of the new insulators on the structures. The sock line would be installed by a helicopter traveling above the ROW centerline; the helicopter would begin at Structure P31 and travel down the mountain along the alignment to Structure P19 for the portion of the line west of the Kingsbury Tap. The sock-line would be spooled out from a large motorized drum at the first wire site and would be threaded through the travelers on each structure by the helicopter traveling to the next wire site. Next, the sock line is attached to the lead line, which is subsequently pulled through the travelers. The lead line is then attached to the conductors, which would be pulled back through from the first wire site. After the conductors reach the pulling site, they would be sagged and tensioned, and then permanently clipped into the insulator clamps at each structure. The conductors from Structure P19 to Structure P1 on the east side of the Kingsbury Tap would be installed in a similar manner.

Phase 3: Old 60 kV Topping and Conductor Removal

The existing 60 kV transmission line has a Charter Communications fiber underbuild running the length of the proposed rebuild. Since 2014, this communications fiber underbuild was not authorized or licensed by NVE.

NVE's proposal includes the installation of a combination of single pole, two-pole H-frame, and three-pole angle and dead-end structures. The intent of utilizing H-frame structures through the canyon is to reduce impacts to the forest by placing the new structures on hilltops and spanning the numerous valleys, canyons, and drainages along the central portion of the project. In some places, the spans between structures can be as long as 1,900 feet. While this is advantageous for the transmission line, the proposed H-frame design does not allow for fiber underbuilds. The spans are too long to allow for proper support of the cables used in fiber optic systems. Spans for communications underbuilds are typically limited to maximum spans of approximately 300 to 500 feet, due to the weight of the cables/conductors in relation to ice and wind loading potential.

The 60 kV transmission poles replaced by the H-frame design would be topped, removing the transmission line's cross-arm, insulators, and transmission conductors. This would leave a single pole fiber line that would consist of poles approximately 40 feet tall along the central portion of the project area. The new single pole structures would be sized to accommodate a distribution and fiber underbuild. The old transmission line components would be bundled and staged at the bottom of the transmission poles and then removed from the ROW by way of helicopter or ground transport, depending upon access.

Phase 4: Right-of-Way Restoration

The project has been designed to minimize disturbance throughout the project area. Once construction has been completed, pre-existing access roads and spur roads would remain improved, with the exception of the new temporary roadway to Structure P31. As described earlier, this roadway would be decommissioned and restored. Overland travel routes, if created, would be reclaimed to preconstruction conditions. Areas within the ROW disturbed by construction activities would also be recontoured, decompacted, and seeded. USFS-approved seed mixes would be applied to these disturbed areas. NVE would attempt to close or restrict vehicle access to areas that have been seeded until the reclamation success criteria have been satisfied.

Construction Crew, Equipment, and Schedule

Personnel

The construction workforce would include up to 50 personnel. Project construction would also require additional support personnel, including construction inspectors, surveyors, project managers, and environmental inspectors.

Equipment

Table 2-5 presents a list of typical equipment and its use for construction of this type of project.

Table 2-5. Typical Construction Equipment

Equipment	Use
¾-ton and 1-ton pickup trucks	Transport construction personnel
2-ton flatbed trucks; flatbed boom truck	Haul and unload materials
Rigging truck	Haul tools and equipment
Mechanic truck	Service and repair equipment
Aerial bucket truck	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
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 trailers	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 fuel truck	Refuel and maintain vehicles
Water truck	Suppress dust and fire
Winch truck	Install and pull sock line and conductors into position
Helicopter	Structure installation and sock line installation

Source: PPOD 2015.

Schedule

NVE tentatively plans to begin service on the proposed rebuild of the transmission line by December 2016. They assume work would begin as soon as May 2016, resulting in a construction period up to eight months long, depending on snowfall and ground conditions, both in early spring and late fall to winter.

Operations and Maintenance Activities

Once the transmission line is operational, NVE operations and vegetation maintenance personnel would conduct annual inspections of the line and line tap. Annual inspections would be conducted by helicopter, all-terrain vehicles, and/or line trucks. The inspections would include visual review of the line along the existing access roads depicted in Figure 3 and Figure 4.

The transmission line would be incorporated into NVE's vegetation management annual and quadrennial inspection and vegetation removal schedule. Vegetation management would be conducted under the guidelines established under NVE's Master SUP.

Approximately every ten years, NVE personnel would conduct structure climbing inspections. These inspections consist of accessing the structure using four-wheel drive vehicles on the access roads and the ROW, if accessible. NVE personnel would climb the structures to inspect the hardware, condition of the structures, and insulators.

Aside from annual inspections, NVE personnel would also need to access the line in the event that maintenance of a structure is required, or under emergency conditions. Under these circumstances, the line would be accessed by line trucks using existing access roads or by helicopter. All maintenance would be conducted in accordance with the notification and other requirements, as established under NVE's Master SUP.

Alternative 2 – No Action

Under the No Action Alternative, the Proposed Action Alternative would not be approved on federal lands managed by the LTBMU and the revised ROW would not be granted. There would be no change in the existing environmental setting at, or within the project area. The existing 60 kV transmission line between Foothill Road and Tramway Drive would continue to operate under current conditions and include routine operation and maintenance activities. However, under the No Action Alternative, future line outages are at risk of occurring during hot and dry summer conditions and during winter conditions with heavy snowfalls. There may be an increased risk of wildland fire hazards during hot and dry summer months; high winds may also down trees during these months causing electrical fires. During winter months, heavy snow loadings and high winds may also down trees causing power outages. During such events, the risk to the community may include loss of power to residences and businesses, and the loss of electricity to critical infrastructure within the area, including water services, fire suppression services, wastewater management, and other facilities. The implementation of the No Action Alternative could also result in indirect effects in response to increased power outages. For example, homeowners may increase purchases of generators to provide power during outages, thereby increasing the use of fossil fuels and, similarly, increasing the use of wood burning.

2.2 Alternative Considered But Eliminated from Further Analysis

Single Steel Pole Replacement Rebuild Alternative

This alternative would replace the existing wood poles with single pole steel poles along the entire 2.67-mile portion of the 634 Line, instead of replacing the middle portion with H-frame structures. This alternative would be technically feasible to construct, and because the single pole structures

would not be as tall as the proposed H-frame structures, could result in fewer visual resource impacts related to the height of the structures. However, this alternative would result in limited accessibility for routine operation maintenance and emergency response, given the lack of existing access roads, number of trees encroaching within the existing ROW, and steep topography in the area. This alternative was eliminated from further analysis because it does not meet NVE's purpose and need objectives for improved access for routine maintenance, repairs, and emergency response.

2.3 Project Environmental Protection Measures

NVE has committed to implementing the EPMs listed in this section, which are divided into 11 categories: General, Air Quality, Botanical Resources, Cultural Resources, Fire Prevention and Response, Hazardous Materials and Waste, Geological Resources, Invasive Plants, Water Resources, Wildlife and Sensitive Species, and Recreation and Visual Resources. The majority of these EPMs were originally documented in NVE's PPOD in February 2015; they have been re-organized by environmental resource topic, and modified slightly during project development and environmental review. All project EPMs would be followed during project-related construction and post-construction activities. NVE is committed to implementing these measures in order to reduce the potential direct and indirect impacts and cumulative effects that would result from the implementation of the project alternative. Therefore, these EPMs are considered a part of the proposed project summary.

The impact analysis in this EA assumes the implementation of all EPMs. However, where additional or greater impacts are identified that are not addressed by these EPMs, or where EPMs are not adequate to reduce or minimize impacts, the EA recommends additional or revised mitigation measures. The implementation of both the EPMs listed in this section, in addition to those described in this EA, will be incorporated into a Mitigation Monitoring Program (MMP), as needed.

General

1. The limits of the construction ROW will be marked with staking and/or flagging. All environmentally sensitive areas, if any, will be fenced for avoidance.
2. Prior to construction, all construction personnel will be instructed on the protection of sensitive biological, cultural, and paleontological resources that have the potential to occur on site.
3. All construction vehicle movement will be restricted to the ROW, pre-designated access roads, and public roads, except where overland travel is proposed.
4. Smoking will only be permitted in paved or cleared areas. All cigarettes will be thoroughly extinguished and disposed of in a trash receptacle.
5. All existing roads will be left in a condition equal to, or better than their preconstruction condition.

Air Quality

6. All areas subject to ground disturbance and access roads will be watered as needed to control dust.

Botanical Resources

7. Where possible, vegetation will be left in place. Where vegetation must be removed, it will be cut at ground level to preserve the root structure and allow for potential resprouting.

Cultural Resources

8. All cultural finds within the project boundaries identified in previous surveys will be flagged by a professional archeologist and construction crews will avoid these areas, as applicable.
9. Prior to construction, NVE and/or its contractors will train workers and individuals involved with the project regarding the potential to encounter historic or prehistoric sites and objects. They will be instructed regarding proper procedures in the event that cultural items or human remains are encountered, prohibitions on artifact collection, and respect for Native American religious concerns. As part of this training, all construction personnel will be instructed to inspect for paleontological and cultural objects when excavating or conducting other ground-disturbing activities.
10. If resources are found, work will be halted immediately within a minimum distance of 300 feet from the discovery, and a professional archaeologist holding a valid Cultural Resources Permit from Nevada USFS will be mobilized to the site to evaluate the find. Resources will not be handled or moved. The professional archaeologist will then determine whether the find needs to be evaluated by a paleontologist or Native American representative. The appropriate specialist(s) will then make a determination of the significance of the find and the steps to be followed before proceeding with the activity. Any cultural and/or paleontological resource discovered during construction on public or federal land will be reported immediately to the USFS. Work will not commence until the USFS issues a notice to proceed. The USFS will notify and consult with the SHPO and appropriate Tribes on eligibility and suitable treatment options. If significant resources are discovered, they will be recovered, transported, and stored at an approved curation facility that meets the standards specified in 36 CFR Part 79.
11. If human remains are encountered during project construction, all work within 300 feet of the remains will cease, and the remains will be protected. If the remains are on land managed by the USFS, USFS representatives will be immediately notified. If the remains are Native American, the USFS will follow the procedures set forth in 43 CFR Part 10, Native American Graves Protection and Repatriation Regulations. If the remains are located on state or private lands, the Nevada SHPO and the USFS will be notified immediately. Native American human remains discovered on state or private lands will be treated under the provisions of the Protection of Indian Burial Sites section of the Nevada Revised Statutes (NRS) in Chapter 383. The Nevada SHPO will consult with the Nevada Indian Commission and notify the appropriate Native American tribe. Procedures for inadvertent discovery are listed under NRS 383.170.

Geology and Soils

12. In areas where significant grading will be required, topsoil (where present) will be stockpiled and segregated for later reapplication.
13. Construction will be prohibited when the soil is too wet to adequately support construction equipment, defined as the development of a four inch rut over 100 feet long.

Hazardous Materials and Waste

14. All construction vehicles will be maintained in accordance with the manufacturers' recommendations. All vehicles will be inspected for leaks prior to entering the jobsite. All discovered leaks will be contained with a bucket or absorbent materials until repairs can be made.

15. All hazardous waste materials will be properly labeled in accordance with 40 CFR Part 262. A list of hazardous materials expected to be used during construction of the project is presented in Table 2-6 below.

Table 2-6. Hazardous Materials Proposed for Project Use

Hazardous Materials	
2-Cycle Oil	Insulating Oil
ABC Fire Extinguisher	Lubricating Grease
Acetylene Gas	Mastic Coating
Air Tool Oil	Methyl Alcohol
Antifreeze	North Wasp and Hornet Spray (1,1,1-Trichloro-ethane)
Automatic Transmission Fluid	Oxygen
Battery Acid	Paint
Bee Bop Insect Killer	Paint Thinner
Canned Spray Paint	Petroleum Products
Chain Lubricant (Methylene Chloride)	Prestone II Antifreeze
Connector Grease	Puncture Seal Tire Inflator
Contact Cleaner 2000	Safety Fuses
Diesel	Safety Solvent
Fuel Eye Glass Cleaner (Isopropyl Alcohol)	Starter Fluid
Gas Treatment	Wagner Brake Fluid
Gasoline	WD-40

Source: PPOD 2015.

16. Hazardous material storage, equipment refueling, and equipment repair will be conducted at least 100 feet away from streams or other water features.
17. Spilled material of any type will be cleaned up immediately. A shovel and spill kit will be maintained on site at all times to respond to spills.
18. All sanitary wastes will be collected in portable, self-contained toilets at all construction staging areas and other construction operation areas and managed in accordance with local requirements.

Fire Prevention and Response

19. NVE will designate a Fire Marshal (NVE Fire Marshal), who will coordinate with the USFS's fire management representative, as necessary.
20. The designated Fire Marshal will be responsible for the following tasks:
- Conducting regular inspections of tools, equipment, and first aid kits for completeness.
 - Conducting regular inspections of storage areas and practices for handling flammable fuels to confirm compliance with applicable laws and regulations.
 - Coordinating initial response to fires within the ROW.

- Conducting fire inspections along the ROW.
- Ensuring that all construction workers and subcontractors are aware of all fire protection measures.
- Remaining on duty and on-site when construction activities are in progress and during any additional periods when fire safety is an issue, or designating another individual to serve in this capacity when absent.
- Reporting all wildfires in accordance with the notification procedures described below.
 - Initiating and implementing fire suppression activities until relieved by agency or local firefighting services in the event of a project-related fire. Project fire suppression personnel and equipment, including water tenders, will be dispatched within 15 minutes from the time that a fire is reported.
 - Coordinating with the NVE Project Manager regarding current fire conditions potential and fire safety warnings from the USFS and communicating these to the crews.

21. The Construction Foreman will immediately notify firefighting services of any fires on site. A list of emergency fire contacts for the project area is presented in Table 2-7.

Table 2-7. Emergency Fire Contacts

Department	Phone Number
Main Contact	911
USFS – Fire Management Office	(530) 543-2600

Source: PPOD 2015.

22. Construction crews will be notified to stop or reduce construction activities that pose a significant fire hazard until appropriate safeguards are taken.
23. If an accidental fire occurs during construction, immediate steps to extinguish the fire (if it is manageable and safe to do so) will be taken using available fire suppression equipment and techniques. Fire suppression activities will be initiated by NVE and/or its contractor until relieved by agency or local firefighting services.
24. Smoking will only be permitted in designated cleared areas and will be prohibited while walking or working in areas with vegetation or while operating equipment. In areas where smoking is permitted, all burning tobacco and matches will be completely extinguished and discarded in ash trays, and not on the ground.
25. Fire suppression equipment will be present in areas where construction tools or equipment have the potential to spark a fire.
26. Extra precautions will be taken when fire danger is considered to be high.
27. All field personnel will be instructed regarding emergency fire response. The contractors will receive training in the following:
 - Initial fire suppression techniques
 - Fire event reporting requirements
 - Methods to determine if a fire is manageable
 - Fire control methods to be implemented by field crews on site

- When the worksite should be evacuated
 - How to respond to wildfires in the vicinity
 - How to maintain knowledge of and plans for evacuation routes
28. All flammable material including dead vegetation, dry grasses, and snags (fallen or standing dead trees), will be cleared a minimum of ten feet from areas of equipment operation that may generate sparks or flames.
29. No open burning, campfires, or barbecues will be allowed along the ROW.
30. All welding or cutting of power line structures or their component parts will be approved by the NVE Construction Foreman. Approved welding or cutting activities will only be performed in areas cleared of vegetation a minimum of ten feet around the area. Welding or cutting activities will cease one hour before all fire response personnel leave a construction area to reduce the possibility of welding activities smoldering and starting a fire. Welder vehicles will be equipped with fire suppression equipment.
31. All internal combustion engines, both stationary and mobile, will be equipped with approved spark arresters that have been maintained in good working condition. Light trucks and cars with factory-installed (type) mufflers in good condition may be used on roads cleared of all vegetation with no additional equipment required. Vehicles equipped with catalytic converters are potential fire hazards and will be parked on cleared areas only.
32. The use of torches, fuses, highway flares, or other warning devices with open flames will be prohibited. NVE and its contractors will only use electric or battery-operated warning devices on site.
33. Equipment parking areas, small stationary engine sites, and gas and oil storage areas will be cleared of all extraneous flammable materials. "NO SMOKING" signs will be posted in these areas at all times.
34. Fuel tanks will be grounded.
35. NVE and/or contractors will provide continuous access to roads for emergency vehicles during construction.
36. All motorized vehicles and equipment will be equipped with the following fire protection items:
- One long handled round point shovel
 - One ax or Pulaski fire tool
 - One 5-pound ABC Dry Chemical Fire Extinguisher
 - One 5-gallon water backpack (or other approved container) full of water or other extinguishing solution
 - Hard hat, work clothes, and eye protection
37. Project construction worksites will include the following equipment:
- Power saws, if required for construction, equipped with an approved spark arrester and accompanied by one five-pound ABC Dry Chemical Fire Extinguisher and a long- handled, round-point shovel when used away from a vehicle.

- Fuel service trucks with one 35-pound capacity fire extinguisher charged with the necessary chemicals to control electrical and fuel fires.
 - At least two long-handled, round-point shovels and two five-pound ABC Dry Chemical Fire Extinguishers at wood cutting, welding, or other construction work sites that have a high risk of starting fires.
 - At least one radio and/or cellular telephone to contact fire suppression agencies or the project management team.
38. During periods of increased fire danger, a fire suppression vehicle will be available in the construction area or stationed near high-risk construction work sites and will be equipped with the following items:
- One tool cache (for fire use only) containing at a minimum:
 - Two long handled round point shovels
 - Two axes or Pulaski fire tools
- One chainsaw of 3.5 (or more) horsepower with a cutting bar of at least 20 inches in length
39. If a fire is unmanageable, field crews will evacuate and call 911 or the district dispatch for the area (see Table 2-7: Emergency Fire Contacts). All fires will be reported to the jurisdictional fire agency, regardless of size and actions taken.

Invasive Plants

40. Identification and avoidance: Known noxious weed infestations, including cheatgrass, will be flagged in field and identified on project maps prior to implementation. No equipment, materials and personnel will be staged in noxious weed infestation areas. Disturbances to areas infested with invasive plants will be avoided to the extent possible. For cheatgrass, if an infestation cannot be avoided, implementation will be undertaken first in uninfested areas, then proceed to infested areas; if it is not feasible to first implement proposed actions in un-infested areas, then equipment will be washed after use in infested areas and before use in uninfested areas.
41. Equipment cleaning: All off-road equipment will be cleaned (power or high-pressure cleaning) of all mud, dirt, and plant parts prior to initially moving equipment onto public land. Equipment will be cleaned again if it leaves the project site prior to re-entry. Any equipment or vehicles used in an area infested with invasive plants will be thoroughly cleaned using compressed air or water at a designated cleaning station before they are moved to a new location.
42. Imported materials: All gravel and/or fill material will be certified weed-free. All mulches and topsoil will be weed-free. Do not salvage topsoil that is contaminated with invasive plants (including cheatgrass). On NFS lands, seed and plant mixes will be approved by the Forest Botanist or their designated appointee who has knowledge of local flora. Invasive species will not be intentionally used in revegetation. Seed lots will be tested for weed seed and test results will be provided to Forest Service. Persistent non-natives, such as timothy, orchardgrass, ryegrass or crested wheatgrass will not be used in revegetation. As much as possible, seed and plant materials will be from native, high-elevation sources. Whenever feasible, plant material will be collected from as close to project area as possible, preferably from the same watershed and from similar elevation.
43. Treatment: On NFS lands, NVE personnel will identify all invasive plants present on the land to be included in the ROW and provide this information to the USFS. A determination

will be made by the USFS of any invasive plants that require flagging for treatment. NVE will treat the invasive plants as required by the USFS.

Water Resources

44. The project will disturb more than one acre. NVE will apply for a storm water permit and will incorporate BMPs, in accordance with the Project's Storm Water Pollution Prevention Plan (SWPPP).
45. All construction vehicles, equipment staging or storage, and construction activities will be located at least 100 feet away from any streams, wetlands, or other water features.

Wildlife and Sensitive Species

46. If required by the USFS, prior to construction, biological surveys of the ROW and the access road will be conducted. Potential habitat for listed species identified during the preconstruction surveys will be fenced for avoidance. If avoidance is infeasible, consultation with appropriate jurisdictional agencies will be conducted prior to work in the area(s).
47. Excavations left open overnight will be covered to prevent livestock or wildlife from falling in. All covers will be secured in place and strong enough to prevent livestock or wildlife from falling in.
48. If a sensitive plant or animal species is identified during construction, work near the sensitive species will be halted and a qualified biologist familiar with the species will be consulted to determine an appropriate buffer and other protective measures. The appropriate resource agencies will be notified of the discovery within 24 hours. If avoidance is infeasible, consultation with the jurisdictional resource agency will be conducted prior to continuing work in the immediate area of the species. Any federal- or state-listed or special status species discovered on public land will also be reported to the USFS.

Recreation and Visual Resources

49. The proposed design of the new single-pole structures and the H-frame structures would include the use of non-specular conductors (i.e. treated aluminum surfaces to reduce reflectivity, glare, and visual contrast effects) natural and self-weathering materials, dark and earth-tone colors, and wood textures that would minimize the appearance of the pole structures and conductors against the existing landscape (see Figure 5 in Appendix A).
50. If temporary public roadways or trails need to be closed during construction activities, NVE would install temporary signage along major access points to the public roadways and trails to give advanced notice of construction any closures/reroutes. The signage would clearly inform users that the roadway or trail will be closed during specific timeframes, and when the roadway or trail will be re-opened.
51. NVE will limit any closure to heavily used and popular public access roadways and trails, such as the Tahoe Rim Trail to the maximum extent possible. If closures to such roadways and trails are necessary, they will be limited to a maximum of one hour.
52. All temporary and permanent signs provided by NVE will meet USFS universal accessibility standards, specifically the Architectural Barriers Act Accessibility Standards (ABAAS) and Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG).

2.4 Required Permits, Approvals, and Authorizations

The proposed project would need to comply with applicable regulatory requirements including statutes, regulations, executive orders, and permit requirements. Permits and approvals that may be required for the project implementation are summarized in Table 2-8.

Table 2-8. Permits and Approvals

Agency	Permit/Authorization	Action Requiring Permit	Statutory Reference
Federal			
LTBMU	Master SUP Amendment	Obtaining ROW on NFS lands	National Forest Management Act of 1976, 16 U.S.C. 1604
	NEPA Review and Compliance and Approval as the Lead Agency	Issuance of ROW Grant and Amendment of the Master Special Use Permit	NEPA, 40 Code of Federal Regulations (CFR) Part 1500 – et.seq.
	Section 106 of the NHPA Compliance	Any activity that may affect prehistoric or historic resources eligible for the National Register of Historic Places (NRHP) and issuance of Special Use Authorization	NHPA of 1966, 36 CFR Part 800, 16 USC 47
USFWS (via a request from the USFS)	ESA Section 7 Compliance (if endangered species are identified)	Issuance of ROW Grant and potential impacts to federally-listed species or critical habitat	ESA Section 7 Consultation, 50 CFR Part 17, 16 USC 1536
State			
Nevada Division of Environmental Protection (NDEP)	Construction Stormwater Discharge General Permit	Soil Disturbances < 1 acre	33 U.S.C 1251 and Nevada Revised Statute (NRS) 445A
	Surface Area Disturbance Permit	Soil Disturbance < 5 acres	Nevada Administrative Code (NAC) 445B.22037
State Historic Preservation Office (SHPO)	SHPO Consultation (through Section 106 process)	Potential impacts to cultural resources	NHPA of 1966, 36 CFR Part 800, 16 USC 47
Local			
Douglas County	SUP/Modification to Existing SUP	Construction, operation, and maintenance within county road ROWs	Title 20. Development Code. Chapter 20.604 Special User Permits

Source: PPOD 2015.

3.0 Affected Environment and Environmental Consequences

This section summarizes existing environmental resources within the project area and the potential changes to those resources that would result from the implementation of the Proposed Action Alternative. Resources evaluated in Sections 3.1 through 3.9 of this chapter include all the environmental topics identified for review and analysis during the March 5, 2015 internal scoping meeting. The same topics were also recommended for analysis in the Project Scoping Report (see Appendix D). At this time, because the *Draft Cultural Resources Report* determined there were no eligible resources within the project area, cultural resources were not evaluated further in this EA.

The environmental analyses here have been prepared in accordance with the *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* (40 CFR Sections 1500 – 1508), the *Forest Service Manual 1950*, and the *USFS NEPA Procedures* (10 CFR Part 1021 and 1022 and 36 CFR Part 220). The EA was also prepared in compliance with the *Forest Service Handbook* (FSH 1909.15, NEPA Handbook) (USFS 2012).

All proposed project construction, operation, and maintenance activities described in the EA would be implemented consistent with applicable federal, state, and local laws and executive orders. The relevant federal laws and executive orders applicable to the Proposed Action Alternative are summarized at the beginning of each of the environmental resources sections.

Organization of the Environmental Analysis

Sections 3.1 through 3.9 of this EA are organized into the following subsections:

- **Regulatory Setting.** This subsection describes the existing federal, state, and regional (if applicable), and executive orders, regulations, and policies that pertain to the project area and the environmental resource. These laws and regulations are summarized because they establish requirements that apply to the project area; compliance with these requirements often avoids or reduces environmental effects.
- **Affected Environment.** This subsection describes the existing regional and local environmental conditions relevant to the environmental resource. The affected region of influence described can differ by environmental resource. For example, air quality effects resulting from the implementation of the Proposed Action Alternative are assessed in context of the entire air basin, whereas biological resource effects are often based on species distribution and habitat requirements, and cultural resource effects are limited to the project site.
- **Environmental Consequences.** This subsection describes the criteria used to determine whether an adverse or beneficial environmental effect could occur as a result of implementing the Proposed Action Alternative. It summarizes any assumptions used in the analysis; describes the potential change that may occur as a result of project implementation (whether positive or negative); lists any federal, state, regional, or local law or regulation where compliance may avoid or reduce effects; includes any design features, BMPs, and EPMs that may avoid or reduce effects; and includes recommended mitigation measures, as necessary, that could further reduce adverse effects.

Direct effects are analyzed based on the Proposed Action Alternative's construction activities, area of disturbance, access roadways, staging areas, and overall temporary construction corridor (i.e., assumed to be 300 feet wide). These effects are defined as the impacts that would be directly caused by the action and occur at the same time.

Indirect effects are evaluated for the entire project area and are defined as secondary consequences that would be caused by the action. Indirect effects often occur later in time or are further removed from the project area, but still reasonably foreseeable.

Cumulative effects can result from individually minor, but collectively significant actions taking place over a period of time. The cumulative effects discussion considers the combined effects of the Proposed Action Alternative and the projects identified in the cumulative projects list. Additional information on the cumulative analysis and the related projects evaluated in this EA is provided in Section 3.10, *Cumulative Analysis*.

3.1 Air Quality

This section describes the existing air quality conditions in the project area and the potential direct, indirect, and cumulative effects of the Proposed Action Alternative (Alternative 1) and the No Action Alternative (Alternative 2) on air quality. The analysis in this section focuses on the potential for project construction and operations to violate an air quality standard or contribute to an existing or projected air quality violation. The analysis also focuses on whether the project would contribute to an increase of any criteria pollutant for which the region is in nonattainment under applicable federal and state ambient air quality standards (AAQS). The operation of the Proposed Action Alternative is not expected to introduce odors or hazardous air pollutants.

Regulatory Setting

A range of laws, regulations, plans, and policies related to air quality are administered by federal, state, and local agencies. The proposed project is located within overlapping federal, state, and local jurisdictions that have laws and policies pertaining to air quality. The middle and end portion of the project area is located on NFS lands managed by the LTBMU. The project area also occurs on private lands located within Douglas County, Nevada. Air quality within Douglas County is regulated by the Environmental Protection Agency (EPA), Nevada Division of Environmental Protection (NDEP) Bureau of Air Pollution Control (BAPC), the Bureau of Air Quality Planning (BAQP), the Nevada Air Pollution Control Program (NAPCP), and Douglas County. Each agency develops rules, regulations, policies, and goals to comply with applicable legislation. The laws and regulations that apply to the proposed action are described and discussed below.

Federal

National Ambient Air Quality Standards

Under the Clean Air Act (CAA), the EPA has established numerical concentration-based national ambient air quality standards (NAAQS) for principal ambient air pollutants, referred to as criteria air pollutants. The most recent and major amendments to the CAA were made by Congress in 1990. Criteria air pollutants include carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), and lead.

