Draft Supplemental Environmental Impact Statement for the ON Line Project

U.S. Department of the Interior
Bureau of Land Management
Ely District Office
Nevada

BLM

Ely District Office / Nevada

BLM Mission Statement

It is the mission of the Bureau of Land Management to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLMNV/EL/EIS-GI-10/01+1793

DES 09-50

Cover Photo: View north along US-93 near the intersection with Kane Springs Valley Road

Draft Supplemental Environmental Impact Statement for the ON Line Project

(X) Draft **() Final**

Lead Agency:	U.S. Department of the Interior Bureau of Land Management Ely District Office
Cooperating Agencies:	White Pine County, Nevada
Counties Directly Affected:	Clark, Eureka, Lincoln, Nye, and White Pine, Nevada
Date SEIS Filed with EPA:	Same as date of publication in the Federal Register
Questions on the SEIS can be Directed to:	Mike Dwyer, SEIS Project Manager (702) 821-7102
Comments on the SEIS can be Directed to:	One Nevada Transmission Line (ON Line) SEIS Bureau of Land Management 702 N. Industrial Way HC 33 Box 33500 Ely, NV 89301 Phone (702) 821-7102 michael_dwyer@blm.gov
Comments must be received by:	45 days after publication in the Federal Register

ABSTRACT

In compliance with the National Environmental Policy Act, this Draft Supplemental Environmental Impact Statement (SEIS) evaluates the environmental effects of the construction, operation, and maintenance of the ON Line Project proposed by NV Energy in Clark, Eureka, Lincoln, Nye, and White Pine Counties, Nevada, on lands currently managed by the Ely and Southern Nevada District Offices of the Bureau of Land Management (BLM). The Proposed Action and Action Alternative include construction of a 500 kV electric transmission line from the proposed Robinson Summit Substation extending 236 miles south to the Harry Allen Substation near Las Vegas, expansion of the existing Falcon Substation in Eureka County, associated appurtenances and infrastructure, and use of best management practices and mitigation measures to avoid environmental impacts or minimize the magnitude, extent, and duration of impacts. Associated federal actions include BLM's issuance of rights-of-way for construction and operation of the project.

Authorized Officer Responsible for the Supplemental Environmental Impact Statement:

Rosemary Thomas

Rosemary Thomas, Manager
Ely District Office

United States Department of the Interior

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http://www.blm.gov/nv/st/en/fo/ely_field_office.html

In Reply Refer To:
N-82076
2850 (NVL0000)

Dear Reader:

Enclosed for your review and comment is the Draft Supplemental Environmental Impact Statement (DSEIS) for the ON Line Project, a proposed 236-mile long 500 kV electric transmission line, a new substation near Ely, Nevada, a loop-in of an existing transmission line to the proposed substation, expansion of an existing substation, and a fiber-optic line dedicated to operation of the transmission line. The electric transmission line would extend south from a new substation northwest of Ely through White Pine, Nye, Lincoln, and Clark counties to the existing Harry Allen Substation near Las Vegas. The expansion of the existing substation would occur in Eureka County. The proponent is NV Energy. The Bureau of Land Management, Ely District Office is the lead agency for the EIS with cooperation from the Southern Nevada BLM District, and White Pine County.

A DSEIS has been prepared because the proposed action was a part of the Ely Energy Center (EEC) Project, which also included a 1,500 megawatt coal-fired power plant. A Draft EIS for the EEC Project, including the transmission line, was made available for public comment in January 2009. In February 2009, NV Energy announced it was postponing indefinitely construction of the power-plant and the associated power plant facilities. In April 2009, the BLM received an amended application from NV Energy for the transmission line, substation, and fiber-optic line only. The project was renamed the ON Line Project. All comments received on the EEC DEIS that applied to the transmission line, substation, and/or fiber-optic line have been carried forward into the development of the ON Line DSEIS.

The comment period ends 45 days following the publication of the Notice of Availability (NOA) of this DSEIS in the Federal Register. The publication date of the NOA is the exclusive means for calculating the comment period for this analysis. Public comments concerning the adequacy and accuracy of this DSEIS may be submitted in writing to: ON Line Project SEIS, Bureau of Land Management, 702 N. Industrial Way, HC 33 Box 33500, Ely, NV 89301, Phone (775) 289-1800. E-mailed comments must be submitted in Adobe Acrobat (*.pdf), MS Word (*.doc), or rich text format (*.rtf) to michael_dwyer@blm.gov.

At least two public meetings to accept verbal and written comments will be conducted. Dates, times, and locations will be made public via local media outlets and on the BLM Ely District Office website (www.blm.gov, click on Nevada on the map of the United States, click on Ely on the Nevada map).

All comments received during the public comment period will be fully considered and evaluated for preparation of the Final SEIS. If you have any questions on this matter, please contact Michael Dwyer, EIS Project Manager (702) 821-7102.

Sincerely,

Rosemary Thomas

Rosemary Thomas
District Manager
Ely District Office

ON Line Project

Draft Supplemental EIS

EXECUTIVE SUMMARY

The following sections summarize the Draft Supplemental Environmental Impact Statement (DSEIS) for the One Nevada Transmission Line Project (ON Line Project). This information is provided as a convenient synopsis for the public, but is not a substitute for review of the complete DSEIS. This summary provides a general overview of the proposed ON Line Project and its purpose and need; briefly describes the Proposed Action and other alternatives; and summarizes major impacts for key resources associated with the Proposed Action and the Action Alternative.

This DSEIS was prepared in response to an amended SF 299 *Application for Transportation and Utility Systems and Facilities on Federal Lands* for the ON Line Project, submitted by NV Energy. The facilities of the ON Line Project were previously proposed as components of the Ely Energy Center Project (EEC) as originally proposed by NV Energy in 2006. On February 9, 2009, NV Energy announced its decision to postpone the permitting and development of the EEC coal-fired power plant and associated supporting facilities until such time that carbon capture/sequestration are commercially feasible, but to continue with the permitting and development of the substation, transmission, and communication components between its southern and northern service territories, and upgrade of existing substations, now referred to as the ON Line Project. The purpose of the DSEIS is for the U.S. Bureau of Land Management (BLM) to evaluate and disclose potential impacts of the proposed development of the ON Line Project, and determine whether to grant rights-of-way (ROWs).

The BLM is the lead federal agency for this DSEIS. Originally, the EEC environmental review team included the BLM as the lead federal agency with the U.S. Environmental Protection Agency (EPA), National Park Service (NPS), and White Pine County as cooperating agencies. Once the BLM decided to proceed with a DSEIS due to the change in the Proposed Action from the EEC to the ON Line Project, the EPA and NPS decided to withdraw their cooperating agency status for the reduced project scope. The one cooperating agency for this DSEIS is White Pine County.

The Notice of Intent (NOI) for the ON Line Project SEIS was published in the Federal Register on July 29, 2009, initiating a 30-day scoping period. The issues evaluated in this DSEIS are generally derived from public comments originally made during the EEC Project scoping period and summarized in the EEC EIS Scoping Summary issued in April 2007 (BLM-JBR 2007). Further, although no additional public scoping meetings were held for the ON Line Project, any public comments received during the 30-day scoping period, initiated by the NOI, were also fully reviewed and considered.

Proposed Action

NV Energy proposes to construct and operate a 236-mile transmission line with telecommunication and appurtenant facilities in White Pine, Nye, Lincoln, and Clark counties, a substation near Robinson Summit in White Pine County, a loop-in of the existing Falcon-Gonder

345 kV transmission line at the new Robinson Summit Substation, expansion of the existing Falcon Substation in Eureka County, addition of new equipment inside the existing Harry Allen Substation in Clark County, and access roads to all facilities collectively referred to as the ON Line Project. The Proposed Action components, including the new substation at Robinson Summit and transmission line and telecommunication facilities, were described and analyzed in the EEC Draft Environmental Impact Statement (i.e., Robinson Summit to Harry Allen (RS-HA) Line #1) as transmission line segments 6C, 8, 9B, 9A, 9D, and 11.

To summarize, the components of the transmission facilities would include:

Robinson Summit 500/345 kV Substation, approximately 108 acres in size, adjacent to the Southwest Intertie Project (SWIP) Utility Corridor in White Pine County

One Nevada 500 kV Transmission Line and telecommunication appurtenances, approximately 236 miles in length, between the proposed Robinson Summit Substation and the existing Harry Allen Substation in Clark County mostly within the SWIP Utility Corridor

Falcon-Gonder 345 kV transmission line loop-in at the Robinson Summit 500/345 kV Substation

A permanent access road into the Robinson Summit Substation and temporary access roads into all facilities along the 236-mile project route

Expansion of the existing Falcon Substation on private property in Eureka County to add 345 kV series compensation equipment

Addition of 500 kV electrical connection equipment within the existing footprint of the Harry Allen Substation in Clark County

Action Alternative

The Action Alternative would consist of all of the same facilities as described under the Proposed Action, however, the 500 kV transmission line and telecommunication facilities would follow a parallel route alignment approximately 1,800 feet to the east of the Proposed Action alignment within the SWIP Utility Corridor. The transmission line segments of the Action Alternative include 6C, 8, 9B, 9C, 9D and 11. Alternative segments of the Action Alternative include Segment 9A instead of 9C as well as Segment 10 instead of 9B, 9A, and 9D. Alternative segment 9A deviates from the SWIP Utility Corridor and alternative Segment 10 deviates from the SWIP Utility Corridor as well but for the southern portion follows and occurs within an adjacent federally-designated utility corridor. The linear distance of the Action Alternative would be shorter than the Proposed Action by about 2 miles, for a total length of 234 miles. The facilities and alignment described under the Action Alternative were also described and analyzed in the EEC Project Draft Environmental Impact Statement (i.e., RS-HA Line #2).

BLM Actions

BLM actions for this project would include issuance of ROWs necessary for construction and operation of the ON Line Project. ROWs issued for 30 years, with options to renew, would be necessary for the operation and maintenance of all ON Line Project facilities located on BLM-administered public land. In addition, short-term ROWs would be required from the BLM to accommodate construction activities such as temporary access roads, batch plant sites, structure site work areas, pulling and tensioning sites, wire splicing sites, and material/equipment staging.

ENVIRONMENTAL IMPACTS

Proposed Action and Alternatives

In **Chapter 4** of this DSEIS the environmental effects of the various components of the Proposed Action are evaluated and compared to the Action and No Action Alternatives, as detailed in **Chapter 2**. The primary environmental impacts for the components of the Proposed Action and Alternatives, including No Action, are outlined in **Table 2.6-1**. The environmental impacts of these alternatives and components are summarized in the following narrative.

Water Resources

Construction

Although not anticipated, the most likely impacts to surface water from the ON Line Project would be from surface disturbance during construction.

Best Management Practices (BMPs) would be implemented at all locations to avoid and/or minimize surface water quality impacts during the construction phase. Short-term, minor effects may include the degradation of seasonal surface runoff through vegetation removal or soil compaction.

Under the Proposed Action, wetlands within the project area would not be directly or indirectly impacted. Wetland areas would be spanned by project facilities, and no structures would be placed within these wetlands.

No direct impacts to surface waters and wetlands are anticipated since all such waters can be spanned with no construction disturbance to the surface waters, and BMPs would be implemented and uniformly followed. There would be no impacts to groundwater.

Operations

No impacts to surface water resources as a result of operations of the ON Line Project are anticipated. There would be no impacts to groundwater.

Geology and Minerals

The ON Line Project could locally alter surface topography. Authorized mining claims, oil and gas leases, and geothermal leases occur near the vicinity of project elements. The anticipated level of impacts to geology and minerals would be negligible.

Paleontological Resources

Paleontological resources are present in the general area of the Proposed Action and Action Alternative. Sediments with varying potentials (or sensitivities) to contain paleontological resources have been identified in the project area. With adherence to the mitigation measures described in **Section 4.4.2.5** minor impacts to paleontological resources would result. If significant fossils were found during construction, they would be mitigated under direction of the BLM or other appropriate agency paleontological resource specialist. Disturbance of areas with high potential for containing paleontological resources would be avoided to the extent possible as addressed in a Construction, Operation and Maintenance Plan (COM Plan) that would be developed and reviewed by the BLM prior to construction.

Soils

Minor physical and chemical changes to the soil are expected to occur due to mixing during initial salvage operations and when placed in stockpiles for future reclamation use. Physical impacts to soil resources during construction and reclamation would include compaction and crushing of the soil and soil crust by equipment during salvage and stockpiling. Physical effects of soil compaction would be short-term, minor to moderate, and include reduced permeability and porosity, damage to microbiotic crusts, increased bulk density, decreased available water holding capacity, increased erosion potential, reduced gaseous exchange, and loss of soil structure. Potential impacts to soil resources would be similar for the Proposed Action and Action Alternative. Reclamation of the temporarily disturbed areas would return these soils to productivity by being utilized as growth medium in reseeded areas, while unreclaimed areas would be permanently eliminated from potential production.

Air Quality

The Proposed Action and Action Alternative include construction and operation of the same substation facilities as well as linear transmission and telecommunication facilities, with slight differences in the linear route alignments between Robinson Summit and Harry Allen Substations. The construction activities would generate air pollutant emissions. However, there would be little difference as far as quantities of construction emissions between the Proposed Action and the Action Alternative, operational impacts would be minor, associated with routine maintenance surveys, maintenance activity that would represent a fraction of the construction emissions profile, and small quantities of SF_6 loss from gas-insulated electrical equipment that would make a minor contribution of greenhouse gas. Both the Proposed Action and the Action Alternative would meet federal and state air quality standards.

Vegetation

Vegetation

Both permanent and temporary vegetation impacts would occur as a result of construction, operation, and maintenance of the ON Line Project. Impacts would occur during construction where project elements would be built, resulting in vegetation loss. These impacts would be long-term where permanent facilities are built. Temporary impacts to vegetation would occur at construction-related disturbances that would then be reclaimed after construction. **Tables 4.7-1** and **4.7-4** show the approximate acres of permanent impacts of the Proposed Action and the Action Alternative by vegetative community.

Noxious and Non-native, Invasive Weeds

A total of 16 noxious and non-native, invasive weed species were identified for the project area through existing data and field observations (**Table 3.7-1**). The spread of these species through new disturbance areas related to construction of the ON Line Project is an issue of concern. A BLM Weed Risk Assessment for Noxious and Non-Native, Invasive Weeds was completed, and an Integrated Weed Management Plan to be prepared as part of the COM Plan and approved by the BLM Weed Coordinator for the ON Line Project would address the control of noxious weed communities in the project area to address this concern.

Special-Status Plant Species

Hanging bladderpod, a species that has no federal or state status but is considered at-risk by the Nevada Natural Heritage Program (NNHP), was found along an unnamed ephemeral

channel at the Robinson Summit Substation site. Areas of the SWIP Utility Corridor contain sensitive species including: White River catseye (*Cryptantha welshii*) and Tiehm's blazing star (*Mentzelia tiemhii*). Special-status plant species have the potential to occur in locations within the project area that contain suitable habitat and resource conditions, particularly in Lincoln and Clark counties. During the design of project facilities, structures would be sited to avoid known special-status plant communities within the project area to the greatest extent practical. Pre-construction surveys would also allow for avoidance of special-status plant communities within the project area to the extent practical. Impacts to special-status plant communities would be mitigated, if not avoided, according to appropriate measures identified in the COM Plan and Restoration Plan approved by the BLM botanist, thereby rendering impacts to special-status plant communities negligible.

Wildlife

Big game species within the project area consist primarily of pronghorn antelope (*Antilocapra americana)*, mule deer (*Odocoileus hemionus*), Rocky Mountain elk (*Cervus canadensis nelsoni*), and two subspecies of bighorn sheep *(Ovis canadensis nelsoni* and *Ovis canadensis canadensis)*. The following categories of wildlife are abundant, widespread, and inhabit or forage within the majority of the project area: bats, small mammals, predatory mammals, reptiles, migratory birds, and upland game birds.

Sensitive species are known to occur within the two BLM Districts that encompass the project area. The higher profile species include the Bald eagle (*Haliaeetus leucocephalus*), greater sage-grouse (*Centrocercus urophasianus*), pygmy rabbit (*Brachylagus idahoensis*), western burrowing owl *(Athene cunicularia hypugaea)*, and banded gila monster (*Heloderma suspectum cinctum*).

The project area is home to many types of raptors including hawks, owls, eagles, accipiters, and falcons. The habitat types in the project area provide numerous nesting, perching, and foraging opportunities for a variety of raptor species from early spring (February/March) to late summer (August). Surveys for raptor nests in high potential habitats occurring within portions of the project area were conducted for this DSEIS. Twelve species of raptors were observed during baseline surveys. **Figures 3.8-3a-b** show the location of previously recorded and newly identified known raptor areas and nest locations within 2 miles of the project area.

Sagebrush vegetation communities, comprising nearly 25 percent of the project area, have been identified as Priority A habitat under the *Coordinated Implementation Plan for Bird Conservation in Nevada*. Priority A habitat is defined as habitat being under high threat, having high opportunity, and high value to birds statewide (Nevada Steering Committee Intermountain Joint Venture 2005).

Wildlife observed within the project area is listed in **Appendix 3D**.

The ON Line Project would permanently impact wildlife habitat at the Robinson Summit Substation and within portions of the long-term ROWs for the transmission line facilities. These impacts to wildlife would likely be long-term but minor, as the vegetative communities/wildlife habitat present within each of the project elements are common and widespread throughout the area. Indirect impacts would result from the temporary displacement of species utilizing these areas into adjacent undisturbed areas. Some small and less mobile wildlife species could potentially be killed or injured during construction activities.

Threatened, Endangered, Proposed, and Candidate Species

The United States Fish and Wildlife Service (USFWS) identified four threatened, endangered, proposed, and candidate (TEPC) species listed under the Endangered Species Act that are known or expected to occur within the counties where the Proposed Action and Action Alternative are proposed (USFWS 2007a). These species include desert tortoise (*Gopherus agassizii* - Mojave Population), Yuma clapper rail (*Rallus longirostris yumanensis)*, southwestern willow flycatcher (*Epidonax traillii extimus*), and western yellow-billed cuckoo (*Coccyzus americanus)*. Impacts to the desert tortoise are anticipated as transmission line Segments 9, 10, and 11 would occur within desert tortoise critical and known suitable habitat. No suitable habitats for the other three species are present within or adjacent to the project area. Potential for direct impacts to the desert tortoise are expected to be either avoided or greatly minimized through the implementation of BMPs and applicable mitigation measures identified in applicable Biological Opinions.

Range

The ON Line Project would be constructed on a landscape dominated by arid rangelands. Most of these lands are managed by the BLM for multiple compatible uses and are divided into grazing allotments used principally for cattle grazing, some sheep grazing, and wildlife habitat. The facilities of the ON Line Project would be constructed and operated across 27 grazing allotments and 1 herd management area (HMA). Some allotments and HMAs have several springs and/or developed water sources while others may have only one water source. All water sources within the ON Line Project would be avoided whenever possible, as there is some flexibility in locating the actual structures and temporary work areas, thus reducing direct disturbances to existing water sources used by livestock or wild horses. Some grazing land that is permanently occupied by project facilities would be removed from localized grazing use for the long-term. Temporary construction areas could restrict grazing during construction but would be restored to grazing use through reclamation activities after construction. The level of project impacts to any one allotment or HMA depends upon the surface disturbance within each allotment or HMA. Impacts to range resources would be negligible.

Cultural Resources

Cultural resource sites eligible for the Natural Register of Historic Places (NRHP) are present within the project area. All such sites would be avoided through project design to the extent possible. Impacts that could not be avoided would be lessened through project design and mitigated through data recovery according to a treatment plan approved by the BLM archaeologist and the Nevada State Historic Preservation Office. Impacts to cultural resources would be negligible to minor.

Native American Concerns

Native American concerns, including potential impacts to places of cultural or geographic interest to the Tribes, would be expected to be negligible because any adverse impacts to these resources would be addressed through consultation. Various Tribes have been consulted or informed of the proposed project components, and no specific concerns have been raised to date by these various Tribes regarding any religious site, sacred site, or traditional cultural property.

Land Use and Realty

Construction, operation, and maintenance of the ON Line Project would largely occur within the SWIP Utility Corridor already designated for this land use. Other project-related features such as the Robinson Summit Substation and portions of the transmission and telecommunication facilities that deviate from the SWIP Utility Corridor would be built according to authorizations issued by the BLM. These changes would be in keeping with the applicable BLM Resource Management Plan (RMP) and local land use plans.

Special Designation Areas

Three special designation areas (SDAs) would be within and four would be immediately adjacent to components of the ON Line Project. These areas may experience minor impacts from noise and dust and viewshed intrusions during construction or operation of project components.

Recreation

Dispersed recreation on public lands dominates recreation in the rural areas around the project area. The 2004 Nevada State Comprehensive Outdoor Recreation Plan (SCORP) identified the desire to protect, maintain, and increase public access to public lands as the top recreation management priority for the State of Nevada. Neither the Proposed Action nor Action Alternative would conflict with existing BLM RMPs across the project area. Management objectives related to recreation would remain viable and implementable. There are very few developed recreation facilities in the project area. The ON Line Project would cross or approach a number of designated recreation areas, including the Kirch Wildlife Management Area, Pahranagat National Wildlife Refuge, and Desert National Wildlife Refuge. However, access to these areas should be unaffected by construction activities.

Visual

All of the components of the Proposed Action would meet management objectives for visual resources when viewed from the Key Observation Points (KOPs). The Segment 10 (alternative component) alignment of the Action Alternative, which crosses a VRM Class II designation area, would not meet management objectives because of the adjacent visually sensitive wilderness area.

Noise

Maximum construction noise impacts would be 50 dBA within 1 mile and 45 dBA at 1.5 miles with the earth moving and construction equipment anticipated to be used. When helicopters are used occasionally, their noise levels could briefly reach up to 61 dBA within 1.5 miles. Construction noise impacts would be temporary and of short duration at any given location. Noise impacts to the nearest residential locations during construction and operation of the ON Line Project would be temporary and minor.

Socioeconomics

Construction and operation of the ON Line Project would result in economic benefits for both White Pine and Lincoln counties. Wages and employment would temporarily increase in the area, and both counties would experience a major, but temporary increase in sales tax revenue during the construction phase. The impact on property tax revenue in both counties would be

long-term but minor. The construction phase of the ON Line Project may create a short-term, temporary, and minor population increase in the area.

Environmental Justice

Minority populations of Native Americans occur in Nye and White Pine counties and a large population of persons living at or below the poverty level occur in Lincoln County. No populations living at or below the poverty level are concentrated in any geographically identifiable area, and minority populations would not experience any disproportionate adverse effects from the project, during construction or operations. Overall, there would be negligible disproportionate impacts on minority or low-income households from construction of the ON Line Project.

Hazardous Materials and Solid Waste

Hazardous materials would be used during construction of the ON Line Project. The largest quantities of these materials would be diesel fuel, gasoline, and propane for on-site vehicles. Compressed gas cylinders would be used for welding, cutting, and other metal work during construction. All of these materials would be stored and used in compliance with federal and state regulations, including spill controls for storage areas.

Solid wastes that would be generated and managed during construction of the project would include construction debris, office waste, workforce sewage, and small amounts of chemical waste from paints, cements etc. All solid wastes produced in the construction and operation of the project would be disposed of in existing, permitted waste disposal facilities in the general vicinity. Utilizing best management practices for handling these wastes would result in negligible environmental impacts.

Transportation

Construction of the ON Line Project would result in an influx of construction workers, which would add to the Average Annual Daily Traffic (AADT) on US-93. However, this increase would not change the Level of Service (LOS) rating (traffic flow) of the highway (HDR et al. 2007). Impacts to transportation during construction would be temporary and minor. Impacts to transportation during operation and maintenance would be long-term and negligible.

COMPARISON SUMMARY OF ENVIRONMENTAL IMPACTS FOR THE PROPOSED ACTION & ACTION ALTERNATIVE

IMPACT		PROPOSED ACTION (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9A, 9B, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9B, 9C, 9D, AND 11)
Water Resources			
Acreage of wetlands impacts	ST	0	Same as Proposed Action
	LT	0	Same as Proposed Action
Number of perennial streams spanned		2	Same as Proposed Action
Geology and Minerals			
Potential effects on topography		Minor	Same as Proposed Action
Number of mining, oil, gas, and/or geothermal claims potentially impacted		0	Same as Proposed Action
Paleontological Resources			
Potential to encounter paleontological resources		Low to High, depending on area Robinson Summit Substation has high potential	Same as Proposed Action
Soils			
Acreage Temporarily Disturbed		6,550	6,435
Acreage Permanently Disturbed		789	770
Air Quality			
Would NAAQS be exceeded?		No	No
Vegetation			
Five vegetation types with the most acreage permanently impacted, plus winterfat		• Creosote– 144 • Douglas rabbitbrush - 13 • Joshua Tree - 10 • Pinyon-juniper - 17 • Wyoming sagebrush - 26 • Winterfat - 7	• Creosote – 152 • Douglas rabbitbrush - 12 • Joshua Tree - 10 • Pinion-juniper – 18 • Wyoming sagebrush – 26 • Winterfat – 6
Noxious and non-native, invasive weed risk assessment		Low to moderate, depending on area Areas of moderate risk: Robinson Summit Substation, Segment 11	Same as Proposed Action
Special-status plant species observation locations that could be impacted		Segments 6C and 9B	Segments 6C, 9B, and 9C
Wildlife Resources, Including Special Status Wildlife, Fisheries, and Aquatic Species			
Number of potentially occupied greater sage-grouse leks within 2 miles (includes active, inactive, and unknown leks)		6	7
Pygmy rabbit observation locations that could be impacted		Segment 6C	Same as Proposed Action
Areas of pronghorn antelope range impacted		Segments 6C, 8, and 9C, excluding higher elevations	Same as Proposed Action
Impacts to fisheries and aquatic resources		None to negligible	Same as Proposed Action
Acres of desert tortoise habitat permanently impacted		430 acres	428 acres
Areas of mule deer crucial winter range impacts		Portions of Segments 6C and 8	Same as Proposed Action
Raptor nesting areas within 2 miles		Ferruginous hawk: Segment 6C and nest observations along Segment 8	Same as Proposed Action

IMPACT		PROPOSED ACTION (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9A, 9B, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9B, 9C, 9D, AND 11)
Range Resources			
Number of allotments Impacted		27	Same as Proposed Action
Number of Herd Management Areas (HMAs) Impacted		1	Same as Proposed Action
Cultural Resources			
Number of or Projected Acres of NRHP-Eligible Sites impacted		3 sites + 204 acres	3 sites + 198 acres
Native American Concerns			
Impacts to Places of Cultural and/or Geographic Interest to Tribes potentially impacted		5	4
Land Use			
Acres of BLM lands affected by the project		5,789	5,790
Acres of private, state, or other agency lands affected by the project		38	13
Special Designation Areas (SDAs)			
Number of SDAs with project components within their boundary		3	Same as Proposed Action
Recreation			
Overall impact to recreation		Short-term, negligible to major Long-term, negligible to minor	Same as Proposed Action
Visual Resources			
Developments potentially not consistent with BLM Visual Resource Management Classification designation		None	Same as Proposed Action
Noise			
Noise impacts to nearest residence	ST	Minor	Same as Proposed Action
	LT	Negligible	Same as Proposed Action
Socioeconomics			
Peak fiscal impact to local government	ST	Sales Tax Revenue - Major	Same as Proposed Action
	LT	Property Tax Revenue - Minor	Same as Proposed Action
Employment	ST	Moderate	Same as Proposed Action
	LT	None	Same as Proposed Action
Environmental Justice			
Disproportionate effects to minority or low income populations		Negligible	Same as Proposed Action
Hazardous Materials and Solid Waste			
Anticipated environmental effects from use of hazardous materials		Negligible	Same as Proposed Action
Transportation			
Impacts to transportation	ST	Minor to moderate	Same as Proposed Action
	LT	Negligible	Same as Proposed Action

ON Line Project
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Chapter 1
Introduction - Purpose and Need

1.1 Introduction

This Draft Supplemental Environmental Impact Statement (DSEIS) was prepared in response to an amended SF 299 application for the One Nevada 500 kV Transmission Line (ON Line Project) submitted on March 30, 2009 by Sierra Pacific Power Company and Nevada Power Company, now doing business as NV Energy (the Proponent). The purpose of the DSEIS is for the U.S. Bureau of Land Management (BLM) to evaluate and disclose potential impacts of the proposed development of the ON Line Project and solicit public comment in order to make a decision on whether to authorize the requested right-of-ways (ROW) to NV Energy.

NV Energy is proposing to develop a company owned and operated 500 kilovolt (kV) transmission line and associated 500/345 kV substation and communication facilities located in White Pine, Nye, Lincoln, Eureka, and Clark counties, Nevada. The project would include: a new 500/345 kV substation referred to as Robinson Summit Substation located in White Pine County, a new 236-mile long 500 kV transmission line and fiber optic communication facilities from the proposed Robinson Summit Substation to the existing Harry Allen Substation located in Clark County, addition of new 500 kV electrical facilities inside the existing Harry Allen Substation, a loop-in of the existing Falcon-Gonder 345 kV transmission line at Robinson Summit Substation, an expansion to install new 345 kV electrical equipment at the existing Falcon Substation in Eureka County, and associated access roads into and along the transmission line. These project components are shown in **Figure 1.1-1**.

These electrical and communication facilities were previously proposed as components of the former Ely Energy Center (EEC) Project, which consisted of the facilities described above plus: another parallel 500 kV transmission line, a 1,500 MW coal-fired power plant located north of Ely, power plant water supply, rail connections to the power plant, and ancillary facilities supporting the power plant. A draft EIS evaluating the entire EEC (NV-040-09-001) was released on January 2, 2009 for a 90-day public comment period. On February 9, 2009, NV Energy announced its decision to postpone construction of the EEC power plant and associated supporting facilities and to continue with the permitting and development of the substation, transmission, and communication components between its southern and northern service territories, and upgrade of existing substations, now referred to as the ON Line Project. Due to the postponement of the EEC Project and the submittal of a revised Plan of Development for the ON Line Project, the EEC Project will not be considered or analyzed in this DSEIS, even as a reasonably foreseeable future action for cumulative impacts in Chapter 5.

This DSEIS addresses impacts from the construction, operation, and maintenance of the ON Line Project. This document was prepared in compliance with the *Council on Environmental Quality* (CEQ), *National Environmental Policy Act* (NEPA), (40 CFR Sec. 1500-1508); the *NEPA Handbook*, H-1790-1; and the BLM's *Ely District Office Environmental Analysis Guidebook.*

1.2 Purpose of the Proposed Action

1.2.1 BLM's Purpose for the Proposed Action

The BLM purpose of the action is to provide public land for the development of energy transmission by allowing for the construction of energy transmission facilities on public lands managed by the BLM. The multiple-use mission of the BLM includes authorizing and managing activities such as mineral development, energy production, recreation, and grazing, while conserving natural, historical, cultural, and other resources on public lands. The BLM's objective is to meet public needs for use authorizations such as ROWs, permits, leases and easements, while avoiding or minimizing adverse impacts to other resource values. The proposal to construct, operate, and maintain substation, transmission, and communications facilities on public lands and expand the existing Falcon Substation on private land, would be in accordance with this objective.

1.2.2 Proponent's Purpose for the Proposed Action

The purpose of the ON Line Project is to meet the electrical transmission needs in Nevada and the western United States by interconnecting NV Energy's northern and southern service areas for the first time. This connection would improve system reliability and flexibility by allowing NV Energy's northern and southern service areas to: share energy resources, be more efficient, better support each other during power emergencies, and provide better access to the state's renewable energy resources.

The ON Line Project facilities would primarily be located on federal land administered by the BLM's Ely and Southern Nevada District Offices.

1.3 Need for the Proposed Action

1.3.1 BLM's Need for the Proposed Action

On March 30, 2009, NV Energy submitted an amended SF 299 *Application for Transportation and Utility Systems and Facilities on Federal Lands* to the BLM for the ON Line Project, being a reduced subset of the original EEC Project. The need for BLM action is established by the Federal Land Policy and Management Act (FLPMA) to respond to SF 299 applications for ROW Grants. **Section 2.2.1**, *Description of BLM Actions*, describes in detail the BLM actions that would occur in response to the application for ROWs submitted for the ON Line Project. The BLM is required to evaluate and make a decision regarding the granting of ROWs in response to the SF 299 application for the ON Line Project as filed by NV Energy. Under the FLPMA, the BLM is authorized to grant ROWs under Title V of the Act (43 U.S.C. 1761-1771).

The Energy Policy Act of 2005, specifically Section 368, addresses the need for additional electricity infrastructure and directs agencies to consider the need for upgraded and/or new infrastructure, and to take actions to improve reliability, relieve congestion, and enhance the capability of the national grid to deliver energy.

Figure 1.1-1 General Project Area

1.3.2 Proponent's Need for the Proposed Action

In order for the Proponent to provide better access to the state's renewable energy resources, as well as to improve long-term reliability and assurance of supply, construction of new transmission facilities is required. The Public Utilities Commission of Nevada (PUCN) Order (PUCN 2007) acknowledges the need for NV Energy to meet its statutory obligations providing renewable energy developers with a transmission pathway to market by interconnecting its north and south electrical systems; specifically the PUCN Order acknowledges the following:

> *The intertie will promote reliability, promote diversity of supply resources, and assist with the development of renewable resources. In addition, the intertie will aid in the development of renewable energy resources by allowing electricity generated by non-solar renewable resources in northern Nevada to be delivered to southern Nevada and electricity generated by solar resources in southern Nevada to be delivered to northern Nevada. Further, the intertie will allow for the development of wind resources in eastern Nevada to both northern and southern Nevada. Therefore, the intertie will assist [NV Energy] to meets its statutory obligations by providing renewable energy developers with a pathway to market (PUCN 2007, p.58).*

There is a current lack of transmission capacity in the western United States, which impedes development of renewable energy resources. Many renewable energy zones identified in Nevada are in remote regions that do not possess access to the transmission system grid that would enable transfer of that energy across the state (Nevada RETAAC 2007). The western United States and Nevada in particular, has a critical need for long-distance energy transport infrastructure due to location of population centers and remotely located energy generation facilities or potential energy sources.

Additional information regarding the background for NV Energy's objectives for the project is presented in **Section 1.6**.

1.4 Regulatory Authority and Decisions to be Made

The BLM has administrative responsibilities for the federal lands upon which the ON Line Project would be located. The BLM serves as the lead agency and has included other agencies or entities to participate as cooperating agencies for purposes of DSEIS preparation, including the Environmental Protection Agency (EPA), the National Park Service (NPS), and White Pine County. CEQ regulations emphasize agency cooperation early in the NEPA process and state that any other Federal agency, which has jurisdiction by law, shall be a cooperating agency (40 CFR 1501.6).

The BLM will determine whether to grant ROWs for the ON Line Project. The BLM will issue a Record of Decision based on analyses provided in the Final SEIS.

1.5 Proposed Action Summary

NV Energy has applied to the BLM Ely District Office for ROWs that would allow for the construction, operation, and maintenance of the ON Line Project. NV Energy is seeking permission to develop a 500 kV transmission line and associated facilities as described below from the Ely area to the Las Vegas area to interconnect its two electrical systems for the first time within the state, allowing NV Energy to share its southern and northern generation resources, access renewable resources in northeastern Nevada, and increase the diversity of

power supply options. These facilities would primarily be located on federal land administered by the BLM's Ely and Southern Nevada District Offices.

The proposed general project area is shown in **Figure 1.1-1**.

The proposed electrical and communications facilities would include:

- A new 108-acre 500/345-kV substation referred to as Robinson Summit Substation adjacent to the Southwest Intertie Project (SWIP) Utility Corridor in White Pine County;
- A new 500-kV transmission line, approximately 236 miles long almost entirely within designated federal utility corridors, from the proposed Robinson Summit Substation to the existing Harry Allen Substation in Clark County;
- Addition of new 500 kV electrical facilities inside the existing footprint of the Harry Allen Substation;
- A loop-in of the existing Falcon–Gonder 345-kV transmission line at the Robinson Summit Substation;
- Expansion of the existing Falcon Substation in Eureka County to install new 345-kV electrical equipment;
- Access roads into and along the transmission line alignments; and,
- Fiber optic communication facilities built into and along the transmission line that would be ancillary to and in support of the ON Line Project.

A more complete description of the Proposed Action elements and other project alternatives is included in **Chapter 2**.

1.6 Background

1.6.1 Population Growth in Nevada

The 2007 population estimates from the U.S. Census Bureau showed Nevada as the fastest growing state in the United States. In 2008, however, Nevada dropped from No. 1 to No. 8 on a ranking of America's fastest growing states. Even so, Nevada's population grew by 30.1 percent from April 1, 2000 to July 1, 2008. This compares to the nation's population rise of 8.0 percent over the same period (Bureau of Census 2009).

NV Energy serves over 95 percent of the state's population; 71.5 percent of the state's population resides in Clark County, and approximately 23.5 percent reside in northern Nevada (i.e. Reno/Carson City area).

1.6.2 Proponent History

Nevada Power Company (NPC) and Sierra Pacific Power Company (SPCC) merged in 1999 and changed their names to NV Energy in 2008. NV Energy's combined service areas cover approximately 54,000 square miles with more than 2 million customers throughout Nevada and in northeastern California.

NV Energy's southern service area encompasses nearly 4,000 square miles and serves more than 770,000 electricity customers in Las Vegas, North Las Vegas, Henderson, and other communities and homes in Clark and Nye Counties. NV Energy's northern service area

encompasses more than 50,000 square miles in western, central and northeastern Nevada and northeastern California and serves approximately 300,000 customers.

NV Energy's northern and southern electric transmission systems are not electrically connected at the present time, which is one important reason for the ON Line Project.

1.6.3 Regulatory Requirements

NV Energy is regulated by the PUCN and the Federal Energy Regulatory Commission (FERC), among others. Nevada adopted its first comprehensive statutory least-cost utility planning process in 1983. This is now referred to as the Integrated Resource Planning Process. This planning process requires all Nevada retail electric distribution utilities under the jurisdiction of the PUCN to file an Integrated Resource Plan (IRP) every three years detailing their future 20-year resource acquisition strategy to meet customer growth. The IRP is based on forecasts of customer load requirements, and is required by statute to include plans to meet load growth.

In 2006, NV Energy developed its IRP to optimize energy supply using a portfolio approach (diversity of fuel supply, renewables, and conservation), which sought to balance the cost of electricity, supply, reliability, fuel, short-term and long-term power market volatility, and environmental acceptability (Note: NPC and SPPC develop and submit individual Integrated Resource Plans to the PUCN due to legal requirements).

In the 2006 IRP, NV Energy proposed:

- The EEC Project.
- An aggressive conservation program.
- Commitments to promote renewable energy development.
- Investments in transmission infrastructure to connect its northern and southern electrical systems and bring new, renewable energy resources to market.

In June 2006, NPC filed its IRP for 2007-2026, followed by SPPC's July submittal of the 13th Amendment to their 2005-2024 IRP (Docket Nos. 06-06051 and 06-07010). The IRP filings reflected the electrical needs of the two service territories for the next 15 years. The PUCN subsequently consolidated the filings and issued an Order in November 2006 (a Revised Order was issued January 2007), which approved NPC's and SPPC's request to proceed with the development of Phase 1 of the EEC Project including the facilities proposed now as the ON Line Project. The PUCN focused its Order on:

- NV Energy's large and growing "open position" (the difference between available power supply and customer demand plus reserve) at a time of impending capacity shortages.
- NV Energy's aging fleet of coal-fueled plants.
- The need to upgrade and modernize NV Energy's resource portfolio by adding company-owned or controlled baseload capacity.
- Diversification of the resource mix to provide a hedge against natural gas price volatility.
- The cost consequences associated with a delay in the development of coal-fueled generation, expected to be between $200 and $300 million per year.
- The lack of PUCN control over independent power producers' generation development.

1.6.4 Growth in Forecasted Demand

The need for additional generating and transmission resources in Nevada is well supported and recognized by state and local leaders.

The combined growth rate of NV Energy's energy demand translates to approximately 250 to 300 MW of additional capacity required each year resulting in greater electricity demands per capita than most other regions. Meeting load growth is a requirement of regulated utilities under Nevada State law (NRS 704). Transmission of electricity produced by potential new generating capacity located throughout NV Energy's system is integral to meeting the anticipated growth in demand and the requirement for renewable energy generation.

1.6.5 NV Energy's Objectives for the ON Line Project

NV Energy is a regulated utility. As such, NV Energy's objectives below are in direct response to the directives provided by the PUCN in the Revised Order (PUCN Revised Order, pages 55-58) described in **Section 1.6.3**. Specifically, the objectives of NV Energy's Proposed Action are to:

- **Connect NV Energy's southern and northern electric systems for the first time to improve system reliability and flexibility.** This transmission line intertie would allow the company to share energy resources, be more efficient, and better support each other during power emergencies. Today, NV Energy's transmission systems are not connected within Nevada.
- **Provide better access to the state's renewable energy resources.** There are numerous wind energy and geothermal renewable projects in various stages of planning or development in northern and eastern Nevada. A critical part of developing these renewable resources is providing the electric transmission infrastructure to move the power from the sources to the customers. The high-voltage transmission line being proposed would allow capacity for renewable energy and to interconnect and transmit power from these remote locations to major load centers in Las Vegas and Reno. Nevada's Renewable Portfolio Standard mandates that electric providers provide not less than 25 percent of the total amount of electricity generated, acquired or saved from portfolio energy systems or efficiency measures to their retail customers by 2025 (Nevada Assembly Bill 358 Section 13.5, 2009). The ability for renewable generation facilities to more easily tie into the existing transmission system is critical to meeting this standard.

1.7 About This Document

This document follows regulations promulgated by the CEQ for implementing the procedural provisions of the NEPA (40 CFR 1500-1508); the BLM NEPA Handbook, H-1790-1; the Ely District Office Environmental Analysis Guidebook; and Sections 201, 202, and 206 of the FLPMA (43 CFR 1600). This DSEIS describes the components of and reasonable alternatives to the Proposed Action, and environmental consequences of this action and the alternatives.

The DSEIS is divided into several chapters for ease of reading and to better organize information for decision-making.

Chapter 1 provides general background, the purpose of and need for the Proposed Action; roles of the BLM and cooperating agencies; decisions to be made and authorities regulating the process of analysis and disclosure; a summary of public participation in the SEIS process; and key issues to be addressed.

Chapter 2 presents a reasonable range of alternatives to address the stated need and purpose for the project, including the Proposed Action, No Action, and a transmission line alternative to the Proposed Action; discusses alternatives not carried forward for detailed analysis; lists potential mitigation actions to reduce or minimize impacts; and discusses the agency-preferred alternative.

Chapter 3 describes the affected human environment in the project area.

Chapter 4 discloses potential direct and indirect environmental effects associated with the Proposed Action and other alternatives and discusses potential mitigation measures.

Chapter 5 describes the cumulative effects associated with the Proposed Action and other alternatives when added to other past, present, and reasonably foreseeable future actions in the cumulative effects areas.

Chapter 6 lists state and federal agencies and other governmental bodies that were consulted or contributed to the preparation of the DSEIS; describes Native American consultations; describes public participation during scoping; lists agencies, organizations, and persons to whom the DSEIS will be or has been sent; and provides the names and qualifications of those who prepared this document.

Chapter 7 provides the bibliography of existing information that was used to prepare the DSEIS and an index to the document.

Appendices contain information that supplement or support analyses in the body of the DSEIS.

1.8 Cooperating Agencies

As part of the federal review process in response to NV Energy's proposed EEC Project, the BLM sent letters to various agencies on April 18, 2007 to invite their participation as cooperating agencies for the NEPA process and EIS documentation. After the EEC Project was postponed and modified into the ON Line Project, some of the cooperating agencies opted not to continue with their cooperating status (National Park Service and the U.S. Environmental Protection Agency). The only cooperating agency at this time is White Pine County.

Cooperating agencies are invited to participate in the entire NEPA process including: review of analyses, contribution of technical expertise, and assisting in the response to public comments, required by their jurisdiction or regulatory authority. MOUs were developed between cooperating agencies and the BLM.

1.9 Native American Consultation

As part of the federal review process in response to NV Energy's EEC Project, a public scoping letter for the EEC Project was sent to tribes and tribal organizations on January 26, 2007. Tribal liaisons regularly briefed tribes on the EEC Project throughout the BLM's review process leading up to the Draft EIS for the EEC Project. The tribes received a second correspondence letter (EEC Project Notice) regarding the project on May 4, 2007. As part of Government-to-Government consultation, Native American consultation letters were sent out by the BLM, Ely District Office on July 23, 2007 to the tribes and tribal organizations.

The BLM met with members of the Confederated Tribes of the Goshute Indian Reservation Business Council on February 8, 2007 and March 14, 2008 to discuss the project and potential tribal issues. It was agreed that the parties would have further discussions about the project and the Tribal Council's interests. A meeting was held with the Ely Shoshone Tribe on April 4, 2007.

A meeting with the Kaibab Paiute Tribe was held on July 18, 2007 during the tribal council meeting and with the Wells Band during their tribal council meeting on February 1, 2008. The purpose of these meetings was to brief the tribes on the environmental analysis process, the proposed EEC Project, and to answer questions.

The above-described communications addressed all parts of the former EEC Project, including the facilities now going forward as NV Energy's proposed ON Line Project. Tribes were most recently briefed on the ON Line Project during the September 17, 2009 Ely District Office Quarterly Tribal meeting.

1.10 Plans, Policies, and Programs

1.10.1 Relationship to BLM Plans, Policies, and Programs

This DSEIS complies with the CEQ regulations for implementation of NEPA (40 CFR 1500-1508) and BLM's NEPA Handbook (H-1790-1).

The proposed project area crosses two BLM Districts administered by the Ely and Southern Nevada District Offices. Each has its own land use management plan that needs to be followed, and any project elements that would occur on those lands must adhere to the respective plans. Resources in Clark County and the southern portion of Nye County fall under the purview of the Las Vegas Resource Management Plan that was approved in 1998. The resources in White Pine, Lincoln, and a portion of Nye County fall under the purview of the Ely District Resource Management Plan dated August 20, 2008.

The Proposed Action would be in conformance with the land use plans' terms and conditions as required by 43 CFR 1610.5.

1.10.2 Relationship to Non-BLM Plans, Policies, and Programs

The Proposed Action would be consistent with other federal, state, and local agency plans, policies and programs by incorporating data, and adopting mitigation strategies and incorporating management recommendations where appropriate. Following is a partial list of state and local plans and programs that have been reviewed and/or consulted with:

- Nevada Natural Heritage Program
- Nevada Department of Wildlife - Big Game Status and Quota Recommendations
- Governor's Sage Grouse Conservation Management Plan
- Nevada Recreation Management Strategy and Implementation Plan
- Statewide Comprehensive Outdoor Recreation Plan
- White Pine County Land Use Plan
- White Pine County Elk Plan
- Lincoln County Land Use Plan
- Southeast Lincoln County Multiple Species Habitat Conservation Plan
- Nye County Land Use Plan
- Clark County Land Use Plan
- Clark County Multiple Species Habitat Conservation Plan
- Eureka County Land Use Plan

1.11 Applicable Laws and Regulations

Table 1.11-1 lists federal and state laws and regulations potentially applicable to the Proposed Action and Action Alternative.

TABLE 1.11-1 LAWS AND REGULATIONS THAT MAY BE APPLICABLE TO THE ON LINE PROJECT

LAWS AND REGULATIONS	STATUTORY REFERENCE
FEDERAL	
New and Amended Federal Right-of-Way Grants/Short-term Use Permits	FLPMA 1976 (PL 94-579) USC 1761-17771 and 43 CFR 2800
National Environmental Policy Act (NEPA)	42 USC 4371 et seq.
Council on Environmental Quality (CEQ) general regulations implementing NEPA	40 CFR Parts 1500-1508
Department of the Interior's (DOI) implementing procedures and proposed revisions	65 FR 52211-52241
Bureau of Land Management's (BLM) NEPA Handbook H-1790-1 (2008)	
National Historic Preservation Act (NHPA) and regulations implementing NHPA	16 USC 470 et seq.
Antiquities Act of 1906	16 USC 431 et seq.
Archeological Resources Protection Act, as amended (ARPA)	16 USC 470aa et seq.
Native American Graves Protection and Repatriation Act of 1990 (NAGPRA)	25 USC 3001-30013 et seq.
Clean Air Act (CAA)	42 USC 7401 et seq.
Clean Water Act (CWA)	33 USC 1251 et seq.
Endangered Species Act (ESA)	16 USC 1531 et seq.
Noise Control Act of 1972, as amended (NCA)	42 USC 4901 et seq.
Occupational Safety and Health Act (OSHA)	29 USC 651 et seq. (1970)
Pollution Prevention Act of 1990 (PPA)	42 USC 13101 et seq.
Safe Drinking Water Act of 1974 (SDWA)	42 USC s/s 300f et seq.
Migratory Bird Treaty Act	16 USC 703–711
American Indian Religious Freedom Act of 1978	42 USC 1996
Federal Land Policy and Management Act of 1976 (FLPMA)	USC 1701 et seq.
Lacey Act as amended	18 USC 42
Nuisance Prevention and Control Act of 1990 as amended	16 USC 4701 et. seq.
Federal Noxious Weed Act of 1974 as amended by the Food, Agriculture, Conservation and Trade Act of 1990, Section 1453 "Management of Undesirable Plants on Federal Lands"	U.S.C. 2801 et. seq.
Federal Plant Pest Act	7 USC 150aa et. seq.
Carlson-Foley Act of 1968	Public Law 90-583
Safe, Accountable, Flexible, Efficient Transportation Equity Act	Public Law 109-59
Noxious Weed Control and Eradication Act	Public Law 108-412

LAWS AND REGULATIONS	STATUTORY REFERENCE
NEPA, Protection and Enhancement of Environmental Quality	Executive Order 11512
National Historic Preservation	Executive Order 11593
Floodplain Management	Executive Order 11988
Protection of Wetlands	Executive Order 11990
Federal Compliance with Pollution Control Standards	Executive Order 12088
Environmental Justice	Executive Order 12898
Indian Sacred Sites	Executive Order 13007
Consultation and Coordination with Indian Tribal Governments	Executive Order 13084 Executive Order 13175
Invasive Species	Executive Order 13112
Migratory Birds	Executive Order 13186
Memorandum for the Heads of Executive Departments and Agencies (signed by President Clinton on April 29, 1994)	
Memorandum on Government-to-Government Relations with Native American Tribal Governments of 1994	
Departmental Responsibilities for Indian Trust Resources	512 DM 2.1
Responsibilities, and the Endangered Species Act (June 5, 1997)	Secretarial Order 3206
BLM Land Use Permits and Leases	43 CFR 2920
BLM Right-of-way Regulations	43 CFR 2800, 43 CFR 2920
Resource Conservation and Recovery Act (RCRA)	
National Contingency Plan	40 CFR 300
STATE OF NEVADA	
Nevada Critically Endangered Flora Law	NRS 5.27-5.33
Utility Environmental Protection Act	NRS 704.820-704.900
Control of Noxious Weeds	NAC 555.010

1.12 Permits, Licenses, and Other Requirements

Table 1.12-1 lists federal, state, county, and other permits and approvals that NV Energy may need to implement the Proposed Action or Action Alternative.

TABLE 1.12-1 PERMITS AND LICENSES THAT MAY BE APPLICABLE TO THE ON LINE PROJECT

ACTION REQUIRING A PERMIT, REVIEW, OR APPROVAL	PERMIT/ APPROVAL	ACCEPTING AUTHORITY/APPROVING AGENCY	STATUTORY/ REGULATORY REFERENCE
FEDERAL			
All project elements or disturbance on BLM administered lands	Rights-of-Way Grant	BLM	43 CFR 2800
Rights-of-Way Grant	SEIS; Record of Decision	BLM	40 CFR Part 1500-et.seq.
Right-of-Way Grant	NHPA, Section 106 review and concurrence	BLM; Nevada State Historic Preservation Office	36 CFR Part 800 16 USC 47
Right-of-Way Grant	ESA, Section 7 consultation and concurrence	BLM; U.S. Fish and Wildlife Service; Nevada Department of Wildlife	50 CFR Part 17 16 USC 1536
Construction of transmission line structures if the structure is more than 200 feet in height	No Hazard Determination	Federal Aviation Administration	49 USC 1501 14 CFR 77
Storage of petroleum	Spill Prevention Control and Countermeasure	U.S. Environmental Protection Agency	40 CFR 112
Dredge or fill activities in Waters of the United States	CWA, Section 404 Permit	U.S. Army Corps of Engineers	33 USC 1344
STATE OF NEVADA			
Surface disturbing activities	Section 106 Determination of Effect Concurrence	State Historic Preservation Office	16 USC 470 et seq. NRS 383
Electrical Facilities construction	Utility Environmental Protection Act – Permit to Construct	Public Utilities Commission of Nevada	NRS 704.870-704.900 NAC 703.415 – 703.427
Surface disturbing activities	Rare and Endangered Plant Permit	Nevada Division of Forestry	NRS 527.260-527.300
Surface disturbing activities	Native Cacti and Yucca Commercial Salvaging and Transportation Permit	Nevada Division of Forestry	NRS 527.050-527.110
Surface disturbing activities	Incidental Take Permit	Nevada Department of Wildlife	NRS 503.584-503.589

ACTION REQUIRING A PERMIT, REVIEW, OR APPROVAL	PERMIT/ APPROVAL	ACCEPTING AUTHORITY/APPROVING AGENCY	STATUTORY/ REGULATORY REFERENCE
Construction of proposed facilities	Construction Permit	Nevada Division of Environmental Protection, Bureau of Air Pollution Control	NAC 445B 42 USC 7401
Facilities construction	CWA, Section 402 National Pollutant Discharge Elimination System (NPDES) Notification for Stormwater Management during Construction	Nevada Division of Environmental Protection	33 USC 1251 et seq.
Surface disturbing activities	Surface Area Disturbance Permit	Nevada Division of Environmental Protection	NRS 519A.180 (for small sites) NAC 445B
Construction of access road to a U.S. Highway and crossing of a U.S. Highway with a transmission line	Right-of-way Occupancy Permit	Nevada Department of Transportation	NRS 408.423, 408.210 NAC 408
Transportation of Hazardous Materials	Uniform Permit	Nevada Department of Public Safety	NAC 459.979
Surface disturbing activities	Dust Control Permit	Nevada Department of Environmental Quality	NAC 445B
LOCAL/COUNTY			
Construction and operation in Clark County	Special Use Permit	Clark County Board of Commissioners	Clark County Zoning Ordinance
Construction/fugitive dust – PM_{10} in Clark County	Dust Control Permit	Clark County Department of Air Quality Management	321.001, 40 CFR Subpart C, 42 USC 7408-7409
Construction and operation in Lincoln County	Special Use Permit	Lincoln County Board of Commissioners	Lincoln County Zoning Ordinance
Construction and operation in Nye County	Special Use Permit	Nye County Board of Commissioners	Nye County Zoning Ordinance
Construction and operation in White Pine County	Special Use Permit or Zoning Change	White Pine County Board of Commissioners City of Ely	White Pine County Code, Title 17

1.13 Summary of Public Scoping and Issue Identification

1.13.1 Public Scoping and Issues

The issues evaluated in this DSEIS are derived from public comments originally made during the EEC Project scoping period and summarized in the EEC EIS Scoping Summary issued in April 2007 (BLM-JBR 2007). In that document, the comments received during scoping from agencies and the public were summarized into categories, which became the basis for defining issues and indicators. The defined issues are presented under the components of the human and natural environment that are customarily addressed in impact analysis, along with the section of the DSEIS that addresses that particular issue. During the public comment period for the EEC DEIS, NV Energy changed the Proposed Action from the EEC Project to a reduced subset of that project proposed now as the ON Line Project. The comments received on the EEC DEIS were reviewed to identify comments pertinent to this ON Line Project DSEIS and those comments have been reviewed as additional scoping input during development of this DSEIS. In addition, a Notice of Intent (NOI) to prepare a SEIS for the ON Line Project was published in the Federal Register on July 29, 2009. Although no additional public scoping meetings were held for the ON Line Project, the public comments received during the 30-day scoping period, initiated by the NOI, were also fully reviewed and considered and are included, as applicable, in the issues identified below. The issues presented here are those related to the construction, operation, and maintenance of the electrical and communication facilities as described in **Section 1.5**.

Additional information on the scoping process is provided in **Section 6.1**.

1.13.2 Issues Raised During Scoping

Air Resources

- Construction and operation of the project may increase air borne pollutants and negatively affect human health, local economies, wildlife, and special status species. (**Section 4.6**)
- Construction of the project may impact regional air quality in the Great Basin. (**Section 4.6**)
- Construction, operation, and maintenance of the project may contribute to greenhouse gas emissions. (**Section 4.6**)

Cultural Resources

- Cultural resource sites, historic properties, historic buildings, and heritage values may be impacted (directly and/or indirectly) in the project area. (**Section 4.10**)

Cumulative Effects

- The cumulative impacts of the project need to be disclosed. (**Chapter 5**)

Environmental Justice

- Environmental justice considerations need to be addressed in the EIS. (**Section 4.18**)

Geology

- The project may affect locatable and saleable mineral deposits and operations, and oil & gas and geothermal leases. (**Section 4.3**)

Hazardous Materials and Solid Wastes

- Construction of the project may release hazardous compounds into the air, water, and soil that may affect human and environmental health. (**Sections 4.6 and 4.19**)

Land Use and Access

- The project could negatively impact the limited amount of private property available in the area. (**Section 4.12**)
- The project may change the rural character of the area and the traditional and historic land use patterns. (**Section 4.12**)
- Additional roads/access created by the project may increase recreational access and risk of fire and weed invasion. (**Sections 4.7, 4.12, and 4.14**)
- Transmission towers and electromagnetic emissions may pose a hazard to low flying military aircraft in the Low Altitude Tactical Navigation Area. (**Sections 2.2.2**, **4.12.4.2**, and **4.20**)

Native American Concerns

- Construction and operation of the project may impact Native American Tribes in the area. (**Section 4.11**)
- The project may impact Indian Trust Assets. (**Section 4.11**)
- The project may impact Native American sites, use areas, and associated resources. (**Section 4.11**)

Noise

- Construction may cause noise impacts on surrounding areas. (**Section 4.16**)

Paleontology

- No issues were identified in the public scoping process regarding paleontology. However, potential impacts to paleontological resources are addressed in **Section 4.4**.

Public Health and Safety

- Air pollution may cause health problems for people in surrounding communities and distant locations. (**Section 4.6**)
- Project components greater than 150 feet in height may present aviation hazards. (**Section 2.2.2**)

Range Resources

- The project may cause health and safety impacts to livestock. (**Section 4.9**)
- Grazing allotments may be degraded and will be fragmented by project construction activities. (**Section 4.9**)

Recreation

- The area may be less desirable for outdoor recreation and tourism. (**Section 4.14**)
- Short-term residents, such as construction workers, may have little concern or value for public lands and sensitive areas. (**Section 4.14**)

Socioeconomic Resources

- The project may impact socioeconomic conditions of local communities. (**Section 4.17**)
- The project may cause a utility rate increase. (**Section 4.17**)
- Integrating the northern and southern power systems may have negative impacts on the northern system and its users. (**Section 4.17**)

Soils

- The project may increase soil erosion. (**Section 4.5**)

Special Designations and Sensitive Areas

- The ecological integrity, scenic quality, and pristine characteristics of nearby wildernesses, national parks, national forests, national wildlife refuges, wildlife management areas, and areas of critical environmental concern may be negatively affected by the project. (**Section 4.13**)

Special Status Species

- The project may negatively affect the life cycle and habitat of species identified by state or federal agencies as threatened, endangered, or sensitive. (**Sections 4.7 and 4.8**)
- The project may increase predation on special status species by raptors and ravens. (**Section 4.8**)

Transportation

- Increased traffic increases wear and tear on roads which may need more maintenance, upgrades, and improvements. (**Section 4.20**)
- The project could create hazardous conditions for local air traffic. (**Section 4.20**)

Vegetation

- Surface disturbance and air pollution from the project may negatively affect wetland, riparian, and upland vegetation communities. (**Section 4.7**)
- Surface disturbance and ongoing operation/maintenance activities would increase the spread of invasive and non-native plants. (**Section 4.7**)

Visual and Aesthetic Resources

- The project may impact the existing visual quality of the area. (**Section 4.15**)

Water Resources

- The project may negatively impact water quality. (**Section 4.2**)
- The project may impact Waters of the U.S. (**Section 4.2**)

Wild Horses and Burros

- The project may negatively affect Wild Horse/Burro populations. (**Section 4.9**)

Wildlife Resources

- The construction and operation of the project may directly or indirectly impact wildlife through direct disturbance, habitat fragmentation, or air pollution. (**Section 4.8**)

- The construction and operation of the project may impact game species and wildlife populations and indirectly affect hunting, fishing, and wildlife watching activities. (**Section 4.8**)
- The construction and operation of the project may impact migratory birds. (**Section 4.8**)

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Chapter 2
Proposed Action and Alternatives

2.1 Introduction

This chapter of the DSEIS fully describes: (1) the Proposed Action Alternative to construct and operate a 500kV transmission line, 500/345kV substation, and associated facilities, and (2) an Action Alternative to build the same facilities at an alternative center line location in the same federal energy corridor as the Proposed Action, and (3) the No Action Alternative.

Alternatives considered in this DSEIS are based on issues identified by the BLM and cooperating agencies as well as comments received during the public comment process for the Draft EEC EIS and the comment period for this SEIS. The BLM is required to consider in detail a range of alternatives that are considered "reasonable," usually defined as alternatives that are realistic (not speculative), technologically and economically feasible, and that respond to the purpose of and need for the project.

The Proposed Action would consist of a new substation at Robinson Summit and transmission line and telecommunication facilities that were described and analyzed in the EEC DEIS (i.e., Robinson Summit to Harry Allen (RS-HA) Line #1), as well as an expansion of the existing Falcon Substation on private lands. The Action Alternative to this line would consist of the former EEC Project RS-HA Line #2, which is also located in the Southwest Intertie Project (SWIP) Utility Corridor but along a different center line location than the Proposed Action, approximately 1,800 feet to the east. The facilities and alignment described under the Action Alternative were also described and analyzed in the EEC DEIS (i.e., RS-HA Line #2).

The long-term ROWs needed for the transmission facilities would vary slightly in acreage depending on the alternative below. **Table 2.1-1** provides a description of each transmission line route for a better understanding of the transmission line segment naming. The Proposed Action and Action Alternative routes (including alternative components) are shown on **Figures 2.2-1a** and **b**.

TABLE 2.1-1 TRANSMISSION LINE COMPONENTS

LINE NAME	DESCRIPTION	SEGMENTS INCLUDED
Proposed Action (formerly EEC RS-HA Line #1)	Robinson Summit 500/345kV Substation, 500-kV transmission line and telecommunication facilities mostly within the SWIP Utility Corridor between the Robinson Summit Substation and the existing Harry Allen Substation, loop-in of existing Falcon–Gonder 345KV line at Robinson Summit Substation, 345kV equipment additions at the existing Falcon Substation, and 500kV equipment additions at Harry Allen Substation.	6C, 8, 9B, 9A, 9D, and 11
Action Alternative (formerly EEC RS-HA Line #2)	All of the same facilities as the Proposed Action but an alternate alignment location also mostly within the SWIP Utility Corridor between the Robinson Summit Substation and the Harry Allen Substation.	6C, 8, 9B, 9C, 9D, and 11 9A (alternative) instead of 9C 10 (alternative) instead of 9B, 9C, and 9D

This chapter includes the following:

- **Section 2.2** provides a detailed description of the Proposed Action.
- **Section 2.3** provides a discussion of the Action Alternative at an alternative center line location together with the various component alternatives associated with the overall alternative.
- **Section 2.4** discusses the No Action Alternative and assumes there would be no development of the Proposed Action or Action Alternative and it also serves as the baseline for environmental conditions.
- **Section 2.5** provides descriptions of alternatives that were considered but eliminated from detailed analysis.
- **Section 2.6** summarizes and compares the analyzed alternatives.
- **Section 2.7** provides a summary of the mitigation and monitoring for the action alternatives.

2.1.1 Description of BLM Actions

2.1.1.1 Issuance of ROWs

ROWs issued for 30 years with the option of renewal would be necessary for the operation and maintenance of facilities located on BLM-managed public land. In addition, short-term ROWs would be required from the BLM to accommodate temporary construction activities, such as access roads and material/equipment staging. Long-term ROWs would be issued for:

- Robinson Summit Substation and Telecommunication ROW – Construction and operation of a new 500/345kV substation and access road. The substation would service the proposed 500kV transmission line and the loop-in with the existing Falcon-Gonder 345kV transmission line, as well as include microwave and fiber optic facilities to provide redundant communication pathways within NV Energy's system. This substation would require approximately 108 acres to interconnect the 500kV and 345kV systems and 4 acres for an access road to be widened and upgraded.
- ROW Amendment - For the loop-in with the existing Falcon-Gonder 345kV transmission line.
- Electric Transmission and Telecommunications Facilities ROW - Construction and operation of an electric transmission line, telecommunication (i.e., fiber optic line), and associated facilities to interconnect the existing and planned transmission and telecommunication facilities including substations, fiber optic line (including regeneration stations), and transmission lines.

2.2 ON Line Project – Proposed Action

2.2.1 Electric Transmission Facilities

To connect the northern and southern NV Energy service territories, and to allow for the delivery of renewable resources to market, NV Energy proposes to build approximately 236 miles of transmission line and associated facilities mostly within the SWIP Utility Corridor (**Figures 2.2-1a** and **b**).

Figure 2.2-1a Project Elements

Figure 2.2-1b Project Elements

Specifically, the components of the electric transmission facilities would include:

- Robinson Summit 500/345-kV Substation, approximately 108 acres in size, adjacent to the SWIP Utility Corridor in White Pine County
- One Nevada 500 kV transmission line and telecommunication appurtenances (ON Line), approximately 236 miles in length, between the proposed Robinson Summit Substation and the existing Harry Allen Substation in Clark County
- Falcon-Gonder 345-kV transmission line loop-in at the Robinson Summit 500/345 kV Substation
- Access roads into the Robinson Summit Substation and along the transmission lines
- Expansion to add 345kV series compensation equipment on private property at the existing Falcon Substation in Eureka County
- Addition of 500kV electrical connection equipment within the existing footprint of the Harry Allen Substation in Clark County

2.2.1.1 Transmission System Design

The design, construction, operation, and maintenance of the transmission system would meet or exceed the requirements of the National Electrical Safety Code (NESC), U.S. Department of Labor, Occupational Safety and Health Standards, and NV Energy's requirements for safety and protection of landowners and their property. The electrical characteristics for the proposed transmission line facilities are summarized in **Table 2.2-1**.

TABLE 2.2-1 ELECTRICAL DESIGN CHARACTERISTICS OF THE TRANSMISSION LINE

FEATURE	DESCRIPTION
Line Length	Approximately 236 miles
Type of Structures	Galvanized, painted, or self-weathering Steel: Lattice Guyed-V Lattice Self Supporting Tubular H-frame Tubular Three-Pole (Line Angle and In-line Dead End Structures in Tubular H-frame sections only)
Structure Height	Single-circuit structures 100 to 185 feet
Span Length	Average span 900 to 1,600 feet
Number of Structures per Mile	4 to 6
Right-of-way width	200 feet
ELECTRICAL PROPERTIES	
Nominal Voltage	525,000 volts Alternating Current
Capacity	2,000 Megawatts
Circuit Configuration	Single-circuit with three phases; three conductors per phase
Conductor Size	1,590 kcmil Aluminum Conductor Steel Reinforced (ACSR), 1.5 inch diameter per conductor
Shield Wire Size	7/16" diameter steel or approximately 0.9" diameter fiber optic cable
Ground Clearance of Conductor	Designed to exceed the code minimum requirement at the maximum operating temperature, lowest requirement is 25.8 feet

Three main types of structures would be used for the transmission line, they include steel lattice guyed-V, steel lattice self-supporting, and steel tubular structures. Steel lattice guyed-V structures require one foundation and four anchors per structure (**Figure 2.2-2a**). Steel lattice self-supporting structures require four foundations per structure (**Figures 2.2-2b** to **d**). Steel tubular H-frame structures require two foundations per structure (**Figure 2.2-2e**), and when required at angle and dead-end locations, steel tubular three-pole structures would require three foundations and twelve anchors per structure. Guyed-V foundations would be precast at an offsite concrete manufacturing facility and then transported and buried approximately five feet deep at each structure location. All other structure foundations would be constructed of cast-in-place concrete and range from 3 to 8 feet in diameter and from 12 to 30 feet deep. Depending upon soil type and engineering strength requirements, anchors would be drilled and grouted in small diameter holes (less than one foot in diameter) up to 40 feet deep, or installed in minimum 4-foot diameter excavations ranging from 12 to 20 feet deep.

2.2.1.2 Elements and ROWs

The transmission facilities would consist of an overhead 500-kV transmission line, a new substation, an expansion of an existing substation, an interconnection to an existing substation and new telecommunications facilities to support the transmission facilities (see **Figures 2.2-1a** and **b**). **Tables 2.2-2** and **2.2.-3** summarize acreages associated with short-term and long-term acreages and ROW requirements.

500-kV Transmission Line from the Robinson Summit Substation to the Harry Allen Substation

One new 500kV transmission line would be constructed from the proposed Robinson Summit Substation in White Pine County, Nevada to the existing Harry Allen Substation in Clark County, Nevada to provide an electric transmission connection between northern and southern Nevada. It is proposed that the transmission line would be routed primarily within the SWIP Utility Corridor.

The transmission line would extend south from the Robinson Summit Substation via Segments 6C, 8, 9B, 9A, 9D, and 11 (**Figure 2.2-1b**). This line would deviate slightly from the SWIP Utility Corridor to connect to the Robinson Summit Substation. It would also deviate from the SWIP Utility Corridor in Jakes Valley, near the Cove in the White River Valley, near the crossing of the White River by the southern extent of the Kirch Wildlife Management Area, and near Silver King Pass all along Segment 6C, again at Segment 9A south of Delamar Valley, and then in Segment 11 near the Harry Allen Substation. These deviations primarily result from topographic constraints within the SWIP Utility Corridor. If the line was left at the standard construction line spacing in comparison to the other planned utilities within the SWIP Utility Corridor, environmental impacts and safety risks to construction personnel and equipment would increase due to the difficulty of construction activities in steep terrain and the amount of surface disturbance required for safe installation of the transmission line. The slight deviations from the standard location in the SWIP Utility Corridor mentioned above would reduce these impacts.

The long-term ROW would be 200 feet wide from end point to end point (236 miles) for a total area of 5,721 acres. An additional short-term construction ROW would include approximately 280 miles of access over dirt roads (average width of 20 feet) outside the transmission line long-term ROW that would require widening, other improvements to accommodate the construction equipment, and construction of short spur segments. NV Energy would coordinate with responsible agencies and property owners to acquire approvals (e.g. short-term rights-of-way) to use and, in some cases, to improve these access roads. At a maximum of 30 feet wide, this short-term construction ROW would be about 985 acres. Approximately 4 acres of long-

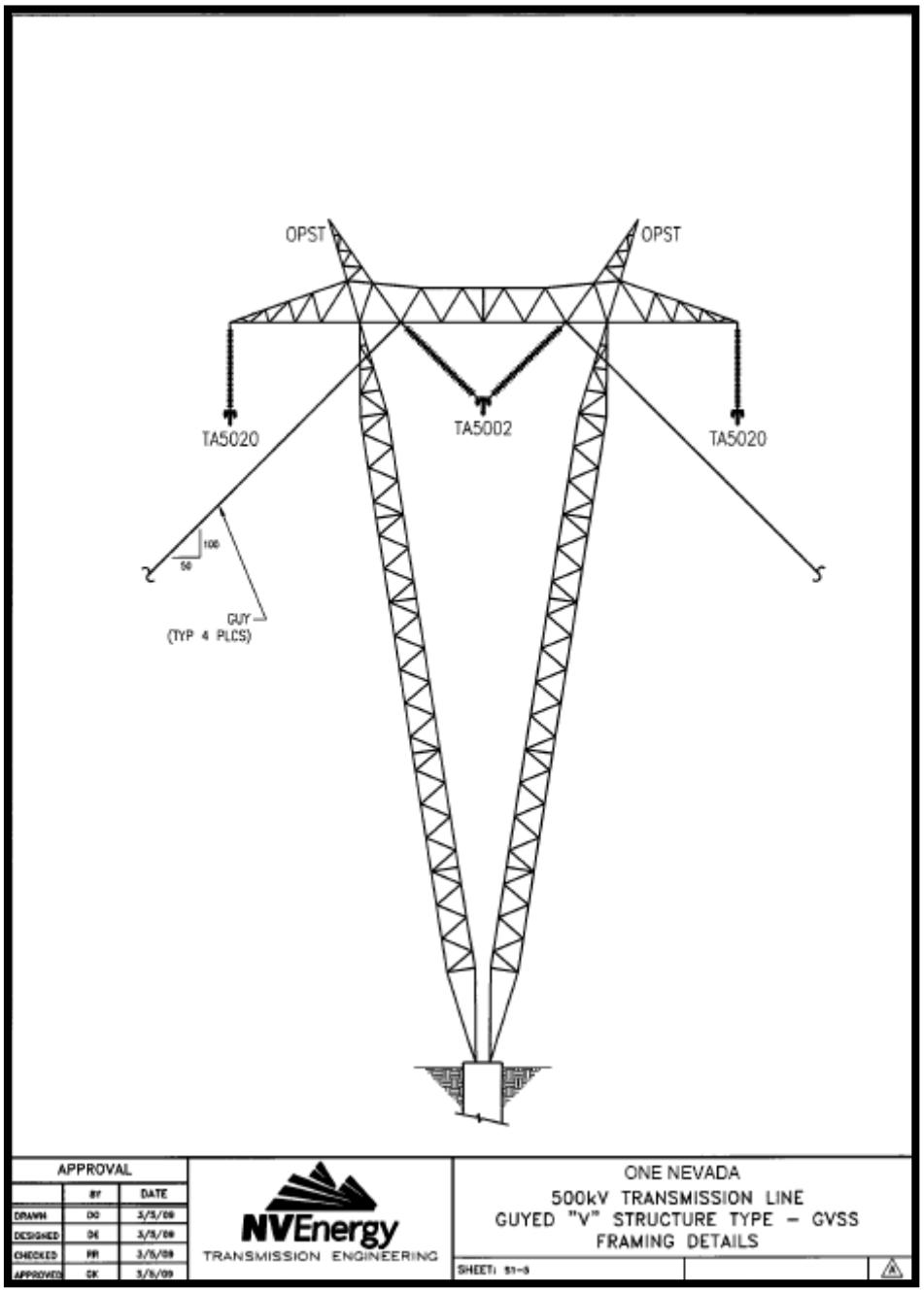

Figure 2.2-2a Steel Lattice Guyed V Structure

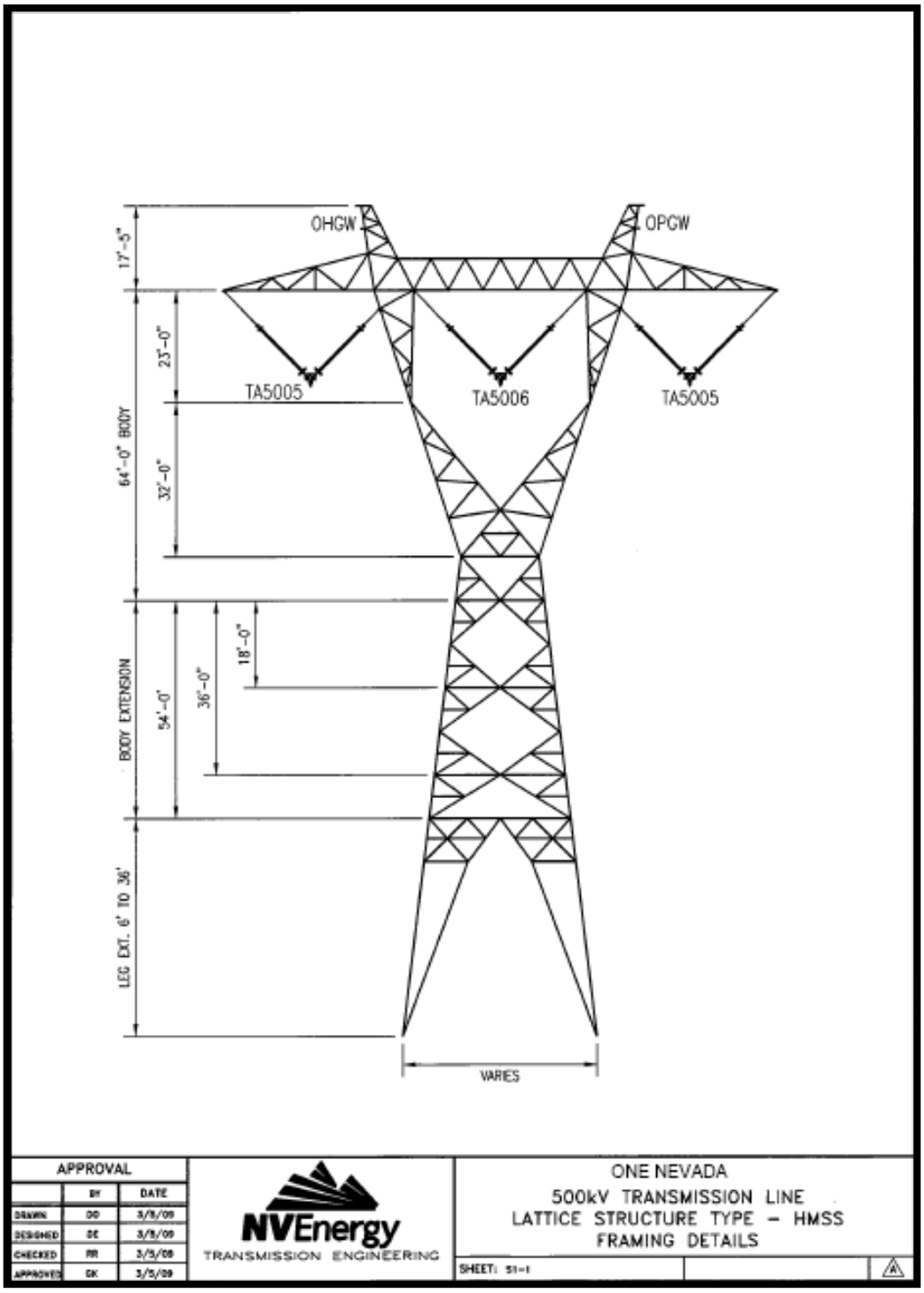

Figure 2.2-2b Steel Lattice Self-Supporting Structure

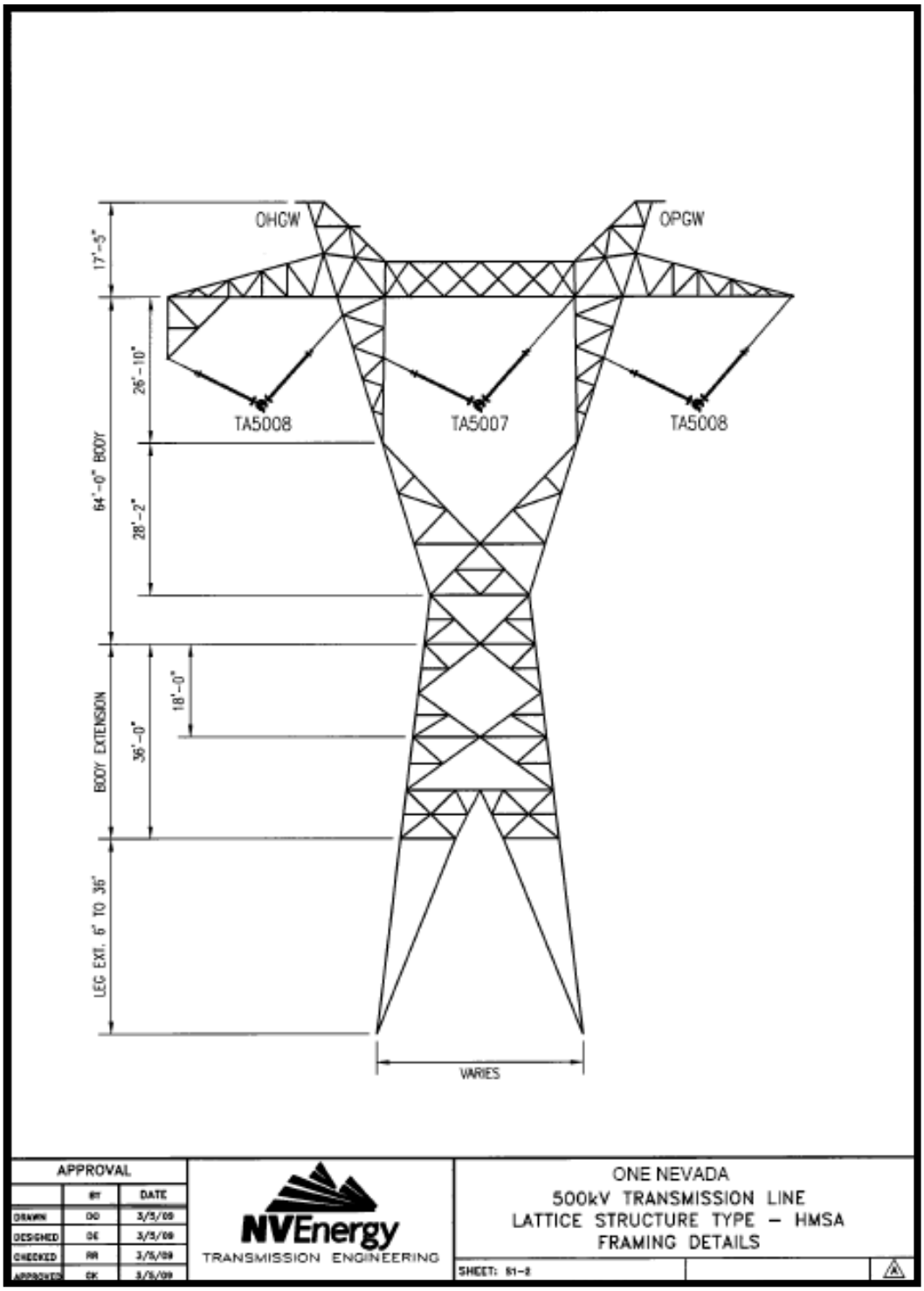

Figure 2.2-2c Steel Lattice Self-Supporting Structure

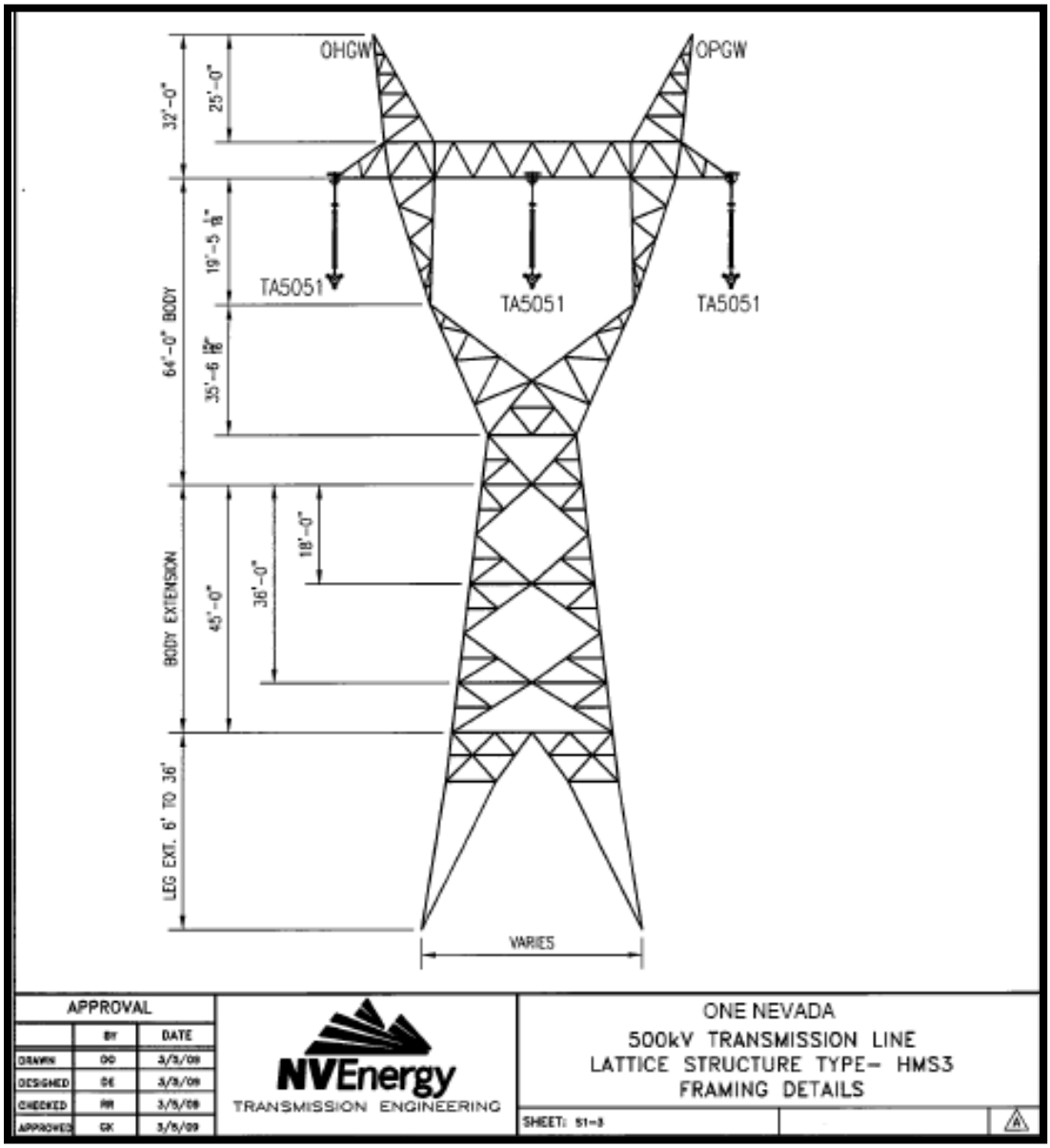

Figure 2.2-2d Steel Lattice Self-Supporting Structure

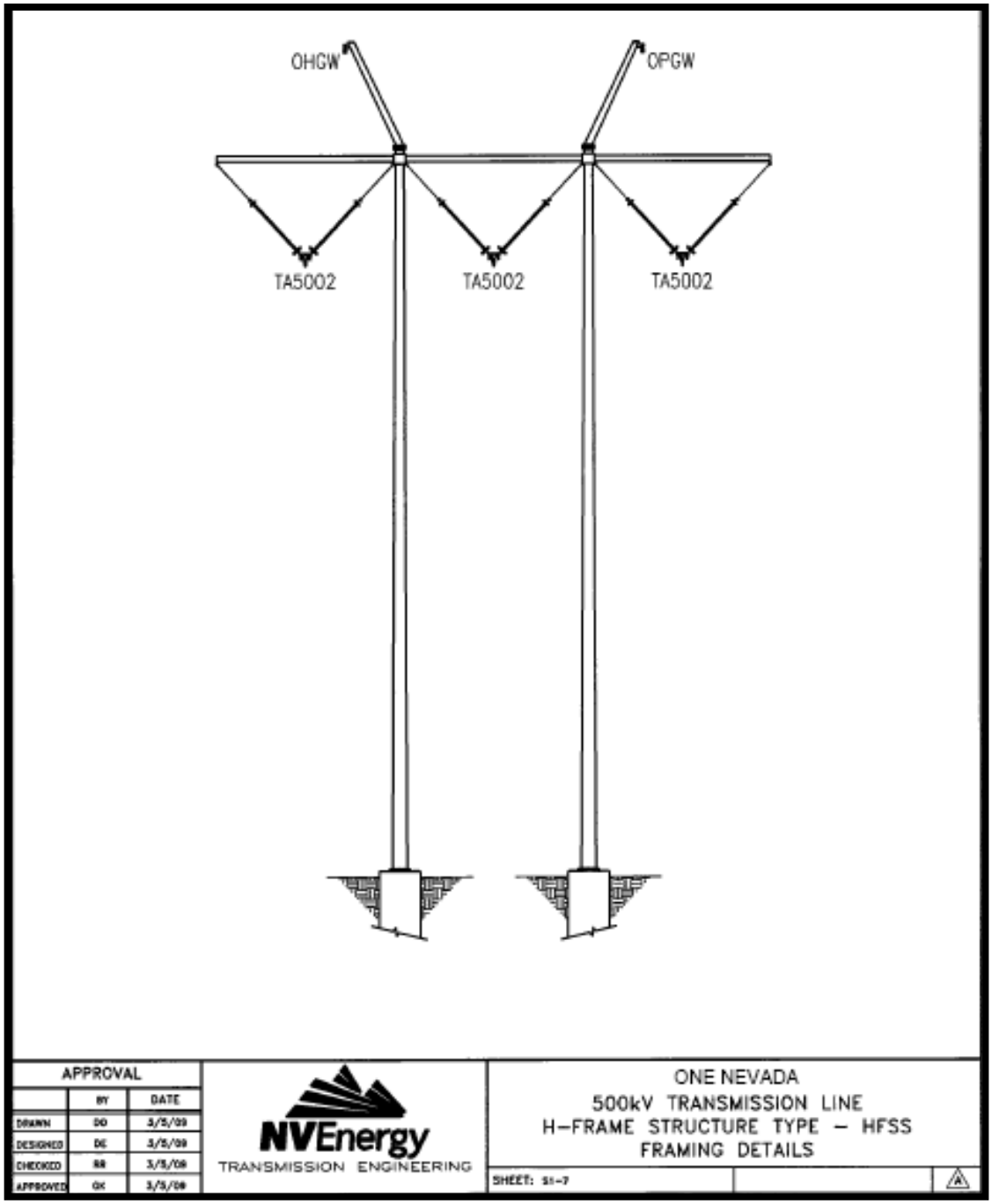

Figure 2.2-2e Steel Tubular H-Frame Structure

term ROW would be required for fiber optic regeneration sites along the ROW (40 acres for short-term construction ROW). Long-term power distribution ROWs for fiber optic sites would be approximately 60 acres, although actual permanent disturbance within the ROW for structures would be less than 1 acre. Transmission tower designs and footprints would be the same as above (see **Figures 2.2-2a-e**).

The height of and spacing between each tower would be determined based on detailed engineering and be dependent on the type of tower used and the terrain. Typically, single-circuit steel H-frame and lattice towers would both be 100-185 feet tall. On flat terrain each tower would have a long-term disturbance footprint of 66 x 66 feet (0.1 acres). In rough terrain each tower would have a long-term disturbance footprint of 200 x 220 feet (1 acre). For impact analysis purposes, it was estimated that average span lengths between structures would measure approximately 1,050 feet, resulting in an average of five structures per mile.

TABLE 2.2-2 DISTURBANCE ASSOCIATED WITH SHORT-TERM LAND USE REQUIREMENTS

FEATURE	DESCRIPTION	ACREAGE (approximate)	ESTIMATED NUMBER
LAND TEMPORARILY REQUIRED WITHIN THE LONG-TERM ROW			
Structure Site Work Area	200 x 220 feet (flat) - 1.0 acre 200 x 440 feet (rough) - 2.0 acres	746* 374	933
Temporary Access Roads in the ROW	within 200 foot wide ROW	487	Centerline Access
Wire-Pulling and Tensioning Sites	200 feet wide x 700 feet long 3.2 acres per site	307	79
Wire-Splicing Sites	200 feet x 100 feet – 0.5 acre (site on average every 3 miles)	39	79
Guard Structures	200 feet x 100 feet – 0.5 acre	unknown	unknown
Construction Staging Areas on the ROW	within 200 foot wide ROW, typically within wire-pulling and tensioning and /or wire-splicing sites	see above	see above
LAND TEMPORARILY REQUIRED OUTSIDE THE LONG-TERM ROW			
Short-term construction Area surrounding Robinson Summit Substation	200 foot buffer around expansion area	41	N/A
Short-term Access Roads outside the ROW	Access roads needing improvement and construction of short spur roads for access – maximum 30 feet wide	785	216 miles
Construction/Material Yards	Locations described below – 40 acres each – on private land or within existing ROW	120 acres	3
Concrete Batch Plant Sites	Locations unknown at this time – 5 to 40 acres each (to be situated on private land)	25 to 200	approx. 5

*Includes structure sites within desert tortoise habitat that would be permanent disturbance.

TABLE 2.2-3 LONG-TERM LAND USE REQUIREMENTS

FEATURE	DESCRIPTION	ACREAGE (approximate)	ESTIMATED NUMBER
Robinson Summit Substation ROW, plus access road	Substation footprint and access road (approx. 50 feet wide by 0.5 miles long)	108	N/A
Transmission Line /Fiber Optic Line ROW	200 foot wide by 236 miles	5,721	N/A
Structure Base	66 feet x 66 feet (flat) - 0.1 acre 200 x 240 feet (rough) - 1.0 acres	50 434	933
Long-term Access Roads (includes improvements to existing access, centerline access, and spur roads)	Only needed within desert tortoise habitat (20 feet wide)	199	N/A
Regeneration Stations	Less than 1 acre per site for equipment enclosure, fenced area, and primary and backup power supplies approximately every 40 to 60 miles	4	4

Minimum conductor height above the ground for the 500kV line would comply with NESC and NV Energy standards. The exact height of each structure would be governed by topography and requirements for conductor clearance.

Single-circuit tangent structures would have one cross arm with two “I” string and one “V” string insulator assemblies, or three “V” string insulator assemblies suspended from the cross arm. Single-circuit dead-end structures would have six horizontal insulator assemblies installed in tension with the conductor on each side of the cross arm and three “I” or “V” string assemblies suspended from the cross arm to support jumper connectors.

Overhead shield wires or steel encased fiber optic cables are required to protect the 500kV transmission line from lightning. Two overhead shield wires, either 7/16-inch diameter stranded steel cable or approximate 9/10-inch diameter fiber optic cable, would be installed on the top of all structures. Current from lightning strikes would be transferred through the shield wires and structures into the ground via buried ground rods, counterpoise, or another type of grounding system.

Telecommunications Facilities

Fiber optic communications cables would be installed within one or both of the shield wires along the transmission line. These cables would be supported by the transmission structures and strung along with the transmission cables during construction.

Fiber optic regeneration stations require an equipment enclosure, fenced area, and primary and backup power supplies approximately every 40 to 60 miles generally within the 200 foot transmission line ROW to transmit the signals over long distances. Fiber optic regeneration stations would be less than 1 acre in size. New electric power distribution would be required for

the fiber optic regeneration stations. Electric power distribution locations for these sites would be selected based on availability from the local providers.

Structure Site Work Areas in the ROW

An area of about 200 by 220 feet (approximately 1 acre) would be required at each structure site for the construction of foundations and the assembly and erection of the structures. Where topography requires, work areas would be expanded to up to 200 by 440 feet (approximately 2 acres). These expanded work areas for rough terrain would be partially cleared and graded to accommodate the safe operation of heavy equipment and cranes. The actual work area may not always be centered on the structure but may be positioned ahead or back along the ROW line as the terrain dictates to maximize access and minimize grading.

Temporary Access Roads in the ROW

Temporary access roads (outside desert tortoise habitat) would include: a ROW centerline access road, utilization of existing roads without improvements, utilization of existing roads with improvements, or the creation of new roads in the ROW as required to access all structure sites, wire pulling and tensioning sites, wire splicing sites, guard structures, fiber optic regeneration sites, etc. Temporary access roads would originate from existing public access roads and provide connection to construction areas and the centerline access road. Utilization of existing roads including any required improvements would be described in detail in the final Construction, Operation, and Maintenance (COM) Plan.

Temporary Wire-Pulling and Tensioning Sites in ROW

Each of the temporary wire-pulling and tensioning sites would be about 200 feet by 700 feet (approximately 3.2 acres), every 2 to 4 centerline miles along the ROW. These temporary areas may extend outside the ROW at angle points.

Temporary Wire Splicing Sites in ROW

Temporary wire splicing sites would be about 200 feet by 100 feet (approximately 0.5 acre) in size, every 2 to 4 miles along the ROW, or as may be required.

Temporary Guard Structures in ROW

Temporary guard structure sites would be about 200 by 100 feet (approximately 0.5 acre) adjacent to existing roads/electrical lines or other facilities requiring protection during wire pulling.

Temporary Construction Staging Areas on the ROW

Temporary construction staging areas in the ROW would generally be located at areas designated for pulling and tensioning sites or at designated splice sites. In some cases temporary construction staging areas could act as construction yards, helicopter fly yards, concrete batch plants, or accommodate other construction requirements.

Temporary Access Roads outside the ROW

Temporary access roads (outside desert tortoise habitat) would involve utilization of existing roads without improvements where possible, utilization of existing roads with improvements as necessary, or the creation of new roads outside the ROW as required to access the temporary centerline access road, all structure sites, wire pulling and tensioning sites, wire splicing sites, guard structures, etc. Temporary access roads would originate from existing off ROW public access roads and provide connection to construction areas and a centerline access road. Utilization of existing roads, including descriptions of any required improvements, would be described in detail in the final COM Plan.

Temporary Construction/Material Yards outside the ROW

Three temporary construction yards have been identified for the project, located outside the ROW: 1) on private property within an existing gravel yard in Ely; 2) on private property in Caliente; and 3) on BLM land authorized for use by NV Energy at its existing Crystal Substation (N-61363) in Clark County. Construction yards would receive and store equipment, materials, and could provide an area for temporary office space to administer construction. The yards would be used to receive and issue substation, transmission line, and fiber optic line materials as necessary for construction of the project facilities. These sites would be returned as close as possible to their original condition after use.

Temporary Concrete Batch Plant Sites

Concrete batch plant sites would generally be located outside the ROW on private land at locations with good access to the public road system. Concrete batch plant sites would store concrete materials, concrete batching facilities, concrete transportation equipment, and could also act as construction yards. In general, concrete construction crews would report to the batch plant sites. Concrete batch plant sites would typically be situated on private land and would be 5 to 40 acres in size, located about every 50 miles on private land along the ROW. Concrete materials would be obtained through purchases from private contractors and mixed concrete would be hauled from the batch plant sites to the structure foundation construction sites within the ROW.

Robinson Summit Substation

A new 500/345kV substation would be constructed near the SWIP Utility Corridor approximately 20 miles northwest of Ely along U.S. Highway 50. The selection of the final location of the Robinson Summit Substation is dependent upon topography and the final design of the electric transmission system. The new Robinson Summit Substation would require a long-term ROW of approximately 108 acres to interconnect the 500kV and 345kV systems. A 200-foot microwave tower would also be installed. This substation would be accessible via permanent improvements and widening (to approximately 50 feet) an existing access road that connects to U.S. Highway 50. This access road would be approximately 0.5 mile in length, resulting in approximately 3 acres of disturbance. The access road would be graveled or paved with asphalt to provide a suitable surface for long-term use.

Falcon – Gonder 345kV Loop Into Robinson Summit 500/345kV Substation

The existing Falcon-Gonder 345kV transmission line would be looped into the Robinson Summit Substation to interconnect NV Energy's northern and southern electrical systems for the first time. The existing 160-foot wide Falcon-Gonder transmission line ROW would require an amendment to the ROW grant to accommodate the loop-in. The loop-in of the Falcon-Gonder line into the substation would require the installation of two single circuit 345kV transmission lines a distance of approximately 0.5 mile from the existing line into the substation, creating two parallel 160-foot wide ROWs. Each 160-foot wide transmission line ROW, approximately 0.5-mile in length, would require a 10-acre ROW grant amendment, thus totaling 20 acres. The loop-in would essentially create two segments of the line formerly referred to as the Falcon-Gonder line. Once the loop-in is constructed, the two segments would be called the Falcon to Robinson Summit and the Robinson Summit to Gonder 345kV transmission lines, respectively.

Harry Allen Substation

The existing ROW for the Harry Allen 500kV substation, located about 20 miles northeast of Las Vegas, would be adequate to accommodate the additional equipment to support the proposed transmission line. No expansion would be required. The new substation interconnection

components (i.e., A-frame, circuit breakers, relays, etc.) would be installed within the existing disturbed footprint of the operating substation.

Falcon Substation Upgrade

The existing company-owned Falcon 345kV Substation located in Boulder Valley approximately 40 miles northeast of Battle Mountain would require an approximate 7-acre expansion of the existing fenced boundary to facilitate development of the ON Line Project. Of the 7 acres required for the expansion, 4 acres would be on NV Energy property and 3 acres would be obtained from the adjacent private landowner.

2.2.1.3 Construction Activities

Construction of the ON Line facilities would take approximately 21 to 24 months to complete depending upon seasonal constraints and time of year when the Notice to Proceed is issued by BLM. Prior to construction, permitting, major equipment procurement and much of the facility design would take place.

Electric transmission and substation construction would involve simultaneous construction of the Robinson Summit Substation, Falcon–Gonder 345kV loop into the Robinson Summit Substation, the 236-mile transmission line, telecommunication facilities, and upgraded electrical work at the Harry Allen and Falcon Substations. Construction is required to commence no later than January 2011 for a 24 month construction period to meet an in-service date of December 2012. The in-service date is required to comply with contractual requirements for delivery of new renewable energy resources.

One Nevada 500-kV Transmission Line

Construction of the 236-mile transmission line between the new Robinson Summit Substation and the existing Harry Allen Substation would be performed in the following sequence of activities: pre-construction engineering surveys (months prior to construction); construction mobilization, including locating and establishing material yards, construction yards, and concrete batch plant sites, construction surveying and staking of the centerline, access roads, and work areas; construction of access roads; installing foundations and anchors; assembling and erecting the structures; installing ground rods and counterpoise; installing conductors, shield wires, and fiber optic cables; cleanup and site reclamation.

Site Preparation and Mobilization

All the activities described below would be fully described in the COM Plan that would be completed and approved prior to release of a Notice to Proceed for any portion of construction.

Land surveying on public and private lands would occur as pre-construction activities across the entire project, in advance of the start of construction. These surveys would mark authorized boundaries for all project components including the substation and transmission boundaries (permanent and temporary), angle points, individual transmission structures, guard structure and splice sites, telecommunication regeneration sites, access roads, etc.

Construction boundaries would be generally marked at 200 to 400 foot intervals with painted lathes or colored survey ribbons (flagging) and signs (as required). Closer intervals may be marked as needed. Flagging and signs would be maintained until final cleanup and/or reclamation is completed, after which they would be removed. At a minimum, reference stakes for all angle stations would be set on the ROW with stakes for each structure prior to construction.

Pre-construction soil testing activities would take place along the ROW in advance of the start of construction. These surveys would test soil at numerous locations. Short-term access would be required to facilitate these surveys. Also, all short-term major material yards, construction yards, construction staging areas, wire stringing and tensioning sites, and concrete batch plant sites located outside of the environmental study area would be identified and surveyed for the COM Plan.

Construction Mobilization

Construction mobilization activities outside of the ROW include the contractor obtaining local construction permits and mobilization of their labor force and the necessary equipment to accomplish the construction of the substation, transmission, and fiber optic lines to the jobsite. Also during mobilization and other pre-construction activities, contractor-required off-ROW material storage yards, construction yards, and concrete batch plant sites would be located and established.

Construction Support in ROW

Construction support in the transmission line right-of-way would comprise a variety of activities occurring during different stages of construction. These activities include dust control; storm water and wastewater management; erosion control; and management of hazardous substances. These various activities are described in further detail below.

Dust Control

Water application by truck would be the primary means of dust abatement at areas impacted by construction and near sensitive receptors. Areas of higher erosion or poor soils, outside of desert tortoise habitat, may require application of a palliative dust reducing agent. Any application of palliative or other dust reducing agent, other than water must first be approved by BLM. Speed limits on project designated access roads would be set and strictly enforced. Gravel or other similar material would be used where dirt access roads intersect the paved roadways to prevent mud and dirt track-out. All paved roads would be kept clean of objectionable amounts of mud, dirt, or debris, as necessary.

Helicopters may be used for a portion of the construction to string conductors, transport materials, workers and equipment, and to erect structures. Helicopters would fuel at pre-determined locations identified on and off the ROW. Helicopter landing and fueling areas would be watered as necessary for safety and dust abatement.

Stormwater/Wastewater Management and Erosion Control

During construction, stormwater would be managed according to the stormwater permit issued by the State of Nevada to the project. In general, construction erosion control would consist of best management practices (BMPs), including techniques such as hay bales, silt fences, and revegetation, to minimize or prevent soils exposed during construction from becoming sediment carried off the site.

Wastewater would be generated during construction from:

- concrete loads emptied from trucks
- washing of exteriors of construction equipment and vehicles to remove accumulated dirt

Wastewater from concrete truck washdown and cleaning of construction equipment would be managed such that there would be no discharge offsite or discharge to surface waters.

Following construction, erosion control would include revegetation in addition to the aforementioned techniques.

Construction Utilities

Generally, no new electric power distribution, temporary water, sewer, or communications would be required for construction of any of the transmission line or substation facilities. Temporary construction power would be provided by small, portable on-site generators. Temporary water would be imported in water trucks from existing sources. Sewer would be provided by temporary portable facilities. Communications would be provided by existing cellular telephone providers and through existing 800 MHz radio communication facilities.

Short-term construction yards, major material yards, and concrete batch plant sites would all require electric power distribution, water, sewer, and communications. Locations for these sites would be selected based on the availability of these services from local providers.

Mineral Material Borrow Areas

All borrow material would be obtained from existing private suppliers. No new off-site borrow areas would need to be opened specifically for construction of the transmission line.

Concrete Batch Plant Sites

Due to the remote location of the ROW, commercial concrete would generally not be available over most of the transmission line route. Construction of concrete foundations could require temporary concrete batch plants be established at locations along the transmission line route. In general most of the batch plant sites would be located outside of the ROW at locations with good access to the public road system and local utility infrastructure. The location of the batch plant sites would also be dictated by haul times to the actual construction sites. These batch plant sites would require fencing, gravel surfacing, and portable office space.

Access Road Construction

Equipment access is required to every transmission structure. The project would utilize existing transmission line access roads both inside and outside of the ROW wherever practical to minimize the construction of new roads. It is anticipated that some of the existing dirt roads would require both upgrading and maintenance during construction to provide safe access to structure sites and to maintain adequate level of service to other public users. In areas where existing access roads do not provide adequate access to construction sites, roads would be improved and/or new roads would be built. New roads would consist of either short spur roads from existing roads to construction sites, longer linear roads to connect the ROW to existing access roads, and/or a centerline access road that connects one structure to the next between other access roads. New spur roads would be located within the ROW whenever practical and would be located to minimize visual impacts. The number of new spur roads would be held to a minimum, consistent with their intended use (e.g., structure construction or conductor stringing and tensioning). A Construction Road Plan would be provided on the structure location drawings submitted with the final COM Plan.

All new and improved roads would be constructed by the construction contractor. In areas of steep terrain, the road would be built so that there would be approximately 20 feet of travel way and the total disturbed width of the road (toe of fill to top of cut) would vary depending on the terrain (i.e., greater in steep terrain, less in flatter terrain). In flat terrain the road would be built so that there would be approximately 20 feet of travel way with a 2-foot berm of salvaged topsoil on one or both sides of the road.

In areas where new roads would be constructed, environmental resource monitors would conduct surveys for sensitive environmental resources prior to construction. Environmentally sensitive areas would be staked and/or flagged to prevent the contractor from entering or disturbing these sensitive areas during construction. Meandering roads may be required in specific areas due to terrain and geologic conditions.

After line construction, all new and improved roads identified as temporary disturbance on the drawings, outside of potentially suitable and critical desert tortoise habitat, would be restored in compliance with the Restoration Plan included in the COM Plan.

Structure Site Clearing

The following section contains descriptions of typical construction-related activities associated with structure construction and clearing. Structure site clearing (removal of brush) would be kept to a minimum. Grading of structure sites and work areas would only be performed as required to provide a flat working surface such that maintenance and construction cranes or other major equipment can work safely.

Typical Structure Site and Work Area

At each structure site, work areas are required to facilitate the safe operation of equipment and construction operations. Typical work areas in flat terrain are about 200 feet wide by 220 feet wide (1 acre). When practicable, access within the work area would be by overland travel with minimal to no grading required in the work site. In other work areas vegetation would only be cleared to the extent necessary. After line construction, all work areas identified as temporary disturbance on the structure location drawings would be restored in compliance with the Restoration Plan included in the COM Plan.

Structure Site and Work Area in Steep/Rough Terrain

Work areas would vary depending on the site conditions. Where topography dictates, work areas would be expanded to 200 feet wide by 440 feet long (2 acres) and would be partially cleared and graded to accommodate the safe operation of heavy equipment and cranes by construction and maintenance crews. Following construction, portions of the site not required for maintenance would be restored in compliance with the Restoration Plan included in the COM Plan. In steep terrain, a crane pad would be required for maintenance of the structure. This crane pad and the access road to the structure would remain after construction. Extensive grading along steep slopes may be required to accommodate some structure sites.

Vegetation Clearing

In addition to vegetation clearing at structure sites, in forested areas trees would be removed along the ROW to allow construction vehicle access, for wire stringing locations, and as needed for electrical clearances under and to the side of the transmission line conductors. Tree removal for electrical clearance would be selective and would not include every tree in the 200 foot wide ROW. Generally, trees over 15 feet in height within conductor low sag areas would be removed to provide the code required clearances. Tree removal would be conducted to allow for a minimum ten-year growth period.

Foundation Installation

Excavations for foundations would be made with vehicle-mounted augers, backhoes, and other power equipment. In rocky and cemented soil areas, the foundation holes may be excavated by drilling and blasting, or special rock anchors or piles may be installed. In extremely sandy areas, soil stabilization by water or a gelling agent may be used prior to excavation. In areas with a

high water table, holes may need to be shored and/or dewatered prior to the installation of concrete.

After excavations are completed, the required cast-in-place or precast concrete footings would be installed. The cast-in-place concrete footing would be installed by placing reinforcing steel and a stub or anchor bolts into the foundation hole and encasing it in concrete. The precast concrete footings would be cast off site at a precast concrete facility, trucked to the structure site, lowered into an approximate 5 foot deep excavation, and backfilled with native material. Foundation excavation and installation would require access to the site by a power auger or drill, track excavators, a crane, material trucks, and ready-mix trucks using the access roads indicated on the structure location drawings submitted with the COM Plan.

Guyed-V and guyed tubular three pole structures require the installation of anchors and guy wires to support the structure loads. Depending upon soil type and engineering strength requirements, anchors would be drilled and grouted in small diameter holes (less than 1 foot in diameter) up to 40 feet deep, or installed in minimum 4-foot diameter excavations ranging from 12 to 20 feet deep.

Foundation and anchor excavations would not be left open for extended periods of time or unfenced. Excavations would be covered and/or fenced where practical to protect the public and wildlife. Soil removed from foundation excavations would be used as backfill, road fill, or spread within the structure work area to blend with the natural terrain. Salvaged top soil would be placed over regraded areas.

Structure Assembly and Erection

Structure components and associated hardware would be shipped to each structure site or helicopter fly yard by truck. Steel members would be assembled by hand with the assistance of pneumatic tools and cranes into subsections of convenient size and weight. The assembled subsections would be hoisted into place by a large crane and then fastened together to form a complete structure, or flown as assembled units from the helicopter fly yards to designated structure sites. Helicopter fly yards would be generally located every 5 miles.

Conductor Installation

After the structures are erected, insulators, hardware, and stringing sheaves would be delivered to each structure site. The structures would then be rigged with insulator strings and stringing sheaves at each ground wire and conductor position. To protect the public and other existing facilities during wire installation, guard structures would be erected adjacent to existing highways, railroads, power lines, structures, and other obstacles. Guard structures normally consist of wood H-frame structures placed on either side of an obstacle. These structures prevent ground wire, conductor, or equipment from falling onto an existing obstacle. Most guard structures would be identified on the structure location drawings, however due to varying construction techniques, some guard structures may not be identified until construction is in progress. Equipment for erecting guard structures includes augers, line trucks, pole trailers, and cranes. Guard structures may not be required for small roads or protection may be accommodated by line trucks suspending cross arms or pulleys. On other occasions, other safety measures such as barriers, flagmen, or other traffic control would be used to provide the required protection.

Next, a pilot line would be pulled (strung) from structure to structure and threaded through the stringing sheaves at each structure. This pilot line is normally pulled by a helicopter. After the pilot line is pulled from one end of the wire pull to the other, a larger diameter, stronger line

would then be attached to the pilot line and strung. This is called the pulling line and it is attached to a tensioner (breaking equipment) on one end and a power puller on the other. The pulling line is attached to the ground wire, fiber optic cable, and conductors to install each in a controlled tension manner (**Figure 2.2-3**). This process would be repeated until the ground wire, fiber optic cable, and conductor would be pulled through all sheaves.

After the ground wire, fiber optic cable, and conductor are pulled through all sheaves, each would be properly tensioned and then lifted from the sheaves and dead ended or clipped into the line hardware. Conductor would be spliced together using implosive sleeve devices which are installed with pressure provided by an explosive chord. Implosive dead ends and compression jumpers would be installed at all dead end and line angle towers. Implosive-type sleeves would also be installed at all wire splice locations (approximately every 10,000 feet).

As described earlier, work areas for tensioning equipment and pulling equipment typically would be approximately 200 feet by 700 feet. However, construction in the steep and rough terrain could require larger, less symmetrical pulling and tensioning sites. To the extent possible, typical pulling and tensioning sites needed for this transmission line would be identified on the structure location drawing submitted with the final COM Plan. Once construction starts, it is probable some of the pulling and tensioning sites may be relocated. This relocation may be required to accommodate changing construction techniques, or material and design changes. Overall, the total number of pulling sites identified in the COM Plan would not be expected to increase.

Structure Grounding

Prior to conductor installation, structure footing resistance along the route would be measured. When the resistance to remote earth for each transmission structure is greater than 20 ohms, counterpoise (grounds) are required to lower the resistance to 20 ohms or less. Counterpoise consists of galvanized steel or copperweld cable buried a minimum of 12 inches deep, extending from one or more structure legs for approximately 200 feet, within the ROW. In some cases ground rods or other more advanced grounding methods may be used in lieu of counterpoise.

Restoration and Final Clean Up

Throughout the project, good housekeeping practices would be continually observed in the yards and along the ROW. Trash would be continually picked up and stored in closed containers and empty reels and blocking would be returned to yards and then removed from the project. After the conductor has been installed, the contractor would begin reclamation of the ROW and access roads. Areas to be restored would be re-graded back to natural contours and top soil restored. Final restoration and reseeding would be in accordance with permit requirements and the COM Plan.

Construction Workforce and Equipment Requirements

The transmission and telecommunication facility work would be performed by one or more prime contractors and the substation work would be performed by multiple prime contractors. In addition, each prime contractor would likely employ multiple subcontractors to supplement their own workforce. During peak construction periods, approximately 500 workers would be employed. The peak construction period would be expected to last about 18 months of the approximate 24-month transmission line project.

Because the construction work would be contracted, the geographic region of the work force is not yet known. Local and out-of-town labor would depend on the local labor market conditions,

contractor's labor force availability, construction status, and time of year. Local labor could comprise 10 to 20 percent of the total workforce and out-of-town labor would comprise the rest of the workforce. It is assumed this workforce would move with construction along the ROW and find temporary housing in communities within a reasonable commuting distance to the ROW.

Vehicle and equipment requirements would include a variety of heavy equipment like bulldozers, backhoes, vehicle-mounted augers, concrete trucks, and cranes. Specialized equipment to install structures and conductors would also be used, including: line trucks, a tensioner, ground wire trucks, puller trucks, pole trailers, and helicopters.

2.2.1.4 Substation Design and Construction

Construction of the new Robinson Summit 500/345kV Substation, expansion of the existing Falcon Substation, and additions inside the existing Harry Allen 500kV Substation are required to facilitate the power transmission associated with the new 500kV transmission line.

In the proposed substation development and expansion areas, the ground would be cleared, graded and compacted according to the civil engineering plan for these facilities. The surfaces would be slightly sloped and other civil design features such as ditches, culverts and rip-rap would be installed where required for adequate drainage to facilitate the safe construction, operation, and maintenance of these facilities. The stockpiled topsoil and organic material would be placed on undeveloped and graded cut-and-fill slopes.

Robinson Summit Substation

Approximately 108 acres of land would be permanently required for the Robinson Summit Substation development, including the access road. The site identified for substation facilities in the original SWIP ROW grant encroaches on the western half of the designated SWIP Utility Corridor. As described in the original Plan of Development and the DEIS for the EEC Project, NV Energy has proposed the site for the Robinson Summit Substation approximately 1/4 - 1/2 mile west of the SWIP ROW grant location to more level ground outside the designated SWIP Utility Corridor. Major equipment installed at the substation would include control enclosures, two 500/345kV autotransformers, two 500kV shunt reactors, one 345kV shunt reactor, 345kV series compensation equipment, 500kV and 345kV circuit breakers and switches, and associated electrical appurtenances and telecommunication equipment. The layout of the substation facilities would facilitate the ability to accommodate future expansion requirements within the fenced substation area.

Interconnection with NV Energy’s northern electric system would be accomplished by looping the existing Falcon – Gonder 345kV transmission line into the Robinson Summit Substation. Installation of two 345kV line terminals would be required at the Robinson Summit Substation creating the Falcon – Robinson Summit and the Robinson Summit - Gonder 345kV transmission lines to control the flow of power into the northern electric system. In addition, 345kV series capacitors and shunt reactors would be installed on the Falcon terminal side of the Falcon – Robinson Summit 345-kV transmission line to reduce the impedance and electrical losses associated with operation of this line.

Figure 2.2-3 Basic Wire Handling Equipment

After grading is complete, fencing would be installed around the perimeter of the substation for security and to restrict unauthorized persons and wildlife from entering. Reinforced concrete footings and foundations would then be constructed to support structures and equipment. Buried conduit and/or a pre-cast concrete trench system would be installed throughout the substation for electrical control cables. A ground grid consisting of buried cables approximately 12 inches below grade would also be installed to ensure that all equipment, structures, and fence components are properly grounded. Gravel or a road base type material would be installed over the substation pad to provide electrical isolation for workers, a suitable working and drive surface, to inhibit weed growth, and to reduce fugitive dust. Primary drive paths within the substation may be paved with asphalt to provide a durable surface for long-term use.

Steel structures would be erected on the concrete footings to support switches, electrical buswork, and other equipment, as well as termination structures for the incoming and outgoing transmission lines. Structures would be fabricated from tubular steel and galvanized or painted with a non-reflective finish. Major equipment would be set by crane and either bolted or welded to the foundations to resist seismic forces. Oil spill containment basins would be installed around all major oil-filled equipment and if the containment area was ever used, the oil would be removed and properly disposed of according to approved practices. Control cables would be installed throughout the substation from equipment back to a central control enclosure. The control equipment would be set to the proper settings and tested before the substation is energized.

Harry Allen Substation

The existing ROW for the Harry Allen 500kV substation would be adequate to accommodate the additional equipment to support the proposed transmission line. No expansion would be required. The new substation interconnection components, including two 500kV reactors, circuit breakers and switches, and associated electrical appurtenances and telecommunication equipment would be installed within the existing disturbed footprint of the operating substation. The construction processes and activities would be similar to those described above for the Robinson Summit Substation development.

Falcon Substation Upgrade

The existing company-owned Falcon 345kV Substation would require expansion to facilitate development of the ON Line Project. New components to be installed at this substation include one 345kV reactor, 345kV series compensation, 345kV circuit breakers, switches, and associated electrical appurtenances and telecommunication equipment. An approximate 7-acre expansion of the existing fenced boundary would be needed to accommodate this additional equipment (**Figure 2.2-1a**). The construction processes and activities would be similar to those described above for the Robinson Summit Substation development.

2.2.1.5 Telecommunications Design and Construction

The fiber optic, microwave, and mobile radio telecommunications system described below would facilitate operational control and monitoring of the Robinson Summit Substation and transmission facilities. The telecommunications system would include a fiber optic line approximately 236 miles long to be installed within one or both shield wires on the 500kV transmission line structures and microwave and mobile radio facilities to be installed at the Robinson Summit Substation.

Fiber Optic Line Design and Construction

A fiber optic cable would be installed within one or both of the shield wires on the 236-mile 500kV transmission line structures. The fiber count contained within the fiber optic cable is dependent upon the electric transmission control and monitoring requirements. The fiber optic cable requires splice points approximately every two to four miles along the transmission line route. At splice points, the fiber optic cable would be terminated at the top of the structure and routed down the structure to a splice box near or buried at ground line. Optical regeneration stations would also be required approximately every 40 to 60 miles. Two to four regeneration stations would be built within or adjacent to the transmission line ROW. Each of the regeneration stations would require a fenced area of approximately 60 feet by 80 feet, a control enclosure approximately 15 feet by 20 feet, an emergency power generator, a propane tank, vehicle access, and commercial power from the local electric utility. The proposed regeneration stations would generally be sited in close proximity to existing electric distribution lines to minimize the distance required for new service lines.

Microwave and Mobile Radio Design and Construction

Microwave and mobile radio telecommunications equipment would also be installed at the Robinson Summit Substation. The microwave tower would be approximately 200 feet tall to connect with NV Energy's existing microwave communication system. An approximate 15 feet by 20 feet communication enclosure would also be required within the proposed Robinson Summit Substation development.

2.2.1.6 Operations, Maintenance, and Abandonment

The electric transmission lines, telecommunication facilities and substations would be operated 24 hours per day, 7 days per week. The electric substations would be visited regularly to perform routine maintenance and ensure they are functioning correctly. Vegetation would be trimmed as-needed under and along the transmission line ROW to minimize potential interference with the transmission lines.

Workforce and Equipment Requirements

Planned operations and maintenance on transmission lines would consist of an annual helicopter or vehicle line patrol by two linemen. It would probably take two days per year to patrol the proposed transmission lines. Additional unscheduled patrols may be required by ATV, truck, or bucket truck, if issues are encountered. Unplanned operations and maintenance may be required to correct failures. These are normally site-specific issues (e.g., damaged insulator on one structure, erosion around foundation, post fire inspection, etc.). Whatever labor and equipment is required to fix the problem would be dispatched. Unplanned maintenance could involve 40 to 80 worker days on average per year. NV Energy would notify the respective BLM district office of such occurrences, and coordinate any necessary ROW authorization amendments or consultations as required.

Planned operations and maintenance on the substations would consist of numerous equipment testing and maintenance requirements on all major equipment such as transformers, reactors, and breakers receive annual inspections (operation verification, visual inspections, infrared inspections, etc.). More intensive inspections and tests are conducted on major equipment every three to five years (oil samples, switch alignment, and manufacturer scheduled maintenance). Based on the proposed project scope, workforce requirements could total 200 to 400 worker days per year.

Access and Traffic

The electric transmission line would be inspected from the ground or the air on an annual basis. Ground inspections would be conducted generally following the centerline travel route used for construction. This path may also be utilized for required maintenance or repair.

Access to the Robinson Summit Substation would be from US-50 over an existing dirt road that would be widened and improved from the highway to the substation site. The road would be surfaced with asphalt or gravel to provide a durable surface for long-term use.

Access to the Falcon Substation and Harry Allen Substation would be from existing paved and gravel roads already constructed to these operating substations.

Abandonment

The new electric transmission and telecommunications facilities would be integrated into NV Energy's existing electric transmission and telecommunications systems. The facilities would be operated and maintained for the foreseeable future. If at some point these facilities were no longer needed as part of the electric system, then the transmission towers and lines would be removed and the area restored.

2.2.2 Environmental Protection Measures and Best Management Practices

Activities under the Proposed Action and Action Alternative would include environmental protection measures that are an integral part of the Proposed Action. These measures follow BMPs established by the BLM for the construction, operation, and maintenance of ON Line Project and other related facilities in this region (**Appendix 2A, Best Management Practices**). These BMPs would be followed to avoid or minimize the potential for adverse environmental effects resulting from project-related activities.

BMPs are described for the following activities:

- Air pollution prevention
- Landscape preservation and impact avoidance
- Erosion and sediment control
- Utility construction
- Biological resources
- Cultural resources
- Paleontological resources
- Noxious and invasive weed management
- Reclamation (site restoration, revegetation)
- Visual resources
- Water pollution prevention and monitoring
- Noise prevention
- Hazardous material storage, handling, and disposal, and safety measures
- Socioeconomics

In addition to the BMPs, to ensure public health and safety, NV Energy would comply with Federal Aviation Administration (FAA) permit requirements for project components that may present aviation hazards. The FAA is the oversight agency that determines aerial marking requirements for aviation hazards.

The COM Plan would detail the methods and procedures to be used in the construction of the electric transmission, substation and telecommunications facilities. The COM Plan would incorporate site-specific stipulations, terms, and conditions in order to satisfy all construction requirements, as well as operational, maintenance, and abandonment/restoration requirements associated with lands administered by the Ely and Southern Nevada District Offices of the BLM where project features would be located.

Further, the following Management Actions taken from the Ely RMP (BLM 2008a) would be implemented for fish and wildlife and special status species habitat.

General Wildlife Habitat Management (Aquatic and Terrestrial)

WL-4: Mitigate all discretionary permitted activities that result in the loss of aquatic and priority wildlife habitats by improving 2 acres of comparable habitat for every 1 acre of lost habitat as determined on a project-by-project basis.

WL-6: Where appropriate, restrict permitted activities in big game calving/fawning/ kidding/lambing grounds and crucial summer range from April 15 through June 30.

WL-7: Where appropriate, restrict permitted activities in crucial winter range from November 1 through March 31.

Desert Bighorn Sheep Habitat

WL-13: Where appropriate, restrict permitted activities within occupied desert bighorn sheep habitat from March 1 through May 31 and from July 1 through August 31.

Special Status Species Habitat

SS-4: Where appropriate, restrict permitted activities from May 1 through July 15 within 0.5 mile of raptor nest sites unless the nest site has been determined to be inactive for at least the previous 5 years.

Mojave Desert Scrub Habitat

SS-33: Implement the following management actions for desert tortoise habitat.

Within desert tortoise ACECs: If fence construction occurs during the tortoise active season, a qualified tortoise biologist will be onsite during construction of the tortoise-proof fence to ensure that no tortoises are harmed. If the fence is constructed during the tortoise inactive season, a qualified tortoise biologist will thoroughly examine the proposed fence line and burrows for the presence of the tortoises no more than three days before construction. Any desert tortoises or eggs found in the fence line will be relocated offsite by the biologist in accordance with approved protocol (Desert Tortoise Council 1994, 1999 *in* BLM 2008a). Tortoise burrows that occur immediately outside of the fence alignment that can be avoided by fence construction activities will be clearly marked to prevent crushing.

- Within desert tortoise ACECs: Projects will require fencing, unless determined by the BLM authorized officer and U.S. Fish and Wildlife Service that the project should not be fenced. In accordance with current specifications, fencing will consist of 1-inch horizontal by 2-inch vertical mesh. The mesh will extend at least 18 inches aboveground and, where feasible, 6 to 12 inches belowground. In situations where it is not feasible to bury the fence, the lower 6 to 12 inches of the fence will be bent at a 90 degree angle towards potentially approaching tortoises and covered with cobble or other suitable material to ensure that tortoise or other animals cannot dig underneath.

- Within desert tortoise ACECs: Tortoise fencing will be inspected on a quarterly basis, and any repairs completed within 72 hours from March 1 through October 31, and within 7 days from November 1 through February 28/29. The operator will inspect the fencing at least on a quarterly basis and after major precipitation events to ensure zero ground clearance. Monitoring and maintenance will include regular removal of trash and sediment accumulation and restoration of zero ground clearance between the ground and the bottom of the fence, including re-covering the bent portion of the fence if not buried. The operator will perform maintenance when needed including removing trash, sediment accumulation, and other debris. Fencing will be removed upon termination and reclamation of the project, or when it is determined by the BLM authorized officer and U.S. Fish and Wildlife Service that the fence is no longer necessary.
- Within desert tortoise ACECs: During surface-disturbing activities, tortoise burrows will be avoided whenever possible. If a tortoise is found onsite during project activities, which may result in take of the tortoise (i.e., in harm's way), such activities will cease until the tortoise moves, or is moved, out of harm's way. The tortoise will be moved by a qualified tortoise biologist. All workers also will be instructed to check underneath all vehicles before moving such vehicles and within stockpiled materials. Tortoises often take cover under vehicles and construct burrows in stockpiled material.
- Within desert tortoise ACECs: The BLM authorized officer will approve the selected consulting firm/biologist to be used by the applicant to implement the terms and conditions of the permit issued by the BLM. Any biologist and/or firm not previously approved will submit a curriculum vitae and be approved by the BLM authorized officer. Other personnel may assist with implementing terms and conditions that involve tortoise handling, monitoring, or surveys, only under direct field supervision of the approved, qualified biologist.
- Within desert tortoise ACECs: Tortoises and nests that are found will be handled and relocated by a qualified tortoise biologist in accordance with U.S. Fish and Wildlife Service-approved protocol. Burrows containing tortoises or nests will be excavated by hand, with hand tools, to allow removal of the tortoise or eggs. Desert tortoises moved during the tortoise inactive season or those in hibernation, regardless of date, will be placed into an adequate burrow; if one is not available, one will be constructed in accordance with Desert Tortoise Council protocol. During mild temperature periods in the spring and early fall, tortoises removed from the site will not necessarily be placed in a burrow. Tortoises and burrows will only be relocated to federally managed lands. If the responsible federal agency is not the BLM, verbal permission, followed by written concurrence, will be obtained before relocating the tortoise or eggs to lands not managed by the BLM.
- Desert tortoises moved in the winter (i.e., November 1 through February 28/29), or those in hibernation, regardless of date, will be placed into an adequate burrow; if one is not available, one will be constructed utilizing the protocol for burrows in Section B.5.f. of the U.S. Fish and Wildlife Service-approved guidelines (U.S. Fish and Wildlife Service 1994 *in* BLM 2008a).
- All projects in desert tortoise habitat will be reviewed by the BLM's wildlife staff to ensure that appropriate measures have been incorporated into the BLM authorization (e.g., material site, land sale, or off-highway vehicle event) to minimize the potential take of desert tortoise or loss of habitat.