There are two forms of NAAQS: primary and secondary. Primary standards are designed to protect human health, including sensitive populations, such as children and the elderly. Secondary standards provide public welfare protection and are designed to protect against decreased visibility, damage to animals, crops, vegetation, and buildings. Table 3-1 lists the NAAQS for the project area.

Table 3-1. National Ambient Air Quality Standards for the Project Area

Pollutant	Averaging Time	Nevada Standards	National Ambient Air Quality Standards ¹
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			Primary	Secondary
Carbon monoxide (CO)	1-hour	35 ppm (40 mg/m ³)	35 ppm (40 mg/m ³)	Same as primary
	8-hour (less than 5,000 feet AMSL)	9 ppm (10,500 µg/m ³)	9 ppm (10 mg/m ³)	Same as primary
Carbon monoxide (CO)	8-hour (greater than 5,000 feet AMSL)	6 ppm (7,000 µg/m ³)		
Ozone – Douglas County	8-hour	0.075 ppm (147 µg/m ³)	0.075 ppm (147 µg/m ³)	Same as primary
Ozone – Lake Tahoe Basin #90	1-hour	--	0.10 ppm (195 µg/m ³)	Same as primary
Nitrogen dioxide (NO ₂)	Annual arithmetic mean	0.053 ppm (100 µg/m ³)	53 ppb (100 µg/m ³)	Same as primary
	1-hour	--	100 ppb (188 µg/m ³)	Same as primary
Sulfur dioxide (SO ₂)	Annual arithmetic mean	0.030 ppm (80 µg/m ³)	0.03 ppm	--
	24 hours	0.14 ppm (365 µg/m ³)	0.14 ppm	--
	3-hour	0.5 ppm (1,300 µg/m ³)	--	0.5 ppm (1300 µg/m ³)
	1-hour	--	75 ppb (196 µg/m ³)	--
Respirable particulate matter (PM ₁₀)	Annual arithmetic mean	50 µg/m ³	--	--
	24-hour	150 µg/m ³)	150 µg/m ³	Same as primary
Fine particulate matter (PM _{2.5}) ²	Annual arithmetic mean	--	15.0 µg/m ³	Same as primary
	24-hour	--	35 µg/m ³	Same as primary
Lead	Rolling 3-month average	0.15 µg/m ³	0.15 µg/m ³	Same as primary
Hydrogen sulfide	1-hour	0.08 ppm (112 µg/m ³)	No national standard	

NOTES:

Pollutant	Averaging Time	Nevada Standards	National Ambient Air Quality Standards ¹	
			Primary	Secondary

$\mu\text{g}/\text{m}^3$ = micrograms per cubic meters; ppb = parts per billion; ppm = parts per million

1 – National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic means are not to be exceeded more than once per year. The ozone standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. The PM_{10} 24-hour standard is attained when 99% of the daily concentrations, averaged over three years, are equal to or less than the standard. The $\text{PM}_{2.5}$ 24-hour standard is attained when 98% of the daily concentrations, averaged over three years, are equal to or less than the standard.

2 – The annual NAAQS for $\text{PM}_{2.5}$ was revised from $15 \mu\text{g}/\text{m}^3$ to $12 \mu\text{g}/\text{m}^3$ in December 2012.

Sources: EPA 2015; NAC 445B.22097 (NAC 2015)

State

The EPA delegates the authority for ensuring compliance with the NAAQS to the NDEP BAQP. In compliance with the CAA, each state must develop a State Implementation Plan (SIP), which is a compilation of regulations, strategies, schedules, and enforcement actions designed to move the state into compliance with the NAAQS.

Attainment Status

The BAQP has adopted the NAAQS, as well as more stringent standards beyond the national standards. In addition to the national listed criteria pollutants, the NDEP established an AAQS for hydrogen sulfide. NRS 445B.100 establishes public policy regarding air quality in Nevada. NAC 445B.22097 provides the minimum Nevada AAQS.

The EPA classifies air quality based on an air quality control region (AQCR), or subareas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the NAAQS. The EPA and the BAQP use monitoring data to designate whether areas are in attainment with the respective AAQS. The purpose of the designations is to identify those areas with air quality problems and initiate planning efforts for improvement. The four designation categories are “nonattainment,” attainment,” “maintenance,” and “unclassified.” “Non-attainment” is used for areas that violate federal or state standards. “Attainment” is achieved when the existing background concentrations for criteria air pollutants are less than the maximum allowable ambient air concentrations defined in the NAAQS. “Maintenance” indicates that an area was previously designated nonattainment, but is not in attainment. “Unclassified” is used if no monitoring data has been acquired to determine if there have been NAAQS violations. In other words, there is a lack of information on whether the geographic area meets or does not meet the standards.

Affected Environment

This section describes existing air quality conditions within the project air basin (hydrographic basin).

Air Basin and Attainment Status

Hydrographic basins in Nevada have been delineated to correspond to both watersheds and airsheds. Activities associated with the Proposed Project Alternative would occur in Hydrographic Basin 8 and Sub Basin 108 in Douglas County, Nevada (NDWR 2015a; 2015b). This hydrographic basin is the area for which air quality analyses are presented. This area covers 3,519 square miles and includes portions of six counties: Douglas, Carson City, Lyon, Storey, Churchill, and Pershing.

From 2000 to 2010, the project areas under the jurisdiction of the NAPCP were classified as in attainment or were identified as unclassifiable for all criteria pollutants.

Within this basin, the project area encompasses an undeveloped portion of western Douglas County, Nevada on the eastern slope of the Sierra Nevada Mountains, adjacent to Carson Valley near the towns of Genoa and Minden. The project corridor's elevation begins at 4,800 feet AMSL. The project area ends just southeast and outside of the Lake Tahoe Air Basin (LTAB) at approximately 7,500 feet AMSL near the top of Daggett Summit in the Upper Kingsbury community.

According to the BAQP, rather than issuing its own attainment designations for the state-level AAQs, BAQP uses NAAQS to evaluate and determine attainment status, as described in its air quality monitoring report (BAQP 2015). The only basin in nonattainment in the greater Tahoe Basin region is located in Washoe County, Nevada, approximately 20 miles north of the project area, where PM₁₀ is in serious non-attainment (EPA 2015).

Climate, Meteorology, and Ambient Air Quality Conditions

Ambient air concentrations of pollutants are determined based on the amount of pollutants in the atmosphere and the atmosphere's ability to transport and dilute/disperse those pollutants. Natural factors that affect the transport and dilution of emissions include terrain, wind, atmospheric stability, and the presence of sunlight.

The terrain in the project area ranges from the rolling foothills adjacent to the Carson Valley to mountains within the Sierra Nevada Mountains. Within these mountain ranges and valleys, pollutants from local sources are often trapped by inversions in both the Carson Valley and the LTAB, which can limit the volume of air available to dilute emissions, resulting in accumulation and elevated concentrations of air pollutants. Meteorological factors can also affect the transport of pollutants in the region through winds and atmospheric conditions that can move the air in and out of the region from the west to the east, thereby diluting the emissions.

The project area experiences warm, dry summers and wet, snowy winters. According to the Western Regional Climate Center (WRCC), climate data collected from 1968 to 2015 at the South Lake Tahoe station indicates that maximum temperatures can be as high as 79.7 degrees Fahrenheit during July and as low as 16.2 degrees Fahrenheit during January. Average annual precipitation of approximately 16.27 inches occurs during winter months (WRCC 2015).

Air Quality Monitoring Station Data

The NDEP BAQP operates an ambient air quality network of gaseous and particulate pollutant monitors. Concentrations of air quality are measured at several monitoring stations in the region, including at two monitoring stations in Douglas County. There is one monitoring station designed to monitor the highest concentrations of CO at Lake Tahoe at a station located in Stateline, Nevada on Harvey's Resort Hotel. A second monitoring station is located in Gardnerville, Nevada in the Gardnerville Ranchos subdivision on Lyell Way in Aspen Park. This station monitors respirable particulate (PM₁₀) concentrations, fine particulate (PM_{2.5}) concentrations, and ground level ozone (O₃). Data from both stations are presented in Table 3-2.

Table 3-2. Summary of Annual Air Quality Data (2007 – 2010)

Pollutant	2007	2008	2009	2010
8-hour Ozone – West End Elementary School	0.068 ppm	0.066 ppm	0.063 ppm	0.059 ppm
Carbon monoxide (CO) – 8-Hour at Harvey's	4.5 ppm	2.6 ppm	3.4 ppm	3.2 ppm

Resort Hotel				
Nitrogen dioxide (NO ₂)	Not monitored			
Sulfur dioxide (SO ₂)	Not monitored			
Respirable particulate matter (PM ₁₀) ¹	--	0 µg/m ³	0 µg/m ³	0 µg/m ³
Fine particulate matter (PM _{2.5}) (Gardnerville Ranchos Station)	11.37 µg/m ³	11.15 µg/m ³	11.73 µg/m ³	10.89 µg/m ³
Lead	Not monitored			

NOTES:

1 – The Cave Rock/Lake Tahoe NP Station is not shown for PM₁₀ because it did not have more than three consecutive years of data.

Source: BAQP 2010.

The NDEP BAQP also produces a report every ten years presenting and analyzing air quality monitoring data. The latest report, the *Nevada Air Quality Trend Report 2000-2010* summarized the following trends:

- CO decreased and remained below current NAAQS;
- O₃ data remained steady and below the 2008 NAAQS;
- PM_{2.5} data trended upward in Gardnerville and is approaching exceedance of NAAQS in Carson City and Gardnerville; and
- PM₁₀ data show no exceedances of the NAAQS in the past five years.

Environmental Consequences

Effects on air quality are analyzed in terms of the context and intensity of the environmental effects of the Proposed Action Alternative. Context means the significance of the action must be considered in terms of the region, affected resources, and the specific locality. Intensity refers to the severity of an effect.

Construction emissions generated by the installation of the new single-pole and H-frame structures were estimated qualitatively; no quantitative emission modeling was completed for the proposed project due to the expected low net increase in criteria pollutant emissions associated with the reconstruction project. Similarly, operations-related emissions, including emissions from associated on-road and off-road vehicle trips, were estimated qualitatively because the Proposed Action Alternative is not expected to result in an increase in vehicle trips.

The environmental consequences on local and regional air quality conditions from implementation of the Proposed Action Alternative was determined based on the potential changes in regulated air pollutant emissions compared to existing conditions and ambient air quality. This section focuses on the primary construction-generated and secondary operations- and maintenance-generated emissions. The Proposed Action Alternative is not expected to result in localized concentrations of CO (due to few increased vehicle trips), odor emissions from diesel exhaust (due to a lack of nearby sensitive receptors), or hazardous air pollutants (due to limited use of heavy-duty diesel equipment). Therefore, these potential air quality topics are not discussed further.

EPMs were also incorporated into the analysis to determine if the measures would avoid or minimize impacts to air quality.

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

The implementation of the Proposed Action Alternative would be consistent with established federal and state air quality laws, regulations, policies, and applicable permitting requirements. The implementation of the Proposed Action Alternative is not expected to violate NAAQS; however, construction activities would have the potential to generate NO₂, PM₁₀, and PM_{2.5} emissions, thereby contributing to a short-term and temporary direct minor effect on air quality. For the Proposed Action Alternative, the majority of emission increases would be generated during temporary construction activities associated site preparation (e.g., tree and vegetation removal within the ROW, grading, etc.), pole installation (e.g., use of construction equipment at staging areas and pull sites), and mobile sources (e.g., off-road vehicle and equipment trips, worker trips, and helicopter use). Fugitive dust emissions, including PM₁₀ and PM_{2.5} would be associated with ground-disturbance activities and vehicle travel on unpaved surfaces, such as the existing and proposed access roadways. Ozone emissions of NO₂ and CO would be associated with exhaust from construction equipment, truck and vehicle trips, and worker trips. Ozone emissions are expected to be limited to short durations during construction. To limit the emissions of PM, construction activities would comply with all applicable NDEP requirements and incorporate EPMs, such as dust control BMPs. Applicable EPMs Air Quality 6 and Geological Resources 12 and 13 listed below are designed to minimize soil disturbance and control dust (refer to Section 2.3 for a complete list of project EPMs).

Applicable EPMs

Air Quality

6. All areas subject to ground disturbance and access roads will be watered as needed to control dust.

Geological Resources

12. In areas where significant grading will be required, topsoil (where present) will be stockpiled and segregated for later reapplication.
13. Construction will be prohibited when the soil is too wet to adequately support construction equipment, defined as the development of a four inch rut over 100 feet long.

Through compliance with state requirements and the implementation of the EPMs, air quality effects due to construction activities and related to exposure to NO₂, PM₁₀, and PM_{2.5} would be negligible.

Secondary emission increases would be related to maintenance activities and are expected to result in short-term, negligible effects. Maintenance activities would include patrolling the transmission line during routine inspection activities, as well as the occasional operation of maintenance equipment. These maintenance activities would typically be completed by an NVE employee or contractor in a single vehicle, such as a pick-up truck, four-wheeler, or snowmobile. Because these emissions would be intermittent and of short duration, maintenance activities would result in negligible impacts on regional and local air quality. Further, as low-growing vegetation re-colonizes after clearing activities, it would contribute to the restoration of the area to pre-project conditions that have the potential of reducing dust generation. Therefore, because both the primary construction and secondary operation and maintenance emissions would be short-term, applicable NDEP requirements with respect to BMPs for grading, construction season limits, and air quality controls would be implemented, potential air quality effects would be negligible because EPMs would minimize fugitive dust emissions and revegetation could reduce dust generation.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct, short-term, and minor effects during construction. There are other past, present, and reasonably foreseeable projects proposed within the project vicinity that have the potential to generate fugitive dust emissions during construction. However, the majority of these projects are currently under construction and would not generate fugitive dust emissions at the same time as the Proposed Action Alternative. The other projects are required to comply with NDEP requirements with respect to BMPs for grading, construction season limits, and air quality controls. The other projects also include the implementation of similar EPMs, which would further minimize the effects on air quality. Additionally, the overall increase in emissions would be negligible in the context of attainment planning efforts, and would not contribute substantially to a cumulative long-term air quality effect. For these reasons, the overall cumulative effect on air quality within the area would be minor.

Mitigation Measures

No significant adverse impacts to air quality have been identified; therefore, no mitigation measures would be required.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the 634 Line would not be rebuilt. Selection of the No Action Alternative would result in the continued operation and maintenance of the existing 634 Line. Operation and maintenance would involve tree trimming and removal, vegetation clearing to minimize wildland and downed tree hazards, minor grading and access roadway maintenance, and other measures to meet annual inspection requirements. Structures may be replaced as part of emergency maintenance activities, but vehicle trips associated with completing these replacements would result in negligible effects on air quality. Because the existing transmission line structures are aging, the 634 Line may require additional maintenance and emergency repair or replacement, increasing the amount of intermittent vehicle traffic along the access roadways. However, the overall increase in traffic is expected to be limited to a single vehicle, such as a pickup truck or snowmobile during the winter and would have a negligible effect on air quality. For these reasons, direct and indirect effects on air quality would be negligible.

Cumulative Effects

Because the implementation of the No Action Alternative would only involve ongoing and continued operation and maintenance of the existing 634 Line, no cumulative effects on air quality would occur.

Mitigation Measures

No significant adverse impacts to air quality have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.2 Botanical Resources

This section describes the setting for botanical resources in the project area and the potential, direct, indirect, and cumulative effects of the Proposed Action Alternative (Alternative 1) and the No Action Alternative (Alternative 2) on botanical resources. Botanical resources include forestry resources, vegetation and habitat, and sensitive plant, fungi, and lichen species. Invasive Plants, including a summary of the noxious-weed inventory is discussed in Section 3.5, *Invasive Plants*. Wildlife resources are described and analyzed in Section 3.9, *Wildlife Resources*. The analysis

area includes NFS lands and is based on information and conclusions presented in the following baseline technical reports:

- *Biological Evaluation (BE): Botanical Species*; and
- *Natural Resources Survey Results Report*.

These documents are incorporated by reference and are available for review in Appendices E through G, respectively. They are also available for review at the LTBMU Forest Supervisor's office.

Regulatory Setting

The summary of federal regulations listed below pertains to all botanical resources. Specific regulations associated with wildlife and fisheries are summarized in Section 3.9, *Wildlife Resources*.

Federal

Federal Endangered Species Act

Federally-listed species are protected under the ESA of 1973 as amended (15 U.S.C. 1531 et seq.). Under ESA, federal agencies must ensure that any action authorized, funded, or carried out by the agency is not likely to (a) jeopardize the continued existence of any listed species or (b) result in the destruction or adverse modification of a listed species' designated critical habitat. The purpose of ESA is to protect and recover species and the habitats they require for survival.

Forest Service Manual Section 2670

The USFS must comply with Section 2670 of the Forest Service Manual (FSM) which provides protection of sensitive species and calls for the development and implementation of management practices to ensure that species do not become threatened or endangered because of USFS actions. It requires a review of all activities or programs that are planned, funded, executed, or permitted for possible effects on federally-listed or USFS sensitive species (USFS 2005).

LTBMU Forest Plan

Management of the LTBMU lands in the project area is guided by the 1988 LTBMU Forest Plan (USFS 1988). Specific standards for biological resources are described in more detail in the SNFPA and the Record of Decision (ROD) (USFS 2004). The LTBMU Forest Plan provides the basis of the LTBMU's planning guidance. In addition, the LTBMU maintains a list of plants designated as sensitive by the USFS Region 5 Regional Forester, as well as a list of all MIS that should be addressed when a project affects LTBMU land. All portions of the project ROW that occur on LTBMU are subject to the LTBMU Forest Plan policies, standards, and guidelines.

Sierra Nevada Forest Plan Amendment

The SNFPA of 2004 amends the Forest Plans for 11 of the National Forests in the Sierra Nevada, including the LTBMU Forest Plan. The SNFPA Final Supplemental EIS and ROD describe the amendments to the SNFPA developed to improve old forests, wildlife habitats, and watersheds in the Sierra Nevada. While the ROD establishes broad goals, the Management Directions provide more specific objectives at the implementation level.

Affected Environment

Field surveys were conducted in support of the *Biological Evaluation of Botanical Species: NV Energy 634 Line-Foothill Road to Tramway Drive Rebuild Project* on June 9 through June 11, and

August 9, 2014. These surveys were conducted within the appropriate timeframe to determine the presence or absence of federally threatened, endangered, proposed, candidate or sensitive (TEPCS) species and Forest Region 5 sensitive plant, lichen, or fungi species and their habitats (referred to collectively as TEPCS botanical species). The surveys consisted of habitat and vegetation community mapping and evaluation, special-status species surveys, and a noxious-weed inventory. The results of the vegetation mapping are depicted in Figure 6 (see Appendix A). Major vegetation habitats were mapped and classified in the project area. A detailed description of methods for the field surveys is found in the *Biological Evaluation of Botanical Species: NV Energy 634 Line-Foothill Road to Tramway Drive Rebuild Project* (Appendix E) (HDR 2015a). The affected environment for invasive plants, including a summary of the noxious-weed inventory is discussed in Section 3.5, *Invasive Plants*.

Botanical resources can be described relative to the community's succession or seral status. The succession of a botanical community is the ecological process or change a community undergoes following a disturbance (Hall et. al. 1995). The seral status refers to the successional development of a community. The USFS recognizes four stages of seral succession: depauperate, early seral, mid seral, and late seral (Hall 1995). Following disturbance, seral succession typically follows from an early seral succession with low vegetative community numbers to a late seral community with a natural community dominating the community or a mix somewhere in-between. The depauperate community is a community that lacks numbers or variety in species.

The botanical resource surveys also utilized the California Wildlife Habitat Relationships (CWHR) system. The CWHR system classifies a community in three areas: by habitat community type, class of tree or shrub canopy, and class size of tree or shrub.

Forestry

Habitat conditions within the project area and surrounding areas consist of two types of forest vegetation communities: Mixed Conifer and Jeffery Pine communities (See Appendix E). The Mixed Conifer community is found between elevations of 6,675 feet and 7,435 feet AMSL on slopes ranging from 0% to 55%. Ground cover consists of 10% bare ground, 30% litter, 10% rock, and 60% vegetation. Vegetation cover consists of Jeffery Pine with white fir, pinemat manzanita, and antelope bitterbrush. The Jeffery Pine community is found between elevations of 5,535 feet and 6,675 feet AMSL on slopes ranging from 0% to 65%. Ground cover consists of 15% bare ground, 25% litter, 15% rock and gravel, and 45% vegetation. Vegetation cover consists of Jeffery Pine, pinemat manzanita, antelope bitterbrush, and desert mountain mahogany (HDR 2015b).

Both forest vegetation communities are in early and mid-seral stages and are classified in the CWHR system as Jeffery Pine (JPN), with 10-24% (S – Sparse Cover) cover, and 25-39% (P – Open Cover) cover, and small trees ranging from 11-24 inches in diameter, respectively known as JPNS4 and JPNS4.

Approximately 120 acres of early and mid-seral coniferous forest and Big Sagebrush habitat exist within the entire project area, and about 42 acres of early and mid-seral coniferous forest. The change in CWHR tree size class, canopy closure, and understory shrub canopy closure varies throughout the project area. The most prominent differences can be observed between south-facing and north-facing slopes. The south-facing slopes support tree class sizes 1 (seedling less than one inch) and 2 (saplings one to six inches in diameter) and have only sparse cover canopy closure and open cover understory canopy closure. The north-facing slopes support tree class sizes of 3 (11 inches to 24 inches in diameter) and 4 (11 inches to 24 inches in diameter) and have on average open to moderate cover canopy closure and sparse to open cover understory canopy closure (HDR 2015b).

Mixed Conifer Habitat

There are 71.56 acres of Mixed Conifer habitat, CWHR classification JPNP4, in the project study area, of which 30.26 acres is on NFS land. Vegetation cover averaged 60%. The tree stratum of this community is co-dominated by Jeffrey Pine (*Pinus jeffreyi*) and white fir (*Abies concolor*), which grow on the north-facing slopes and in moister soil conditions. Dominant shrubs included pinemat manzanita (*Arctostaphylos nevadensis*), antelope bitterbrush (*Purshia tridentata*), and gooseberry currant (*Ribes montigenum*). Grasses included muttongrass (*Poa fendleriana*), blue wildrye (*Elymus glaucus*), and western needlegrass (*Stipa occidentalis*). Forbs included mountain coyote mint (*Monardella odoratissima*), maiden blue-eyed Mary (*Collinsia parviflora*), sulfur buckwheat (*Eriogonum umbellatum* ssp. *nevadensis*), woodland rockcress (*Boechera pinetorum*), and spreading groundsmoke (*Gayophytum diffusum*) (HDR 2015a).

Jeffrey Pine Habitat

There are 16.6 acres of Jeffrey Pine habitat, CWHR classification JPNS4, within the project study area, of which 6.22 acres are on NFS land. Vegetation cover averaged 45%. Trees include Jeffrey Pine with a minor component of white fir. Dominant shrubs included: greenleaf manzanita (*Arctostaphylos patula*), Antelope bitterbrush (*Purshia tridentata*), and curl-leaf mountain mahogany (*Cercocarpus ledifolius*). Grasses included: Sandberg bluegrass (*Poa secunda*), Great Basin wild rye (*Elymus elymoides*), and western needlegrass (*Stipa occidentalis*). Forbs included: mountain coyote mint, maiden blue-eyed Mary, sulfur buckwheat, royal penstemon (*Penstemon speciosus*), and spreading groundsmoke (HDR 2015b).

Vegetation

In general, south-facing slopes and extremely steep slopes had sparse vegetation cover. The vegetation was relatively healthy and intact, and no major weed infestations were observed during field surveys. An area of cleared vegetation and surface disturbance was found associated with a buried gas pipeline, and charred vegetation and other evidence of a historical wildfire was observed in the lower elevations of the study area (HDR 2015d). The existing 60 kV powerline corridor is maintained to keep trees clear of the line, as there was little vegetation within this area. The proposed staging areas were also previously disturbed and did not have intact habitat.

Vegetation Communities

Four main vegetation communities and habitats were mapped in the project survey area: Riparian, Mixed Conifer, Jeffrey Pine, and Big Sagebrush, as described below and shown in Appendix E (vegetation forest communities for Mixed Conifer and Jeffrey Pine were described above).

The project survey area for the biological baseline studies consisted of the construction corridor, which includes the proposed transmission line with 150-foot buffer on each side (i.e. 300-foot corridor), and proposed access roads with a 25-foot buffer on each side. Within this construction corridor, there is a total of 199.27 acres, including 38.37 acres on NFS lands. This survey area was used to map the vegetation communities outlined in Table 3-3.

Table 3-3. Vegetation Communities Present within the Project Survey Area

Vegetation Community	Description	Common Species	Acreage in Project Area	Acres on USFS - LTBMU Land

Vegetation Community	Description	Common Species	Acreage in Project Area	Acres on USFS - LTBMU Land
Riparian Habitat	The main creek within the project area is Daggett Creek. Daggett Creek is perennial and located within steep terrain.	Arroyo willow (<i>Salix lasiolepis</i>), Red willow (<i>Salix laevigata</i>), and Gray alder (<i>Alnus incana</i>).	2.28	1.89
Mixed Conifer Habitat	Mixed conifer habitat is found in the upper elevations of the project area, and vegetation cover averaged 60%. The tree stratum of this community is co-dominated by Jeffrey Pine and white fir, which grow on the north-facing slopes and in moister soil conditions.	Jeffrey Pine (<i>Pinus jeffreyi</i>) and white fir (<i>Abies concolor</i>), Shrubs: pinemat manzanita (<i>Arctostaphylos nevadensis</i>), antelope bitterbrush (<i>Purshia tridentata</i>) and gooseberry currant (<i>Ribes montigenum</i>). Grasses included muttongrass (<i>Poa fendleriana</i>), blue wildrye (<i>Elymus glaucus</i>), and western needlegrass (<i>Stipa occidentalis</i>). Forbs: mountain coyote mint (<i>Monardella odoratissima</i>), maiden blue-eyed Mary (<i>Collinsia parviflora</i>), sulfur buckwheat (<i>Eriogonum umbellatum</i> ssp. <i>nevadensis</i>), woodland rockcress (<i>Boechera pinetorum</i>), and spreading groundsmoke (<i>Gayophytum diffusum</i>).	71.56	30.26
Jeffery Pine Habitat	Jeffery Pine habitat is found in the mid elevations of the project area, and vegetation cover averaged 45%.	Trees included Jeffrey Pine with a minor component of white fir. Dominant shrubs: greenleaf manzanita (<i>Arctostaphylos patula</i>), Antelope bitterbrush (<i>Purshia tridentata</i>), and curl-leaf mountain mahogany (<i>Cercocarpus ledifolius</i>). Grasses: Sandberg bluegrass (<i>Poa secunda</i>), Great Basin wild rye (<i>Elymus elymoides</i>), and western needlegrass (<i>Stipa occidentalis</i>). Forbs: mountain coyote mint (<i>Monardella odoratissima</i>), maiden blue-eyed Mary (<i>Collinsia parviflora</i>), sulfur buckwheat (<i>Eriogonum umbellatum</i>), royal penstemon (<i>Penstemon speciosus</i>), and spreading groundsmoke (<i>Gayophytum diffusum</i>).	16.66	6.22

Vegetation Community	Description	Common Species	Acreage in Project Area	Acres on USFS - LTBMU Land
Big Sagebrush Habitat	This habitat was mapped only on private land. Habitat was dominated by Wyoming sagebrush.	A few trees were sparsely mixed in this shrub-dominated community, but the dominant species included Wyoming sagebrush (<i>Artemisia tridentate</i>) and bitterbrush (<i>Purshia tridentata</i>). The forb and grass layers were well established and exhibited a wide variety of species.	28.77	0
Total Acreage			119.27	38.37

NOTE:

Vegetation communities were only identified within the project survey area. The survey area for biological and cultural resources surveys consisted of a 300-foot wide corridor (HDR 2015b).

Source: HDR 2015a.

Descriptions of the two vegetations communities: Riparian and Big Sagebrush are summarized below.

Riparian Habitat

The main creek within the project survey area is Daggett Creek. Daggett Creek transects the project area, and two riparian areas totaling 2.28 acres, of which 1.89 acres are on NFS land. Daggett Creek is perennial and within steep terrain. Dominant species within the riparian areas included arroyo willow (*Salix lasiolepis*), red willow (*Salix laevigata*), and gray alder (*Alnus incana*) (HDR 2015b).