- A BLM representative(s) will be designated and will be responsible for overseeing compliance with terms and conditions of all permitted activities and reporting requirements. The designated representative will provide coordination among the permittee, project proponent, the BLM, and the U.S. Fish and Wildlife Service.

SS-40: Outside of designated corridors, above-ground facilities will not be constructed within 0.25 mile of greater sage-grouse leks. No new roads will be constructed within 0.25 mile of greater sage-grouse leks. Exceptions may be granted by the authorized officer, in consultation with Nevada Department of Wildlife, if the project can be designed so that it will not affect breeding activity nor degrade the integrity of the habitat associated with the lek, or if the lek has been inactive for at least 5 consecutive years or the habitat has changed such that there is no likelihood that the lek will become active.

SS-41: Where appropriate (i.e. visible from actual lek), restrict permitted activities from March 1 through May 15 within 2 miles of an active greater sage-grouse lek.

SS-42: Where appropriate, restrict permitted activities from November 1 through March 31 within greater sage-grouse winter range. (Within identified winter habitat, site specific surveys may be conducted to confirm winter use and habitat.)

SS-43: Survey all proposed ground disturbing activities in suitable pygmy rabbit habitat utilizing the appropriate protocol. Surveys will be completed by a qualified biologist approved by the Ely District Office.

Resource-specific mitigation measures are described in Chapter 4, Environmental Consequences.

2.2.3 Proposed Action Summary

Table 2.2-4 summarizes the estimated acres of disturbance (short-term and long-term) for the Proposed Action.

TABLE 2.2-4 ESTIMATED ACRES OF DISTURBANCE FOR PROPOSED ACTION

PROJECT ELEMENTS	DISTURBANCE	
	SHORT-TERM	LONG-TERM
Robinson Summit Substation, includes 50-ft wide access road	149	108
Falcon-Gonder 345kV Loop-in	9	<1
Segment 6C (structures)	566	186
Segment 8 (structures)	212	21
Segment 9A (structures)	52	28
Segment 9B (structures)	42	4
Segment 9D (structures)	0	78
Segment 11 (structures)	0	153
Falcon Substation Expansion	7	7
Other Transmission Line Components (e.g. Access roads - in and out of the ROW, Fiber Optic Regeneration Sites and Electric Power Service, Material/Construction Yards)	Approx. 2,300	203*

*199 acres for access roads in desert tortoise habitat

2.3 Action Alternative

The Action Alternative would consist of all of the same facilities as described under the Proposed Action, however, the 500kV transmission line and associated facilities would follow a parallel route alignment approximately 1,800 feet to the east within the SWIP Utility Corridor. The transmission line segments of the Action Alternative include 6C, 8, 9B, 9C, 9D and 11. Alternative segments of the Action Alternative include segments 9A instead of 9C as well as Segment 10 instead of 9B, 9C and 9D. Alternative segments 9A and 10 deviate from the SWIP Utility Corridor. The linear distance of the Action Alternative would be shorter than the Proposed Action by about 2 miles, for a total length of 234 miles. The facilities and alignment described under the Action Alternative were described and analyzed in the EEC Project DEIS (i.e., RS-HA Line #2). **Table 2.3-1** summarizes the estimated acres of disturbance (short-term and long-term) for the Action Alternative.

TABLE 2.3-1 ESTIMATED ACRES OF DISTURBANCE FOR ACTION ALTERNATIVE

PROJECT ELEMENTS	DISTURBANCE	
	SHORT-TERM	LONG-TERM
Robinson Summit Substation, includes 50-ft wide access road	149	108
Falcon-Gonder 345kV Loop-in	9	<1
Segment 6C (structures)	566	186
Segment 8 (structures)	214	21
Segment 9A (Alternative) (structures)	53	29 + 13 acres of access roads in tortoise habitat
Segment 9B (structures)	42	4
Segment 9C (structures)	33	12
Segment 9D (structures)	0	78
Segment 10 (Alternative) (structures)	90	148 + 68 acres of access roads in tortoise habitat
Segment 11 (structures)	0	157
Falcon Substation Expansion	7	7
Other Transmission Line Components (e.g. Access roads, Fiber Optic Regeneration Sites and Electric Power Service, Material/Construction Yards)	Approx. 2,300	202*

*198 acres for access roads in desert tortoise habitat using Segment 9C

SWIP Utility Corridor Alternatives

To address the topographic and construction constraints in a section of the SWIP Utility Corridor that may result in a “bottleneck-type” compression of transmission line spacing between ROWs, two SWIP Utility Corridor alternatives are proposed for the Action Alternative (see **Figure 2.2-1b**).

<u>Alternative Segment 9A</u>

Similar to the Proposed Action, from the southern terminus of Segment 9B, the Action Alternative would deviate from the SWIP Utility Corridor and be routed along Segment 9A. The line would then rejoin Segment 9D and proceed to Segment 11. This alternative would increase the distance of the Action Alternative by just over 2 miles, for a total length of 236 miles, similar to the Proposed Action.

Alternative Segment 10

From the southern terminus of Segment 8, the Action Alternative would deviate from the SWIP Utility Corridor and follow Segment 10 around the Delamar Mountains Wilderness Area and rejoin the SWIP Utility Corridor at the beginning of Segment 11. This alternative would increase the distance of the Action Alternative by approximately 10 miles, for a total length of 244 miles.

2.4 No Action Alternative

NEPA regulations require the No Action Alternative to be included in the alternatives analysis of an EIS (Section 1502.14(d)). Under the No Action Alternative, BLM would not approve the ROW; therefore the proposed transmission line, telecommunications facilities, and substation would not be constructed or operated as described in the Proposed Action or Action Alternative. The No Action Alternative would not be responsive to NV Energy's needs. The Robinson Summit Substation and the high-voltage transmission line would not be built, which would eliminate the ability to cost-effectively transport renewable energy between the northern and southern service territories of the NV Energy system, nor generally share power resources between these service territories in northern and southern Nevada. The existing conditions and trends in the Project Area would continue (Chapter 3 - Affected Environment). The project purpose and need, as described in **Sections 1.2** and **1.3**, would not be met.

2.5 Alternatives Considered but Eliminated from Detailed Analysis

In areas where the Proposed Action deviates from the SWIP Utility Corridor, the SWIP Utility Corridor itself was considered, however some areas of the corridor (four areas along Segment 6C, Segment 9C, and one area along Segment 11) were eliminated due to topographical constraints. Topographic constraints included inaccessible mountain peaks, the steep sides of mountain ridges, and a wide portion of a reservoir. Locating the Proposed Action outside the SWIP Utility Corridor in some areas avoids these topographical constraints and significantly lessens the environmental impacts to construct, operate, and maintain the transmission facilities. Also, worker safety is greatly improved by avoiding high-risk work environments (e.g., crane operation on steep hillsides).

Further, there is a Section 368 corridor (#18-224) along the west side of Nevada that could be utilized to connect the north and south service areas, however this west corridor would not provide the needed access of renewable projects in east and northeast Nevada into the system.

2.6 Comparison of Alternatives and Summary of Impacts

2.6.1 Comparison of Alternatives

Table 2.6-1 below compares and summarizes the environmental impacts of the Proposed Action and Action Alternative.

TABLE 2.6-1 COMPARISON SUMMARY OF IMPACTS FROM PROPOSED ACTION AND ACTION ALTERNATIVE

IMPACT		PROPOSED ACTION (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9A, 9B, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9B, 9C, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9A, 9B, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 10, AND 11)
Water Resources					
Acreage of wetlands impacts	ST	0	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
	LT	0	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Number of perennial streams spanned		2	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Geology and Minerals					
Potential effects on topography		Minor	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Number of mining, oil, gas, and/or geothermal claims potentially impacted		0	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Paleontological Resources					
Potential to encounter paleontological resources		Low to High, depending on area Robinson Summit Substation area has high potential	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Soils					
Acreage Disturbed (short-term includes 200-foot ROW and proposed disturbance outside ROW)	ST	6,550	6,435	6,485	6,625
	LT	789	770	788	875
Air Quality					
Would NAAQS be exceeded?		No	No	No	No
Vegetation					
Five vegetation types with the most acreage permanently impacted, plus winterfat		• Creosote – 144 • Douglas rabbitbrush - 13 • Joshua Tree - 10 • Pinyon juniper - 17 • Wyoming sagebrush - 26 • Winterfat - 7	• Creosote – 152 • Douglas rabbitbrush – 12 • Joshua Tree - 10 • Pinion-juniper – 18 • Wyoming sagebrush – 26 • Winterfat – 6	• Creosote – 144 • Douglas rabbitbrush – 12 • Joshua Tree - 10 • Pinion-juniper – 18 • Wyoming sagebrush – 26 • Winterfat – 6	• Creosote – 95 • Douglas rabbitbrush – 12 • Joshua Tree - 35 • Pinion-juniper – 21 • Wyoming sagebrush – 26 • Winterfat – 3
Noxious and Non-native, invasive weed risk assessment		Low to moderate, depending on area Areas of moderate risk: Robinson Summit Substation, Segment 11	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

IMPACT	PROPOSED ACTION (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9A, 9B, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9B, 9C, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9A, 9B, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 10, AND 11)
Special status plant species observation locations that could be impacted	Segments 6C and 9B	Segments 6C, 9B, and 9C	Same as Proposed Action	Segment 6C
Wildlife Resources, Including Special Status Wildlife, Fisheries, and Aquatic Species				
Number of potentially occupied greater sage-grouse leks within 2 miles (includes active, inactive, and unknown leks)	6	7	7	7
Pygmy rabbit observation locations that could be impacted	Segment 6C	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Areas of pronghorn antelope range impacted	Segments 6C, 8, and 9B, excluding higher elevations	Same as Proposed Action	Same as Proposed Action	Segments 6C, 8, and north portion of 10, excluding higher elevations
Impacts to fisheries and aquatic resources	None to negligible	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Acres of desert tortoise habitat impacted long-term	430 acres	428 acres	430 acres	480 acres
Areas of mule deer crucial winter range impacts	Portions of Segments 6C and 8	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Raptor nesting areas within 2 miles	Ferruginous hawk: Segment 6C and nest observations along Segment 8	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action, with additional nest observations along Segment 10
Range Resources				
Number of Allotments Impacted	27	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Number of Herd Management Areas (HMAs) Impacted	1	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Cultural Resources				
Number of and Additional Projected Acres of NRHP-Eligible Sites impacted	3 sites + 204 acres	3 sites + 198 acres	3 sites + 198 acres	13 sites + 152 acres
Native American Concerns				
Number of Places of Cultural and/or Geographic Interest to Tribes potentially impacted	5	4	5	3
Land Use				
Acres of BLM lands affected by the project	5,789	5,790	5,834	6,028

IMPACT		PROPOSED ACTION (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9A, 9B, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9B, 9C, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 9A, 9B, 9D, AND 11)	ACTION ALTERNATIVE (INCLUDES ROBINSON SUMMIT AND FALCON SUBSTATIONS, AND SEGMENTS 6C, 8, 10, AND 11)
Acres of private, state or other agency lands affected by the project		38	13	13	13
Special Designation Areas (SDAs)					
Number of SDAs with project components within their boundary		3	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Recreation					
Overall impact to recreation		Short-term, negligible to major Long-term, negligible to minor	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Visual Resources					
Developments potentially not consistent with BLM Visual Resource Management Classification designation		None	Same as Proposed Action	Same as Proposed Action	Segment 10
Noise					
Noise impacts to nearest residence	ST	Minor	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
	LT	Negligible	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Socioeconomics					
Peak fiscal impact to local government	ST	Sales Tax Revenue - Major	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
	LT	Property Tax Revenue - Minor	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Employment	ST	Moderate	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
	LT	None	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Environmental Justice					
Disproportionate effects to minority or low income populations		None to negligible	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Hazardous Materials and Solid Waste					
Anticipated environmental effects from use of hazardous materials		Negligible	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
Transportation					
Impacts to transportation	ST	Minor to moderate	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action
	LT	Negligible	Same as Proposed Action	Same as Proposed Action	Same as Proposed Action

2.7 Monitoring and Mitigation

2.7.1 Water Resources

Additional mitigation measures are not required.

2.7.2 Geology and Minerals

Additional mitigation measures are not required.

2.7.3 Paleontological Resources

1. Paleontologists may make the determination, based on accumulation of information being learned from inspection and the evaluation of spoil piles and previous grading within areas of high sensitivity, that areas formerly determined high potential are actually low or undetermined where monitoring may be reduced.
2. Upon encountering scientifically significant paleontological resources, salvage of bone will be conducted with additional field staff and in accordance with modern paleontological techniques.
3. Fossils collected during the project will be prepared to a reasonable point of identification.
4. A report documenting the results of the monitoring and salvage activities and the significance of the fossils will be prepared.
5. Fossils collected during this work, along with the itemized inventory of these specimens, will be deposited in a museum repository for permanent curation and storage.

2.7.4 Soils

1. Ensure that soils are salvaged and there is placement of growth medium on sites ready for immediate reclamation to minimize the need for stockpiling the material. The underlying subsoil material will remain in place or be used elsewhere.
2. Design access roads to fit the terrain by avoiding unstable slopes and highly erodible conditions to the extent practicable to protect soils and prevent excessive sedimentation. These protective measures include, but are not limited to, mulch, matting, or slope length shortening (State of Nevada 1994).
3. When soils are wet, construction, operation, and maintenance activities will be restricted so as to properly support construction or maintenance equipment (i.e., when heavy equipment creates ruts in excess of 4 inches deep over a distance of 100 feet or more in wet or saturated soils). This standard will not apply in areas with silty soils, which easily form depressions even in dry weather. Where the soil is deemed too wet, one or more of the following measures will apply:
    - Re-route all construction or maintenance activities around the wet areas so long as the route does not cross into sensitive resource areas.
    - If wet areas cannot be avoided, implement BMPs for use in these areas during construction and improvement of access roads, and their subsequent reclamation. This includes use of wide-track or balloon-tire vehicles and equipment, or other weight dispersing systems approved by the appropriate

resource agencies. It also may include use of geotextile cushions, pre-fabricated equipment pads, and other materials to minimize damage to the substrate where determined necessary by resource specialists.

- Limit access of construction equipment to the minimum amount feasible, remove and separate topsoil in wet or saturated areas and stabilize subsurface soils with a combination of one or more of the following: grading to dewater problem areas, utilize weight dispersion mats, and maintain erosion control measures such as surface filling and back-dragging. After construction is complete, re-grade and re-contour the area, replace topsoil, and reseed to achieve the required plant densities.

4. Vegetation will be cleared and the construction ROW will be graded only to the extent necessary. Vegetation within the ROW will be cut or scraped at or near the ground level. Except for the area to be excavated, the vegetative root system and subsurface soils will be left intact to the greatest extent practicable. This will help stabilize the soils within the ROW during construction. ROW boundaries will be clearly staked or flagged and no disturbances are allowed beyond the limits.

2.7.5 Air Resources

1. Construction staging areas will not be placed within 500 feet of residences.
2. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard, which is the distance from the top of the truck bed in the material being hauled.
3. Sweep streets of visible soil material carried onto adjacent paved public streets.

Mobile and Stationary Source Controls:

1. Reduce construction-related trips of workers and equipment, and unnecessary idling from heavy equipment.
2. Prohibit any tampering with engines to increase horsepower, and require continuing adherence to manufacturer's recommendations.
3. If practicable, lease new, clean equipment meeting the most stringent of applicable Federal or State Standards.
4. Require low sulfur diesel he1 (4 5 parts per million), if available.
5. Locate diesel engines, motors, and equipment as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals).

2.7.6 Vegetation, Including Noxious and Non-Native, Invasive Weeds and Special Status Plants

1. Safely store salvageable cacti and yucca in temporary plant storage sites; plant salvage from areas of permanent disturbance will be moved once, and replanted during revegetation/reclamation activities.
2. Site-specific and targeted special status plant surveys will be conducted during the appropriately timed survey window, prior to final siting of electric transmission line structures and temporary use areas. If communities of special status plant species are present at a given structure location or temporary use area, all efforts to relocate that

structure or temporary use area will be made to avoid such plants to the extent practicable. If relocating a specific structure or temporary use area is not feasible due to operational constraints and requirements, the individuals and/or community of special status plants to be impacted will be transplanted to an approved location through appropriate and close coordination with the BLM.

3. Locate temporary use areas at least 0.5 mile away from winterfat dominated sites whenever reasonable. Where reasonable, strive to locate temporary access roads outside winterfat dominated sites.
4. In portions of the project area adjacent to populations of Las Vegas buckwheat, new long-term disturbance would consist only of the centerline access road and ground-level structure foundation and anchor areas. All other disturbance (e.g., wire stringing sites and other staging and temporary use areas) would be limited to within the existing SWIP Utility Corridor.

2.7.7 Wildlife, Including Special Status Wildlife, Migratory Birds, Fisheries, and Aquatic Species

1. Banded Gila Monster Mitigation Measures

Banded Gila monsters can occur within the southern portion of the Project Area in southern Lincoln and northern Clark Counties. Measures provided by NDOW in a November 1, 2007 publication entitled *Gila Monster Status, Identification and Reporting Protocol for Observations* will be followed by the Proponent and their private contractors so as to minimize impacts on the Gila monster associated with the ON Line Project:

- Live Gila monsters found in harm's way on the construction site will be captured and then detained in a cool, shaded environment (<85°F) by the project biologist or equivalent personnel until a NDOW biologist can arrive for documentation, marking, and obtaining biological measurements and samples prior to releasing. Despite that a Gila monster is venomous and can deliver a serious bite, its relatively slow gate allows for it to be easily coaxed or lifted into an open bucket or box carefully using a long handled instrument such as a shovel or snake hook (*Note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points*). A clean 5-gallon plastic bucket with a secure, vented lid; an 18"x 18"x 4" plastic sweater box with a secure, vented lid; or, a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location, Global Positioning System (GPS) coordinates in Universal Transverse Mercator (UTM) using the North American Datum (NAD) 83 Zone 11. Date, time, and circumstances (e.g. biological survey or construction) and habitat description (vegetation, slope, aspect, substrate) will also be provided to NDOW.
- Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses will not be covered by NDOW. However, NDOW will be immediately notified of any injury to a Gila monster and which veterinarian is providing care for the animal. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location (GPS coordinates in UTM using NAD 83 Z 11).

- Should NDOWs assistance be delayed, biological or equivalent acting personnel on site should detain the Gila monster out of harm's way until NDOW personnel can respond. The Gila monster should be detained until NDOW biologists have responded. Should NDOW not be immediately available to respond for photo-documentation, a digital (5 megapixle or higher) or 35mm camera will be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW along with specific location information including GPS coordinates in UTM using NAD 83 Z 11, date, time, and habitat description. Pictures will show the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

2. Avian Wildlife Mitigation Measures

For a complete list of protected birds see 50 C.F.R. 10.13.

A. Greater Sage-Grouse

In order to minimize the possibility of disruption of mating strategies of greater sage-grouse, the Proponent will employ the following:

- No construction activities will occur during the period from March 1 through May 15 within two miles of active greater sage-grouse leks. However, construction traffic can proceed through the area during this period, outside the 0.25 mile no surface occupancy area around leks, except from 2 hours before sunrise until 10:00 am.
- Modified tower design, including H-frame structures and perch deterrents, will be used in locations within two miles of known active leks and in areas of combined nesting, wintering, and summer brooding habitat. The final placement of modified structures would be determined based on current data and identified in the COM Plan. Within identified winter habitat, site specific surveys may be conducted to confirm winter use and habitat.

B. Migratory Birds

- Land disturbing construction and vegetation clearing activities will be scheduled outside of the breeding season (March 15 through July 30 - in upland desert habitats and ephemeral washes containing upland species and March 1 through August 30 - in riparian and higher elevation areas). Where construction is required during the breeding season, the area impacted will be surveyed for nests prior to construction. If no nests are found, construction could proceed. Project area surveys will be done to ensure 100 percent coverage. Methods will be selected based on the plant community and/or topography. Field notes and reports will thoroughly describe methodology and rationale for use and archived.
- If active migratory bird nests (i.e. contains eggs or young) are encountered during the surveys, land disturbing construction activities will be avoided while the birds are allowed to fledge. An appropriate construction avoidance buffer area, to be determined for the species and in conjunction with the BLM, will apply to all active nests for migratory bird species.

C. Western Burrowing Owls and Ground Nesting Species

- Surveys are to include burrowing owls and other ground nesting species. If active nests containing eggs and/or young were to be found, then an appropriately-sized buffer area will be established, marked and avoided during construction so that egg laying, incubation, and the rearing of young continues until such time as the young fledge.
- For construction activities from October 1 to March 14, the wildlife biologist will collapse all burrows, holes, crevices, or other cavities on the construction site only after thoroughly inspecting them for inhabitants, in accordance with agency protocols. This will discourage burrowing owls from potentially occupying the burrows, holes, crevices before and during construction activities.
- If burrowing owls are observed during surveys after March 15, the wildlife biologist will be notified. The wildlife biologist will rely on behavioral observations to determine their breeding status. Should breeding behavior be observed, the wildlife biologist assumes that an active nest is present and the area will be avoided until the young fledge. This ensures that any eggs or young are not abandoned due to project activities. The owl's total nesting cycle takes a minimum of 74 days, during which time construction activity needs to cease within the buffer area on the site. Generally, owl eggs may be laid between mid-March to the end of May, and young may be present from mid-April through August. (Adapted from USFWS recommendations.)

D. Raptors

- Raptor nests within the project area will be identified during pre-construction surveys for migratory and ground-nesting birds. All active raptor nests will be avoided. Known raptor nest sites need to be checked two to five days prior to construction activities in a given area. If an active raptor nest site is discovered, construction activities will be restricted within 0.5 miles of the active nest site from May 1 through July 15.

3. Big Game Mitigation Measures

- Within the BLM Southern Nevada District, construction activities will be restricted within occupied desert bighorn sheep habitat from March 1 through May 31 and from July 1 through August 31.

2.7.8 Range

Additional mitigation measures are not required.

2.7.9 Cultural Resources

Additional mitigation measures are not required.

2.7.10 Native American Concerns

Additional mitigation measures are not required.

2.7.11 Land Use and Realty

Additional mitigation measures are not required.

2.7.12 Special Designations

Additional mitigation measures are not required.

2.7.13 Recreation

1. Construction schedules will be coordinated with permitted recreation activities to avoid conflicts.

2.7.14 Visual

Additional mitigation measures are not required.

2.7.15 Noise

Construction staging areas will be placed no closer than 500 feet of residences. The schedule for all project construction activity is to preclude the use of heavy equipment, including those with the largest construction noise producing capability, between 10 PM and 7 AM within 2 miles of sensitive receptors.

2.7.16 Socioeconomics

Additional mitigation measures are not required.

2.7.17 Environmental Justice

Additional mitigation measures are not required.

2.7.18 Hazardous & Solid Waste

Additional mitigation measures are not required.

2.7.19 Transportation

NV Energy will coordinate with NDOT and utilize proper signage and traffic controls to avoid potential impacts to roadway conditions due to construction of the ON Line Project.

2.8 Preferred Alternative

At this time the BLM has not selected an agency preferred alternative.

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Chapter 3
Affected Environment

3.1 Introduction

This chapter describes the existing conditions of the physical, biological, cultural, and socioeconomic resources that have the potential to be affected by activities related to the Proposed Action and Action Alternative discussed in Chapter 2. These resources include those that occur within, are adjacent to, or associated with the project area, as well as those identified during the scoping process (**Section 1.13**) and BLM Interdisciplinary Team review.

3.2 Water Resources

This section describes water resources that may be affected by project activities within the areas described in **Section 2.2.1**, generally ranging from White Pine County south through Nye and Lincoln counties, and terminating northeast of Las Vegas in Clark County. Water-related resources evaluated in this section include surface water features such as perennial, intermittent, and ephemeral streams; water quality; wetland areas; and floodplains. There are no springs within the project area and no project activities are proposed that would have direct or indirect effects on springs. Potential groundwater effects, such as aquifer contamination, would be mitigated through environmental protection measures as described in **Section 2.2.2** and impacts to water rights would similarly be mitigated or not affected by project activities; therefore, these resources are not discussed further in this section or in Chapter 4.

3.2.1 Area of Analysis

The area of analysis for the Proposed Action and Action Alternative transmission line alignments and ancillary facilities extends from Robinson Summit (west of Ely and near the northern end of Jakes Valley) to the existing Harry Allen Substation in Clark County (northeast of Las Vegas). A small area associated with the expansion of the existing Falcon Substation (located in Boulder Valley, Eureka County) is also included in the area of analysis.

The project area from Robinson Summit to Las Vegas is located within the Central and Colorado River Basin Hydrographic Regions, according to the Nevada Division of Water Resources (NDWR), Department of Conservation and Natural Resources (NDWR 2006). Segment 6C begins in the Jakes Valley watershed in the Central Region, crosses into the White River Valley in the Colorado River Basin Region, and then returns to the Central Region just east of Silver King Pass. Segment 8 is wholly located within the Central Region, within the Dry Lake and Delamar Valleys, and Segment 9B is also located within the Central Region in Delamar Valley. Segments 9A and 9C are split between the Delamar Valley side of the Central Region (to the northeast) and the Pahranagat Valley side of the Colorado River Basin Region (to the southwest), across the foothills of the Delamar Mountains, while Segment 9D occurs within the Colorado River Basin Region, within Coyote Spring Valley. The northernmost one-third of Segment 10 occurs within the Central Region, transitioning to the Colorado River Basin Region after crossing the Delamar Mountains for the southern two-thirds. Segment 11 is wholly located within the Colorado River Basin Region. The Falcon Substation is located within the Humboldt River Basin Region.

3.2.2 Data Sources and Methodology

Existing conditions were evaluated for the areas of analysis described in **Section 3.2.1** through a combination of literature research and field data collection.

3.2.3 Existing Conditions

Baseline water resources field data collection included wetlands and waters of the United States surveys for the northern parts of the analysis area, while existing data was reviewed for other drainages, floodplain/special flood hazard areas, and water rights for the southern parts of the analysis area. Field data was collected in spring and early summer 2007.

3.2.3.1 Precipitation

Precipitation in the area of analysis falls in the form of rain and snow, with the majority occurring near the northern end and steadily decreasing toward the southern end. According to the Western Regional Climate Center (2009), average annual rainfall near the northern terminus of the area of analysis (at the Kimberly monitoring station) is 13.15 inches and average annual snowfall is 91.5 inches, while the southern end averages 5.55 inches of rain and 1.0 inches of snow annually (at the Boulder City monitoring station). **Section 3.6.3.1** contains additional climate information.

3.2.3.2 Surface Water

Surface water features, including streams, other drainages, and wetlands are shown in **Figures 3.2-1a** through **3.2-1d**. Streams and other drainages are discussed here, while wetlands and floodplains are discussed in additional detail in **Sections 3.2.3.3** and **3.2.3.4**, respectively.

Streams and Other Drainages

Stream systems within the area of analysis range from the large, perennial White River to both large and small intermittent/ephemeral drainages spread throughout the project area from Robinson Summit south to the Harry Allen Substation (**Figures 3.2-1a-d**). Segment 6C crosses the White River twice—once near its headwaters, and then again to the south of the Kirch Wildlife Management Area (WMA). The White River is discussed in additional detail in **Section 3.2.3.3** below.

According to the BLM Nevada State Office of Mapping Sciences, there are no perennial streams within the area of analysis in Nye, Lincoln, or Clark counties. The transmission line alignment crosses several large, named ephemeral drainages, including Jakes Wash in White Pine County (Segment 6C); Big Spring Wash in Nye County (Segment 6C); and Bailey, Silverhorn, Fairview, Porphyry, Red Rock, Cottonwood, Monkeywrench, Helen, Cedar, Kane Springs, and Pahranagat washes in Lincoln County (Segments 8, 9D, 10, and 11). Many of these washes discharge to the closed-basin valleys, except for Kane Springs and Pahranagat washes. Kane Springs Wash discharges to Pahranagat Wash, which in turn discharges to the Muddy River approximately 25 miles southeast of the SWIP Utility Corridor crossing location.

Additionally, a number of smaller, unnamed intermittent/ephemeral drainages are present throughout the project area.

Figure 3.2-1a Water Resources

Figure 3.2-1b Water Resources

Figure 3.2-1c Water Resources

Figure 3.2-1d Water Resources

Surface Water Quality

The transmission line encounters no 303(d) listed waterbodies in White Pine, Nye, or Lincoln counties. The closest 303(d) listed waterbody is the source of the Muddy River, in Clark County. Segment 11 runs within eleven miles of the Muddy River (NDEP 2006). Pollutants or stressors of concern for the reach of the Muddy River from its source to Glendale are listed as total iron, temperature, total phosphorous, and dissolved oxygen (NDEP 2006). No source for these impairments has been designated by NDEP, which has contested the phosphorous standard applied by EPA, due to naturally occurring phosphorous in the local geology, such as carbonate rocks (NDEP 1998a). The Pahranagat Wash, which is crossed by the transmission line alignment, is a tributary to this reach of the Muddy River, and the crossing location is upstream of the Muddy River.

3.2.3.3 Wetlands and Waters of the U.S.

The transmission line alignments and Robinson Summit Substation were evaluated for the presence of wetlands and waters of the U.S. by JBR (2007a). The expansion area at the Falcon Substation was also reviewed by JBR (2009). Detailed delineation of wash extents south of the White River was not conducted for the SWIP Utility Corridor or the Segment 10 alternative route, as no permanent disturbance of these features is anticipated. The transmission line would be designed to span any drainage areas, and structures would not be placed in any wash. To the greatest extent possible, existing roads and crossing locations would be used during the construction phase and for periodic maintenance. Proposed access roads and potential drainage crossings for construction activities would be evaluated and finalized in the COM plan. The Pahranagat Wash and connected features may be considered waters of the U.S. by virtue of their downstream connection with the Muddy River, a traditionally navigable waterway; however, a significant nexus test was not conducted due to the project design for avoidance of impacts to any of these drainages. It is unlikely that any of the ephemeral features draining to closed-basin valley bottoms would be considered jurisdictional.

Regulatory Framework

Waters of the U.S. are defined as all waters which are used in interstate or foreign commerce, including wetlands, as well as intrastate lakes, rivers, streams, wetlands, etc., whose degradation or destruction could affect interstate or foreign commerce (33 CFR 328.3). Wetlands, as defined in 40 CFR 230.3 and 33 CFR 328.3, may be jurisdictional if they are adjacent to waters of the U.S. The term "adjacent" means bordering, contiguous, or neighboring. Wetlands separated from other waters of the U.S. by man-made dikes or barriers, natural river berms, beach dunes, and the like are "adjacent wetlands." In the absence of adjacent wetlands, the limits of federal jurisdiction extend to the ordinary high water mark (OHWM) (Corps 2005). The United States Army Corps of Engineers (Corps) is tasked with regulating waters of the U.S., including wetlands.

Waters of the U.S.

The presence and extent of waters of the U.S. within the survey area was determined by assessing channels in the area for the presence of a defined bed and bank channel, and, particularly, the presence of an OHWM. The presence of an OHWM provides an indication that a channel conveys water on a regular basis. Regulatory Guidance Letter (RGL) 05-05 provides additional guidance to Corps districts in making OHWM determinations.

Wetlands

The location and extent of wetlands in the survey area was determined following the procedures outlined in the Corps' Technical Report Y-87-1, *Corps of Engineers Wetland Delineation Manual* (Corps 1987), referred to as "the Manual". Representative locations in potential wetland vegetation types present in the survey area were examined for wetland characteristics in accordance with the criteria contained in the Manual. Sample sites were established in each hydrophytic plant community in the area. Sites in adjacent vegetation communities or at boundaries of community types were also examined. At each site, the vegetation, soils, and hydrology were examined for wetland characteristics.

Findings

Prior to the field investigation, the National Wetlands Inventory (NWI) mapping compiled for the entire project area was reviewed. Areas of interest identified in the pre-field review were then visited and were surveyed for potential wetlands and waters of the U.S.

Waters of the U.S.

White River

Segment 6C would cross the White River channel near the river's headwaters and again below the Kirch WMA. Because water diverted from the White River is used to support agriculture, and flows through the Kirch WMA (a site that may support interstate recreational use), the White River and its adjacent wetlands and defined channel tributaries may also be subject to jurisdiction under the CWA.

In addition to the White River itself, Segment 6C would also cross two defined tributary channels, Jakes Wash and Ellison Creek. The transmission line would cross Jakes Wash in Section 4, T14N, R61E. Jakes Wash at this location is deeply incised, and includes a 5-foot wide defined channel. The channel is bordered by big sagebrush (*Artemisia tridentata*), rubber and green rabbitbrush (*Ericameria nauseosa* and *E. viscidiflora*, respectively), greasewood (*Sarcobatus vermiculatus*), and some wild rose (*Rosa woodsii*).

To the south, Segment 6C would cross Ellison Creek in Section 22, T13N, R60E. The drainage includes a poorly defined 3-foot-wide north branch and a more deeply incised 4-foot wide south branch. The two branches join above a road located within the Segment 6C study area. To the south, the transmission line would cross a channel that conveys flows to the Ellison Creek channel from the southwest. This channel, which would be crossed in Sections 27 and 28, T13N, R60E, supports a well-developed stringer of wetland vegetation, and is described under Wetlands, below.

Segment 6C would cross the upper reaches of the White River in Sections 9 and 10, T12N, R60E. The approximately 8-foot-wide flowing channel supports a limited fringe of hydrophytic vegetation, but is bordered by a 20- to 40-foot-wide riparian community that includes sandbar willow (*Salix exigua*) and skunkbush sumac (*Rhus trilobata*) above a road crossing.

Other Areas

No drainages meeting the criteria described above were observed in the vicinity of the Falcon Substation expansion, and only drainages connected to Pahranagat Wash system are likely to be potentially jurisdictional. Drainages in the southern portion of the study area were not delineated in detail due to project avoidance.

Wetlands

White River

As noted above, a tributary to Ellison Creek that would be crossed by Segment 6C, and located in Sections 27 and 28, T13N, R60E, supports a long stringer of hydrophytic vegetation. The flow that supports this community issues from Warm Spring west of the segment. This flow supports a community of Baltic rush and spikerush (*Eleocharis spp.*). The channel becomes incised within the alignment, but continues to support a 2.5-acre well-developed hydrophytic vegetation community.

A wide wetland community was also found bordering the White River channel below the Kirch WMA. The river was dry at this location at the time of the June survey, but soils were damp and included evidence of iron oxides or hydroxides (redox features). The vegetation community below a break in slope included hard- and/or soft-stem bulrush and northwest cinquefoil. The community above the break in slope included Baltic rush and inland saltgrass, with some iodine bush (*Allenrolfea occidentalis*, a FACW species) present in an alkali-encrusted area in the southeastern portion of the crossing site. A total of 74.6 acres of wetland, including the White River channel, was present within the project area at this location.

Summary

A wetlands and waters of the U.S. delineation conducted for the project area identified potential waters of the U.S. that would also be crossed by Segment 6C at Jakes Wash, Ellison Creek, and the upper White River. Detailed delineation of dry washes south of the White River was not conducted due to project avoidance and it is anticipated that only features connected to (and including) the Pahranagat Wash would be potentially jurisdictional.

Wetland areas were identified in the project area within Segment 6C on a tributary to Ellison Creek and on the White River below the Kirch WMA.

3.2.3.4 Floodplains

A review of the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs) shows the majority of project elements are located in Zone C, defined by FEMA as areas of minimal flooding, or Zone D, defined as an area of undetermined, but possible, flood hazard. The following project elements have potential involvement with areas mapped as Zone A, which is defined as areas of 100-year flood potential, where base flood elevations and flood hazard factors have not been identified:

- Segment 6C (Proposed Action) crosses a section of the White River south of the Kirch WMA in Nye County;
- Segment 11 (Proposed Action) lies west of, and crosses, a section of the Pahranagat Wash in Coyote Springs Valley in Clark County;
- Segment 11 (Proposed Action) passes through an unnamed dry lake area within Hidden Valley in Clark County;
- Segment 11 (Proposed Action) lies immediately west of Dry Lake near the Harry Allen Substation site.

FEMA defines special flood hazard areas (SFHAs) as the area where the National Flood Insurance Program's floodplain management regulations must be enforced and the area where the mandatory purchase of flood insurance applies. SFHAs include Zones A, AO, AH, A1-30, AE, A99, AR, AR/A1-30, AR/AE, AR/AO, AR/AH, AR/A, VO, V1-30, VE, and V. In addition to

those areas located in Zone A as described above, SFHAs exist to the west (near Hiko Wash, Ash Springs, and Alamo, NV) and the east (near Dry Canyon Wash, Cathedral Gorge Wash, and Caliente, NV) of the project area in Lincoln County; however, the project area itself in Lincoln County only occurs within Zone D.

3.3 Geology and Minerals

The project area, shown in **Figure 1.1-1**, is located within the Basin and Range Physiographic Province, which encompasses the state of Nevada (Eaton 1979). This province owes its name to the general geologic history common to this part of the country that has given rise to the present-day landscape of altering generally north-south trending mountains separated by intervening valleys or basins.

The geologic units in the vicinity of the project area range from Precambrian in age to recent Quaternary deposits. **Figure 3.3-1** is a generalized stratigraphic nomenclature of the project area (BLM 2003). While the current landscape formed during the past 10 to 20 million years, the geologic history of the region contains important features dating to the Precambrian era (more than 550 million years before present). The metamorphic rocks (quartzites and schist) of the Precambrian age are the oldest and lowest units in the regional stratigraphic column and are, therefore, commonly referred to as “basement rocks.” Early Cambrian age formations (approximately 500 million years before present) consist principally of quartzite and shale. Typically, they are also considered basement rocks largely because of their relatively impermeable nature with respect to ground water flow (Peterson and Grow 1995).

The thickness and composition of the Paleozoic carbonate rocks are notable in their homogeneity over large areas in the province (Peterson and Grow 1995). Rocks of middle Triassic to early Jurassic age in eastern Nevada, therefore, largely consist of sandstone, shale, and freshwater limestone (Tschanz and Pampeyan 1970; Hose and Blake 1976). During the late Mesozoic Era, the Sevier Orogeny (a period of mountain building) occurred due to extensive regional compression of the earth’s crust, by and large, along the same belt that formed the ancient continental shelf (during Paleozoic time) that runs from southern Idaho through western Utah and southeastern California (Rowley and Dixon 2001).

The geologic structure of the region became more complex in the middle and late Tertiary period (starting around 20 million years ago) when the tectonic forces reversed, resulting in crustal extension. The resulting parallel sequence of mountain ranges and intervening basins, interspersed with mountains of volcanic origin, combine to give the region its characteristic basin-range topography seen today (Rowley and Dixon 2001).

3.3.1 Area of Analysis

The proposed project disturbance areas, including Robinson Summit Substation, the Falcon Substation expansion area, and the proposed and alternative transmission routes are included in the area of analysis. Construction and excavation associated with the substations and transmission structures has the potential to impact localized geology.

3.3.2 Data Sources and Methods

This section discusses the geological and mineral resources within the project area. Although specific aspects of the geology of White Pine County are described in several reports and publications, the principal source of geological information for this DSEIS is Hose and Blake (1976). Additional data on mining claims, oil and gas leases, and geothermal leases were obtained from the BLM LR 2000 database.

3.3.3 Existing Conditions

3.3.3.1 Local Geology

All of the components of the Proposed Action and Action Alternative are located in White Pine, Lincoln, Nye, Eureka, and Clark counties. A geologic map of the project area is shown in **Figures 3.3-2a** and **3.3-2b** with the explanation on **Figure 3.3-3**.

The valleys of the project area consist of tectonic basins created by vertical offset along the principal north-south trending range-front geologic faults at the base of the various mountain ranges to the east and to the west.

The valley-fill deposits generally include the entire spectrum of unconsolidated sediment textures from clay and silt to sand and gravel, deposited in interbedded layers of various mixtures. The valley-fill material is produced by erosion of the surrounding mountains. The resulting sediment is transported into the valleys by the various streams and creeks that drain the mountain slopes and subsequently deposit the material in alluvial fans that eventually coalesce and fill the valleys to their present elevations. Some valleys also contain fine-grained deposits laid down in localized rivers and/or lakes that occupied the low areas of the valleys.

3.3.3.2 Geologic Faults and Seismicity

There are faults and fault zones (**Table 3.3-1**, and **Figures 3.3-2a** and **3.3-2b**) that occur within the project area, all of which are normal faults with the exception of the Kane Spring Wash fault, which is a sinistral, left lateral fault (USGS 2007a).

These generally north-south trending fault systems are mapped over lengths up to 100 miles, and are included in the USGS Quaternary Fault Database indicating that some movement has occurred along these fault systems within the last 1.6 million years. Active faults are typically considered to have had movement within the last 10,000 years (USGS 2006).

No major earthquakes (greater than magnitude of 5.0) have been recorded within the immediate project area since at least 1852 (Yeats et al. 1997). **Figures 3.3-2a** and **3.3-2b**, show the most recent earthquake locations in the project area and readings dating back to 2000.

The historic level of earthquake potential in eastern central Nevada is relatively low (USGS 2007b). According to the USGS peak acceleration return frequency maps (USGS 2007b), all of the components of the Proposed Action and Action Alternative are located within an area where the probability is 10 percent that, within the next 50 years, an earthquake capable of generating a ground acceleration of 0.15 g (g is the force of gravity) or less will occur.

Figure 3.3-1 Stratigraphic Column

Figure 3.3-2a Geological Resources

Figure 3.3-2b Geological Resources

Figure 3.3-3 Explanation of Geologic Map Units

TABLE 3.3-1 FAULTS AND FAULT ZONES WITHIN STUDY AREA

FAULTS	USGS FAULT NUMBER	COUNTY	TRANSMISSION LINE SEGMENT	FAULT TYPE	FAULT AVERAGE STRIKE	FAULT DIP	LAST TIME OF DEFORMATION	FAULT SLIP-RATE
UNNAMED FAULT NORTHEAST OF KIMBERLY	1237	WHITE PINE	SEGMENT 6C	NORMAL	N24°W	NE	Q (<1.6 MA)	< 0.2 MM/YR
UNNAMED FAULT SOUTH OF RIPETOWN	1236	WHITE PINE	SEGMENT 6C	NORMAL	N16°W	W	Q (<1.6 MA)	< 0.2 MM/YR
UNNAMED FAULTS IN NORTHERN JAKES VALLEY	1224	WHITE PINE	SEGMENT 6C	NORMAL	N41°E	NW	LATEST Q (<15 KA)	< 0.2 MM/YR
EAST JAKES VALLEY FAULT ZONE	1225	WHITE PINE	SEGMENT 6C	NORMAL	N1°W	W	LATE Q (<130 KA)	< 0.2 MM/YR
PRESTON FAULT	1389	WHITE PINE	SEGMENT 6C	NORMAL	N15°E	E, SE, NW	LATE Q (<130 KA)	< 0.2 MM/YR
WHITE RIVER VALLEY FAULT ZONE	1398	LINCOLN/ WHITE PINE/ NYE	SEGMENT 6C	NORMAL	N7°E	W	LATE Q(<130 KA)	< 0.2 MM/YR
UNNAMED FAULT NEAR CURRANT CREEK SUMMIT	1386	WHITE PINE/ NYE	SEGMENT 6C	NORMAL	N2°E	E	Q (<1.6 MA)	< 0.2 MM/YR
UNNAMED FAULT NORTHEAST OF CURRENT CREEK SUMMIT	1387	WHITE PINE	SEGMENT 6C	NORMAL	N47°E	NW	Q (<1.6 MA)	< 0.2 MM/YR
PRESTON FAULT	1389	WHITE PINE	SEGMENT 6C	NORMAL	N15°E	E, SE, NW	LATE Q (<130 KA)	< 0.2 MM/YR
THE COVE FAULT	1390	WHITE PINE/ NYE	SEGMENT 6C	NORMAL	N31°E	E, SE	LATE Q (<130 KA)	< 0.2 MM/YR
UNNAMED FAULTS IN WHITE RIVER VALLEY	1397	NYE	SEGMENT 6C	NORMAL	N35°E	NW, SW	LATE Q (<130 KA)	< 0.2 MM/YR
MURPHY MEADOWS FAULT	1396	NYE	SEGMENT 6C	NORMAL	N54°E	NW	LATE Q (<130 KA)	< 0.2 MM/YR

FAULTS	USGS FAULT NUMBER	COUNTY	TRANSMISSION LINE SEGMENT	FAULT TYPE	FAULT AVERAGE STRIKE	FAULT DIP	LAST TIME OF DEFORMATION	FAULT SLIP-RATE
UNNAMED FAULT NEAR FOX MOUNTAIN	1401	NYE	SEGMENT 6C	NORMAL	N69°W	NW, N	Q (<1.6 MA)	< 0.2 MM/YR
WHITE RIVER FAULT	1403	LINCOLN	SEGMENTS 6C AND 8	NORMAL	N5°W	W	Q (<1.6 MA)	< 0.2 MM/YR
DRY LAKE FAULT	1124	LINCOLN	SEGMENTS 6C AND 8	NORMAL	N8°E	W, E	LATE Q (<130 KA)	< 0.2 MM/YR
DELAMAR VALLEY FAULT	1127	LINCOLN	SEGMENT 8	NORMAL	N12°E	W	Q (<1.6 MA)	< 0.2 MM/YR
DELAMAR MOUNTAINS FAULT	1126	LINCOLN	SEGMENTS 8, 9B, AND 10	NORMAL	N7°E	W	MID AND LAKE Q (<750 KA)	< 0.2 MM/YR
KANE SPRING WASH FAULT	1123	LINCOLN	SEGMENTS 9D, 10, AND 11	SINISTRAL	N37°E	NW	MID AND LAKE Q (<750 KA)	< 0.2 MM/YR
MAYNARD LAKE FAULT	1122	LINCOLN	SEGMENTS 9B, 9A, 9C, AND 9D	NORMAL	N35°E	NW, V	LATE Q (<130 KA)	< 0.2 MM/YR
COYOTE SPRINGS FAULT	1121	LINCOLN	SEGMENTS 9B, 9A, 9C, AND 9D	NORMAL	N1°W	W	LATE Q (<130 KA)	< 0.2 MM/YR
SHEEP RANGE FAULT	1164	LINCOLN/ CLARK	SEGMENTS 9B, 9A, 9C, 9D, AND 11	NORMAL	N0°E	E, W	LATE Q (<130 KA)	< 0.2 MM/YR
WILDCAT WASH FAULT	1062	LINCOLN/ CLARK	SEGMENT 11	NORMAL	N4°E	W	MID AND LAKE Q (<750 KA)	< 0.2 MM/YR
ARROW CANYON RANGE FAULT	1061	CLARK	SEGMENT 11	NORMAL	N9°E	W	Q (<1.6 MA)	< 0.2 MM/YR

MA – million years
KA – thousand years
MM - millimeter

3.3.3.3 Mineral and Energy Resources

Authorizations, ROW, and/or Leases Occurring in Project Area

The following lists the energy resources that would be impacted by the project because they occur within the project area:

- Active[1] mining claims
- Oil and gas leases

The individual mining claims and oil and gas leases located within the same Township, Range, and Section that a component of the Proposed Action or Action Alternative occur are listed in the following sections. Numerous other types of ROWs occur throughout the project area, such as utility and road ROWs.

Authorizations, ROW, and Leases Not Occurring in Project Area

The following lists the energy resources that would not be impacted by the project because they do not occur within the project area and thus are not discussed further in this SEIS:

- Coal authorizations
- Solar energy ROWs
- Wind energy ROWs
- Oil shale leases
- Geothermal leases

Mining Districts

Table 3.3-2 lists the Nevada mining districts that are adjacent to and/or would be crossed by the Proposed Action or Action Alternative. The location of the active mining districts can be found on **Figure 3.3-4**.

[1] "Active" means the claim is in good standing administratively. It does not imply the claim is valid or that there is current mining activity taking place on the claim.

TABLE 3.3-2 MINING DISTRICTS ADJACENT TO OR WITHIN THE PROJECT ROWS

COUNTY / DISTRICT NAME	TRANSMISSION LINE SEGMENT	ACTIVE MINING CLAIMS LEAD FILE NUMBER	PRIMARY COMMODITIES OF MINING DISTRICTS
White Pine County			
Robinson	Segment 6C	NMC77369	Copper, gold, silver, zinc, lead, iron, manganese, tungsten, molybdenum, rhenium, platinum, palladium, nickel
Currant	Segment 6C		Gold, lead, copper, tungsten, magnesite, uranium, fluorspar
Nye County			
Currant	Segment 6C	NMC1006781 NMC969216 NMC960343 NMC753739	Gold, lead, copper, tungsten, magnesite, uranium, fluorspar
Lincoln County			
Silver King	Segment 6C		Silver, lead, gold, copper
Silverhorn	Segment 6C		Silver, nickel, perelite
Bristol	Segment 6C		Silver, copper, lead, zinc, gold, manganese, montmorillonite
Highland	Segment 6C		Lead, silver, gold, copper, tungsten, manganese, iron
Ely Springs	Segment 6C		Silver, zinc, lead, gold
Comet	Segment 6C		Lead, silver, zinc, gold, copper, tungsten
Chief	Segment 6C		Gold, silver, lead, copper, vanadium
South Pahroc Range	Segment 6C		
Delamar	Segment 6C, 9B, and 10		Gold, silver, copper, lead, perelite
Pennsylvania	Segment 10		Gold, silver, copper
Meadow Valley	Segments 9D, 10, and 11		Gold, silver, uranium
Clark County			
Arrow Canyon	Segment 11	NMC908337	Silica, building stone

Source: http://www.blm.gov/landandresourcesreports/rptapp/menu.cfm?appCd=2

Figure 3.3-4 Mining Districts and Leases

Active Oil and Gas Leases

Table 3.3-3 lists the active oil and gas leases that occur within the project area. Locations of the oil and gas leases can be found on **Figure 3.3-4** and in **Table 3.3-3**.

TABLE 3.3-3 ACTIVE OIL AND GAS LEASES WITHIN THE PROJECT AREA

COUNTY	PROJECT SEGMENT	LOCATION	SECTIONS AFFECTED	SERIAL NUMBER	CASE TYPE
White Pine	Segment 6C	T18N R61E	18, 19	NVN082543	311121
White Pine	Segment 6C	T18N R61E	31, 32	NVN082544	311121
White Pine	Segment 6C	T18N R61E	29, 30	NVN082562	311121
White Pine	Segment 6C	T18N R61E	29, 30	NVN082563	311121
White Pine	Robinson Summit Substation	T18N R61E	19	NVN083586	315100
White Pine	Segment 6C	T18N R60E	13	NVN082117	312021
White Pine	Segment 6C	T17N R61E	6, 7	NVN082242	311121
White Pine	Segment 6C	T17N R61E	29	NVN082512	311121
White Pine	Segment 6C	T17N R61E	5, 8	NVN082537	311121
White Pine	Segment 6C	T17N R61E	17, 20	NVN082538	311121
White Pine	Segment 6C	T17N R61E	18, 19	NVN082539	311121
White Pine	Segment 6C	T17N R61E	30	NVN082540	311121
White Pine	Segment 6C	T17N R61E	30	NVN083648	311121
White Pine	Segment 6C	T17N R61E	31, 32	NVN082541	311121
White Pine	Segment 6C	T16N R61E	20, 29	NVN082090	311121
White Pine	Segment 6C	T16N R61E	5, 8	NVN082205	311121
White Pine	Segment 6C	T16N R61E	6, 7	NVN082206	311121
White Pine	Segment 6C	T16N R61E	17, 18	NVN082207	311121
White Pine	Segment 6C	T16N R61E	19, 30, 31	NVN082208	311121
White Pine	Segment 6C	T16N R61E	32	NVN082536	311121
White Pine	Segment 6C	T15N R61E	4	NVN085336	311121
White Pine	Segment 6C	T15N R61E	5, 7, 17	NVN082089	311121
White Pine	Segment 6C	T15N R61E	9, 16, 21	NVN085319	311121
White Pine	Segment 6C	T15N R61E	22	NVN085387	311121
White Pine	Segment 6C	T15N R61E	27, 28, 33, 34	NVN085318	311121
White Pine	Segment 6C	T14N R61E	3	NVN085324	311121
White Pine	Segment 6C	T14N R61E	4, 9	NVN085322	311121
White Pine	Segment 6C	T14N R61E	8, 17	NVN085323	311121
White Pine	Segment 6C	T14N R61E	16	NVN085326	311121
White Pine	Segment 6C	T14N R61E	8, 19, 16, 17, 20, 29	NVN061766	312021
White Pine	Segment 6C	T14N R61E	21	NVN085429	311121
White Pine	Segment 6C	T14N R61E	30, 31	NVN085320	311121
White Pine	Segment 6C	T14N R61E	31, 32	NVN061767	312021
White Pine	Segment 6C	T13N R60E	1	NVN085498	311121
White Pine	Segment 6C	T13N R60E	11	NVN086395	312021
White Pine	Segment 6C	T13N R60E	12, 13, 23	NVN086396	312021
White Pine	Segment 6C	T13N R60E	14, 15, 22	NVN086397	312021
White Pine	Segment 6C	T13N R60E	27, 34	NVN086398	312021
White Pine	Segment 6C	T12N R60E	15, 16, 21, 22	NVN086392	312021
White Pine	Segment 6C	T12N R60E	27, 28, 33, 34	NVN086393	312021
White Pine, Nye	Segment 6C	T11N R60E	24, 25, 36	NVN086339	311121
Nye	Segment 6C	T10N R60E	1, 12	NVN084386	312021
Nye	Segment 6C	T5N R62E	27-35	NVN058049	311121

COUNTY	PROJECT SEGMENT	LOCATION	SECTIONS AFFECTED	SERIAL NUMBER	CASE TYPE
Nye	Segment 6C	T5N R61E	18, 19, 20	NVN086802	312021
Nye	Segment 6C	T5N R61E	21	NVN086801	312021
Nye	Segment 6C	T5N R61E	23, 24	NVN080576	311121
Nye	Segment 6C	T5N R61E	22	NVN080583	311121
Nye	Segment 6C	T5N R61E	27	NVN086803	312021

Source: http://www.geocommunicator.gov/NILS-PARCEL2/map.jsp?MAP=ENERGY

Authorized Geothermal Leases

There are no active authorized geothermal leases within the project area.

3.3.4 Specific Project Area Conditions

From and including the Robinson Summit Substation area, the Proposed Action transmission line or the Action Alternative line route would head south through Cenozoic Tertiary rhyolitic flows and shallow intrusive volcanics and more Paleozoic Pennsylvanian Ely limestone, Permian Reipe Springs limestone, Ribhill sandstone, and Arcturus Formation. From here, the transmission line route enters the Quaternary basin-fill deposits of eastern Jakes Valley.

The transmission line route then skirts the western edge of the Egan Range and crosses Triassic volcanics and Pennsylvanian sediments before it heads back up into the Egan Range through Paleozoic Pennsylvanian Ely limestone, Permian Reipe Springs limestone, Ribhill sandstone, and Arcturus Formation.

Briefly, the transmission line route crosses Quaternary basin-fill deposits of northern White River Valley before heading up into the flanks of the Egan Mountains. Here the transmission line route crosses Cenozoic Tertiary volcanic deposits and Mississippian Pilot shale, Joana limestone, Chainman shale, and a smaller outcrop of Devonian Guilmette limestone before heading down into the White River Valley.

The transmission line route crosses into Nye County through Quaternary basin-fill deposits in the 70-mile long and 4- to 18-mile wide White River Valley. Here, the transmission line route climbs the eastern flanks of the Grant Range for approximately 10 miles where Ordovician Lehman Formation limestone and Eureka quartzite, the Devonian Guilmette limestone, Mississippian Pilot shale, Joana limestone, Chainman shale, and minor Cenozoic Tertiary welded and non-welded silica ash-flow tuff volcanics are encountered. The route then drops back down into the Quaternary basin-fill of the White Pine Valley.

The transmission line route then turns to the east, entering Lincoln County, where it climbs into the Schell Creek Range through Silver Creek Pass. Here, Cenozoic Tertiary volcanics consisting of andesites, basalts, and welded and non-welded silica ash-flow tuffs are crossed in addition to the Ordovician Lehman Formation limestone and Eureka quartzite, undifferentiated Ordovician dolomites and limestones, Silurian Laketown dolomite, Devonian Guilmette limestone, Mississippian Pilot shale, Joana limestone, and Chainman shale.

The transmission line route then traverses Quaternary basin-fill deposits and Cenozoic Tertiary welded and non-welded silica ash-flow tuffs of the Dry Lake Valley. This valley is 40 miles long and 4 to 12 miles wide, and is bordered by the Schell Creek and North Pahroc Ranges to the west and the Schell Creek, West, Bristol, Highland, Chief Ranges, and Delamar Mountains to the east. It then passes into the Delamar Valley, which is 45 miles long and 4 to 11 miles wide, where Quaternary basin-fill deposits are crossed.

The transmission line route then rises out of the Quaternary basin-fill deposits of Delamar Valley and crosses the southern portion of the Delamar Mountains where Cenozoic Tertiary welded and non-welded ash-flow tuffs and andesites are crossed.

Where the transmission line route descends the southern flanks of the Delamar Mountains, Cenozoic Tertiary volcanics, consisting of andesites and welded and non-welded silica ash-flow tuffs, are encountered including a small deposit of Quaternary basin-fill deposits before the route heads into Coyote Springs Valley.

Coyote Springs Valley, in the vicinity of the transmission line route, contains Cenozoic Quaternary valley-fill alluvium and Tertiary tuffaceous sedimentary deposits. The transmission line continues south through the Quaternary basin-fill deposits until it starts up the western flanks of the Arrow Canyon Range where the Paleozoic Devonian Guilmette limestone and Mississippian Monte Cristo limestone are crossed. The transmission line route then abruptly turns to the east and crosses the Arrow Springs Range encountering Mississippian Monte Cristo limestone, and Pennsylvanian Bird Spring Formation before heading south down the eastern flank of the range, and entering the Quaternary valley-fill deposits in Dry Lake Valley to its southern terminus at the Harry Allen substation.

Segment 10

The Action Alternative Segment 10 (alternative component) heads southeast through southern Dry Lake Valley, crossing Quaternary alluvium before the route heads up into the Delamar Mountains consisting of Cenozoic Tertiary welded and non-welded silica ash-flow tuffs. Segment 10 then heads south down through Boulder Canyon, crossing Cenozoic Tertiary rhyolitic intrusives and basaltic flows, and Quaternary alluvial valley deposits. The route then heads southwest into Kane Springs Wash where Quaternary alluvial valley deposits and a minor outcrop of Ordovician Lehman Formation limestone, Kanosh shale, and Eureka quartzite are crossed.

Falcon Substation

The Falcon Substation is located in Boulder Valley. The substrate is comprised of deep Quaternary valley-fill alluvium on almost flat topography (BLM 2001a). A major fault zone is located near Dunphy. No mines are located in the immediate vicinity, although the Mule Canyon and Argenta Mines are within 10 miles and the Carlin Trend mines are located within 20 miles. There are scattered geothermal wells in Boulder Valley.

3.4 Paleontological Resources

Paleontological resources are fossilized remains of past life including invertebrate and vertebrate animals and multi-cellular plants, including imprints. These resources are non-renewable and therefore are considered sensitive. Due to their paucity, fossils are important records of ancient life, particularly vertebrate fossils. Federal requirements for protection of paleontological resources include the 1906 Federal Antiquities Act, Historical Sites Act of 1935, the Federal Land Policy and Management Act of 1976, and BLM Paleontology Resources Management Manual and Handbook H-8270-1 (revised 1998). Unauthorized collection or removal of vertebrate, rare invertebrate, and rare plant fossils from federal land is illegal.

3.4.1 Area of Analysis

A project-specific paleontological resources assessment was conducted (Reynolds 2007) for some of the project components (i.e. Robinson Summit Substation, Segment 9A, Segment 10). The transmission line segments that were covered in the SWIP Corridor EIS (BLM 1993) were

assessed in a previous report (SBCM 2006). Construction excavation associated with the Robinson Summit Substation, Falcon Substation expansion area, and transmission line alignment has the potential to disturb subsurface sediments that have the potential of containing significant, nonrenewable paleontological resources.

3.4.2 Data Sources and Methods

Paleontological resource data was collected through literature searches and field inspection (Reynolds 2007 and SBCM 2006).

For the purposes of the paleontological study, sediments are characterized by their potential to contain significant paleontological resources. Sedimentary units that are characterized as sensitive are those with a high potential for containing significant paleontologic resources, in other words, geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or likely to be present.

These characterizations can extend anywhere within the sedimentary unit's geographical extent and to units that are suitable for preservation of fossils. The following designations were used (Reynolds 2007 and SBCM 2006):

- High paleontological sensitivity at surface exposures (High at Surface)
- High paleontological sensitivity 5 feet below surface (High below Surface)
- Low paleontological sensitivity at surface exposures (Low at Surface)
- Low paleontological sensitivity 5 feet below surface (Low below Surface)
- Undetermined paleontological sensitivity

3.4.3 Existing Conditions

Fossils are abundant in the Basin and Range geologic province. The Paleozoic Era, ranging from 235 to 550 million years ago, includes seven periods beginning with the Cambrian Period (480 to 550 million years ago) with abundant fossil olenelloid trilobites. Fish, the earliest fossil vertebrates, are known to occur in Nevada in sedimentary rocks of Silurian Age from about 390 to 415 million years ago (Carroll 1987). Many later Paleozoic limestones and shales have produced diverse invertebrate faunas containing sponges, corals, stromatoporid structures, brachiopods, gastropods, pelecypods, cephalopods, crinoids, and echinoderm spines. The Permian Kaibab limestone, dating from about 235 to 275 million years ago, is easily recognized by the large, dome-shaped, productid brachiopod fossils that it contains.

Mesozoic Era (about 60 to 235 million years ago) deposits began with Triassic limestones and siltstones. Marine limestones often contain fossil pelecypods, gastropods, and corals. Late Triassic sediments at Ichthyosaur State Park (Austin, Nevada) contain dolphin-shaped marine reptiles. Jurassic sandstones in southern Nevada contain tracks of bipedal dinosaurs, mammal-like reptiles, and flying reptiles—the pterosaurs (Reynolds and Weasma 2002; Reynolds 2006a; Reynolds and Mickelson 2006). Dinosaurs have recently been discovered in Cretaceous sediments in Clark County (Bonde et al. 2006).

The Cenozoic Era (present to about 60 million years ago) is the age of mammals, and Nevada contains a long record of unusual fossil mammals. The Elderberry Creek Fauna south of Ely is a very diverse Eocene fauna containing 30 species of mammals and 10 species of lower vertebrates (Emry and Korth 1989; Emry 1990). Middle Miocene deposits of volcaniclastic sediments containing Barstovian and Clarendonian Land Mammal Age faunas are recognized from White Pine County. Late Miocene and early Pliocene Hemphillian and Blancan Land

Mammal Age sediments with abundant vertebrate fossils are known from the Caliente area of Lincoln County. Late Miocene Hemphillian Land Mammal Age trackways are known from the Muddy Creek Formation in eastern Clark County (Reynolds 2006b). These red sandstones are overlain by early Pliocene Blancan Land Mammal Age sediments with abundant vertebrate fossils (Reynolds and Lindsay 1999).

Pleistocene fossils from the late Cenozoic Era are found in valley bottoms and in caves developed in limestones on high mountains (Austin et al. 2005; Bell 1990, 1993, 1995; Emslie and Czaplewski 1985; Mead 1988; Mead and Bell 1996; Palevich 2002; Wormington and Ellis 1967). The White Pine Public Museum contains a fossil horse tibia from the Pleistocene deposits in Spring Valley located east of Steptoe Valley.

3.4.4 Specific Project Area Conditions

Information regarding paleontological sensitivities along the applicable segments of the SWIP Utility Corridor (BLM 1993; SBCM 2006), from approximately the east side of Egan Range to Delamar Valley (Segments 6C and 8), is minimal and general as it was assessed from a literature review without field inspection. These were not included in the project specific assessment (Reynolds 2007) since they were included in analysis of the SWIP Corridor EIS (BLM 1993, SBCM 2006). The valley floors and bases of the mountain ranges are composed of Quaternary alluvial deposits that generally have a low potential for paleontological resources (Stewart 1980). Small areas with lacustrine (lakebed) sediments are also located in valley bottoms; these have high paleontological potential (Dames & Moore 1983). Invertebrate fossils—including brachiopods, corals, and mollusks—are found in Nye County along the SWIP Utility Corridor (BLM 1993). Tertiary sedimentary rock with a high paleontological sensitivity is present north of Robinson Summit. Further, younger tertiary sedimentary rocks are present in a few small areas south of Robinson Summit and near Ellison Creek west of Preston, which are of high paleontological sensitivity.

Reynolds (2007) conducted a paleontological study of the transmission line segments outside the SWIP Utility Corridor. According to the SBCM report (2006) for the SWIP Utility Corridor, no significant paleontologic resource localities are recorded within the SWIP Utility Corridor. The findings are presented in **Table 3.4-1**.