Big Sagebrush Habitat

The Big Sagebrush habitat is located within the lower elevations of the project survey area and covers 28.77 acres. It occurs only on private land. A few trees were sparsely mixed in this shrub-dominated community, but the dominant species included Wyoming sagebrush (*Artemisia tridentate*) and bitterbrush (*Purshia tridentata*). The forb and grass layers were well-established and included a wide variety of species (HDR 2015b).

USFS Sensitive Species

The Regional Forester identifies species for which population viability is a concern due to a downward population trend or diminished habitat capacity that would reduce species distribution (USFS 2005). The Region 5 sensitive species list was revised in 2013 (USFS 2013). All Region 5 sensitive botanical species (plants, lichen, fungi) that are known to occur in or have suitable habitat within the LTBMU were considered. Based on the agency consultation and habitat observations in the field, suitable habitat for the USFS sensitive botanical species found in Table 3-4 were determined to be present with a low to moderate potential to occur based on habitat conditions.

Table 3-4. List of TEPCS and USFS Sensitive Species Known to Occur or Have Suitable Habitat in Project Area

Species	Suitable Habitat Characteristics	Present in Project Area?	Potential Habitat in Project Area?	Habitat Rationale
Galena Creek rock cress (<i>Boechea rigidissima</i>)	Open, rocky areas along forest edges of conifer and/or aspen stands; usually found on north aspects; 7,500 feet and above	No	Yes	Very good habitat in the higher elevations in forest openings; all species of <i>Boechea</i> verified by herbarium curator at UNR May 2014.
Tiehm's rock cress (<i>Boechea tiehmii</i>)	Open and rocky soils in the Mt. Rose wilderness; 10,000 ft and above	No	No	Project not in Mt. Rose area and project area too low.
Tulare rock cress (<i>Boechea tularensis</i>)	Shaded, mostly east-facing subalpine rocky areas, including rocky slopes, rock-lined streams and seeps, rocky outcrops, saddles, and canyons; 6,000-11,000 feet	No	Yes	Good habitat; rocky slope exists throughout project area.
<i>Botrychium</i> spp.	<i>Botrychium</i> species are found in similar habitat; wet or moist soils such as marshes, meadows, and along the edges of lakes and streams; 2,000-10,000 feet	No	Yes	Suitable habitat was observed in wet drainages in Mixed Conifer and Jeffery Pine vegetation communities within the project area.
Upswept Moonwort (<i>Botrychium Ascendens</i>)	See <i>Botrychium</i> spp.	No	Yes	See <i>Botrychium</i> spp.
Scalloped moonwort (<i>Botrychium crenulatum</i>)		No	Yes	
Slender moonwort (<i>Botrychium lineare</i>)		No	Yes	
Common moonwort (<i>Botrychium lunaria</i>)		No	Yes	
Mingan moonwort (<i>Botrychium minganense</i>)		No	Yes	
Western goblin (<i>Botrychium montanum</i>)		No	Yes	

Species	Suitable Habitat Characteristics	Present in Project Area?	Potential Habitat in Project Area?	Habitat Rationale
Bolander's candle moss (<i>Bruchia bolanderi</i>)	Mainly in montane meadows and stream banks, also along bare, slightly eroded soil with minimal competition	No	Yes	Unlikely. While good habitat in wet drainages in the Mixed conifer and Jeffrey Pine habitat communities exist, no wetlands were identified within the project area. (Personal communication, Nichols 2015).
Branched collybia (<i>Dendrocollybia racemosa</i>)	On old decayed or blackened mushrooms, usually within old growth stands	No	No	Unknown, but not likely. This buried mushroom requires moist conditions, and the soil substrates in the project area are well drained and do not have a thick organic layer.
Tahoe draba (<i>Draba asterophora</i> var. <i>asterophora</i>)	Rock crevices and on open granite talus slopes on north-east slopes; 8,000-10,200 feet	No	No	Marginal habitat for this species. Project site could be too low, and steep scree or open slopes in the higher reaches of the project area are not extensive.
Cup Lake draba (<i>Draba asterophora</i> var. <i>macrocarpa</i>)	Steep, gravelly or rocky slopes; 8,400-9,300 feet	No	No	Marginal habitat. Project site is too low and outside species known range.
Mineral King draba (<i>Draba cruciata</i>)	Subalpine gravelly or rocky slopes, ridges, crevices, cliff ledges, sink holes, boulder and small drainage edges; 7,800 – 3,000 feet	No	Yes	Marginal habitat for this species. Project site could be too low, and steep scree or open slopes in the higher reaches of the project site are not extensive.
Starved daisy (<i>Erigeron miser</i>)	Granitic rock outcrops; 6,000 feet and above	No	Yes	Good habitat on the upper elevation rock outcrops in the project area.
Golden-carpet buckwheat (<i>Eriogonum luteolum</i> var. <i>saltuarium</i>)	Sandy granitic flats and slopes, sagebrush communities, montane conifer woodlands; 5,600-7,400 feet	No	Yes	Good habitat for this species throughout openings in the lower reaches of the project area.

Species	Suitable Habitat Characteristics	Present in Project Area?	Potential Habitat in Project Area?	Habitat Rationale
Donner Pass buckwheat (<i>Eriogonum umbellatum</i> var. <i>torreyanum</i>)	Dry gravelly or stony sites; often on harsh exposures	No	Yes	Good habitat for this species in openings and rocky substrates. All species of <i>umbellatum</i> were keyed to <i>nevadense</i> . Verified by herbarium curator at UNR May 2014.
Blandow's bog-moss (<i>Helodium blandowii</i>)	Bogs, fens, wet meadows, and along streams under willows	No	No	Marginal habitat for this species; wetlands in the project area could be too ephemeral to support this species.
Shortleaved hulsea (<i>Hulsea brevifolia</i>)	Red fir forest, but also in mixed conifer forests; found on gravelly soils; 4,900 – 8,900 feet	No	Yes	Good habitat for this species in the higher elevations of the project area.
Hutchinson's lewisia (<i>Lewisia kelloggii</i> spp. <i>Hutchisonii</i>)	Ridge tops or flat open spaces with widely spaced trees and sandy granitic to erosive volcanic soil; 5,000 to 7,000 feet	No	Yes	Good habitat for this species in the higher elevations of the project area.
Kellogg's lewisia (<i>Lewisia kelloggii</i> spp. <i>Kelloggii</i>)	See <i>Lewisia kelloggii</i> spp. <i>Hutchisonii</i>	No	Yes	Good habitat for this species in the higher elevations of the project area.
Longpetaled lewisia (<i>Lewisia longipetala</i>)	North-facing slopes and ridge tops where snow banks persist throughout the summer; often found near snow bank margins in wet soils; 8,000-12,500 feet	No	No	Low potential; the project area is likely too low to support this species.
Broadnerved hump-moss (<i>Meesia uliginosa</i>)	Bogs and fens, but also very wet meadows	No	No	Marginal habitat in wet drainages in the Mixed Conifer and Jeffrey Pine vegetation communities. Wetlands in the project area are possibly too dry to support this species.
Orthotrichum moss (<i>Orthotrichum praemorsum</i>)	Shaded, moist habitats of east side of Sierra Nevada rock outcrops, up to 8,200 feet	No	Yes	Good habitat on rocky substrates in the upper and middle elevations of the project area.

Species	Suitable Habitat Characteristics	Present in Project Area?	Potential Habitat in Project Area?	Habitat Rationale
Goward's water fan (<i>Peltigera gowardii</i>)	Cold unpolluted streams in mixed conifer forests	No	No	Marginal habitat in wet drainages in the Mixed Conifer and Jeffrey Pine vegetation communities. Wetlands in the project area are possibly too ephemeral to support this species.
Whitebark pine (<i>Pinus albicaulis</i>)	Subalpine and at timberline on rocky, well-drained granitic or volcanic soils	No	No	Low potential; the project area is likely too low to support this species.
Tahoe yellow cress (<i>Rorippa subumbellata</i>)	Endemic to the shore zone of Lake Tahoe	No	No	Project not proposed on shoreline of Lake Tahoe.

Source: HDR 2015b

Environmental Consequences

This section describes the environmental consequences for botanical resources that could occur if the Proposed Action Alternative is constructed in the project area. Effects on botanical resources are analyzed in terms of context and intensity of the environmental effects of the Proposed Action Alternative. Context means the significance of the action must be considered in terms of the region, affected resources, and the specific locality. Intensity refers to the severity of an effect. Therefore, direct effects were evaluated based on whether the Proposed Action Alternative would substantially reduce the size, continuity, or integrity of botanical resources through vegetation removal. Effects were also evaluated based on whether the Proposed Action Alternative would affect natural processes that support botanical resources. This section also lists EPMs that would reduce effects to botanical resources (refer to Section 2.3 for a full list of project EPMs).

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

Implementation of the Proposed Action Alternative would have temporary and long-term direct effects on botanical resources within the project area. Assuming a 90-foot ROW corridor within NFS lands and a 50-foot ROW corridor within private lands (based on the centerline), a total of 21.13 acres could be impacted during project implementation, including 11.12 acres on NFS lands. Permanent long-term disturbance to vegetation would include the loss of approximately 5.08 acres of suitable habitat within NFS lands as a result of vegetation and tree removal. Botanical resources would be temporarily disturbed and removed within 1.47 acres of NFS lands due to installation of single-pole and H-frame structures, and establishment of staging areas and pulling sites.

The Proposed Action Alternative would have potential temporary direct effects to USFS sensitive botanical species. The effects were evaluated in the *Biological Evaluation for Botanical Species Report* (Appendix E) and based on recommendations made by the USFS Botanist. According to determinations made by the USFS Botanist, the Proposed Action Alternative would have no effect on the following botanical species:

- Tiehm's rock cress (*Boechnera tiehmii*)
- Branched collybia (*Dendrocollybia racemosa*)
- Tahoe draba (*Draba asterophora* var. *asterophora*)
- Cup Lake draba (*Draba asterophora* var. *macrocarpa*)
- Blandow's bog-moss (*Helodium blandowii*)
- Whiteback pine (*Pinus albicualis*)
- Long-petaled lewisia (*Lewisia longipetala*)
- Broad-nerved hump-moss (*Meesia uliginosa*)
- Goward's water fan (*Peltigera gowardia*)
- Tahoe yellow cress (*Rorippa subumbellata*)

This determination was based on the lack of occurrences and lack of suitable habitat identified in the project vicinity.

Further, the USFS Botanist determined that the implementation of the Proposed Action Alternative would have no effect on the following additional botanical species:

- Upswept moonwort (*Botrychium ascendens*)
- Scalloped moonwort (*Botrychium crenulatum*)
- Slender moonwort (*Botrychium lineare*)
- Common moonwort (*Botrychium lunaria*)
- Mingan moonwort (*Botrychium minganense*)
- Western goblin (*Botrychium montanum*)
- Bolander's candle moss (*Bruchia bolanderi*)

This determination is based on the lack of occurrences identified in the project area and because the Proposed Action Alternative would not result in effects to suitable habitat. Suitable habitat was identified in the project area for these botanical species; however, the habitat would not be impacted by the Proposed Action Alternative.

It was determined that implementation of the Proposed Action Alternative may affect, but is not likely to result in a trend toward federal listing or loss of viability for the following botanical species:

- Galena Creek rock cress (*Boechnera rigidissima*)
- Tulare rock cress (*Boechnera tularensis*)
- Golden-carpet buckwheat (*Eriogonum luteolum* var. *saltuarium*)
- Mineral King draba (*Draba cruciata*)
- Hutchinson's lewisia (*Lewisia kelloggii* ssp. *Hutchisonii*)
- Kellogg's lewisia (*Lewisia kelloggii* ssp. *Kelloggii*)
- Starved daisy (*Erigeron miser*)
- Donner Pass buckwheat (*Eriogonum umbellatum* var. *torreyanum*)

- Short-leaved hulsea (*Hulsea brevifolia*)
- Orthotrichum moss (*Orthotrichum praemorsum*)

This determination is based on the fact that no occurrences were identified in the project area, but suitable habitat was identified and may be impacted by the project. The majority of the types of actions and disturbance associated with Proposed Action Alternative are temporary and the majority of the construction and operation activities would occur within the existing transmission line ROW corridor and within existing roads and areas with existing surface disturbance. Minimal new ground disturbing activities would occur. The implementation of EPMs listed below would further minimize effects to botanical resources. General Measures 1 through 4 would ensure project activities occur within the designated ROW, and existing roads would be left in conditions better than their preconstruction conditions, Botanical Resources 7 would limit vegetation removal, where practicable, and Wildlife Resources 47 through 48 contain measures focused on sensitive species protection.

EPMs

General Measures

1. The limits of the construction ROW will be marked with staking and/or flagging. All environmentally sensitive areas, if any, will be fenced for avoidance.
2. Prior to construction, all construction personnel will be instructed on the protection of sensitive biological, cultural, and paleontological resources that have the potential to occur on site.
3. All construction vehicle movement will be restricted to the ROW, pre-designated access roads, and public roads, except where overland travel is proposed.
4. Smoking will only be permitted in paved or cleared areas. All cigarettes will be thoroughly extinguished and disposed of in a trash receptacle.

Botanical Resources

7. Where possible, vegetation will be left in place. Where vegetation must be removed, it will be cut at ground level to preserve the root structure and allow for potential resprouting.

Wildlife Resources

47. If required by the USFS, prior to construction, biological surveys of the ROW and the access road will be conducted. Potential habitat for listed species identified during the preconstruction surveys will be fenced for avoidance. If avoidance is infeasible, consultation with appropriate jurisdictional agencies will be conducted prior to work in the area(s).
48. If a sensitive plant or animal species is identified during construction, work near the sensitive species will be halted and a qualified biologist familiar with the species will be consulted to determine an appropriate buffer and other protective measures. The appropriate resource agencies will be notified of the discovery within 24 hours. If avoidance is infeasible, consultation with the jurisdictional resource agency will be conducted prior to continuing work in the immediate area of the species. Any federal- or state-listed or special status species discovered on public land will also be reported to the USFS.

For these reasons, the effects to botanical resources, including USFS sensitive plant, fungi, and lichen species would be minor.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct minor effects on botanical resources. While there are other past, present, and reasonably foreseeable projects proposed within the project vicinity, including trail improvements along the Daggett Summit Trail System and capital improvements underway at Heavenly Mountain Resort, the majority of these improvements are either near completion or close to completion. Additionally, these projects have adhered to similar LTBMU mandated requirements, and implemented similar design measures and EPMs to reduce potential effects on botanical resources. For these reasons, the cumulative effect on botanical resources is negligible.

Mitigation Measures

EPMs would be implemented to reduce impacts to botanical resources within the project area. No additional mitigation measures are required, other than the project EPMs.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the 634 Line would not be rebuilt. Selection of the No Action Alternative would involve the continued operation and maintenance of the existing 634 Line. Operation and maintenance would involve routine tree trimming and removal, vegetation clearing to minimize wildland and downed tree hazards, minor grading and access roadway maintenance, and other measures to meet annual inspection requirements. Also, because the existing transmission line structures are aging, the Line may require increased maintenance and emergency repair or replacement work. This may involve increased tree trimming and vegetation removal. However, the overall effects on botanical resources, including USFS sensitive species is expected to be negligible.

Cumulative Effects

Because the implementation of the No Action Alternative would only involve ongoing and continued operation and maintenance of the existing 634 Line, no cumulative effects on botanical resources would occur.

Mitigation Measures

No significant adverse impacts to botanical resources have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.3 Fire Hazards

This section describes the wildland fire hazard setting in the project area and the potential direct, indirect, and cumulative effects of the Proposed Action Alternative (Alternative 1) and the No Action Alternative (Alternative 2) to result in wildland fires. The analysis in this section focuses on the potential for the project to expose people and structures to wildland fire hazards.

Regulatory Setting

A brief summary of the relevant laws, regulations, plans, and policies related to wildland fire prevention are described and discussed below.

Federal

Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy

The USFS is the largest land manager in the Lake Tahoe Basin, managing approximately 78% of the area around Lake Tahoe under the LTBMU. *The Lake Tahoe Basin Multi-Jurisdictional Fuel*

Reduction and Wildfire Prevention Strategy was developed in 2014 through efforts of the LTBMU and 15 state and regional agencies, from both California and Nevada including forestry, parks, fire protection, planning, and water quality (USFS 2014). The strategy was originally developed in 2007 to reduce the risk of catastrophic fire in the Lake Tahoe Basin. The plan combined existing wildfire hazard reduction plans prepared by the LTBMU, Nevada Division of Forestry (NDF), Douglas County, and information from Community Wildfire Protection Plans (CWPPs) developed by local fire protection districts (FPDs). The strategy provides a consolidated framework for collaboration. Significant results of this strategy include: updated maps, establishment of a formal process for managing fuels reduction projects, management to fire behavior objectives, and an analysis of a change in market demand for forest materials as it relates to fire management

State

Nevada Division of Forestry

The NDF and the NDSL are responsible for fuels management on state lands. As there are no state lands within the project area, most fuel management is overseen by the LTBMU and Douglas County FPD.

Local

Community Wildfire Protection Plans

Currently, all FPDs in the Tahoe Basin have prepared CWPPs. For Douglas County, the CWPP was established through the *Nevada Community Wildfire Risk/Hazard Assessment Project, Douglas County* in 2005 and the *Nevada Community Wildfire Risk/Hazard Assessment Project, Tahoe-Douglas Fire Protection District* in 2004 (NFSC 2005; 2004).

Tahoe Douglas Fire Protection District (TDFPD)

The *Nevada Community Wildfire Risk/Hazard Assessment Project, Tahoe-Douglas Fire Protection District* contains an analysis of risk and hazards for the project area, as well as risk reduction recommendations for the Kingsbury area (NFSC 2004). The assessment made the following recommendations for fuel reduction treatments for NVE, each applicable to the project area:

- Remove rather than prune trees in the power line right-of-way. Topping trees severely weakens them and predisposes them to attack by bark beetle infestation and disease.
- Reduce vegetation to maintain a minimum distance of 15 feet from all utility poles.
- Clear all vegetation and maintain a minimum distance of 30 feet from the fence around all electrical transfer stations.

Like the *Lake Tahoe Basin Fuel Reduction and Wildfire Prevention Strategy*, the CWPP stress the high risk of wildfire in the Tahoe Basin and identify fuel reduction treatments as an important action for reducing the fire risk.

The Tahoe Douglas FPD also maintains the Zephyr Fire Crew, a Type II I.A. (initial attack, seasonal) crew of approximately 21 firefighters. The fuels management team exists to reduce the wildfire risk and improve forest health through effective fuels management practices, primarily focused on high risk potential projects including defensible space around private property, tree permitting and curbside chipping. The Tahoe Douglas FPD Station 21 is located along Kingsbury Grade, approximately one-half-mile from the end of the transmission line (Douglas County 2012).

Landscape-Scale Wildland Fire Risk/Hazard/Value Assessment

The *Landscape-Scale Wildland Fire Risk/Hazard/Value Assessment for Douglas County, Nevada* (2008) is intended to be used in conjunction with the Multi-Jurisdictional Strategy for the Tahoe

Basin. It assesses the potential consequences of wildland fire for virtually all lands within Douglas County (NFB 2008). It also identifies goals related to firefighter and public safety, the reduction of hazardous fuel accumulations and wildland fire hazards, and the restoration of ecosystems.

Affected Environment

Historic Fire Regime in the Lake Tahoe Basin

A long history of fire suppression in the 1900s combined with incidences of drought and forest insect and pathogen-induced tree and vegetation mortality has resulted in forest stands with a high concentration of forest fuels. This condition has increased the threat of large catastrophic fire.

The number of acres burned by wildfires in the Lake Tahoe Basin has increased in each decade since 1973, including a ten-fold increase between 2000 and 2010. Although the majority of fires were small, three recent fires grew larger than fires of the past 50 years, including:

- Gondola Fire (673 acres) in 2002
- Showers Fire (294 acres) in 2002
- Angora Fire (3,100 acres) in 2007 (USFS 2014)

The Angora Fire destroyed or damaged more than 254 homes, and was the largest wildland fire ever recorded in the Tahoe Basin. (USFS 2014).

Based on a rating scheme developed by the National Association of State Foresters (NASF) as part of the national standard, wildland fire poses a *moderate* to *high* threat to 84% of the values at risk in Douglas County. These include critical wildlife habitat, cultural concerns, and economically important infrastructure improvements (NFB 2008).

Current Vegetative Conditions in the Lake Tahoe Basin

Estimates indicate that lower elevation forests in the Lake Tahoe Basin have four times the density of trees, and higher elevation forests have twice the density of trees, when compared to forest conditions of 150 years ago (USFS 2014). These high densities increase competition for nutrients resulting in poor forest health, high rates of tree mortality, and as a result an increase in the number of standing dead trees and downed logs. For example, the number of white fir have increased, while the number of various other conifer species has decreased, thereby increasing the overall susceptibility of the forest trees to death by fire. In addition to the accumulation of dead material on the forest floor, there are also smaller mid-story trees that create fuel ladders that allow fires to readily move into dense crowns. The lack of frequent, low-intensity fires has resulted in accumulations of dead fuels, increased understory shrubs, and dense young trees. As a result, flame lengths and rates of fire spread lead to higher intensity fires (USFS 2014).

The *Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy* assessed the change in species composition over time from fire resistant trees, (especially Jeffrey pine, which has few branches close to the ground and thicker bark), growing in open canopies with high sun exposure, to species that tolerate shaded, closed-canopy environments. These species (particularly white fir) are not fire resistant. White fir have thin bark and branches close to the ground, growing in much higher densities underneath the overstory canopy. With more of these tree species, high-intensity wildfires will result in high tree mortality in forest stands, which in turn could result in extensive property loss, and could cause large amounts of erosion and sedimentation that would adversely affect water quality.

The LTBMU and other agencies are implementing a program of prescribed fire underburns, which are controlled, lower intensity fires limited to only ground fuel that are scientifically appropriate for

fire adapted ecosystems. Slash pile burning is limited to very small, individual piles of ground fuels such as branches, pine needles, and grasses. Although not a restoration tool, it is an efficient fuel reduction treatment method in areas not suitable for underburns.

Fire Regime in the Kingsbury Area

Factors Affecting Fire Behavior

The Lake Tahoe region is considered a high wildfire hazard environment because of its steep topography, high level of fuels, and climate. The local topography within the project area is characterized by steep slopes, canyons, saddles, and ridgelines. This terrain can provide channels for strong winds, creating a chimney effect, and drawing fire up slopes and through canyons, which enable fire to move very rapidly with long flame lengths. The climate within the Tahoe Basin and in Douglas County consists of hot, dry summers, with occasional winds and little precipitation. Together, these factors increase the potential for catastrophic fire. High levels of forest fuel in the understory also provide a route for fires that initially burn closer to the ground to reach the closed tree canopy, creating a much more dangerous crown fire. In addition, the closed canopy can trap heat, increasing radiant heat to very high temperatures (USFS 2014).

This type of topography can be particularly difficult for fire fighters and may delay first responses. Also, the vegetation is primarily a tree layer of Jeffery pine and white fir and ground fuels that consist of a thick layer of pine needles and cones, dead and down woody fuels, and annuals. The Kingsbury area is considered to be a High Hazard risk area due to fire behavior factors, inadequate defensible space, combustible construction materials, and closely spaced homes (NFSC 2004).

General Risk Reduction Recommendations for the Tahoe-Douglas Fire Protection District

According to the *Lake Tahoe Basin Multi-Jurisdictional Fuel Reduction and Wildfire Prevention Strategy*, the most important recommendation from the USFS and State of Nevada was to reduce the vegetative fuel load in the urban/wildlife interface area. “Thinning from below” is a method of removing smaller trees, brush, and dead and down materials to achieve a desired tree density and eliminate ground fuels that could spread fire into the forest canopy causing a crown fire. This would also reduce competition among the remaining trees for sunlight and water, and improve forest health, which would further reduce fuel load on the forest floor into the future (USFS 2014).

A second recommendation was for the creation of fuel breaks, which are necessary to slow the advance of a fire, protect resources, and help protect utility lines in the area. Properly maintained vegetation within power line corridors greatly reduces potential hazards, and the risk of additional ignitions along those easements. Damage by fire to power lines often causes power failures, which are especially dangerous to communities without a backup energy source, as most communities rely on electric pumps to provide water to residents and firefighters for structure protection and fire suppression (USFS 2014).

Environmental Consequences

This section describes environmental consequences related to wildfire hazards that could occur if the Proposed Action Alternative is constructed in the project area. Effects related to wildfire hazards are analyzed in terms of context and intensity. Context refers to the significance of the action and must be considered in terms of the region, affected resources, and the specific locality. Intensity refers to the severity of an effect. EPMs were incorporated into the Proposed Action Alternative and were considered in developing this analysis in order to determine if those

measures would avoid or minimize impacts related to wildland fire hazards (refer to Section 2.3 for a full list of project-specific EPMs).

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

The implementation of the Proposed Action Alternative would widen the existing ROW from 50 feet to 90 feet along the portion of the corridor on NFS lands and involve the installation of larger metal single-poles and H-frame structures. Project implementation would result in direct short-term and adverse effects related to increased wildfire hazards associated with the construction activity during the spring and summer months. However, in the long-term, overall effects related to wildland fire hazards would result in a beneficial effect due to a wider ROW corridor, the replacement of wood poles with steel poles more resistant to wildfires, and improved access for emergency response and operations and maintenance activities.

The Proposed Action Alternative does not involve the construction of homes or structures that would place people in an area with a risk of wildland fire hazards. However, during construction, the increase in the amount of human activity from construction workers and vehicle and equipment use during the fire season could result in an increased risk of wildfire. Heat and sparks from vehicles and construction equipment or vegetation clearing has the potential to ignite dry vegetation and cause a fire. The integration of EPMs that include the implementation of various fire prevention, vegetation clearing, and suppression measures would minimize fire risk during temporary construction activities.

Most of the existing power transmission lines into the Tahoe Basin are above ground, which can also pose certain wildfire risks - power lines can arc during windstorms, potentially igniting vegetation. Metal poles can also act as lightning rods even though metal poles are fire resistant and less subject to damage and rot. However, the implementation of the Proposed Action Alternative, in the long-term would result in direct beneficial effects due to a 40-foot wider ROW corridor. This wider corridor would reduce the potential for nearby downed trees to interfere with the operation of the transmission line. Also, a well-maintained ROW would decrease the risk of fire due to tree and vegetation thinning along the corridor.

Under the Proposed Action Alternative, other impacts to vegetation include tree thinning, ground clearing, and revegetation as part of the ROW preparation. These maintenance activities would be the same as maintenance activities occurring under existing conditions, but would reduce the fire potential in the newly cleared areas, and provide an additional 40-foot fire break in the event of a wildfire. The replacement of older wooden poles with new steel poles that are fire resistant would further reduce the potential for the project to result in wildfire risk. Vegetation clearance requirements for high voltage lines would be implemented, as necessary. Additionally, the implementation of EPMs listed below would further reduce and avoid negative wildland fire effects. These measures are also consistent with the forest management plans for fire suppression. For example, in areas of where equipment is stored and used and where sparks are possible, all flammable material including dead vegetation, dry grasses, and snags (fallen or standing dead trees) would be cleared a minimum of ten feet from areas of equipment operation.

EPMs

Fire Prevention and Response

19. NVE will designate a Fire Marshal (NVE Fire Marshal), who will coordinate with the USFS's fire management representative, as necessary.
20. The designated Fire Marshal will be responsible for the following tasks:

- Conducting regular inspections of tools, equipment, and first aid kits for completeness.
 - Conducting regular inspections of storage areas and practices for handling flammable fuels to confirm compliance with applicable laws and regulations.
 - Coordinating initial response to fires within the ROW.
 - Conducting fire inspections along the ROW.
 - Ensuring that all construction workers and subcontractors are aware of all fire protection measures.
 - Remaining on duty and on-site when construction activities are in progress and during any additional periods when fire safety is an issue, or designating another individual to serve in this capacity when absent.
 - Reporting all wildfires in accordance with the notification procedures described below.
 - Initiating and implementing fire suppression activities until relieved by agency or local firefighting services in the event of a project-related fire. Project fire suppression personnel and equipment, including water tenders, will be dispatched within 15 minutes from the time that a fire is reported.
 - Coordinating with the NVE Project Manager regarding current fire conditions potential and fire safety warnings from the USFS and communicating these to the crews.
21. The Construction Foreman will immediately notify firefighting services of any fires on site. A list of emergency fire contacts for the project area is presented in Table 2-7.