TABLE 3.4-1 PALEONTOLOGICAL SENSITIVITIES IN THE ON LINE PROJECT AREA

PROJECT COMPONENT	PALEO SENSITIVITY
Segment 6C*	Low paleo sensitivity for majority of the segment with areas of undetermined sensitivity in northern half and areas of high paleo sensitivity in middle and southern portion.
Segment 8*	The northern third of this segment has high paleontological sensitivity with areas of undetermined sensitivity in the middle and the southern end.
Segment 9A**	Part of Segment 9A crosses playa silts and sandy siltstones of Delamar Playa. The perimeter of the playa has a “High at Surface” designation. Southwest of Delamar Valley, Segments 9A crosses non-fossiliferous Miocene volcanic flows and ignimbrites and non-fossiliferous alluvium in drainages.
Segment 9B**	Segment 9B crosses playa silts and sandy siltstones of Delamar Playa. The perimeter of the playa has a “High at Surface” designation Southwest of Delamar Valley.
Segment 9C (Action Alternative)**	Segment 9C crosses non-fossiliferous Miocene volcanic flows and ignimbrites and non-fossiliferous alluvium in drainages.
Segment 9D**	Segment 9D crosses non-fossiliferous Miocene volcanic flows and ignimbrites and non-fossiliferous alluvium in drainages.

PROJECT COMPONENT	PALEO SENSITIVITY
Segment 10 (Action Alternative)**	Segment 10 contacts the Pliocene sediments north and south of US-93 at the junction with Kane Spring Valley Road, and for approximately 3 miles east of US-93. This section of the segment has a paleontological sensitivity designation of "High below Surface."
Segment 11	Segment 11 has undetermined paleontological sensitivity on the north half and low paleontological sensitivity on the south half.
Robinson Summit Substation**	The Robinson Summit Substation is located near the crest of Egan Range. This location is characterized by a thin veneer of late Tertiary gravels that overlies middle Miocene volcaniclastic sediments. Such sediments are reported to contain middle Miocene Barstovian North American Land Mammal Age mammals at Ellison Creek to the west, Butte Range to the north, and southern Schell Creek Range to the southeast. These Miocene sandstones have been designated with "High at Surface" paleontological sensitivity.
Falcon Substation Expansion Area	The Falcon Substation is located in Boulder Valley. The substrate is comprised of deep Quaternary alluvium that has low paleontological sensitivity (BLM 2001a).

*source SBCM 2006
**source Reynolds 2007

3.5 Soils

3.5.1 Area of Analysis

The proposed general project area is shown in **Figure 2.2-1**. The area of analysis was defined as the potential disturbance footprint of the components of the Proposed Action or Action Alternative.

3.5.2 Data Sources and Methods

As described in **Section 1.13.2**, issues and indicators were developed by resource to assist in focusing the data collection on existing conditions in the area of analysis and to aide in the impact analysis for Chapter 4. Indicators for soils focused on acreage of soil disturbance, acres to be reclaimed, and suitability of potentially disturbed soils for reclamation purposes.

Available data from the Natural Resource Conservation Service (NRCS) and other scientific or governmental sources were utilized to obtain information for this section. The Official Soil Series Descriptions website (USDA 2007a) is the main reference for determining soil characteristics. Procedures and interpretations were adapted primarily from revised Internet versions of the *Soil Survey Manual* (USDA 2003) and the *National Soil Survey Handbook* (USDA 2005).

3.5.3 Existing Conditions

Soil Map Unit Descriptions

Soils are shown at a 3rd Order level throughout the majority of the project area (see soils maps in **Appendix 3A**); although, some areas of Nevada have not been surveyed and do not have soil mapping information. Soil map units consist of associations and consociations of individual soil series. Hundreds of individual soil map units have been identified within the project area.

Map units are identified by land types and cover a wide range of topography within the project area—from valley and drainage bottoms to canyon slopes, sideslopes, and ridgetops. Soils found on basin floors typically range from fine-grained to moderately coarse textures, and show little profile development. Accumulations of soluble salts or silica may occur at depth. Fan piedmonts can be shallow to very deep and range from moderately fine to moderately coarse or

gravelly texture. Silica and lime cementation may be present in some of these soils. Soils found on mountain slopes contain gravel and coarse-textured material and are typically underlain by bedrock at shallow depths. Soils on hills and mountains may be at risk for erosion, especially on steeper slopes. Fine to coarse textured soils are found on the moderate slopes of alluvial fans and stream terraces. Soils in these settings are associated with high water tables and occasionally can be flooded (BLM 2008a).

Soils are strongly influenced by the type of bedrock geology (BLM 2008a). Parent materials for soils within the project area consist of mixed rock materials, including sandstone, dolomite, limestone, chert, volcanic rocks, and lacustrine deposits, formed from loess, colluvium, alluvium and residuum (USDA 2007a). Soil in drainages and swales developed primarily from alluvial materials, loess is derived from windblown soil. Colluvium is the parent material for development of soil on most slopes.

The majority of soil resources in the project area are classified as very deep, well-drained soils. Soil textures are generally loamy with a high percentage of coarse fragments. Representative slope steepness ranges from 1 to 53 percent, and varies depending on the profile location. Soil depths in the project area range from rock outcrop areas with no measurable soil to profiles greater than 5 feet thick. Deeper portions of the soil profile generally contain a high percentage of coarse fragments, with the high average ranging from 35 to 65 percent pebbles and cobbles (USDA 2007a).

3.5.3.1 Prime Farmland

Prime farmland is classified as available land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops (USDA 2003). Prime soils have the quality, growing season, and moisture supply needed to produce economical crops, including few or no rocks. No soils in the project area are classified as prime farmland.

3.5.3.2 Growth Medium

An evaluation of the soils in the project area for use in growth medium was conducted. **Table 3.5-1** identifies the criteria used to determine suitability of soils for use as growth medium during reclamation.

Typical texture of map units within the project area consists of loamy soils, often with coarse fragment modifiers. Map units in the project area have been identified as having from 0 to more than 35 percent surface coarse fragments with some profile layers containing as much as 80 percent coarse fragments (USDA 2007a). Few map units in the project area have been identified as being hydric (USDA 2007b), and rare isolated soils in this area have a shallow depth to the high water table (USDA 2007a). Soil reaction indicates the potential for excessive acidity or alkalinity in the soil. The soils within the project area are generally neutral to alkaline with pH values ranging from 6.8 to 9.4 (USDA 2007a). The majority of map units have pH values of 7.8 to 8.4.

NRCS data describes the possible range of slope steepness of the mapped soils from 0 percent to over 50 percent (USDA 2007b). Maps of the project area show that the actual locations of most of the transmission line route would occur in areas that are considerably flatter than the extremely steep slopes within the range of general characteristics of some mapped soils.

The presence of fine-textured loams, in addition to consideration of other criteria used to determine the growth medium suitability, indicates that soils within the project area would generally have a good to fair rating for use as growth medium during reclamation.

TABLE 3.5-1 CRITERIA USED TO DETERMINE GROWTH MEDIUM SUITABILITY

PROPERTY	TOPSOIL/GROWTH MEDIUM SUITABILITY				RESTRICTIVE FEATURE[1]
	GOOD	FAIR	POOR	UNSUITABLE	
Texture	textures finer than sands and coarser than sandy clay and silty clay, with less than 35% clay	loamy textures	sand textures and clayey textures with <60% clay	>60% clay content	excessive sands or clays
Organic Matter Content	>3%	<3% but greater than 1%[1]	0.5 to 1.0%[1]	<0.5%[1]	low fertility
Coarse Fragments (0-40 inches)	<15% by volume	15-25% by volume	25-35% by volume	>35% by volume	equipment restrictions and low fertility
Depth to High Water Table	--	--	<1 foot to high water	perennial wetness	equipment restrictions
Soil Reaction – pH[2] (0-40 inches)	6.0 to 8.0	5.0 to 6.0 8.0 to 8.5	4.5 to 5.0 8.5 to 9.0	<4.5 or >9.0	excessive acidity or alkalinity
Slope Steepness	<8% slope	8 to 25% slope	25 to 40% slope	>40% slope	equipment restrictions

Source: (USDA 2003, USDA 2005)
[1] As defined in the Soil Survey Manual (USDA 2003) and National Soil Survey Handbook (USDA 2005).
[2] pH in standard units.

The depth of growth medium needed for reclamation is dependent on the characteristics of the material to be covered and the effectiveness of the bond between the base material and the applied growth medium. A 6-inch depth of loose topsoil will settle an inch or two; therefore, 3 to 6 inches after settling is sufficient with adequate irrigation to establish grasses and legumes (State of Nevada 1994). **Table 3.5-2** shows the volume of material required to obtain various depths of growth medium applied during reclamation activities.

Rock outcrops are not suitable for recovery and use as growth medium. Based on review of available soil data, most recovered soil material would be classified as good, fair, or poor for use as growth medium during reclamation activities. Mixing of soil map units during salvage operations would dilute excessive coarse fragment content and distribute organic matter throughout the recovered material, resulting in maximum recovery volumes.

TABLE 3.5-2 MATERIAL VOLUME FOR APPLICATION OF GROWTH MEDIUM TO VARIOUS DEPTHS

DESIRED DEPTH OF GROWTH MEDIUM APPLICATION (INCHES)	CUBIC YARDS PER 1,000 SQUARE FEET REQUIRED	CUBIC YARDS PER ACRE REQUIRED
1	3.1	134.4
2	6.2	268.9
3	9.3	403.3
4	12.4	537.8
5	15.5	672.2
6	18.6	806.7

Source: State of Nevada 1994

3.5.3.3 Erosion Potential

The overall hazard of erosion for soils has previously been determined by soil surveys conducted within the project area (USDA 2007a). In general, upland areas are more susceptible to erosion than lowland sites, and areas with higher coarse fragment content and lower slope angle have lower potential for water erosion hazard. Areas where herbaceous vegetation is sparse or absent are most susceptible to wind and water erosion, and to drying and crusting (BLM 2008a, USDA 2007c).

Living organisms and their byproducts form biological crusts at the surface of the soil by binding soil particles together with organic materials (BLM 2008a). The ecological function of these crusts is to stabilize the soil, increase water infiltration, and enhance plant establishment. Biological crusts, although they tolerate harsh growing conditions, are not well adapted to physical disturbances (BLM 2008a). The potential for soil erosion increases when the crusts are diminished (BLM 2008a).

General review of soil textures within the project area shows a predominance of silt loam and loamy soils, many with coarse fragment modifiers, indicating a range of moderate to high erosion potential ratings utilizing this method of erosion determination. A high percentage of coarse fragments and/or dense vegetation on the soil surface would further reduce the erosion potential by wind and water.

Studies conducted in the BLM Ely District indicate that sediment yields from juniper and pinyon-juniper woodlands yielded 0.003 to 0.42 ton per acre of sediment, and sagebrush communities yielded 0.01 to 0.64 ton per acre (BLM 2008a). The highest infiltration rates and lowest sediment production were observed in the Steptoe watershed southeast of Ely, and the lowest infiltration rates and highest sediment production were found in the Duckwater watershed southeast of Eureka (BLM 2008a). The least sediment yield numbers were found in big sagebrush and crested wheatgrass vegetation communities. Erosion and sediment yields within a watershed vary according to precipitation, soils, topography, and vegetation characteristics.

3.5.4 Specific Project Area Conditions

The transmission line alignments would travel through areas of multiple soil map units (see Figures in **Appendix 3A**). **Table 3.5-3** identifies soil map units that typify soils within the proposed boundaries of the ON Line Project.

TABLE 3.5-3 SELECTED MAP UNITS THAT TYPIFY SOILS WITHIN THE PROJECT AREA

PROJECT ELEMENT	MAP UNIT NUMBER / MAP UNIT NAME
Segment 6C	286 - Palinor-Shabliss association
Segment 6C	124 - Tecomar-Pookaloo association
Segment 6C	1240 - Biken association
Segment 6C	3091 - Univega-Clowfin-Molion association
Segment 6C	3972 - Linoyer very fine sandy loam, 0 to 4 percent slopes
Segment 6C	3970 - Linoyer-Rebel association
Segment 6C	3334 - Handpah-Palinor-Parisa association
Segment 6C	3974 - Linoyer-Kunzler association
Segment 6C	3212 - Kunzler-Candlaria association
Segment 6C	3220 - Stewval-Beelem association
Segment 6C	3311 - Ursine-Cliffdown association
Segment 6C & 8	1032 - Ursine-Mezzer-Armspan association
Segment 8	1151 - Watoopah-Zoda-Sevenmile association
Segment 8	1022 - Cliffdown-Geer association
Segment 8 & 9B	1473 - Tybo-Leo association
Segment 9B	1534 - Delamar-Koyen association
Segment 9B	1510 - Koyen gravely sandy loam, 2 to 4 percent slopes
Segment 9B & 10	1520 - Fax-Yody-Broland association
Segment 10	1100 - Geta-Arizo association
Segment 10	1010 - Tencee-Weiser association
Segment 11	1000 - Weiser-Tencee-Arizo association
Segment 11	CTC - Colorock-Tonopah association, moderately sloping
Segment 11	BRB - Bard-Tonopah association, gently sloping

The Palinor-Shabliss association soils are shallow, well-drained soils. Soil depth is typically less than 20 inches, underlain by duripan. The Palinor texture is gravelly loam to extremely gravelly fine sandy loam. These soils are fan remnants on 2 to 8 percent slopes. The Shabliss soil texture is a gravely loam which is a fan remnant on 2 to 8 percent slopes (USDA 2007a).

Soils in the Tecomar-Pookaloo association are shallow, well-drained soils that formed in residuum and colluvium derived from limestone and dolomite. Soil depth is typically less than 20 inches, underlain by fractured limestone. Tecomar texture is extremely stony silt loam with very high surface runoff and moderate permeability. The soil surface is partially covered with 25 percent pebbles and 15 percent cobbles and stones and these soils are found on mountains and hills with slopes of 8 to 50 percent. Pookaloo soil texture is very gravelly loam and the soil surface contains approximately 60 percent pebbles and 5 percent cobbles, yielding very high runoff and moderate permeability (USDA 2007a).

The Biken association consists of well-drained shallow soils. The soil depth is usually 18 to 20 inches deep and is on top of paralithic bedrock. These soils are found on hills with slopes typically ranging from 4 to 15 percent (USDA 2007a).

Soils in the Univega-Clowfin-Molion association are shallow to deep, well-drained soils that are located on fans. These soils are underlain by duripan. Univega texture is gravelly fine sand to sandy loam and is found on fan remnants on 2 to 8 percent slopes. The Clowfin texture is a deep sandy loam to a stratified very gravelly sandy loam to very gravelly loam. It is found on 2 to 8 percent slopes on inset fans. Molion texture is a loam to very gravelly sandy loam located on fan remnants on slopes of 2 to 8 percent (USDA 2007a).

The Linoyer very fine sandy loam, 0 to 4 percent, consist of well drained, more than 80-inch deep soils, that are located on inset fans. They are made up of very fine sandy loam, to silty loam, to extremely gravely loamy sand (USDA 2007a).

Soils in the Linoyer-Rebel association are deep and well drained. These soils are more than 80 inches deep and are located on inset fans on slopes of 0 to 2 percent. The Linoyer texture is made up of very fine sandy loam, to silty loam, to extremely gravelly loamy sand on inset fans with slopes of 0 to 2 percent. The parent material is of mixed colluvium. Rebel texture consists of sandy loam to loam on inset fans with slopes of 0 to 2 percent (USDA 2007a).

Soils in the Handpah-Palinor-Parisa association are comprised of shallow to medium soils that are formed on fan remnants. These soils are up to 40 inches deep on slopes 2 to 8 percent and are underlain by duripan. The Handpah texture, derived from mixed colluvium, is composed of shallow gravelly fine sandy loam, gravelly clay loam, and very gravelly sandy loam. It is formed on fan remnants on slopes of 2 to 8 percent. The Palinor texture is gravelly loam to extremely gravelly fine sandy loam. These soils are found on fan remnants on 2 to 8 percent slopes and are a product of weathered limestone alluvium. Parisa texture is comprised of gravelly loam to very gravelly loam. The parent materials are alluvium derived from limestone. These are well-drained medium depth soils located on fan remnants on slopes of 2 to 8 percent (USDA 2007a).

The Linoyer-Kunzler association soils are composed of well-drained deep soils, more than 80 inches deep, and are formed on inset fans and stream terraces of 0 to 4 percent slopes. The Linoyer texture is made up of very fine sandy loam, to silty loam, to extremely gravelly loamy sand on inset fans with slopes of 0 to 4 percent. The parent material is of mixed colluvium. The Kunzler texture, which forms on river terraces, is a deep well drained soil on slopes of 0 to 4 percent. It consists of loam to a very gravelly loam that is derived from mixed alluvium (USDA 2007a).

The Kunzler-Candelaria association, which forms on river terraces and fan remnants, consists of deep well drained soils on slopes of 0 to 4 percent. The Kunzler texture, which forms on river terraces, is a deep, 80 inches and deeper, well-drained soil on slopes of 0 to 4 percent. It consists of loam to a very gravelly loam that is derived from mixed alluvium. The Candelaria texture is a very gravelly sandy loam, gravelly fine sandy loam, extremely gravelly sandy loam, and stratified extremely gravelly sand to very gravelly loamy coarse sand. The surface area is covered with 2 percent cobbles, stones, and boulders. The texture is more than 80 inches deep and well drained and forms on fan remnants from eroded mixed alluvium on 0 to 4 percent slopes (USDA 2007a).

Soils in the Stewval-Beelem association are well drained and shallow. Lithic bedrock underlies the association at depths of 9 to 14 inches. These soils are formed on hills on slopes ranging from 8 to 50 percent. The Stewval texture with a 6 percent surface cover of cobbles, stones, and boulders is well drained and ranges in a thickness of 4 to 14 inches. It is comprised of very stony fine sandy loam, very gravelly clay loam, and unweathered bedrock. It forms on hills with slopes ranging from 8-30 percent. The Beelem texture consists of cobbly sandy loam, gravelly sandy loam, and unweathered bedrock. It is well drained and develops in thicknesses of 4 to 9 inches on hills with slopes of 15 to 50 percent (USDA 2007a).

The Ursine-Cliffdown association soils consist of well to somewhat excessively drained shallow to deep soils. The soils are formed on fan remnants and inset fans with slopes ranging from 0 to 15 percent. The Ursine texture is well drained, 14 to 20 inches thick, and is underlain by duripan. It consists of very gravelly loam and gravelly loam on 4 to 15 percent slope fan remnants. The Cliffdown texture, which forms on inset fans, is somewhat excessively drained

and deep. It is over 80 inches deep and consists of very gravelly sandy loam and stratified gravelly sandy loam to very fine sandy loam (USDA 2007a).

Soils in the Ursine-Mezzer-Armspan association are well drained and shallow to deep. The Ursine texture is well drained, 14 to 20 inches thick, and is underlain by duripan. It consists of very gravelly loam and gravelly loam on 2 to 8 percent slope fan remnants. The Mezzer texture forms on inset fans on slopes from 2 to 8 percent. The texture is deep and well drained and consists of very gravelly sandy loam, gravelly fine sandy loam, extremely gravelly sandy loam, extremely gravelly fine sandy loam, very gravelly loamy coarse sand, and extremely gravelly sandy loam (USDA 2007a).

Soils in the Watoopah-Zoda-Sevenmile association are shallow to deep, well-drained soils that are located on fan remnants and inset fans. The Watoopah texture is a fan remnant on slopes from 0 to 4 percent. It is well drained, more than 80 inches deep and is derived from alluvium from volcanic ash, welded tuff, and rhyolite. It is comprised of gravelly sandy loam, sandy loam, gravelly sandy loam, and stratified very gravelly coarse sand to coarse sandy loam. The Zoda texture is a fan remnant on slopes from 2 to 8 percent. It is well drained, 20 to 40 inches deep, underlain by duripan, and is derived from welded tuff. The texture consists of gravelly ashy sandy loam and gravelly ashy sandy clay loam. The Sevenmile texture is well drained, more than 80 inches deep, and forms inset fans with slopes 0 to 2 percent. It consists of Ashy sandy loam, ashy loam, and stratified extremely gravelly ashy loamy coarse sand to ashy silt loam that is derived from alluvium of welded tuff and some limestone and quartzite (USDA 2007a).

The Cliffdown-Geer association, which forms fan remnants and fan terraces, consists of deep well drained soils on slopes of 0 to 8 percent. The Cliffdown texture, which forms fan remnants, is somewhat excessively drained and deep. It is over 80 inches deep and consists of very gravelly sandy loam and stratified gravelly sandy loam to very fine sandy loam and is derived from alluvium of mixed rock sources. The Geer texture is a fan skirt on slopes from 2 to 4 percent. It is well drained, more than 80 inches deep, and is derived from welded tuff and limestone with a minor component of volcanic ash. The texture consists of fine sandy loam (USDA 2007a).

Soils in the Tybo-Leo association are shallow to deep and well drained to excessively drained on fan remnants and inset fans. The Tybo texture is a fan remnant on slopes from 2 to 4 percent. It is well drained, 8 to 20 inches deep, underlain by duripan, and is derived from quartzite, limestone, and welded tuff. It is composed of gravelly coarse sandy loam and gravelly sandy loam. The Leo texture is excessively drained and is more than 80 inches thick. It is comprised of very gravelly sandy and stratified extremely gravelly coarse sand to fine sandy loam. It forms on inset fans with slopes ranging from 2 to 4 percent from alluvium derived from mixed rock sources (USDA 2007a).

Soils in the Delamar-Koyen association are shallow to deep and well drained on fan remnants and inset fans. The Delamar texture is a fan remnant on slopes from 0 to 2 percent. It is well drained, 20 to 40 inches deep, underlain by duripan, and is derived from alluvium. It is composed of gravelly sandy loam and gravelly clay loam. The Koyen texture is a fan inset on slopes from 0 to 2 percent. It is well drained, more than 80 inches deep, and is derived from volcanic rock. It is composed of gravelly sandy loam, stratified gravelly loamy sand to loam and very gravelly loamy sand (USDA 2007a).

The Koyen gravely sandy loam, 2 to 4 percent slopes, is a fan skirt on slopes from 2 to 4 percent. It is well drained, more than 80 inches deep, and is derived from volcanic rock. It is composed of gravelly sandy loam stratified gravelly loamy sand to loam and very gravelly loamy sand (USDA 2007a).

The Fax-Yody-Broland association consists of well-drained soils that were formed in alluvium from dominantly volcanic rock sources. Typical soil texture ranges from gravelly sandy loam, very gravelly loam to very gravelly coarse sandy loam. Yody and Fax soils are moderately deep, well-drained soils and typically have a duripan layer located below 22 inches. Permeability is moderate to moderately slow with medium to high runoff. Broland soils range from shallow to a strongly cemented duripan layer located between 19 to 40 inches below the soil surface. Runoff is medium to very high with moderately slow permeability (USDA 2007a).

Soils in the Geta-Arizo association are deep well drained to excessively drained on fan skirts and drainageways. The Geta texture is a fan remnant on slopes from 0 to 2 percent. It is well drained, more than 80 inches deep, and is derived from mixed alluvium. It is composed of very fine sandy loam and gravelly sandy loam. The Arizo texture forms in drainageways on slopes from 0 to 2 percent. It is excessively drained, more than 80 inches deep, and is derived from alluvium. It is composed of very gravelly loamy sand, stratified cobbly coarse sand to extremely gravely sand (USDA 2007a).

The Tencee-Weiser association consists of well-drained shallow to deep soils. The soils are formed on fan remnants with slopes ranging from 2 to 8 percent. The Tencee texture is a fan remnant on slopes from 2 to 8 percent. It is well drained, 7 to 20 inches deep, underlain by petroclastic, and is derived from alluvium. It is composed of very cobbly sandy loam and very gravelly sandy loam. The Weiser texture is a fan remnant on slopes from 2 to 8 percent. It is well drained, more than 80 inches deep, and is derived from limestone and dolomite. It is composed of very cobbly sandy loam, stratified extremely gravelly sandy loam to very gravely fine sandy loam (USDA 2007a).

Soils in the Weiser-Tencee-Arizo association are shallow to deep, well drained to excessively drained on fan remnants and drainageways. The Weiser texture is a fan remnant on slopes from 2 to 8 percent. It is well drained, more than 80 inches deep, and is derived from limestone and dolomite. It is composed of very cobbly sandy loam, stratified extremely gravelly sandy loam, to very gravely fine sandy loam. The Tencee texture is a fan remnant on slopes from 2 to 8 percent. It is well drained, 7 to 20 inches deep, underlain by petroclastic, and is derived from alluvium. It is composed of very cobbly sandy loam and very gravelly sandy loam. The Arizo texture forms in drainageways on slopes from 0 to 2 percent. It is excessively drained, more than 80 inches deep, and is derived from alluvium. It is composed of very gravelly loamy sand, stratified cobbly coarse sand, to extremely gravely sand (USDA 2007a).

The Colorock-Tonopah association consists of alluvial soils that are deep and characteristically well drained with low to medium runoff and moderate to moderately rapid permeability. Colorock soils have a very gravelly clay loam texture with a hardpan at approximately 15 inches. Typical vegetation on these soils is stunted. Tonopah soils are very gravelly sandy loam with an average rock fragment content consisting of 40 to 65 percent pebbles and up to 25 percent cobbles (USDA 2007a).

The Bard-Tonopah association soils are gently sloping, shallow to deep, and well drained on fan remnants. The Bard texture is a fan remnant on slopes from 2 to 4 percent. It is well drained, 14 to 20 inches deep, underlain by petroclastic, and is derived from limestone and dolomite. It is composed of very stony loam and fine sandy loam. The Tonopah soils are very gravelly sandy

loam with an average rock fragment content consisting of 40 to 65 percent pebbles and up to 25 percent cobbles (USDA 2007a).

The Robinson Summit Substation area consists of the Segura-Upatad-Cropper and Fax-Yody-Broland associations. These soils are shallow, well-drained soils formed in residuum and colluvium from welded tuff, andesite, quartzite, conglomerate and rhyolite on mountains. Segura texture is very stony sandy clay loam on slopes of 4 to 50 percent with medium to very high runoff and moderate permeability. Typical soil profile is approximately 10 inches deep with rock fragment content of 10 to 35 percent. Upatad soils are very gravelly silt loams with 40 percent pebbles and 10 percent cobbles on the soil surface. Runoff is medium with moderately slow permeability. The Cropper soil has a very cobbly loam, extremely stony texture, and the soil surface is covered with 20 percent pebbles, 15 percent cobbles, and 5 percent stones. Cropper soils have very high surface runoff and moderately slow permeability (USDA 2007a).

The Falcon Substation area consists of the Cluro association. These silt loam soils are slightly saline, somewhat poorly drained, with a moderately slow permeability. Saltation has occurred in low-lying areas. Cryptogamic (biotic) soil crusts are present in undisturbed soils surrounding the site (JBR 2009).

3.6 Air Resources

3.6.1 Area of Analysis

For background, an analysis of the local and regional climate is documented. Climatic trends are discussed on that scale, and in a broad sense on a larger regional and national scale.

The area of analysis includes the proposed and alternative transmission line alignments from Robinson Summit in White Pine County south to the Harry Allen substation in northeastern Clark County, and a comparable radius around the Falcon substation. The direct impact area for this analysis includes everywhere within 5 miles of proposed project activities, capturing the areas impacted by the dust and equipment exhaust that represent the primary air emissions for the Proposed Action.

3.6.2 Data Sources and Methodology

The primary direct indicators of climate are the mean temperature, precipitation, and moisture levels. Indirect climatic indicators include the flora, fauna, and vegetation patterns that are naturally supported.

The regulatory framework for air quality includes national rules, regulations, and standards promulgated by the Environmental Protection Agency (EPA), and programs, rules, and regulations implemented by the Nevada Department of Environmental Quality, Bureau of Air Pollution Control (NDEQ BAPC) and local air quality regulatory agencies including the Clark County. The guiding national rules follow from the Clean Air Act, defining ambient air quality standards, requirements for local air quality programs and for operations capable of emitting air pollutants to protect the public, including sensitive individuals.

The primary indicator of air quality impacts from the Proposed Action will be compliance with the EPA National Ambient Air Quality Standards (NAAQS), and the Nevada Ambient Air Quality Standards (AAQS). Prevention of Significant Deterioration (PSD) Significant Contribution Levels (SILs) and Air Quality Related Values (AQRV) impact limits would not be applicable because the Proposed Action is expected to have minimal air quality emissions, and result in minimal operational impacts. These ambient air quality standards are set for criteria air

pollutants: nitrogen dioxide, sulfur dioxide, particulate matter, carbon monoxide, ozone, and lead, and enforced through air permitting requirements to protect public health. The primary regulated particulate has been PM_{10}, particulate matter 10 microns or less in diameter. Materials in this size range are considered inhalable because they generally pass into the human respiratory system. Standards for $PM_{2.5}$, a subset of PM_{10} including the finer size particles, are being phased in by EPA. For this analysis, PM_{10} impacts will be used as an indicator of $PM_{2.5}$ impacts. That assumption is quite conservative for fugitive dust impacts, which are primarily made up of larger particle sizes. Combustion exhaust, though, tends to include a larger percentage of particulates in the $PM_{2.5}$ range.

Table 3.6-1 summarizes the SILs, NAAQS, Nevada AAQS, and PSD increments for all EPA defined criteria air pollutants.

TABLE 3.6-1 AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING PERIOD	NATIONAL AAQS	NEVADA AAQS
		(µG/M^3)	(µG/M^3)
NO_2	Annual	100	100
SO_2	Annual	80	80
	24 hours	365[b]	365
	3 hours	1,300[b]	1,300
CO	8 hours	10,000[b]	10,000[c]
	1 hour	40,000[b]	40,000
PM_{10}	Annual	Revoked[d]	50
	24 hours	150[e]	150
$PM_{2.5}$	Annual	15[f]	15[e]
	24 hours	35[g]	35[f]
Lead	Quarterly	1.5	1.5
O_3	1 hour [j]	235[h] (0.12 ppm)	235[h] (0.12 ppm)
	8 hour	147[i] (0.075 ppm)	147[i] (0.075 ppm)

µg/m^3 - Microgram per cubic meter NA - Not applicable

a Source: EPA 1990

b Not to be exceeded more than once per calendar year

c 6,670 µg/m^3 at areas equal to or greater than 5,000 feet above mean sea level

d EPA revoked this standard effective December 17, 2006

e Not to be exceeded more than once per calendar year on average over three years

f the 3-year average of the weighted annual mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors

g the 3-year average of the 98th percentile at each population-oriented monitor within an area

h The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is $\leq$ 1. This standard is revoked as of June 15, 2005 in all areas except 8-hour ozone non-attainment areas

i The 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year

j Ozone 1-hour NAAQS applies only in ozone 8-hour non-attainment areas

3.6.3 Existing Conditions

3.6.3.1 Climate

The project area includes a dry four-season environment with cold winters near the existing Falcon and proposed Robinson Summit Substations and in the higher northerly reaches of the transmission line segments, with the lower southerly end featuring a dry, desert climate. Mild winters occur only on the southerly reaches of the transmission line segments well to the south of the Robinson Summit Substation terminus in the north. Precipitation levels are light in the valleys, and slightly higher in the surrounding mountains. **Table 3.6-2** summarizes meteorological conditions within and near the project area.

TABLE 3.6-2 METEOROLOGICAL CONDITIONS WITHIN AND NEAR THE PROJECT AREA

MONITOR	ELEV (FT)	WINTER AVERAGE	SPRING AVERAGE	SUMMER AVERAGE	FALL AVERAGE	ANNUAL AVERAGE
Mean Seasonal Temperature Average (°F)[1]						
Beowawe	4,700	33.3	55.1	66.3	37.9	48.2
Ruth	6,830	26.8	47.8	60.6	32.5	42.0
Lund	5,570	33.7	54.0	65.9	39.1	48.2
Sunnyside	5.310	35.1	56.6	68.1	40.1	50.0
Alamo	3,450	41.4	63.3	74.3	47.6	56.7
Valley of Fire SP	2,000	52.9	76.8	88.9	58.3	69.2
Mean Seasonal Precipitation Average (inches)[1]						
Beowawe	4,700	2.04	2.50	1.03	2.20	7.57
Ruth	6,830	3.33	3.19	2.62	2.68	11.92
Lund	5,570	2.66	2.77	2.35	2.27	10.07
Sunnyside	5.310	2.55	2.12	2.45	2.16	9.27
Alamo	3,450	1.98	1.21	1.55	1.53	6.27
Valley of Fire SP	2,000	1.97	2.79	2.16	1.90	8.81
Mean Seasonal Snowfall / Snow Cover (inches)[1]						
Beowawe	4,700	10.7 / 1.0	1.1 / 0	0 / 0	5.3 / 0.3	17.0 / 0
Ruth	6,830	28.3 / 2.7	8.8 / 0	0.1 / 0	17.8 / 1.0	50.4 / 1
Lund	5,570	10.5 / 0	2.5 / 0	0 / 0	5.2 / 0	18.2/ 0
Sunnyside	5.310	9.6 / 0.3	1.3 / 0	0 / 0	4.7 / 0	15.5 / 0
Alamo	3,450	5.6 / 0.3	0.4 / 0	0 / 0	1.5 / 0	7.4 / 0
Valley of Fire SP	2,000	0.2 / 0	0 / 0	0 / 0	0.2 / 0	0.4 / 0

Source: Western Regional Climate Center (WRCC) 2009
°F = degrees Fahrenheit

The dry climate leads to a large diurnal temperature range, with daytime high temperatures averaging about 30 degrees higher than daily minimum temperatures. The large elevation differences between the valley floors and the surrounding ridge tops result in moderate and steady winds, with evening inversions in the valley bottoms. Ground level wind patterns in the region are channeled by the valleys and mountain ranges in this basin and range country. Mean wind speeds are 9.5 miles per hour in Ely and 10.1 miles per hour in Las Vegas. Climatic conditions have historically fluctuated, evolving into the current conditions as described above. Evidence of historic variations includes multiple ice ages in the recent geologic past and those fluctuations continue. Current evidence seems to indicate an increase in mean global temperature over the last century which might be accelerating in pace. Seven of the ten hottest years on record occurred in the last decade. Temperature changes can affect the quantity and distribution of precipitation because of associated weather pattern changes. At the same time,

mean ambient concentrations of greenhouse gases, which let in short wave radiation from the sun, but block outgoing long wave radiation, have been documented to be increasing.

Figure 3.6-1 documents national trends in temperatures measured at National Weather Station (NWS) sites since the early 20th century. Mean temperature rises are seen across the country, with some of the most significant changes since the 1940s, averaging about a 1 degree increase per decade, in eastern and central Nevada. Similar NWS data since the 1930s shows mean precipitation increases have been noted since the 1930s across most of the eastern and central U.S. While much of the western U.S. has experienced flat or downward trending precipitation levels, northeastern Nevada has seen a mean precipitation increase of less than one inch per decade (NOAA 2008).

3.6.3.2 Air Quality

Current Local and Regional Air Quality

Ambient air quality monitors in the Steptoe Valley in White Pine County, measuring SO_2, NO_2, PM_{10}, CO, and ozone were installed to assess background air quality close to each of the EEC plant site alternative locations, which are situated northeast of the ON Line Project's northern terminus. These monitors indicate air quality is minimally affected by all but one criteria air pollutant. For the all averaging periods, the only pollutant measured at or above half the NAAQS was 1-hour average ozone. No other measured pollutant value reached 25 percent of the NAAQS. Those air quality levels should be representative of conditions along the northern two thirds of the proposed transmission line, which feature a comparable level or less development and are comparably distant from major sources of air pollutants including regional power plants, large industry, or large urban areas.

Clark County is currently in attainment or unclassified for all air pollutants. Few, if any, measured values of volatile organic compounds (VOCs), hazardous air pollutant levels, or greenhouse gas concentrations representative of the project area are available.

One Federal Land Manager-identified sensitive Class II area, Great Basin National Park, exists 20 kilometers or more east of the general project area. Data from the Integrated Monitoring of Protected Visual Environments (IMPROVE) monitoring site at Great Basin National Park indicates good air quality with concentrations well below NAAQS standards, comparable to background values measured at the previously proposed EEC plant sites. However, measurements indicate at least slight visibility and acid deposition impacts have occurred as a result of regional industrial development including energy generation facilities. IMPROVE monitoring indicates ozone levels region-wide have the potential to approach or reach NAAQS standards.

Existing Air Pollutant Emission Sources

The only industrial sources near or within the ON Line Project would be the industrial activity in Ely and its vicinity at the northern terminus, and the energy and industrial facilities near the Harry Allen Substation in Clark County. Regional activity potentially affecting the project area include energy facilities, industrial and urban activity in Clark County, Las Vegas, St. George, Utah, and surrounding areas mostly affecting the southern end of the line; and regional energy facilities and possibly other large industrial activities having insignificant impacts along the rest of the impact area. Land use or development choices including grazing or development potentially affecting dust generation have localized effect in the project area, concentrated around the few isolated areas where such activities occur or have impacted soil stabilizing vegetation or cryptogrammic soils.

The Falcon Substation, in rural Boulder Valley, features a few acres of cleared ground. That substation is approximately 5 miles northeast of the coal-fired Newmont power plant, and approximately 10 miles southwest of active Carlin Trend mines including Goldstrike, Leeville, and Gold Quarry.

3.6.3.3 Climate Change

Ongoing scientific research has identified the potential impacts of anthropogenic (man-made) greenhouse gas (GHG) emissions and changes in biological carbon sequestration due to land management activities on global climate. Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused CO_2(e) (carbon dioxide equivalent) concentrations to increase dramatically, and are likely to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change (IPCC 2007) recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in globally average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations."

Global mean surface temperatures have increased nearly 1.8°F from 1890 to 2006. Models indicate that average temperature changes are likely to be greater in the Northern Hemisphere. Northern latitudes (above 24° N) have exhibited temperature increases of nearly 2.1°F since 1900, with nearly a 1.8°F increase since 1970 alone. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

In 2001, the IPCC indicated that by the year 2100, global average surface temperatures would increase 2.5 to 10.4°F above 1990 levels. The National Academy of Sciences has confirmed these findings, but also has indicated there are uncertainties regarding how climate change may affect different regions. Computer model predictions indicate that increases in temperature will not be equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures. Increases in temperatures would increase water vapor in the atmosphere, and reduce soil moisture, increasing generalized drought conditions, while at the same time enhancing heavy storm events. Although large-scale spatial shifts in precipitation distribution may occur, these changes are more uncertain and difficult to predict.

Although there are uncertainties associated with the science of climate change, this does not imply that scientists do not have confidence in many aspects of climate change science. Some aspects of the science are known with virtual certainty, because they are based on well-known physical laws and documented trends.

Several activities contribute to the phenomena of climate change, including emissions of GHGs (especially carbon dioxide and methane) from fossil fuel development, large wildfires, and activities using combustion engines; changes to the natural carbon cycle; and changes to radiative forces and reflectivity (albedo). It is important to note that GHGs will have a sustained climatic impact over differing temporal scales. For example, recent emissions of carbon dioxide can influence climate for 100 years.

Figure 3.6-1 National Weather Service Long Term Temperature Trend Data

3.7 Vegetation, Including Noxious and Non-Native, Invasive Weeds, and Special Status Plants

3.7.1 Area of Analysis

The area of analysis for vegetative communities, noxious and non-native, invasive weeds, and special status plants was defined as the potential disturbance footprint of any of the components of the Proposed Action or Action Alternative being carried forward for full analysis (see Chapter 2 for detailed descriptions of project elements).

3.7.2 Data Sources and Methodology

The areas of analysis were evaluated through a combination of existing data review, including Southwest Regional GAP data (USGS 2004), soil surveys, previous biological surveys, recent aerial photointerpretation, and extensive biological field surveys conducted in fall 2006 and spring/summer 2007. Prior to conducting the vegetation surveys, soil maps and soil descriptions from *Soil Survey of Western White Pine County Area* (NRCS 1988) and *Soil Survey of Lincoln County, South Part* (NRCS 2000) were reviewed to familiarize survey crew members with the important vegetation, soil types, and landscape features contained in the survey area. The survey crew also reviewed the list of target noxious and non-native, invasive weeds, and target sensitive plant species and their habitat requirements. Pedestrian surveys were used when nearby access roads were unavailable, or when vegetation communities appeared highly variable, thus requiring detailed inspection to interpret tonal patterns from aerial photographs. Windshield surveys were used where vegetation communities appeared to be consistent and uniform across large expanses, and required only brief visual inspections to confirm aerial signatures. Community composition, ecological conditions, locations of noxious and non-native, invasive weeds, and the presence of wildlife were recorded during field surveys. Field-collected vegetative community data was combined with high-resolution National Agriculture Imagery Program (NAIP) aerial imagery dated April 2006 in order to photointerpret any non-field survey areas, or those areas where access was limited.

Vegetative community map units were based on Shiflet (1994) vegetation types, using dominant species to delineate discrete communities. The vegetative communities contained within the survey area are described in **Section 3.7.3.1** in order of prevalence within the project area.

The presence of noxious and non-native, invasive weeds (as defined by the State of Nevada in NAC 555.010) was identified within the areas of analysis from a number of sources. Noxious and non-native, invasive weeds were recorded during biological field surveys for vegetative communities and special status plants, as well as by the Tri-County Weed Program, Ely office and by existing BLM mapping programs. Tri-County Weed Program surveys were based on the assumption that the most likely places that weeds might become established are near transportation systems, in disturbed areas, and areas near water; therefore, survey efforts were focused in these areas. Tri-County used the following criteria to determine the geographical extent of their surveys:

- Scout all roads, trails, by-ways, railways, utility corridors, or other transportation systems.
- Scout all known seeps, springs, streams, dry streambeds, riparian systems, irrigation canals, stock ponds, or any wetlands.

- Scout any additional man-made or natural disturbed areas including, but not limited to, campgrounds, corral systems, mining disturbances, chainings, seismic exploration sites, material stockpiles, and any other disturbances.
- Identify all paths, routes, or ways traveled by inclusion within the GPS database library. These document places that were surveyed where no invasive plant populations were found.
- Additional areas may be specifically selected to survey based upon such issues as likely rare or endangered species presence, or for other management considerations.

Existing data from each of these sources was evaluated within the area of analysis described above, as well as a 1,000-foot buffer surrounding the area of analysis, and combined with project-specific biological field survey data to determine the number and location of noxious and non-native, invasive weeds within the project area. Noxious and non-native, invasive weed species locations were recorded during baseline data surveys for vegetative communities and wildlife, via pedestrian and windshield surveys. Noxious and non-native, invasive weed occurrences were recorded with a Trimble GeoXT global positioning system, and data was collected for each observation, including species type, location, approximate area/density of infestation, date and time of observation, and name of observer.

Special status plant species, including those listed on the Nevada BLM sensitive species list and in the NAC 527.010 list of fully protected species of native flora, were identified through field surveys within known habitat types in the areas of analysis. Vegetative communities were used to identify potential suitable habitat for threatened, endangered, and/or sensitive (TE&S) plant species within the areas of analysis described above, and field surveys conducted in spring and early summer 2007 focused on these areas.

3.7.3 Existing Conditions

3.7.3.1 Vegetation Communities/Cover Types

The following vegetative communities/cover types were mapped within the survey area, and they are described in detail below:

Wyoming Sagebrush	*Burn/Fire-Affected*
Creosote Bush	*Blackbrush*
Pinyon Juniper Woodland	*Rubber Rabbitbrush*
Greasewood	*Desert Playa*
Douglas Rabbitbrush	*Disturbed*
Joshua Tree	*Riparian*
Black Sagebrush	*Basin Big Sagebrush*
Winterfat	

Portions of the wetland and riparian communities may meet the criteria of jurisdictional waters of the U.S., including wetlands, subject to final verification by the Corps. Wetlands and Waters of the U.S. within the project area are discussed in detail in **Section 3.2**.

The following communities occur within the area of analysis, in order of prevalence within the project area limits. The locations of mapped vegetative communities within the project area are provided in the figures in **Appendix 3B**. The vegetation baseline report (JBR 2008) provides representative photographs of the most common vegetative communities found within the project area.

Wyoming Sagebrush Community

The Wyoming sagebrush (*Artemisia tridentata* var. *wyomingensis*) community is the most abundant vegetation community found within the project area. It occurs on shallow, stony soils of alluvial fan skirts and piedmonts, and concave side slopes of mountains. It is found throughout the northern project area through parts of the Egan and Grant Ranges, with the southernmost occurrence in Dry Lake Valley, in northern Lincoln County. Variations of this community type include both a low species diversity, monoculture aspect with a sparse to nonexistent herbaceous understory cover, and a Wyoming sagebrush dominated shrub community that includes Douglas rabbitbrush (*Ericameria viscidiflora*), black sagebrush (*Artemisia nova*), and Nevada ephedra (*Ephedra nevadensis*) as common associates. Dominant grass species include Indian ricegrass (*Achnatherum hymenoides*), Thurber's needlegrass (*Achnatherum thurberianum*), Sandberg's bluegrass (*Poa secunda*), and bottlebrush squirreltail (*Elymus elemoides*). Two cactus species are fairly common and include Simpson's hedgehog cactus (*Pediocactus simpsonii*) at higher elevations in the Egan Range, and a pricklypear (*Opuntia* spp.) found throughout the project area. Matted buckwheat (*Eriogonum cespitosum*) is also a common groundcover at higher elevations. Forbs include Douglas' pincushion (*Chaenactis douglasii*), phlox (*Phlox* spp.), and globemallow (*Sphaeralcea* spp.). Within the Egan Range, this community type is characterized by encroaching pinyon-juniper, with the Utah juniper (*Juniperus osteosperma*) more prevalent than the singleleaf pinyon (*Pinus monophylla*). Other variations of this community type include those with codominants in the shrub layer: Wyoming sagebrush-Douglas rabbitbrush, Wyoming sagebrush-black sagebrush, and Wyoming sagebrush-big sagebrush (*Artemisia tridentata* var. *tridentata*) community types.

Creosote Bush Community

The creosote bush (*Larrea tridentata*) community is the next most abundant vegetation community within the area of analysis. It was mapped in the southern extent of the project area within portions of the SWIP Utility Corridor and alternative transmission line corridors, in southern Lincoln and northern Clark counties, within Delamar, Kane Springs, and Coyote Spring valleys. This community is typically open and sparse, with an abundance of dry, gravelly, bare soil between plants. Occasional spring ephemeral herbaceous growth may occur, including forbs and graminoids.

Pinyon-Juniper Woodland Community

The singleleaf pinyon–Utah juniper community occurs primarily in mountainous regions, at elevations higher than 6,500 feet amsl (1,970 m). It was observed in the Egan, Grant, and Delamar Ranges. Upper mountain slopes and ridgelines generally support older, denser stands of pinyon-juniper, while mid and lower slopes represent more recent incursions into the adjacent sagebrush dominated community types. The shrub understory is composed variously of mountain sagebrush (*Artemisia tridentata* var. *vaseyana*) present on the deeper soils of concave slopes, with black and Wyoming sagebrush occurring on shallower, stony soils. Other common shrubs include Douglas rabbitbrush, bitterbrush (*Purshia tridentata*), Utah serviceberry (*Amelanchier utahensis*), and Mormon tea (*Ephedra viridis*). The understory is sparse compared to the adjacent sagebrush dominated community types. Common grasses include bluebunch wheatgrass (*Pseudoroegneria spicata*), Sandberg's bluegrass, and Thurber's needlegrass.

Characteristic forbs include crag aster (*Aster scopularum*), cushion daisy (*Erigeron compactus*), basin butterweed (*Senecio multilobatus*), white stoneseed (*Lithospermum ruderale*), rockcress species (*Arabis* spp.), thickstem wild cabbage (*Caulanthus crassicaulis*), and *Phlox* species.

Douglas Rabbitbrush Community

The Douglas rabbitbrush community is found primarily occurring within Dry Lake Valley. This community is characterized by the presence of cryptogrammic crust with gravel and cobble ground cover, and a sparse herbaceous layer. Common to occasional shrub associates include winterfat (*Krascheninnikovia lanata*) and bud sagebrush (*Artemisia spinescens*). The herbaceous understory is variously dominated by several grasses including bottlebrush squirreltail and Indian ricegrass, with Sandberg bluegrass and needle and thread grass (*Achnatherum comata*) also present. Additional common herbaceous species include herb Sophia.

Joshua Tree Community

The Joshua tree (*Yucca brevifolia*) community was observed in Delamar Valley, in the central portion of Lincoln County. This community possesses the Joshua tree as its highest stratum, although individuals are typically sparsely spread across the landscape. Common shrub associates included bursage (*Ambrosia dumosa*), broom snakeweed (*Gutierrezia sarothrae*), and horsebrush, with limited herbaceous growth.

Greasewood Community

The greasewood (*Sarcobatus vermiculatus*) community occurs mostly on alluvial flats exhibiting poorly drained soils. Greasewood tolerates the high salt and sodic attributes of these seasonally ponded soils. It was observed in portions of the White River Valley. On the lowest portion of the alluvial fan, low species diversity characterizes this community type with shadscale (*Atriplex confertifolia*), spiny horsebrush (*Tetradymia spinosa*) and herb Sophia (*Descurainia ophia*) as common associates. Descending to the valley floor, the greasewood community is characterized by the presence of a mixed greasewood-rabbitbrush (*Ericameria teretifolia* and *E. nauseosa* ssp. *consimilis*) dominated plant community. Soils exhibit a salty crust and inland saltgrass (*Distichlis spicata*) is common in the herbaceous layer along with other members of the goosefoot (*Chenopodiaceae*) family. On the valley floor, this community is characterized by flocculated soils and large, mostly bare soil interspaces, the mounds vegetated with greasewood and few herbaceous species.

Winterfat Community

The winterfat community is found on alluvial flats and lake plains that are fairly well-drained. Winterfat was widely spread throughout the project area, from Jakes Valley in White Pine County south to southern Lincoln County, within the valley flats. This community type is characterized by a mound-intermound micro topography with mounds hosting both the shrub and herbaceous cover, and the intermound areas exhibiting mostly bare soil with some gravel present. It also occurs as small inclusions within the Wyoming sagebrush, black sagebrush, and Douglas rabbitbrush communities. Winterfat provides the bulk of the shrub cover, with Indian ricegrass as the dominant in the herbaceous understory. Additional common herbaceous species include herb Sophia and bottlebrush squirreltail. Winterfat and bud sagebrush provide codominant shrub cover with shadscale occasionally present as well.

Blackbrush Community

The blackbrush (*Coleogyne ramosissima*) community is found exclusively in southern Lincoln County, on the slopes of the Delamar Range. This community typically occurs upslope, or in more hilly conditions, than the creosote bush community, although not as high as the pinyon-juniper woodland community. Shrub coverage can be as much as 90-95 percent (Shreve 1942),

and only sparse brome (*Bromus* spp.) herbaceous cover was observed in this community within the area of analysis.

Black Sagebrush Community

The black sagebrush community was mapped from the northern terminus to northern Lincoln County, on the White River and Dry Lake valley margins. Black sagebrush is generally found in areas with shallow, rocky soils on alluvial fans and piedmonts, often derived from limestone. Characteristic shrub associates include bud sagebrush, Douglas rabbitbrush, winterfat, broom snakeweed, and green molly. Grasses found with black sagebrush included Sandberg's bluegrass, Indian ricegrass, Thurber's needlegrass, and bottlebrush squirreltail. Forbs include wild buckwheat (*Eriogonum* spp.) species, pincushion (*Chaenactis* spp.), rockcress, herb Sophia, and milkvetch (*Astragalus* spp.) species.

Burn/Fire-Affected Community

The burn/fire-affected community was observed in small areas within the Delamar Range, Kane Springs Valley, and Delamar Lake areas of southern Lincoln County, and within Hidden Valley in Clark County. The burn areas in Lincoln and Clark counties are recent, with little more than the charred remains of a former pinyon-juniper community, as well as a creosote bush community. Primary succession in the form of small forbs and herbaceous growth was observed in the early summer 2007 field surveys.

Desert Playa

The desert playa land type is an unvegetated expanse occurring at two locations within the southern extent of the SWIP Utility Corridor. Desert playa is the lowest part of an intermountain basin or bolson, which is frequently flooded by run-off from the adjacent highlands or by local rainfall. The surface is generally flat, with mud flats and locally small dunes (Allaby 1994). It was found on 0.4 percent of the land within the area of analysis and was mapped at Delamar Lake in Lincoln County and Dry Lake in Clark County.

Rubber Rabbitbrush Community

The rubber rabbitbrush community was observed at the White River crossing location in White River Valley. This community tended to be a monotypic shrub community, with occasional pockets of greasewood and Wyoming sagebrush interspersed. Soils are alkaline and soft, with moderate to poor drainage. Varying densities of graminoids were present in the herbaceous stratum, from less than 5 percent to nearly 100 percent coverage. Species include inland saltgrass, sedges (*Carex* spp.), arrowgrass (*Triglochin maritima*), alkali grass (*Puccinelia* sp.), and alkali cordgrass (*Spartina gracilis*).

Riparian Community

The riparian community was found on very limited areas within the area of analysis and may or may not be jurisdictional wetlands. It was mapped along larger drainages associated with the White River in White Pine and Nye counties.

Disturbed Lands

Disturbed lands are found in and around developed areas in Lincoln and Clark counties. This classification includes roads, gravel pits, buildings, parking lots, and similar human-caused disturbances. The burn/fire-affected and disturbed categories may include some vegetation component that is considered ruderal (e.g. herb Sophia, tumble mustard).

The potential for noxious and non-native, invasive weeds occurs along the unpaved roads present within the project area, and the areas disturbed as a result of utility installations, staging areas, excavations, and grazing allotments. Invasive species including cheatgrass and halogeton (*Halogeton glomeratus*) are present providing sparse to dense cover within all

community types, probably reflecting past livestock grazing history. Both paved and dirt road shoulders support Russian thistle (*Salsola kali*) and cheatgrass, with curlycup gumweed (*Grindelia squarrosa*) a common ruderal species. The occurrence of noxious and non-native invasive weeds in the project area is discussed below in **Section 3.7.3.2**.

While not mapped as a separate community type, utility easements and reclaimed roads have been revegetated with crested wheat grass (*Agropyron cristatum*) and common yarrow (*Achillea millefolium*). Native plant species colonizing these easements include Wyoming and mountain sagebrush, Douglas rabbitbrush, and bottlebrush squirreltail.

Basin Big Sagebrush Community

The basin big sagebrush community is found within the area of analysis where deep, well-drained soils are present. This community type occurs as a stringer community type adjacent to both perennial streams and adjacent to and within ephemeral drainages in valleys, fans, and lower mountain slopes. Characteristic species include greasewood and rubber rabbitbrush as common shrub associates, with bitterbrush occasionally present at higher elevation valley bottoms. Common grass associates include Great Basin wildrye (*Leymus cinereus*), Sandberg's bluegrass, and Indian ricegrass. Forbs include ragwort species (*Senecio* spp.), pincushion, milkvetch species, herb Sophia, and roughseed cryptantha (*Cryptantha flavoculata*).

3.7.3.2 Noxious and Non-Native, Invasive Weeds

The BLM defines an invasive weed as "a non-native plant that disrupts or has the potential to disrupt or alter the natural ecosystem function, composition and diversity of the site it occupies. Its presence deteriorates the health of the site, it makes efficient use of natural resources difficult and it may interfere with management objectives for that site. It is an invasive species that requires a concerted effort (manpower and resources) to remove from its current location, if it can be removed at all" (BLM National List of Invasive Weed Species of Concern). They have the ability to readily establish and spread rapidly, particularly in disturbed areas, and may cause damage to agriculture, range resources, and forestry, as well as increase fire susceptibility. Nevada BLM defines "noxious" weeds as those plant species "that interfere with management objectives for a given area of land at a given point in time" (http://www.nv.blm.gov/Resources/noxious_weeds.htm). Noxious and non-native, invasive weeds considered for effect under this study include:

- Plant species listed or considered as federal noxious weeds by the United States Department of Agriculture
- Plant species listed as noxious by the State of Nevada per NAC 555.010
- Plant species considered invasive weed species of concern to the BLM

Regulatory Framework

Federal Executive Order 13112, *Prevention and Control of Invasive Species* (3 February 1999), defines invasive species as "alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health." This order requires any federal agency whose action may affect the status of invasive species to undertake reasonable and appropriate measures to prevent or minimize the spread of invasive species, and to monitor and manage their conditions. A number of additional federal laws address identification, treatment, and monitoring of invasive species, including the following:

- Lacey Act as amended (18 U.S.C. 42)
- Nuisance Prevention and Control Act of 1990 as amended (16 U.S.C. 4701 et. seq.)

- Federal Noxious Weed Act of 1974 as amended by the Food, Agriculture, Conservation and Trade Act of 1990 (Section 1453 "Management of Undesirable Plants on Federal Lands" U.S.C. 2801 et. seq.)
- Federal Plant Pest Act (7 U.S.C. 150aa et. seq.)
- Carlson-Fogey Act of 1968 (Public Law 90-583)
- Salt Cedar and Russian Olive Control Demonstration Act (Public Law 109-320)
- Safe, Accountable, Flexible, Efficient Transportation Equity Act (Public Law 109-59)
- Noxious Weed Control and Eradication Act (Public Law 108-412)

In addition to federal regulations, the State of Nevada Department of Agriculture serves to regulate noxious and non-native, invasive weed presence. According to NAC 555.010, it is the responsibility of the landowner, both public and private, to manage and control listed noxious species. The U.S. Department of Agriculture's *Federal Noxious Weed List, State Noxious Weed List*, and the BLM *Invasive Weed Species of Concern List* are provided in **Appendix 3C**.

Noxious and Non-Native, Invasive Weed Occurrence

Noxious and non-native, invasive weeds were observed throughout the area of analysis. **Table 3.7-1** shows the noxious and non-native, invasive weed species, which were identified through existing data and field observations within the area of analysis. The vegetation baseline report (JBR 2008) provides maps of known noxious and non-native, invasive weed occurrences and observations for the entire project area.

TABLE 3.7-1 NOXIOUS AND NON-NATIVE, INVASIVE WEEDS OBSERVED WITHIN THE PROJECT AREA

COMMON NAME	SCIENTIFIC NAME	NUMBER OF OBSERVATONS	OBSERVATION LOCATION
Canada Thistle	*Cirsium arvense*	60	White Pine, Lincoln
Red Brome	*Bromus rubens*	N/A*	Lincoln, Clark
Cheatgrass	*Bromus tectorum*	N/A*	White Pine, Lincoln, Clark
Halogeton	*Halogeton glomeratus*	N/A*	White Pine, Lincoln, Clark
Musk Thistle	*Carduus nutans*	66	White Pine, Lincoln
Russian Thistle	*Salsola iberica*	10	White Pine
Sahara Mustard	*Brassica tournefortii*	9	Clark
Salt Cedar (Tamarisk)	*Tamarisk* spp.	43	White Pine, Lincoln
Scotch Thistle	*Onopordum acanthium*	2	White Pine
Spotted Knapweed	*Centaurea stoebe*	20	White Pine, Lincoln
Whitetop	*Lepidium draba*	208	White Pine, Nye, Lincoln, Clark

*Due to the frequency of these species, they were not mapped in detail

Whitetop

The most common noxious and non-native, invasive weed known and/or observed within the area of analysis was whitetop (*Lepidium draba*). Whitetop was observed in White Pine, Nye,

Lincoln, and Clark counties within or immediately adjacent to (within 1,000 feet), the following project elements:

- Segment 6C
- Segment 9D
- Segment 11

Canada Thistle, Musk Thistle

Also widely spread was Canada thistle (*Cirsium arvense*) and musk thistle (*Carduus nutans*). Thistles were observed in White Pine and Lincoln counties.

Canada thistle was observed in the following project elements:

- Robinson Summit Substation
- Segment 6C
- Segment 11

Musk thistle was observed along the following project segment:

- Segment 8

Salt Cedar

Salt cedar (*Tamarisk* spp.) was observed in and around drainages throughout White Pine County and in southern Lincoln County within the following project elements:

- Segment 6C
- Segment 9D
- Segment 10

Salt cedar has infested the desert southwest, mostly along waterways and in arroyos with ephemeral flows, interrupting natural habitats. It is well adapted to alkaline and salty soils, heat and cold, and windy sites. Its aggressive, deep root system uses much ground water, often to the detriment of other species. In many sites, it forms a pure stand that is almost impenetrable. Few to no plants grow under its canopy because of the high concentrations of salt that builds up in the soil from its accumulated leaf litter and the excretion of salt from glands on the leaves.

Other Noxious and Non-Native, Invasive Weeds

Eight other noxious and non-native, invasive weeds were observed with occurrences totaling 20 or less per species.

Spotted knapweed (*Centaurea stoebe*) and Scotch thistle (*Onopordum acanthium*) were both observed within Segment 6C. Additionally, spotted knapweed was observed within Segments 8, 9D, and 10. Sahara mustard (*Brassica tournefortii*) was observed in Segment 11.

While not occurring on the Nevada Department of Agriculture Noxious Weed List, the U. S. Department of Agriculture now considers cheatgrass (a.k.a. downy brome [*Bromus tectorum*]) a severe weed in several agricultural systems in North America, particularly pastureland, western rangeland, and winter wheat fields (Young and Clements 2007). Cheatgrass is also listed by the BLM as an Invasive Weed Species of Concern (**Appendix 3C**). This species is an aggressive invader of sagebrush, pinyon-juniper, and other shrub communities, where it can out-compete native grasses and shrubs (Young and Clements 2007). Cheatgrass depletes soil moisture and

is highly flammable in late spring and early summer (Young and Clements 2007). While not mapped in detail, cheatgrass was observed in small (less than 0.5 acre.) inclusions throughout the areas of analysis in natural communities, as well as in larger (greater than 0.5 acre.) pockets of disturbed areas. Cheatgrass was most commonly observed within or nearby agricultural areas and pastureland (current or former) and disturbed land.

Halogeton is also not present on the Nevada list, but is listed by the BLM as an Invasive Weed Species of Concern (**Appendix 3C**). Halogeton is a common invasive in upland shadscale and saltbush communities throughout the Great Basin, introduced to Nevada in the 1930s (Nachlinger et al. 2001). Halogeton, like cheatgrass, was not mapped in detail, but was observed in small patches throughout the area of analysis, most commonly associated with areas of prior disturbance such as agricultural land, road banks, existing transmission lines, and range watering stations.

3.7.3.3 Special Status Plant Species

Specific field surveys (JBR 2008) for TE&S plant species were conducted on May 21 through May 29, 2007—the ideal time period within the growing season to observe and correctly identify most sensitive plants. The Robinson Summit Substation area was surveyed in detail. The SWIP Utility Corridor south of Robinson Summit was surveyed at a reconnaissance level.

Prior to the survey, a list of target species was developed from the Nevada BLM Sensitive Species list and from NAC 527.010 – List of fully protected species of native flora. **Table 3.7-2** lists target species selected because their potential habitat occurs within the area of analysis. Target species, their habitats, and findings of the field survey are described below.

TABLE 3.7-2 TARGET SPECIES WITHIN THE AREA OF ANALYSIS

COMMON NAME	SCIENTIFIC NAME	FEDERAL STATUS	STATE STATUS
White bear poppy	*Arctomecon merriamii*	BLM Sensitive	
Eastwood milkweed	*Asclepias eastwoodiana*	BLM Sensitive	
Threecorner milkvetch	*Astragalus geyeri var. triquetrus*		NAC 527.010
White River catseye	*Cryptantha welshii*	BLM Sensitive	
Las Vegas buckwheat	*Eriogonum corymbosum var. nilesii*	Candidate, BLM Sensitive	
Sunnyside green gentian	*Frasera gypsicola*		NAC 527.010
Tiehm's blazing star	*Mentzelia tiehmii*	BLM Sensitive	
Lahontan beardtongue	*Penstemon palmeri* var. *micranthus*	BLM Sensitive	
Parish phacelia	*Phacelia parishii*	BLM Sensitive	
Ute ladies-tresses orchid	*Spiranthes diluvialus*	Threatened	NAC 527.010

Source: Nevada BLM Sensitive Species List: NAC 527.010

Target Species and Habitats

The following species were identified as potentially occurring in habitats found within the area of analysis:

- White bearpoppy (*Arctomecon merriamii*) is known in Clark, Lincoln, and Nye counties, Nevada, as well as in California. An evergreen perennial herb, it occurs on alkaline clay and sand, gypsum, calcareous alluvial gravels, and carbonate rock outcrops.
- Eastwood milkweed (*Asclepias eastwoodiana*) is endemic to Esmeralda, Lander, Lincoln, and Nye counties, Nevada. A late-spring flowering perennial herb, it occurs in

open areas on basic (pH 8 or higher) soils, frequently in small washes or other moisture-accumulating microsites.

- Threecorner milkvetch (*Astragalus geyeri* var. *triquetrus*) is known in Clark and Lincoln counties, Nevada, as well as in Arizona. It occurs on open, deep sandy soil or dunes, generally stabilized by vegetation and or a gravel veneer. It is dependent on sand dunes or deep sand in Nevada.
- White River catseye (*Cryptantha welshii*) is endemic to Nevada known from Nye, Lincoln, and White Pine counties. It occurs on calcareous soils in barren areas and open desert pavement within the black sagebrush community. The nearest occurrence to the project area is at Jakes Wash located approximately 15 miles south of Ely.
- Las Vegas buckwheat (*Eriogonum corymbosum* var. *nilesii*) is a recently identified, genetically unique subspecies of buckwheat endemic to southern Nevada. Growing from 1,900 to 3,900 feet amsl, it occurs on and near sparsely vegetated gypsum soil outcroppings, often forming low mounds or outcrops in washes and drainages, or in areas of generally low relief. The species is primarily found in the Las Vegas Valley (Clark County). Currently, only nine populations of Las Vegas buckwheat at 15 sites covering approximately 1,145 acres are known to exist.
- Sunnyside green gentian (*Frasera gypsicola*) is known from Nye and White Pine counties in Nevada, and possibly in Utah. It occurs on spongy silty clay soils of calcareous flats and barrens with low to no gypsum content.
- Tiehm's blazing star (*Mentzelia tiehmii*) is endemic to the White River Valley, in northeastern Nye and Lincoln counties, Nevada near Sunnyside Reservoir. It occurs primarily on hill tops of white soil and rock outcrops, with sparsely vegetated black sagebrush, Parry's rabbitbrush, and/or shadscale saltbush communities.
- Lahontan beardtongue (*Penstemon palmeri* var. *macranthus*) is a robust perennial herb found in the west central part of Nevada. It grows along washes, roadsides, and canyon floors, particularly on carbonate-containing substrates, usually where subsurface moisture is available throughout most of the year.
- Parish phacelia (*Phacelia parishii*) is known from White Pine and Nye counties, Nevada; and from San Bernardino County, California. The closest known location is in Spring Valley between the Schell Creek and Snake Ranges. It occurs on playas and in moist alkali meadows on the valley floor.
- Ute ladies tresses (*Spiranthes diluvialus*), a federally threatened species, is known to occur in Lincoln and possibly White Pine counties in Nevada. It also occurs in Colorado, Idaho, Montana, Nebraska, Utah, and Wyoming. It is found in moist, to very wet, somewhat alkaline or calcareous native meadows near streams, springs, seeps, lake shores, or in abandoned stream meanders that still retain ample groundwater.

Special Status Species Existing Conditions

All potential habitats within the project area were inspected using NAIP color aerial imagery flown in 2006, and vegetation mapping field surveys to identify potential habitat areas. Locations of special status plants encountered during the survey were recorded with a Trimble GeoXT GPS receiver (see figures in **Appendix 3B**).

No special status plant species were found in the Robinson Summit Substation area.

The SWIP Utility Corridor and transmission line segments outside the SWIP Utility Corridor south of Robinson Summit Substation were evaluated at a reconnaissance level. Habitat areas known to support sensitive plants were inspected, and areas with reasonable vehicle access were inspected for the presence or absence of habitat. White River catseye, a BLM sensitive species, was observed at the Jake's Wash area in White Pine County within Segment 6C. Tiehm's blazing star and White River catseye, BLM sensitive plants, were observed in the White River Valley area in White Pine and Nye counties, and also within Segment 6C. White bear poppy, a BLM sensitive species, was observed just west of Coyote Spring within Segment 9D.

Las Vegas buckwheat

Las Vegas buckwheat is not present within the project area; however, it occurs in close proximity to Segment 11, near the junction of US Highway 93 and State Route 168. Based on GIS data provided by the BLM, there are 36 known occurrences of Las Vegas buckwheat between 3,150 and 9,300 feet from the eastern edge of the Proposed Action ROW alignment and approximately 1,600 feet closer to the eastern edge of the Action Alternative transmission line alignment. These occurrences are within unique badland formations; therefore, unknown occurrences within the project area are not expected to occur.

3.7.4 Specific Project Area Conditions

Robinson Summit Substation

Within the Robinson Summit Substation survey area, four vegetation communities were observed. Wyoming sagebrush comprised the majority of the area and pinyon-juniper woodland occupied most of the remaining area. Small areas of black sagebrush and basin big sagebrush were also observed.

Transmission Line Alignments

The transmission line alignments have a northern terminus at the proposed Robinson Summit Substation west of Ely and a southern terminus at the Harry Allen Substation in Clark County. Within the transmission line segments, 15 vegetative and/or land type communities were observed (see figures in **Appendix 3B**). Wyoming sagebrush, Douglas rabbitbrush, greasewood, and pinyon-juniper were the most prevalent in the northern portion of the project at Robinson Summit and in Segment 6C; Douglas rabbitbrush and Joshua tree were dominant in Segment 8; and creosote bush was dominant in Segments 9D and 11. The majority of Segment 9A is blackbrush with a burn area. A large burn area was observed in Segment 10; however, the northern area was dominated by Joshua tree and the southern area by creosote. Significant patches of winterfat were encountered in Segments 6C and 9B. Other communities observed within the transmission segments included basin big sagebrush, black sagebrush, desert playa, disturbed land, riparian, and rubber rabbitbrush.

Falcon Substation

Within the Falcon Substation expansion area, the greasewood community was observed.

3.8 Wildlife Resources, Including Special Status Wildlife, Migratory Birds, Fisheries, and Aquatic Species

As described in **Section 3.7**, 15 vegetation communities/cover types were mapped within the approximately 236 mile-long survey area. Elevations range from approximately 2,350 feet amsl at the southern-most portion of the Project at the Harry Allen Substation to about 7,850 feet near Silver King Pass. The project area terrain is highly diverse and includes high desert valleys, low alkali playas, steep rocky cliffs, and high mountain passes. The varying

combinations of vegetation types, elevation, and terrain provide a wide variety of habitat for wildlife in the region.

The Nevada Department of Wildlife (NDOW) lists 161 species of mammals, 173 species of fish, 24 species of amphibians, 78 species of reptiles, and 456 species of bird within the state (NDOW 2007a). This section addresses wildlife species that occur, or have the potential to occur, in the project area. Wildlife species with special status (listed as Threatened (T), Endangered (E), Proposed (P), and Candidate (C), or Sensitive (S) by government agencies) are also addressed in this section. Special status plants are discussed in **Section 3.7**.

It is important to note that the transmission line alignments occur predominantly within federally designated utility corridors. The ON Line Project occurs within these corridors for most of its length. Hence, the majority of sensitive habitat areas crossed by the transmission line alignment have been reviewed by federal agencies in these NEPA documents that direct project applicants to route projects in designated utility corridors.

3.8.1 Area of Analysis

The area of analysis, identical to that described previously in **Section 3.7.1**, was defined as the potential disturbance footprint of any of the components of the Proposed Action or Action Alternative. Further, a 0.5 mile area on each side of the proposed transmission line was considered for greater sage-grouse, bats, and raptor species.

A larger area, adjacent to the area of analysis identified above, was also generally considered in terms of existing habitats, known occurrences of sensitive wildlife species, etc. so that potential direct and indirect effects to wildlife resources could be analyzed in **Section 4.8**.

3.8.2 Data Sources and Methods

The areas of analysis were evaluated through a combination of existing data review, including information provided by the BLM, USFWS, NDOW, Nevada Natural Heritage Program (NNHP), and previous biological surveys; and extensive biological field surveys conducted in fall 2006 and spring/summer 2007. Prior to conducting wildlife surveys, various data from these sources were reviewed to familiarize survey crew members with the habitat types and wildlife species that were likely to be encountered in the survey area. The survey crew familiarized themselves with special status wildlife species and their habitat types. Appropriate buffer zones surrounding the project features to be surveyed were plotted on maps, aerial photos, and GPS units.

Pedestrian surveys were used when nearby access roads were unavailable, when wildlife habitat communities appeared highly variable, or in the presence of existing or potential special status wildlife habitat. Windshield surveys were used where habitat communities appeared to be consistent and uniform across large expanses, and required only brief visual inspection. Vegetation species composition, ecological conditions, and the presence of wildlife were recorded during field surveys.

Special status wildlife species were identified through field surveys within known habitat types in the areas of analysis. Vegetative communities were used to identify potential suitable habitat for special status species within the areas of analysis described above. Specific ground-based field surveys within potentially suitable habitat were conducted for special status species and raptors. Surveys designed to identify active greater sage-grouse (*Centrocercus urophasianus*) leks within the project area were conducted during the 2007 breeding season.

Extensive raptor surveys were conducted primarily during the nesting season of 2007. Surveyors were provided the locations of known raptor habitat and nesting areas, and aerial

photographs were analyzed in order to locate any additional potential raptor habitat. This information was then used in the field to locate and record raptor habitat that could be affected by the development of the ON Line Project.

3.8.3 Existing Conditions

3.8.3.1 Threatened, Endangered, Proposed, and Candidate Species

The USFWS identified four threatened, endangered, proposed, and candidate (TEPC) species that are known or expected to occur within the project area (USFWS 2007a. File No.1-5-07-SP-282). These species are listed in **Table 3.8-1**; background information on each species follows the table. **Appendix 3D** lists the TEPC Species that are known to occur within the two BLM Districts the project area occurs within, the general habitat types the species are generally found in, and whether any of these species were observed during field baseline surveys.

TABLE 3.8-1 TEPC WILDLIFE SPECIES LISTED AS OCCURRING WITHIN THE COUNTIES AFFECTED BY THE ON LINE PROJECT

COMMON NAME	SCIENTIFIC NAME	USFWS STATUS
Western yellow-billed cuckoo	*Coccyzus americanus*	Candidate
Southwestern willow flycatcher	*Epidonax tralii extimus*	Endangered
Yuma clapper rail	*Rallus longirostris yumanensis*	Endangered
Desert tortoise	*Gopherus agassizii* (Mojave Population)	Threatened
Desert tortoise	*Gopherus agassizii* (Mojave Population)	Critical Habitat

Source – USFWS 2007a

Western Yellow-billed Cuckoo

The western yellow-billed cuckoo (*Coccyzus americanus)* has been identified as a Candidate species for listing as Threatened or Endangered in its range west of the Rocky Mountains (66 FR 38611). The State of Nevada has ranked the western yellow-billed cuckoo as an S1 protected species.

Yellow-billed cuckoos breed in large blocks of riparian habitats (particularly woodlands with cottonwoods and willows). They are low/shrub nesting birds that primarily feed on large insects such as caterpillars and grasshoppers, but have also been known to eat small frogs and arboreal lizards. Nesting peaks (mid-June through August) may be influenced by an abundance of caterpillars and other prey.

Historically, the yellow-billed cuckoo was widespread and common in California and Arizona, locally common in a few river reaches in New Mexico, common very locally in Oregon and Washington, and generally scattered in drainages of the arid and semiarid portions of western Colorado, western Wyoming, Idaho, Nevada, and Utah (USFWS 2002).

This species has been known to occur in Lincoln and Nye counties. However, no suitable yellow-billed cuckoo habitat is known or was observed within the project area during baseline surveys conducted in 2006 and 2007, thus this species will not be discussed further in this SEIS.

Southwestern Willow Flycatcher

The southwestern willow flycatcher (*Epidonax tralii extimus*) was listed as Endangered on February 27, 1995, with Critical Habitat designated in 2005. The critical habitat that the USFWS designated is an 18.6-mile-long stretch along the Virgin River from the Arizona border to the Overton Wildlife Management Area in Nevada.

The breeding range of the southwestern willow flycatcher includes southern California, Arizona, New Mexico, extreme southern portions of Nevada and Utah, far western Texas, perhaps southwestern Colorado, and extreme northwestern Mexico. In Nevada, this subspecies can be found along the Virgin River, lower Muddy River, Colorado River, and Pahranagat Valley. The southwestern willow flycatcher breeds in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands including lakes and reservoirs.

This species has declined because of removing, thinning, or destroying riparian vegetation; water diversions and groundwater pumping which alter riparian vegetation; overstocking or other mismanagement of livestock; and recreational development. In addition to the above threats, the southwestern willow flycatcher is also subject to cowbird parasitism (USFWS 2007b).

The southwestern willow flycatcher has been known to occur in Lincoln, Nye, and Clark counties. Segment 9D of the Proposed Action passes less than 1,000 feet within the extreme southeastern portion of the Pahranagat National Wildlife Refuge (NWR). The Pahranagat NWR is not designated as critical habitat for the southwestern willow flycatcher. No suitable southwestern willow flycatcher habitat is known to exist or was observed within the project area during baseline surveys conducted in 2006 and 2007, thus this species will not be discussed further in this SEIS.

Yuma Clapper Rail

The Yuma clapper rail (*Rallus longirostris yumanensis*) was listed as federally Endangered in 1967, although no critical habitat has been designated for this species. The Yuma clapper rail is a marsh bird found in dense cattail or cattail-bulrush marshes along the lower Colorado River in Mexico north to the lower Muddy River and Virgin River in Utah above those rivers' confluence with Lake Mead. In Nevada, this subspecies can be found along the Virgin River and lower Muddy River, along the Colorado River around Lake Mohave, and in the Las Vegas Wash.

Threats include habitat destruction, primarily due to stream channelization and drying and flooding of marshes, resulting from water flow management on the lower Colorado River. Most U.S. habitat is in national wildlife refuges and state wildlife management areas that are subject to water management practices of the U.S. Bureau of Reclamation. Additional threats include contaminants from agricultural tailwaters and exotic vegetation (USFWS 2007a).

No suitable Yuma clapper rail habitat is known or was observed within the project area during baseline surveys conducted in 2006 and 2007, thus this species will not be discussed further in this SEIS.

Desert Tortoise

The desert tortoise (*Gopherus agassizii*) can occupy habitats that range from sandy flats to rocky foothills. They have a strong proclivity in the Mojave Desert for alluvial fans, washes, and canyons where more suitable soils for den construction might be found. They range from near sea level to around 7,300 feet, but the most favorable habitat occurs between approximately 1,000 to 3,500 feet in elevation. It is believed that, in their entire lives, these tortoises rarely move more than 2 miles from their natal nest. They also live to be 80-100 years old.

The Mormon Mesa desert tortoise critical habitat lies within the southern portion of the project area (Segments 9D, 10, and 11), along with portions of potentially suitable tortoise habitat bordering this critical habitat in all directions (**Figure 3.8-1**). A portion of Segment 11 also runs along the eastern border of the Desert National Wildlife Refuge. Desert tortoises are known to occur within these areas.

In May 2007, triangle protocol surveys (0.5-mile long triangle surveys every 3 miles) for the desert tortoise within the southern portion of the transmission line alignment (Segments 9A, 9C, 9D, 10, and 11) were conducted. **Figure 3.8-1** displays desert tortoise habitat and the location and type of desert tortoise sign observed during the surveys. Based on the data gathered, it appears that overall desert tortoise use for the northern most area surveyed is low (not surprising as this area is at the northern extent of the desert tortoise's range). Highest use occurred along the middle and southern half of the project area surveyed. Only one live tortoise was encountered. Twenty-three tortoise burrows were found. Eight carcasses in various stages of decay were discovered but none were determined to have been recent deaths. All carcasses were those of adult tortoises. Eggshell remains were observed in one burrow. Scat, not associated with a nearby burrow, was observed six times. In addition, a 500-foot survey area surrounding the existing Harry Allen Substation was conducted in fall 2006. This survey documented numerous desert tortoise sign, scat, burrows, and carcasses (JBR 2007b).

3.8.3.2 BLM Sensitive and State of Nevada Special Status Species

In addition to Federally Listed TEPC species in Nevada, sensitive species are defined as those plant and animal species identified by the BLM as species for which population viability is a concern, as evidenced by: (1) a significant current or predicted downward trend in population numbers or density; or (2) a significant current or predicted downward trend in habitat capability that would reduce the species' existing distribution (BLM 2001b). The state of Nevada and the BLM provide these species with the same level of protection as is provided for candidate species in BLM Manual 6840.06 C, that is to "ensure that actions authorized, funded, or carried out do not contribute to the need for the species to become listed." The Sensitive Species designation is normally used for species that occur on BLM administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. **Appendix 3D** lists the numerous Sensitive species that are known to occur within the two BLM district offices that the project area occurs within, the general habitat types the species are generally found in, and whether any of these species were observed during field baseline surveys. Sensitive fish species are discussed in **Section 3.8.3.5**. Background information on several of the "higher profile" Sensitive species that occur or have the potential to occur within the project area that are not discussed in other general wildlife sections are provided below.

Bald Eagle

Formerly a Federally Listed species up until its recent delisting, the bald eagle (*Haliaeetus leucocephalus*) is still protected under the Bald and Golden Eagle Protection Act. During the breeding season, bald eagles are closely associated with water and occur along coasts, lakeshores, or riverbanks, where they feed primarily on fish. Bald eagles typically nest in large trees, primarily cottonwoods (*Populus* sp.) and conifers, although they have also been known to nest on projections or ledges of cliff faces. During winter, bald eagles concentrate wherever food is available. Areas of open water, where fish and waterfowl can be taken, are common wintering sites. Wintering bald eagles have been observed on the Kirch and Pahranagat Wildlife Management Areas.

No bald eagle nest sites are known to occur in or within close proximity to the project area, and occurrence of this species would be limited to migrating and wintering individuals using the area for hunting and feeding opportunities. All federal and state regulations would be adhered to and mitigation measures that are designed to reduce adverse impacts to avian species would be employed. Therefore, it is highly unlikely that the bald eagle would be significantly affected by

the construction, operations, maintenance or abandonment of the ON Line Project. Thus, this species will not be discussed further in this SEIS.

Greater Sage-grouse

The greater sage-grouse (*Centrocercus urophasianus*) once inhabited sagebrush habitats throughout the West; they currently occupy about 56 percent of their former range (Connelly et al. 2004). Currently, in Nevada, the greater sage-grouse is a BLM Sensitive species and a State of Nevada Protected game bird managed in accordance with the *Greater Sage-Grouse Conservation Plan for Nevada and Eastern California* (NDOW 2004). Between July 2002 and December 2003 the USFWS received several petitions requesting that the greater sage-grouse be listed as threatened or endangered rangewide. On April 21, 2004, the USFWS announced a 90-day petition finding in the Federal Register (69 FR 21484) that these petitions taken collectively, as well as information in their files, presented substantial information indicating that the petitioned actions may be warranted. On January 12, 2005, the USFWS announced that the 12-month finding (70 FR 2244), after reviewing the best available scientific and commercial information, found that listing the greater sage-grouse was not warranted. Western Watersheds Project filed a complaint on July 14, 2006, alleging that this finding was arbitrary and capricious under the Administrative Procedure Act (5 U.S.C. 701 *et seq.*). On December 4, 2007, the U.S. District Court, District of Idaho, ruled that the 12-month petition finding was in error and remanded the case to the USFWS for further consideration. Legal action is still pending and the Court has not yet set a date for completion of the remand.

In February 2008 (73 FR 10218), the USFWS determined that it is appropriate to initiate a new status review to address information that has become available since the 2005 petition finding. That finding relied, in part, on information in the ‘‘Conservation Assessment of Greater Sage-Grouse and Sagebrush Habitats’’ published in 2004 by the Western Association of Fish and Wildlife Agencies. Since the publication in 2004 of the Conservation Assessment, a significant amount of new research has been completed and new information has become available regarding threats, conservation measures, and population and habitat status of the greater sage-grouse. Unless the court requires an earlier completion date for a remanded 12- month finding, it is the intention of the USFWS to complete this new status review and make a new determination at that time as to whether listing is warranted. At this time the USFWS is soliciting new information on the status of and potential threats to the greater sage-grouse. Information submitted prior to January 12, 2005, will be considered and need not be resubmitted. The USFWS will base a new determination as to whether listing is warranted on a review of the best scientific and commercial information available, including all such information received as a result of a notice published in the Federal Register on February 26, 2008. (73 FR 10218). In April 2008 (73 FR 23172), USFWS extended the period for submitting pertinent information on the species to June 27, 2008. At this time, sage-grouse in the Columbia Basin (Washington) are a Candidate species, while the remaining populations are still under review.

Sage-grouse are closely associated with sagebrush habitats, specifically big sagebrush (*Artemisia tridentata*) and silver sagebrush (*A. cana*) for food and cover. Sage-grouse breeding habitats are defined as those where lek attendance, nesting, and early brood-rearing occur. Breeding occurs on leks, or relatively open areas with less herbaceous shrub cover than surrounding areas. Leks are typically surrounded by potential nesting habitat and are adjacent to relatively dense sagebrush stands used for escape, thermal, and feeding cover. Sage-grouse females nest in many different sagebrush-dominated cover types and most nests are located under sagebrush plants. An understory of native grasses and forbs provides productive nesting habitat. Early brood-rearing habitat is defined as sagebrush habitat within the vicinity of the nest

used by hens with chicks up to 3 weeks following hatch. The availability of forb-rich habitats in close proximity to protective cover appears to be an important consideration for early brood-rearing. Late brood-rearing habitats are those used by sage-grouse starting later in the summer, following desiccation of herbaceous vegetation in sagebrush uplands. Sage-grouse usually select late-summer habitats based on the availability of forbs; these areas are often wet meadows or irrigated pastures adjacent to sagebrush. Winter habitats of greater sage-grouse are dominated by sagebrush that can provide shelter and food. Habitat selection during winter is influenced by snow depth and hardness, topography, and vegetation height and cover. Sagebrush plants must be exposed above the snow to provide forage (modified from Connelly et al. 2004).

Numerous greater sage-grouse studies and surveys by NDOW, the BLM, and other entities have been conducted and are ongoing within and adjacent to the project area. Due to the current wealth of information that exists concerning greater sage-grouse habitat, aerial surveys to identify new lek areas were not conducted. Instead, NDOW and BLM biologists were consulted and suggestions were made that identified areas where focused greater sage-grouse surveys (specifically for this project) were needed. Once suitable greater sage-grouse habitat was identified in these areas, JBR conducted ground-based pre-sunrise/early morning surveys during the greater sage-grouse mating season, April 2007. Although suitable habitat was identified and surveyed, no active leks were discovered in addition to what had been previously known and identified.

As shown on **Figure 3.8-2**, suitable greater sage-grouse habitat (nesting, summer, and winter ranges) exists within the project area. In addition, **Table 3.8-2** displays the greater sage-grouse leks that occur within or near the project area. **Figure 3.8-2** displays the locations of these leks.

TABLE 3.8-2 GREATER SAGE-GROUSE LEKS IN OR NEAR THE ON LINE PROJECT AREA

LEK NAME	ACTIVE/ NOT ACTIVE/ HISTORIC	APPROXIMATE DISTANCE FROM CLOSEST FEATURE'S - OUTER PROJECT AREA BOUNDARY
Blackjack W	Unknown	1.8 miles from Segment 6C (Action Alternative)
Gardner Ranch N	Unknown	1.8 miles from Segment 6C (Action Alternative)
Ellison Creek N	Active	0.5 miles from Segment 6C (Proposed Action)
Ellison Creek N N	Inactive	Within Segment 6C (Action Alternative)
Runway	Unknown	0.3 miles from Segment 6C (Action Alternative)
Ellison Creek	Inactive	1.0 miles from Segment 6C (Action Alternative)
Ellison Knobs	Unknown	1.7 miles from Segment 6C (Action Alternative)
White River	Active	0.2 miles from Segment 6C (Action Alternative)

Source – NDOW
Active: Occupied in 2006
Inactive: No birds or sign for two years

Pygmy Rabbit

The pygmy rabbit (*Brachylagus idahoensis*) occurs throughout most of the Great Basin. However, the distribution and population trends of this species are largely unknown (BLM 2008a). Currently, in Nevada, the pygmy rabbit is a BLM Sensitive species and a State of Nevada Species of Special Concern. It was also a former Category 2 Candidate Species. A formal listing petition was received from environmental groups in April 2003 that required the USFWS to make a determination on whether there was substantial information to initiate a status review of the pygmy rabbit. The USFWS concluded that more research was needed to

better determine the distribution and abundance of the species throughout its range (USFWS 2005).

On January 8, 2008 (73 FR 1312) the USFWS announced a 90-day finding on a petition to list the pygmy rabbit as threatened or endangered under the Endangered Species Act of 1973, as amended. The USFWS finds that the petition presents substantial scientific or commercial information indicating that listing the pygmy rabbit may be warranted. Therefore, the USFWS is initiating a status review to determine if listing the species is warranted. To ensure that the status review is comprehensive, the USFWS is soliciting scientific and commercial data and other information regarding this species. In order to be considered in the 12-month finding, USFWS asked that information be submitted by March 10, 2008. At this time, pygmy rabbits in the Columbia Basin (Washington) are listed as Endangered, while the remaining populations are still under review.

During baseline vegetation and general wildlife surveys conducted between the fall of 2006 and summer of 2007, pygmy rabbits and suitable habitat were observed within transmission line Segment 6C (**Figure 3.8-3a**, and **Appendix 3D**).

Raptors

The project area is home to many types of raptors including hawks, owls, eagles, accipiters, and falcons. Population information for many of the resident species in Nevada is not available, and where there is species-specific information, general trends in raptor populations are not consistent. Densities of some raptors, such as the short-eared owl (*Asio flammeus*), fluctuate based on prey availability, but are considered to be adequate for healthy populations. Populations of some species such as the Swainson's hawk (*Buteo swainsoni*) have been increasing in Nevada, although surveys indicate they have not reached historic densities. Surveys also indicate populations of other species such as the prairie falcon (*Falco mexicanus*) have continued to decline (Nevada Partners in Flight 2002). The planning area offers significant habitat for species dependant on sagebrush, salt desert scrub, and pinyon-juniper habitats. The highest densities of ferruginous hawks (*Buteo regalis*) in Nevada occur within the planning area. Nevada represents a large portion of the basin and range province, which supports 28 percent of the world population of prairie falcons (Nevada Partners in Flight 2002). Prairie falcons nest in cliffs and rock outcrops; other raptors within the planning area may use rock outcrops, trees, or burrows as nesting sites.

Figure 3.8-1 Desert Tortoise Habitat and Observations

Figure 3.8-2 Greater Sage-grouse Range and Lek Sites

The habitat types in the project area provide numerous nesting, perching, and foraging opportunities for a variety of raptor species from early spring (February/March) to late summer (August). Surveys for raptor nests in high potential habitats occurring within portions of the project area were conducted for this project. Twelve species of raptors were observed during baseline surveys. These species include: sharp-shinned hawk (*Accipiter striatus*), red-tailed hawk (*Buteo jamaicensis*), cooper's hawk (*Accipiter cooperii*), American kestrel (*Falco sparverius*), peregrine falcon (*Falco peregrinus*), ferruginous hawk, Swainson's hawk, great horned owl (*Bubo virginianus*), Long-eared owl (*Asio otus*), Northern harrier (*Circus cyaneus*), golden eagle (*Aquila chrysaetos*), and turkey vulture (*Cathartes aura*). **Figures 3.8-3a** and **3.8-3b** shows nest locations identified by JBR (within 0.5 miles), and known "raptor nesting areas," or areas of suitable habitat that certain species return to every nesting season, provided by NDOW (within 2 miles of the project area).

Western Burrowing Owl

The western burrowing owl *(Athene cunicularia hypugaea)* is a grassland specialist distributed throughout western North America. The western burrowing owl is protected by the Migratory Bird Treaty Act and is protected under Nevada Revised Statues 501 and the Nevada Administrative Code 503. The Nevada Natural Heritage Program ranks the species as an S3B, meaning that it has rare and uncommon breeding populations in the state (BLM 2008a). Burrowing owls were discovered within the project area and suitable habitat for this species occurs throughout various portions of the project area (**Figure 3.8-3b**).

Bats

Bat breeding and roosting habitat occurs within or adjacent to many portions of the project area, generally in the higher elevation areas where there are areas of cliffs, rock outcroppings, and pinyon-juniper vegetation communities. Foraging habitat for bats within or adjacent to the project area are most likely associated with the wetland/riparian areas.

Various rock outcroppings, cliff areas, and pinyon-juniper habitats were observed within the project area for the transmission line alignments that provide suitable habitats for bats. No specific bat surveys were conducted.

The majority of the 23 bat species in Nevada could occur throughout the project area; 15 of these species currently are identified as BLM Sensitive Species. Of these, the spotted bat (*Euderma maculatum*) is the only state-protected bat species known to occur within the planning area. This species is ranked as S2/S1 within the planning area, indicating continued presence in the state is imperiled. The spotted bat is designated as BLM and U.S. Forest Service sensitive, and is protected by Nevada State Law (BLM 2008a).

Banded Gila Monster

The banded Gila monster (*Heloderma suspectum cinctum*) is a BLM sensitive species and is currently ranked as a State of Nevada S2 species. Gila monsters range from the eastern Mojave to the northern Sonora desert. County status of this species is unknown due to the elusive nature of this reptile that is believed to spend approximately 95 percent of its life underground. Species distribution is inferred from habitat preferences and has been collected historically in both Clark and Lincoln counties. It frequents Mojave desert scrub, mesquite/catclaw, blackbrush, pinyon-juniper, and desert riparian habitats. Gila monsters are typically found on the lower slopes of rocky canyons, mesic areas, and flats with grassland or succulents. It uses rocks and burrows of other animals for cover and it searches for prey items, such as eggs of ground-nesting birds, reptiles, lizards, and insects, primarily at night, although it

may be active during the day. Gila monsters may also focus feeding efforts on locating desert tortoise eggs (Clark County MSHCP and EIS 2000).

Potential banded Gila monster habitat exists within the vicinity of the southernmost portions of the transmission line alignments in Lincoln and Clark counties. Its geographic range approximates that of the desert tortoise and is coincident to the Colorado River drainage (**Figure 3.8-1**). No incidental occurrences of this species were observed within the project area during desert tortoise triangle surveys conducted in 2007 (see **Section 3.8.3.1**).

3.8.3.3 General Wildlife

Big Game

Big game species within the project area consist primarily of pronghorn antelope, mule deer, Rocky Mountain elk, and two subspecies of bighorn sheep (**Figures 3.8-4a** - **3.8-4d**). Big game species utilize a variety of habitats, depending on the season. Mule deer and pronghorn antelope move between seasonal ranges more than other big game species, and are generally found at higher elevations in summer (i.e., "summer range") and lower elevations in winter (i.e., "winter range"). Seasonal movements for these species are affected by weather conditions, specifically the snow line, which determines the availability of food. Some low-elevation habitats are suitable for mule deer and pronghorn all year ("year-round range"). Elk are better adapted to snow conditions and many herds stay in the same habitat all year, although high-quality summer ranges such as aspen habitats that contain grasses and forbs are important to the species in general. Bighorn sheep also do not migrate in the winter, as they are adapted to cold, high-elevation conditions. Some habitat in the project area has been designated as suitable for this species ("potential habitat") and some areas contain known populations ("occupied habitat"). "Crucial" ranges for big game are habitats containing resources that are necessary to prevent unacceptable population declines. For example, crucial winter range for mule deer contains sufficient cover, food, and water to sustain individuals during this vulnerable period, which if not present, may result in high rates of mortality and possibly unacceptable population declines.

Pronghorn Antelope: With the exception of some higher elevation areas, pronghorn antelope (*Antilocapra americana)* year-round range exists within all of the project features that are north of Segments 9C and 9A (**Figure 3.8-4a**). There is no crucial winter range associated with this species in or near the project area. For details regarding which transmission line segments pass through pronghorn antelope year-round range see **Section 3.8.4.2**.

Mule Deer: Mule deer (*Odocoileus hemionus*) range is also mainly adjacent to portions of the project area. Within the project area, mule deer range is generally associated with the middle to upper elevations (**Figure 3.8-4b**). Habitat for mule deer includes big sagebrush, low sagebrush, shadscale, and grasslands. Mountain mahogany and pinyon-juniper woodlands are important for thermal and escape cover during winter. Riparian areas and sagebrush communities are commonly occupied by mule deer during the summer. For details regarding which transmission line segments pass through crucial mule deer year-round range see **Section 3.8.4.2**.

Figure 3.8-3a BLM Sensitive and State of Nevada Special Status Species

Figure 3.8-3b BLM Sensitive and State of Nevada Special Status Species

Figure 3.8-4a Pronghorn Antelope – Big Game Resources

Figure 3.8-4b Mule Deer – Big Game Resources

Figure 3.8-4c Elk – Big Game Resources

Figure 3.8-4d Bighorn Sheep – Big Game Resources

Rocky Mountain Elk: Several portions of the project area are located within Rocky Mountain elk (*Cervus canadensis nelsoni*) year-round range (**Figure 3.8-4c**). The largest herds occur in the Egan and Schell Creek Ranges. Since the late 1990s, elk populations in Lincoln and White Pine counties have been managed under the guidance of the Lincoln and White Pine Elk Management Sub-plans to the Statewide Elk Species Management Plan. These management sub-plans established population objectives by management unit (BLM 2008a). Elk sign was frequently encountered in the mid to upper elevations crossed by portions of the transmission line. For details regarding which transmission line segments pass through Rocky Mountain elk year-round range see **Section 3.8.4.2**.

Desert Bighorn Sheep: As displayed on **Figure 3.8-4d** both occupied and potential desert bighorn sheep *(Ovis canadensis nelsoni)* range occurs within and adjacent to portions of the project area. In 1936, 1.5 million contiguous acres were established in Clark and Lincoln counties as the Desert National Wildlife Range to primarily benefit desert bighorn conservation. From the late-1980s to present, NDOW has been reintroducing desert bighorn sheep into a number of mountain ranges within the project area (BLM 2008a). For details regarding which transmission line segments pass through occupied desert bighorn sheep range see **Section 3.8.4.2**.

Rocky Mountain Bighorn Sheep: As displayed on **Figure 3.8-4d,** potential Rocky Mountain bighorn sheep *(Ovis canadensis canadensis)* range is not located within or near the project area. Twelve Rocky Mountain bighorn sheep were reintroduced to Mount Grafton in the late 1980s. To date, limited populations of Rocky Mountain bighorn sheep occur on Mount Moriah and Mt. Wheeler in White Pine County, and on Mount Grafton in Lincoln County (BLM 2008a). For details regarding which transmission line segments pass through occupied Rocky Mountain bighorn sheep range see **Section 3.8.4.2**.

Small Mammals

Black-tailed jackrabbits (*Lepus californicus*) were the most common small mammal observed within the project area during baseline surveys. Mountain cottontails (*Sylvilagus nuttallii*) and pygmy rabbits were also commonly observed. Pygmy rabbits are discussed in **Section 3.8.3.2**. Packrat *(Neotoma cinerea)*, rock squirrel (*Spermophilus variegates*), least chipmunk (*Tamias minimus*), Richardson's ground squirrel *(Spermophilus elegans nevadensis)*, white-tailed antelope squirrel *(Ammospermophilus leucurus)*, golden-mantled ground squirrel *(Spermophilus lateralis)*, Piute (Great Basin) ground squirrel *(Spermophilus mollis)*, Townsend's ground squirrel *(Spermophilus townsendii)*, and pygmy shrews *(Sorex minutus)* are other small mammals that were either observed during baseline surveys (**Appendix 3D**) or are known to occur within the project area.

Predatory Mammals

The project area provides a diversity of habitat types for a variety of predators. Predators that were either observed directly or their presence inferred by sign (i.e., tracks, dens, scat) during baseline surveys include: coyote (*Canis latrans),* kit fox (*Vulpes macrotis*), badger (*Taxidea taxus*), and mountain lion *(Felis concolor)*. Other predators that likely occur within or near the project area include gray fox (*Urocyon cinereoargenteus*) and bobcat *(Lynx rufus)*.

Reptiles

Several species of reptiles were observed within the project area (**Appendix 3D**). Side-blotched lizards (*Uta stansburiana*), western fence lizards (*Sceloporus occidentalis*), and sagebrush lizards (*Sceloporus graciosus*) were the most abundant species of reptile encountered. Desert horned lizards (*Phrynosoma platyrhinos*) were observed in southern Lincoln and Clark counties.

One Mojave Desert Sidewinder (*Crotalus cerastes cerastes*) was observed near the south end of Kane Springs Valley. One live desert tortoise and multiple tortoise sign were also observed as discussed in **Section 3.8.3.1**.

Upland Game Birds

The following species of game birds were observed in the project area during baseline surveys: chukar (*Alectoris chukar*), mourning dove (*Zenaida macroura*), California quail (*Callipepla californica*), and greater sage-grouse (discussed in **Section 3.8.3.2**). In addition, blue grouse (*Dendragapus obscurus*), Hungarian partridge (*Perdix perdix*), Gambel's quail (*Callipepla gambelii*), and Rio Grande turkey (*Meleagris gallapavo intermedia*) can also occur within or near the project area.

Appendix 3D lists the bird species observed during the baseline surveys, although numerous other species not observed are known to occur across the habitats found within the project area.

Waterfowl

The project area crosses over or is adjacent to several riparian areas that support a variety of waterfowl species. Transmission Line Segment 6C crosses the southern end of the Kirch Wildlife Management Area and Segment 9D is located less than 1,000 feet from the southeastern boundary of the Pahranagat National Wildlife Refuge.

3.8.3.4 Migratory Birds

Migratory birds are protected under the Migratory Bird Treaty Act (16 U.S. Code 703-711) and Executive Order 13186 (66 FR 3853), that in January 2001, President Clinton signed requiring some federal agencies (those taking actions that may negatively impact migratory birds) to develop a MOU with the USFWS to promote the recommendations of various migratory bird programs and conservation considerations.

A list of Birds of Conservation Concern was developed as a result of a 1988 amendment to the Fish and Wildlife Conservation Act. This Act mandates that the USFWS "identify species, subspecies, and populations of all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." The goal of the Birds of Conservation Concern species list is to prevent or remove the need for additional ESA bird listings by implementing proactive management and conservation actions. Therefore, on any actions that could negatively impact migratory birds, the species listed as Birds of Conservation Concern would be reviewed in accordance with Executive Order 13186 (BLM 2008a).

The project area provides a diversity of habitats for many species of migratory birds. Sagebrush vegetation communities, comprising nearly 25 percent of the project area, have been identified as Priority A habitat under the *Coordinated Implementation Plan for Bird Conservation in Nevada*. Priority A habitat is defined as habitat being under high threat, having high opportunity, and high value to birds statewide (Nevada Steering Committee Intermountain Joint Venture 2005).

Appendix 3D lists the bird species observed during the baseline surveys, although numerous other bird species not observed are known to occur across the habitats found within the project area.

3.8.3.5 Fisheries

Perennial water sources are very limited within the project area and thus fishery resources are not expected to be impacted by the ON Line Project. Therefore, fishery resources will not be discussed further in this SEIS.

3.8.4 Specific Project Area Conditions

Appendix 3D displays the wildlife species observed in the project area during baseline surveys conducted in 2006 and 2007.

The following categories of wildlife inhabit and/or forage within the majority of the project area. Unless otherwise noted, they will not be discussed below under each specific Project feature.

Bats
Small Mammals
Predatory Mammals
Reptiles
Migratory Birds
Upland Game Birds

Threatened, Endangered, Proposed, and Candidate Species

The desert tortoise is the only Threatened, Endangered, Proposed, and Candidate species that is known to occur within the area of the Proposed Action or the Action Alternative. Tortoise habitat occurs Segments 9C, 9D, the southern portion of Segment 10, and Segment 11 (**Figure 3.8-1**). Suitable desert tortoise habitat does not occur in the proposed Robinson Summit Substation or Falcon Substation expansion areas.

BLM Sensitive and State of Nevada Special Status Species

Greater Sage-grouse: Greater sage-grouse habitat occurs throughout the White River Valley. There are eight leks (2 active) within 2 miles of the project area. **Figure 3.8-2** illustrates the type and location of these leks, and **Table 3.8-2** above shows the status and proximity of these leks to the nearest transmission line segment.

Pygmy Rabbit: Pygmy rabbits or their sign (i.e. pellets and burrows) were recorded in Segment 6C (**Figure 3.8-3a**).

Raptors: Many species of raptors utilize the diversity of habitats that exist throughout all of the transmission line segments (**Figures 3.8-3a and 3.8-3b**). Two separate sections of Segment 6C are situated within known ferruginous hawk nesting habitat areas that span the entire 2,640' width of the SWIP Utility Corridor. During baseline surveys, unidentified cliff nests were discovered south of Segment 6C (Proposed Action) in the Gap Mountain area. The Robber's Roost Hills in Segment 8 is a particularly active raptor nesting area; in addition to several stick nests, two fledgling peregrine falcons were observed there. A golden eagle fledgling was observed sitting on a nest within the northwestern portion of Segment 10 and an active golden eagle nest was observed in Segment 8.

Western Burrowing Owl: A burrowing owl was observed in the northern portion of Kane Spring Valley, near Segment 10. Burrowing owls likely forage within the diversity of habitats that exist throughout much of the transmission line segments.

Banded Gila Monster: This species is known to occur in Clark and Lincoln counties and occupies the same general habitat as the desert tortoise (**Figure 3.8-1**). However, due to the elusive nature of the Gila monster very few historical sitings have been recorded. Baseline surveys for desert tortoise conducted in Segments 9D, 10, and 11 yielded no observations or signs of Gila monster individuals.

General Wildlife

Pronghorn Antelope: With the exception of some higher elevation areas, transmission line segments 6C, 8, 9A and a portion of Action Alternative Segment 10 pass through pronghorn year-round range (**Figure 3.8-4a**).

Mule Deer: Several transmission line segments pass through mule deer winter range, summer range, and crucial winter range (**Figure 3.8-4b**). **Table 3.8-3** below indicates which transmission line segments are within and/or adjacent to mule deer crucial winter range.

TABLE 3.8-3 MULE DEER CRUCIAL WINTER RANGE PROXIMITY TO TRANSMISSION LINE SEGMENTS

TRANSMISSION LINE SEGMENT	PROXIMITY TO TRANSMISSION LINE SEGMENT
Segment 6C	Adjacent to crucial winter range where Segment 6C intersects Highway 6
Segment 6C	Portions within crucial winter range near Wells Station in the Grant Range
Segment 6C	Adjacent to crucial winter range near the northern toe of the Golden Gate Range
Segment 6C	Portions within crucial winter range of Silver King Pass on the Schell Creek Range
Segment 8	Portions within crucial range surrounding the Bristol Wells area
Segment 8	Adjacent to crucial range along the westernslope of the Highland Range

Rocky Mountain Elk: There is no elk crucial winter or crucial summer range within the project area. Several transmission line segments pass through elk year-round range (**Figure 3.8-4c**). **Table 3.8-4** below indicates which transmission line segments are within and/or adjacent to elk year-round range. Elk sign was numerous in the vicinity of the Robinson Summit Substation and the Silver King Pass portion of Segment 6C.

TABLE 3.8-4 ELK YEAR-ROUND RANGE PROXIMITY TO TRANSMISSION LINE SEGMENTS

TRANSMISSION LINE SEGMENT	PROXIMITY TO TRANSMISSION LINE SEGMENT
Segment 6C	Portions within year-round range between Robinson Summit and Wells Station in the Grant range
Segment 6C	Portions within year-round range of Silver King Pass on the Schell Creek Range
Segment 10	Portions within year-round range in the Meadow Valley Mountains

Bighorn Sheep: No occupied Rocky Mountain bighorn sheep range is located near any of the transmission line segments. Several transmission line segments pass through occupied and potential desert bighorn sheep range (**Figure 3.8-4d**). **Table 3.8-5** indicates which transmission line segments are within and/or adjacent to occupied desert bighorn sheep range.

TABLE 3.8-5 OCCUPIED DESERT BIGHORN RANGE PROXIMITY TO TRANSMISSION LINE SEGMENTS

TRANSMISSION LINE SEGMENT	PROXIMITY TO TRANSMISSION LINE SEGMENT
Segment 6C	Portions within occupied range surrounding Silver King Pass of the Schell Creek Range
Segment 9A	Within occupied range
Segment 9C	Within occupied range
Segment 10	Portions within occupied range of the Delamar Mountains
Segment 10	Adjacent to occupied range along the western foothills of the Meadow Valley mountains
Segment 11	Portions within occupied range of the Arrow Canyon Range

Waterfowl: Two key waterfowl areas have been identified within proximity to but not within any of the transmission line segments. Segment 6C passes south of the southern boundary of the

Kirch Wildlife Management Area and the northern portion of Segment 9D passes less than 1,000 feet from the east boundary of the Pahranagat National Wildlife Refuge.

Falcon Substation

Boulder Valley is known to be utilized by both mule deer (*Odocoileus hemionus*) and pronghorn antelope (*Antilocapra americana*). Antelope, coyote, and black-tailed jackrabbit sign were present in the area. Birds observed during the site visit include the common raven (*Corvus corax*), horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), and Say's Phoebe (*Sayornis saya*). A pair of Say's Phoebes was observed nesting inside the substation fence on a steel I-beam structure.

3.9 Range Resources

Within the BLM's Ely District there are 242 grazing allotments. The Southern Nevada District has approximately 63 allotments, although only 5 of these are available for grazing. Of these 305 allotments, 28 are within the ON Line project area, although not all of these would be affected (see **Figures 3.9-1a and 3.9-1b**). These 28 allotments are open rangelands that have the potential to be used periodically, at various intensities, for livestock grazing.

In addition, wild horses inhabit some of the rangeland within the project area. Wild horses are protected by the Wild Free-Roaming Horses and Burros Act of 1971 (Public Law 92-195, as amended). There is only one Herd Management Area (HMA) within the project area. Horses are actively managed in HMAs to maintain herd health and the health of rangelands (BLM 2007b; see **Figure 3.9-2**).

3.9.1 Area of Analysis

The area of analysis includes the components of the Proposed Action and Action Alternative. The indirect impact area includes the entirety of any allotment or HMA directly affected by the project.

3.9.2 Data Sources and Methods

The following indicators were considered when describing the affected environment for range resources:

- Vegetation and forage production within the direct affects area
- Number of livestock allotments or HMAs that have one or more elements of the ON Line Project situated within them, and the numbers of livestock or horses currently using, or approved to use, these areas
- Locations of water sources, springs, and other range improvements in relation to the direct affects area

Vegetation and forage production information is based on NRCS summary data found in the Web Soil Survey, Soil Data Explorer – Range Productivity Information, located at http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (USDA 2007c), as well as original vegetation data presented **Section 3.7**.

Each livestock allotment or HMA that has portions of the ON Line Project elements within them is included in the descriptions below. The acreage of the allotment or HMA is provided, as well as the number of animals using these lands. Additional information about the location of the allotment or HMA relative to roads, water sources, human settlements, or period of use is also included where information was available.

Information about water sources, springs, and other range improvements was gathered from existing BLM data regarding livestock watering facilities, the Nevada State Engineer's Office website (http://water.nv.gov) (NDWR 2006), and seep, spring, and stream survey data collected for this SEIS, which is presented in **Section 3.2.3.2**.

3.9.3 Existing Conditions

The proposed ON Line Project and its components would be constructed on a landscape dominated by rangelands in an arid area receiving 5 to 14 inches of precipitation per year (see **Table 3.6-2**). Most of these lands are managed by the BLM and are divided into grazing allotments used principally for cattle grazing, some sheep grazing, and wildlife habitat.

A number of ranchers have grazing permits with grazing preference for one or several of the allotments within the project area depending upon the permit. In the project area, these allotments are generally grazed for a set period of time and may include year-round grazing, with livestock rotating use based on the terms and conditions of the permit. The BLM manages the number of livestock on the allotment by tracking Animal Unit Months (AUMs). An AUM is the amount of forage required to maintain a cow, cow and calf less than six months old, a bull, or five sheep, for one month. Forage includes those plant species that are palatable to grazing animals. In Nevada, an AUM is the equivalent of 1,000 pounds of dried forage. The BLM determines the number of AUMs available on each allotment based on forage studies and other evaluations of rangeland health.

There are three adjudicated sheep trails running from north to south that the transmission line alignments parallel and at three places intersect (**Figure 3.9-1a**). The trails are a mile wide and connect to each other with the Jakes Unit Trail starting in the north. This trail leads into the middle trail, the Preston Lund Trail. The Preston Lund Trail leads into the southern trail, the White River Trail. Three ranchers have adjudicated AUMs specific to these trails for spring and fall sheep trailing. All three ranchers graze sheep on the northern (summer) and southern (winter) allotments within the Ely BLM District.

For the purposes of this SEIS, the total vegetation production and available forage in pounds per acre was determined for a random selection of allotments within the direct effects area that would represent commonly occurring forage areas. These values were determined by looking up vegetation and forage production rates for the appropriate NRCS Ecological Site. An Ecological Site is "a distinctive kind of land with specific characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation" (NRCS 2003). All rangelands in Nevada have been characterized into Ecological Sites, which correlate to a specific soil type (soil survey map unit). Both soil survey data and Ecological Site Description (ESD) information are collected and maintained by the NRCS (See http://esis.sc.egov.usda.gov/ESIS/About.aspx).

Total vegetation production is the sum of the air-dry weight of all vegetation growing on an acre of land, determined by sampling the vegetation. Forage production is a sub-set of vegetation production and includes production only of perennial grasses and winterfat. The total pounds of vegetation production or forage production per acre is multiplied by 50 percent to assure that enough forage is left to maintain rangeland health. Dividing the pounds of production per acre by 1,000 pounds per AUM gives the number of AUMs for a particular area of land. In the project area, it takes several acres to provide one AUM (BLM 2007a).

Figure 3.9-1a Allotment Resources

Figure 3.9-1b Allotment Resources

Figure 3.9-2 Herd Management Areas

The project area also contains 1 HMA. HMAs are managed with Appropriate Management Levels (AMLs). AMLs are defined as the number of wild horses or burros that can be sustained within a designated HMA while maintaining a natural ecological balance, in keeping with the multiple-use management concept for the area (National Wild Horse Association 2007). The BLM determines the appropriate number of wild horses and burros that each herd management area can support through intensive land use management planning efforts, including range forage inventory and requests for input from the public (BLM 2007b).

Vegetation in the project area is generally dominated by shrubland species. The most common shrub species are big sagebrush, Douglas rabbitbrush, winterfat, greasewood in the north and central portions of the project area, with blackbrush, and creosote bush becoming more common as one moves southward. Two low tree communities also occur: pinyon-juniper woodlands at higher elevations in the north and Joshua tree forests at low to mid elevations in the south. Grasses are a minor or sub-dominant component of these communities, or are dominant in the uncommon hydrophyllic plant communities identified in the project area. Common grasses in the project area include Indian ricegrass, various needlegrasses, alkali sacaton, Sandberg bluegrass, bluebunch wheatgrass, basin wildrye, and alkali saltgrass, as well as sedges and rushes in seasonally wet areas. Shrub communities are often a complex of the species noted above, although areas with only one to a few species are relatively common. For example, islands of winterfat monocultures grow on silty soils on alluvial fans between Wyoming big sagebrush-dominated communities. Salt desert shrub communities consist of only salt-tolerant species and grow near valley bottoms. Grass-rich areas, plant communities located near water, and the areas of winterfat monocultures are important forage areas to livestock and horses as these species are palatable, productive, and nutritious. Sagebrush is also important to many wildlife species as browse and cover.

Although the landscape is arid, numerous springs outcrop at the base of the mountains to create isolated wet and sometimes saline meadows. Some of these springs are used as water sources for livestock.

Vegetation and forage availability varies significantly with proximity to water, soil depth, and texture. Allotments and HMAs may contain several different ecological sites. Therefore, some portions of allotments or HMAs may have good forage while others have poor forage.

Water is also a variable resource. Some allotments and HMAs have several springs and/or developed water sources. Others may have only one water source. Cattle and horses move up to several miles a day to reach good forage and good water, and will often congregate around water sources or on high, breezy ground (Griffith 1999).

Natural mortality rate information for cattle is unavailable. Causes of mortality include disease, animal predation, weather-related stress, or collisions with vehicles. In a typical cow-calf operation, mother cows produce one calf per year. Cows that do not produce a calf are generally sold. Depending on the operation, mother cows are kept for 4 to 7 years, steers are kept for 6 to 18 months, and female calves are either sold with the steers or kept to replace older mother cows. Very few male calves are kept as bulls.

Horses have an average mortality rate of about 5 percent per year and a herd growth rate of about 20 percent per year. Populations are kept in check by rounding up the horses and auctioning them off every few years. Any unadopted horses and/or foals are sent to holding facilities (Noyes 2007).

3.9.4 Specific Project Area Conditions

Grazing Allotments

Up to 28 grazing allotments would be crossed by one or more elements of the proposed transmission facilities. **Table 3.9-1** lists the transmission line segment, the allotments, and the allotment acres that these facilities would potentially intersect if chosen. Not all proposed segments of the transmission facilities would be developed, thus not all the allotments noted below would be affected. All allotments within the direct and indirect effects area in the Southern Nevada District have been relinquished. That is, there is no active grazing by livestock within these allotments, thus the AUMs are not used.

TABLE 3.9-1 ALLOTMENTS INTERSECTED BY TRANSMISSION FACILITIES

ELECTRIC TRANSMISSION ELEMENT	ALLOTMENT	TOTAL ACRES IN ALLOTMENT	AUMS IN ALLOTMENT*
Robinson Summit Substation Segments 6C, 8, 9B, 9A, 9C, 9D, 10, 11 Falcon Substation (private land)	Thirty Mile Spring	188,872	8,405
	Badger Springs	33,755	1,412
	Indian Jake	48,894	2,948
	Giroux Wash	58,017	3,107
	Tom Plain	81,080	4,439
	McQueen Flat	11,694	496
	Douglas Canyon	15,043	175
	Douglas Point	13,889	368
	North Cove	27,296	879
	Cove	28,273	3,967
	Wells Station	13,925	302
	Hardy Springs	125,651	3,478
	Forest Moon	117,532	2,263
	Sunnyside	237,408	5,402
	Fox Mountain	73,430	6,322
	Wilson Creek	1,071,661	54,070
	Simpson	8,088	747
	Ely Springs Sheep	24,238	4,248
	Ely Springs	57,850	4,248
	Cliff Springs	37,019	2,043
	Oak Springs	197,950	9,268
	Buckhorn	80,664	3,370
	Lower Lake East	52,550	640
	Arrow Canyon	114,987	0
	Pitman Well	43,210	0
	Dry Lake	35,414	0
	Delamar	203,000	5,558
	Grapevine	22,000	560

*AUM Data from Wilson 2007

HMAs

The Silver King HMA is within the direct and indirect affects area of the transmission facilities (**Figure 3.9-2**).

Segment 6C enters the Silver King HMA from the west, crosses the southern third of the Schell Creek Range, then becomes Segment 8, as the transmission line turns south to run along the Dry Lake Valley through this HMA.

US-93 bisects the Silver King HMA to the east of the proposed alignment; the west boundary of the HMA is defined by SR-318 and the east edge of the South Egan Range. It includes most of Cave Valley and Muleshoe Valley on the north. It cuts across the North Pahroc, Dry Lake Valley, and Highland Range on the south. It is 606,000 acres in size (947 square miles). The

Silver King HMA surrounds the communities of Pioche and Casselton on three sides; the communities are located in a lobe of land not part of the HMA.

This HMA is managed for 60 to 128 horses (BLM 2008a), and there are currently an estimated 438 horses using the HMA (Noyes 2009). There are no wild burros in the project area.

Vegetation and Forage Production

Typical vegetation and forage production rates for ecological sites from selected locations along the transmission facilities range from 2,200 pounds total vegetation and 1,650 pound forage per acre in a good year on a Saline Bottom Ecological Site (028BY004NV) dominated by Basin wildrye and alkali sacaton to 75 pounds total vegetation and 4 pounds forage per acre in a poor year on a Limy 3-5 P.z. Ecological Site (R030XB019NV). Note that the latter site is near the south end of the transmission line where temperatures are higher, vegetation communities are more "brittle", and the referenced site is dominated by annual plants. Vegetation and forage production rates for good, fair, and poor years for selected ecological sites located in or near the electric transmission facility segments are listed in **Table 3.9-2**.

A few range improvements have been completed along the transmission facilities. These include seedings in Segment 6C in the McQueen Flat and Douglas Canyon Allotments.

TABLE 3.9-2 VEGETATION AND FORAGE PRODUCTION RATES FOR SELECTED AREAS WITHIN THE TRANSMISSION FACILITIES

ECOLOGICAL SITE / SOIL SERIES	TOTAL ANNUAL AIR-DRY PRODUCTION (LBS/ACRE): VEGETATION / FORAGE			DOMINANT SPECIES AND THEIR PERCENT COVER
	GOOD YEAR	FAIR YEAR	POOR YEAR	
SEGMENT 6C				
Soil Map Unit Number/Name: 124 – Tecomar-Pookaloo association, 1476.0 acres				
Shallow Calcareous Hill 14+ P.z. (028BY090NV) Tecomar	400 / 140	250 / 88	125 / 44	Black sagebrush 35% Bluebunch wheatgrass 20% Scribner needlegrass 5% Stansbury cliffrose 5%
SEGMENT 8				
Soil Map Unit Number/Name: 1510 - Raph-Zimwala-Heist association, 1108.9 acres				
Shallow Silty 8-10 P.z. (028BY009NV) Raph	500 / 200	400 / 160	300 / 120	Shadscale 45% Indian ricegrass 25% Bottlebrush squirreltail 10%
SEGMENT 9B				
Soil Map Unit Number/Name: 1520 – Fax-Yody-Broland association, 1096.4 acres				
Shallow Clay Loam 10-12 P.z. (028BY089NV) Broland	450 / 248	300 / 193	150 / 83	Indian ricegrass 25% Black sagebrush 25% Thurber's needlegrass 20%
SEGMENT 9D				
Soil Map Unit Number/Name: AB – Arizo-Bluepoint association, 622.0 acres				
Limy 3-5 P.z. (R030XB019NV) Arizo	200 / 10	125 / 6	75 / 4	White bursage 65% Creosote bush 10% Range ratany 5%
SEGMENT 10				
Soil Map Unit Number/Name: 1520 – Fax-Yody-Broland association, 174.6 acres				
See Segment 9B above				
SEGMENT 11				
Soil Map Unit Number/Name: CTC – Colorock-Tonopah association, 7567.8 acres				
Limy 5-7 P.z. (R030XB005NV) Tonopah	325 / 81	240 / 60	90 / 23	Misc. shrubs 17% Misc. annual forbs 15% Big galleta 10% Misc. annual grasses 5%

Source: NRCS Undated.

Water Wells

There are several wells, springs, and stock-watering facilities located along the proposed transmission segments. Information about these facilities was collected from the Nevada State Engineer website (NDWR 2006), field surveys for this SEIS, and the BLM Ely and Southern Nevada District offices. However, not all developed stock watering locations have State Engineer records, nor have they all been mapped or recorded in BLM records. The information in **Table 3.9-3** is the most complete list of water wells, springs, and stock watering tanks available at this time.

TABLE 3.9-3 WELLS, SPRINGS, AND STOCK WATERING FACILITIES LOCATED WITHIN 1.5 MILES OF THE TRANSMISSION FACILITIES

ON LINE PROJECT ELEMENT	ALLOTMENT	HMA	TOWNSHIP & RANGE	SECTION	LOCATION	OWNER – TYPE	DISTANCE TO PROJECT ELEMENT
Robinson Summit Substation area	Thirty Mile Spring	None	18N, 61E	19	NW ¼	BLM - Summit Spring	<1 miles
Segment 10	Grapevine	None	10S, 64E	9	NW ¼	Unknown - Reservoir	1.5 miles

3.10 Cultural Resources

The National Historic Preservation Act (NHPA) of 1966, as amended, and the Archaeological Resources Protection Act of 1979 (ARPA) are the primary laws regulating preservation of cultural resources. Federal regulations obligate federal agencies to protect and manage cultural resource properties and prohibit the destruction of significant cultural sites (historic properties) without first mitigating the “adverse effect” to the site.

The NHPA sets forth procedures for considering effects to historic properties and supports and encourages the preservation of prehistoric and historic resources. It directs federal agencies to consider the impacts of their actions on historic properties. The NHPA established the Advisory Council on Historic Preservation (ACHP) and tasked the ACHP with administering and participating in the preservation review process established by Section 106. Section 106 of the NHPA, as amended, requires federal agencies to take into account any action that may adversely affect any structure or object that is, or can be, included in the National Register of Historic Places (NRHP). These regulations, codified at 36 CFR 800, provide criteria to determine if a site is eligible. Beyond that, the regulations define how those properties or sites are to be dealt with by federal agencies or other involved parties. These regulations apply to all federal undertakings and all cultural (archaeological, cultural, and historic) resources.

Cultural resources are defined as any definite location of past human activity identifiable through field survey, historical documentation, and/or oral evidence. Cultural resources have many values and provide data regarding past technologies, settlement patterns, subsistence strategies, and many other aspects of history.

A Traditional Cultural Property (TCP), as defined in the NHPA, is a property that is eligible for inclusion on the NRHP “because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1994).” Stated another way, a significant TCP is defined as a property with “significance derived from the role the property

plays in a community's historically rooted beliefs, customs, and practices (Parker and King 1994)."

3.10.1 Area of Analysis

A Programmatic Agreement establishing an Area of Potential Effect (APE) for cultural resources and outlining the methods of identification and treatment of cultural resources was completed for the ON Line Project and signed by the agencies. Under the Programmatic Agreement, the BLM has assumed responsibility for completing Section 106 compliance for cultural resources within the APE. The APE for assessment of direct effects includes all of the ON Line Project components associated with the Proposed Action and Action Alternative as described in **Chapter 2**.

Class III cultural resource inventories (systematic and detailed field inspections) were conducted for portions of the project area outside the SWIP Utility Corridor (Seymour et al. 2007 and Young et al. 2007). Archaeological sensitivity modeling was conducted for prehistoric and historic resources within the SWIP Utility Corridor (Carpenter et al. 2008), making use of the project-specific and comparable adjacent surveys. The archaeological sensitivity modeling utilizes existing NRHP-eligible site data, and provides levels of archaeological sensitivity through acreages of NRHP-eligible site area rather than number of NRHP-eligible sites.

3.10.2 Data Sources and Methods

Information regarding cultural resources in the project area was collected through literature searches and field inventory. Data for cultural resources includes record search information for an area 1-mile out from project components and field inventories of project components where comparable data does not exist, and results and/or extrapolation from previous applicable inventories (i.e., SWIP inventory).

3.10.3 Existing Conditions

3.10.3.1 Prehistory

The ON Line Project straddles two distinct areas—the Great Basin and eastern Mojave Desert. Boundary and transitional areas (peripheries) can be difficult to characterize. The period divisions for the Great Basin and the eastern Mojave regions are generally congruent. It appears that adaptive/technological/cultural changes occurred in the same general time frames for both regions; this is likely even more true in transitional or boundary regions. Therefore, a simplified four-phase chronology, after Elston (1986) is presented here, summarized from Carpenter et al. (2008). The Late Archaic includes Formative and Post-formative cultural traits to acknowledge the agricultural influence towards the end of the sequence (Carpenter et al. 2008).

Pre-Archaic (12,000-7,000 Before Present (BP))

Throughout much of the Great Basin, this period is characterized by an emphasis on a relatively small set of highly ranked resources, which would have been abundant in wetland settings. During this time, hunting groups apparently made increasing use of small mammals, waterfowl and other birds, and fish (Jones et al. 2003). Within the Great Basin, sites that date to this period are rarely found (Elston 1986). Pre-Archaic complexes generally tend to be located along the bottomlands and playa margins of the ancient lakeshores of the Lahontan and Bonneville lake systems. The project area lies within a broad, elevated zone, which separates these two paleo hydrological systems, and so may not have attracted early settlement for this reason (McGuire et al. 2004).

Early Archaic (7,000-4,000 BP)

Across the Great Basin, Early Archaic artifact assemblages are more diverse than in the previous period, with grinding tools and intensively used bifaces and scrapers common. These changes are thought to signal resource diversification, as a wider variety of resources including small game, seeds, and pinyon nuts became more important dietary constituents.

Middle Archaic (4,000-1,500 BP)

Across the Great Basin, the Middle Archaic is noted for the dramatic development of large semi-sedentary villages. Other distinctive traits include elaborations in material culture, house construction, obsidian tool production, and ceremonial activity directed particularly at the hunting of large game (Hildebrandt and McGuire 2002). At the same time, dietary faunal profiles reflect a comparatively sudden shift from large-game (bighorn) to small game, such as rabbits/hares, between 1,000 and 2,000 BP. Big-game hunting, particularly mountain sheep, remained an important subsistence activity, but sites containing seed processing tools and rabbit bones are fairly common. Quarry production and biface manufacturing associated with the major toolstone sources similarly developed to unprecedented levels (Gilreath and Hildebrandt 1997).

Late Archaic (1,500 BP to Euro-American Contact)

The Late Archaic in much of the Great Basin is marked by several technological changes. Around 1,500 years ago, the atlatl and dart were replaced by the bow and arrow, with a concurrent switch to smaller and lighter projectile points (e.g., Rose Spring and Desert series). Plant processing equipment becomes more elaborate and abundant, and ceramics appear in the archaeological record after about 900 BP.

There are indications that Fremont groups came into contact with eastern Nevada groups during this interval. The Fremont consisted of several groups of related semi-sedentary people centered in Utah who relied on a range of subsistence practices, from full-time foraging to full-time horticulture (Hockett and Morgenstein 2003; Madsen and Simms 1998).