Table 2-7. Emergency Fire Contacts

Department	Phone Number
Main Contact	911
USFS – Fire Management Office	(530) 543-2600

Source: PPOD 2015.

22. Construction crews will be notified to stop or reduce construction activities that pose a significant fire hazard until appropriate safeguards are taken.
23. If an accidental fire occurs during construction, immediate steps to extinguish the fire (if it is manageable and safe to do so) will be taken using available fire suppression equipment and techniques. Fire suppression activities will be initiated by NVE and/or its contractor until relieved by agency or local firefighting services.
24. Smoking will only be permitted in designated cleared areas and will be prohibited while walking or working in areas with vegetation or while operating equipment. In areas where smoking is permitted, all burning tobacco and matches will be completely extinguished and discarded in ash trays, and not on the ground.
25. Fire suppression equipment will be present in areas where construction tools or equipment have the potential to spark a fire.
26. Extra precautions will be taken when fire danger is considered to be high.
27. All field personnel will be instructed regarding emergency fire response. The contractors will receive training in the following:
- Initial fire suppression techniques

- Fire event reporting requirements
 - Methods to determine if a fire is manageable
 - Fire control methods to be implemented by field crews on site
 - When the worksite should be evacuated
 - How to respond to wildfires in the vicinity
 - How to maintain knowledge of and plans for evacuation routes
28. All flammable material, including dead vegetation, dry grasses, and snags (fallen or standing dead trees), will be cleared a minimum of ten feet from areas of equipment operation that may generate sparks or flames.
29. No open burning, campfires, or barbeques will be allowed along the ROW.
30. All welding or cutting of power line structures or their component parts will be approved by the NVE Construction Foreman. Approved welding or cutting activities will only be performed in areas cleared of vegetation a minimum of 10 feet around the area. Welding or cutting activities will cease one hour before all fire response personnel leave a construction area to reduce the possibility of welding activities smoldering and starting a fire. Welder vehicles will be equipped with fire suppression equipment.
31. All internal combustion engines, both stationary and mobile, will be equipped with approved spark arresters that have been maintained in good working condition. Light trucks and cars with factory-installed (type) mufflers in good condition may be used on roads cleared of all vegetation with no additional equipment required. Vehicles equipped with catalytic converters are potential fire hazards and will be parked on cleared areas only.
32. The use of torches, fuses, highway flares, or other warning devices with open flames will be prohibited. NVE and its contractors will only use electric or battery-operated warning devices on site.
33. Equipment parking areas, small stationary engine sites, and gas and oil storage areas will be cleared of all extraneous flammable materials. "NO SMOKING" signs will be posted in these areas at all times.
34. Fuel tanks will be grounded.
35. NVE and/or contractors will provide continuous access to roads for emergency vehicles during construction.
36. All motorized vehicles and equipment will be equipped with the following fire protection items:
- One long handled round point shovel
 - One ax or Pulaski fire tool
 - One five-pound ABC Dry Chemical Fire Extinguisher
 - One five-gallon water backpack (or other approved container) full of water or other extinguishing solution
 - Hard hat, work clothes, and eye protection
37. Project construction worksites will include the following equipment:

- Power saws, if required for construction, equipped with an approved spark arrester and accompanied by one five-pound ABC Dry Chemical Fire Extinguisher and a long-handled, round-point shovel when used away from a vehicle.
 - Fuel service trucks with one 35-pound capacity fire extinguisher charged with the necessary chemicals to control electrical and fuel fires.
 - At least two long-handled, round-point shovels and two five-pound ABC Dry Chemical Fire Extinguishers at wood cutting, welding, or other construction work sites that have a high risk of starting fires.
 - At least one radio and/or cellular telephone to contact fire suppression agencies or the project management team.
38. During periods of increased fire danger, a fire suppression vehicle will be available in the construction area or stationed near high-risk construction work sites and will be equipped with the following items:
- One tool cache (for fire use only) containing at a minimum:
 - Two long handled round point shovels
 - Two axes or Pulaski fire tools
 - One chainsaw of 3.5 (or more) horsepower with a cutting bar of at least 20 inches in length
39. If a fire is unmanageable, field crews will evacuate and call 911 or the district dispatch for the area (see Table 2-7: Emergency Fire Contacts). All fires will be reported to the jurisdictional fire agency, regardless of size and actions taken.

For these reasons, overall long-term effects related to wildland fire hazards would be negligible as there would not be any change in fire risk associated with the implementation of the Proposed Action Alternative and associated operation and maintenance activities.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct short-term minor effects and direct long-term negligible to beneficial effects associated with a wider ROW corridor, steel poles, and improved emergency response and operation and maintenance access. Although there are other past, present, and reasonably foreseeable projects proposed in the project vicinity, the majority of these are currently under construction and not proposed to occur at the same time as the Proposed Action Alternative. Additionally, most related projects within the Tahoe Basin and Douglas County would include similar measures to prevent wildfire hazards. For these reasons, the overall cumulative effects associated with wildfire hazards within the region would be minor.

Mitigation Measures

No significant adverse impacts to wildland fire hazards have been identified; therefore, no mitigation measures would be required.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the 634 Line would not be rebuilt. The operation and maintenance of the existing transmission line, including routine tree trimming and vegetation removal to remove downed tree hazards would continue to occur. Therefore, the threat of wildfire

hazards would remain consistent with current conditions, which is higher than under the conditions of the Proposed Action Alternative. For these reasons, direct and indirect effects related to wildland fire hazards would remain negligible.

Cumulative Effects

Because the No Action Alternative involves the ongoing operation and maintenance of the existing 634 Line, routine tree trimming and vegetation removal would continue to occur to maintain the existing ROW. Therefore, no cumulative effects related to fire hazards would occur.

Mitigation Measures

No significant adverse impacts to wildland fire hazards have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.4 Geological Resources

This section describes the setting for geological resources in the project area and the potential, direct, indirect, and cumulative effects of the Proposed Action Alternative (Alternative 1) and the No Action Alternative (Alternative 2) on geological resources. Geological resources include geology, seismology, and soils.

Regulatory Setting

A brief summary of the relevant laws, regulations, plans, and policies related to geological resources are described and discussed below.

Federal

Federal Earthquake Hazards Reduction Act

The Earthquake Hazards Reduction Act was passed in 1977 to “reduce the risks to life and property” from future earthquakes in the United States. The act established the National Earthquake Hazards Reduction Program (NEHRP). NEHRP’s mission aims to improve the understanding, characterization, and prediction of hazards and vulnerabilities; improve building codes and land use practices; reduce risk through post-earthquake investigations and education, develop and improve the design and construction techniques, improve mitigation capacity, and accelerate the applicable of research results related to earthquakes. The NEHRP designates the Federal Emergency Management Agency (FEMA) as the lead agency for the program.

Lake Tahoe Basin Management Unit Forest Plan and Amendments

The LTBMU consists of a portion of the Tahoe National Forest, along with portions of the Toiyabe and El Dorado National Forests. Management of the LTBMU is guided by the 1988 LTBMU Forest Plan and the 2004 SNFPA. Activities within the LTBMU are required to comply with Forest Plan standards related to soil resources, which are designed to maintain surface groundcover, minimize soil displacement, improve soil productivity, and reduce soil erosion.

Affected Environment

This section describes the existing geological resources as it relates to the Proposed Action Alternative including a description of the geology, seismology, and soil conditions within the project area.

Geology

The project is situated along the Carson Range on the eastern slope of the Sierra Nevada Mountains, adjacent to Carson Valley. The Carson Range of the Sierra Nevada rises abruptly

from the valley floor on its western side with mountain peaks ranging from 9,000 feet to 11,000 feet AMSL. Elevation within the study area ranges from about 4,800 feet to 7,500 feet AMSL. The project area occurs within the granodiorite of Kingsbury Grade and Quaternary alluvium with mass wasting material on the eastern edge of the project area. Figure 7 illustrates the general geology information available for the project area (DOC 2015) (see Appendix A). Granodiorite of Kingsbury Grade is medium grained from the Cretaceous period (Ramelli et. al 2009). The Quaternary alluvium is a fine grain deposit from streams in the river valley or deltas composed of clay, silt, sand and/or gravel from the Quaternary period (USGS 2015). Mass wasting material is formed “by the dislodgement and downslope transport of soil and rock material under the direct application of gravitational body stresses” (USGS 2015).

Seismicity

Seismicity is the relative frequency and distribution of earthquakes, recognized in terms of intensity and magnitude. Intensity is based on the observed effects of ground shaking on people, buildings, and natural areas. Seismic magnitude is measured using the Richter Scale. The Sierra Nevada Range is located in a known seismically active area, and the project area is considered to have a relatively moderate to moderately high potential for shaking caused by seismic activity (CGS 2005). Two main fault lines are found near the project area. One fault line, the Genoa fault line runs through the eastern portion of the project area to the east of the Carson Mountain Range (Douglas County 2012). A second fault line, the Incline Village fault (Dingler et.al. 2009), is found outside the project area along the northeastern edge of Lake Tahoe. Both of these major regional fault lines are illustrated in Figure 8 (see Appendix A)

Broad generalizations can be made about the seismic risk within NFS lands within the project area. Impacts of seismic activity on NFS lands include earthquakes and increased landslides, and rockfalls. Studies as recently as 2012 have determined that faults west of Lake Tahoe referred to as the Tahoe-Sierra frontal fault zone could generate earthquakes with magnitudes ranging from 6.3 to 6.9, and pose a substantial risk to the Lake Tahoe region of California and Nevada (DOI USGS 2012). Also a significant seismic hazard, the Genoa fault is the most active fault in the State of Nevada, with past seismic activity has included a 6.3 magnitude earthquake. Results from large magnitude earthquakes may include large, deep-seated landslide movement, possibly similar to the enormous landslide at Slide Mountain that occurred in western Nevada in the Carson Range between Washoe Valley and Lake Tahoe (Tingly, J., et. al. 2005). During this landslide, 125 million-cubic yards of material failed in response to the 1852 earthquake (USFS 2008a).

The two controlling parameters initiating landslides are hillslope gradient and amount of ground water within the slide mass for non-seismically induced failures. For areas near active fault zones, like the project area, the area will fail due to accelerated forces acting on the slide masses (USFS 2008a). Potential rockfall within the project area could occur where bedrock joints, fractures and other types of planar features are exposed in a rock face with the features dipping out of the slope. Areas containing large steep-sloped glacial deposits of boulder-size materials can also experience increased rockfall (USFS 2008a).

Soils

The majority of the soils within the project area exhibit course texture, with a high percentage of sand, a minor amount of silt and a small amount of clay. There are ten soil types found within the project area. In general these soils are shallow, with a depth of three feet or less. Soils within the project area consist predominantly of either a gravelly loamy coarse sand or a gravelly coarse sand. The soils have a low water holding capacity and high permeability and are susceptible to erosion. The soil types within the project area are described below in Tables 3-5 and 3-6. Figure 9 shows the soils within the project area (see Appendix A).

Table 3-5. Acres of Soil Map Units in Project Area

Map Soil Symbol	Map Unit Name	Acres in Study Area*
161	Witfels-Rock outcrop complex, 4 to 15 % slopes	1.02
163	Witfels-Rock outcrop complex, 30 to 50 % slopes	2.26
931	Temo-Rock outcrop complex, 30 to 50 % slopes	0.09
932	Temo-Rock outcrop complex, 50 to 70 % slopes	26.60
941	Toiyabe-Rock outcrop complex, 30 to 50 % slopes	24.48
942	Toiyabe-Rock outcrop complex, 50 to 75 % slopes	42.62
1072	Corbett-Toiyabe complex, 30 to 50 % slopes	17.16
6297	Holbrook very stony sandy loam, 4 to 15 % slopes	0.81
6452	Mottsville gravelly loamy coarse sand, 4 to 15 % slopes	2.29
7411	Cagwin-Rock outcrop complex, 5 to 15 % slopes, extremely stony	0.52
*Acre calculations reflect the Natural Resources Survey Results Report.		

Source: Natural Resources Survey Results Report HDR 2015d

Table 3-6. Soil Characteristics

Map Soil Symbol	Permeability	Runoff Potential	Flood Frequency	Hydrology Group	Drainage Class	Erosion Hazard Rating
161	High	Very low	None	A	Somewhat excessively drained	Slight
163	High	Low	None	A	Somewhat excessively drained	Severe
931	High	Low	None	D	Excessively drained	Severe
932	High	Low	None	D	Excessively drained	Very Severe
941	High	Low	None	D	Excessively drained	Severe
942	High	Low	None	D	Excessively drained	Very Severe
1072	High	Low	None	A	Somewhat excessively drained	Moderate
6297	High	Low	Rare	B	Well drained	Slight
6452	High	Very low	None	A	Excessively drained	Slight
7411	High	Low	None	B	Somewhat excessively drained	Slight

Source: Soil Survey Staff NRCS 2015b; NRCS 2014

Environmental Consequences

Effects on geological resources are analyzed in terms of the context and intensity of the environmental effects of the Proposed Action Alternative. Context refers to the significance of the action and must be considered in terms of the region, affected resources, and the specific locality. Intensity refers to the severity of an effect. This section discusses the geologic, seismologic, and soil characteristics that would be affected by the implementation of the Proposed Action Alternative. This section also lists EPMs that would avoid or reduce effects to geological resources (refer to Section 2.3 for a full list of project-specific EPMs).

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

The implementation of the Proposed Action Alternative would result in potential temporary and long-term direct effects to geological resources within the project area. A total of 21.13 acres would be impacted by the project, including 11.12 acres on NFS lands. Permanent long-term disturbances to soils would include the loss of approximately 0.44 acres of NFS land, resulting from road improvements. An additional 11.52 acres of temporary disturbance would occur on private land and 1.47 acres would occur on NFS land due to the installation of single-pole and H-frame structures, and from staging areas and pulling sites.

While the project area is known as a seismically active area with moderate to moderate high potential for shaking due to seismic activity, the Proposed Action Alternative would not increase the risk of adverse effects due to seismic activity since the project would replace the existing transmission line infrastructure with upgraded facilities that would improve the structural reliability of the transmission line and meet minimum seismic safety and design requirements. Therefore, no increased risk of exposure to people and structures from ground shaking due to seismic activity would occur.

The soils within the project area exhibit a low water holding capacity, high permeability, and susceptibility to erosion. Given these soil conditions, the installation of transmission line infrastructure could increase the potential for soil erosion due primarily to vegetation removal and soil disturbance, and soil compaction. However, the implementation of design features and EPMs, including those listed below would reduce potentially adverse effects to geological resources (refer to Section 2.3 for a full list of project EPMs).

EPMs

Geology and Soils

12. In areas where significant grading will be required, topsoil (where present) will be stockpiled and segregated for later reapplication.
13. Construction will be prohibited when the soil is too wet to adequately support construction equipment, defined as the development of a four inch rut over 100 feet long.

Additionally, permanent impacts from construction are expected to be minimal and overall impacts are relatively small within the project area. For these reasons, the overall effects associated with geological resources, specifically seismic hazards and potential soil erosion within the project area would be minor.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct temporary and permanent minor effects related to seismic hazards and soil erosion. While there are other past, present, and reasonably foreseeable projects proposed within the project vicinity, the majority of these projects are either near completion or close to completion. Additionally, the other projects are required to implement the same or similar design measures and EPMs to reduce hazards to seismic activity and soil erosion potential. For these reasons, the overall cumulative effect from geological resources is negligible.

Mitigation Measures

EPMs would be implemented to reduce impacts to soils within the project area. No additional mitigation measures are required, other than the project EPMs.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the 634 Line would not be rebuilt. Selection of the No Action Alternative would involve the continued operation and maintenance of the existing 634 Line. Operation and maintenance would involve routine tree trimming and removal, vegetation clearing, minor grading and access roadway maintenance, and other measures to meet annual inspection requirements. Also, because the existing transmission line structures are aging, the Line may require increased maintenance and emergency repair, which may involve increased tree trimming and vegetation removal, and in turn potential soil erosion effects. The majority of these activities are currently occurring under existing conditions and would not change the seismic hazard risks.

While minor effects related to soil erosion could occur, these effects would be short-term and negligible.

Cumulative Effects

Because the implementation of the No Action Alternative would only involve ongoing and continued operation and maintenance of the existing 634 Line, no cumulative effects on geological resources would occur.

Mitigation Measures

No significant adverse impacts to geological resources have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.5 Invasive Plants

This section describes the setting for Invasive Plants in the project area and the potential, direct, indirect, and cumulative effects of the Proposed Action Alternative (Alternative 1) and the No Action Alternative (Alternative 2) on accelerating the spread of invasive plants. The analysis area includes NFS lands and is based on information and conclusions presented in the following baseline technical reports:

- *Biological Evaluation (BE): Botanical Species;*
- *Invasive Plant Risk Assessment: 634 Transmission Line Rebuild Project;* and
- *Natural Resources Survey Results Report.*

These documents are incorporated by reference and are available for review in Appendices E, F, and G, respectively. They are also available for review at the LTBMU Forest Supervisor's office.

Regulatory Setting

A comprehensive summary of statutes governing the management of invasive plants on NFS lands is available in the FSM 2900. A brief summary of the relevant laws, regulations, plans, and policies related to invasive plants are described and discussed below.

Federal

A brief summary of the relevant laws, regulations, plans, and policies related to invasive plants are described and discussed below.

Executive Order 13112

The USFS must comply with EO 13112 (1999), which directs federal agencies to prevent the introduction of invasive species; respond to control such species; and minimize the economic, ecological, and human health impacts from invasive species on public lands.

Forest Service Manual 2080

FSM 2080 was replaced by FSM 2900 in 2011. FSM 2080 revised USFS national policy on noxious weed management to emphasize integrated weed management, which includes prevention and control measures, cooperation, and information collection and reporting.

Forest Service Manual 2900

FSM 2900 directs the USFS to manage invasive species with an emphasis on integrated pest management and collaboration with stakeholders to prioritize prevention and early detection and rapid response actions and to ensure that USFS management activities are designed to minimize or eliminate the possibility of establishing or spreading invasive species in the NFS lands.

Forest Service Manual 2070

FSM 2070 provides guidelines for the use of native materials on NFS lands. It restricts the use of persistent, non-native, invasive plant materials and prohibits the use of noxious weeds for vegetation, rehabilitation, and restoration projects. It also requires that all revegetation projects be reviewed by a trained or certified plant material specialist for consistency with national, regional, and forest policies for the use of native plant materials.

USFS National Strategy and Implementation Plan for Invasive Species Management

This plan identifies all USFS programs and the most significant strategic actions for addressing invasive species. It emphasizes prevention, early detection, and rapid response, prioritization in control and management, and restoration or rehabilitation of degraded areas.

Region 5 Noxious Weed Management Strategy

The Region 5 Noxious Weed Management Strategy guides regional USFS goals and objectives for invasive plant management, emphasizing actions necessary to promote the overall management of noxious weeds, prevent the spread of weeds, control existing stands of weed infestations, and promote the integration of weed issues for all USFS activities.

LTBMU Forest Plan

The 1988 LTBMU Forest Plan does not specifically address invasive plants, though it does provide for the protection and enhancement of threatened and sensitive plant habitat (USFS 1988).

Sierra Nevada Forest Plan Amendment

The 2004 SNFPA to the 1988 LTBMU Forest Plan establishes goals, standards, and guidelines for invasive plant (noxious weed) management for the Sierra Nevada forests. It emphasizes prevention and integrated weed management. It establishes the following invasive plant management priorities: 1) prevent the introduction of new invaders, 2) conduct early treatment of new infestations, and 3) contain and control established infestations. It requires USFS staff to conduct an invasive plant risk assessment to determine the risks for weed spread (high, moderate, or low) associated with different types of proposed management activities (USFS 2004). It also requires USFS staff to develop mitigation measures for high- and moderate-risk activities with reference to the weed prevention practices in the Regional Noxious Weed Management Strategy.

State

NRS Chapter 555, Control of Insects, Pests, and Noxious Weeds regulates the introduction, management, and eradication of noxious weeds. The State Quarantine Officer may declare by regulation the weeds of the state that are noxious weeds, but a weed must not be designated as noxious when it has already been introduced and established in the State to such an extent as to make its control or eradication impracticable in the judgment of the State Quarantine Officer (NRAR 2013).

Affected Environment

In compliance with EO 13112 and the SNFPA, and in preparation of the *Invasive Plant Risk Assessment: 634 Transmission Line Rebuild Project*, field surveys were conducted from June 9 through June 11, and on August 11, 2014. Surveys were intuitively controlled and performed on the proposed access roads, staging areas, and within the transmission line alignment. No invasive species were observed within the analysis area (50 acres of project survey area on NFS lands).

Results of the surveys are documented in the *Invasive Plant Risk Assessment: 634 Transmission Line Rebuild Project* (see Appendix F).

Vegetation is categorized by origin and plant aggression. These categories can range from native, non-native, to naturalized and invasive, weed, and noxious weed. A native plant has been part of the ecosystem for hundreds or thousands of years and is specific to a region or ecosystem. A non-native plant has been introduced to an ecosystem. Some non-native plants become invasive plants. An invasive plant is a non-native plant that has been introduced to a region or ecosystem and grows quickly, likely to the point of disruption of a natural ecosystem (NRCS 2015a). A weed is a native or non-native plant that is not desirable. A noxious weed is a plant that causes damage to crops, livestock, irrigation, navigation, natural resources, public health, or the environment (NRCS 2015a). A list of the invasive species of management concern on the LTBMU can be found within the *Invasive Plant Risk Assessment*. Further research through the Nevada Natural Heritage Program (NNHP) and the Nevada Department of Agriculture (NDOA) indicated that there were no other known invasive plant infestations within the area.

In the adjacent private lands, cheatgrass (*Bromus tectorum*) was documented along the road, as well as in a staging area adjacent to Foothill Road, north of the project area. Infestation areas are shown in the *Invasive Plant Risk Assessment* (see Appendix F). EPMs would be followed to prevent the spread of cheatgrass onto NFS lands throughout the project area. In addition, redstem filaree (*Erodium cicutarium*), Doveweed (*Croton serigerus*), and Russian thistle (*Salsola tragus*) were observed in the sagebrush/bitterbrush association west of the project survey area, particularly along the SR 207 intersections and parking areas; however, these species are non-native species that are not of management concern within the LTBMU.

Environmental Consequences

This section describes the environmental consequences from the potential spread of invasive plants that could occur if the Proposed Action Alternative is constructed in the project area. Effects from noxious weed spread are analyzed in terms of context and intensity of the environmental effects of the Proposed Action Alternative. Context refers to the significance of the action that must be considered in terms of the region, affected resources, and the specific locality. Intensity refers to the severity of an effect. This section also lists EPMs that would avoid or reduce the spread of invasive plants (refer to Section 2.3 for a full list of project-specific EPMs).

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

The implementation of the Proposed Action Alternative would have potential temporary and long-term direct and indirect effects related to the spread of invasive plants within the project area. All activities associated with the implementation of the Proposed Action Alternative would result in temporary disturbance within NFS land; however, the overall impacts would occur on or near existing roads and within previously disturbed areas within the existing ROW corridor. Tree thinning and removal is the only permanent impact related to the spread of invasive plants.

With the exception of the existing access roads near Foothill Road, the majority of the other existing roads that would be utilized for the Proposed Action Alternative would be maintained or upgraded, but not widened. Some excavation by backhoe or a truck-mounted auger would be required for installing single-pole and H-frame structures, however, vehicle access to these structures would be provided by existing roads. Further, those areas that require excavation but do not have existing access are proposed to be excavated by hand. Additional invasive plant project impacts would be identical to those identified in the environmental consequences in Section 3.2, *Botanical Resources*.

Construction, operation, and maintenance activities could also contribute to the introduction and spread of invasive plants by creating suitable conditions for the establishment of such plants. Construction equipment and vehicles used for emergency repairs and routine maintenance trips could also function as vectors for the spread of invasive plants. However, overall habitat vulnerability within the project area is low. The implementation of standard measures, including EPMs such as Invasive Plants 40 through 44 would reduce the risk associated with the spread of invasive plants. Invasive Plants 42 and 44 require proper cleaning of equipment. Invasive Plants 43 calls for avoiding infested areas. Each measure would reduce the risk associated with the spread of invasive plants. Applicable EPMs are included below.

EPMs

Invasive Plants

40. Identification and avoidance: Known noxious weed infestations, including cheatgrass, will be flagged in field and identified on project maps prior to implementation. No equipment, materials and personnel will be staged in noxious weed infestation areas. Disturbances to areas infested with invasive plants will be avoided to the extent possible. For cheatgrass, if an infestation cannot be avoided, implementation will be undertaken first in uninfested areas, then proceed to infested areas; if it is not feasible to first implement proposed actions in un-infested areas, then equipment will be washed after use in infested areas and before use in uninfested areas.
41. Equipment cleaning: All off-road equipment will be cleaned (power or high-pressure cleaning) of all mud, dirt, and plant parts prior to initially moving equipment onto public land. Equipment will be cleaned again if it leaves the project site prior to re-entry. Any equipment or vehicles used in an area infested with invasive plants will be thoroughly cleaned using compressed air or water at a designated cleaning station before they are moved to a new location.
42. Imported materials: All gravel and/or fill material will be certified weed-free. All mulches and topsoil will be weed-free. Do not salvage topsoil that is contaminated with invasive species (including cheatgrass). On NFS lands, seed and plant mixes will be approved by the Forest Botanist or their designated appointee who has knowledge of local flora. Invasive species will not be intentionally used in revegetation. Seed lots will be tested for weed seed and test results will be provided to Forest Service. Persistent non-natives, such as timothy, orchardgrass, ryegrass or crested wheatgrass will not be used in revegetation. As much as possible, seed and plant materials will be from native, high-elevation sources. Whenever feasible, plant material will be collected from as close to project area as possible, preferably from the same watershed and from similar elevation.
43. Treatment: On NFS lands, NVE personnel will identify all invasive plants present on the land to be included in the ROW and provide this information to the USFS. A determination will be made by the USFS of any invasive plants that require flagging for treatment. NVE will treat the invasive plants as required by the USFS.

For these reasons, effects associated with the risk of spreading invasive plants is moderate.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct, but negligible risk related to the spread of invasive plants. While there are other past, present, and reasonably foreseeable projects proposed within the project vicinity, the majority of these projects are near completion. Additionally, these projects have implemented similar federal and state requirements

and design measures and EPMs to reduce the potential spread of invasive plants. For these reasons, the cumulative effect related to the spread of invasive plants is negligible.

Mitigation Measures

No additional mitigation measures are required, other than those listed in Section 2.3, *Project Environmental Protection Measures*.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the 634 Line would not be rebuilt. Selection of the No Action Alternative would involve the continued operation and maintenance of the existing 634 Line. Operation and maintenance would involve routine tree trimming and removal, vegetation clearing to minimize wildland and downed tree hazards, minor grading and access roadway maintenance, and other measures to meet annual inspection requirements. Because the existing transmission line structures are aging, the Line may require increased maintenance and emergency repair, which may involve increased tree trimming and vegetation removal, thereby increasing the potential risk of introducing invasive plants from new and more frequent equipment and vehicle trips. However, given management measures already in place to prevent and control the spread of invasive plants, the overall effects are expected to be negligible.

Cumulative Effects

Because the implementation of the No Action Alternative would only involve ongoing and continued operation and maintenance of the existing 634 Line, no cumulative effects related to the spread of invasive plants would occur.

Mitigation Measures

No significant adverse impacts related to the spread of invasive plants have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.6 Recreation

This section describes the recreational setting in the project area and the potential direct, indirect, and cumulative effects of the Proposed Action Alternative (Alternative 1) and the No Action Alternative (Alternative 2) on recreational resources. The analysis in this section focuses on the potential for project construction and operation and maintenance activities to affect recreation resources.

Regulatory Setting

A range of laws, regulations, plans, and policies related to recreational resources are administered by federal, state, and local agencies. The proposed project is located on both federal NFS public lands and private lands within Douglas County. As a result, both federal and local agencies have laws and policies pertaining to recreational resources. The middle and end portion of the project area is located on NFS lands. The laws and regulations that apply to the Proposed Action Alternative are described and discussed below.

Federal

US Forest Service Regulations for Forest Users

All visitors and users of the National Forests are subject to Federal Regulations published in Title 36 of the CFR, which are on file with the Forest Supervisor and District Ranger Offices (USFS 2015c) The USFS has management authority over the recreational areas in the vicinity of

the project area through the LTBMU Forest Plan (USFS 1988) and SNFPA (USFS 2004). The USFS regulates planning for uses such as camping, hiking, dog walking, mountain biking, equestrian access, and motorized vehicle use. They also publish announcements on fees, campfire regulations, and temporary closings.

Recreation Opportunity Spectrum

Within the LTBMU Forest Plan, the Recreation Opportunity Spectrum (ROS) system classifies recreational opportunities by the types of facilities and degree of contact with visitors (USFS 2015d). The LTBMU Forest Plan designates the current allocations of ROS classes; these classes are also defined in the 2015 Revised Land and Resource Management Plan (USFS 2015e). The ROS is used to assign existing and potential recreational opportunities to NFS lands. The ROS is also used to ensure proposed projects are compatible with the ROS class designations. The ROS defines six recreation opportunity classes that provide different settings for recreation use: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Rural, and Urban. Only four of these classifications occur on LTBMU lands.

According to the ROS Map, the NFS lands in the study area are designated as Rural and Roaded Natural. Rural areas are characterized by substantially modified natural environment. Resource Modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil (USFS 1982). Roaded Natural areas are characterized by predominantly natural-appearing environments with moderate evidence of the signs and sounds of man (USFS 1982). The majority of the project area below Daggett Pass that occurs on NFS lands is designated Roaded Natural. The *ROS Users Guide* describes additional information on the types of access and facilities, lists the typical uses for each class, and provides planning guidance (USFS 1982).

State

Nevada Division of State Parks

The Nevada Division of State Parks (NDSP) administers 24 state park units in Nevada, including 13 state parks, six state recreation areas, four state historical parks, and one state historic site. There are 139 trails identified within the 24 state parks, with a total length of over 271 miles. There are no state parks within the project area. The nearest state parks include Mormon Station State Historic Park in Genoa, located approximately four miles north of the beginning of the project transmission line corridor and Van Sickle Bi-State Park in Stateline, Nevada, located approximately five miles from the end of the proposed transmission line corridor. Neither of these parks are visible from the proposed project area due to topography and intervening vegetation.

Affected Environment

The Lake Tahoe Basin is a popular recreation destination that provides both summer and winter sports activities. Summer activities can include hiking, mountain biking, horseback riding, sightseeing, and nature photography. Below is a summary of the developed recreation parks, facilities, and trail systems within the project vicinity; the existing 634 Line is only visible from some of these parks and facilities.

Recreation Parks and Facilities

Recreation parks and facilities near the proposed project include:

- **David Walley's Hot Springs and Resort.** David Walley's Hot Springs Resort is located north of the beginning of the 634 Line along Foothill Road in Genoa, Nevada. The primary staging area for the proposed project is located across the street from the resort. The

private spa resort features five hot spring pools, a full-service spa, restaurant, saloon, and a special event area.

- **Heavenly Mountain Resort.** Heavenly Mountain Resort is a year-round ski and summer resort operated on LTBMU lands under a Special Use Permit. The resort is generally open as a ski resort from Thanksgiving weekend through April 15th during the winter season. During the summer, the resort offers sightseeing, zip lines, adventure rope courses, hiking, and on-mountain dining. The resort is generally open in the summer from Memorial Day weekend through September 7th. The resort is visible from the project site.
- **Danberg Ranch.** The Danberg Home Ranch Historic Park includes eight historic structures built between 1857 and 1917, along with a large collection of artifacts dating back to 1819. The site is located approximately four miles to the east of the beginning of the 634 Line along Foothill Road. Obstructed background views of the transmission line may be visible from the ranch.

Pedestrian, Hiking, and Bicycle Trails

- **Tahoe Rim Trail.** The Tahoe Rim Trail (TRT) is a 165-mile long-distance hiking trail which forms a loop around Lake Tahoe in the Sierra Nevada and Carson mountain ranges of California and Nevada. Most of the trail is open to hiking, equestrians, and mountain biking. A segment of the TRT runs adjacent to the proposed project area and those portions of the project area are visible from the trail.
- **Daggett Summit Trail System.** The Daggett Summit Trail System recently added over 13 miles of new hiking and biking trails to the Upper Kingsbury community. These trail segments were completed in 2012; they replace four miles of pavement connecting the North and South Kingsbury trailheads. The trail system includes two trailheads: the Kingsbury North (accessed from Kingsbury Grade and Benjamin Drive) and Kingsbury South (accessed from Kingsbury Grade and Tramway Drive and the Heavenly Mountain Resort Stagecoach parking lot). Portions of the proposed project area may be visible from the trail.
- **Pine Basin Area.** Pine Basin consists of a physical depression within the USFS – LTBMU lands. It is located along Kingsbury Grade, approximately one-quarter of a mile past the proposed staging area. A small pull-out along Kingsbury Grade and an informal access roadway provides access to the Basin. The proposed project area is visible from this area.
- **Tahoe/Foothill Existing Trail System.** There are approximately 55.9 existing trails within the Tahoe/Foothills trail system within Douglas County. There are approximately 8.9 on-street trails (hard-surfaced trails) and approximately 46.0 off-street trails (soft-surfaced trails). This trail system includes the Jacks Valley trail system, described below. Portions of the proposed project area may be visible from this trail system.
- **Jacks Valley Trail System.** This trail system currently consists of a Class I path and Class II bike lanes that extend along Jacks Valley Road from the Town of Genoa to the intersection of Jacks Valley Road and Interstate 395. Portions of the proposed project area may be visible from this trail system.

Additional information on how recreational resources and views from these resources are affected by the Proposed Action Alternatives is discussed in Section 3.7, *Visual Resources*.

Environmental Consequences

Effects on recreation resources are analyzed in terms of the context and intensity of the environmental effects of the Proposed Action Alternative. Context refers to the significance of the

action and must be considered in terms of the region, affected resources, and the specific locality. Intensity refers to the severity of an effect. EPMs were incorporated into the analysis to determine if the measures would avoid or minimize impacts to recreation resources (refer to Section 2.3 for a full list of project-specific EPMs).

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

During construction activities, implementation of the Proposed Action Alternative would widen the existing ROW, remove trees, and involve the installation of taller and larger single-pole and H-frame structures. During operation and maintenance activities, the implementation of the Proposed Action Alternative would involve an increase in truck trips to conduct routine maintenance and pole repairs. These activities have the potential to create air emissions, dust, noise, and visual effects that could diminish the quality of the recreational experience for users in the area, resulting in a potential short-term direct adverse effect on recreation resources.

While construction and operation and maintenance activities have the potential to create air emissions, dust, noise, and visual effects, most of these activities would be temporary. Although the project has the potential to affect the recreational experience for viewers who may be impacted by the change in the visual quality of the project from the installation of taller and larger pole structures, these new features would not dominate the landscape, nor be out of character with the features of the existing 634 Line. As discussed in more detail in Section 3.7, *Visual Resources*, the proposed single poles and H-frame structures would blend with the surrounding trees in terms of line, form, and color, resulting in a minor degree of contrast. Also, alternate pole structures and heights would not affect users' access or change the nature of travel through the area. Access to some areas would be restricted over the short-term, during a period of revegetation/reseeding; however, this would not prohibit or alter visitor access or experience.

Construction and routine operation and maintenance activities could require temporary access restrictions in some portions of the project area during summer/fall months, including on NFS lands. These temporary restrictions would result in short-term direct effects on recreational access to public lands and trails, such as the TRT and Daggett Summit Trail System. However, construction activities would be temporary and adequate notification would be provided for recreation users to access other trails in the vicinity. Nonetheless, LTBMU staff noted that some recreation users can experience confusion when trying to follow the TRT through the Upper Kingsbury community which is segmented in areas between Heavenly Mountain Resort and Tramway Drive. To ensure recreation users stay on designated trails during construction, adequate directional signage would be installed by the project applicant or the project applicant's contractor near the segment of the TRT to the north of Tramway Drive. The purpose of the signage would be to ensure that hikers, equestrians, and mountain bikers follow the designated trail, and do not travel along the temporary access road to the transmission pole structures. Because access roadway restrictions would be temporary, require adequate notification to ensure recreation users can access other facilities in the vicinity, and include the installation of adequate directional signage advising of construction, the Proposed Action Alternative would have a minor effect on access to public recreation amenities.

In the immediate project area, the portion of the alignment that occurs on NFS land is largely obstructed from public roadways, such as Kingsbury Grade and from public hiking trails, such as the TRT and Daggett Summit Trail System. The proposed structures on NFS land would only be visible for a short duration during the through-activities that most recreationists in the area engage in such as hiking. Recreationists within the immediate project area may also experience beneficial indirect effects over time, after the widened ROW corridor is restored and mature vegetation begins to screen views of the transmission line poles. The implementation of EPMs listed below

relative to vegetation, air quality, and recreation and visual resources would further reduce environmental resources that affect the quality of visitor's recreational experience.

EPMs

Air Quality

6. All areas subject to ground disturbance and access roads will be watered as needed to control dust.

Botanical Resources

7. Where possible, vegetation will be left in place. Where vegetation must be removed, it will be cut at ground level to preserve the root structure and allow for potential resprouting.

Recreation and Visual Resources

49. The proposed design of the new single-pole structures and the H-frame structures would include the use of non-specular conductors (i.e. treated aluminum surfaces to reduce reflectivity, glare, and visual contrast effects), natural and self-weathering materials, dark and earth-tone colors, and wood textures that would minimize the appearance of the pole structures and conductors against the existing landscape (see Figure 5 in Appendix A).
50. If temporary public roadways or trails need to be closed during construction activities, NVE would install temporary signage along major access points to the public roadways and trails to give advanced notice of construction any closures/reroutes. The signage would clearly inform users that the roadway or trail will be closed during specific timeframes, and when the roadway or trail will be re-opened.
51. NVE will limit any closure to heavily used and popular public access roadways and trails, such as the Tahoe Rim Trail to the maximum extent possible. If closures to such roadways and trails are necessary, they will be limited to a maximum of one hour.
52. All temporary and permanent signs provided by NVE will meet USFS universal accessibility standards, specifically the Architectural Barriers Act Accessibility Standards (ABAAS) and Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG).

For these reasons, the overall effect of construction and routine operation and maintenance activities on the quality of the recreational experience within the project vicinity would be minor.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct, short-term, and minor effects during construction, and beneficial indirect effects following reseeding and restoration of the modified ROW corridor, related to improved emergency access and increased vegetation screening. There are other past, present, and reasonably foreseeable projects proposed within the project vicinity, including trail improvements along the Daggett Summit Trail System (i.e., Kingsbury Stinger Trail) and capital improvements proposed at Heavenly Mountain Resort (i.e., Epic Discovery Park) that have the potential to generate fugitive dust emissions and noise, and create visual impacts during construction. However, these improvements are currently under construction or near completion and would not generate fugitive dust emissions, noise, or result in visual effects at the same time as the Proposed Action Alternative. Additionally, these projects must also comply with applicable environmental regulations and many include BMPs, further minimizing potential effects. For these reasons, the overall cumulative effect on recreational resources would be minor.

Mitigation Measures

Additional mitigation measures for visual resources would be implemented by the project applicant or the applicant's contractor, as prescribed by the USFS staff. These same measures would also reduce potential effects to recreation resources. These measures are listed in Section 3.7, *Visual Resources*. These mitigation measures would further ensure that the recreation effects as a result of implementing the Proposed Action Alternative would be minor.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the 634 Line would not be rebuilt. The No Action Alternative would involve the continued operation and maintenance of the existing 634 Line. Operation and maintenance would involve tree trimming and removal, vegetation clearing to minimize wildland and downed tree hazards, minor grading and access roadway maintenance, and other measures to meeting annual inspection requirements. Structures may be replaced as part of emergency maintenance activities, but these replacements would result in a negligible effect on recreational resources. Because the existing transmission line structures are aging, the Line may require increased maintenance and emergency repair or replacement, increasing the amount of intermittent traffic along the access roadways. Recreationists may be most sensitive to this increased traffic. However, the overall increase in traffic is expected to be limited to a single vehicle and result in a negligible effect. The No Action Alternative would also result in fewer disturbances to recreationists in the short-term, since no new construction-related activities would occur and no new views of the existing 634 Line would be created or altered from existing public viewpoints. For these reasons, direct and indirect recreation effects would be negligible.

Cumulative Effects

Because the implementation of the No Action Alternative would only involve ongoing and continued operation and maintenance of the existing 634 Line, no cumulative effects would occur.

Mitigation Measures

No significant adverse impacts to recreational resources have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.7 Visual Resources

This section describes the visual setting in the project area and the potential direct, indirect, and cumulative effects of the Proposed Action Alternative (Alternative 1) and the No Action Alternative (Alternative 2) on visual resources. The analysis in this section is based on a site visit conducted by Amec Foster Wheeler staff and a focused site visit conducted by NVE, Amec Foster Wheeler, and LTBMU staff to pole structure locations near the TRT and along Kingsbury Grade.

Regulatory Setting

A range of laws, regulations, plans, and policies related to visual resources are administered by federal, state, and local agencies. The proposed project is located within overlapping federal and local jurisdictions that have laws and policies pertaining to visual resources. The middle and end portion of the project area is located on NFS land. The project area also occurs on private lands located within Douglas County, Nevada. The federal laws and regulations would apply to the portion of the Proposed Action Alternative that occurs on NFS lands, which are described and discussed below.

Federal

LTBMU Forest Plan

The LTBMU Forest Plan, as amended by the SNFPA, is used as a basis for evaluating a proposed action's direct and indirect effect on visual resources. Specifically, the context and intensity of an alternative's potential impact to visual resources is evaluated based on the Visual Management System (VMS). The VMS provides an overall framework for the inventory, analysis, and management of the visual environment on NFS land (USFS 1974). Under the VMS, the USFS established management goals referred to as Visual Quality Objectives (VQOs) to describe the level of visible modification resulting from proposed land use activities that are considered acceptable in a given area. The five VQOs, in order of scenic quality and levels of afforded protection, include: *Preservation* (i.e., the highest degree of scenic quality), *Retention* (i.e., appearing unaltered), *Partial Retention* (i.e., appearing slightly altered), *Modification* (i.e., moderately altered), and *Maximum Modification* (i.e., heavily altered) (USFS 2004).

The VQO level applicable to the NFS lands within the project area includes:

- **Retention (R)** – The Retention (R) VQO provides visual guidance for management activities that are not visually evident. Under Retention, activities may only repeat form, line, color, and texture that are frequently found in the characteristic landscape. Changes in size, amount, intensity, direction, and pattern should not be evident.

The middle portion of the project area occurs within NFS land that has a Retention VQO designation. Figure 10 shows the VQO designations for the NFS lands managed by the LTBMU within the project area (Appendix A).

State

There are no applicable state laws or regulations in Nevada pertaining to visual resource protection. Further, there are no scenic byways within the project vicinity. The nearest state-designated scenic byway is SR 28 located along the east shore of Lake Tahoe.

Affected Environment

This section describes the existing visual environment as it relates to the Proposed Action Alternative, including a description of the visual resources study area (e.g., sensitive viewing locations), potentially affected user groups (e.g., motorists, recreationists), and the scenic quality conditions in within the project area and for representative viewpoints along segments of the transmission line.

Visual Setting

Within the project corridor, the affected environment includes both a natural physical and built human-made landscape. The physical environment along the existing transmission line includes terrain that consists of an open and flat valley on the Carson Valley side that quickly transitions to rolling foothills and mountainous terrain along Kingsbury Grade on the eastern slope of the Lake Tahoe Basin. The flat valley and foothill terrain consists of rolling hills, patchy shrubs and grasses interspersed with conifer stands, and broad and open viewsheds.

The dominant vegetation near the beginning of the project corridor includes sagebrush habitat near the Carson Valley. During the summer months, the bare soils appear sandy and dry on the Carson Valley side and high winds can create dust and reduce visibility in the area. During the winter months, snow covers much of the area, and creates a greater visual contrast where there are roadways, ski slopes, ROWs, and other features where the ground is bare and visible.

After the existing transmission line crosses Kingsbury Grade, it parallels the highway and then traverses over the highway at two other locations. The mountainous terrain along Kingsbury Grade consists of varying topography and dense, dark, and tall conifer stands. Along the highway, the vegetation transitions to forest conifer stands up the Sierra Nevada Mountains towards Daggett Pass. The sinuous landscape can preclude broad and open viewsheds. Within the mountainous terrain, the coniferous forest provides a linear landscape of trees that is interspersed with steep drainages, open meadows, and ravines.

The built human-made environment within the project area is related to urban development, agriculture, highways and roadways, and electrical transmission infrastructure. Other than the public roadways (i.e., Foothill Road), urban development within the project corridor is limited.

Residential development is clustered near the Carson Valley within the small towns of Genoa, located to the north and east of the beginning of the transmission line along Foothill Road, and near the towns of Minden and Gardnerville, located to the southeast of the beginning of the transmission line along US Highway 395. Agricultural development occurs along the periphery of these communities and along Foothill Road. Within the Carson Valley side, there is also tourism-based land uses, located to the east of the project corridor. Existing local roadways and other electrical power lines are visible along Foothill Road.

Residential and tourism-related uses also occur near the top of Daggett Pass in the Upper Kingsbury community, but urban development is dispersed and very limited along Kingsbury Grade. The majority of the land uses along Kingsbury Grade consist of private and public lands.

Viewshed and Visibility

The project viewshed consists of the geographical area visible to viewers from various vantage points along the project corridor, specifically, the portion of the corridor visible to the public from state highways, county roadways, public dirt roadways and trails, recreational areas, and residential communities in Genoa, Minden, and Kingsbury. It includes surrounding points that are in line-of-sight with a specific location and excludes all points that are beyond the horizon or obstructed by terrain, or other features (e.g., buildings, trees). A viewshed can consist of up to three types of views: foreground, middleground, and background views. Because the majority of the landscape within the project corridor is forested, the viewshed may be narrower than a viewshed typical of a project area without intervening vegetation. The three types of views that may occur within the project area are summarized below.

Foreground Views

Foreground views consist of the viewshed visible within 300 feet of a project area. The 634 Line corridor consists of a narrow and confined viewshed characterized by dense and mature conifer trees, understory vegetation, rock outcroppings, and varying topography that limit a viewer's field of vision (line-of-sight), making mainly foreground views visible from the project area. Further, the height of existing tree canopy within the majority of the project corridor exceeds the height of the existing pole structures. Therefore, mainly foreground views are visible from Kingsbury Grade, local roadways, the TRT, Daggett Summit Trail System, and the residential areas, thereby limiting most public views into the project area.

Middleground Views

Middleground views consist of the viewshed visible from 0.5 to 4 miles from the project area. These views would be visible from various locations along corridor near the valley floor in Carson Valley along Foothill Road, along Kingsbury Grade, and from segments of the project corridor near Daggett Pass. Middleground views may also occur along trail segments and vista points along the TRT and Daggett Summit Trail System, and along Kingsbury Grade. From these

locations, the contrast of the vegetation clearings within the ROW corridor may be more noticeable than the transmission poles and the conductors. These ROW clearings may also be more visible during winter months when snow cover can accentuate the areas that are not forested. However, because the density and height of the tree canopy is expected to screen the views from along roadways, flat areas in the valley, or vista points at the top of Daggett Pass, the cleared ROWs may be less visible. Therefore, the project corridor is only expected to be visible to observers within 0.5 mile to 4 miles of the proposed project corridor under the following conditions: 1) the foreground is clear of obstructions (e.g., valley floor), 2) the viewer's line of sight is uninterrupted, and 3) the transmission line corridor is aligned in the same direction as the viewer's line of sight. Otherwise, middleground views of the transmission line corridor would not be visible because a viewer's line of sight may cross the viewshed (instead of being in line with it) and the height of the trees of the ROW would screen the corridor.

Background Views

Background views consist of the viewshed visible 4 miles or greater from a project area. Background views from the first third of the transmission corridor consist of Carson Valley. As the transmission corridor traverses up the Carson Range, the ROW clearing becomes less visible to viewers from the valley floor due to varying topography, therefore background views are limited along this portion of the line. Background views of the project corridor from nearby roadways are also very limited. Because of the density of the existing mature conifer trees, the height of the tree canopy, the lack of open areas such as meadows or fields, and the overall lack of viewer locations where the viewer's line of sight would be uninterrupted and aligned in the same direction as the transmission line corridor, there are few background views in the project area. For these reasons, the project corridor would mainly consist of immediate foreground and middleground views, with the exception of certain locations in the background that may be visible from Carson Valley, the existing trail systems, or Heavenly Mountain Resort.

Visual Character

The visual character of the project area is best described in terms of two distinct contexts: developed areas with residential communities and undeveloped areas within the Carson Range along Kingsbury Grade. Development occurs at the beginning of the existing transmission line corridor near the town of Genoa and at the end of the corridor near Daggett Pass within the Upper Kingsbury community. The middle portion of the project corridor consists of undeveloped NFS lands. The following section organizes the existing project corridor into four segments. The visual character of each segment is described and illustrated by photographs of the scenic features along the transmission corridor and from key locations along nearby hiking trails (Appendix A). Figure 11 shows the location and direction of view for each photograph. Figures 12 through 15 include the photographs of each segment described below.

Segment 1. Foothill Road to Second Kingsbury Grade Crossing

The first several pole locations of the existing overhead transmission line are on private lands, and outside the jurisdiction of the LTBMU. The overall visual character within this segment has an undeveloped and open appearance. These first pole locations are visible from Foothill Road and as the corridor extends up the slope from Foothill Road towards Kingsbury Grade. These pole locations do not include the transmission line that parallels Foothill Road; the 634 Line begins south of the Kingsbury Grade and Foothill Road intersection. The line is fairly visible in this portion of the project corridor, due to the lack of trees. The visual character is defined by vegetation that consists mainly of sagebrush scrub. Rock outcroppings, boulders, and bare slopes are also visible. The density of trees increases as the transmission line extends up the eastern slope, after the first Kingsbury Grade crossing. Where areas are steep, most of the slope is open, rocky, and

exposed. Where areas are less steep, trees are more prominent and begin to obstruct the view of the existing transmission line.

Several pole locations of the overhead transmission line from the first crossing with Kingsbury Grade are visible and unobstructed by vegetation. These structures are visible by motorists and bicyclists traveling along the highway. After the first crossing with Kingsbury Grade, six of the existing poles are situated adjacent to and south of the highway. All of these poles are visible from the highway. Figure 12 illustrates the views within Segment 1.

Segment 2. Second Crossing with Kingsbury Grade to Staging Area

After the second crossing with Kingsbury Grade, approximately one-eighth of a mile further up the highway, the density of tree cover increases, and existing pole structures become partially obstructed. The overall visual character within this segment has an undeveloped appearance with the only man-made development limited to highway and electrical infrastructure. The majority of the pole structures are located on NFS lands. Within this segment, the existing transmission corridor runs parallel to Kingsbury Grade for approximately one-quarter of a mile along a steep slope vegetated with sagebrush and conifer trees. Because the pole structures are situated approximately 500 feet from the highway and obstructed by trees, the structures along this segment are only visible to motorists and bicyclists travelling along Kingsbury Grade. At the three locations where the line crosses the highway, a viewer's line of sight would be uninterrupted and aligned in the same direction as the transmission line corridor.

As vehicles travelling along the highway approach the staging area, a large pull-out parking area located to the west side of the highway, the last few pole structures within this segment are almost entirely obstructed due to steep terrain. The existing pole structures east of the staging area are only visible if viewers look down the ravine. From the staging area, the 50-foot wide ROW is visible to the east down the slope, but less apparent to the west, as the transmission line extends up a steep slope away from the third crossing with Kingsbury Grade. A steep and eroded dirt roadway that leads to the transmission line on the west side of the highway near the staging area and one pole structure is clearly visible from this location. The other pole structures, past the structure closest to the highway are not visible. Figure 13 illustrates the views within Segment 2.

Segment 3: Staging Area to Proposed New Roadway

There are approximately 18 existing poles between the staging area and the proposed new roadway. This section of the transmission corridor spans several peaks, ravines, steep terrain, and various drainages before it reaches the top of Daggett Pass. The terrain and the remoteness of the line give the segment an undeveloped and mountainous character. The area is heavily vegetated with mature conifer trees, and few existing roadways access the existing transmission corridor. While sections of the transmission corridor ROW may be visible from the existing dirt roadways, little of this segment is visible by motorists and bicyclists travelling on Kingsbury Grade or roadways within the Upper Kingsbury community. Also, while the majority of this segment falls within NFS lands, the last five poles within this segment are on private lands. Figure 14 illustrates the views within Segment 3.

Segment 4: Proposed New Roadway to End of 634 Line

There are approximately 12 existing poles between the proposed new roadway and the end of the transmission line. The segment has an undeveloped and mountainous character until it reaches the Upper Kingsbury community, where the condominiums and residences give the area a developed character. Within the undeveloped segment, forest cover is fairly dense. Rock outcroppings and boulders are prominent in various locations. Several existing dirt roadways access the poles along this segment of the transmission corridor, however, none of the roads appear to be regularly used. The TRT traverses the end of the transmission corridor,

approximately 400 feet from the last existing pole. Various trails that are part of the Daggett Summit Trail system are located to the north of the existing transmission line corridor, and north of Kingsbury Grade. The last several poles of the transmission line may be visible from a vista point located along the Northeast Segment of the Daggett Summit Trail system. The last portion of the segment ends within the Upper Kingsbury community and is surrounded by local roadways, condominiums, residences, and tourist-accommodations. Figure 14 illustrates the views within Segment 4. The existing line is visible from short portions of the TRT.

Viewer Types

Different groups of people have varying expectations for experiences of visual resources. The two types of potentially affected viewer groups in the project area include roadway motorists and recreationists. Viewer type and duration of views can influence viewer sensitivity to changes to visual resources. For the purposes of this analysis, the two viewer types are described separately, but they may both experience the project views the same.

Roadway Motorists

Roadway motorists represent the largest affected viewer group within the project area. This group includes motorists travelling on state and local roadways near the project area, such as Kingsbury Grade (SR 207), Foothill Road, and Tramway Drive. Motorists include both local travelers that are familiar with the visual setting, and visiting travelers less familiar with the visual setting. Motorists familiar with the project area may include commuters, commercial truck drivers, delivery truck drivers, and other business drivers. These viewer groups are less likely to stop along the roadway. The visiting travelers may use the roads to reach vacation destinations, such as Lake Tahoe or Heavenly Mountain Resort; these viewer groups are more likely to stop along the roadways to take photographs of the views.

Recreationists

The second affected viewer group within the project area includes recreationists in the Carson Valley, Lake Tahoe Basin, and Sierra Nevada range area. The Lake Tahoe Basin is a popular recreation destination that provides both summer and winter sports activities. Portions of the line may be visible from the TRT and Daggett Summit Trail System. Views of the existing line may also be visible during winter months from Heavenly Mountain Resort. While recreation visitors may have brief views of the project corridor, because this viewer group expects a natural setting, these viewers have a moderate to high visual sensitivity.

Recreation trails, amenities, and facilities from which the portions of the proposed project could be visible are summarized in Section 3.6, *Recreation*. This section focuses on recreational areas that may include views of the project transmission corridor.

Environmental Consequences

Effects on visual resources are analyzed in terms of the context and intensity of the environmental effects of the Proposed Action Alternative. Context refers to the significance of the action and must be considered in terms of the region, affected resources, and the specific locality. Intensity refers to the severity of an effect.

For this analysis, the basic elements of form, line, color, and texture are used to describe the existing landscape and the components of the Proposed Action Alternative. This comparison helps determine the degree of contrast resulting from the Proposed Action Alternative. In addition, the analysis includes a review of existing visual resource information for the project area, such as maps and project schematics and fabrication drawings provided by the applicant (TriSage Consulting 2015). The analysis also included a site visit. No visual simulations were prepared for

the project. Further, EPMs were incorporated into the analysis to determine if the measures would avoid or minimize impacts to visual resources (refer to Section 2.3 for a full list of project-specific EPMs).

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

The implementation of the Proposed Action Alternative would be consistent with established federal and local land use plans and relevant laws, regulations, policies, program guidance, and other applicable permitting requirements related to visual resources. The implementation of the Proposed Action Alternative would also be consistent with the USFS VQOs. However, construction activities would result in a direct, long-term effect due to the replacement of wood pole structures with fewer, larger, and taller steel single-pole and H-frame structures within a wider ROW corridor. Construction would also result in long-term visual effects associated with vegetation clearing and the installation of a new roadway, in addition to improvements to existing roadways.