The final group to enter this region, at about 700 BP, was Numic-speaking populations. This group, the Western Shoshone, may have replaced the Fremont and are thought by some researchers (Lamb 1958; Bettinger and Baumhoff 1982) to have expanded east and north from a homeland in southern California. Archaeological literature characterizes Numic groups as having practiced a broad-spectrum, foraging lifeway, concentrating on a greater range of resources that were costly to collect and process, thus out-competing and displacing pre-Numic inhabitants (Bettinger and Baumhoff 1982). The Numic groups who occupied the Great Basin at the time of Euro-American contact were mostly mobile hunters and gatherers who moved in a seasonal pattern. Their contemporary successors continue to occupy the Great Basin.

3.10.3.2 Ethnohistory

At the time of Anglo-American intrusions, most of the project area was occupied by the Southern Paiute and the Western Shoshone (which includes the Goshute and Shoshone). Traditional lands of the Goshute Shoshone extend west from Utah, with a few Goshute settlements occurring as far west as Egan Canyon. In southern Nevada, the traditional use areas for the Western Shoshone and Southern Paiute meet in the general vicinity of the Lincoln-Clark county line. The Western Shoshone and Southern Paiute interacted extensively along this territorial boundary.

Pre-contact Western Shoshone and Southern Paiute are described as fairly uniform cultures with only minor local variations, based entirely on hunting and gathering. The Western

Shoshone hunted and gathered in family areas based on yearly cyclical migration patterns. The bands lived in widely scattered winter villages consisting of a few families, coming together for communal activities (Steward 1938). Native lifeways were initially disrupted in the 1820s with the appearance of trappers and explorers; and largely restructured with the development of local mining and ranching/farming operations.

3.10.3.3 History

Histories of the area have been written (James 1981; Angel 1958; Elliot 1987) and will not be reiterated here. Following is a brief summary of history pertinent to the resources in the project area.

Transportation and Communication

The early history of Nevada is tied to the major transportation corridors linked to substantial settlements outside of the state. Early Nevada settlements developed astride these transportation corridors. Trails, roads, and, later, railroad lines were the initial conduits for importing the foods and supplies necessary to survive in this harsh environment. Later, these same corridors carried food and mineral resources out of the area. Events and/or developments relating to transportation and communication include the California Gold Rush of 1849, overland mail service including the Pony Express/Egan Trail, the Nevada Northern Railway, and the Central Pacific Railroad.

Mining

Mining for gold, silver, and copper was probably the largest catalyst for settlement in this region. From Ely to the south, the following historic mining districts are in proximity to the project alignment: Cherry Creek Mining District, Robinson Mining District, Currant Mining District, the Silver King Mining District, Delamar District, and a cluster of mines in the general vicinity of Pioche, including, Ely Springs, Bristol, Highland, Pioche, and Comet districts.

Ranching and Farming

Ranching in the west was well-established in Nevada by the late 1870s. Cattlemen could obtain land through the 1862 Homestead Act, the Timber and Culture Act of 1873, and the Desert Land Act of 1877.

In response to overgrazing, the Taylor Grazing Act of 1934 was signed by President Roosevelt. This legislation was intended to “stop injury to the public lands by preventing overgrazing and soil deterioration; to provide for their orderly use, improvements, and development; and to stabilize the livestock industry dependent upon the public range” (Sayre 1999). Because it changed the way the government managed federal land, the Taylor Grazing Act of 1934 was probably the most significant federal legislation the West had seen to date. For one, it essentially ended the Homestead Act, and then, for the first time, the federal government asserted authority over the “Public Domain.”

3.10.3.4 Previous Research

Records searches of the project area, and areas surrounding it, were conducted at the Ely District Office of the Nevada BLM, the Harry Reid Center of Environmental Studies at the University of Nevada, Las Vegas (UNLV), and using data incorporated in the Nevada Cultural Resources Information System (NVCRIS). Results plotted on USGS topographic quadrangle base-maps covering the project area were reviewed to identify previously documented sites and cultural resource studies completed within 1 mile of project components. A supplemental review of the General Land Office (GLO) maps determined historical land ownership and locations of

potential historic-period sites within 3 miles of project components. This information is documented in the associated cultural resource reports (Young et al. 2007, Carpenter et al. 2008; Duke et al. 2009).

3.10.3.5 Cultural Resource Inventory Results

A Class III level inventory was conducted on certain components of the ON Line Project: Robinson Summit Substation, Falcon Substation Expansion area, Segment 9A, and Segment 10. The ON Line transmission line segments that are within the SWIP Utility Corridor were not inventoried since a 200-foot wide alignment within the SWIP Utility Corridor had recently been inventoried as part of a separate project (Crews et al. 2007) and provides information useful for assessing SWIP Utility Corridor-wide sensitivity. The findings from the project-specific inventories, combined with recent findings from the associated transmission line ROW in the SWIP Utility Corridor (Crews et al. 2007), provide sufficient information to analyze the ON Line Project's potential affect on cultural resources. Data from the project-specific and adjacent studies were incorporated into a sensitivity analysis as described below. As outlined in the Programmatic Agreement, all elements of the final design would be fully inventoried and Section 106 satisfied prior to any project related disturbance. Project components, or portions thereof, not included in field investigations, would be subject to a Class III inventory as project planning proceeds and prior to any ground disturbing activities in those locations.

No TCPs have been identified in the project area by previous studies.

Archaeological Sensitivity Analysis

An archaeological sensitivity assessment was derived from the current and relevant previous Class III level inventory results for the project area and adjacent lands (see keystone studies in Carpenter et al. 2008). Using site types and those sites determined or recommended eligible to the NRHP, density estimates for the number of acres of NRHP-eligible sites per square mile were made (Carpenter et al. 2008). Each of the various project components was then ranked according to its prehistoric and historic archaeological sensitivity. The sensitivity ranks are defined in **Table 3.10-1**. Overall, historic site counts and the number of NRHP-eligible historic period sites are low, precluding classification using the same methods developed for the prehistoric sites (Carpenter et al. 2008); therefore a simplified method was developed. Sensitivity rankings for historic sites takes into account both number of eligible sites and proximity to sensitive areas related to specific themes of transportation/communication, mining, and farming/ranching.

TABLE 3.10-1 ARCHAEOLOGICAL SENSITIVITY RANKING

SENSITIVITY RANK	DESCRIPTION
PREHISTORIC ARCHAEOLOGY	
Low	Less than 1 acre of NRHP-eligible sites per square mile
Moderate	1 to 7.5 acres of NRHP-eligible sites per square mile
High	7.5 to 15 acres of NRHP-eligible sites per square mile
Very High	15+ acres of NRHP-eligible sites per square mile
HISTORIC ARCHAEOLOGY	
Low	Few if any NRHP-eligible sites
High	Several NRHP-eligible sites and/or proximity to significant transportation corridors or historic mining districts

Nine general prehistoric site types were recognized based on artifact composition, site size, and the toolstone utilized. These include complex feature/artifact assemblage, simple/complex flaked stone, linear feature/assemblage, simple milling equipment, simple pottery assemblage, toolstone quarry, segregated reduction location, isolated thermal feature, and isolated artifact. Simple flaked stone scatters comprise 79 percent of prehistoric sites within the keystone studies (Carpenter et al. 2008).

The historic-period sites were generally classified into nine types and then associated with historical themes. The site types include charcoal feature/debris, residential features/debris, temporary occupation/debris, transportation feature/debris, trash scatter/debris, mining feature, ranching feature/debris, conservation feature, and isolated find. The historic themes include exploration, transportation, mining, farming/ranching and grazing, government and politics, and leisure and recreation. Most of the historic period sites (62 percent in keystone studies; Carpenter et al. 2008) are simple trash scatters that are difficult to link to any one historical theme. The next most common historic-period sites are transportation-related features.

Historic sensitivity determinations include proximity to significant transportation corridors or historic mining areas. There are a number of major travel corridors in the general area including the Lincoln Highway, the Midland Highway, and an old alignment of US-93.

3.10.4 Specific Project Area Conditions

The following descriptions of prehistoric and historic archaeological sites and sensitivities are taken from the project specific inventories and sensitivity modeling analysis discussed in **Section 3.10.3**. For areas not inventoried, sensitivity modeling was deemed appropriate at this stage of the planning process for providing the baseline data. See **Section 3.10.3** for information regarding the sensitivity analysis.

Proposed Action

The following table (**Table 3.10-2**) presents the sensitivity analysis data or the known site data by project component for the Proposed Action.

TABLE 3.10-2 POTENTIAL FOR CULTURAL RESOURCES FOR THE PROPOSED ACTION

PROJECT COMPONENT	PREHISTORIC ARCHAEOLOGICAL SENSITIVITY	HISTORIC ARCHAEOLOGICAL SENSITIVITY	KNOWN HISTORIC RESOURCES	INVENTORY RESULTS
Segment 6C	Very High	High	Midland Highway, the Currant Mining District, and ranching/farming	N/A
Segment 8	Low	Low		N/A
Segment 9A*	N/A	N/A		No sites
Segment 9B	Low	Low		N/A
Segment 9D	Very High	High	Historic Route of US-93	N/A
Segment 11	High	Low		N/A
Robinson Summit Substation*	N/A	N/A		9 sites of which 2 recommended NRHP-eligible
Falcon Substation Expansion*	N/A	N/A		No sites

*This project component was inventoried (Young et al. 2007, Duke et al. 2009)

BLM review of the cultural resource inventory reports (Young et al. 2007, Carpenter et al. 2008, Duke et al. 2009) is on-going. Recommendations of eligibility will be reviewed by the BLM in each of the two field offices where the project is located. The BLM will make eligibility determinations, which will then be reviewed by the Nevada SHPO.

Action Alternative

The following table (**Table 3.10-3**) presents the sensitivity analysis data or the known site data by project component for the Action Alternative.

TABLE 3.10-3 POTENTIAL FOR CULTURAL RESOURCES FOR THE ACTION ALTERNATIVE

PROJECT COMPONENT	PREHISTORIC ARCHAEOLOGICAL SENSITIVITY	HISTORIC ARCHAEOLOGICAL SENSITIVITY	KNOWN HISTORIC RESOURCES	INVENTORY RESULTS
Segment 6C	Very High	High	Midland Highway, the Currant Mining District, and ranching/farming	N/A
Segment 8	Low	Low		N/A
Segment 9A* (Alternative)	N/A	N/A		No sites
Segment 9B	Low	Low		N/A
Segment 9C	Low	Low		N/A
Segment 9D	Very High	High	Historic Route of US-93	N/A
Segment 10* (Alternative)	N/A	N/A		35 sites of which 10 recommended NRHP-eligible
Segment 11	High	Low		N/A
Robinson Summit Substation*	N/A	N/A		9 sites of which 2 recommended NRHP-eligible
Falcon Substation Expansion*	N/A	N/A		No sites

Sensitivity data source: Carpenter et al. 2008
*This project component was subject to inventory (Young et al. 2007, Duke et al. 2009)

3.11 Native American Concerns

Federal agencies are required by law (including the National Historic Preservation Act of 1966 and Archaeological Resources Protection Act of 1979) to consult with Native Americans on actions that may affect their traditions or uses of public lands. The agency must provide tribes a reasonable opportunity to identify its concerns about historic properties, advise on the identification and evaluation of historic properties, including those of traditional religious and cultural importance, articulate its views on the undertaking's effects on such properties, and participate in the resolution of adverse effects.

The goal is to "assure that tribal governments, Native American communities, and individuals whose interests might be affected have a sufficient opportunity for productive participation in BLM planning and resource management decision making." To this end, the BLM has engaged in consultation with the Native Americans associated with the area.

3.11.1 Area of Analysis

For the purposes of this analysis, the project area includes an approximately 10-mile-wide area centered on the components of the ON Line facilities.

3.11.2 Data Sources and Methods

Data regarding Native American Concerns relied on the BLM tribal liaison's knowledge of and familiarity with places and resources of Native American interest and concern within their district. Further, data was gathered and supplemented by reviewing available ethnographic and ethnohistoric reports produced for previous federal undertakings in the vicinity of the project area (Bengston 2007).

3.11.3 Existing Conditions

Data gathered during past consultation with tribal governments was summarized in a project specific report (Bengston 2007) which indicates there are at least 11 potential areas of cultural and/or geographical interest within the general vicinity of the proposed Robinson Summit Substation and transmission line alignments (Bengston 2007). Six of the areas involve subsistence activities. Four contain village or other habitation sites and one area has the potential for burial sites. There are two battle or massacre sites. Of particular importance is one place associated with traditional stories and five places associated with various ceremonial and ritual practices.

The Falcon Substation area was included in a previous study (BLM 2001a). No specific concerns are known for this area.

Indian trust resources are natural resources, either on or off Indian lands, that are retained by, or reserved by or for Indian tribes through treaties, statutes, judicial decisions, and executive orders, which are protected by a fiduciary obligation on the part of the United States. Indian trust resources located on Indian reservation lands are managed and protected by the tribes. Indian trust resources located on lands administered by the BLM are managed and protected by the BLM; no Indian trust resources have been identified on BLM-administered lands within the project area. However, four parcels of land were recently transferred to be held in trust for the Ely Shoshone Tribe for traditional, ceremonial, commercial, and residential purposes (BLM 2008b). These parcels are to the north and outside of the project area.

Cultural resource sites are manifestations of past human activities. Prehistoric and ethnographic overviews are provided in **Section 3.10** (Cultural Resources), as are the known cultural resource sites in the project area. The prehistoric and historic sites indicate continuous use of the area for thousands of years by various groups.

Table 3.11-1 summarizes the known places of potential cultural and/or geographic interest to the Tribes (Bengston 2007) located within or near the components of the project.

TABLE 3.11-1 KNOWN NATIVE AMERICAN PLACES OF INTEREST IN PROXIMITY TO TRANSMISSION FACILITIES

ELECTRICAL TRANSMISSION COMPONENT	KNOWN PLACES OF INTEREST*	OTHER DATA
Segment 6C	1	One place appears to be within alignment. An additional five known sites are located possibly near or adjacent to this segment
Segment 8	0	
Segment 9A	1	Black Canyon Petroglyphs (Rock Art) nearby
Segment 9B	1	One place appears to be located within alignment
Segment 9C (alternative)	0	
Segment 9D	2	One place adjacent or within alignment, another (Black Canyon Petroglyphs) to the west

ELECTRICAL TRANSMISSION COMPONENT	KNOWN PLACES OF INTEREST*	OTHER DATA
Segment 10 (alternative)	1	One place located near alignment to the east
Segment 11	1	One place to the west of alignment
Robinson Summit Substation	0	
Falcon Substation	0	

*Exact locations of places of interest may not be known, therefore this information is approximate.

3.12 Land Use and Realty

3.12.1 Area of Analysis

The direct effects area of analysis occurs within the proposed ROWs for the project. However, land use issues are best understood when related to the larger sociopolitical setting that provides needed context to determine impact significance. For purposes of analysis, land use, ownership, and access will be examined at the county level and within BLM District Offices.

3.12.2 Data Sources and Methods

Land use information, policies, and current management practices were gleaned from public sources, specifically from BLM resource management plans (RMPs) for the Ely and Southern Nevada Districts and from county land use plans. Land use authorizations and land tenure information were gathered from BLM RMPs as well as current data contained within BLM's Legacy Rehost 2000 System (LR2000) that provides reports on BLM land and mineral use authorizations for oil, gas, and geothermal leasing, ROWs, mineral development, land and mineral title, mining claims, withdrawals, classifications, and federal mineral estate information. These data were used to characterize land use within and surrounding the project area for the purpose of determining potential changes in public and private land use and ownership, BLM land use authorizations, and land disposals.

3.12.3 Existing Conditions

The northern terminus of the proposed transmission line would be at the Robinson Summit Substation northwest of Ely in White Pine County, extending south through Nye, Lincoln, and Clark counties with a southern terminus at the Harry Allen Substation located northeast of Las Vegas. The Falcon Substation expansion would be in Eureka County on private land – approximately 4 acres on NV Energy-owned land and approximately 3 acres on adjacent private land. Therefore, project components would be subject to the various county land use plans and ordinances. Further, project components cross private, state, and federal lands. The federal lands involved are almost entirely public lands administered by the BLM; project components would be subject to the appropriate district office RMP. This section will discuss four major components of land use:

- Current land use plans and policies
- Land use and ownership
- Land use authorizations
- Land tenure program

The first two will be discussed in general terms as they apply to the project area as a whole. The remaining two land use components will be discussed as they relate to specific project elements.

3.12.3.1 Land Use Plans and Policies

BLM Land Use Plans

Ely RMP

The Ely District Record of Decision and approved Resource Management Plan was signed August 20, 2008. The planning area encompasses a total of 13.9 million acres within the planning area boundary, of which the BLM administers approximately 11.5 million acres in Lincoln, White Pine, and portions of Nye counties in Nevada. The RMP provides programmatic and implementable direction for management of BLM administered public lands within the Ely RMP planning area. The RMP provides direction in resource management activities including leasing minerals such as oil and gas; construction of electrical transmission lines, pipelines, and roads; grazing management; recreation and outfitting; preserving and restoring wildlife habitat; selling or exchanging lands for the benefit of local communities; military use of the planning area; and conducting other activities that require land use planning decisions.

Las Vegas RMP

The Las Vegas RMP (BLM 1998a) establishes land use objectives and management actions for 3.3 million acres of BLM administered land in Clark and Nye counties, Nevada. The Southern Nevada District Office administers approximately 67 percent of Clark County and 6 percent of Nye County. The RMP acknowledges the interconnection of the Harry Allen Substation to a proposed 500-kV line within the SWIP Utility Corridor (BLM 1998a).

County Land Use Plans

Eureka County

The Eureka County Master Plan (Eureka County 2000) describes land use and planning for the County. The Land Use and Public Lands element of the General Plan was last updated in 1998, and formally adopted into the Eureka County Master Plan in June 2000 (Eureka County 2000). The General Plan recognizes six basic types of land use categories in Eureka County: Urbanized Areas; Permanent Open Space; Open Space and Appropriate Associated Uses; Agriculture Only, Associated Housing; Agriculture, Mining, Limited Housing; and Agriculture, Mining, Very Limited Housing. The proposed Falcon Substation expansion within Eureka County is located in the land use category Agriculture, Mining, Very Limited Housing. Eureka County has no adopted zoning ordinance.

Land use within Eureka County is comprised mainly of mining and agriculture. The greatest land use in the county is agricultural open space, comprised of designated grazing allotments. Approximately 2.4 million acres (90 percent of lands) are used for cattle and sheep grazing and pasture, as well as for crops such as hay or barley. Mining districts represent the next largest land use designation in the county. The majority of Eureka County is sparsely populated, and most of the residential development is associated with agriculture and ranching. The majority of lands within the county boundary fall under the management authority of the BLM and the US Forest Service. The County of Eureka manages primarily privately owned land in and around the Town of Eureka, as well as a checkerboard pattern of private land in the northern portion of the county.

One of the largest tracts of privately owned land in the county is located in Boulder Valley (the location of the Falcon Substation), north of Interstate 80. Eureka County has four principal towns: Eureka, Diamond Valley, Crescent Valley, and Beowawe. The Town of Eureka is the largest; it has a population of approximately 1,800 and is the County Seat.

White Pine County

The White Pine County Land Use Plan describes land use issues in the County, as well as in the specific planning areas of Ely, Baker, Lund, McGill, Preston, Ruth, and the Ely-McGill corridor. The plan also provides a number of land use goals and implementation strategies; however, it contains no goals or strategies related specifically to utilities or utility corridors, other than a provision for the efficient use of community infrastructure. White Pine County has 11 general land use designations. Most land outside of established communities is designated as open range or federal reserve. The proposed project area lies predominantly within these two land use designations (White Pine County 2008).

The White Pine County Public Land Use Plan provides a coordinated land use planning effort among the County, BLM, and Forest Service and is included as an appendix to the White Pine County Land Use Plan. In general, the public land policies encourage mineral exploration, opportunities for livestock grazing, and other agricultural uses; encourage dispersed recreational opportunities; and support a diversity of wildlife species and habitats. Related to access and transportation, the plan encourages route locations for transportation, utilities, and communication corridors to be planned in harmony with other resources on public lands (White Pine County 2008).

Nye County

The Nye County Comprehensive Plan (1994) acknowledges that it is the third largest county in the continental U.S. in terms of land area (approximately 11.5 million acres). Of this, 7 percent is private land. The County has adopted the Uniform Building Code, but does not have a zoning ordinance. The County's far-flung communities are very diverse and the County encourages them to develop specific area plans that suit their individual needs for growth and development. Outside of Pahrump, no regional land use plans were found (Nye County 1994).

Lincoln County

There are 11 land use designations shown on the land use map for Lincoln County. The residential land use designation is divided into rural, low, medium, and high-density developments. Rural and lower density development areas are those that should be located away from public utilities. The plan encourages new industrial development along the highway and railway corridors in the county where possible. The plan also favors the disposition of federal lands into private ownership (Lincoln County 2006).

Clark County

The land use component of the Clark County Comprehensive Plan breaks the county into planning areas. The Northeast Planning Area pertains directly to the project elements that would occur within the county. The Northeast Planning Area has the most acres within the county dedicated to office and industrial land uses (10,166 acres), and contains the most open space (7,284 acres) (Clark County 2007a).

3.12.3.2 Land Use and Ownership

Land Use

Within the project area there are agricultural and range lands, sage scrub and grasslands, forested mountains, and desert valleys. Existing land uses include farms and ranches, rural residences, grazing allotments, range improvements, mines/mining claims, energy and communication facilities, transportation systems, developed recreation areas, and dispersed recreation areas.

The dominant land use is livestock grazing/ranching. The majority of public lands in Nevada are managed by the BLM for range uses. Associated range improvements include fences, wells, water tanks, corrals, and windmills. The BLM has divided range lands in the region into grazing allotments to facilitate the management of the land for public livestock grazing (see **Section 3.10).** Much of the private and state lands are also open range.

Agricultural lands in Nevada are sparse and dispersed, typically located near perennial streams and rivers. There are no prime farmlands within the project area (see **Section 3.5.3.2**).

Mining is an important land use in Nevada. There are numerous mining claims in the vicinity of the project (see **Section 3.3**). The Robinson Project, formerly the Kennecott copper mine, is a large, active mine west of Ely.

Land Ownership

White Pine County is bordered on the east by Utah and by Eureka and Nye counties on the west and southwest. Nye County is bordered by Lander, Eureka, White Pine, Lincoln, and Clark counties to the north and east; and bordered by Churchill, Mineral, and Esmeralda counties, and California to the west. Lincoln County is bordered on the east by Utah and Arizona, on the west by Nye County, and on the south by Clark County. Clark County is located in the southern portion of Nevada, and is bordered by Lincoln County to the north, Utah and Arizona on the east, and Nye County and California to the west. The federal government is a significant landowner in each of the counties (**Table 3.12-1**). Lincoln, Nye, and White Pine counties are over 90 percent federal land.

TABLE 3.12-1 LANDOWNERS AND ACRES BY COUNTY

DESCRIPTION	EUREKA	WHITE PINE	NYE	LINCOLN	CLARK
Total Acres	2,676,480	5,699,000	11,560,960	6,816,000	5,173,760
Federal	79.5%	93.5%	92.7%	98.3%	89.1%
Tribal	0.0%	1.2%	0.1%	0.0%	1.5%
State	0.2%	0.2%	0.2%	0.3%	1.2%
Local/Private	20.3%	5.1%	7.1%	1.4%	8.1%

Source: University of Nevada Cooperative Extension, Public Lands in the State of Nevada: An Overview 2007

Eureka has the highest percentage of privately owned land of the five counties. White Pine County contains 17.9 percent of the area of the five counties, and 93.5 percent of the land in White Pine County is controlled by the federal government (see **Figures 3.12-1a** and **3.12-1b**).

3.12.4 Specific Project Area Conditions

BLM Land Use Authorizations

The FAA manages the airspace in the vicinity of all registered air facilities (e.g., airports, registered air strips) to control potential obstructions to aircraft operations. The BLM provides

FAA the opportunity to provide input on BLM authorizations on public lands in order to identify potential conflicts with airspace management (43 CFR 2804.25(d)(4)).

The Energy Policy Act of 2005 directed the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior to designate corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal land in the 11 contiguous Western States, and perform necessary environmental reviews. The FPEIS, Designation of Energy Corridors on Federal Land in 11 Western States (West-wide Utility Corridor) was completed November 2008. These corridors were established to assist in minimizing adverse impacts and the proliferation of separate ROWs (BLM 2009a).

There are several federally designated utility corridors within the project area with electric transmission lines specifically authorized including the Southwest Intertie Project (SWIP) and the Falcon-Gonder 345kV transmission line project. Designation of the SWIP Utility Corridor predated the Energy Policy Act of 2005 and the PEIS for designation of energy corridors; however, the PEIS incorporated the SWIP Utility Corridor.

The ROD for Designation of Energy Corridors on Bureau of Land Management-Administered Lands in the 11 Western States amends both the Ely and Las Vegas RMPs to incorporate the designated corridors (BLM 2009a).

The SWIP Utility Corridor varies in width from 2,640 to 3,500 feet wide, and runs from Idaho south to the Harry Allen Substation in Clark County, Nevada. Within the SWIP Utility Corridor, the 500 kV Great Basin Transmission line, has been authorized. The Falcon-Gonder corridor contains a 180 mile long 345-kV electric transmission line connecting the Falcon Substation north of Dunphy, Nevada with the Gonder Substation north of Ely. This ROW is currently 160 feet wide. The Falcon-Gonder corridor also contains a parallel 230-kV line from the Gonder Substation 67 miles west to the Machacek Substation near Eureka, Nevada. West of Eureka the 230-kV line continues another 184 miles separated from the 345-kV line to a NV Energy electric power plant located near Yerington, Nevada. Additional transmission line corridors contain two 230-kV lines and extend east from the Gonder Substation towards Utah traversing the eastern edge of Steptoe Valley and the Schell Creek Range.

Land use authorizations in the vicinity of the proposed ON Line Project include various leases and ROWs in the Ely and Southern Nevada Districts.

Land Tenure

There are no public lands on the Ely District identified for current disposal that are in the vicinity of the ON Line Project. There are some lands that were transferred to the USFWS as a part of the Lincoln County Conservation, Recreation and Development Act of 2004. These lands were located just north of the Desert National Wildlife Refuge. Also, USFWS land along the west side of US-93 at Coyote Springs was transferred to BLM and is part of the designated BLM West-wide Utility Corridor.

Figure 3.12-1a Land Ownership

Figure 3.12-1b Land Ownership

3.13 Special Designations

This section describes specially designated resources located within 50 miles of ON Line Project elements. These include Wilderness Areas, Wilderness Study Areas, Areas of Critical Environmental Concern, Research Natural Areas, various units of the National Park Service (NPS), Nevada Department of Wildlife (NDOW) Management Areas, and National Wildlife Refuges. Lands outside of BLM jurisdiction were identified and included in the analysis because recognized natural resources are present on these lands, and project elements in place during construction or operation of the ON Line Project could indirectly impact a variety of resources present in these Special Designation Areas (SDAs). Included are lands administered by the NPS, U.S. Forest Service (USFS), U.S. Fish and Wildlife Service (USFWS), and NDOW Conservation lands. Other Nevada state lands, such as state parks, were not included: these are covered under Recreation Resources.

Nationally, there are several federal designations that are used to protect wildlands, wildlife, and unique natural features. Those designations found within 50 miles of the ON Line project include the following:

Wilderness Areas *(WAs)* are designated by Congress under the authority of The Wilderness Act of 1964 (P.L. 88-577; 16 USC 1131-1136) and comprise the National Wilderness Preservation System. Wilderness is defined as an area where "….the earth and its community of life are untrammeled by man, where man himself is a visitor who does not remain." Wilderness designation is meant to ensure that the land is preserved and protected in its natural condition (BLM Undated. a). There are 21 WAs managed by either the Ely or Southern Nevada BLM District Offices, and 10 WAs managed by the Humboldt-Toiyabe National Forest within 50 miles of the proposed ON Line Project (BLM Undated. b).

Wilderness Study Areas (WSAs) are areas that have been inventoried for Wilderness designation as described in the Federal Land Policy and Management Act (FLPMA), but Congress has not yet considered them for designation. These areas are managed to retain their wilderness attributes until Congress determines whether or not they should be designated (BLM 2006; BLM Undated. a). There are 4 WSAs in the two BLM District Offices that are within 50 miles of the proposed ON Line Project (BLM Undated. c).

Areas of Critical Environmental Concern (ACECs) are the principal BLM designation for public lands where special management is required to protect important natural, cultural, and scenic resources, or to identify natural hazards (BLM 2007c p.G2, BLM Undated. a). There are 12 ACECs within 50 miles of the proposed ON Line Project. These are designated to protect fragile desert flora and fauna such as the desert tortoise, a federally listed threatened species.

Research Natural Areas (RNAs) are federal agency-designated areas protected and maintained in natural conditions for the purpose of conserving biological diversity, conducting environmental research, and fostering education. The system was established in 1927. Several federal land management agencies oversee RNAs. The USFS manages the 5 RNAs identified in this DSEIS (BLM Undated. a).

National Parks, Monuments, and Recreation Areas are managed by the NPS, which was formed by President Woodrow Wilson with the 1916 National Park Service Organic Act. National Parks and other lands held by the NPS are managed to "preserve unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations." The NPS cooperates with partners to

conduct research, support recreation and education, and extend the benefits of natural and cultural resources within NPS lands to people in the U.S. and the world.

Within 50 miles of the ON Line Project there is one National Parks(Great Basin), one National Recreation Area (Lake Mead), and one National Historic Trail (Pony Express National Historic Trail, also listed below) (NPS 2007a).

National Historic Trails commemorate historic routes, such as the Pony Express and California Trails, and promotes their preservation, interpretation and appreciation. The National Trails System Act (Public Law 90-543) was passed by Congress in 1968. The Pony Express National Historic Trail was established in 1992 and follows the 1,622 mile Pony Express route, which passes through the Schell Creek and Cherry Creek Ranges and Steptoe Valley as it crosses Central Nevada, north of the ON Line Project (NPS 2007b; BLM 2007c; and BLM Undated. a).

National Wildlife Refuges (NWR) are lands owned by the federal government and managed by the USFWS to conserve, protect, and enhance the nation's fish and wildlife and their habitats for continuing benefit of people (USFWS 2007c). The Desert National Wildlife Refuge (DNWR), and Pahranagat NWR are adjacent to the proposed ON Line Project. The Moapa Valley NWR is within ten miles of the project alignments. These three refuges are near the south terminus of the On Line Project.

The State of Nevada also protects wildlife, wildlands, and plants. The NDOW maintains several *Wildlife Management Areas* (WMAs), which are State owned or leased lands that are managed to protect wetlands and waterfowl. The public can use these areas as public hunting grounds for migratory game birds, upland game birds, furbearers, and big game (NDOW 2005). The Kirch Wildlife Management Area is adjacent to the ON Line Project along Segment 6C, and Railroad Valley and Steptoe Valley WMAs are within 50 miles of the On Line Project.

3.13.1 Area of Analysis

The area of analysis includes all special designation resources that would be directly affected by, or would be within, a 50-mile radius of the Proposed Action and Action Alternative discussed in Chapter 2 (with the exception of the existing Falcon Substation that would be expanded on private land). For each Special Designation Area (SDA), the approximate distance and general direction of the SDA from project elements is noted in **Table 3.13-1**.

3.13.2 Data Sources and Methods

The following indicators were considered when describing the affected environment for special designations:

- Acres of disturbance (temporary and permanent)
- Change in quality of primitive wilderness experience relative to outside influences

3.13.3 Existing Conditions

Seven SDAs are within or immediately adjacent to one or more of the components of the proposed ON Line Project. Many more are within 50 miles of either side of the proposed project alignment and/or the Robinson Summit Substation. SDAs surrounding the Falcon Substation were not evaluated because the proposed expansion would occur to an existing substation on private land. The area of analysis includes 31 WAs, 4 WSAs, 12 ACECs, 7 federal or state wildlife areas, 5 RNAs, 1 National Park, 1 National Recreation Area, and 1 National Historic Trail. These SDAs are listed in **Table 3.13-1** in alphabetical order. Each SDA is also discussed in the text below the table. The first group discusses the 7 SDAs that fall within or adjacent to the ON Line Project. The second group discusses SDAs that are within 50 miles of the ON Line

Project. All are listed in alphabetical order. **Figure 3.13-1** shows the locations of these SDAs relative to project elements.

TABLE 3.13-1 SPECIAL DESIGNATIONS AREAS GROUPED ALPHABETICALLY

SPECIAL DESIGNATION AREA ^	SIZE OF AREA IN ACRES	GEOGRAPHIC LOCATION OF AREA	APPROXIMATE LINEAR DISTANCE FROM THE ON LINE PROJECT ELEMENT
Arrow Canyon ACEC	1,977	Due E of Desert NWR	Adjoins Segment 11 for 10 miles
Arrow Canyon WA	27,530	2 miles E of Desert NWR and surrounded on W, N, and E sides by Mormon Mesa/Arrow Canyon ACEC	2.0 miles E of Segment 11
Bald Mountain WA	22,366	E side of White Pine Mts.	5.5 miles W of Segment 6C
Beaver Dam Slope ACEC	36,900	E of Desert NWR: Runs E of Mormon Mesa ACEC to Utah border	40 miles E. of Segment 11
Big Rocks WA	12,997	North Pahroc Range, N of US-93 and Pahroc Summit	10 miles W of Segment 8
Blue Eagle WSA	14,300	N ½ Grant Range, W side, S of US Rte. 6	6.0 miles W of Segment 6C
Bristlecone WA	14,095	N end Egan Range, by Heusser Mt., just W of McGill	9.5 miles NE of Robinson Summit Substation
Cleve Creek Baldy RNA	unknown	Within High Schells WA	25 miles E of Robinson Summit Substation
Clover Mountains WA	85,748	12 miles S of Caliente, NV	10.0 miles E of Segment 10
Coyote Springs ACEC	75,000	E of the SE corner of DNWR	Segment 11 passes through ACEC for 18.0 miles
Currant Mountain WA	47,357	SW side Currant, or White Pine, Mts.	8.0 miles W of Segment 6C
Delamar Mountains WA	11,328	E of the NE corner of DNWR	Segment 9C and 9D occur adjacent to this WA Segment 10 passes to E of WA by 1.0 miles
Desert National Wildlife Refuge (DNWR)	1.6 million	N of Las Vegas, W of US-93	Segment 9D is immediately east of the DNWR boundary for approximately 20 miles Approximately 2/3 of eastern border of DNWR is adjacent to or within 5 miles of Segment 11
Far South Egans WA	36,384	Southern tip Egan Range	10.0 miles N of Segment 8
Fortification Range WA	30,656	S of Gt. Basin NP, between US-93 and County Rd 47	45 miles east of Segment 6C
Gold Butte A & B ACECs (2 units)	1,480	On Utah border east of the S end of the ETF	35 miles E of Segment 11
Goshute Canyon WA	42,544	Cherry Creek Range	43 miles NNE of Robinson Summit Substation
Grant Range WA	52,600	S ½ Grant Range, S of Riordan's Well WSA, S of US-6	10.0 miles WSW of Segment 6C
Great Basin National Park	77,100	W of Baker, NV, and S of Mt. Moriah WA	48 miles E of 6C
Hidden Valley ACEC	3,520	At N end of Muddy Mts. WA	11 miles SE of terminus at Harry Allen Substation

SPECIAL DESIGNATION AREA ^	SIZE OF AREA IN ACRES	GEOGRAPHIC LOCATION OF AREA	APPROXIMATE LINEAR DISTANCE FROM THE ON LINE PROJECT ELEMENT
Highland Ridge WA	68,627	Adjacent to S end of Great Basin NP	43 miles E of Segment 6C
High Schells WA	121,497	E of McGill and Ely	25 miles E of Robinson Summit Substation
Kane Springs ACEC	65,900	E of DNWR, S of Delamar Mt. WA	Segment 9D passes through NW finger of ACEC for 6.75 miles Segment 10 passes through main Kane Springs Valley for 12.75 miles US-93 and Segment 9 follow a similar alignment within NW finger of ACEC.
Kirch WMA	14,815	White River Valley, E of Grant Range	Segment 6C is adjacent to south end of WMA for approx. 1,320 feet Most of WMA is N of this contact point.
Lake Mead NRA	1.5 million	Lake Mead	50 miles from terminus at Harry Allen Substation
Lime Canyon WA	23,233	Adjoining Lake Mead NRA	50 miles from terminus at Harry Allen Substation
Meadow Valley Range WA	123,488	E of DNWR in Meadow Valley Mts.	0.5 miles SE of Segment 10; 6 miles E of Segment 11
Moapa Valley NWR	106	3 miles due N of Moapa Indian Reservation	10 miles E of Segment 11
Mormon Mesa ACEC	150,734	E of Desert NWR	1.25 mi E of Segment 11
Mormon Mts. WA	157,938	East of Meadow Valley Range WA	10.0 miles ESE of Segment 10
Mt. Moriah RNA	876 acres	In Moriah WA, N of Great Basin National Park	35 miles E of Segment 3
Mt. Grafton WA	78,743	Schell Ck Range W of Geyser Ranch	40 miles E of Segment 6C
Mt Irish WA	28,334	S of Worthington	Approximately 10 miles west of Segment 9A
Mt. Moriah WA	89,790	N end of Snake Range, which includes Great Basin National Park	32 miles E of Segment 3
Muddy Mountains WA	48,019	Muddy Mts. East of Las Vegas	10 miles SE of terminus at Harry Allen Substation, 10 miles E of Las Vegas
North-South Schells RNA	4,021	In Schell Creek Range, 19 miles NE of Ely	25.0 miles E of Robinson Summit Substation
Pahranagat NWR	~ 5,380	About 22 miles S of Hiko, on N end of DNWR	Approximately 1,000 feet from Segment 9D at the S end of the refuge
Palisade Mesa WSA	99,500	S end Pancake Range	48 miles W of Segment 6C
Parsnip Peak WA	43,693	Wilson Ck Mountains	25 miles E of Segment 8
Pony Express National Historic Trail	1,622 miles total	E of Schellbourne Pass, 22 miles N of McGill	Approximately 30 miles north of the Robinson Summit Substation
Quinn Canyon WA	26,310	SW side of Grant Mts.	4 miles SW of Segment 10
Railroad Valley WMA	14,720	W of Bald Eagle WSA, E of Rte 6	16 miles W of Segment 6C
Red Mountain WA	20,490	SE side of White Pine Mountains	2.0 miles W of Segment 6C
Red Rock Springs & Devil's Throat ACECs (2 units)	1,483	On Utah border east of the S end of the transmission facilities	45 miles E of Segment 11
Riordan's Well WSA	36,200	N ½ Grant Range, E. side, S. of US 6	1.5 miles W of Segment 6C

SPECIAL DESIGNATION AREA ^	SIZE OF AREA IN ACRES	GEOGRAPHIC LOCATION OF AREA	APPROXIMATE LINEAR DISTANCE FROM THE ON LINE PROJECT ELEMENT
Ruby Lake NWR	39,926	Just E of Ruby Mts.	The southern tip is 45 miles NW of Robinson Summit Substation
Shellback WA	36,143	NE side of White Pine Mts.	8.0 miles W of Segment 6C
South Egan Range WA	67,214	Mid-South portion Egan Range	8.5 miles E of Segment 6C
South Pahroc Range WA	25,800	South Pahroc Range S of US-93 and Pahroc Summit	4.5 miles W of Segment 9B and 5 miles N. of Segment 9A
Steptoe Valley WMA	6,426	3 miles south of Ely	20 miles E of Segment 6C
The Wall WSA	38,000	S end Pancake Range & Railroad Valley	40 miles W of Segment 8
Troy Peak RNA	2500	In Grant Range WA about 30 miles S of the town of Currant.	12.0 miles W of Segment 6C
Tunnel Springs WA	5,371	On Utah-Nevada border south of RR	35 miles E of Segment 9B
Virgin Mts. ACEC	35,830	On Utah border east of the S end of the ETF	42 miles E of Segment 11, adjoining Gold Butte ACECs
Virgin River ACEC	7,413	S of I-15, W of Utah border, on Virgin River	45 miles E of Segment 11, N of Virgin Mts. ACEC
Weepah Spring WA	51,480	Seaman Range, Timber Mt. and surrounding area	11.25 miles S of Segment 6C and 14.0 miles W of Segment 8
White Pine Peak RNA	787	9 miles N of town of Currant, 41 miles SW of Ely. Within the Currant Mountain Wilderness	11.0 miles W of Segment 6C of near where Rte. 6 crosses the White Pine Mountains
White Pine Range WA	40,013	W side of Currant, or White Pine, Mts.	12.0 miles W of Segment 6C
White Rock Range WA	24,413	E of Wilson Ck Range on Utah border in NE Lincoln County	35.0 miles W of Segment 8
Worthington WA	30,664	S of Grant Mts., W of Garden Valley	48.0 miles W of Segment 9B

^ The following abbreviations are used:
ACEC – Area of Critical Environmental Concern
WSA = Wilderness Study Area
WA = Designated Wilderness Area
WMA = Wildlife Management Area
NRA = National Recreation Area
NWR = National Wildlife Refuge
RNA = Research Natural Area

3.13.4 Specific Project Area Conditions

The Proposed Action or Action Alternative would pass through, or be located directly adjacent to, seven SDAs. These are listed below and summarized in **Table 3.13-1**.

Arrow Canyon ACEC: This BLM area protects desert tortoise habitat and abundant rock art. It is located east of Arrow Canyon wilderness area and west of the Desert NWR. It adjoins Mormon Mesa and Coyote Springs ACECs to create a complex of protected desert tortoise habitat areas (Ludington 2004). Segment 11 passes through the western edge of this ACEC for approximately 10 miles.

Coyote Springs ACEC: This 75,000 acre BLM managed ACEC is located adjacent to the southeast side of the Desert NWR. It is part of a series of land designated to protect desert tortoise (Ludington 2004). Segment 11 passes through this ACEC for approximately 18 miles.

Delamar Mountains WA: This BLM wilderness area was designated in 2004 and is 111,328 acres in size. It is located in the Delamar Mountains just northeast of the Desert National Wildlife Refuge. Approximately 1.75 miles of Segments 9B and 9C within the designated SWIP Utility Corridor are proposed to run along the western border of this wilderness area. The wilderness area provides habitat to desert bighorn sheep, raptors, and the threatened desert tortoise. Sensitive species such as the white bearpoppy and banded Gila monster, and cultural resources including rock art, milling sites, and an obsidian quarry, are found within this wilderness area (BLM 2004).

Desert National Wildlife Refuge: This refuge, created in 1936, is the largest wildlife refuge in the lower 48 states and encompasses 1.6 million acres of Mojave Desert in southern Nevada, just north of Las Vegas. This NWR is part of the larger Desert National Wildlife Refuge Complex, which includes the Ash Meadows, Moapa Valley, and Pahranagat National Wildlife Refuges, and the Amargosa Pupfish Station (USFWS 2007d). Segments 9D and 11 within the designated SWIP Utility Corridor are adjacent to the east edge of the NWR.

Kane Springs ACEC: This 65,900 acre BLM managed ACEC adjoins the northeast side of the Desert NWR and includes the lower portion of Kane Springs Wash. It was designated as part of a group of public land designed to protect desert tortoise habitat and other wildlife that are threatened by habitat fragmentation and increased recreational use, especially OHV use, due to increasing human populations in surrounding areas. Segments 9D and 10 pass through or adjoin this ACEC for approximately 22 miles (BLM 2008a).

Kirch WMA: This state-managed wildlife area is located east of the Grant Range in the White River Valley. The southern end of this riverine series of ponds and wetlands would adjoin Segment 6C for approximately 1/3 of a mile (NDOW 2005).

Pahranagat National Wildlife Refuge: This refuge adjoins the northeast corner of the Desert NWR. It protects fish and waterfowl resources that utilize the White River where the river passes through the Pahranagat Valley. It is 5,380 acres in size (USFWS 2007e). Segment 9D would pass adjacent to its southeast border.

There are numerous other SDAs within 50 miles of the proposed transmission facilities and/or the Robinson Summit Substation. These are described below and summarized in **Table 3.13-1** above.

Figure 3.13-1 ACEC, WA, WSA, and RNA Map

Arrow Canyon WA: This 27,530 acre BLM wilderness was designated in 2002. It is located east of US-93, just north of the Moapa Indian Reservation and is dominated by Arrow Canyon (Wilderness.net 2007). Segment 11 passes approximately 2 miles east of this WA.

Bald Mountain WA: This 22,366-acre USFS wilderness was designated in 2006. It is located on the east side of the White Pine Range in the Humboldt National Forest and is part of a series of four wilderness areas in this range (Wilderness.net 2007). The transmission facilities would pass 5.5 miles to the east of this wilderness area.

Beaver Dam Slope ACEC adjoins Mormon Mesa, Mormon Mesa Ely, Arrow Canyon and Coyote Springs ACECs to provide a continuous area of valuable habitat for the desert tortoise. Beaver Dam Slope is on the east end of this set of ACECs, which stretches from the Desert NWR to the Utah border (BLM 2007d, Appendix Q). Beaver Dam Slope is about 40 miles east of Segment 11.

Becky Peak WA: This 18,119-acre BLM wilderness was established in 2006 and is located in the northern portion of the Schell Range between Water Canyon and Cherry Spring. It is east of, and across the Goshute Valley from, Goshute Canyon Wilderness (BLM 2007e).

Big Rocks WA: This 12,997-acre BLM wilderness, designated in 2004, is located between Hiko and Caliente at the south end of the North Pahroc Range. Its volcanic boulders and low elevation make it unique (BLM 2004). It would be located approximately 10 miles east of Segment 8.

Blue Eagle WSA: This 14,300-acre WSA is located in the northern half of the Grant range and is adjacent to Riordan's Well WSA. Unlike the Grant Range WSA, Blue Eagle is on BLM land (BLM 2007e). It would be approximately 6 miles from Segment 6C.

Blue Eagle WSA: This 14,300-acre WSA is located in the northern half of the Grant range and is adjacent to Riordan's Well WSA. Unlike the Grant Range WSA, Blue Eagle is on BLM land (BLM 2007e). It would be approximately 6 miles from Segment 6C.

Bristlecone WA: This BLM wilderness area is in the Egan Range due west of McGill. It was established in 2006 and is 14,095 acres in size. It is bordered by Mellison Canyon to the north and Hercules Gap to the south (BLM 2007e). It is approximately 9.5 miles northeast of the Robinson Summit Substation.

Cleve Creek Baldy RNA: This RNA is located within the High Schells WA (USFS Undated. a), south of the North-South Schells RNA. It is approximately 30 miles east of Segment 6C.

Clover Mountains WA: This 85,748-acre wilderness managed by the BLM was designated in 2004. It is accessed from Caliente, located approximately 10 miles to the north. The range is an ancient rhyolitic caldera of medium altitude (BLM 2004). Segment 8 would be located approximately 16 miles to the west of this wilderness.

The Currant Mountain WA is south of the Bald Mountain and Shellback WA's, located in the Currant, or White Pine, range (USFS Undated. b). Two other designated Wilderness Areas, the White Pine Range and Red Mountain WA's adjoin the Currant Mountain WA. White Pine Peak Research Natural Area, set aside to protect nearly pristine shrublands dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and bluebunch wheatgrass (*Pseudoroegneria spicata*), is within the Currant Mountain WA, but is outside of the 10-mile buffer. Segment 6C would pass approximately 9 miles east of this designated wilderness.

Far South Egan Range WA: This 36,384-acre managed wilderness was designated in 2004 and would be approximately 10 miles north of Segment 8. It shares the Egan Range with the South Egan Wilderness and is bounded by the White River Valley on the west, through which the electric transmission facilities would pass, and Cave Valley on the east. It supports a unique mix of ponderosa and bristlecone pine (BLM 2004).

Fortification Range WA: This 30,656-acre BLM wilderness was designated in 2004. It is located in the Fortification Range across Lake Valley from the Mt. Grafton Wilderness (BLM 2004). It is about 50 miles south of Ely and would be about 45 miles east of Segment 6C.

Gold Butte Part A, Gold Butte Part B, and Virgin Mountains ACECs: These three ACECs are contiguous and protect scenic, historic, and prehistoric resources, as well as desert tortoise habitat. Gold Butte, Part A is about 185,329 acres in area; Gold Butte, Part B is about 121,082 acres and includes the Gold Butte Townsite ACEC, set aside specifically for historical preservation. The adjoining Virgin Mountains ACEC is about 35,830 acres (BLM 2007f). They are located approximately 35 miles east of Segment 11.

Goshute Canyon WA: Established in 2006, this BLM wilderness area is located in the Cherry Creek Range just south of the border between Elko and White Pine counties. It is 42,544 acres in size. Paris Creek drains the central portion of this wilderness area (BLM 2007e). It is approximately 43 miles north-northeast of the Robinson Summit Substation.

Grant Range WA: Designated in 1989, this USFS wilderness is 52,600 acres in size and is located west of the White River Valley and east of the Railroad Valley. It is accessed only by dirt roads west of SR-318, south of Lund. Adjoining this wilderness to the south is the Quinn Canyon Wilderness (USFS Undated. b). The Grant Range WA is approximately 10 miles west-southwest of Segment 6C.

Great Basin National Park: This 77,100-acre park is located west of Baker, Nevada, and includes Wheeler Peak, ancient Bristlecone pines, and extensive caves including Lehman Caves, tours of which are provided by the NPS. It is Nevada's only National Park and was designated as a park in 1986. It is about 48 miles east of Segment 6C (NPS 2009).

Hidden Valley ACEC: This ACEC is at the north end of the Muddy Mountains just northeast of Las Vegas. It was designated for its petrified wood resources, petroglyphs, and desert tortoise habitat (BLM 2000). It is approximately 11 miles southeast of the Harry Allen Substation.

Highland Ridge WA: Designated in 2006, this BLM-managed wilderness is 68,627 acres in size. It is just south of Great Basin National Park, and sits just north of the border of Nevada's White Pine and Lincoln counties (Wilderness.net 2007). It is located approximately 43 miles east of Segment 6C.

High Schells WA: This USFS wilderness area in the central portion of the Schell Creek Range is 121,497 acres in size and was designated in 2006 (Wilderness.net 2007). It is approximately 20 miles east of the Robinson Summit Substation, and within its boundaries is the North-South Schells Resource RNA (see below).

Lake Mead NRA: Lake Mead was created by damming the Colorado River and was the largest dam in the world when it was built. Work began in 1931 and the area was designated as Boulder Dam Recreation Area in 1936. It provides water and electricity for millions of people and is an important source of irrigation water in the southwest. Lake Mead National Recreation Area was designated as the first National Recreation Area in

1964 (Wikipedia 2007b). It is approximately 50 miles southwest of the Harry Allen Substation.

Lime Canyon WA: This 23,233-acre wilderness was designated in 2002 and is administered by the BLM. It is on the east side of the Colorado River on the north end of Lake Mead and adjoins this National Recreation Area (Wilderness.net 2007). It is approximately 50 miles east of the Harry Allen Substation.

Meadow Valley Range WA: This 123,488-acre BLM wilderness was designated in 2004. It is 50 miles northeast of Las Vegas and is bordered on the northwest by Kane Springs Canyon and on the south by Route 168. It is made up largely of lower elevation bajada landforms (BLM 2004). This wilderness is approximately 0.5 miles southwest of Segment 10.

Moapa Valley NWR: This 106-acre refuge was established in 1979 to protect Moapa dace and their habitat (USFWS 2007f). It is approximately 10 miles east of Segment 11.

Mormon Mesa ACEC: This ACEC adjoins Arrow Canyon and Coyote Springs ACECs, which adjoin the ON Line Project transmission line alignments. Each ACEC provides valuable habitat for the desert tortoise. Directly to the east lies Beaver Dam Slope ACEC, and directly north of Mormon Mesa lies Mormon Mesa-Ely ACEC. These four ACEC create a continuous habitat area for tortoises that stretches from the Desert NWR on the west to the Utah border on the east (BLM 2000). The west side of Mormon Mesa ACEC is approximately 1.25 miles east of Segment 11.

Mormon Mountains WA: This 157,938-acre wilderness, designated in 2004, is located just east of the Meadow Valley Range, separated only by Meadow Valley Wash (BLM 2004). It lies directly north of the ACECs listed above. It is approximately 10 miles east-southeast of Segment 10.

Mt. Grafton WA: This wilderness area was designated in 2006 with 78,743 acres and is located in the Schell Creek Range (BLM 2007e). It parallels and is approximately 0.75 miles west of US-93 at Geyser Ranch in Lake Valley. A power line parallels US-93 to the east. Segment 6C is located approximately 20 miles to the west of this wilderness.

Mt. Irish WA: This wilderness area is 28,334 acres in size and was designated in 2004. It is located about 8 miles west of Hiko and about 2 miles north of US Route 275. A dirt road accesses the center of the wilderness at Reed Spring (BLM 2004). This wilderness is located approximately 30 miles from Segment 9B.

Mt. Moriah RNA: The 876 acres of this RNA were designated in 2000 to protect a unique, high elevation plateau that supports an extensive mosaic of subalpine steppe grassland, an uncommon community in the Humboldt-Toiyabe National Forest (USFS Undated. a). The RNA is within the Mt Moriah Wilderness, which is north of Great Basin National Park. It is located approximately 43 miles east of the Robinson Summit Substation.

Mt. Moriah WA: This jointly managed BLM/USFS wilderness is 89,790 acres in size and was designated in 1989. It is in the northern end of the Snake Range, north of Great Basin National Park (Wilderness.net 2007). It is approximately 38 miles east of the Robinson Summit Substation.

Muddy Mountains WA: This wilderness area is 48,019 acres in size and was designated in 2002. It is managed by the BLM, and by the NPS on its southwest corner, where the

wilderness overlaps Lake Mead National Recreation Area (Wilderness.net 2007). It is approximately 9.5 miles southeast of the Harry Allen Substation.

Palisade Mesa WSA: This 99,500 acre, BLM-administered WSA is toward the southern end of the Pancake Range adjacent to the Wall WSA. The area is very rugged and difficult to access. It is characterized by steep walled canyons, spires, and clefts used by technical climbers. Numerous ephemeral washes in solid rock cascade with water, but only after rainstorms. Peak ascents bring views of the nearby lunar crater volcanic field. The rugged terrain provides refuge for prairie falcons, other raptors, and desert bighorn sheep.

Parsnip Peak WA: This wilderness of 43,693 acres was designated in 2004 and is managed by the BLM (BLM 2004). It is located in the Wilson Creek Mountains about 15 miles north of Pioche. It is approximately 25 miles from Segment 8.

The Pony Express National Historic Trail (PET) passes through the Shell Creek Range at Shellbourne Canyon, crosses Steptoe Valley north of McGill, and then enters the Cherry Creek Range at Egan Canyon. It passes approximately 30 miles to the north of the Robinson Summit Substation. Portions of the trail are used as roads today. Other parts are two-tracks, or have faded into the prairie.

Quinn Canyon WA: This USFS-managed wilderness was designated in 1989 and is 26,310 acres in size. It is located just south of the Grant Range Wilderness, in the mountains of the same name. It contains year-round springs and streams, which is uncommon in Nevada Wilderness (USFS Undated. b). It is located approximately 14 miles west of the junction of Segments 6 and 8.

Railroad Valley WMA: This state WMA area is on BLM land and is managed in cooperation with the Duck Valley Tribe. It is in four parcels spread across the Railroad Valley west of Blue Eagle WSA and just south of U.S. Highway 6. It is 14,720 acres in size and provides wildlife viewing and bird watching opportunities (NDOW 2007b, 2007c). It is located about 16 miles west of Segment 6C.

Red Mountain WA: This USFS-managed wilderness was designated in 2006 and is 20,490 acres in size. It is located on the east side of the White Pine Mountains, just east of Currant Mountain WA and south of Bald Mountain WA (Wilderness.net 2007). It is approximately two miles west of proposed Segment 6C.

Red Rock Springs/Devils Throat ACECs: These two adjoining ACECs are each less than 741 acres and are surrounded by Gold Butte Parts A and B ACECs. They were preserved because of their scenic, archaeological, and geological resources (BLM 2000). They are approximately 45 miles east of Segment 11 and the Harry Allen Substation.

Riordan's Well WSA: This proposed 36,200-acre WSA is on BLM land to the north of the Grant Range. It abuts the Blue Eagle WSA, which is to the north and west (BLM 2007e). It is approximately 1.5 miles to the west of Segment 6C.

Ruby Lake NWR: This 39,926 acre refuge was designated in 1938. It is located on the largest flyway between the Pacific and Mississippi Flyways. It is directly to the southeast of the Ruby Mountains. Many tourists visit the mountains and the refuge due to the array of easily accessible habitats and scenic qualities of these areas (USFWS 2007g). It is located approximately 45 miles north-northwest of the Robinson Summit Substation.

Shellback WA: This USFS-managed wilderness is located north of the Bald Mountain WA on the east side of the White Pine Range. Its 36,143 acres were designated in 2006 (Wilderness.net 2007). It would be located approximately 8 miles west of Segment 6C.

South Egan Range WA: The BLM-managed South Egan wilderness is 67,214 acres and was designated in 2006. It shares the Egan Range with the Far South Egans WA. This range overlooks the White River Valley (BLM 2007e). The wilderness is 8.5 miles east of Segment 6C.

South Pahroc Range WA: This 25,800-acre wilderness managed by the BLM was designated in 2004 and supports a wide variety of large mammals, including re-introduced big horn sheep. It is located west of Caliente and is bordered by the 6-mile and 8-mile valleys to the west and the Pahroc Valley to the east. US-93 passes 4 miles to the north. Segment 9B would pass approximately 4.5 miles to the east of the south end of this wilderness area, and Segment 9A would pass 5 miles south of this wilderness area.

Steptoe Valley WMA: This state-run wildlife management area sits near the south end of Steptoe Valley. It is located about 3 miles due south of Ely. It is managed for waterfowl, fish, and hunting and provides a variety of habitats for game animals and small game as well (NDOW 2005). The WMA is approximately 20 miles east of Segment 6C.

The Wall WSA: This 38,000-acre WSA is located approximately 75 miles east of Tonopah on BLM land. “The Wall” was named for its sheer, black, vertical face. It is a volcanic formation of magma and ash. The back side of the wall is a labyrinth of gullies and washes. The vertical perspective created by the Wall, which has vertical relief between 600 and 2,000 feet in height, gives the impression of an impenetrable fortress looming over the flat sands and playas of the Railroad Valley. It is located approximately 45 miles west of Segment 8.

Troy Peak RNA: This 2,500-acre RNA covers the highest elevations of the Grant Range and is within the Grant Range Wilderness. The area was designated to protect unique rock barrens and three plant species: the Nevada primrose (*Primula nevadensis*), waxflower (*Jamesia tetrapetata*), and Nachlinger's catchfly (*Silene nachlingerae*) (USFS Undated. a). The RNA is approximately 12 miles west of Segment 6C.

Tunnel Springs WA: This 2004-designated wilderness covers 5,371 acres of BLM land. It is located on the Utah-Nevada border and adjoins the north border of Beaver Dam State Park. It is accessed from Caliente via the State Park or from the Dixie National Forest in Utah (BLM 2004). It is located approximately 40 miles east of Segment 9B.

Virgin Mountains ACEC: See Gold Butte Part A, Part B in this section, above.

Virgin River ACEC: This ACEC follows the riparian zone of the Virgin River as it flows from the Utah-Nevada border toward Las Vegas. It is south of I-15. It was designated to protect riparian species, such as the southwestern willow flycatcher, a designated threatened species. The ACEC also contains habitat for desert tortoise. It is approximately 7,413 acres.

Weepah Springs WA: This 51,480-acre BLM-managed wilderness was designated in 2004. It is located in the Seaman Range and Timber Mountain, about 20 miles north of Hiko (BLM 2004). It is approximately 16 miles southwest of Segment 8.

White Pine Peak RNA: This 797-acre RNA, located within the Currant Wilderness, supports nearly pristine shrublands dominated by mountain big sagebrush (*Artemisia tridentata* ssp. *vaseyana*) and bluebunch wheatgrass (*Pseudoroegneria spicata*). Although typical

vegetation of the Great Basin, the dominance of these species is being challenged by invasives at lower elevations (USFS Undated. a). This RNA is located approximately 11 miles from Segment 6C.

White Pine Range WA: This 40,013-acre wilderness is managed by the USFS and is on the west side of its namesake range. Other wilderness areas in this range include the Shellback, Bald Mountain, Currant Mountain, and Red Mountain wildernesses (USFS Undated. b). The White Pine WA is approximately 12 miles west of Segment 6C.

White Rock Range WA: This BLM wilderness area is 24,413 acres and was designated in 2004. It is located east of the Wilson Creek Range on the Utah border just north of the Beaver-Iron County (Utah) line (Wilderness.net 2007). It is approximately 35 miles east of Segment 8.

Worthington Mountains WA: This wilderness is 30,664 acres in size and was designated as wilderness in 2004. It is located south of the Grant Mountains and several miles north of US Route 375 (BLM 2004). Segment 9B is located approximately 48 miles east of this WA.

3.14 Recreation

3.14.1 Area of Analysis

The area of analysis for direct and indirect effects on recreation resources includes a 50-mile radius or buffer from project elements (with the exception of the existing Falcon Substation that would be expanded on private land).

3.14.2 Data Sources and Methods

The information used to characterize developed recreation resources in the project area were gathered from a variety of sources, predominated by information from the Ely and Southern Nevada BLM District Offices, USFS, and NPS. State and local resources and their use were gleaned from other publicly available sources from the Nevada Division of State Parks and NDOW.

3.14.3 Existing Conditions

As indicated in **Table 3.12-1** above, public lands (those managed by federal, state, or county entities) account for the vast majority of land in the counties affected by the proposed project. Recreational use on public lands is governed by management plans outlined in **Section 3.14.3.1**. Much of these public lands are managed to allow for dispersed recreation, as described in **Section 3.14.3.2**. A number of developed recreation areas are located within a 50-mile radius of the project components, as described in **Section 3.14.3.3**. In addition, a limited number of private enterprises offer recreation opportunities, such as campgrounds and RV parks.

3.14.3.1 Existing Recreation Management Plans and Policies

A number of land management plans and policies apply to the project area. These include BLM RMPs, the Statewide Comprehensive Outdoor Recreation Plan (SCORP), and county land use regulations. These plans and policies as they relate to recreation opportunities are described further below.

3.14.3.2 Federal Recreation Management Plans, Policies, and Statutes

Federal lands that would be directly impacted by the ON Line Project are BLM lands. As described in **Section 3.12.3** above, two BLM district offices administer the federal lands affected

by the proposed project (Ely and Southern Nevada). Within these BLM districts, two resource areas are identified and have management plans in place that govern use, including recreation.

BLM Ely RMP

The BLM Ely District Office RMP (BLM 2008a) is described in detail in **Section 3.12.3.1**. A majority of the planning area is available for dispersed, backcountry, and undeveloped recreational uses. These areas will be managed as extensive recreation management areas. These areas include trails, routes, trailheads, staging areas, and associated structures. The RMP provides for management of five Special Recreation Management Areas (SRMAs), including development of SRMA plans, and established areas and routes for permitted motorized competition events.

BLM Southern Nevada (Las Vegas) Resource Area RMP

Similar to the other resource area, the Las Vegas RMP (BLM 1998a) notes that the principal recreation opportunities are for casual or dispersed recreational activities, such as caving, photography, automobile touring, backpacking, birdwatching, hunting, hiking, and competitive and non-competitive off-highway vehicle (OHV) use. SRMAs in the Resource Area will be managed to provide recreation opportunities appropriate to the resource. Several SRMAs are managed, at least in part, for OHV use.

National Park Service Historic Trails Management Plan

The NPS completed a Comprehensive Management and Use Plan and Final EIS in 1999 for the Pony Express National Historic Trail along with three other historic trails. The document focuses on the Trail's purpose and significance, issues, and concerns related to current conditions along the trail, resource protection, visitor experience and use, and long-term administrative and management objectives. The plan identifies high-potential route segments and sites. High-potential segments are "Those portions of trail which would afford a high quality recreation experience in a portion of the route having greater-than-average scenic values or affording an opportunity to vicariously share in the experience of the original users of the historic route." High-potential sites are "Those historic sites related to the route which provide opportunity to interpret the historic significance of the trail during the period of its major use." The Pony Express National Historic Trail is north of the project area.

Lake Mead National Recreation Area Lake Management Plan

In 1986, the *Lake Mead National Recreation Area General Management Plan (GMP) and Final Environmental Impact Statement* established land-based management zones and strategies for meeting the goals and general purposes of the recreation area. Since that time, management issues related to the increase in recreational use of the lakes, visitor conflicts and safety, potential impacts on park resources from water-related recreation, and personal watercraft use surfaced that have not been adequately addressed or resolved in previous planning efforts. In 1992 park managers determined that the development of a lake management plan was necessary to address issues surfacing from increased visitation to Lakes Mead and Mohave (NPS 2002).

The Lake Management Plan, finalized in 2003, tiers from the 1986 GMP. The plan addresses recreational use of approximately 160,000 acres of water contained within the 1.5 million acre National Recreation Area. The document addresses recreational issues including recreational carrying capacity and zoning, developed areas and facilities, sanitation and litter, recreational services, and visitor conflict affecting the recreational setting (NPS 2003).