The wider ROW would occur within the middle portion of the existing alignment along a 1.02-mile portion on NFS land subject to USFS VQO for Retention. The corridor would be widened to accommodate seven H-frame structures. The increased height and slightly larger size and configuration of the new single-poles and the H-frame structures may increase the visibility of the rebuilt line,. Further, the new roadway and proposed roadway improvements may increase the visibility of the project corridor through vegetation clearing and opening up views to and from the project ROW from locations along public highways, roadways, and nearby hiking trails.

However, because revegetation would colonize after construction, the direct visual effect of vegetation clearing would be most severe immediately following construction, but the overall effect would decrease over time as the understory vegetation grows back. The vegetation clearing activities present very little change from current ROW operation and maintenance activities. Further, the middle portion of the project ROW corridor is not clearly visible from public roadways or recreational amenities, and the remainder of the corridor is only partially visible from Kingsbury Grade; and from limited locations along the TRT, the Daggett Summit Trail System, Heavenly Mountain Resort; and the existing dirt access roadways. Few motorists and recreationists use these roadways. Further, because portions of the existing transmission line ROW are already visible from these roadways, viewer sensitivity to visual changes is expected to be low.

As for the overall change in height of the pole structures, the 20 to 30 feet increase from the existing single-pole structures and the combination of the new single-pole and H-frame structures is not expected to be noticeable, nor are these changes expected to draw attention or change the views of the dominant landscape. In most locations, the new pole structures would be installed adjacent to the existing poles, or within close proximity to the existing poles. While the new H-frame structures would result in a visual contrast created by the horizontal lines introduced by the pole cross-arms and conductors, the vertical form and lines introduced by these poles would repeat the same vertical form of the existing trees, and the surrounding trees exceed the proposed height of the new and taller H-frame structures. Also, the overall number of poles within this portion of the alignment on NFS land is reduced from 30 single-pole structures to seven H-frame structures, resulting in an overall reduction of 23 single-pole structures. As a result, the total number of pole structures visible to travelers along the dirt access roads would be less. Additionally, the proposed design includes the use of non-specular (i.e. treated aluminum surfaces to reduce reflectivity) conductors and natural and self-weathering materials, dark and earth-tone colors, and wood textures that would minimize the appearance of the pole structures and conductors against the existing landscape. EPMs related to botanical resources would also be implemented that minimize visual effects during construction through screening and blocking

the lines from view, thereby lessening the visual effect. As a result of the minimal degree of contrast expected, and the implementation of various design measures, the dominant landscape would be preserved. Therefore, the USFS VQO for Retention would be maintained, and the overall visual effects from construction would be minor.

During routine operations, maintenance, and emergency response, heavy equipment may be noticeable along portions of the existing access roadways that lead from Kingsbury Grade or are staged within close proximity to the highway resulting in a direct, short-term effect. However, most of these roadways, as well as the proposed new roadway are not visible from the highway, as they drop in elevation and follow the contours of the steep topography. The appearance of these roadways would remain very close to existing conditions, as only minimal widening and grading activities are proposed. Therefore, the existing and proposed access roadways would continue to appear as narrow corridors where trees are removed, but low-growing vegetation is present. Also, vehicle traffic associated with routine inspections would be intermittent and often limited to a single vehicle. For motorists and recreationists travelling along the access roadways, the cleared ROW may be largely visible, although views of the corridor are expected to be brief. Further, because the density and height of the trees along the ROW vary, the permanent 90-foot ROW corridor would not appear as a well-defined symmetrical edge in the landscape. Additionally, the vegetation near the access roadways could partially screen the ROW from view. As a result, visual effects during operation and maintenance activities would be negligible.

Table 3-7 summarizes the proposed construction and operation and maintenance activities that would occur under the Proposed Action Alternative and the potential direct and indirect visual impacts expected, and the duration and intensity of the effect.

Table 3-7. Visual Impacts from the Implementation of the Proposed Action Alternative

Activity	Direct vs. Indirect	Duration	Intensity
Right-of-Way Preparation	Direct	Short-Term	Minor
Single-Pole/H-Frame Structure Construction ¹	Direct	Long-term	Minor
Right-of-Way Restoration	Indirect	Long-term	Negligible
Operation and Maintenance	Direct	Short-term	Negligible
NOTES			
1 – Includes combination of structure construction and old 60 kV topping and conductor removal.			

Finally, the prominence of the ROW clearing, single-pole and H-frame structure construction, and addition of new conductors would not be uncharacteristic of the existing landscape. There are numerous other transmission and distribution line corridors in the project vicinity, including several that connect to (or “tap”) the existing alignment (e.g., 112 kV Line, 634 Kingsbury Tap). Both frequent motorists and recreationist user groups to the area are regularly exposed to the visual effects of these transmission and distribution lines. As a rebuild project, the vertical orientation and shape of the new single-poles and H-frame structures would reflect the line, form, and color of the mature conifer trees in the forest; and the conductors would be minimally obtrusive because the applicant has proposed the use of non-specular conductors. Further, the EPMs listed below would minimize visual effects related to vegetation removal, soil disturbance, and recreation and visual resources.

EPMs

Botanical Resources

- Where possible, vegetation will be left in place. Where vegetation must be removed, it will be cut at ground level to preserve the root structure and allow for potential resprouting.

Geology and Soils

12. In areas where significant grading will be required, topsoil (where present) will be stockpiled and segregated for later reapplication.
13. Construction will be prohibited when the soil is too wet to adequately support construction equipment, defined as the development of a four inch rut over 100 feet long.

Recreation and Visual Resources

49. The proposed design of the new single-pole structures and the H-frame structures would include the use of non-specular conductors (i.e. treated aluminum surfaces to reduce reflectivity, glare, and visual contrast effects) natural and self-weathering materials, dark and earth-tone colors, and wood textures that would minimize the appearance of the pole structures and conductors against the existing landscape (see Figure 5 in Appendix A).
50. If temporary public roadways or trails need to be closed during construction activities, NVE would install temporary signage along major access points to the public roadways and trails to give advanced notice of construction any closures/reroutes. The signage would clearly inform users that the roadway or trail will be closed during specific timeframes, and when the roadway or trail will be re-opened.
51. NVE will limit any closure to heavily used and popular public access roadways and trails, such as the Tahoe Rim Trail to the maximum extent possible. If closures to such roadways and trails are necessary, they will be limited to a maximum of one hour.
14. All temporary and permanent signs provided by NVE will meet USFS universal accessibility standards, specifically the Architectural Barriers Act Accessibility Standards (ABAAS) and Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG).

With the implementation of the EPMs, where vegetation must be removed, it will be cut at ground level to preserve the root structure and allow for potential re-sprouting. Therefore, where vegetation would not interfere with the operation and safety of the transmission line, it may provide screening from viewers on nearby roadways. Similarly, soil disturbance would be minimized. Further, the structural elements that comprise the Proposed Action Alternative would meet the adopted VQO for Retention. In addition, the ground disturbance and vegetation clearing associated with the long-term maintenance of the line would meet the VQO for Retention because these activities would mimic the existing visual features of the forest, which already include cleared ROW corridors and roadway easements created by the existing USFS roads and the existing transmission and distribution lines. Under the VQO of Retention, activities must repeat form, line, color, and texture, which are frequently found in the characteristic landscape. The implementation of additional Recreation and Visual Resource EPMs would further reduce visual effects. In summary, the Proposed Action Alternative would meet the objectives of the VQO for Retention. As a result, the visual effects during construction, operation and maintenance, and from the overall prominence of the new pole structures and vegetation clearing would be minor.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct short-term and long-term minor adverse visual effects, and beneficial indirect effects following restoration and revegetation of the modified ROW corridor. However, the anticipated visual cumulative effects would be consistent with the existing landscape setting and character, as viewed from Foothill Road, Kingsbury Grade, access roadways, the TRT, and the Daggett Summit Trail System. Further, although there are other past, present, and reasonably foreseeable projects proposed within the project vicinity, the majority of these improvements are currently under construction and the trail and resort capital improvements are intended to increase recreational opportunities in the

Tahoe Basin, thereby improving the visual experience for recreationists. For these reasons, the overall visual cumulative effect within the local area would be minor.

Mitigation Measures

In addition to project EPMs, the following mitigation measures would be implemented by the project applicant, or the applicant's contractor, as prescribed by LTBMU staff (Sommers 2015).

1. The access route to the last pole (i.e., Proposed Pole Structure P31), adjacent to Tramway Drive in the Upper Kingsbury community, shall be decommissioned after construction by the project applicant's contractor using mulch, and if feasible, hydroseeding.
2. The project applicant's contractor shall install the access road to the last pole (i.e., Proposed Pole Structure P31) within four weeks during the project construction period.
3. During construction, signage shall be installed by the project applicant's contractor near the segment of the Tahoe Rim Trail to the north of Tramway Drive. The purpose of the signage shall be to ensure hikers, equestrians, and mountain bikers follow the correct trail, and do not travel along the temporary access road to the transmission line. The signage shall be removed within two weeks after the temporary trail has been decommissioned.
4. The project applicant's contractor shall coat all reflective surfaces on pole structures and other project components with a non-reflective surface prior to operation.
5. The project applicant shall ensure that all proposed pole structures (i.e., single poles and H-frame structures) are constructed with corten steel where feasible, or another - weathering alternative approved by the Forest Service.

These mitigation measures would ensure the visual effects as a result of implementing the Proposed Action Alternative would be minor.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the 634 Line would not be rebuilt. The implementation of the No Action Alternative would involve the continued operation and maintenance of the existing 634 Line. Operation and maintenance would involve routine tree trimming and removal to minimize wildland and downed tree hazards, minor grading and access roadway maintenance, and other measures to meet annual inspection requirements. Structures may be replaced as part of emergency maintenance activities, but these replacements would result in a negligible visual effect in those areas. Because the existing transmission line structures are aging, the Line may also require increased maintenance and emergency repair or replacement, increasing the amount of intermittent traffic along the access roadways. Residents and recreationists may be most sensitive to this increased traffic. However, the overall increase in traffic is expected to be limited to a single vehicle and result in a negligible visual effect. Under this alternative, no new views of the existing 634 Line would be created, and views from existing public viewpoints would remain the same. For these reasons, direct and indirect visual effects would be negligible.

Cumulative Effects

Because the implementation of the No Action Alternative would only involve ongoing and continued operation and maintenance of the existing 634 Line, no cumulative effects to visual resources would occur.

Mitigation Measures

No significant adverse impacts to visual resources have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.8 Water Resources

This section describes the setting for water resources in the project area and the potential, direct, indirect, and cumulative effects of the Proposed Action Alternative (Alternative 1) and the No Action Alternative (Alternative 2) on water resources. Water resources evaluated include the presence of perennial and ephemeral drainages, springs, wetlands and potential Waters of the United States (WOUS), as well as the Proposed Action Alternative's potential to increase stormwater runoff.

Regulatory Setting

A brief summary of the relevant laws, regulations, plans, and policies related to water resources are described and discussed below.

Federal

Clean Water Act

The Clean Water Act (CWA) provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. Under Section 404, the discharge of fill materials into WOUS, including wetlands, is prohibited. To discharge dredged or fill materials into WOUS, or wetlands, Section 404 requires projects receive authorization from the United States Army Corps of Engineers (USACE).

Under Section 401, applicants must obtain a permit to conduct activities that may result in the discharge of a pollutant into a WOUS. The certification must be obtained from the state in which the discharge would originate.

Under Section 402, National Pollutant Discharge Elimination System (NPDES) permits are issued to regulate discharges of pollutants into WOUS. A NPDES permit sets specific discharge limits for point sources discharging pollutants into WOUS and establishes monitoring and reporting requirements.

Federal Antidegradation Policy

The Federal Antidegradation Policy was enacted to provide protection to high-quality water resources of national importance. It directs states to develop and adopt statewide antidegradation policies that include protecting existing instream water uses and maintaining a level of water quality necessary to protect existing uses.

Floodplain Management Executive Order 11988

Adopted in 1977, the Floodplain Management EO 11988 directs all federal agencies to evaluate potential effects of any actions it may take in a floodplain and to avoid all adverse impacts associated with modifications to floodplains. FEMA oversees floodplain management and runs the National Flood Insurance Program (NFIP) adopted under the National Flood Insurance Act of 1968. FEMA prepares Flood Insurance Rate Maps (FIRMs) that delineate the regulatory floodplain and assist local governments, such as Douglas County with land use and floodplain management. The NFIP mandates that development not occur within the 100-year regulatory floodplain, if the development is expected to increase flood elevation by one foot or more.

LTBMU Forest Plan

The LTBMU Forest Plan guides management decisions and contains guidelines aimed to protect water, soil, and riparian resources. The protection of water quality and its influence on Lake Tahoe's water clarity is designated as the highest priority under the Plan's management guidelines.

State

Nevada Division of Environmental Protection

The NDEP administers temporary permit applications for working in waterways, issues 401 water quality certification, and issues general construction stormwater permits for construction activity under the CWA. The Bureau of Water Pollution Control (BWPC) protects waters of the state from discharge of pollutants. The BWPC regulates these discharges through the issuance of permits and enforcement of the State's water pollution control laws and regulations. Likewise, the Bureau of Water Quality Planning (BWQP) is responsible for several water quality protection functions, including collecting water data, developing standards for surface waters, and implementing programs to address surface water quality. The BWQP grants 401 water quality certification on behalf of the EPA to assure state water quality standards will not be violated for activities that may result in a discharge to a WOUS.

Affected Environment

A water resources inventory was conducted as part of the *Natural Resources Survey Results Report* (Appendix G) to identify natural features that may need to be avoided during construction activities, and to determine where BMPs are warranted. This inventory included documenting drainage crossings along the project access roads and transmission line corridor. Water resource data collected included the type, size, and condition of the water feature.

The project study area for water resources included the Brockliss Slough Hydrological Unit Code 12 area as defined by the U.S. Geological Survey (USGS) and as shown on Figure 16 in Appendix A. The entire project area is located on the eastern slope of the Sierra Nevada Mountains and is outside the Lake Tahoe Basin. Daggett Creek and South Fork Creek, a main tributary of Daggett Creek, are the primary drainage features in the area. One additional ephemeral drainage is located south of the transmission line corridor. It enters the project study area at the easternmost point of the area near Foothill Road (SR 206). All water resources appear to drain under Foothill Road and into agricultural fields in the Carson Valley, where they lose their natural features. The Brockliss Slough, an irrigation canal, is situated east and downstream of the project across Foothill Road.

Water Resources Inventory

Eighteen crossings or water features (18 drainages and one spring box) were identified during the water resources inventory. No existing or proposed poles are located within the drainages. According to the *Natural Resources Survey Results Report*, many of the drainages present along the proposed access routes have culverts. USFWS's National Wetlands Inventory (NWI) (USFWS 2014a) does not identify any wetlands within the project study area, nor were any wetland features noted in the survey results. Figure 17 shows the locations of the surface water features in relationship to the study area and project features (see Appendix A). Figure 18 illustrates the wetland features within the project vicinity (see Appendix A).

Environmental Consequences

This section describes the environmental consequences for water resources that could occur if the Proposed Action Alternative is constructed in the project area. This section also lists EPMs that would avoid or reduce effects to water resources (refer to Section 2.3 for a full list of project-specific EPMs).

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

The implementation of the Proposed Action Alternative would result in temporary direct effects to water resources within the project area. A total of 21.13 acres would be impacted, including 11.12 acres of NFS lands. However, construction activities would not result in permanent impacts on water resources. Existing and new single-pole and H-frame structures would be located outside of drainages, and new road construction and improvements would not cross, and thereby impact any drainages. The average slope of the proposed new road within the middle portion of the corridor would be 17%, being steeper in some sections and less steep in others due to existing topography (NVE 2015). The average slope of the temporary road to the last pole structure would be 11% (NVE 2015). Although both roads are steep, because the proposed permanent road would be aligned along a ridgeline, it would not impact the adjacent drainage area. Similarly, the temporary road near Tramway Drive is not located near any drainage ways or water features.

Based on the *Natural Resources Results Survey Report* prepared for the project area that included a survey of potential water resources, no wetlands or WOUS were identified (HDR 2015d). The majority of the project area was very steep and dry (Nichols 2015). There are also no regulated 100-year floodplains within the project area (FEMA 2015). For the small increase in impervious surfaces associated with the single-pole and H-frame installations and construction of a new road, and improvements to existing roads, any increase associated with these activities would be relatively small, and there is little potential for the increase in stormwater runoff or erosion to alter existing drainages or cause flooding. Further, all construction would comply with stormwater and erosion control requirements stipulated in a SWPPP. Therefore, any potential permanent effects associated with increases in stormwater runoff would be avoided.

Temporary impacts to water resources within the project area would occur from potential soil disturbance and erosion during the construction phase of the project. Soil disturbance associated with construction along the ROW corridor, proposed road, improved roads, and near the project pull sites and staging areas could accelerate soil erosion and sediment loss, and transport these materials to nearby water bodies. However, these effects would be avoided through adherence to federal, state, and local laws and regulations that require the implementation of BMPs to protect water resources. Additional measures such as the EPMs listed below, and included as part of the Proposed Action Alternative would further reduce effects on water resources.

EPMs

Water Resources

45. The project will disturb more than one acre. NVE will apply for a storm water permit and will incorporate BMPs, in accordance with the Project's Storm Water Pollution Prevention Plan (SWPPP).
46. All construction vehicles, equipment staging or storage, and construction activities will be located at least 100 feet away from any streams, wetlands, or other water features.

The implementation of the EPMs listed above would minimize effects to water resources. For these reasons, the impacts on water resources are minor.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct temporary, but minor effects on water resources. While there are other past, present, and reasonably foreseeable projects proposed within the project vicinity, the majority of these improvements are either completed or close to completion. Additionally, these projects have implemented similar design

measures and EPMs to reduce potential effects on water resources. For these reasons, the cumulative effect on water resources is negligible.

Mitigation Measures

EPMs would be implemented to reduce impacts to water resources within the project area. No additional mitigation measures are required, other than the project EPMs.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the Proposed Action Alternative would not be rebuilt. The implementation of the No Action Alternative would involve the continued operation and maintenance of the existing 634 Line. Operation and maintenance would involve routine tree trimming and removal, vegetation clearing to minimize wildland and downed tree hazards, minor grading and access roadway maintenance, and other measures to meet annual inspection requirements. Also, because the existing transmission line structures are aging, the Line may require increased maintenance and emergency repair or replacement work, which may involve increased tree trimming and vegetation removal. The majority of these activities are currently occurring under existing conditions and effects on water resources would be negligible.

Cumulative Effects

Because the implementation of the No Action Alternative would only involve ongoing and continued operation and maintenance of the existing 634 Line, no cumulative effects would occur.

Mitigation Measures

No significant adverse impacts to water resources have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.9 Wildlife Resources

This section describes aquatic and terrestrial wildlife, threatened, endangered, and sensitive species, migratory birds, management indicator species (MIS), and fisheries species that are known or have the potential to occur within the project area. Botanical species, including common forestry resources, common vegetation and habitat, and sensitive plant species, are described and analyzed in Section 3.2, *Botanical Resources*. Invasive plants, including a summary of the noxious-weed inventory is discussed in Section 3.5, *Invasive Plants*. The analysis area, or area surveyed for the various technical reports (listed below) includes both NFS and private lands within a 300-foot wide corridor along the existing transmission line and the proposed new alignment (HDR 2015d). The analysis area is based on information and conclusions presented in the following baseline technical reports:

- *Biological Assessment/Biological Evaluation (BA/BE): Aquatic and Terrestrial Wildlife Species*;
- *Natural Resources Survey Results Report*;
- *Migratory Landbird Conservation on the Lake Tahoe Basin Management Unit National Forest Memorandum (also referred to as the Migratory Bird Report)*; and
- *Project Management Indicator Species Report (also referred to as the MIS Report)*.

These documents are incorporated by reference and are available for review in Appendices G through J. They are also available for review at the LTBMU Forest Supervisor's office.

Regulatory Setting

This section includes federal laws and regulations that specifically pertain to wildlife and fishery resources.

Federal

Federal Endangered Species Act

Federally-listed species are protected under the ESA of 1973 as amended (15 U.S.C. 1531 et seq.). Under ESA, federal agencies must ensure that any action authorized, funded, or carried out by the agency is not likely to (a) jeopardize the continued existence of any listed species or (b) result in the destruction or adverse modification of a listed species' designated critical habitat. The purpose of ESA is to protect and recover species and the habitats they require for survival.

The USFWS has the authority over projects that may result in the take of a federally listed species. Under the ESA, "take" is to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." The loss of habitat can also be considered "take" under the ESA. For projects with a federal nexus, such as the Proposed Action Alternative, the process is accomplished through consultation under ESA Section 7, which produces a biological assessment (BA) to describe the impact mechanisms and any adverse effects on the listed population. Information in the BA is used to prepare a Biological Opinion (BO), if needed.

Migratory Bird Treaty Act

The MBTA of 1918 (16 USC §703 et seq.) established regulations to regulate and limit the taking of migratory birds, their nests, eggs, parts, or products without the appropriate permit, and provides enforcement authority and penalties for violations. In addition to the MBTA, the 1988 amendment to the Fish and Wildlife Conservation Act (16 USC 2901-2911) mandates the USFWS to "identify species, subspecies and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." In 2001, EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*, was issued to focus attention of federal agencies on the environmental effects to migratory bird species and, where feasible, implement policies and programs which support the conservation and protection of migratory birds. The USFWS's List of *Birds of Conservation Concern* (2008) (BCC) is the most recent effort to carry out this Congressional mandate (USFWS 2008).

Bald and Golden Eagle Protection Act

The BGEPA of 1940 (Public Law [PL] 87-884; 16 US Code [USC] §668a-d) prohibits the taking or harming (i.e., harassment, sale, or transportation) of bald eagles (*Haliaeetus leucocephalus*) or golden eagles (*Aquila chrysaetos*), including their eggs, nests, or young, without the appropriate permit (USFWS 2015).

In addition to MBTA and BGEPA, the USFS 2000 Land bird Conservation Strategic Plan, EO 13186 of 2001, and the Partners in Flight specific habitat Conservation Plans for birds in the January 2004 Partners in Flight North American Landbird Conservation Plan all reference goals and objectives for integrating bird conservation into forest management plans. In 2008, a Memorandum of Understanding (MOU) between the USFS and USFWS was signed to promote the conservation of migratory birds. This MOU strengthened bird conservation on USFS lands by providing a diversity of habitat conditions at multiple scales and ensuring that bird conservation is addressed during land management activities.

Executive Order 12962

EO 12962 authorizes federal agencies to the extent permitted by law to improve the quantity,

function, productivity, and distribution of aquatic resources for increased recreational fishing opportunities by evaluating the effects of federally funded, permitted, and authorized actions on aquatic systems and recreational fisheries.

Forest Service Manual Section 2670

The USFS must comply with Section 2670 of the Forest Service Manual (FSM) which provides protection of sensitive species and calls for the development and implementation of management practices to ensure that species do not become threatened or endangered because of USFS actions. It requires a review of all activities or programs that are planned, funded, executed, or permitted for possible effects on federally-listed or USFS sensitive species (USFS 2005).

LTBMU Forest Plan

Management of the LTBMU lands in the project area is guided by the 1988 LTBMU Forest Plan (USFS 1988). Specific standards for wildlife and fisheries resources are described in more detail in the SNFPA and the Record of Decision (ROD) (USFS 2004). The LTBMU Forest Plan provides the basis of the LTBMU's planning guidance. In addition, the LTBMU maintains a list of wildlife and fish designated as sensitive by the USFS Region 5 Regional Forester, as well as a list of all MIS that should be addressed when a project affects LTBMU land. All portions of the project ROW that occur on LTBMU are subject to the LTBMU Forest Plan policies, standards, and guidelines.

Sierra Nevada Forest Plan Amendment

The SNFPA of 2004 amends the Forest Plans for 11 of the National Forests in the Sierra Nevada, including the LTBMU Forest Plan. The SNFPA Final Supplemental EIS and ROD describe the amendments to the SNFPA developed to improve old forests, wildlife habitats, and watersheds in the Sierra Nevada. While the ROD establishes broad goals, the Management Directions provide more specific objectives at the implementation level.

Affected Environment

General Wildlife Resources

Wildlife resources discussed in this section include federally-listed endangered and threatened species, USFS sensitive species, migratory birds, MIS, and fisheries.

According to the *Natural Resources Survey Results Report*, general wildlife surveys were performed from July 16 through July 18 and from August 26 through August 27, 2014 at various times of day to capture the variety of potentially present species (see Appendix G). Figure 19 depicts the general wildlife species that occur within the project area, as well as those recorded during the field surveys. Wildlife species seen or heard were noted, along with their behavior and location within the project area or surrounding habitat. Signs of species including burrows, scat, pellets, and signs of habitat use, were also recorded. In addition to species observations, notable wildlife habitat features such as rock outcrops were documented (HDR 2015a).

More detailed surveys (e.g. protocol-level surveys) were conducted for sensitive wildlife resources, including federally-listed threatened and endangered species, USFS sensitive species, and migratory birds and raptors. The results of these surveys are included in the *Biological Assessment/Biological Evaluation (BA/BE): Aquatic and Terrestrial Wildlife Species* (see Appendix H). A discussion of the methodology used for each of the surveys is further discussed below in the associated sections.

Threatened, Endangered, and Sensitive Species

A threatened, endangered, and sensitive species list was completed based on the compilation of USFS Region 5 sensitive species list, the USFWS Information for Planning and Conservation (IPAC) assessment tool, and consultation with the LTBMU wildlife biologist. Species determined to have potential habitat in the project area based on preliminary investigations are listed below in Table 3-8. Species in this table were further evaluated to determine if habitat could exist or if individuals have previously been found near the project area. This analysis was based on literature review and analyzing habitat conditions for the species during the general wildlife and habitat surveys. The USFS and USFWS species evaluated, suitable habitat, listing status, and discussion of a species' potential to occur within the project area are included in Table 3-8.

Species determined as unlikely to exist within the project area or those that do not have habitat were not further evaluated in this EA. These species include: willow flycatcher, great gray owl, California spotted owl, pallid bat, Townsend's big-eared bat, fringed myotis, North American wolverine, Pacific marten, , western bumble bee, and Great Basin ramshorn. Several fish species that may exist within the project area, but are likely not to have suitable habitat were also evaluated; the discussion on fish species is detailed below in a separate section.

Species that may occur in the project area and those that are evaluated further in this EA for potentially incurring project impacts include: northern goshawk, bald eagle, and Sierra Nevada yellow-legged frog (SNYLF). Table 3.8 shows whether all listed or USFS sensitive species have the potential to occur within the analysis area.

Table 3-8. Threatened, Endangered, and Sensitive Species on the LTBMU

Species	Suitable Habitat Characteristics	Status		Potential to Occur Within the Project Area?
		USFWS	USFS (LTBMU)	
Birds				
Northern goshawk (<i>Accipiter gentilis</i>)	Found in middle to high elevations in mature, dense conifer or deciduous forests near open grasslands. Edge habitat with tall, large perch trees is required for foraging and nesting (CDFW 2005; Laudenslayer & Parisi 2007).		S	Yes; foraging habitat may exist but dense, mature forests are not present.
Willow flycatcher (<i>Empidonax traillii</i>)	Found in broad, open river valleys or large montane meadows with lush growth of shrubby willows (Gaines 2005).		S	No; suitable habitat not present within the Project Area.
Bald eagle (<i>Haliaeetus leucocephalus</i>)	Require large bodies of open water with mature trees or steep cliffs for nesting, perching, foraging, and roosting (NatureServe 2009).		S	Yes; project lies between known occurrences and potential perching and low-suitability foraging habitat could exist.

Species	Suitable Habitat Characteristics	Status	Potential to Occur Within the Project Area?
Great gray owl (<i>Strix nebulosi</i>)	Prefers dense stands of red fir, mixed conifer, or lodgepole pine habitats near wet meadows for breeding and foraging (Gaines 1990).	S	No; no wet meadow habitat is found within or near the Project Area.
California spotted owl (<i>Strix occidentalis occidentalis</i>)	Prefers large stands of old-growth or late-seral-stage conifers with canopy coverage greater than 40% with little to no shrub understory (CDFW 1990).	S	No; mature forests are absent and shrub strata is too dense for species.