Lincoln County Conservation, Recreation, and Development Act of 2004

The Lincoln County Conservation, Recreation, and Development Act (LCCRDA) was passed by Congress to establish wilderness areas, promote conservation, improve public land, and provide for high quality development in Lincoln County. It provides for the disposal of up to 90,000 acres of public land within Lincoln County. The LCCRDA directed BLM to convey to the State of Nevada the parcels of land identified as 'NV St. Park Expansion Proposal' and convey to Lincoln County up to 15,000 acres for open space. This effectively increased the size of state parks and county recreation areas. The LCCRDA directed transfer of BLM administered lands to the USFWS for inclusion in the Desert National Wildlife Range. In return, USFWS lands were transferred to BLM in order to relocate the alignment of the 2,640-foot wide West-wide Energy Corridor from the east side of US-93 to the west side of US-93, between the highway and the Desert National Wildlife Range. Designation of the Silver State OHV Trail was also provided.

White Pine County Conservation, Recreation, and Development Act of 2006

The White Pine County Conservation, Recreation, and Development Act (WPCCRDA) expanded two existing wilderness areas (Mount Moriah and Currant Mountain) and designated 12 new wilderness areas. It directed the transfer of land from USFS to BLM around the Great Basin National Park to simplify land management in order to protect the park's unique natural resources. Further, it transferred jurisdiction of land from BLM to the USFWS for inclusion in the Ruby Lake National Wildlife Refuge. Under the WPCCRDA, four parcels of public land were transferred to the Ely Shoshone Tribe for traditional, ceremonial, commercial, and residential purposes. Two small parcels of public land were conveyed for the expansion of the airport and industrial park in White Pine County to support future economic development. The WPCCRDA set up an account to dispose of up to 45,000 acres of public lands out of BLM management into private ownership. The law also supports a three-year study for a potential extension of the Silver State OHV trail, promotes resource protection, and a county-wide recreation study.

State Comprehensive Outdoor Recreation Plan

The SCORP, prepared by the Nevada Division of State Parks (2004), provides an assessment of Nevada's characteristics, people, resources, and recreational activities and critical recreation issues facing the state. Nevada has a variety of natural resources available to the public for participation in outdoor recreation activities. Nevada has more mountain ranges and public lands than any other state except Alaska (Nevada Division of State Parks 2004).

The SCORP reported that 84 percent of Nevadans 16 years of age and older participated in at least one outdoor recreational activity in the year 2000. In that same year, the percent of Nevadans 16 years of age and older participating in specific outdoor recreation activities was as follows: 44 percent pleasure driving, 37 percent picnicking, 32 percent swimming in a pool, 32 percent walking without a dog, 31 percent wildlife viewing, 30 percent swimming in a lake or stream, 28 percent hiking, 28 percent walking with a dog, 27 percent motorboating, and 26 percent lake fishing. In 2002, Nevadans participated in an estimated 235 million annual participation days of outdoor recreational activities in Nevada (Nevada Division of State Parks 2004).

Nevada has a high percentage (approximately 88 percent) of land administered by the federal government. The SCORP reported that 99 percent of the residents in Nevada living in rural areas said that the management of Nevada's public lands is either very important (98 percent) or important (1 percent) to them (Nevada Division of State Parks 2004).

The SCORP identified future recreation issues and actions for the state as a whole. The top five prioritized issues were:

- Public Access to Public Lands for Diverse Outdoor Recreation – There is a growing public desire to protect, maintain, and increase public access to public lands for the greatest diversity of outdoor recreational users.
- Funding Parks and Recreation – The maintenance of outdoor recreation areas and facilities at the federal, state, and local levels in Nevada has not kept pace with demands created by the rapid increases of population in Nevada and the increasing number of out-of-state visitors.
- Recreational Trails and Pathways – One of the greatest assets in Nevada to attract tourists to the state is the natural resource base found largely on public lands, and trails compliment this expansive natural resource base.
- Balancing the Protection of Nevada's Natural, Cultural, and Scenic Resources with Users – Find an appropriate balance between outdoor recreation activities (consumptive by definition) and preserving natural, cultural, and scenic resources.
- Protecting Water Resources as Vital Components of Nevada's Recreational Base – Because Nevada is the driest state in the U.S., it is critical that water resources be protected to maintain the needed quantity, quality, and accessibility for public recreation. Recreation and wildlife depend on the limited water resources in Nevada.

County Recreation Management Plans and Policies

Eureka County

The Eureka County Master Plan (Eureka County 2000) provides recommendations for and supports development of recreation areas in the county. It supports both active and passive recreation activities.

White Pine County

The White Pine County Public Land Use Plan (White Pine County 2008), a coordinated land use planning effort among the county, BLM, and USFS, supports activities by participating in county-wide youth programs and activities, enhancing and preserving existing recreational facilities, and supporting new recreational facilities in the county. It also encourages dispersed recreational opportunities. The plan also states that federally managed lands with the value for concentrated recreation use (campgrounds, water recreation sites, etc.) should be identified, developed, and managed for recreational purposes.

Nye County

There is no comprehensive county-wide plan that addresses the management of recreation resources.

Lincoln County

The Lincoln County Master Plan (2006) describes a lightly populated county dominated by federal land ownership. Low population density creates financial constraints on development of county-level public and private recreation opportunities. Through the plan, the County seeks to work with federal land managers to plan for development and expansion of recreation opportunities; to develop a recreational opportunities inventory; to seek outside sources of funding for improvement of recreational facilities; and to expand its website to promote tourism opportunities in the county.

The Lincoln County Strategic Tourism Plan (Harris et al. 2004), prepared by the University of Nevada Center for Economic Development, notes that there are few developed recreation sites in the county. Most recreation in the county is resource-based and dispersed. The rural communities of Pioche, Caliente, and Alamo all offer cultural heritage sites, local parks, camping, hiking, and, hunting opportunities. Lincoln County is also home to "Area 51" and the Extraterrestrial Highway (U.S. Highway 375) that extends from Alamo to Rachel and draws visitors to the region (Harris et al. 2004).

Clark County

The Clark County Comprehensive Plan has elements that discuss land use and recreation policies and standards (Clark County 2007b). The proposed ON Line Project would terminate at the Harry Allen Substation in the northeast portion of Las Vegas Valley. This area is designated as heavy industrial land use. Lands north of this area to the county line are designated as open space.

3.14.3.3 Recreation Opportunities

Open space and wildlands are very important to Nevadans. According to the 2004 SCORP, 100 percent of Nevada residents living in urban areas and 99 percent of rural Nevada residents said that the management of Nevada's public lands was important or very important. In 2001, 67 percent of Nevada residents surveyed wanted to set aside more designated wilderness areas in the state, and over 90 percent said that maintaining unique or unusual natural and historical areas was important to them. In 2002, Nevada voters approved a measure to issue $200 million in bonds for conservation and resource protection. In the 2004 SCORP survey, public access to public lands was listed as the number one issue for people interested in outdoor recreation. The expansive federal lands in Nevada are viewed as a valuable economic resource (Nevada Division of State Parks 2004).

Dispersed Recreation Areas

Popular dispersed recreation activities include OHV use (including 4-wheel drive vehicles, ATVs, and motorcycles), hiking, horseback riding, mountain biking, rock collecting, picnicking, primitive or backcountry camping, wildlife viewing, hunting, boating, and fishing. BLM public lands also accommodate permitted annual events including events such as truck, buggy, motorcycle, and bike races, Pony Express Trail endurance and reenactment rides, and club rocket launches (BLM 2008a). With regard to OHV use and motorized competitive events, The Ely RMP:

- Limits OHV use to designated roads and trails on approximately 10.3 million acres within the planning area boundary.
- Allows for a maximum of two competitive truck events per year.
- Closes all desert tortoise ACECs to all high-speed, competitive OHV use, and limits organized non-speed OHV events (BLM 2008a).

In order to manage recreation in conjunction with the other multiple uses on BLM lands, the BLM has established the following designations:

- BLM Ely District Extensive Recreation Management Areas (ERMA)

  Most public lands within and in the vicinity of the project area are open to dispersed recreation, and are managed as ERMAs, which are areas that include all BLM lands outside SRMAs. ERMAs typically do not contain organized or developed areas facilitating recreational activities, such as campgrounds. Rather, recreationists receive broad

guidance on appropriate recreational uses that are consistent with multiple resource management.

- BLM Ely District SRMAs

  A SRMA is an area where more intensive recreation management is needed, where a commitment has been made to provide specific recreation activity and experience opportunities, and where recreation is a principal management objective (BLM 2008a).

- BLM Ely District Special Recreation Permit (SRP) Areas

  Four SRP areas totaling approximately 1.3 million acres will be managed to provide opportunities for competitive motorcycle special recreation permitted events, with competitive events managed on designated routes.

In addition to their value for their special designations, these areas are also valuable recreation areas. Hunting and wildlife viewing are important recreation activities in Nevada. Big game hunting in eastern and southern Nevada includes mule deer, Rocky Mountain elk, pronghorn antelope, bighorn sheep, and mountain goat. The hunt units along the proposed alignment contain all these big game species. Hunters often rely on maintained roads and smaller jeep trails to access areas for hunting. Some wilderness study areas and designated wilderness are located within various hunt units, so motorized equipment and mechanized transport are prohibited and access is on foot or horseback. Hunter success varies by unit and type of hunt and is high on average with most filling their tags.

Wilderness areas, wilderness study areas, wildlife refuges, and state wildlife management areas, in particular, are managed for values other than recreation; however, they are extremely valuable for dispersed recreation. As it relates to recreation, wilderness, and wilderness study areas, the Ely RMP:

- Closes designated wilderness to motorized and mechanized travel according to policy and enabling legislation.
- Closes the Park Range, Blue Eagle, Antelope Range, and Riordan's Well WSAs to motorized and mechanized travel.

Developed Recreation Opportunities

More than 30 developed recreation areas and sites occur near the proposed locations of project elements. These sites, along with other recreation resources within 50 miles of major project elements are shown in **Figure 3.14-1** below. These are areas that have been developed or are maintained and regionally recognized as locations for specific recreational activities and opportunities. Most of the areas and sites listed below are associated with resource-based recreation activities.

3.14.4 Specific Project Area Conditions

Table 3.14-1 lists areas with specific designation for recreation management (BLM 2008a) within a 50-mile radius of the project components. Project components that would be located on public lands would be in areas of dispersed recreation. In addition to their value for their special designations, these areas are also valuable recreation areas. While WAs, WSAs, wildlife refuges, and most state wildlife management areas offer opportunities primarily for dispersed recreation, some limited developed recreation opportunities exist within a few of these special designations. Some wildlife refuges and state wildlife management areas provide interpretive facilities, boat launch ramps, and docks, for example. Upland game bird hunting areas are also dispersed throughout the project area.

There are 30 developed recreation areas within a 50-mile radius of the various project components. None of the proposed project components would be located in developed recreation areas and sites.

The ON Line Project would be within 50 miles of 7 SRMAs and 4 SRPs (**Table 3.14-1**). Certain segments of the transmission line alignments are located within or adjacent to popular big game range and overlap hunting districts. The Proposed Action would occur immediately adjacent to the Desert NWR. The Kirch Wildlife Management Area and the Pahranagat National Wildlife Refuge are also located near the transmission line alignments.

The Proposed Action and Action Alternative would occur within or cross the Loneliest Highway, Chief Mountain, and North Delamar SRMAs. Transmission line facilities would also cross the Ely SRP Area.

Figure 3.14-1 Existing Recreation Areas and Sites

TABLE 3.14-1 SPECIAL RECREATION AREAS WITHIN 50 MILES OF THE PROJECT ROWS

NAME	LOCATION	DESCRIPTION
The Loneliest Highway SRMA**	Along and on either side of US-50 as it transects the Ely BLM District.	This SRMA contains some of the most popular destinations. The management objectives of the SRMA are to provide a broad recreation opportunity spectrum ensuring a balance of recreation experiences. Developed recreation opportunities found within the Loneliest Highway SRMA are described in **Table 3.14-2**.
Chief Mountain SRMA**	Northwest of Caliente, north of US-93, west of SR-317, and south of SR-320.	To be managed for a broad recreation opportunity spectrum ensuring a balance of recreation experiences on approximately 111,181 acres.
Egan Crest SRMA**	Approximately 15 miles directly south of Ely, and approximately 5 miles northeast of Lund.	To be managed for a broad recreation opportunity spectrum ensuring a balance of recreation experiences on approximately 53,455 acres.
Pahranagat SRMA**	Either side of US-93 from just south of Alamo to the intersection of US-93 and SR-375; and northeast of Hiko north of US-93 and east of SR-318.	To be managed for a broad recreation opportunity spectrum ensuring a balance of recreation experiences on approximately 298,500 acres.
North Delamar SRMA**	Just south of Caliente, either side of SR-317.	To be managed for a broad recreation opportunity spectrum ensuring a balance of recreation experiences on approximately 202,890 acres.
Ely SRP Area**	A linear narrow strip of land stretching north from the intersection of SR-318 and US-6, ending southwest of Cherry Creek.	Dispersed recreation includes competitive motorcycle opportunities.
Pioche SRP Area**	Either side of US-93 North of Pioche, to just north of the intersection with SR-894. Roughly bounded on the south by SR-320.	Dispersed recreation includes competitive motorcycle opportunities.
Caliente SRP Area**	Northwest of Caliente, mostly north of US-93 and west of SR-317, and mostly southeast of Panaca, south of SR-319 and east of SR-317.	Dispersed recreation includes competitive motorcycle opportunities.
Muddy Mountains SRMA	East of Las Vegas.	This SRMA is managed for primitive and semi-primitive recreation opportunities including camping, hiking, and sightseeing. The Bitter Spring Back-country Byway bisects the SRMA. The SRMA is partially motorized and partially non-motorized. Some motorcycle racing occurs in the eastern portions of the SRMA, but most OHV opportunities are for trucks and SUVs (BLM 1998a).
Nellis Dunes SRMA	Approximately 15 miles northeast of Las Vegas	The Nellis Dunes SRMA is open to unrestricted OHV use. It is the closest resource to the Las Vegas metropolitan area for legal OHV use. The SRMA supports approximately eight OHV events annually, including large scale organized OHV races. There is growing popularity for commercial 4x4 tours, with two commercial tour guides operating almost exclusively at the SRMA. Several other commercial tours are also authorized for operation at the SRMA. The area receives a high volume of use during spring, fall, and winter, but use does occur year round. The SRMA is currently undeveloped, but BLM is working with Clark County to develop a plan. The area is closed to both camping and hunting (BLM 1998a).
Valley of Fire SP	55 miles northeast of Las Vegas via I-15	Popular dispersed recreation includes hiking, camping, picnicking, and photography (NDSP 2008).
Lake Mead NRA	East and south of Las Vegas along the Nevada – Arizona state line, and extending north from the state line east of Valley of Fire SP.	Lake Mead NRA consists of 160,000 surface acres of Lake Mead and Lake Mohave surrounded by 1.5 million acres of land. Dispersed recreational activities include hiking, camping, and boating (NPS 2008).

**Source: BLM 2008a

TABLE 3.14-2 DEVELOPED RECREATION OPPORTUNITIES WITHIN 50 MILES OF PROJECT COMPONENTS

NAME	LOCATION	DESCRIPTION
FEDERAL		
Berry Creek Campground	Five miles north of McGill on US-93, then 10 miles east on SR-486, then 5 miles east on Forest Service Road 424.	The Berry Creek Campground is located in a white fir forest around the confluence of the North Fork and South Fork of Berry Creek. The campsite offers hunting, fishing, and hiking (USFS 2007a).
Bird Creek Campground	Located in the Duck Creek Basin approximately 14 miles northeast of McGill off of Forest Service Road 426.	The campground has eight group use sites for RVs and tents, concrete pads, fire pits and cooking grills, drinking water, and a vault toilet. Bird Creek, a perennial stream, runs through the middle of the picnic area. Hiking is the primary recreational activity (USFS 2007a).
Chief Mountain OHV Area	The south access point is located at Oak Springs Summit on the north side of US-93 about 5 miles west of Caliente(BLM 2008a).	The Chief Mountain area is frequently used for off-highway vehicles. There is a trailhead in conjunction with three designated OHV trails: the Red Rhyolyte Trail, Grey Dome Trail, and Silver State Trail (Lincoln County 2008). The area is scenic and has a good network of social trails.
Cleve Creek Campground	Approximately 43 miles from Ely traveling northbound on SR-893 from US-6/50.	Cleve Creek Campground is located in Spring Valley near the mouth of a major drainage on the east side of the Schell Creek Range. Cleve Creek is a year-round stream that supports abundant vegetation at the campground. Fishing, hiking, horseback riding, and OHV use are all available recreation activities. There are 12 tables and a group barbeque area available (BLM 2007g).
East Creek Campground	Approximately 12 miles northeast of McGill off of Forest Service Road 427.	The East Creek Campground is located in the Duck Creek Basin high on the slopes of the Schell Creek Range in the middle of an Alder, Pinyon, and Juniper forest. The campground has seven campsites for both recreational vehicles (RVs) and tents. Hiking is the primary recreational activity (USFS 2007a).
Egan Crest Trailhead	Eight miles west of Ely just off US-50 on the north side.	The Egan Crest Trail System provides recreationists with over 50 miles of trails with a variety of terrain from the rolling sagebrush flats to the higher elevations in pinyon and juniper forests. The trailhead has picnic tables, grills, a gravel parking lot, and an information kiosk (BLM 2007g).
Ely Elk Viewing Area	Along US-93 south of Ely and at the viewing area pull-out.	The largest herd of elk in Nevada can be observed feeding during the fall and spring seasons. Peak viewing times are October through November, and March through April, with elk sometimes also seen in mid-winter. Other watchable wildlife species in the area include golden eagles, ravens, black-tailed jackrabbits, and chipmunks (Leisure and Sport Review 2007).
Garnet Hill Recreation Area	Located 9.5 miles north of Ely via US-50.	This recreation area is an internationally known site for gem collectors looking for garnets. It also provides picnicking and camping opportunities (BLM 2007g).
Great Basin National Park	Approximately 50 miles east of Ely on US-6/50 to SR-487 and Baker.	This 77,000-acre National Park offers both developed and dispersed recreation opportunities. Visitors can experience the 12-mile Wheeler Peak Scenic Drive, camp in four developed campgrounds, one of which is open year-round; explore eight wild caves accessible with a cave permit or take a guided tour of Lehman Caves. The park has two picnic areas, as well as the campground that has areas available for picnicking. Visitation of approximately 80,000 in recent years (Great Basin NP 2008).
Illipah Reservoir	Just south of US-50 about 40 miles west of Ely. There is a sign marking the turnoff to Hamilton (ghost town) and Illipah Reservoir.	This recreation site is located at the base of the White Pine Range and has a small fishing reservoir. Illipah is a popular spot to fish for rainbow trout and brown trout throughout the year. Ice fishing is a popular activity during the winter. Mountain biking, hiking, horseback riding, and sightseeing are some of the additional activities available in the area. The campground has 14 sites with tent and RV sites available. The campground is approximately 1 mile off of the highway (BLM 2007g).

NAME	LOCATION	DESCRIPTION
Meadow Valley	In Lincoln County east of Pioche SR-322 past Ursine.	The Meadow Valley Recreation Site main campground lies in a narrow side canyon called Nicanor Canyon in the Mt. Wilson Range, at approximately 5,800-foot elevation. There is a camping area available in the side canyon with approximately six sites. Fishing, hiking, and bird watching are popular in the area. This recreation site borders Spring Valley State Park, which provides additional fishing and hiking opportunities (BLM 2007g).
Pony Express National Historic Trail	The Trail enters Steptoe Valley through Egan Canyon and runs approximately east-west across the BLM Ely District in the project area.	The Pony Express National Historic Trail was established as a National Historic Trail by Congress in 1992. The Trail is administered by the National Trails System, Salt Lake City, Utah office, but responsibility for management of the Trail lays in the hands of current trail managers at the federal, state, local, and private levels. Recreational uses of the Trail include hiking, biking, horseback riding, and historic reenactments of the trail experience. Use of the Trail is increasing because of heritage tourism (people rediscovering their past), commemorative activities, and media interest (NPS 2007a).
Success Summit Loop	Links US-50 and US-93 north of Ely and McGill.	The graded loop road runs through the Schell Creek Range of the Humboldt-Toiyabe National Forest. Along most of its length the road is at aspen level, providing for scenic views, especially during the fall season.
Timber Creek Campground	Approximately 16 miles northeast of McGill off of Forest Service Road 425.	The Timber Creek Campground is in a spruce, fir, and aspen forest setting. It has six single sites and six group sites for both RVs and tents. The campground offers concrete pads, fire pits and cooking grills, drinking water, vault toilets, and a playground with a sandbox. Timber Creek is a perennial stream and runs through the middle of the campground. Hiking, nature/wildlife viewing, and horseback riding are the primary recreational activities in this area (USFS 2007a).
Ward Mountain Recreation Area	Approximately 6 miles south of Ely via US-6.	There are 20 miles of trails that meander through the sagebrush and pinyon-juniper forests of Ward Mountain. These trails are available for hikers, bikers, skiers, horses, motorcycles, and snowmobiles. This site is jointly administered by the BLM and the USFS (BLM 2007g).
White River Campground	At the base of Currant Mountain near the Currant Mountain Wilderness in the White Pine Mountain Range.	The White River Campground straddles the White River. The campground is approximately 34 miles southeast of Ely off of Forest Service Road 1163. It has ten sites with fire pits, camping grills, and vault toilets. The primary recreational activities are hiking, sightseeing, wildlife/nature viewing, backpacking, hunting, and all-terrain vehicle/OHV riding (USFS 2007a).
Cave Lake State Park	Approximately 15 miles southeast of Ely via SR-486.	Cave Lake State Park is open year round. The 32-acre reservoir at Cave Lake State Park is popular for trout fishing, crawdadding, boating, picnicking, and camping. The park is located in the Schell Creek Range at an elevation of 7,300 feet, offering scenic views and opportunities for nature study and photography. Facilities include campgrounds, picnic areas, hiking trails, and a boat launch. Winter sports such as ice fishing, cross-country skiing, and ice-skating also are available. Snow sculpting is becoming a popular activity, and the White Pine Fire & Ice Show is the premier winter event in the area (Nevada Division of State Parks 2007a). Total visitation at Cave Lake State Park for 2000 was 76,105. In 2006, the total visitation was 56,322. This represents a general decrease in visitation at the park of 26 percent over the last 7 years. By comparison, the decreased visitation trend across all Region V parks was 13 percent (Nevada Division of State Parks 2007b).

NAME	LOCATION	DESCRIPTION
Comins Lake	Approximately 10 miles southeast of Ely via US-50/6/93.	Originally established by the realignment of US-93 that created a dam, it is fed by both Steptoe and Cave Creeks from the east, and Willow Creek from the south. At capacity, the lake covers 410 surface acres and has a maximum depth of 15 feet. In 1999, the lake and the adjacent 3-C Ranch were purchased by the Nevada Department of Wildlife (NDOW). The lake is now managed to maximize fisheries resources and contains rainbow trout, brown trout, largemouth bass, and northern pike (NDOW 2007d).
Ward Charcoal Ovens State Historic Park	Seven miles south of Ely via US-50/6/93, then 11 miles southwest on Cave Valley Road in the Egan Mountain Range.	Ward Charcoal Ovens State Historic Park is mostly known for its six beehive-shaped historic charcoal ovens used in the late 19th century to generate charcoal for use in the mines of nearby Ward. The park also offers an array of recreational opportunities including hiking, mountain biking, and ATV riding. Other features include forested woodlands, riparian areas, and views of Steptoe Valley and views of Wheeler Peak, located in the Great Basin National Park (Nevada Division of State Parks 2007a). Total visitation at Ward Charcoal Ovens State Historic Park for 2000 was 11,977. In 2006, the total visitation was 4,390. This represents a general decrease in visitation at the park of 37 percent over the last 7 years. By comparison, the visitation trend across all Region V parks was down by 13 percent (Nevada Division of State Parks 2007b).
Beaver Dam	Approximately 34 miles east of Caliente adjacent to the Utah border. Motorists can reach the park by driving 6 miles north of Caliente on US-93, then 28 miles east on a graded gravel road that leads to the park entrance.	Beaver Dam State Park is Eastern Nevada's most remote park. Deep canyons, pinion and juniper forests, a flowing stream and numerous beaver dams are the primary features, offering fishing, camping, picnicking, hiking, photography, and nature study. Facilities include campgrounds, a group use area, a day-use picnic area, and hiking and interpretive trails. Beaver Dam is open year-round weather permitting (Nevada Division of State Parks 2007a). Total visitation at Beaver Dam for 2000 was 8,393. In 2006, the total visitation was 5,939. This represents a general decrease in visitation at the park of 29 percent over the last 7 years. By comparison, the visitation trend across all Region V parks decreased by 13 percent (Nevada Division of State Parks 2007b).
Cathedral Gorge	Just west of US-93, 2 miles north of Panaca.	Cathedral Gorge is located in a long, narrow valley where erosion has carved dramatic and unique patterns in the soft bentonite clay. Trails abound for exploring the cave-like formations and cathedral-like spires. Miller Point, a scenic overlook just north of the park entrance on US-93, offers excellent views of the scenic canyon. Shaded picnic areas and a tree-shaded campground area are open all year. Hiking, picnicking, camping, nature study, photography and ranger programs are the most common activities at the park (Nevada Division of State Parks 2007a). Total visitation at Cathedral Gorge for 2000 was 57,167. In 2006, the total visitation was 59,705. This represents a general increase in visitation at the park of 4 percent over the last 7 years. By comparison, the visitation trend across all Region V parks decreased by 13 percent (Nevada Division of State Parks 2007b).
Echo Canyon Reservoir	Twelve miles east of Pioche via SR-322 and SR-323.	Echo Canyon State Park offers a 65-acre reservoir with a campground, picnic area, group use facilities, and boat launch. The park is popular for camping, fishing, and hiking (Nevada Division of State Parks 2007a). Total visitation at Echo Canyon Reservoir for 2000 was 49,762. In 2006, the total visitation was 38,118. This represents a general decrease in visitation at the park of 23 percent over the last 7 years. By comparison, the visitation trend across all Region V parks decreased by 13 percent (Nevada Division of State Parks 2007b).

NAME	LOCATION	DESCRIPTION
Kershaw-Ryan State Park	Two miles south of Caliente via US-93 and SR-317.	Kershaw-Ryan State Park is situated in a colorful, scenic canyon at the northern limit of Rainbow Canyon. Steep canyon walls tower over a long, narrow valley. Early settlers here cultivated a garden of grape vines, trees, and grassy lawn surrounding a spring-fed pond, providing a sharp contrast to the rugged landscape. In 1984, flash floods destroyed most of the park, requiring its closure. It re-opened again in 1997. A picnic area, restrooms, and trails offer visitors nature study, photography, picnicking, and hiking (Nevada Division of State Parks 2007a). Total visitation at Kershaw-Ryan State Park for 2000 was 20,689. In 2006, the total visitation was 28,254. This represents a general increase in visitation at the park of 27 percent over the last 7 years. By comparison, the visitation trend across all Region V parks decreased by 13 percent (Nevada Division of State Parks 2007b).
Spring Valley State Park	Twenty miles east of Pioche via SR-322.	Spring Valley State Park offers water oriented recreation at the 65 acre Eagle Valley Reservoir. Boat launching, picnicking, and camping facilities are available. Other opportunities include hiking, exploring, and touring the historic Ranch House Museum (Nevada Division of State Parks 2007a). Total visitation at Spring Valley for 2000 was 119,959. In 2006, the total visitation was 107,047. This represents a general decrease in visitation at the park of 11 percent over the last 7 years. By comparison, the visitation trend across all Region V parks decreased by 13 percent (Nevada Division of State Parks 2007b).
Valley of Fire State Park	In Clark County approximately 6 miles from Lake Mead and 55 miles northeast of Las Vegas via I-15 and on exit 75.	Valley of Fire is Nevada's oldest and largest state park, dedicated in 1935. The valley derives its name from the red sandstone formations and the stark beauty of the Mojave Desert. Ancient trees and early man are represented throughout the park by areas of petrified wood and 3,000 year-old Indian petroglyphs. Popular activities include camping, hiking, picnicking, and photography. The park offers a full-scale visitor center with extensive interpretive displays. The park is open all year (Nevada Division of State Parks 2007a).
COUNTY		
White Pine County	Various	Recreational facilities owned and operated by White Pine County include a golf course, tennis courts, numerous ball parks, six town parks, neighborhood parks, a shooting range, a summer swimming hole, and playgrounds. These facilities are located in the city of Ely and the community of McGill. The County also operates the White Pine County Rodeo Grounds and Fairgrounds north of Ely. Additionally, the city of Ely owns and operates the Ghost Train, which is a tourist train operation along the portion of the Nevada Northern Railway from Keystone to McGill Junction.
MULTI-AGENCY		
Camp Success	The Camp is situated at the south end of Duck Creek Valley and lies at an elevation of nearly 9,000 feet.	Camp Success is a facility that is maintained through the joint efforts of White Pine County, the USFS, the Nevada Division of Forestry Honor Camp Program, and volunteers. During the summer, the Camp hosts a variety of events including weddings, reunions, youth groups, outdoor recreation groups, family gatherings, and retreats (White Pine County 2009).
PRIVATE		
Bassett Lake	Approximately 4 miles northwest of McGill off of US-93.	Originally established in 1942 as a settling pond for mill tailings from local copper mines, it is now owned by the Kennecott Copper Corporation. At capacity, Bassett Lake covers 77 surface acres and has an average depth of 5 feet. Its primary water source is Tailings Creek. It contains northern pike, largemouth bass, and carp. There is a primitive boat ramp; however, no restrooms or overnight camping facilities exist at the lake (NDOW 2007d).
Various	Various	Several private campgrounds and RV parks exist near the project area.

SR – State Route; CR- County Road

3.15 Visual Resources

This section describes visual resources in the project area and the BLM's Visual Resource Management (VRM) System, which is used both to describe existing conditions and to assess potential impacts presented in **Chapter 4**. The section also describes the Key Observation Points (KOPs) that were used to describe existing conditions and assess potential impacts of the Proposed Action and Action Alternative on visual resources.

3.15.1 Area of Analysis

The visual resource project area for the proposed ON Line Project consists of the viewsheds of proposed project facilities. Elements of the project extend from Robinson Summit in the north to the Harry Allen Substation on the south end, a total distance of approximately 236 miles. Also included in the visual project area are locations where the ON Line Project crosses major highways.

3.15.2 Data Sources and Methods

The BLM VRM classifications for the Southern Nevada and Ely districts were overlain on project maps. Information about the quality of the night sky was obtained from on-line sources, as described in **Section 3.15.3.4**. Descriptions of existing visual resources were based on field visits.

The following indicators were considered when describing the affected environment for visual resources:

- Level of visual contrast (related to form, line, color, and texture) between proposed project elements and VRM classes within the project area
- Light pollution

It should be noted that potential project impacts on visibility and light pollution are separate issues not related to, or analyzed in, the VRM process.

3.15.3 Existing Conditions

3.15.3.1 VRM Classes

The BLM's VRM system provides a means to evaluate the scenic value of an area's visual resources so that the area can be appropriately managed (BLM 1986a; BLM 1986b; BLM 1998b; BLM 1998c). The VRM system can also be used to analyze potential visual impacts and apply visual design techniques to minimize impacts on the landscape. The VRM system consists of an inventory stage and an analysis stage. The inventory stage involves identifying and inventorying visual resources using BLM's visual resource inventory process. The analysis stage involves rating the visual appeal of a tract of land, measuring public concern for scenic quality, and determining whether the tract of land is visible from representative or selected key travel routes and/or observation points.

A BLM RMP establishes how public lands will be used and managed for different purposes. Visual resources are considered in development of the RMP, and visual resources are assigned one of four VRM classes. Management objectives of the VRM classes are as follows:

- *Class I Objective*. The objective of this class is to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not

preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

- *Class II Objective*. The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- *Class III Objective*. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- *Class IV Objective*. The objective of this class is to provide for management activities that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Most of the project elements on federal lands fall within the boundaries of the BLM's Ely District. Project elements within the Ely District include those within White Pine, Nye, and Lincoln counties. Project elements south of the Lincoln-Clark County line are within the Southern Nevada District.

Within the Southern Nevada District the VRM classifications surrounding the SWIP Utility Corridor include Class III and Class IV. Within the Ely District, the SWIP Utility Corridor mostly traverses through areas with VRM Class III and Class IV designations. **Figures 3.15-1a – 3.15-1b** depict VRM classes for BLM lands in the project area. The entire SWIP Utility Corridor has been designated VRM Class IV. The few portions of segments that are located outside the SWIP Utility Corridor occur within VRM Classes III and IV. One portion of Segment 6C within the SWIP Utility Corridor crosses VRM Class II; however, the SWIP Utility Corridor is designated VRM IV. One portion of the Action Alternative Segment 10 occurs within VRM Class II. The proposed Robinson Summit Substation occurs partially within VRM Class III and Class IV. The Falcon Substation expansion area is on private lands and not subject to VRM classification.

3.15.3.2 Key Observation Points

Portions of the ON Line Project may be visible from a large area and it is impractical to describe the existing visual conditions and potential project impacts from all important viewing areas. To assist in the description of the existing visual environment and in the assessment of potential project impacts, representative viewing areas called KOPs are selected. KOPs are points on a public travel route or from a public use area where the view of the proposed activity would be most revealing. For this analysis, 6 KOPs were selected throughout the project area. (**Figures 3.15-1a – 3.15-1b**). The KOPs and existing visual condition of the landscape seen from each KOP are described below.

Figure 3.15-1a KOPs and VRM Classes

Figure 3.15-1b KOPs and VRM Classes

KOP 1A and 1B

KOP 1 is on US-6 about 4 miles northeast of the Nye-White Pine county line where Segment 6C of the Proposed Action and Action Alternative crosses the highway. An angle point just north of the highway allows the crossing to be nearly perpendicular to the highway (**Figure 3.15-1a**). The view to the northwest (KOP 1A) is an expanse of sagebrush-covered valley floor with juniper forest visible at slightly higher elevations behind (**Figure 3.15-2**). Distant mountains mark the limit of visible features. The view to the southeast (KOP 1B) is similar, but the juniper forest cover on the hillside about 2 miles distant is more pronounced (**Figure 3.15-3**). The transmission line would follow the SWIP Utility Corridor, which is designated VRM Class IV.

KOP 2A and 2B

KOP 2 is in east Dry Lake Valley on US-93 at the point where Segment 8 of the Proposed Action and Action Alternative cross the highway. The foreground of the view to the northeast (KOP 2A) is comprised of the highway, a small utility building, and the valley floor (**Figure 3.15-4**). An existing transmission line, which crosses the highway at this location, recedes into the distance. The view to the distant southwest (KOP 2B) is blocked by a hillside, except for a portion of the Burnt Springs Range approximately 1 mile distant (**Figure 3.15-5**). The transmission line alignments would follow the SWIP Utility Corridor, which is designated VRM Class IV.

KOP 3

KOP 3 is on US-93 just south of the Pahranagat National Wildlife Refuge at the point where Segment 9D of the Proposed Action and Action Alternative cross the highway. In the foreground of the view to the north is the highway, with rocky, sparsely vegetated hills behind (**Figure 3.15-6**). The portion of the transmission line that would be visible from KOP 3 is within the SWIP Utility Corridor and designated VRM Class IV. The Refuge is not visible from KOP 3.

Figure 3.15-2 View to the northwest from KOP 1A

Figure 3.15-3 View to the southeast from KOP 1B

Figure 3.15-4 View to the northeast from KOP 2A

Figure 3.15-5 View to the southeast from KOP 2B

Figure 3.15-6 View to the north from KOP 3

KOP 4

KOP 4 is located on US-93 near Kane Springs Valley Road where Segment 10 of the Action Alternative approaches the highway corridor from the east. The view from KOP 4 to the north-northeast is dominated by the highway and an existing H-frame transmission line support structures on the west side of the highway. The valley floor consists of bare ground and shrubs with mountains visible in the distant background (**Figure 3.15-7**). BLM land along the Segment 10 transmission line alignment in the valley is designated a mix of VRM Class III and Class IV. The Delamar and Meadow Valley mountains, which are located on the north and south sides of Kane Springs Valley, respectively, are designated VRM Class I and Class II.

KOP 5

KOP 5 is located on US-93 west of the Meadow Valley Mountains where Segment 11 of the Proposed Action and Action Alternative follow the highway corridor. The view from KOP 5 to the north-northwest is dominated by the highway and an existing H-frame transmission line on the west side of the highway (**Figure 3.15-8**). The valley floor is shrub-covered and relatively featureless; mountains are visible in the far distance. The transmission line alignments follow the SWIP Utility Corridor, which is designated VRM Class IV.

Figure 3.15-7 View to the north from KOP 4

Figure 3.15-8 View to the north from KOP 5

KOP 6

KOP 6, which is located at the junction of US-93 and I-15, is the only KOP within the BLM Southern Nevada District boundary. Segment 11 of the Proposed Action and Action Alternative would enter the Harry Allen Substation on the far side from the northeast. A large number of observers pass this KOP because it is a major intersection on the Interstate Highway just outside Las Vegas. The view from KOP 6 to the north-northwest is dominated in the foreground by the highway and transmission line support structures (**Figure 3.15-9**). Dozens of other support structures are visible in the distance and the mountains of the Arrow Canyon Range form a backdrop. The existing substation appears to be hidden from view by a slight rise in the valley floor. The substation and approximately 8 miles of the transmission line are in BLM land designated VRM Class IV. The transmission line alignment then enters Class III designated land as it continues to the north.

Figure 3.15-9 View to the northwest from KOP 6

3.15.4 Specific Project Area Conditions

The transmission line alignments traverse generally undeveloped and sparsely populated land. The greatest effect on visual resources would occur where the transmission line facilities cross major highways, where they would be viewed by the greatest number of people. The alignments generally are routed around steep terrain and follow valleys typical of the Basin and Range Province. Major highway crossings include US-6 near the White Pine County line, US-93 near the Burnt Springs Range, US-93 south of the Pahranagat National Wildlife Refuge, and US-93 near Kane Springs Wash. Transmission facilities are within the viewshed of KOPs 1 through 6, as described in **Section 3.15.3.2**.

3.16 Noise

Noise is an unwanted sound occurrence. A noise's attributes (pitch, loudness, repetitiveness, vibration, variation, duration, and the inability to control the source) determine how it affects a receptor. The study of noise involves three important characterizing parameters: pressure, power, and intensity. The power of an oscillating sound wave is composed of kinetic and potential energies. The intensity of a sound wave is defined as the average rate at which power is transmitted per cross-sectional area in the direction of travel. Noise versus sound is a subjective measurement, thus a receptor's reaction to sound is a poor measurement of noise.

The Federal Noise Control Act of 1972 established a requirement that all federal agencies administer their programs to promote an environment free of noise that jeopardizes public health or welfare. The U.S. Environmental Protection Agency (EPA) was given responsibility for implementing programs to assess noise and identify acceptable noise impacts.

EPA identifies outdoor noise limits to protect against effects on public health and welfare by an equivalent sound level (Leq), which is an A-weighted average measure over a given time. Outdoor limits of 55 dBA Leq have been identified as desirable to protect against speech interference and sleep disturbance for residential areas and areas with educational and healthcare facilities. Sites are generally acceptable to most people if they are exposed to outdoor noise levels of 65 dBA Leq or less, potentially unacceptable if they are exposed to levels of 65 – 75 dBA Leq, and unacceptable if exposed to levels of 75 dBA Leq or greater (EPA 1981).

The day-night sound level, Ldn, (the A-weighted equivalent sound level for a 24 hour period with an additional 10 dB imposed on the equivalent sound levels for night time hours of 10 p.m. to 7 am) in residential areas should not exceed 55 dBA to protect against activity interference and annoyance (EPA 1981). **Table 3.16-1** presents typical sound levels in dBA and subjective descriptions associated with various noise sources.

TABLE 3.16-1 SOUND LEVELS ASSOCIATED WITH ORDINARY NOISE SOURCES

NOISE SOURCE	NOISE LEVEL	SUBJECTIVE DESCRIPTION
Commercial Jet Take-Off	120 dBA	Deafening
Road Construction Jackhammer	100 dBA	Deafening
Busy Urban Street	90 dBA	Very loud
Standard For Hearing Protection 8-Hour Exposure Permissible Exposure Limit (PEL) (MSHA) Action Level within Active Mining Facilities	90 dBA 85 dBA	Very loud Loud - to very loud
Construction Equipment at 50 feet	80-75 dBA	Loud
Freeway Traffic at 50 feet	70 dBA	Loud
Noise Mitigation Level for Residential Areas Federal Housing Administration (FHA)	67 dBA	Loud
Normal Conversation at 6 feet	60 dBA	Moderate
Noise Mitigation Level for Undisturbed Lands (FHA)	57 dBA	Moderate
Typical Office (interior)	50 dBA	Moderate
Typical Residential (interior)	30 dBA	Faint

Source: Federal Highway Administration Highway Construction Noise Handbook 2006

There are no State of Nevada noise standards directly applicable to this project. State code gives county and city governments the right to implement noise impact restrictions.

3.16.1 Area of Analysis

To properly assess the sound levels affecting any area, an explanation of sound effects, consideration of the topography, climate, flora, and current ambient sound is required. The dry climate and low, desert vegetation dominating the majority of the project area are generally favorable to noise propagation. Wind, and where present traffic, typically dominate the sound profile in all areas except those in close proximity to the few man-made noise source in the project area. Noise propagation is enhanced in the direction of the wind, which is typically channeled by the surrounding terrain. Nearby terrain could cause reflection or echoing of sound. For wildlife, the affected environment for noise impacts is usually limited to a distance of 880 yards (2,640 feet) from the source based on current wildlife studies (Fletcher 1980). However, if residential housing has the potential to be impacted, the affected environment includes the distance from the source of the noise to the residence.

3.16.2 Data Sources and Methods

Background (ambient) sound levels recorded in May 2007 at receptor sites in locations potentially impacted by noise from the then proposed EEC Project were used to document the expected range of existing noise levels in the project vicinity. Sound measurements were taken using the EXTECH 407780 Integrating Sound Level Meter. This meter meets the ANSI Standard S1.4 for sound level measurements. Measurements were recorded at each site using an A-weighted average measure in decibels (dBA) with a slow time weighting of 1 second. The duration of the measurements was 15 minutes. Measurements were taken for the equivalent sound level (L_{eq}). Maximum (L_{max}) and minimum (L_{min}) sound levels were also recorded.

3.16.3 Existing Conditions

The primary sources of noise currently observed in the project area are typically associated with natural conditions, especially wind. Existing noise levels are generally low intensity away from traffic corridors, estimated to average between 30 and 35 dBA based upon the measurements taken in the Steptoe Valley. Noise associated with vehicle traffic currently occur along US-50, US-93, US-6, and SR-318 within some areas near or along the ON Line Project. Traffic impacts contribute to only slightly higher background noise levels along smaller or less traveled roadways, but are believed to bring average noise levels to the 40 to 50 dBA range along US-93 based upon Steptoe Valley readings that were in that range for open areas with comparable traffic volumes and higher in urban areas or areas with more highway traffic.

Noise generally propagates by line of sight, more strongly with the wind than across or against the wind flow, though strong wind can produce enough noise to drown out other sounds. The thin, dry air associated with higher elevation dry climate areas like the project area, especially on the northern end, results in effective noise transmission, whereas humidity or higher air pressure associated with lower elevation would dampen sound transmission. Physical impediments including structures, terrain features, or mountains tend to block or attenuate sound transmission.

Generally, existing sound levels are estimated to be 35 dBA or less in rural areas away from communities and roads with any significant traffic volume, which dominate the proposed project area. Within a rural community, the man-made noise level range from 45 dBA to 52 dBA (EPA 1981). Steptoe Valley measurements in 2007 confirm maximum background sound levels in that range, primarily in areas considerably more developed than anywhere in the proposed project area. Those levels would be expected to represent the maximum background sound levels in the most densely developed areas across the project area.

The ON Line Project is mainly within the SWIP Utility Corridor, which is at least 1 mile from any occupied residence or area of regular human activity.

Noise levels were measured along US-50 west of Robinson Summit, where it enters the basin providing an estimate of background noise levels at the northern terminus of the proposed transmission line and the proposed Robinson Summit Substation. Noise levels (L_{eq}) measured there mid-day in May 2007 were 31 dBA. That site is a local high point that features some localized noise reflection or retention from surrounding terrain, but generally would disperse noise above and away from populated areas. That same sound dispersion profile would prevail at the limited areas along the proposed transmission line, which are along ridges, going over local passes, or in other ways not bounded by surrounding valley walls. In the valley bottoms that dominate the transmission line alignment, and at the Falcon Substation, sound transmission would be bounded by the surrounding terrain, and favored in the downwind direction.

3.17 Socioeconomics

3.17.1 Area of Analysis

The area directly affected by the ON Line Project lies in eastern Nevada and is comprised of White Pine, Nye, Lincoln, and Clark counties, Nevada (as shown on in **Chapter 2**, **Figure 2.2-1**). The southern terminus of the transmission line would be located at the existing Harry Allen Substation in Clark County. The site for the Falcon Substation expansion is in Eureka County located about mid-way between Carlin and Battle Mountain, Nevada, north of I-80.

The primary area of socioeconomic effect would be in White Pine and Lincoln counties. Effects in Eureka, Nye, and Clark counties would be negligible due to the relatively limited construction that would occur in those counties. In addition, the economy of Clark County is so much larger than that of the other counties that adding it to the detailed discussion would risk understating the potential effects to White Pine and Lincoln counties.

3.17.2 Data Sources and Methods

The social and economic factors associated with the project are described below. Factors examined include economic setting, population and demographics, employment and income, land ownership, agriculture, housing, community services (education, law enforcement, fire protection, health care, water supply), local government finances, housing, agriculture, and the electric power industry.

Primary published data sources used to characterize this region included the United States Bureau of the Census (2000 a, b, c, and d), the Bureau of Economic Analysis (2007a), state employment agencies, the Western Electricity Coordinating Council (WECC 2006), and the Energy Information Administration (EIA 2006a and b).

3.17.3 Existing Conditions

3.17.3.1 Economic Setting

White Pine County

White Pine County has historically been dependent on mining, with ranching playing a secondary role in the area's economy. Several different pioneer trails and the Pony Expresstraversed the area before permanent settlement occurred. A group of prospectors from Austin, Nevada founded the White Pine Mining District in 1865. Numerous mining camps were established, but most quickly played out. Mining in Ely initially focused on gold and silver, while later investments developed around copper mining. The White Pine Copper Company was capitalized with $500,000 in 1902 and consolidated a group of claims. The Guggenheim family took over the White Pine Copper Company with the Nevada Consolidated Copper Company in 1906. In 1933, Kennecott Copper Company took over the mining operations at Ruth and the concentrator and smelter complex at McGill. The Nevada Northern Railway was built in 1906 as a means to move ore from the mines in Ruth through Ely to the smelter in McGill. The concentrator and smelter products were then transported north from McGill to the Transcontinental Railroad.

While mining has been the backbone of the White Pine County economy, agriculture developed to supply the mining camps and sustained the area during downturns in mining. The primary agricultural activity has been grazing, although at various times hay, potatoes, and grain have been grown. The relatively high elevation of east-central Nevada (Ely is at an elevation of 6,435 feet) precluded growing fruit and tender vegetables. With large amounts of open land, ranching

continues to be part of the White Pine County economy (Ellen and Glass 1983; Castleman 1995).

In 1978, falling copper prices coupled with overseas copper production and tighter environmental regulations lead to Kennecott closing the copper mine and significantly cutting employment at the smelter. Layoffs continued until the smelter closed in 1982, and freight service on the Nevada Northern Railway was curtailed in 1983. The closure of the Kennecott copper operations resulted in decreasing population, high unemployment, closure of businesses, and loss of tax revenues. Prior to 1978, the Kennecott operations in White Pine County were responsible for 20 percent of Nevada's total net proceeds of mines tax. After the closure of the copper operations, White Pine County generated only 2 percent of the net proceeds of mines tax in Nevada. The area's economy continued to decline during the mid 1980s although there was a slight upturn in tourism and a small amount of oil and gas exploration.

Rising metal prices during the late 1980s resulted in an upturn in the White Pine County economy. Mining employment reached almost 1,100 with 13 active mines in the area. Alta Gold employed over 600 persons at its East Robinson project. During this time, the state constructed a prison near Ely and hired 370 persons. The mining boom resulted in high wages in the area and made it difficult for other businesses to attract workers. In the early 1990s, the mining industry experienced another downturn and White Pine County lost 700 mining jobs between 1989 and 1992. Local businesses experienced a 10 to 20 percent decline in taxable sales. By 1994, the unemployment rate in White Pine County reached 12.8 percent as unemployed miners remained in the area while waiting for Magma Nevada Mining Company to receive permits to reopen the Robinson operation. Magma commenced construction at the Robinson operation in 1995 and employed a temporary workforce of 750. As a result, housing was in short supply in Ely and workers stayed in local hotels and motels. The mine started production in 1996, and Magma was subsequently purchased by BHP Minerals of Australia (BHP). The reopening of the Robinson project and several other mines in the area resulted in a labor shortage; the state prison near Ely continually reported 50 to 70 job openings.

World copper prices declined in 1998, and on June 28, 1999, BHP announced that the Robinson operation was being placed in "Care and Maintenance" status and laid-off 433 of the mine's 450 workers. Simultaneously, Alta Gold declared bankruptcy and closed two mines in White Pine County. The mine closures represented 13 percent of the labor force in White Pine County and 24 percent of the annual payroll. School enrollments dropped by 12 percent, and taxable sales in White Pine County declined by 37 percent. The value of new homes constructed for the BHP workforce also dropped by 27 percent. Declining tax revenues severely impacted government services, forcing layoffs of government employees and curtailment of nonessential services such as recreation and libraries.

As housing prices in White Pine County declined, the housing market became more active. Homes were purchased for retirement and as second homes, primarily by residents of Clark County, Nevada.

The energy crisis in California during 2000 drew interest to White Pine County as the possible site of electric generating stations. The County entered discussions with both Pacific Gas and Electric and Duke Energy. Although both companies dropped development plans by 2002, the area's economy started to rebound with small manufacturing plants moving to White Pine County. Housing prices doubled over their 1999-2000 values, and real estate agents noted a lack of housing stock. At the end of 2003, LS Power Development of St. Louis, Missouri

expressed interest in White Pine County as the site of a coal-fired power plant. White Pine County entered into a development agreement with LS Power in February 2004 and the company commenced with permitting of the plant. In early 2006, NV Energy announced plans to construct the EEC in White Pine County.

Mining continues to be important to the local economy. Quadra Mining of Vancouver, British Columbia purchased the Robinson Pit from BHP in April 2004 and within a year was at full production with 500 employees (White Pine County 2006).

Lincoln County

Lincoln County was settled by the incongruous mix of miners and settlers from Utah who were members of the Church of Jesus Christ of Latter-day Saints (LDS). With the exception of the 1849 Death Valley Jayhawkers, few persons of European ancestry visited the area until a group of LDS missionaries visited in 1857. They engaged in farming in Meadow Valley until called back to present-day Utah the next year. In 1864, mining commenced for silver in the Meadow Valley Mining District. During the same year, members of the LDS church settled Panaca and Eagle Valley. Ore was discovered at Pioche during the 1860s and Pioche was declared the county seat. The county issued $25,000 worth of bonds to construct a courthouse, but county revenues sufficient to service the debt did not develop. The county was forced to issue scrip in lieu of cash for salaries and other expenses to service the courthouse debt. During the 1880s and 1890s, the county was forced to suspend public schools due to lack of funds. The original bonds for $25,000 were eventually paid off in 1938 at a total cost of $800,000.

Pioche suffered the boom-bust cycles typical to mining towns. Electric power from Hoover Dam arrived during the 1930s. Low-cost power coupled with demand for minerals developed by World War II resulted in the area's mines reopening during the war. There was a similar mining boom during the Korean War. Caliente, the only incorporated city in the county, originated as a division point on the Union Pacific Railroad on the line from Salt Lake City to Las Vegas and Los Angeles. In contrast to the often haphazard development of mining towns, Caliente was planned and has always had an orderly atmosphere (Ellen and Glass 1983; Castleman 1995). While Lincoln County has had a stable economy for the past several decades, the recent development of Coyote Springs may drastically alter the county's future. Coyote Springs is a 65-square-mile, unincorporated master-planned community being developed on the Clark County-Lincoln County line. About two-thirds of the development is in Lincoln County and one-third in Clark County, although the initial development is occurring in Clark County. The project was announced in 1998, and construction of the first golf course commenced in 2005. An official groundbreaking was held in July of 2006. The plans call for an eventual population of 150,000 persons after a 25 to 50 year build out (Reid 2006).

3.17.3.2 Population and Demographics

White Pine and Lincoln counties are rural and sparsely populated. White Pine County is the most populous of the two, containing roughly 65 percent of the combined estimated population in 2006. (**Table 3.17-1**). Together the populations of White Pine and Lincoln counties accounted for just 0.54 percent of the estimated population of Nevada in 2008.

TABLE 3.17-1 POPULATION IN THE TWO-COUNTY AREA

	2000	2002	2004	2006	2008
State of Nevada	2,018,244	2,164,518	2,323,875	2,484,196	2,600,167
Lincoln County	4,172	4,193	4,199	4,525	4,898
White Pine County	9,028	8,553	8,429	9,063	9,199
Total Lincoln and White Pine	13,200	12,746	12,628	13,588	14,097

Source: U.S. Bureau of the Census 2000a, b, c, and 2008
Note: Mid-year estimates are made as of July 1 and vary from the decennial census counts that are as of April 1.

According to 2000 Census data, all of Lincoln County and 53.2 percent of White Pine County is considered rural (**Table 3.17-2**). The urbanized population in White Pine County is largely due to population concentrations in the city of Ely (Bureau of the Census 2000b).

TABLE 3.17-2 GENERAL URBAN AND RURAL POPULATION

	STATE OF NEVADA	LINCOLN COUNTY, NV	WHITE PINE COUNTY, NV
Population	1,998,257	4,165	9,181
Urban	91.5%	0.0%	46.8%
Rural	8.5%	100.0%	53.2%

Note: Data are Census 2000 enumerated population.
Source: Bureau of the Census 2000d

The Nevada State Demographer's Office also prepares annual population estimates for counties, cities, and selected unincorporated areas in Nevada, as listed in **Table 3.17.3**.

TABLE 3.17-3 DETAILED URBAN AND RURAL POPULATIONS CERTIFIED 2008 ESTIMATES

COUNTY	INCORPORATED CITIES	POPULATION
Lincoln County	**Population 4,352**	
Incorporated City		
	Caliente	1,077
Unincorporated Areas		
	Alamo	464
	Panaca	645
	Pioche	785
White Pine County	**Population 9,694**	
Incorporated City		
	Ely	4,352
Unincorporated Areas		
	Lund	157
	McGill	1,128
	Ruth	407

Source: Nevada State Demographer's Office 2009a

Population projections by the Nevada State Demographer's Office show modest increases in the population of both White Pine and Lincoln counties over the next 17 years (**Table 3.17-4**). These are recent projections and take into account current economic conditions in the state. (Nevada State Demographers Office 2009a).

TABLE 3.17-4 POPULATION PROJECTIONS TO 2025

DESCRIPTION	2010	2015	2020	2025
State of Nevada	2,963,812	3,321,189	3,619,563	3,872,937
Lincoln County	4,499	4,988	5,308	5,449
White Pine County	10,457	10,990	11,081	11,265

Source: Nevada State Demographer's Office 2009b

The two counties are relatively uniform demographically (**Table 3.17-5**). White Pine County is 86.3 percent white and the second largest racial group is black accounting for 4.1 percent of the population. Lincoln County is over 90 percent white with the second most commonly cited category being "two or more races". Hispanics, who may be of any race, comprise 11 percent of White Pine County and 5.3 percent of Lincoln County. As is common in western mining areas, a variety of ethnic groups immigrated to White Pine County during the late 1800s and early 1900s. Primary ethnic groups were Basque, Slavic, Greek, Italian, Japanese, and Chinese. Language barriers separated groups, and neighborhoods in McGill received names such as Greek Town and Slav Town.

TABLE 3.17-5 RACE AND ETHNICITY IN NEVADA AND THE TWO-COUNTY AREA, 2000

	STATE OF NEVADA	LINCOLN COUNTY, NV	WHITE PINE COUNTY, NV
Population	1,998,257	4,165	9,181
White	75.2 %	91.3%	86.3%
Black	6.8%	1.8%	4.1%
Native American	1.3%	1.8%	3.3%
Asian	4.5%	0.3%	0.8%
Pacific Islander	0.4%	0.0%	0.2%
Some Other Race	8.0%	2.7%	3.1%
Two of More Races	3.8%	1.9%	2.1%
Hispanic, Origin of Any Race	19.8%	5.3%	11.0%

Source: Bureau of Census 2000e. Note: The Bureau of Census reports Hispanic as an ethnicity, not a race.
The percentages reported here are relative to the total population numbers for the seven census groups, and
should not be added to the total.

The majority of the households in both counties are family households (**Table 3.17-6**). The Bureau of the Census defines a family as consisting of a householder and one or more other people living in the same household who are related to the householder by birth, marriage, or adoption. Households that consist of a group of unrelated people or one person living alone are considered non-family households. Lincoln and White Pine counties each have slightly less than the state average of 66.3 percent family households. Similarly, in both Lincoln and White Pine counties, the average household size is less than the state average of 2.62 persons per household. (**Table 3.17-6**). These differences may be attributed to people living in institutions (e.g., correctional institutions, nursing homes, or dormitories); variation in age distribution (e.g., widows or widowers among older populations); or other factors (Simmons and O'Neill 2001).

TABLE 3.17-6 HOUSEHOLD TYPE, 2000

	STATE OF NEVADA	LINCOLN COUNTY, NV	WHITE PINE COUNTY, NV
Households	751,165	1,540	3,282
Family Households	66.3%	65.6%	65.8%
Non-family Households	33.7%	34.4%	34.2%
Persons/Household	2.62	2.48	2.42

Source: Bureau of the Census 2000f

3.17.3.3 Employment and Income

The civilian labor force in both counties has been increasing slightly since 2000 (**Table 3.17-7**). In Lincoln County, the civilian labor force increased from 1,655 in 2000 to 1,830 in 2008; however, the unemployment rate increased as well from 5.0 percent to 5.4 percent during the same period. The civilian labor force in White Pine County increased from 3,769 in 2000 to 4,801 in 2008. Unemployment also increased from 4.2 percent in 2000 to 4.7 percent in 2008.

TABLE 3.17-7 LABOR FORCE AND UNEMPLOYMENT SELECTED YEARS

DESCRIPTION	2000	2005	2006	2007	2008
STATE OF NEVADA					
Civilian Labor Force	1,062,845	1,225,144	1,277,197	1,322,643	1,373,462
Employment	1,015,221	1,170,367	1,222,183	1,260,276	1,282,012
Unemployment	45,624	54,777	55,014	62,367	91,450
Unemployment Rate	4.5%	4.5%	4.3%	4.7%	6.7%
LINCOLN COUNTY, NEVADA					
Civilian Labor Force	1,655	1,566	1,601	1,713	1,830
Employment	1,573	1,481	1,523	1,637	1,731
Unemployment	82	85	78	76	99
Unemployment Rate	5.0%	5.4%	4.9%	4.4%	5.4%
WHITE PINE COUNTY, NEVADA					
Civilian Labor Force	3,769	4,309	4,444	4,719	4,801
Employment	3,611	4,126	4,270	4,539	4,576
Unemployment	158	183	174	180	225
Unemployment Rate	4.2%	4.2%	3.9%	3.8%	4.7%

Source: U.S. Department of Labor, Bureau of Labor Statistics 2008

Changes in employment by industry for Lincoln and White Pine counties over the past several decades indicate that the economic structure of the area is changing (**Table 3.17-8**). Employment growth has been slow, rising by just 9.6 percent from 5,495 in 1970 to 6,020 in 2000. The largest employment shift has been in the mining sector. In 1970, mining accounted for 23.7 percent of all full-time and part-time employment. By 2000, mining's share had dropped to just 4.3 percent, representing an absolute loss of 1,045 jobs. Other sectors that lost jobs and share include manufacturing (-334 jobs) and transportation and public utilities (-112 jobs). The sector posting the largest gain was government, which increased from 1,048 jobs in 1970 to 1,991 jobs in 2000. Services also grew from 683 jobs in 1970 to 920 jobs in 2000.

TABLE 3.17-8 EMPLOYMENT BY INDUSTRIAL SECTOR IN THE TWO-COUNTY AREA, 1970, 1980, 1990, 2000

EMPLOYMENT BY INDUSTRY				
	1970	**1980**	**1990**	**2000**
Total Full-time and Part-time Employment	5,495	5,875	7,397	6,020
Wage and Salary Employment	4,640	4,936	6,219	4,737
Proprietor's Employment	855	939	1,178	1,283
Farm Employment	341	394	389	339
Mining	1,302	650	968	257
Construction	163	386	322	245
Manufacturing	409	358	48	75
Transportation and Public Utilities	275	299	252	163
Wholesale Trade	125	79	190	ND
Retail Trade	944	1,065	1,188	1,048
Finance, Insurance and Real Estate	181	206	198	268
Services	683	1,231	874	920
Government	1,048	1,193	1,709	1,991
EMPLOYMENT BY INDUSTRY, PERCENT				
	1970	**1980**	**1990**	**2000**
Total Full-time and Part-time Employment	100.0	100.0	100.0	100.0
Wage and Salary Employment	84.4	84.0	84.1	78.7
Proprietor's Employment	15.6	16.0	15.9	21.3
Farm Employment	6.2	6.7	5.3	5.6
Mining	23.7	11.1	13.1	4.3
Construction	3.0	6.6	4.4	4.1
Manufacturing	7.4	6.1	0.6	1.2
Transportation and Public Utilities	5.0	5.1	3.4	2.7
Wholesale Trade	2.3	1.3	2.6	--
Retail Trade	17.2	18.1	16.1	17.4
Finance, Insurance and Real Estate	3.3	3.5	2.7	4.5
Services	12.4	21.0	11.8	15.3
Government	19.1	20.3	23.1	33.1

ND: Not Disclosed
Notes: May not sum to the total due to exclusion of several minor categories. Industry aggregations are based on the Standard Industrial Classification System (SICS).
Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 2007

Employment by industry as of 2007 is shown in **Table 3.17-9**. As shown there, government is still a major employer in both counties. Government accounts for roughly 30 percent of employment in Lincoln County and 28 percent of employment in White Pine County.

Much of the employment by industry data is suppressed in Lincoln County to prevent disclosure of individual company data. Available data show that, after government, the largest industrial sector is retail trade with 13.0 percent of total employment, followed by professional/scientific/technical services, which account for 11.9 percent of all jobs in the county.

The largest industrial sector in White Pine County (apart from the government sector), as measured by employment is accommodations/food service which employs 10.7 percent of the county's workers. Retail trade is responsible for 10.1 percent of all jobs in White Pine County.

TABLE 3.17-9 EMPLOYMENT BY INDUSTRIAL SECTOR IN THE TWO-COUNTY AREA, 2007

INDUSTRY	LINCOLN COUNTY	WHITE PINE COUNTY
Total employment	2,182	5,233
Wage and Salary Employment	1,479	4,170
Proprietor's Employment	703	1,063
Farm Employment	144	170
Forestry, fishing, and other	D	D
Mining	28	D
Utilities	D	D
Construction	D	272
Manufacturing	D	64
Wholesale Trade	D	77
Retail Trade	284	528
Transportation and Warehousing	64	D
Information	30	48
Finance and Insurance	57	105
Real Estate and Rental and Leasing	103	139
Professional and Technical Services	260	D
Management of Companies and Enterprises	18	D
Administrative and Waste Services	57	215
Educational Services	L	D
Health Care and Social Assistance	60	D
Arts, Entertainment, and Recreation	D	61
Accommodation and Food Services	D	560
Other Service, Except Public Administration	D	202
Government	656	1,480

D: Not disclosed to avoid revealing individual company data. L: Less than 10 jobs, but the estimates for this
item are included in the totals.
Notes: May not necessarily agree with data reported by state employment agencies. Industry aggregations
are based on the North American Industry Classification System (NAICS).
Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 2007

Major employers in Lincoln County are Computer Sciences Corp., Lincoln County School District, Lincoln County Government, Nevada Division of Child and Family Services, and Grover C. Dils Medical Center (Nevada Department of Employment, Training and Rehabilitation 2007).

Major employers in White Pine County are Robinson Nevada Mining Company, Nevada Department of Corrections, White Pine County School District, William Bee Ririe Hospital, Bald Mountain Mine, Nevada Hotel and Gambling Hall, White Pine County Government, and the Bureau of Land Management (Nevada Department of Employment, Training, and Rehabilitation 2007).