Amphibians			
Sierra Nevada yellow-legged frog (<i>Rana sierra</i>)	Suitable habitat includes permanent water bodies or those connected hydrologically to permanent water such as wet meadows, lakes, streams, rivers, tarns, perennial creeks, permanent pools within intermittent creeks, and pools, such as a body of impounded water contained above a natural dam (USFWS 2014b).	E	Yes; habitat exists near the Project Area but does not overlap with impact areas.
Mammals			
Pallid bat (<i>Antroxous pallidus</i>)	Found in open, dry habitats for foraging with rocky areas such as caves and crevices for roosting below 5,900 feet in elevation (Baker et al. 2008).	S	No; suitable habitat not present within the Project Area.
Townsend's big-eared bat (<i>Corynorhinus townsendii</i>)	Found in most habitats with the exception of subalpine and alpine habitats. Requires caves, mines, tunnels, buildings, or other human-made structures for roosting (Harris 2000).	S	No; roosting habitat not present within the Project Area. Project is located in subalpine area.
Fringed myotis (<i>Myotis thysanodes</i>)	Most commonly found in oak, pinyon, and juniper woodlands and ponderosa pine forests at middle elevations. Must contain roosting habitat such as caves, mines, buildings, rock crevices, exfoliating bark, and tree cavities (Keinath 2004).	S	No; roosting habitat is not present within the Project Area.
North American wolverine (<i>Gulo gulo luscus</i>)	Found in subalpine and alpine habitat with open areas for hunting, little human disturbance, and dense cover for breeding and resting (Johnson 1990).	S	No; high human disturbance in area due to nearby ski resort.
Pacific marten (<i>Martes caurina</i>)	Prefers late successional and old growth mixed forest communities with more than 40% canopy closure and containing large amounts of basal area, down fall cover, living ground cover, and log density (Timossi et al. 1995).	S	No; large stands of old growth forest not present within the Project Area.

Fish			
Lahontan Lake tui chub (<i>Gila bicolor pectinifer</i>)	Found in large, deep lakes and move from shallow to deep areas depending on time of day. Reproduction is dependent upon access to algal beds in shallow, inshore areas (NatureServe 2009).	S	No; only found in Churchill, Eureka, Elko, and Pershing Counties, NV.
Delta smelt (<i>Hypomesus transpacificus</i>)	Found in open waters such as bays, tidal rivers, sloughs, and channels of estuarine waters. Rarely inhabits waters with salinity greater than 10-12 ppt (NatureServe 2009).	T	No; no waterways connect the Project Area to the ocean, therefore no habitat exists within the Project Area.
Central Valley steelhead DPS (<i>Oncorhynchus mykiss</i>)	Moves between freshwater breeding and spawning grounds and marine waters during various life stages. Prefers large to medium rivers with riffles and pools (NatureServe 2009).	T	No; no waterways connect the Project Area to the ocean, therefore no habitat exists within the Project Area.
Lahontan cutthroat trout (<i>Oncorhynchus clarkii henshawi</i>)	Prefers cold-water habitats such as alkaline lakes, alpine lakes and rivers, slow meandering rivers, and small headwater tributary streams (NatureServe 2009).	T	No; species has not previously been documented in Daggett Creek nearby.
Bull trout (<i>Salvelinus confluentus</i>)	Found in cold rivers with moderate to fast currents and large, cold lakes and reservoirs with complex cover, stable channel banks and stream flow, and low levels of fine substrates (NatureServe 2009).	T	No; species has not been observed in Douglas County or any region adjacent to the project area.
Invertebrates			
Western bumble bee (<i>Bombus occidentalis</i>)	Pollinate a variety of plant species, and are often adapted to local species. Range overlaps with Project Area (USFS ND).	S	No; species has not been observed near the Project Area or region within the last 30 years.
Great Basin rams-horn (<i>Helisoma newberryi newberryi</i>)	Confined to large spring complexes on the periphery of the Great Basin (NatureServe 2009).	S	No; few remaining populations present in southern Oregon and northeastern California.

NOTES: DPS = Distinct Population Segment, S = USFS Region 5 Sensitive, E = USFWS Endangered, T = USFWS Threatened

Source: HDR 2015b

Species Accounts

Northern Goshawk

Habitat for northern goshawk can be found at middle to high elevations within the Sierra Nevada. They prefer mature, dense coniferous and deciduous forests with north-facing slopes. Forest habitat must be near open meadows or other grasslands to provide edge habitat. Open areas and edge habitat provide areas for perching, foraging, and nesting. The minimum patch size for the persistence of an individual is 20 acres for nesting and five acres for foraging, and the minimum area for a social unit is 16,000 acres (25 square miles) (Laudenslayer & Parisi 2007). Northern goshawk often nest in areas with at least 25 acres of mature forests and high canopy closure surrounding the nest tree (Furnas 2003). Nesting trees are often the tallest trees in an area and have an average diameter at breast height (dbh) of 24 to 30 inches and are surrounded by dense, mature tree stands with perch sites (Furnas 2003). Northern goshawk range overlaps with the project area. An incidental detection was reported to the USFS in September 2014, approximately 325 feet outside of the project area (HDR 2015b). More details about this location and incidental detection can be found in the *Biological Assessment/Biological Evaluation* located in Appendix H.

Field surveys for northern goshawk habitat were conducted in September 2014. Six vegetation plots were surveyed, including estimating the canopy cover within a 50-foot diameter area and recording the tree dbh. The structure of forested areas, including whether the forest was closed with little shrub layer establishment, was documented.

The project area generally lacks mature, dense conifer stands. Potential marginal foraging habitat for the species may exist within and near the project area on north-facing slopes (HDR 2015a). Dominant tree species in foraging habitat included Jeffrey Pine (*Pinus jeffreyi*) and white fir (*Abies concolor*) with an average dbh of 8.75 to 34 inches and the canopy cover ranging from 10 to 60 percent (HDR 2015b). No nest locations, observations, or signs of the species were found during surveys (HDR 2015a).

Bald Eagle

Bald eagles require open water with juxtaposed mature trees or steep cliffs for nesting, perching, foraging, and roosting (Murphy & Knopp 2000). Individuals can be found perched near water on various substrates, including trees with many limbs, snags, trees with broken tops, and rocks (Laves & Romsos 2000). Bald eagles observed within the LTMBU have been seen using dominant trees and snags within the shoreline for perching. Research indicates the majority of perch sites are located within 0.25 miles of a large, open body of water and late successional Jeffrey Pine was used most frequently (Laves & Romsos 2000). Bald eagles local to the project area have been found to prefer late successional stands and trees larger and taller than the dominant tree canopy (Laves & Romsos 2000). Bald eagle roost sites are areas where several individuals rest at night and may occur long distances from open water bodies. Roost trees are similar in structure to perch trees. Often, they choose large, dominant trees with numerous branches without leaves, far from human activity, and are not impacted by prevailing winds (HDR 2015b). Bald eagles commonly occur in Butte, Lake, Lassen, Modoc, Plumas, Shasta, Siskiyou, and Trinity counties, California, where there are breeding populations. Breeding pairs have been observed within the LTBMU lands around Lake Tahoe as well as in the Carson Valley (HDR 2015b).

Field surveys for bald eagle habitat were conducted in the same manner as for the northern goshawk (discussed above). This species has been previously observed within the LTMBU. Low-suitability foraging habitat may occur within the project area. Two records on either side of the project area indicates this species could fly over the area while traveling to suitable nesting sites or while foraging (HDR 2015b).

Sierra Nevada Yellow-Legged Frog

Habitat for SNYLF historically include lakes, ponds, marshes, meadows, and streams at mid to high elevations (4,500 to 12,000 ft). They are commonly found within three feet of water habitats (USFWS 2014b). Defining habitat characteristics and range according to location and availability of preferred habitat are uncertain. Studies show conflicting information about whether the species prefers certain-sized streams (USFWS 2014b). Generally, habitat for the species includes slow-moving portions of mountain streams, lake margins, isolated pools, and meadow streams. Perennial waterbodies are required for reproduction, as larvae take several years to undergo a full metamorphosis. Individuals migrate between wet summer habitat and upland wintering habitat, and may be found further from water during migration periods. Individuals are usually inactive during winter months at high elevations from seven to nine months every year (NatureServe 2009). The SNYLF is found in California and Nevada from areas north of Lake Tahoe, south to the western Sierra Nevada north of Monarch Divide (USFWS 2014b).

Habitat for SNYLF was evaluated by established habitat evaluation points along stream and drainage areas within the project area. Data were collected on the presence or absence of habitat elements that this species requires, including the presence of water, presence of wetland and stream edges with low vegetation, and substrate type within the stream or wetland. Photographs were taken at each habitat evaluation point. In addition to collecting data at habitat evaluation points, HDR biologists walked all stream segments that had water to assess whether habitat was present within or adjacent to the project area (HDR 2015a).

During desktop reviews of the site, SNYLF habitat was identified in the project area within a planned staging area near the top of SR 207. Following surveys, biologists found that no stream or water sources exist within the staging area. This stream or water habitat is essential to the survival of SNYLF. The Daggett Creek area within the project area has water present, but stream conditions are not favorable for SNYLF (HDR 2015b).

Migratory Birds

Migratory bird and raptor surveys were conducted in conjunction with the general wildlife surveys and included recording any signs of breeding or nesting activity within the project area and adjacent habitat. Trees and perches were checked for nests as well as observations of birds exhibiting territorial behavior or breeding activity, including pairs or family groups, defensive behavior, and repeated observations within a focused area. Coordinates of nests and breeding behavior were determined using a sub-meter global positioning system (GPS) unit, or, if the surveyors were likely to disturb the individuals, the location was noted on an aerial map of the project area (HDR 2015a).

Numerous migratory bird species could be found within the project area. Habitat available for migratory bird species includes mixed conifer forests, Jeffrey Pine, and big sagebrush habitat which are described in more detail in Section 3.2, *Botanical Resources*. Migratory birds with potential to occur in the project area may occur in any of these habitats and may utilize features for nesting, perching, roosting, and foraging. A list of Region 9 Great Basin BCC from the USFWS and other migratory bird species found within the project area are listed below in Table 3-9.

Based on the survey results, 21 migratory bird species and three nests were documented within the project area. Nests included active American kestrel and western kingbird nests and an inactive nest (HDR 2015a). According to a Nevada Division of Wildlife (NDOW) data response letter, no raptor nests have been recorded within the project area public land survey sections. The most recent raptor nest was detected in 2013. The nest was reported by an unknown source to occur in Section 15 of Township 13N, Range 19E, which is adjacent to the staging area near David Walley's Hot Springs (HDR 2015a; HDR 2015f). The cliffs in this area, near the hot spring

were surveyed and no active nests were detected. Further, no other nests listed on NDOW's database are within three miles of the project area. However, habitat exists for several raptor species and signs of raptor activity, such as whitewash, were noted during surveys (HDR 2015a; HDR 2015f).

Table 3-9. Region 9 BCC and Migratory Birds Documented within the Project Area

Species		Status		
Scientific Name	Common Name	USFWS	USFS (LTBMU)	Region 9 BCC (Great Basin)
<i>Accipiter gentilis</i>	Northern goshawk		S	X
<i>Agelaius tricolor</i>	Tricolored blackbird			X
<i>Aquila chrysaetos</i>	Golden eagle			X
<i>Artemisiospiza nevadensis</i>	Sage sparrow			X
<i>Athene cunicularia hypugaea</i>	Western burrowing owl			X
<i>Buteo jamaicensis</i>	Red-tailed Hawk			
<i>Buteo regalis</i>	Ferruginous hawk			X
<i>Charadrius nivosus nivosus</i>	Western snowy plover			X
<i>Circus cyaneus</i>	Northern harrier			
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	T		X
<i>Colaptes auratus</i>	Northern flicker			
<i>Coturnicops noveboracensis</i>	Yellow rail			X
<i>Cyanocitta stelleri</i>	Stellar's Jay			
<i>Cypseloides niger</i>	Black swift			X
<i>Empidonax traillii</i>	Willow flycatcher		S	X
<i>Falco peregrines</i>	Peregrine falcon			X
<i>Falco sparverius</i>	American kestrel			
<i>Gymnorhinus cyanocephalus</i>	Pinyon jay			X
<i>Haliaeetus leucocephalus</i>	Bald eagle (Contiguous US Population)		S	X
<i>Lanius ludovicianus</i>	Loggerhead shrike			X
<i>Leucosticte atrata</i>	Black rosy-finch			X
<i>Limosa fedoa</i>	Marbled godwit			X
<i>Melanerpes lewis</i>	Lewis's woodpecker			X
<i>Numenius americanus</i>	Long-billed curlew			X
<i>Nucifraga Columbiana</i>	Clark's nutcracker			

Species		Status
<i>Oporornis tolmiei</i>	McGillivray's warbler	
<i>Oreortyx pictus</i>	Mountain Quail	
<i>Oreoscoptes montanus</i>	Sage thrasher	X
<i>Oreothlypis virginiae</i>	Virginia's warbler	X
<i>Pica hudsonia</i>	Black-billed Magpie	
<i>Picoides albolarvatus</i>	White-headed woodpecker	X
<i>Picoides villosus</i>	Hairy woodpecker	
<i>Pipilo chlorurus</i>	Green-tailed towhee	X
<i>Piranga ludoviciana</i>	Western tanager	
<i>Podiceps nigricollis</i>	Eared grebe	X
<i>Poecile gambeli</i>	Mountain Chickadee	
<i>Psaltriparus minimus</i>	Bushtit	
<i>Psiloscops flammeolus</i>	Flammulated owl	X
<i>Salpinctes obsoletus</i>	Rock wren	
<i>Selasphorus calliope</i>	Calliope hummingbird	X
<i>Sitta Canadensis</i>	Red-breasted nuthatch	
<i>Sitta carolinensis</i>	White-breasted Nuthatch	
<i>Sphyrapicus thyroideus</i>	Williamson's sapsucker	X
<i>Spizella atrogularis</i>	Black-chinned sparrow	X
<i>Spizella breweri</i>	Brewer's sparrow	X
<i>Tachycineta bicolor</i>	Tree swallow	
<i>Turdus migratorius</i>	American Robin	
<i>Tyrannus verticalis</i>	Western Kingbird	
<i>Zenaida macroura</i>	Mourning Dove	

Bold species: observed in the Project Area

E: USFWS endangered, T: USFWS threatened, X: Bird of Conservation Concern

Source: USFWS 2008; HDR 2015a; HDR 2015f

Management Indicator Species

MIS are wildlife species identified in the Sierra Nevada Forest Plan Amendment (SNFPA) MIS ROD which was developed under the 1982 National Forest System Land and Resource Management Planning Rule (LRMP) (1982 Planning Rule)(36 Code of Federal Regulations [CFR] 219). Guidance set forth in the LTMBU LRMP as amended by the 2007 SNFPA MIS ROD directs USFS resource managers to analyze the effects of proposed projects on the broader-scale (bioregional) population and/or habitat trends of each MIS affected by such projects as identified by the LTMBU LRMP, as amended. More information about MIS can be found in the *MIS Report* in Appendix J (HDR 2015e).

Habitats and ecosystem components of associated MIS analyzed for the project were selected from the 2007 SNFPA MIS Amendment. Ten MIS were evaluated within the project area and a

discussion of whether habitat may be affected by the Proposed Action Alternative is listed below in Table 3-10. Impacts are further discussed below in Section 3.9.3.

Table 3-10. MIS Evaluated within the Project Area

Species	Habitat or Ecosystem Component	Potential to Occur Within the Project Area?
Aquatic macroinvertebrates	Riverine and Lacustrine	Habitat is not in or adjacent to the Project Area and would not be affected by the project.
<i>Dendragapus obscurus</i> (Sooty [blue] grouse)	Late Seral Open Canopy Coniferous Forest	Habitat is not in or adjacent to the Project Area and would not be affected by the project.
<i>Dendroica petechia</i> (Yellow warbler)	Riparian	Habitat is in or adjacent to the Project Area but would not be either directly or indirectly affected by the project.
<i>Glaucomys sabrinus</i> (Northern flying squirrel)	Late Seral Closed Canopy Coniferous Forest	Habitat is not in or adjacent to the Project Area and would not be affected by the project.
<i>Martes caurina</i> (Pacific marten)	Late Seral Closed Canopy Coniferous Forest	Habitat is not in or adjacent to the Project Area and would not be affected by the project.
<i>Oreortyx pictus</i> (Mountain quail)	Early Seral Coniferous Forest; Mid Seral Coniferous Forest	Habitat would be either directly or indirectly affected by the project.
<i>Picoides articus</i> (Black-backed woodpecker)	Snags in Burned Forest	Habitat is not in or adjacent to the Project Area and would not be affected by the project.
<i>Picoides villosus</i> (Hairy woodpecker)	Snags in Green Forest	Habitat is in or adjacent to the Project Area but would not be either directly or indirectly affected by the project.
<i>Pseudacris regilla</i> (Pacific tree [chorus] frog)	Wet Meadow	Habitat is not in or adjacent to the Project Area and would not be affected by the project.
<i>Strix occidentalis occidentalis</i> (California spotted owl)	Late Seral Closed Canopy Coniferous Forest	Habitat is not in or adjacent to the Project Area and would not be affected by the project.

Sources: HDR 2015c; HDR 2015e

Fisheries

The entire project area is located on the eastern slope of the Sierra Nevada Mountains and is not located within the Lake Tahoe Basin. Daggett Creek and a main tributary of that creek are the primary drainage features in the area. Daggett Creek transects the project area, and two riparian areas totaling 2.28 acres, of which 1.89 acres are on NFS land. The portion of Daggett Creek that occurs near the existing access roads and traverses the northern portion of NFS lands is managed by the LTBMU, however the majority of the tributaries occur on NFS lands within Toiyabe National Forest (see Figure 17 in Appendix A). One additional ephemeral drainage is located south of the existing powerline corridor and enters the project study area at the easternmost point of the project area near Kingsbury Grade (SR 207). All drainages appear to

drain under SR 206 (Foothill Road) and into agricultural fields outside NFS lands and the project area, where they lose their natural features. The Brockliss Slough, an irrigation canal, is east and downstream of the project across SR 207.

Eighteen crossings or water features (18 drainages and one spring box) were identified during the water resources inventory and the majority of these water features occur on NFS lands managed by the LTBMU and Toiyabe National Forest (see Figure 17). However, no existing or proposed poles are located within the drainages. Also, many of the drainages present along the proposed access routes have culverts (HDR 2015a).

Sensitive fish species analyzed in the survey include Lahontan cutthroat trout and Lahontan Lake tui chub. Lahontan cutthroat trout have not been observed in Daggett Creek (HDR 2015a). Likewise, Lahontan Lake tui chub have been observed only in Churchill, Eureka, Elko, and Pershing Counties, Nevada and has not been observed in Douglas County. Therefore, because these two sensitive fisheries species are not expected to occur within the project area, they were not further analyzed for this project (HDR 2015b).

Environmental Consequences

This section describes the environmental consequences for wildlife resources that could occur if the Proposed Action Alternative is constructed in the project area. Effects on wildlife resources are analyzed in terms of context and intensity of the environmental effects of the Proposed Action Alternative. Context refers to the significance of the action and must be considered in terms of the region, affected resources, and the specific locality. Intensity refers to the severity of an effect. Therefore, effects were evaluated based on whether the Proposed Action Alternative would substantially reduce the size, continuity, or integrity of wildlife and aquatic resources through vegetation or habitat removal. Effects were evaluated based on whether the Proposed Action Alternative would affect natural processes that support wildlife and aquatic resources. Effects were analyzed for threatened, endangered, and sensitive species with the potential to occur within the project area; migratory birds, MIS, and aquatic resources. This section also lists EPMs that would avoid or reduce effects to analyzed wildlife resources (refer to Section 2.3 for a full list of project-specific EPMs).

Alternative 1: Proposed Action Alternative

Direct and Indirect Effects

Northern Goshawk

Potential direct effects to northern goshawk could occur due to the implementation of the Proposed Action Alternative. Direct effects could include potential collision or electrocution risks with the replaced transmission line. Although electrocution is a potential risk, the Proposed Action Alternative would follow minimum requirements for separating the energized structures for 120 kV lines (proposed project would include a 120 line), which includes a separation of at least 180 centimeters horizontally and 130 centimeters vertically (APLIC 2006). This width would provide enough clearance for northern goshawk, which has an average wingspan of 103 to 117 centimeters (Cornell 2015). Because the Proposed Action Alternative would be constructed at 120 kV standards to meet current avian protection construction guidelines, it would implement additional measures to protect bird species from other energized structures of the proposed rebuilt transmission line design, thereby further reducing the risk of electrocution and collisions. Additionally, due to the presence of numerous trees in the area, birds are less likely to use transmission line poles as perching structures, and therefore have reduced risks of electrocution and collision for the area (APLIC 2006). Dominant tree species in the area are also on average taller than the transmission line poles. Jeffery Pine can grow up 170 to 200 feet tall and white fir measures on average 131 to 180 feet tall, whereas the transmission line poles would only reach

at maximum a height of 92 feet tall (Laacke n.d.; NRCS 2006). As a result, northern goshawk are more likely to be attracted to perching on the taller trees instead of the poles (APLIC 2006).

Foraging habitat could be directly impacted from tree removal due to the construction of the transmission line. Of the total permanent acreage planned for removal, 9.71 acres would include tree removal. Existing foraging habitat within the project area is marginal. Therefore, impacts to foraging habitat could occur, but habitat impacted is less likely to be utilized by northern goshawk individuals when compared to higher quality habitat in surrounding areas.

Other direct impacts include temporary noise and visual disturbance from the presence of construction equipment and personnel. Construction is predicted to last six months, and following construction, noise and visual disturbances would not occur. Activity would also be limited to times outside of critical periods for northern goshawk in order to reduce potential impacts to the species.

Indirect effects to northern goshawk could also occur due to the implementation of the Proposed Action Alternative. Temporary disturbances from construction activities could hinder foraging around the project area. Construction could cause impacts by decreasing the presence of prey species within the project area. Prey species are unlikely to remain in the project area due to noise and visual disturbances. Additionally, permanent removal of 10.15 acres of vegetation that could provide prey species habitat would occur. Foraging habitat could also become fragmented from the implementation of the Proposed Action Alternative. However, because a transmission line already exists along the ROW corridor, this impact is expected to be negligible.

In summary, the implementation of the Proposed Action Alternative could impact northern goshawk, but with the implementation of EPMs (listed below), disturbance of northern goshawk individuals present would be reduced from limited operations during critical periods. EPMs would also reduce direct harm to the species as a result of project protection and design measures. Additionally, the project would only impact marginal foraging habitat permanently and would temporarily introduce noise and visual disturbances. It is predicted that impacts to this species would be minimal. For these reasons, if the Proposed Action Alternative is implemented, it may affect individuals, but is not likely to result in a trend toward federal listing or loss of viability for northern goshawk.

Bald Eagle

Direct and indirect effects to bald eagles could occur due to the implementation of the Proposed Action Alternative; these effects are similar to those listed above for the northern goshawk. Direct electrocution and collision risks for bald eagles are different than for northern goshawk due to the difference in wingspan width. Clearance distance for bald eagles is approximately 150 centimeters, which meets the 120 kV standard (proposed project would include a 120 kV line) for horizontal spacing that would be implemented (180 centimeters). However, the vertical spacing minimum of 130 centimeters would not be met and therefore an increased risk of electrocution and collision may occur for this species (APLIC 2006). However, due to the presence of numerous trees in the area, bald eagles are less likely to use transmission line poles as perching structures, and therefore have reduced risks of electrocution and collision in the project area (APLIC 2006). Dominant tree species in the area are on average taller than the transmission line poles. Jeffery Pine can grow 170 to 200 feet tall and white fir on average is 131 to 180 feet tall, whereas the transmission line poles will only reach a maximum height of 92 feet tall (Laacke n.d.; NRCS 2006). As a result, bald eagles are more likely to be attracted to perching on the taller trees instead of the poles (APLIC 2006).

Foraging habitat could be directly impacted from tree removal due to the construction of the transmission line. Of the total permanent acreage planned for removal, 9.71 acres would include tree removal. Existing foraging habitat within the project area is low-quality. Therefore, impacts to

foraging habitat could occur, but habitat impacted is less likely to be utilized by bald eagle individuals when compared to higher quality habitat in surrounding areas.

Other direct impacts include temporary noise and visual disturbance from the presence of construction equipment and personnel. Construction is predicted to last six months, and following construction, noise and visual disturbances would not occur.

Indirect effects to bald eagles could also occur due to the implementation of the Proposed Action Alternative. Temporary disturbances from construction activities could hinder foraging around the project area. Construction could cause impacts by decreasing the presence of prey species within the project area. Prey species are unlikely to remain in the project area due to noise and visual disturbances. Additionally, permanent removal of 10.15 acres of vegetation that could provide prey species habitat would occur. Foraging habitat could also become fragmented from the implementation of the Proposed Action Alternative. However, because a transmission line already exists along the ROW corridor, this impact is expected to be negligible.

In summary, the implementation of the Proposed Action Alternative could impact bald eagle, but with the implementation of EPMs (listed below), disturbance of individuals present would be reduced. EPMs would reduce direct harm to the species from project protection and design measures. Additionally the project would only impact low-quality foraging habitat permanently and would temporarily introduce noise and visual disturbances. It is predicted that impacts to this species would be minimal. For these reasons, if the Proposed Action Alternative is implemented, it may affect individuals, but is not likely to result in a trend toward federal listing or loss of viability for bald eagle.

Sierra Nevada Yellow-legged Frog

Initially, habitat for SNYLF species was thought to be present within the project area. However, after a field investigation of the project area and further consultation with LTBMU wildlife biologists, it was determined no habitat exists for the species within the project area. Habitat for the species does occur outside of the project area and therefore EPMs would be implemented to reduce the introduction of runoff from project activities into nearby suitable SNYLF habitat. For these reasons, if the Proposed Action Alternative is implemented, it will not affect the SNYLF.

Migratory Birds

Implementation of the Proposed Action Alternative would have the potential to cause both direct and indirect effects to migratory birds with potential to occur within the project area. The Proposed Action Alternative falls within a migratory flyway between the Lake Tahoe Basin and Carson Valley and therefore is likely to have a high density of migratory birds species that are residents and transitional species.

Direct, permanent effects to migratory birds would include the loss of approximately 10.15 acres of suitable habitat that would result from vegetation and tree removal. Of the total permanent acreage planned for removal, 9.71 acres would include tree removal. Permanent vegetation removal would result from the installation of access roads, new roadways, and H-Frame and single-pole structures. As a result, many trees that provide perching and nesting habitat for migratory birds would be removed along the ROW. Removal would be from vegetation clearing to establish a wider ROW corridor and from the installation of the single-pole and H-frame structures, associated equipment, and new access roads. The implementation of the Proposed Action Alternative may also cause direct, permanent effects to migratory birds during important critical breeding and nesting periods. Breeding behaviors and nesting success could be impacted from the introduction of the structures into the area. However, birds present in the area are likely to have habituated to the existing transmission line, although it consists of smaller structures.

Direct, temporary effects include approximately 12.99 acres of vegetation removal associated with the ROW installation, pull sites, and staging areas. While vegetation clearing for the ROW and the construction of the new roadway and improvements to the existing roadways would also impact available habitat, vegetation disturbed during construction would be recontoured and restored as required by the LTBMU. The method of restoration typically would consist of seeding or revegetating with native plants. These EPMs (listed below) would be implemented to reduce temporary direct effects to migratory birds present within the project area. As a result, direct temporary effects to migratory birds related to vegetation removal would be minor.

Although negligible on a regional scale, direct, permanent disturbance of aerial flight corridors that allow for foraging, movement, and migration behaviors could occur due to the replacement of the single-pole structures. Approximately 23 existing wood poles that are currently 45 feet high would be replaced with 23 new steel poles that would be approximately 25 feet taller. The upgrade would also involve replacing 30 existing wood poles with seven H-frame and/or three-pole angle structures that would measure approximately 47 to 92 feet tall; approximately two to 45 feet taller than the existing wood poles. These replaced structures would be associated with connected conductor lines that span 2.67 miles.

Because the proposed transmission line design under the Proposed Action Alternative includes taller transmission line structures and lines than the existing line, the taller transmission line would be above the ridge and within the potential flyway for migratory birds. While replacing an existing line, as proposed under the Proposed Action Alternative, would reduce the amount of habitat removal within the ROW corridor, the proposed line could pose a potential increase in risk of collision and electrocution to migratory birds due to the taller structures. However, the presence of numerous trees in the area would reduce the likelihood of birds using transmission line poles as perching structures, and reducing risks of electrocution and collision for the area (APLIC 2006). Additionally, dominant tree species in the area are on average taller than the transmission line poles. Jeffery Pine can grow up 170 to 200 feet tall and white fir on average is 131 to 180 feet tall, whereas the transmission line poles will only reach a maximum height of 92 feet tall (Laacke n.d.; NRCS 2006). As a result, migratory bird species are more likely to be attracted to perching on the taller trees over the poles while foraging or roosting (APLIC 2006). Weather in the area would also factor into the risks associated with higher transmission lines, which may make it difficult for migratory birds to navigate around the lines during high winds and snow storms. For example, birds utilizing the flyway during inclement weather could attempt to fly closer to the ground, bringing them in range of the powerlines and increasing the risk of collision (HDR 2015a).

EPMs (listed below) which would reduce the potential for electrocution and collision would be implemented. Clearances between energized and grounded structures for 120 kV lines would be followed, which includes a separation of at least 180 centimeters horizontally and 130 centimeters vertically. Many migratory bird species' wingspans fall below this threshold including averages for passerines, corvids, owls, and falcons. Bald eagles, a migratory bird would not fall within this clearance distance (APLIC 2006). As a result, risk of and the likelihood of direct impacts to migratory birds would be reduced, but could still occur.

Direct noise and visual disturbances would temporarily occur due to the presence of workers and construction equipment during construction activities. Long-term noise and visual disturbances would also occur periodically during inspections and maintenance activities. Further, the presence of workers, construction equipment, and limited and localized blasting could temporarily deter individual migratory birds from using the project area as habitat.

Indirect long-term effects could occur due to the degradation of existing habitat through vegetation removal. Habitat quality would be lowered following completion of the project due to the removal of 10.15 acres of vegetation from the installation of permanent structures. Additionally,

construction could cause indirect impacts by decreasing the presence of food sources within the project area. Food sources such as prey species are unlikely to remain in the project area due to noise and visual disturbances. Permanent removal of 10.15 acres of vegetation that could provide prey species habitat would occur. Foraging habitat could also become fragmented from the implementation of the Proposed Action Alternative. However, because a transmission line already exists along the ROW corridor, this impact is expected to be negligible.

In summary, direct and indirect impacts to migratory bird habitat would occur from vegetation and tree removal, and the establishment of distribution line poles which could interfere with a migratory bird flyway. EPMs, listed in more detail below, would reduce the severity of permanent impacts and mitigate for temporary impacts. However, impacts are still likely to occur to migratory bird species in the area, but are predicted to be minor.

Management Indicator Species

The mountain quail was selected as the MIS for the two habitat types, Early Seral Coniferous Forest and Mid Seral Coniferous Forest and this species could incur impacts from the implementation of the Proposed Action Alternative. Also, one of the ten MIS evaluated in the MIS Report is predicted to incur impacts from the implementation of the Proposed Action Alternative (HDR 2015c; HDR 2015e). However, after analysis of impacts to habitat factors for the identified MIS, it was determined that the Proposed Action Alternative would not result in a change in any of the habitat factors (HDR 2015c; HDR 2015e). Tree removal would include trees within 30 feet of the alignment centerline, and any hazard trees outside of 30 feet that could hit a conductor. As a result, less than one acre of early and mid-seral coniferous forest habitat would be disturbed as a result of tree removal. Therefore, it is not anticipated that the removal of these trees would change canopy cover, which is an important habitat feature associated with Early Seral Coniferous Forest and Mid Seral Coniferous Forest within the project area. No impacts are predicted because the existing ROW has previously been cleared and is routinely thinned (HDR 2015c; HDR 2015e). Additionally, no direct project-level habitat impacts are expected with the construction and operation of the Proposed Action Alternative within early and Mid-Seral Coniferous Forest habitat. Therefore, the Proposed Action Alternative would not alter the existing trend in the two habitats identified. This indicates that the Proposed Action Alternative also would not lead to a change in the distribution of mountain quail across the Sierra Nevada bioregion (HDR 2015c; HDR 2015e).

Fisheries

Habitat does not exist for sensitive fish species including, Lahontan cutthroat trout, bull trout, and Lahontan Lake tui chub. Therefore, the Proposed Action Alternative would have no direct effect on these species (HDR 2015b).

The Proposed Action Alternative would have potential temporary indirect impacts to water resources within the project area, which may impact fish species present and their associated habitat. It was determined that habitat may exist for four fish species: rainbow trout, speckled dace, brown trout, and brook trout, however these are not TECPS species. Temporary indirect impacts to water resources and fisheries would also result from 0.44 acres of new roadway construction and roadway improvements, and from general soil disturbance and vegetation removal. As a result of roadway improvements and soil disturbance, deposition of sediment and chemical runoff could be introduced to nearby waterways present within the project area. However, existing poles and proposed single-pole and H-frame locations would be located outside of drainages, and new road construction and road improvements would not directly impact any drainages. In order to minimize or eliminate potential fish habitat impacts, EPMs would be integrated into project designs that aim to reduce erosion and prevent project-related material from being introduced into waterways. Also, a SWPPP would be prepared, which would involve the implementation of additional BMPs to avoid and reduce soil erosion and stormwater runoff

impacts, in turn, reducing potential effects on fisheries habitat. For these reasons, overall fisheries impacts within the project area are predicted to be minor.

The implementation of the EPMs listed below would further minimize effects to threatened, endangered, and sensitive species (including northern goshawk, bald eagle, SNYLF), migratory birds, management indicator species, and fishery resources. These measures ensure most vegetation would be left in place (where possible), staging areas would be at least 100 feet from water features, and biological surveys would be conducted, if required by the USFS.

EPMs

Botanical Resources

7. Where possible, vegetation will be left in place. Where vegetation must be removed, it will be cut at ground level to preserve the root structure and allow for potential resprouting.

Water Resources

45. The project will disturb more than one acre. NVE will apply for a storm water permit and will incorporate BMPs, in accordance with the Project's Storm Water Pollution Prevention Plan (SWPPP).
46. All construction vehicles, equipment staging or storage, and construction activities will be located at least 100 feet away from any streams, wetlands, or other water features.

Wildlife and Sensitive Species

47. If required by the USFS, prior to construction, biological surveys of the ROW and the access road will be conducted. Potential habitat for listed species identified during the preconstruction surveys will be fenced for avoidance. If avoidance is infeasible, consultation with appropriate jurisdictional agencies will be conducted prior to work in the area(s).
48. Excavations left open overnight will be covered to prevent livestock or wildlife from falling in. All covers will be secured in place and strong enough to prevent livestock or wildlife from falling in.
49. If a sensitive plant or animal species is identified during construction, work near the sensitive species will be halted and a qualified biologist familiar with the species will be consulted to determine an appropriate buffer and other protective measures. The appropriate resource agencies will be notified of the discovery within 24 hours. If avoidance is infeasible, consultation with the jurisdictional resource agency will be conducted prior to continuing work in the immediate area of the species. Any federal- or state-listed or special status species discovered on public land will also be reported to the USFS.

For these reasons, the overall effects to wildlife resources, including federally-listed endangered and threatened species, USFS sensitive species (including northern goshawk, bald eagle, SNYLF), migratory birds, MIS, and fishery resources would range from no effect to moderate. Further, for federally-listed endangered and threatened species and USFS sensitive species, the implementation of the Proposed Action Alternative is not likely to result in a trend toward federal listing or loss of viability for any of the evaluated species.

Cumulative Effects

The implementation of the Proposed Action Alternative would result in direct short-term and long-term minor and moderate adverse effects to wildlife resources. However, the anticipated cumulative effects to wildlife resources would be minor. There are other past, present, and

reasonably foreseeable projects proposed in the project vicinity, specifically trail improvements along the Daggett Summit Trail System, and capital improvements at Heavenly Mountain Resort, but most of these improvements are currently under construction. They also require similar BMPs or EPMs to reduce potential effects to wildlife resources. For these reasons, the overall effect on wildlife resources within the local area would be minor.

Mitigation Measures

The following additional measures have been incorporated into the project design to further minimize, avoid, and reduce potential adverse effects on wildlife resources.

Wildlife and Sensitive Species

1. Limited operating periods: To avoid and minimize disturbance to breeding activities and suitable habitat of species, limited operating periods (LOPs) will be implemented around nests, dens, roost sites, and other areas of concentrated use (e.g., Protected Activity Centers) by these species as directed in the Forest Plan. LOPs limit the type, spatial extent, and timing of project activities permitted. The timing of LOPs is standardized by species. Limitations to the types of project work that may be conducted during an LOP and the spatial extent of the LOP are determined by a USFS Wildlife Biologist and are typically based upon the potential of the activity to disturb relevant federally threatened or endangered, LTBMU sensitive, or TRPA special interest species.
 - LOP for Northern goshawk is February 15 through September 15.
2. Structures shall be constructed at 120 kV standards to meet current avian protection construction guidelines in *Suggested Practices for Avian Protection of Power Lines*, however, the transmission line would continue to be operated at a 60 kV (APLIC 2006).
3. Sightings of birds that have died because of interaction with the power facilities will be reported to the USFS Wildlife Biologist as soon as possible. This report should include date of sighting, number of birds, species, and photo (if available). If necessary, additional mitigation will be implemented to increase the visibility of the powerlines to migrating species.
4. Preconstruction migratory bird nesting and breeding surveys will be completed prior to any tree removal or construction to identify possible nesting birds in the area.
5. To avoid affecting SNYLF and suitable habitat as defined in the Biological Opinion (Ref#:FF08ESMF00-2014-F-0557), and avoid the need for additional compliance actions required by Section 7 of the ESA, an avoidance area should be established that buffers Daggett Creek and the South Fork of Daggett Creek from construction activities, and ensures no ground disturbing activities are conducted in the area.

Alternative 2: No Action Alternative

Direct and Indirect Effects

Under the No Action Alternative, the Proposed Action Alternative would not be rebuilt. The land would remain as is, and would not incur any impacts from the installation of the transmission line. The implementation of the No Action Alternative would involve the continued operation and maintenance of the existing 634 Line. Operation and maintenance would involve routine tree trimming and removal, vegetation clearing to minimize wildland and downed tree hazards, minor grading and access roadway maintenance, and other measures to meet annual inspection requirements. Also, because the existing transmission line structures are aging, the Line may require increased maintenance and emergency repair or replacement work, which may involve increased vegetation removal. However, the overall effects on wildlife resources, including

northern goshawk, bald eagle, SNYLF, migratory birds, MIS, and fishery resources are expected to be negligible.

Cumulative Effects

Because the implementation of the No Action Alternative would only involve ongoing and continued operation and maintenance of the existing 634 Line, no cumulative effects to wildlife resources would occur.

Mitigation Measures

No significant adverse impacts to wildlife have been identified with respect to the No Action Alternative; therefore, no mitigation measures would be required.

3.10 Cumulative Analysis

NEPA requires that federal agencies consider the cumulative effects of proposals under their review. The purpose of the cumulative impacts analysis for the Proposed Action Alternative is to evaluate – by resource topic – the combined, incremental effects of human activity within the scope of the project. CEQ regulations define the scope of this analysis to include connected actions, cumulative actions, and similar actions (40 CFR 1508.25). The CEQ formally defines cumulative impacts as follows:

‘...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably 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 1508.7).’

For the purposes of this EA, cumulative impacts comprise the sum of past, present (including the Proposed Action Alternative), and reasonably foreseeable future actions (RFFAs) resulting primarily from the implementation of the Proposed Action Alternative (i.e., the construction and operation of the 634 Line Rebuild). The purpose of the cumulative analysis in this EA is to evaluate the significance of the Proposed Action Alternative’s contributions to cumulative environmental impacts.

In accordance with NEPA and regulations implementing NEPA, this chapter addresses potential cumulative effects on environmental resources in the Cumulative Effects Study Area (CESA) that could result from implementation of the Proposed Action Alternative and No Action Alternative, past actions, present actions, and RFFAs. The extent of the CESA varies by resource based on the geographic or biological limits of that resource. For example, some cumulative effects are localized in character, and are analyzed at the local scale (e.g., construction noise). Other types of cumulative impacts are regional in nature, and should be analyzed at a regional scale. As a result, the geographic area that could be affected by a project varies depending on the type of environmental resource being evaluated. Three geographic areas were used for this analysis: global, regional, and local. A global geographic area would encompass international and national boundaries, such as airsheds or the open waters, like the ocean. A regional geographic area would encompass a metropolitan area, county, land management unit, ecosystem or migratory corridor, or regional watershed, like the Lake Tahoe Basin. A local geographic area would encompass a neighborhood, community, historic district, river, aquifer, specific species habitat, or breeding ground. Table 3-12 summarizes the geographic areas associated with the environmental resources addressed in this EA.

Table 3-12. Geographic Scope of Environmental Resources in Cumulative Analysis

Resource	Geographic Area
Air Quality	Global (for greenhouse gas emissions) Regional (for pollutants that affect the air basin) Local (for pollutants that affect sensitive receptors/localized pollutants)
Botanical Resources	Local and Regional (defined based on species type, distribution, and habitat requirements)
Fire Hazards	Local (for wildland fire hazards near communities)
Geological Resources	Local (for soil disturbance activities)
Invasive Plants	Local and Regional (defined based on species type, distribution, and habitat requirements)
Recreation	Local (based on overall range of recreational amenities and opportunities)
Visual Resources	Local (based on nearby viewsheds and viewer types)
Water Resources	Local and Regional (based on watershed boundary)
Wildlife	Local and Regional (defined based on species type, distribution, and habitat requirements)

For the purposes of this analysis and under federal regulations, “impacts” and “effects” are assumed to have the same meaning and are interchangeable.

Cumulative Projects

The list of cumulative projects is based on the current Schedule of Proposed Actions (SOPA) Report maintained by the USFS – LTBMU (Table 3-13). The current SOPA Report contains a list of proposed actions that will begin or are currently undergoing environmental analysis and documentation. The list summarized in Table 3-13 includes the SOPA Report for the LTBMU and Humboldt-Toiyabe National Forest, but highlights only those actions that are proposed to be implemented in the vicinity, which includes a 20-mile radius from the proposed project area. This list also includes relevant nearby past, present, and reasonably foreseeable federal projects occurring within the Tahoe Basin and Douglas County. The list of related projects used for the cumulative effects analysis includes projects that have occurred or are planned to occur on both public and private lands within 20 miles of Genoa, Minden, Douglas County, Upper Kingsbury, Lower Kingsbury, Stateline, and South Lake Tahoe. The projects were derived through communications with the TRPA, Douglas County, El Dorado County, the City of South Lake Tahoe, NDOT, and the California Department of Transportation (Caltrans).

The cumulative project list is not comprehensive; it does not include all past, present, or proposed projects, as projects proposed by other lead agencies in the region, such as the Lahontan Regional Water Quality Control Board (LRWQCB), California Tahoe Conservancy (CTC), South Tahoe Public Utilities District (STPUD), Liberty Energy, NDSP, and other state and local agencies. Most major projects were included if they were noted on TRPA, City of South Lake Tahoe, El Dorado County, and Douglas County websites or by planning staff. However, the list

does include similar and related energy infrastructure projects occurring or proposed to occur in the region that may take place beyond the 20-mile radius from the project area.

Table 3-13 provides the name of each project, a brief description of the project, and the project's status (e.g., completed, under review, under construction). The locations of the cumulative projects listed in this table are shown in Figure 20. Project names listed in Table 3-13 are followed by a number that corresponds to the numbered point locations in Figure 20; these include only projects that have a specific location. For example, a SUP for an event along the TRT or a planning project (e.g., plan amendment) would not be shown.

Table 3-13. List of Related Cumulative Projects

Name	Project Description	Status
Sierra Nevada Forest Plan Amendment (SNPFA) EIS	The amendment includes the preparation of a focused analysis to comply with two orders issued by the Eastern District Court of California to correct the 2004 SNFPA Final SEIS to address additional alternatives and consistency issues.	On hold.
Burke Creek Highway 50 Crossing and Realignment Project EA (1)	A watershed management project aimed to restore the ecological function and processes within the Burke Creek channel and its adjacent floodplain, reduce pollutant loading the Lake Tahoe, and improve public safety on Highway 50 related to flooding.	In progress.
California Pacific Electricity Company 625 and 650 Electrical Line Upgrade Project EIS (2)	The project involves the rebuild of existing power lines from Truckee to Kings Beach to Tahoe City. It also includes an upgrade in capacity from 60 kV to 120 kV.	In progress.
Heavenly Valley Epic Discovery Project EIS (3)	A recreation management project, the project is intended to enhance summer activities in response to the USDA Forest Service Ski Area Recreational Enhancement Act of 2011.	Completed.
Kingsbury Stinger Trail Reconstruction and BMP Upgrade Project Categorical Exclusion (4)	A trail improvement project that involves extensive maintenance, reconstruction, BMP upgrades, and some re-routed segments of the Kingsbury Stinger trail to meet current trail management standards.	Under Construction.
LTBMU Events and Outfitting and Guiding Strategy Permit Issuance EA	Development of LTBMU-wide events and outfitting and guiding strategy.	Proposal under Development.
Plan Revision for Lake Tahoe Basin EIS	Preparation of a revised land management plan (Forest Plan) and the preparation of an EIS for the revised plan.	In Progress.
Restoration of Fire Adapted Ecosystems EA	This project intends to use hand thinning and prescribed fire to restore priority meadows to reduce conifer encroachment, improve native riparian/wetland plant abundance and vigor, and improve habitat for native riparian dependent species.	In Progress.
Round Hills Resort 2013 Day Use Redevelopment (5)	Redevelopment of day use facilities within Round Hill Pines Resort including parking lot, food and beverage service building, swimming pool and tennis court area, and enhancement to entrance road.	Proposal under Development.

Name	Project Description	Status
Eastern Sierra ATV and UTV Jamboree CE	An ATV and UTV motorcycle touring type of ride on NFS lands.	On hold.
Zephyr Cove Erosion Control Project (6)	Proposes to place two infiltration basins on the Zephyr Cove Resort.	Proposal under Development.
Greater Sage Grouse Bi-State Distinct Population Segment Forest Plan Amendment	The USFS is proposing to amend the Toiyabe National Forest LRMP and the BLM is proposing to amend the affected RMPs.	In Progress.
Bordertown to California 120 kV Transmission Line (7)	Construction of a 120 kV transmission line connecting the Bordertown and California substations.	In Progress.
Hope Valley Restoration CE (9)	Implementation of streambank stabilization measures, such as vegetative toe protection, floodplain benching, armoring with rock, and willow planting along a 2-mile reach of the West Fork Carson River in Hope Valley	In Progress.
Nevada North Demonstration Project (10)	A 3-mile section of the longer Nevada Stateline-to-Stateline Bikeway project, which is a proposal to build a shared-use path on the east side of Lake Tahoe between the Nevada state line in Crystal Bay on the north and the casino corridor in Stateline, Nevada on the south	Completed.
Lake Tahoe Nevada State Park General Management Plan Update	Nevada Division of State Parks is updating the Lake Tahoe Nevada State Park General Management Plan (1990) which serves as the guidance document for the overall management of the park.	Proposal under Development.
Edgewood Lodge Final EIS (11)	154-room hotel project that includes environmental improvements to water quality and sensitive land restoration.	Under construction.
Beach Club Resort (12)	Redevelopment of the existing Tahoe Shores Mobile Home Park located at the end of Kahle Drive in Stateline, Nevada.	On hold.
Lake Tahoe Passenger Ferry Project (13)	Development of an all-season, passenger ferry service between north shore and south shores of Lake Tahoe.	Under Review.
D Street Public Works Facility (14)	Located on a parcel acquired by the City at 1740 D Street. This project is proposed to create an office and industrial facility for the City's Public Works Department and staff currently located at the Rufus Allen Corporation Yard and the Tata Lane offices.	Under Review.

Name	Project Description	Status
Bijou Bike Park (15)	The project consists of various compacted dirt bike courses and features and hardscape areas. The project includes two pump tracks, a BMX race track, kids learning zone, and a terrain park within approximately five undeveloped acres of the Bijou Park.	Completed.
Sierra Tract Erosion Control Project, Phases 3 and 4 (16)	The Sierra Tract Erosion Control project includes water quality improvements for the commercial portion of the Sierra Tract subdivision immediately adjacent to the US Highway 50 and the southwestern residential portion of the subdivision.	Under Design.
Tahoe Valley Stormwater Improvement Project (17)	This project includes the developed commercial areas near US Highway 50, both north and south of the “Y” area. The area is a priority for treatment as storm water runoff discharges directly into the Upper Truckee River, which drains into Lake Tahoe.	Under Planning Review.
El Dorado Beach to Ski Run Bike Trail (18)	Includes the construction of an approximate 1-mile long Class 1 bike path (paved bike path in dedicated right-of-way separated from roadway right-of-way) on the north side of US Highway 50 between El Dorado Beach and Ski Run Boulevard.	Obtaining Acquisitions.
Route 50/Highway 89 to Cascade Road Water Quality Improvement (19)	Proposed water quality improvements from the intersection of US Highway 50 and State Route 89 to Cascade Road near West Shore/Emerald Bay.	Under Construction.
Route 89 – Cascade Road to North of Eagle Falls Viaduct (20)	Water quality improvements from Cascade Road to north of Eagle Falls Viaduct.	Under Plan Review.
Route 89 – North of Eagle Falls Viaducts to Meeks Creek (21)	Water quality improvements from north of Eagle Falls viaducts to Meeks Creek.	Under Construction.
Route 89 – Meeks Creek to Wilson Avenue (22)	Water quality improvements from Meeks Creek to Wilson Avenue.	Under Construction.
Route 50 – South Lake Tahoe Maintenance Station (23)	Construction of pre-wash facilities in South Lake Tahoe.	Under Plan Review.
Route 50 Junction 50/89 to Trout Creek (24)	Water quality improvements from US Highway 50/Highway 89 intersection to Trout Creek.	Under Review.

Name	Project Description	Status
Route 50 – 0.2 mile south of the El Dorado/ Placer County Line to the Truckee River (25)	Water quality improvements to US Highway 50 from El Dorado/Placer county line to Truckee River.	Under Construction.
Route 50 – 42 Mile Picnic to Pioneer Trail Road (26)	Pavement overlay from 42-Mile Picnic-to-Pioneer Trail Road.	Under Review.
Route 50 – Replace Echo Summit Sidehill Viaduct Bridge (27)	Replace Echo Summit sidehill viaduct bridge 7 miles west of South Lake Tahoe.	Under Review.
Route 50 – Meyers – Route 50/Highway 89 Intersection Improvements (28)	Intersection improvements at US Highway 50/State Route 89.	Under Review.

Sources: LTBMU SOPA Report, June – September 2015 2015a; Humboldt-Toiyabe National Forest SOPA Report, June – September 2015, 2015b; Douglas County Personal Communications 2015; TRPA, 2015; El Dorado County 2015; Caltrans February 2015; City of South Lake Tahoe 2015 – 2016 Projects 2015.

4.0 Consultation and Coordination

The LTBMU and contractor staff consulted the following individuals, federal, state, and local agencies, tribes, and non-USFS persons during the development of this environmental assessment:

4.1 Federal, State, Regional, and Local Agencies

- United States Army Corps of Engineers
- United States Environmental Protection Agency
- United States Fish and Wildlife Service
- Nevada Clearinghouse
- Nevada State Historic Preservation Office
- Nevada Division of State Lands/State Land Use Planning Agency
- Nevada Division of Wildlife
- Nevada Division of Environmental Protection
- Tahoe Regional Planning Agency
- Douglas County
- El Dorado County
- City of South Lake Tahoe
- Tahoe-Douglas Fire Protection District

4.2 Tribes

- Washoe Tribe of Nevada and California

4.3 Other

- Sierra Forest Legacy
- Tahoe Rim Trail
- Sierra Club – Lake Tahoe Chapter
- Andrew Strain, Heavenly Mountain Resort
- David McClure
- Residences within approximately 300 feet of the project area were contacted (including approximately six private residents/land owners). These residents were also mailed a public scoping notice during the initial scoping period.

Issues and Outcomes

In early 2014, initial consultation that was conducted with the USFS, NDOW, and NV SHPO in order to determine whether baseline technical studies and surveys would be required for the Proposed Action Alternative. During this time, USFS staff biologists and USFS botanists reviewed the project application and required the completion of a BA/BE; protocol-level surveys for northern goshawk, bald eagles, and SNYLF; as well as the completion of migratory bird and raptor surveys; a MIS Report; and an Invasive Plant Risk Assessment. Similarly, the NV SHPO reviewed the project application and required the completion of a Cultural Resources Inventory.

Botanical and Wildlife Resources

The USFWS and NDOW were consulted during the preparation of the technical surveys and studies. In early 2015, the USFS reviewed the biological reports, made final project effect determinations, and recommended mitigation measures for the Proposed Action Alternative. On

May 18, 2015, the USFWS reviewed and approved the *Migratory Landbird Conservation on the Lake Tahoe Basin Memorandum*. On May 28, 2015, the USFS revised and approved the *BA/BE for Aquatic and Terrestrial Wildlife Species* and the *MIS Report*. On June 1, 2015, the *Natural Resources Survey Results Report* was finalized; this report included a general overview of all biological resources and potential effects within the project area. On June 4, 2015 the USFS revised and approved the *BE for Botanical Species* and the *Invasive Plant Risk Assessment*. Because required biological technical studies were completed, there are no further issues or concerns from the USFWS or NDOW regarding the evaluation of botanical and biological resource effects for the Proposed Action Alternative.

Cultural Resources

The NV SHPO was consulted during the preparation of the cultural resource surveys. On July 9, 2015, the LTBMU initiated informal consultation with the NV SHPO by submitting the *Draft Cultural Resources Report* for review and comment; they provided concurrence on the report on October 1, 2015 (NV SHPO 2015).

Native American Consultation

Tribal consultation for the proposed project has also been conducted in accordance with NHPA and EO 13175 to maintain the USFS's government-to-government relationship between tribes. In October 2015, the LTBMU initiated informal consultation with potential tribes, specifically the Washoe Tribe of California and Nevada (USFS 2015f). On December 2, 2015, the LTBMU received input via a phone conversation from the Washoe Tribe of California and Nevada (USFS 2015f). During the consultation, the Washoe Tribe of California and Nevada identified concern regarding the location of one sensitive cultural resource near a project access roadway within the project area. The LTMBU has determined NVE can protect this sensitive resource by flagging and avoiding the site during construction and operation.

All other input received during the scoping period has been considered and incorporated into this EA.

5.0 Report Preparation

The following people participated in the initial scoping, were members of the Interdisciplinary Team, or provided direction and assistance during the preparation of this EA.

Name	Title	Responsible for the Following Section(s) of this Document
USFS – Lake Tahoe Basin Management Unit		
Brian Hansen	Project Manager/Realty Specialist	Project Management, Air Quality, Geological Resources, Water Resources, Fire Hazards
John Maher	Heritage Resource Program Manager	Cultural Resources
Ashley Sibr	Landscape Architect/Recreation Planner	Recreation, Visual Resources
Daniel Cressy	Landscape Architect/Recreation Planner	Recreation, Visual Resources
Courtney Rowe	Forest Botanist	Botanical Resources, Invasive Plants
Rena Escobedo	Fish and Wildlife Biologist	Wildlife Resources
Gerrit Buma	NEPA Coordinator	Technical Review, Cumulative Analysis
NV Energy		
Eric Weldon	Senior Environmental Scientist	Description of Proposed Action
Amec Foster Wheeler Environment & Infrastructure, Inc.		
Aaron Goldschmidt	Environmental Sciences Manager	Quality Assurance/Quality Control
Doug McFarling	NEPA Program Manager	Quality Assurance/Quality Control
Teresa Conner	Senior Technical Advisor	Senior Technical Review
Juliana Prospero	Project Manager	Proposed Action and Alternatives, Cumulative Impacts, Air Quality, Visual Resources
Melissa Greulich	Wildlife Biologist	Wildlife, Fisheries, Migratory Birds, Management Indicator Species
Corinna Photos	Botanist	Vegetation, USFS Special Status Species, Invasive Plants, Geological Resources, Water Resources
Stacey Scaravelli	Natural Resources Specialist	Fire Hazards, Recreation, Editing
Bryce Herbert	GIS Analyst	Mapping, Figure Production

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