White Pine County has the highest average annual wage of the subject counties (**Table 3.17-10**). From 2000 to 2007, White Pine County's average annual nonagricultural wage increased 40 percent from $29,133 to $40,962. During the same period, the average annual wage in Lincoln County increased 9.1 percent from $31,192 to $34,033.

TABLE 3.17-10 TWO-COUNTY AREA PERSONAL INCOME, SELECTED YEARS

DESCRIPTION	2000	2002	2003	2005	2007
Average Annual Wage ($)					
State of Nevada	32,276	33,993	35,329	38,763	42,149
Lincoln County, NV	31,192	35,329	31,616	32,242	34,010
White Pine County, NV	29,133	30,522	30,837	34,583	40,951
Nonagricultural Payroll ($ 1,000)					
State of Nevada	32,853,744	35,523,581	38,144,531	47,127,201	54,140,309
Lincoln County, NV	42,382	49,167	38,969	40,856	47,195
White Pine County, NV	91,587	95,339	93,699	131,106	166,231
Total Personal Income ($ 1,000)					
State of Nevada	61,427,864	66,632,084	71,183,270	90,018,074	101,798,979
Lincoln County, NV	77,548	83,314	86,753	96,430	103,850
White Pine County, NV	219,655	220,126	226,586	290,894	338,748
Per Capita Personal Income ($)					
State of Nevada	30,436	30,84	31,866	37,481	39,853
Lincoln County, NV	18,588	19,870	20,597	22,198	21,988
White Pine County, NV	24,330	25,737	26,847	33,067	37,176

Source: Average Annual Wage and Nonagricultural payroll: U.S. Department of Labor, Bureau of Labor Statistics 2007; Average Total Personal Income and Per Capita Personal Income: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 2007

Based on 2000 Census data, White Pine County has the higher median household income, followed by Lincoln County (**Table 3.17-11**). Similarly, Lincoln County has the fewest number of households in the higher income brackets, and the highest number in the lower income brackets. Both counties have median household incomes that are lower than the state average of $44,581.

In White Pine County, Ely has a median household income of $36,408 and the McGill CDP has a median household income of $32,039. The City of Caliente, in Lincoln County, has a median household income of $25,833 (Bureau of the Census 2000g).

TABLE 3.17-11 DISTRIBUTION OF HOUSEHOLD INCOME, 1999

DESCRIPTION	STATE OF NEVADA	LINCOLN COUNTY	WHITE PINE COUNTY
Households	751,977	1,556	3,285
Less than $10,000	7.2%	17.6%	12.2%
$10,000 - $14,999	5.2%	7.7%	6.0%
$15,000 - $24,999	12.3%	16.1%	14.6%
$25,000 - $34,999	13.1%	10.1%	13.5%
$35,000 - $49,999	18.1%	15.1%	18.3%
$50,000 - $74,999	21.7%	22.4%	22.9%
Greater than $75,000	22.4%	11.0%	12.5%
Median Household Income	$44,581	$31,979	$36,688

Source: U.S. Bureau of the Census 2000g

Since 1999, the median household income in White Pine County has increased from $36,688 to an estimated $39,420 in 2004, an increase of 7.4 percent (**Table 3.17-12**). Median household income in Lincoln County rose by 19.5 percent to $38,226 (Bureau of the Census 2007a).

TABLE 3.17-12 MEDIAN HOUSEHOLD INCOME ESTIMATES, 2000-2007

YEAR	STATE OF NEVADA	LINCOLN COUNTY	WHITE PINE COUNTY
2000	$44,698	$34,456	$37,038
2001	$44,325	$33,387	$36,651
2002	$44,560	$34,758	$36,793
2003	$45,249	$36,160	$36,765
2004	$47,231	$38,226	$39,420
2005	$49,288	$37,291	$40,050
2006	$52,800	$42,022	$44,790
2007	$54,996	$44,450	$50,934

Source: U.S. Bureau of the Census 2007b

Personal income in the two-county area is concentrated in White Pine County, with 76.5 percent of the personal income, a moderately larger share than the population distribution between the two counties. (**Table 3.17-13**)

TABLE 3.17-13 PERSONAL INCOME BY SOURCE ($1,000), 2007

INDUSTRY	LINCOLN COUNTY	WHITE PINE COUNTY
Total Personal Income	103,850	338,748
Dividends, interest and rent	14,945	38,297
Transfer Payments	26,937	51,020
Proprietors income	7,338	11,517
Farm Earnings	2,039	202
Forestry, fishing, and other	D	D
Mining	D	D
Utilities	D	D
Construction	D	8,551
Manufacturing	D	1,690
Wholesale Trade	D	2,885
Retail Trade	4,607	11,127
Transportation and Warehousing	2,858	D
Information	1,337	1,600
Finance and Insurance	1,586	3,333
Real Estate and Rental and Leasing	412	1,782
Professional and Technical Services	14,700	D
Management of Companies and Enterprises	0	D
Administrative and Waste Services	643	4,601
Educational Services	L	D
Health Care and Social Assistance	1,210	D
Arts, Entertainment, and Recreation	D	2,052
Accommodation and Food Services	D	11,233
Other Service, Except Public Administration	D	4,292
Government	32,892	91,116

D: Data suppressed to avoid revealing individual company data. L: Less than $50,000, but the estimates for this item are included in the totals.
Source: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System 2007

Lincoln County's sources of personal income are highly concentrated, indicating a less diversified economy. Government accounts for 31.7 percent of all personal income in the county, followed by transfer payments (25.9 percent), dividends, interest and rent (14.4 percent), and retail trade (14.1 percent).

In White Pine County, the largest source of personal income in White Pine County is government (26.9 percent) followed by transfer payments (15.1 percent) and dividends, interest, and rent (11.3 percent).

3.17.3.4 Land Ownership

The two counties are contiguous. White Pine County borders Lincoln County on its southern end. White Pine County is bordered on the east by the State of Utah and by Eureka and Nye counties on the west and southwest. Lincoln County is bordered on the east by the states of Utah and Arizona, on the west by Nye County, and on the south by Clark County. The federal government is a significant landowner in each of the counties (**Table 3.17-14**). Federal entities administer more than 90 percent of the land in both Lincoln and White Pine counties.

Lincoln County contains 54 percent of the area of the two counties. More than 98 percent of the land in Lincoln County is administered by federal agencies, and 93.5 percent of the land in White Pine County is controlled by the federal government.

Also see **Section 3.12,** for additional descriptions of land use in the project area.

TABLE 3.17-14 LAND OWNERSHIP

DESCRIPTION	LINCOLN COUNTY, NV	WHITE PINE COUNTY, NV
Acres	6,816,000	5,699,200
Federal	98.29%	93.53%
Indian Reservation	0.0%	1.24%
State Government	0.28%	0.16%
Local Government and Private	1.43%	5.07%

Source: Harris et al. 2001

3.17.3.5 Agriculture

The area is known for its ranching heritage and ranching influenced lifestyles in the two-county region. In 2007, the value of agricultural production in Lincoln County totaled $15.3 million. The value of agriculture production in White Pine County totaled $15.1 million. (**Table 3.17-15**). National Agricultural Statistics Service 2007).

TABLE 3.17-15 VALUE OF AGRICULTURAL PRODUCTION, 2007

DESCRIPTION	LINCOLN COUNTY	WHITE PINE COUNTY
Value of Production ($1,000)	15,339	15,172
Crops	7,690	4,336
Livestock	7,649	10,836

Source: US Department of Agriculture, National Agricultural Statistics 2007

The average farm in Lincoln County had net cash income of $21,063 in 2007 (**Table 3.17-16**). Average farm income for White Pine County was $32,131. Collectively, the counties contained 195 farms in 2007 (defined as those with sales of agricultural products of $1,000 or more during

2007). In Lincoln County, 37.8 percent of those engaged in farming had a principal occupation other than farming while 67.4 percent worked at least one day off the farm and 32.7 percent worked more than 200 days off the farm. In White Pine County, 49.5 percent of those engaged in farming had a principal occupation other than farming, 60.0 percent worked at least one day off the farm, and 40.0 percent worked more than 200 days off the farm. (National Agricultural Statistics Service 2007). While ranching plays a large role in the identity and lifestyle of the area, outside employment off the farm is usually necessary to augment farm income.

TABLE 3.17-16 AGRICULTURAL ECONOMICS, 2007

	LINCOLN COUNTY	WHITE PINE COUNTY
Number of Farms	98	97
Average Size (acres)	472	D
Average Cash Income (net)	$21,063	$32,131
Sales less than $10,000	45%	38%
Operators Principal Occupation is other than Farming (%)	37.8%	49.5%
% of Operators Who Work off the Farm	67.4%	60.0%
% of Operators Who Work more than 200 days off the Farm	32.7%	40.0%

Source: US Department of Agriculture, National Agricultural Statistics Service 2007
D: not disclosed

3.17.3.6 Housing

The housing occupancy rate in White Pine County was 73.9 percent according to the 2000 Census, slightly higher than the 70.7 percent for Lincoln County. (**Table 3.17-17**). In both White Pine County and Lincoln County, a significant percentage of the housing units are for seasonal, recreational, or occasional use.

TABLE 3.17-17 HOUSING OCCUPANCY, 2000

DESCRIPTION	STATE OF NEVADA	LINCOLN COUNTY	WHITE PINE COUNTY
Housing Units	827,457	2,178	4,439
Occupied	90.8%	70.7%	73.9%
Vacant	9.2%	29.3%	26.1%
For Seasonal, Recreational, or Occasional Use	2.0%	14.0%	17.3%

Source: Bureau of the Census 2000h

The median age of available housing is highest in White Pine County (**Table 3.17-18**). Housing in White Pine County tends to be about 10 to 20 years older than Lincoln County. The value of owner occupied housing is highest in Lincoln County (Bureau of the Census 2000i). White Pine County has a high number of residents living in institutional settings due to the Ely State Prison and Ely Conservation Camp inmate populations (White Pine County 2006).

TABLE 3.17-18 AGE AND VALUE OF HOUSING, 2000

DESCRIPTION	STATE OF NEVADA	LINCOLN COUNTY	WHITE PINE COUNTY
Median Year Built	1986	1974	1962
Median Value ($), Owner Occupied	132,500	74,300	65,600

Source: U.S. Bureau of the Census 2000h

White Pine County has the higher rate of owner-occupied housing units of the two counties. (**Table 3.17-19**). The higher percentage of owner occupied housing may be due to company housing provided by Kennecott. The company housing was sold to residents in the 1950's and represents the majority of the County's older housing stock.

TABLE 3.17-19 OCCUPIED HOUSING, 2000

DESCRIPTION	STATE OF NEVADA	LINCOLN COUNTY	WHITE PINE COUNTY
Occupied Housing Units	751,165	1,450	3,282
Owner Occupied	60.9%	74.7%	76.5%
Renter Occupied	39.1%	25.3%	23.5%

Source: U.S. Bureau of the Census 2000j

Both Lincoln and White Pine counties have a higher rate of single family units than does the state of Nevada, as a whole. Both counties also have a comparatively large number of mobile homes, a common occurrence in rural and agricultural areas. The percentage of housing structures that are mobile homes is greater than the state average in each of the subject counties (**Table 3.17-20**).

TABLE 3.17-20 HOUSING UNITS IN STRUCTURE, 2000

DESCRIPTION	STATE OF NEVADA	LINCOLN COUNTY	WHITE PINE COUNTY
Housing Units	827,457	2,178	4,439
1 Unit	57.7%	62.7%	72.5%
2-4 Units	8.8%	7.1%	5.2%
5-9 Units	8.0%	0.0%	1.3%
+10 Units	15.4%	1.9%	2.1%
Mobile Home/Other	10.1%	28.3%	18.8%

Source: U.S. Bureau of the Census 2000k

The White Pine County Assessor showed 4,381 housing units in the county as of July 2006. Of these, 2,177 were in Ely, 609 in McGill, 212 in Ruth, 85 in Lund, with the remainder scattered throughout the rest of the county (White Pine County 2006).

There are two USDA Rural Development public multi-family housing projects in Ely, and one sponsored by the Nevada Housing Division. A third USDA project, the Bristlecone Apartments, has been purchased by the Rural Nevada Development Corporation and is being managed as low-income housing.

Housing costs are currently rising in White Pine County. In 2005, the White Pine County Assessor reported that the median price of a house in Ely was $152,500, $55,000 in Ruth, $72,800 in McGill, and in the area surrounding Ely, $189,000 (White Pine County 2006).

The 2000 Decennial Census indicated that the median year-of-construction for housing in White Pine County was 1962 (**Table 3.17-18**). Many of the older homes contain lead paint. Other housing concerns in the county include lack of affordable single family homes, deterioration of manufactured and mobile homes, and lack of special needs housing such as that for senior citizens and persons with disabilities (Crispin and Isaacson 2008).

3.17.3.7 Community Services

Social services in White Pine County are provided by a variety of government agencies and private groups. The County Social Services Department and Salvation Army provide emergency financial assistance in the form of emergency food and shelter, transportation, rent deposit assistance, and medical and burial assistance. The Food Stamps and Welfare Division of the Nevada Department of Human Resources provides food stamps. Nutritional education and assistance in purchasing food for low-income families is provided through the Women and Infant Children Supplemental Foods Program. Victims of domestic abuse can receive support and assistance through Support, Inc., a private non-profit organization. The White Pine Nutrition Programs in Ely and McGill provide meals, transportation, and recreation to senior citizens in the county. Adults with developmental disabilities in the county are served by the White Pine Rehabilitation and Training Center (Crispin and Isaacson 2008).

There is a need in White Pine County for increased child care at night and on weekends, primarily to serve family members employed at the local state prison who work rotating shifts. There is also a need for increased services for low-income elderly persons (White Pine County 2006).

Education

School districts in Nevada are defined along county lines. Enrollments in the two districts have declined slightly over the past several years (**Table 3.17-21**).

TABLE 3.17-21 SCHOOL ENROLLMENTS SELECTED YEARS

SCHOOL YEAR	LINCOLN COUNTY SCHOOL DISTRICT	WHITE PINE COUNTY SCHOOL DISTRICT
2007-2008	991	1,432
2006-2007	982	1,420
2005-2006	992	1,504
2004-2005	1,006	1,446
2003-2004	1,012	1,380
2002-2003	992	1,435
2001-2002	1,014	1,464
2000-2001	1,018	1,554

Source: Nevada Department of Education 2008

The Lincoln County School District operates nine schools with an enrollment of 991 students (**Table 3.17-22**). The smallest school is Pahranagat Valley Middle School with 45 students. The largest is Lincoln County Senior High School, which accommodates 187 students (Nevada Department of Education 2008).

TABLE 3.17-22 LINCOLN COUNTY SCHOOL DISTRICT PUBLIC SCHOOLS, 2007-08

SCHOOL	ENROLLMENT	SCHOOL	ENROLLMENT
Pahranagat Valley	135	Pahranagat Valley Middle	45
Caliente	127	Lincoln County Senior High	187
Panaca	112	Pahranagat Valley High	80
Pioche	81	C.O. Bastian High	132
Meadow Valley Middle	92		

Source: Nevada Department of Education 2008

The White Pine County School District operates eight schools with a total enrollment of 1,432 students for the 2008-09 school year (**Table 3.17-23**). The schools range in size from Steptoe Valley High with 17 students to David E. Norman Elementary with 442.

TABLE 3.17-23 WHITE PINE COUNTY SCHOOL DISTRICT PUBLIC SCHOOLS, 2007-08

SCHOOL	ENROLLMENT	SCHOOL	ENROLLMENT
Lund Elementary	34	White Pine Middle	318
Baker Elementary	10	White Pine High	407
David E. Norman	442	Lund High	46
McGill Elementary	143	Steptoe Valley High	17

Source: Nevada Department of Education 2008

School buildings are in constant need of maintenance and renovation within the White Pine School District. Many of the district's facilities are over 50 years old. The David E. Norman Elementary School was constructed in 1909, the White Pine Middle School in 1912, and McGill Elementary in 1962. All three facilities have problems associated with ADA (Americans with Disabilities Act) compliance, asbestos, and lead-based paint, and are in need of repairs and renovations to meet safety standards (White Pine County 2006).

The Community College of Southern Nevada, headquartered in Las Vegas, operates a satellite center in Caliente in Lincoln County.

Law Enforcement

The Nevada Highway Patrol provides law enforcement on the interstate highways and state highways. The Nevada Highway Patrol has substations in Ely, Elko, Jackpot, Wells, and Wendover.

County sheriffs are responsible for the unincorporated portions of the counties, and contract with some of the municipalities for law enforcement services. The White Pine County Sheriff's Department is staffed with an elected sheriff, 15 patrol officers, 5 dispatchers, 5 jailers, and part-time deputies in Baker and Lund. Under a cooperative agreement between White Pine County and the City of Ely, the County Sheriff also serves as the Ely Police Chief, and the county sheriff's office provides law enforcement for Ely. The White Pine County sheriff's department also has responsibility for the jail, civil processes, and county-wide emergency communications, and shares ambulance service with the Emergency Management Services office. The county jail has a capacity for 32 male and 8 female inmates. During 2005, the average inmate population was 17.4. The Ely Shoshone Tribal Council provides law enforcement and judicial services on tribal lands (White Pine County 2006).

Both Lincoln and White Pine counties have a "serious crime" rate that is lower than the state and national averages. Serious crimes are defined as murder and negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, larceny-theft, and motor vehicle theft. These crimes were selected as an index because of their severity, frequency of occurrence, and likelihood of being reported to the police. In 2002, the two counties, individually, had serious

crime rates of, 1,038, and 1,923 per 100,000 persons for Lincoln, and White Pine counties, respectively. The comparable rate for the State of Nevada was 4,903 serious crimes per 100,000 persons. The nationwide rate was 4,063 serious crimes per 100,000 persons (Crispin and Isaacson 2008).

Fire Protection

Fire protection in the two counties is provided by various municipal fire departments. The Ely Fire Department has 5 full-time fire fighters and 28 volunteers. There are volunteer fire departments in McGill, Ruth, Lund, Baker, Cherry Creek, Cross Timbers, and Cold Creek (White Pine County 2006).

Health Care Services

There are two hospitals in the two-county area, one in each county. The William Bee Ririe Hospital in Ely is operated by White Pine County and has 40 beds. The Grover C. Dils Medical Center, operated by Lincoln County, is located in Caliente and has 20 beds. (Directory of America's Hospitals 2007; White Pine County 2006).

Six physicians practice in White Pine County: three general practitioners, one general surgeon, and two family practitioners supplemented by visiting specialists. There are also two dentists and one optometrist practicing in White Pine County. Nevada Home Health, a private non-profit corporation, provides in-home nursing care, and the area is served by one public health nurse. The White Pine Care Center is a 98-bed skilled nursing facility (White Pine County 2006).

The Ely Mental Health Center provides individual and family counseling, psychiatric evaluation, family and group therapy, and substance abuse counseling. Emergency services are available 24 hours a day. The facility serves White Pine, Lincoln, and Eureka counties, and is part of the state's rural clinic program. Staff for the center consists of two counselors, four support personnel, and nursing staff every other week, and monthly visits by a psychiatrist (White Pine County 2006).

Emergency medical services in White Pine County are provided by volunteer Emergency Medical Technicians. Dispatching is handled by the county sheriff's office (White Pine County 2006).

Water Supply

The majority of the public water supply systems in the two-county area rely on ground water supplied by wells (**Table 3.17-24**).

TABLE 3.17-24 COMMUNITY WATER SYSTEMS IN THE TWO-COUNTY AREA

WATER SYSTEM NAME	PRINCIPAL COUNTY SERVED	POPULATION SERVED	PRIMARY WATER SOURCE TYPE
Ely Municipal Water Department	White Pine	5,400	Groundwater
Caliente Public Utilities	Lincoln	1,500	Groundwater
McGill Water and Sewer District	White Pine	1,200	Groundwater
Ely Maximum Security Prison	White Pine	1,030	Groundwater
Alamo Water and Sewer GID	Lincoln	900	Groundwater
Panaca Farmstead Water Association	Lincoln	800	Groundwater
Pioche Public Utilities	Lincoln	781	Groundwater
Ruth Water District	White Pine	700	Groundwater
Baker Water and Sewer GID	White Pine	85	Groundwater
Pioche Public Utilities Castleton	Lincoln	60	Groundwater
Valley View Trailer Park	White Pine	52	Groundwater
Cold Creek MHP	White Pine	35	Groundwater

Source: EPA 2007a

Solid Waste

White Pine County is served by a regional landfill operated by the Ely Municipal Utilities Board. The landfill is located on the northwestern boundary of Ely. Outlying communities are served by a private waste-collection company that provides pick-up service throughout the county. The landfill is licensed with a Class I permit through the Nevada Division of Environmental Protection and has applied for a Class III permit to accept construction waste. Available capacity in the landfill is being used more rapidly than was initially anticipated.

Additionally, solvents have been detected in the groundwater in the vicinity of the landfill. There is a long-term need to identify and develop an alternative landfill site.

3.17.3.8 Local Government Finances

Local government finances for the two counties are summarized in **Table 3.17-25**. These data include all local units of governments, including county governments, municipalities, school districts, and special districts. Lincoln County had the higher per capita taxes while White Pine County had the lowest. Each county spent the largest percentage of its budget on education with police and highways following. White Pine County had the highest outstanding debt per capita of $1,871, followed by Lincoln County at $1,435.

TABLE 3.17-25 LOCAL GOVERNMENT FINANCES, 2002

DESCRIPTION	LINCOLN COUNTY	WHITE PINE COUNTY
General Revenue (million $)	22.5	28.9
Intergovernmental Transfers (million $)	15.6	19.1
Total Taxes (million $)	4.2	5.2
Per Capita Taxes ($)	980	596
Per Capita Property Taxes ($)	916	478
Direct General Expenditures (million $)	19.8	28.2
Per Capita Direct General Expenditures ($)	4,659	3,242
Education (%)	53.0%	49.9%
Health and Hospitals (%)	0.7%	0.9%
Police (%)	5.8%	10.7%
Public Welfare (%)	1.5%	1.0%
Highways (%)	10.4%	7.4%
Total Outstanding Debt (million $)	6.1	16.3
Per Capita Outstanding Debt ($)	1,435	1,871

Source: U.S. Bureau of the Census, 2002 Census of Government, as cited in Crispin and Isaacson 2008

There are two units of local government in White Pine County—the county and the City of Ely. White Pine County and the City of Ely negotiate an annual cooperative agreement to share costs and responsibilities for fire protection, law enforcement, and animal control. Additional governing authority lies with the Ely Shoshone Tribal Government, the White Pine School Board, and general improvement districts. The White Pine School Board, William Bee Ririe Hospital Board, Baker and McGill Ruth Water and Sewer General Improvement Districts, and the White Pine and Baker TV Districts are elected boards that operate independently of city and county governments (White Pine County 2006).

The communities of Ruth, McGill, Lund, Preston, Cherry Creek, and Baker are unincorporated, and have budgets administered through the county government. Each of these communities has a community board that reports to the county commission (White Pine County 2006).

The White Pine County government was nearly insolvent at the end of 2005 and was placed under the supervision of the Nevada Department of Taxation. Insolvency was averted through a combination of tax increases, imposition of a franchise fee, and budget reductions. Although some county personnel were laid-off, no county services or facilities were closed. The county remains under supervision of the state, and will remain so until the financial condition of the county is resolved and policies and procedures are in place to maintain financial health (White Pine County 2006).

Taxable sales in Lincoln County rose markedly from $15.4 million in FY 2006-07 to almost $27 million in FY 2007-08, an increase of more than 75%. In comparison, taxable sales in White Pine County were relatively flat, increasing from $192.9 million in FY 2006-07 to $197.8 million in 2007-08 (**Table 3.17-26**).

TABLE 3.17-26 TAXABLE SALES IN LINCOLN AND WHITE PINE COUNTIES, FY 2006-2007 AND FY 2007-2008

AREA	FISCAL YEAR, 2006-07	FISCAL YEAR, 2007-08	PERCENT CHANGE
Lincoln County	$15,397,747	$26,967,548	75.1%
White Pine County	192,877,042	197,817,869	2.6%
State of Nevada	49,427,707,108	48,196,848,945	-2.5%

Source: Nevada Department of Taxation 2007 and 2008

In Nevada, there is a minimum 6.5 percent statewide sales tax and various county-option sales taxes. The total sales tax rate in White Pine County is 7.125 percent, while the rate is 6.75 percent in Lincoln County. The 6.5 percent statewide sales tax is comprised of a 2 percent state tax, a 2.25 percent Local Schools Support Tax, a 0.50 percent Basic City-County Relief Tax, and a 1.75 percent Supplemental City-County Relief Tax. All of the state tax is placed in the states' general fund. The other three taxes are distributed between the counties of origin and the state according to established guidelines (Nevada Department of Taxation 2006b).

In addition to the state minimum 6.5 percent sales tax, White Pine County also levies a 0.25 percent Public Swimming Pool Tax, a 0.125 percent Extraordinary Maintenance, Repair or Improvement of School Facilities Tax, and an 0.25 percent Severe Fiscal Emergency Tax. Lincoln County imposes a 0.25 percent Infrastructure Tax (Nevada Department of Taxation 2006b).

Portions of various excise taxes levied in Nevada are also returned to county governments. These include the Cigarette Tax, the Liquor Tax, Real Property Transfer Tax, and a Motor Vehicle Privilege Tax. The amounts of the various sales and excise taxes returned to the county governments for the 2007-2008 fiscal year are listed in **Table 3.17-27** (Nevada Department of Taxation 2008).

TABLE 3.17-27 STATE SALES AND EXCISE TAX COLLECTIONS DISTRIBUTED TO LINCOLN AND WHITE PINE COUNTIES, FY 2007-2008

TAX	LINCOLN COUNTY	WHITE PINE COUNTY
Local School Support Tax	$325,375	$2,216.422
Basic City/County Relief Tax	$143,828	$819,972
Supplemental City/County Relief Tax	$1,389,091	$3,171,543
Local Option Sales and Use Tax	$68,858	$1,582,331
Cigarette Tax	$23,296	$55,564
Liquor Tax	$4,906	$11,643
Real Property Transfer Tax	$27,980	$62,478
Motor Vehicle Privilege Tax	$432,934	$822,679

Note: The data presented here are based on figures provided on the Sales and Use tax returns by registered permit holders in and out of the state of Nevada. Large increases or decreases may be due to audits or deficiency determinations performed on taxpayers doing business in a county.

Source: Nevada Department of Taxation 2008

Property taxes are also levied in Nevada at the appropriate rate on the assessed value, which is defined as 35 percent of the taxable value. The taxable value for land is considered the cash value the property would bring in a competitive and open market. For improvements, the taxable value is considered the replacement cost minus depreciation. There is also a tax on the net proceeds of minerals in lieu of property tax on mining and natural resource extraction

operations. Mining companies are allowed to deduct from the gross proceeds expenses directly tied to the production of minerals. This tax is levied at property tax rates (Nevada Department of Taxation 2008).

The total assessed valuation for White Pine County went down by 1.5 percent from the 2006-2007 fiscal year to the 2007-2008 fiscal year (**Table 3.17-28**). The assessed value increased by 10.7 percent in Lincoln County. Unlike the decrease in White Pine County, the rise in assessed value in Lincoln County was due to a rise in the value of real and personal property, and not to an increase in the net proceeds from minerals (Nevada Department of Taxation 2007, 2008).

TABLE 3.17-28 TOTAL ASSESSED VALUATION, FY 2006-07 AND FY 2007-08

AREA	FY 2006-07	FY 2007-08	PERCENT CHANGE
Lincoln County	$163,827,835	$181,285,830	10.66%
White Pine County	$410,137,833	$403,878,274	-1.53%
State of Nevada	$120,714,693,368	$140,146,163,395	16.10%

Source: Nevada Department of Taxation 2007 and 2008

Nevada has a statutory property tax rate cap of $3.64 per $100 of assessed value. In 2005, the State Legislature approved an additional $0.02 per $100 of assessed value. This amount is in addition to the $3.64 per $100 rate cap. Of the additional $0.02, $0.0085 is slated for statewide capital improvements and the remaining $0.015 will go to the conservation of natural resources in Nevada. The average countywide property tax for White Pine County is 3.66 percent for the 2006-2007 fiscal year. The property tax rate for White Pine County is the maximum allowed by Nevada State law. The property tax rate for Lincoln County is 3.0766 percent for the 2006-2007 fiscal year.

Property taxes are levied by various government entities and distributed to these various entities upon collection by either the county or state governments. Of a total of $8,445,110 projected to be distributed in White Pine County for the 2006-2007 fiscal year, the largest recipient is the county government (**Table 3.17-29**). In both White Pine and Lincoln counties, the largest recipient of property tax revenue is the county government. Statewide in Nevada the school districts are the largest recipients (Nevada Department of Taxation 2006c).

TABLE 3.17-29 PROPERTY TAX REVENUE, 2006-2007 FY

TAX	LINCOLN COUNTY, NV	WHITE PINE COUNTY, NV	STATE OF NEVADA
Schools	$1,515,214	$2,424,854	$1,448,580,988
Counties	$2,082,622	$4,381,997	$910,456,361
Cities	$94,083	0	$446,067,770
Towns	$79,601	0	$95,223,982
Combined Special Districts	$754,394	$1,246,000	$508,388,611
State	$264,707	$392,259	$194,648,581
Total	$4,790,621	$8,445,110	$3,603,366,293

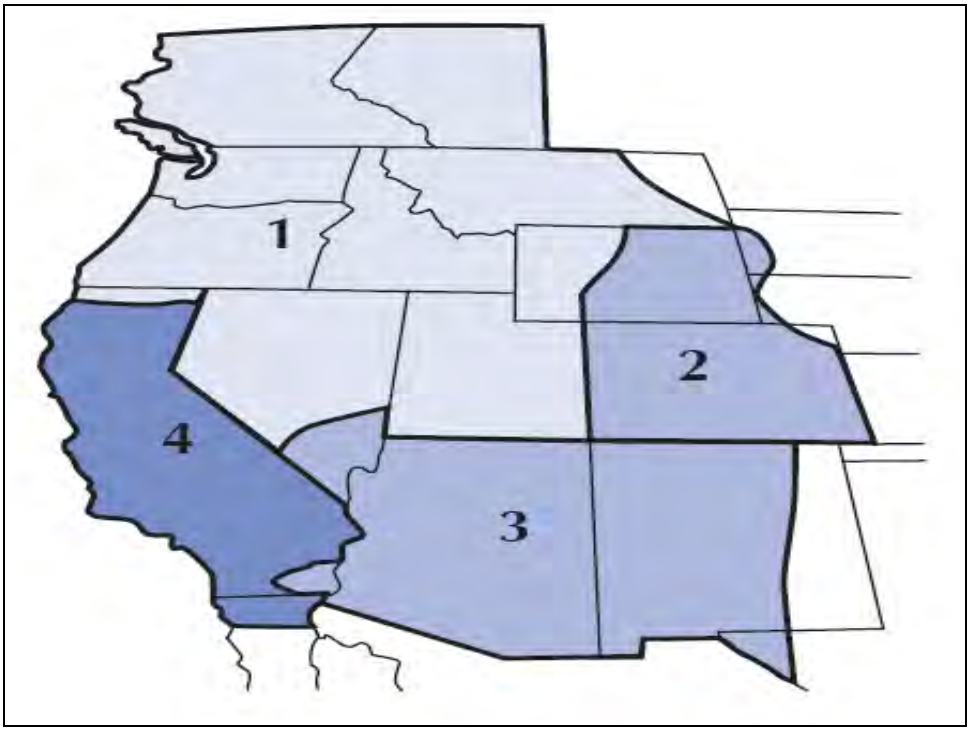
Source: Nevada Department of Taxation Fiscal Year 2006c

3.17.3.9 Electric Power Industry

The market for electric energy is regional with eight electric reliability councils across the country coordinating the delivery system. In the western United States, the Western Electricity

Coordinating Council (WECC) coordinates the system in all or part of 14 states, the Canadian provinces of Alberta and British Columbia, and a portion of northern Baja California (**Figure 3.17-1**). Within the WECC, southern Nevada, which is primarily served by NV Energy (formerly Nevada Power Company), is included in the Arizona/New Mexico/Southern Nevada Power Area (AZ/NM/SNV); and the remainder of Nevada, which is primarily served by NV Energy (formerly Sierra Pacific Power Company), is in the Northwest Power Pool Area (NWPP). The Rocky Mountain Power Area (RMPA) and the California/Mexico Power Area (CA/MX) are the remaining reporting areas in the WECC (WECC 2006). These reporting areas are generally defined by the location of generating and transmission facilities and ability to transmit electric energy. Currently, there is no existing transmission connection between the Northwest Power Pool Area and the Arizona/New Mexico/Southern Nevada Power Area. The transmission facilities associated with the ON Line Project would provide transmission connection between these two areas.

Figure 3.17-1 Western Electricity Coordinating Council Reporting Areas



(1) Northwest Power Pool Area (2) Rocky Mountain Power Area (3) Arizona/New Mexico/Southern Nevada Power Area (4) California Mexico Power Area Source: Western Electricity Coordinating Council, 2006

Projections by the WECC indicate that summer peak electric energy demand in the WECC service area will increase by 22.8 percent between 2005 and 2015 (**Table 3.17-30**). Peak summer demand in the Arizona/New Mexico/Southern Nevada Power Area is expected to increase by 30.6 percent over the same time period.

TABLE 3.17-30 SUMMER PEAK ELECTRIC ENERGY DEMAND IN WECC REPORTING AREAS (MW)

AREA	2004	2005	2015
Northwest Power Pool Area	51,069	52,698	63,129
Rocky Mountain Power Area	10,400	11,086	14,029
Arizona/New Mexico/Southern Nevada Power Area	25,634	27,974	36,526
California Mexico Power Area	55,920	57,389	70,321
Western Electricity Coordinating Council	141,100	149,147	183,148

Source: Western Electricity Coordinating Council 2006

3.17.4 Specific Project Area Conditions

The Robinson Summit Substation would be constructed on land administered by the BLM and is approximately 20 miles northwest of Ely. There are no communities in close proximity to the proposed Robinson Summit Substation. The transmission line alignment generally passes through public lands or rural areas with dispersed populations. Segment 6C passes within about 10 miles to the west of Ruth, Nevada (located about 10 miles northwest of Ely). The estimated population of Ruth in 2005 was 394. Segments 8 and 9B, lie entirely on land administered by the BLM and are not close to cities or towns. Segments 9A and 9D are primarily on BLM land and run parallel to the Desert National Wildlife Refuge. Segments 9C and 10 also occur entirely on BLM land and are not close to cities or towns. Portions of Segment 11 also run adjacent to the Desert National Wildlife Refuge, and terminates at the existing Harry Allen Substation.

3.18 Environmental Justice

Environmental justice is the fair treatment of all people so that no one group of people bears a disproportionate share of the negative consequences of industrial or municipal development, or the implementation of federal, state, local, or tribal policies or programs. Executive Order 12898, *Environmental Justice*, requires federal agencies to analyze the effects of major actions to determine if their implementation will result in disproportionate effects to minority or low-income populations.

3.18.1 Area of Analysis

The study area for environmental justice includes areas of minority and/or low income populations identified in Clark, Lincoln, Nye, Eureka, and White Pine counties that may be affected by the construction, operation, and maintenance of the ON Line Project.

3.18.2 Data Sources and Methods

The indicators are minority and/or low-income populations in the project area that have the potential to be affected by high, adverse human health or environmental effects during construction or operations phases of the Proposed Action or Action Alternative. Minority population and income data was taken from the Bureau of the Census 2000 Decennial data noted above in **Section 3.17** and the EPA Environmental Justice Geographic Assessment Tool (EPA 2008). Also reviewed were the White Pine County, Nevada 2006 Comprehensive Economic Strategy, and the White Pine Energy Station Project Draft EIS (BLM 2007c).

3.18.3 Existing Conditions

As noted in **Section 3.17**, the project area is primarily rural.

Table 3.18-1 shows racial and ethnic populations of the project area and the State of Nevada as a percentage of the overall population in 2000. As per CEQ guidance (CEQ 1997), minority

populations of the five counties have been compared to that of the same minority for the larger population (the State of Nevada); where the county minority population is "meaningfully greater" than the parallel state population, it is considered a significant minority population (CEQ 1997; EPA 1998). As noted in the table by asterisks, the percentage of Native Americans in Nye and White Pine counties exceeds the statewide percentage by more than 50 percent. This finding is not unexpected given the several reservations and colonies in those counties.

TABLE 3.18-1 ENVIRONMENTAL JUSTICE STATISTICS FOR AFFECTED COUNTIES (BY RACE AND ETHNICITY)

State/County	Racial/Ethnic Groups, 2000 Census (%)					Hispanic or Latino Origin	Population
	White	African American	Asian/ Pacific Islander	Native American/ Alaskan	Other Race		
Nevada	75.2	6.6	4.5	1.3	7.9	19.7	1,998,257
Clark	71.7	8.9	5.2	0.8	8.6	21.9	1,375,765
Eureka	89.3	0.4	0.9	1.6	4.4	9.6	1,651
Lincoln	92.1	1.8	0.8	0.7	2.5	5.0	4,165
Nye	89.7	1.0	0.7	2.3*	2.9	8.3	32,485
White Pine	86.6	4.6	0.7	3.4*	3.0	10.7	9,181
Nevada x 1.5		9.9	6.75	1.95	11.85	29.55	

Source: EPA 2008. Environmental Justice Geographic Assessment Tool, accessed on line at http://www.epa.gov/Compliance/whereyoulive/ejtool.html on May 28, 2008
*Exceeds the threshold value of 1.5 times the state population percentage for the group, thereby constituting a minority population

Table 3.18-2 shows personal and household income statistics for the project area and the State of Nevada in 2000. From the table it is evident that a substantially higher percentage of Lincoln County residents fall into the low income brackets. Lincoln County residents are twice more likely to be in households on public assistance and earning less than $15,000 per year than the state average.

TABLE 3.18-2 ENVIRONMENTAL JUSTICE STATISTICS FOR AFFECTED COMMUNITIES (FOR INCOME GROUPS)

State/ County	Population	Persons Below Poverty Level (%)	Households on Public Assistance (%)	Household Income (%)			
				<$15,000	$15,000-$25,000	$25,000-$50,000	$50,000-$75,000
Nevada	1,998,257	10.3	2.3	12.4	12.3	31.2	21.8
Clark	1,375,765	10.6	2.4	12.2	12.4	31.3	21.5
Eureka	1,651	12.5	2.4	20.7	12.9	26.1	24.0
Lincoln	4,165	15	5.1	25.6	16.2	25.5	22.7
Nye	32,485	10.6	3.5	18.8	14.6	34.9	17.0
White Pine	9,181	9.4	2.7	18.3	14.6	31.8	22.9

Source: EPA 2008. Environmental Justice Geographic Assessment Tool, accessed on line at http://www.epa.gov/Compliance/whereyoulive/ejtool.html on May 28, 2008

3.18.4 Specific Project Area Conditions

3.18.4.1 Minority Communities

A minority population may be present if the minority population percentage of the affected area is meaningfully greater than the minority population in the general area. According to demographic data provided above in **Section 3.17** and in **Tables 3.18-1** and **3.18-2**, Eureka,

Lincoln, Nye, and White Pine counties are relatively uniform demographically. White Pine County's population is 86.6 percent white. The second largest racial group is black, making up 4.6 percent of the population. Lincoln County's population is over 90 percent white with the second most commonly cited racial category composed of two or more races. In Nye County, 89.7 percent of the population is white, with the second most commonly cited racial category composed of two or more races. Eureka County is 89.3 percent white with the second most commonly cited racial category as other. Clark County's population is 71.7 percent white with the second most commonly cited racial category as African American.

Hispanics, who may be of any race, comprise 10.7 percent of the population of White Pine County, 9.6 percent of Eureka County, 8.3 percent of the Nye County population, and 5.0 percent of Lincoln County's population. In comparison, the State of Nevada in 2000 was about 75.2 percent white, 19.7 percent Hispanic or Latino, 6.6 percent black or African American, and 1.3 percent Native American.

The data demonstrates that there are minority populations in the project area, based on racial factors. The Native American Concerns sections of this SEIS (**Section 3.11** and **4.11**) further describe this segment of the minority population in the area.

3.18.4.2 Low Income Communities

Low income families are defined as those families whose incomes do not exceed 150 percent of the poverty level. Poverty is defined by family; either everyone in a family is at poverty level or no one in the family is in poverty. The family characteristics used to determine poverty status include: number of people, number of children in the family under age 18, whether or not the main householder is over age 65, and the household income. Based upon family characteristics, a household income threshold is determined as the basis for whether or not that family is defined as living at or below the poverty level.

In White Pine County in 2004, there were an estimated 961 individuals at poverty level (12.4 percent); 282 were under age 18. In Lincoln County in 2004, 523 (13 percent) individuals were at poverty level; 188 were under age 18. In Eureka County, 206 (12.5 percent) individuals were at poverty level.

The number of low income households surveyed in White Pine County for the White Pine Energy Station Project Draft EIS (BLM 2007c) is 838 (25 percent of the county's households). The number of individuals surveyed who live in low income households in the three census tracts, including Ely and McGill, was 866. Of those 866, 265 lived either in small communities of less than 1,000 people, or in areas where no other residences existed within several miles. Of 241 low-income people surveyed in census tract 9701, 112 live in McGill. There are 489 low-income people in Ely.

Lincoln County has the largest number of persons in the lower income brackets, with 25.3 percent of households having an income of less than $15,000 per year. Lincoln County is also the most rural in nature of the three counties along the transmission line alignment, with 0.4 people per square mile (/sq mi) (1.0/sq mi in White Pine County and 1.8/sq mi in Nye County).

The transmission line alignments generally pass through public lands or rural areas with dispersed populations. Since there are up to about 25 percent low income households present in Nye, White Pine, and Lincoln counties, it is likely that some rural, low income households would be located near the proposed transmission line.

See, also, **Section 3.17** above for further details on the socio-economics of the area.

3.18.4.3 Public Participation

An integral part of the public participation process included scoping meetings, mailings, and press releases as described in the Scoping Report (JBR 2007c). See **Chapter 6**, Consultation and Coordination, for a complete description of public involvement efforts.

3.19 Hazardous and Solid Waste Materials

3.19.1 Area of Analysis

The project area includes the proposed Robinson Summit Substation site and generally a 1,000-foot-wide area that extends 500 feet from each side of the proposed centerline for the transmission line alignment.

3.19.2 Data Sources and Methods

Data for this section were acquired from field observations.

3.19.3 Existing Conditions

Most of the land uses of the Proposed Action and Action Alternative have been open range or agricultural with no history of solid or hazardous waste generation or disposal. There is evidence of scattered debris being located within the proposed transmission line alignments.

The solid waste disposal activities in the county are described in the White Pine County Solid Waste Management Plan Revision (WPCC 2006). White Pine County and the City of Ely maintain in inter-local agreement governing charges for the use of the City's landfill to meet the needs of county residents. White Pine County maintains a franchise agreement with a contractor for collecting, hauling, and disposing of solid waste from all areas of the county to the White Pine Regional Landfill. The franchise agreement prohibits other parties from providing these same services as a business venture in the county. The franchise agreement does not prohibit solid waste generators from hauling and disposing of their own waste at the landfill.

Beginning in 2003, the City of Ely, Nevada Division of Forestry, BLM, and the USFS collaborated to reduce solid waste disposal in remote areas of the County and direct solid waste from these areas to the Ely landfill. The program has reportedly resulted in fewer illegal dumps occurring on public lands in the area (www.blm.gov/nv).

There is no hazardous waste disposal facility located in the immediate area so these materials that are generated locally and disposed in permitted hazardous waste facilities are trucked by commercial carriers to existing, permitted facilities in Nevada and surrounding states.

3.19.4 Specific Project Area Conditions

The transmission line alignments are generally located on BLM-administered land that is currently undeveloped and used for livestock grazing and wildlife habitat. Portions of the land affected by the transmission line alignments crosses private property. Although the existence of hazardous materials along these proposed alignments is possible, development within these areas is limited and is not expected to have produced substantial quantities of hazardous materials. There are widely scattered occurrences of solid wastes within the transmission line alignments and no reports of hazardous materials or wastes.

The Falcon Substation is located on private land. The land adjacent to the existing substation is undeveloped. The current uses of the area are rangeland for domestic cattle use and agricultural land use.

3.20 Transportation

3.20.1 Area of Analysis

This section discusses the existing transportation system within the project area for the ON Line Project. The area of analysis for transportation was determined as the area potentially affected by the ON Line Project and is comprised of White Pine, Nye, Eureka, Lincoln, and Clark counties.

3.20.2 Data Sources and Methods

Existing information on transportation routes within the area of analysis was reviewed and a site-specific transportation study was conducted by HDR Engineering, Inc. and Cummins and Bernard, Inc. (HDR et al. 2007) including:

- Existing highways and road infrastructure
- Other types of transportation routes/access (i.e., railroad, air)
- Level of service of existing primary access routes to project area
- Road administration
- Crash data

3.20.3 Existing Conditions

The project area is generally accessed via a system of regional highways, including US-93, US-50, Interstate 80 (I-80), I-15, SR-318, and US-6 (**Figure 3-20.1**). The Federal Highway Administration (FHWA) administers US-93, I-80, I-15, US-50, and US-6. The Nevada Department of Transportation (NDOT) administers SR-318 and maintains all of the primary routes mentioned. I-80 is an east-west interstate highway that traverses across the northern portion of Nevada. I-15 is generally a north-south interstate highway connecting Las Vegas, Nevada and Salt Lake City, Utah. US-93 runs generally north-south between I-80 and I-15. SR-318 is also a north-south highway that connects US-93 with US-6. US-6, US-50, and I-80 generally run east-west, while US-93, I-15, and SR-318 are generally north-south travelways (see **Figure 3.20-1**).

Both public and private lands are connected to the highway system by an extensive network of unpaved roads. Excluding the primary transportation routes, most roads within the project area are not maintained or paved. Non-maintained or unpaved roads may require four-wheel drive access vehicles due to rough terrain, steep grades, drainage crossings, or other obstructions. These roads include county and private roads.

The primary roads would provide general access to the ON Line Project for construction personnel, construction materials and equipment delivery, and project operation personnel.

There are many cities and towns along this system of highways that could provide personnel, materials, and services. These towns and the highways that link them to the project area are listed in **Table 3.20-1**.

TABLE 3.20-1 POTENTIAL SOURCE TOWNS AND CITIES FOR PROJECT CONSTRUCTION AND OPERATION PERSONNEL AND ASSOCIATED ROADWAYS TO ACCESS THE ON LINE PROJECT

TOWN/CITY, STATE	ROADWAY
Austin, Nevada	US-50 and US-93
Battle Mountain, Nevada	I-80
Carlin, Nevada	I-80
Elko, Nevada	I-80 and US-93
Ely, Nevada	US-93
Eureka, Nevada	US-50 and US-93
Las Vegas, Nevada	I-15 and US-93 or I-15, US-93, SR-318, and US-6
McGill, Nevada	US-93
Pioche, Nevada	US-93
Salt Lake City, Utah	I-80 and US-93
Wells, Nevada	I-80 and US-93
Wendover, Utah	I-80 and US-93
West Wendover, Nevada	I-80 and US-93

A roads Level of Service (LOS) is a qualitative measure of the operating conditions experienced under varying traffic volumes (HDR et al. 2007). There are six LOS conditions that describe operating traffic conditions from best to worst, A through F, respectively (see **Table 3.20-2**).

TABLE 3.20-2 ROADWAY LEVEL OF SERVICE

LEVEL OF SERVICE (LOS)	DESCRIPTION
A	Free flow, low traffic density or delay
B	Minimum density or delay, stable traffic flow
C	Stable, movements somewhat restricted due to higher volumes, but not objectionable
D	Restricted movements, queues and delay may occur during short peaks, but lower demand occurs often enough to permit clearing, preventing excessive backups
E	Frequent delays, actual capacity is utilized; all movements experience congestion and delay
F	Forced flow, demand volumes exceed capacity resulting in complete congestion

According to the project specific traffic study (HDR et al. 2007), US-93 currently functions at operational LOS A. Traffic counts for various areas along US-93 and other roadways in the project area are taken by NDOT annually and summarized in their Annual Traffic Report (NDOT 2006).

Traffic crash data indicates the highest crash type applicable to the project area involves vehicles that ran off the roadway and struck a fixed object due to vehicle speeds too fast for driving conditions (HDR et al. 2007). Other primary crash types in the area include: animal, ran off roadway and overturned, rear-end collision, and angle collision. The five primary contributing factors to these accidents include: speed too fast for conditions, failure to yield, inattentive driving, animal in roadway, and improper backing (HDR et al. 2007).

The majority of access on BLM lands in the Ely District is informal with reasonable access made for permitted uses such as mining claims, mining uses, mineral leases, grazing, recreation,

rights-of-way, and other specific uses (BLM 2008a). Road system management by the BLM is variable with priorities for road maintenance determined on a case-by-case basis. There has been an increase in informal travel route proliferation in the Ely District. Between 1998 and 2003, there has been a 184 percent increase in off-highway vehicle use in Nevada (BLM 2008a). New roads may be constructed on BLM administered land in connection with an authorized project such as a mineral lease or right-of-way.

The Union Pacific Railroad runs generally east-west through Nevada with a northern and southern route. The northern route roughly follows I-80 through the state, while the southern route links Salt Lake City, Utah to Las Vegas, passing through Caliente and Moapa on the way to Las Vegas. Passenger service is available on the northern route, provided by Amtrak.

3.20.4 Specific Project Area Conditions

The transmission facilities traverse generally north-south from near Ely to northeast of Las Vegas. The primary routes accessing the transmission line alignments would include US-93, US-50, US-6, and I-15. Secondary access from the highways would include local improved and unimproved roads.

The Robinson Summit Substation site is accessed via the Jake Wash Road that heads south from US-50. The existing Harry Allen Substation is accessed via a paved road off of US-93, I-15, and SR-604. The existing Falcon Substation is accessed via the Dunphy Road and then the Boulder Valley Road, off of I-80.

Figure 3.20-1 Transportation Map

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Chapter 4
Environmental Consequences

4.1 Impact Assessment

The Proposed Action and Action Alternative outlined in Chapter 2 may cause, directly or indirectly, changes in the human environment. This SEIS assesses and analyzes these potential changes and discloses the effects to the decision-makers and public. This process of disclosure is one of the fundamental aims of NEPA. There are many concepts and terms used when discussing impacts assessment that may not be familiar to the average reader. The following sections attempt to clarify some of these concepts.

4.1.1 Impacts/Effects

The terms “effect” and “impact” are synonymous under NEPA. Effects may refer to adverse or beneficial ecological, aesthetic, historical, cultural, economic, social, or health-related phenomena that may be caused by the Proposed Action or Action Alternative (40 CFR 1508.8). Effects may be direct, indirect, or cumulative in nature. Cumulative effects are analyzed in Chapter 5.

4.1.2 Direct Effects

A direct effect occurs at the same time and place as the action (40 CFR 1508.8(a)). Direct and indirect effects are discussed in combination under each affected resource.

4.1.3 Indirect Effects

Indirect effects are reasonably foreseeable effects that occur later in time or are removed in distance from the action (40 CFR 1508(b)). Direct and indirect effects are discussed in combination under each affected resource.

4.1.4 Significance

The word “significant” has a very particular meaning when used in a NEPA document (40 CFR 1508.27). Significance is defined by CEQ as a measure of the *intensity* and *context* of the effects of a major federal action on, or the importance of that action to, the human environment. Significance is a function of the beneficial and adverse effects of an action on the environment.

Intensity refers to the severity or level of magnitude of impact. Public health and safety, proximity to sensitive areas, level of controversy, unique risks, or potentially precedent-setting effects are all factors to be considered in determining intensity of effect. This SEIS primarily uses the terms Major, Moderate, Minor, or Negligible in describing the intensity of effects.

Context means that the effect(s) of an action must be analyzed within a framework, or within physical or conceptual limits. Resource disciplines; location, type, or size of area affected (e.g., local, regional, national); and affected interests are all elements of context that ultimately determine significance. Both long- and short-term effects are relevant.

4.1.5 Indicators

Impact indicators are the consistent currency used to determine change (and the intensity of change) in a resource. Working from an established existing condition (i.e., baseline conditions described in Chapter 3) this indicator would be used to predict or detect change in a resource related to causal effects of proposed actions.

4.1.6 Environmental Effect Categories

The following environmental effect categories (**Table 4.1-1**) are presented to define relative levels of effect intensity and context for each resource that is analyzed in this Chapter and to provide a common language when describing effects.

TABLE 4.1-1 SUMMARY OF TERMS USED TO DESCRIBE EFFECTS IN THE SEIS

ATTRIBUTE OF EFFECT		DESCRIPTION
Magnitude (Intensity)	Negligible	A change in current conditions that is too small to be physically measured using normal methods or perceptible to a trained human observer. There is no noticeable effect on the natural or baseline setting. There are no required changes in management or utilization of the resource.
	Minor	A change in current conditions that is just measurable with normal methods or barely perceptible to a trained human observer. The change may affect individuals of a population or a small (<10 percent) portion of a resource but does not result in a modification in the overall population, or the value or productivity the resource. There are no required changes in management or utilization of the resource.
	Moderate	An easily measurable change in current conditions that is readily noticeable to a trained human observer. The change affects 25 to 75 percent of individuals of a population or similar portion of a resource which may lead to modification or loss in viability in the overall population, or the value or productivity the resource. There are some required changes in management or utilization of the resource.
	Major	A large measurable change in current conditions that is easily recognized by all human observers. The change affects more than 75 percent of individuals of a population or similar portion of a resource which leads to significant modification in the overall population, or the value or productivity the resource. There are profound or complete changes in management or utilization of the resource. An impact that is not in compliance with applicable regulatory standards or thresholds.
Duration	Transient/Temporary	Short-lived (i.e., during construction)
	Short-term	10 years or less
	Long-term	More than 10 years

4.1.7 Mitigation

Where applicable, mitigation measures are proposed in this document. Mitigation measures are solutions to environmental impacts that are applied in the impact analysis to reduce intensity or eliminate the impacts. To be adequate and effective, CEQ rules (40 CFR 1508.20) require that mitigation measures fit into one of five categories:

(a) avoiding the impact altogether by not taking a certain action or parts of an action;

(b) minimizing impacts by limiting the degree or magnitude of the action and its implementation;

(c) rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

(d) reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or

(e) compensating for the impact by replacing or providing substitute resources or environments.

4.2 Water Resources

4.2.1 Indicators and Methods

As previously discussed in **Section 1.13.2**, a number of issues associated with potential environmental impacts were identified, along with corresponding indicators to help address those issues. The issues involved potential environmental effects regarding water quality and physical alteration of surface water features. Project-related activities causing potential water resource effects include permanent and temporary surface disturbance, which occurs throughout the project area. The following indicators have been identified in order to evaluate potential project impacts on water resources, including their potential project activity cause:

- Suspended sediment concentration, turbidity, pH, and contaminants of concern in downgradient streams, ponds, and other surface waters, with regards to applicable surface water quality standards
- Changes in volume and timing of surface water runoff
- Projected frequency, extent, and duration of flooding as a result of surface water runoff

In order to compare effects associated with the Proposed Action and Action Alternative project elements, these indicators were considered both independently and in conjunction with one another.

4.2.1.1 Wetlands and Waters of the United States

Delineation of waters of the United States (U.S.), including wetlands, was conducted for portions of this project (JBR 2007a). A formal determination from the U.S. Army Corps of Engineers (the Corps), in order to establish which, if any, of the waters within the area of analysis are jurisdictional under the Clean Water Act (CWA), has not been completed as of the writing of this document and is proposed to occur as part of the COM Plan. Therefore, in order to evaluate the greatest potential degree of impact, it is assumed all waters and wetlands mentioned here are jurisdictional under the CWA until otherwise directed by the Corps (or other appropriate regulatory agency).

4.2.2 Proposed Action

The Proposed Action consists of the Robinson Summit 500/345kV Substation, a 236-mile 500kV transmission line described as Segments 6C, 8, 9A, 9B, 9D, and 11, loop-in of the existing Falcon–Gonder 345kV transmission line at the new Robinson Summit Substation, expansion of the existing Falcon Substation to add new electrical equipment, addition of new electrical equipment inside the existing footprint of the Harry Allen Substation, telecommunication facilities along the new line and at the substations, associated appurtenant facilities, and access roads. The new 500kV transmission line would have a northern terminus

at the Robinson Summit Substation, from which it would extend south through Jakes Valley, the White River Valley, across the southern Scheel Creek Range into Dry Lake Valley, Delamar Valley, Coyote Springs Valley, across the southern Arrow Canyon Range, and have a southern terminus at the existing Harry Allen Substation in Dry Lake Valley northeast of Las Vegas.

Construction

Linear transmission facilities would extend from Robinson Summit Substation, across Ellison Creek and White River in White Pine County, and continue on to the Harry Allen Substation in Clark County. Waters of the United States, including wetlands, are present at these proposed stream crossing locations, as well as others along the southern reaches of the alignment.

Sanitary wastewater produced along the ON Line Project would be managed with portable facilities and sanitary waste would be trucked to publicly owned treatment works for disposal.

Surface Water Resources – Live Waters and Wetlands

Segment 6C of the Proposed Action would cross a small stream originating from Warm Springs in southern White Pine County that flows into Ellison Creek and, ultimately, the White River. This crossing is less than 40 linear feet at the stream's widest margin. Further south, Segment 6C crosses the White River (and adjacent wetlands) immediately south of the Kirch WMA. This crossing would be approximately 100 linear feet. Since the average transmission line span length between structures is estimated to be 1,050 feet (**Section 2.2.1.2**), these surface waters would be avoided by all construction activities, and these stream crossing segments would easily be spanned to avoid impacts to wetlands and/or waters of the U.S. BMPs would be utilized to prevent water quality degradation of runoff during the construction phase.

Access for construction of transmission facilities would generally be along existing roads and two-tracks and would be specifically designated within the COM Plan for the project. Should these existing roads require improvement resulting in wetland impacts, a Section 404 permit would be required from the Corps prior to construction. In the event transmission line stringing locations would cause impacts to wetland areas during construction, this would also require a permit. The Corps' Nationwide Permit No. 12 – Utility Line Activities could be employed for project impacts to jurisdictional wetlands totaling less than 0.5 acre. If impacts greater than 0.5 acre would occur, then a Corps Individual Permit would be required. If needed, a detailed compensatory mitigation plan would be developed as a requirement of the *Stream Crossing and Wetlands Protection Plan* portion of the COM Plan, in addition to significant BMPs that would be implemented within all segments to avoid and/or minimize surface water quality impacts during the construction phase. However, since the only location where wetlands were observed was at the two crossing locations identified above, and existing improved access roads are present at both locations, it is unlikely that any new disturbance within a stream or riparian area would be necessary for construction of the transmission facilities, thus no impacts to live waters and wetlands are anticipated.

No adverse impacts to surface waters and wetlands are anticipated since all such waters can be spanned with no construction disturbance to the surface waters, and BMPs would be implemented and uniformly followed. However, if for some unforeseen circumstances impacts to wetlands cannot be avoided, but fall within the allowances of Nationwide Permit No. 12 – Utility Line Activities, impacts would be temporary and minor for construction related disturbances, but would not substantially degrade their function. If impacts to wetlands exceed the limits allowable under the Nationwide Permitting program, such that an Individual Permit is required, these impacts would be temporary and moderate. Impacts requiring an Individual Permit could result in adverse impacts to the function of wetland resources in the affected project areas, both

during and following the construction period. No other surface water resources are present within the Proposed Action.

Surface Water Resources – Dry Washes

A sizeable unnamed dry wash flowing into the closed basin of Jakes Valley occurs immediately south of the Robinson Summit Substation location. This dry wash, which originates within the foothills of the Egan Range east of the substation, would be crossed by the Falcon-Gonder Loop-In line and Segment 6C. The wash would be spanned by the transmission facilities, and no portion of the Robinson Summit Substation would be placed in the wash; therefore no discharge of fill material would occur. BMPs would be utilized to prevent water quality degradation of runoff during the construction phase.

Between Jakes Valley and the White River Valley, Jakes Wash is crossed by the Proposed Action. Near the southern end of the White River Valley, the Proposed Action crosses Big Spring Wash approximately 4 miles northwest of the White River crossing south of Kirch WMA. Within Dry Lake Valley in Lincoln County, the Proposed Action crosses Coyote Wash, Bailey Wash, Silverhorn Wash, Fairview Wash, Porphyry Wash, Redrock Wash, Cottonwood Wash, and Monkey Wrench Wash. Within Delamar Valley, the Proposed Action crosses Helene Wash, Delamar Wash, and Jumbo Wash. Finally, the Proposed Action crosses the Pahranagat Wash west of US-93 and approximately 3 miles south of Maynard Lake in southern Lincoln County. In addition to these larger named washes, the Proposed Action would cross hundreds of smaller, unnamed dry washes between Robinson Summit and Harry Allen Substations.

According to Levick et al. (2008), within the arid southwest, over 81 percent of all streams are intermittent or ephemeral washes. These dry washes support landscape hydrologic connections; stream energy dissipation during high-water flows (thereby reducing erosion and improving water quality); surface and subsurface water storage and exchange; groundwater recharge and discharge; sediment transport, storage, and deposition to aid in floodplain maintenance and development; nutrient storage and cycling; wildlife habitat (breeding, shelter, and foraging) and migration corridors; and support for vegetation communities to help stabilize stream banks (USFWS 1993; BLM 1998d). Some plant populations are specifically adapted to the conditions associated with these ephemeral aquatic ecosystems. They also help mitigate and control water pollution by regulating water quality filtering (Sonoran Institute 2007). Biological stressors to these systems include habitat loss, alteration, effluent discharge, degradation from decline in water quality, and changes in channel and flow characteristics (Pima County 2000). Bull (1997) noted that ephemeral streams are much more sensitive to anthropogenic disturbance than are perennial streams, and Levick et al. (2008) recommended the application of BMPs to prevent water quality degradation, in addition to employing a watershed-scale approach to land management decisions to insure the ecological services of these ephemeral streams are not compromised.

In order to prevent water quality and ecological impacts to these dry washes, no permanent transmission structures would be placed in any wash channel, and existing roads and crossings would be used to access the construction area. All washes would be spanned by the transmission facilities. During development of the COM Plan, specific wash crossing locations would be identified, and detailed BMPs would be established for crossing methods by any access roads to prevent water quality degradation and minimize the impacted area. Should improvements to any of these roads require placement of permanent fill material (such as culverts, headwalls, log structures, etc.), a Section 404 permit may be required. The conditions of Nationwide Permit No. 12, Utility Line Activities, allow for up to 500 linear feet and 0.5 acres

of disturbance at each crossing location, and it is unlikely that any crossing location would eclipse these limitations. The NDEP may also require a working in waterways permit for some crossings, and any authorizations would be acquired prior to the initiation of construction.

Because of the avoidance of impacts to wash systems, other than access road crossing locations, construction impacts to dry washes are anticipated to be temporary and negligible.

Surface Water Resources – Floodplains

Special flood hazard areas are present within portions of Segment 6C in Nye County and in Segment 11 in Clark County. These areas would be spanned by transmission facilities to the extent possible, and the placement of transmission line structures would be such as to prevent changes to flooding or erosion potential. Because of the relatively small long-term disturbance footprint of these structures (66 x 66 feet or 0.1 acre; **Section 2.2.1.2**), negligible alteration to the function of the floodplain in these areas is anticipated.

Groundwater Resources

The construction of the electric transmission facilities would not affect groundwater resources.

Operations, Maintenance, and Abandonment

Surface Water Resources

In the event that an operations, maintenance, or abandonment access road to any component of the Proposed Action transmission line facilities was deemed necessary in a jurisdictional wetland or ephemeral wash area during the service life of the project, this activity could be permitted under either Nationwide Permit No. 12 – Utility Line Activities (if the road was not previously permitted) or under Nationwide Permit No. 03 – Maintenance (if the road was permitted during construction). However, no impacts to surface water resources as a result of the Proposed Action are anticipated.

Groundwater Resources

The operation, maintenance, and abandonment of the transmission facilities would not affect groundwater resources.

4.2.2.1 Mitigation

Additional mitigation measures are not required. A detailed *Stream Crossing and Wetlands Protection Plan* would be developed as a component of the project's overall COM Plan.

4.2.2.2 Unavoidable Adverse Impacts on Water Resources

Unavoidable adverse impacts on water resources would be unlikely to occur as a result of surface disturbance associated with the Proposed Action. The implementation of BMPs would minimize potential water quality degradation and localized flooding associated with the transmission facilities. Although there are special flood hazard areas associated with the locations of some proposed transmission facilities that may be unavoidable, these impacts are not anticipated to be adverse, since the footprint of transmission line structures is negligible when compared to the total area of the special flood hazard zone that would be impacted.

4.2.2.3 Irreversible and Irretrievable Commitments of Resources

There would be no irreversible and/or irretrievable commitments of water resources as a result of the Proposed Action.

4.2.2.4 Relationship of Short-term Uses and Long-term Productivity

A minor amount of water resources would be affected during the short-term scope of project construction. Surface water features, such as ephemeral washes, would be temporarily disturbed during construction of the Robinson Summit Substation and the transmission line facilities. In the long-term horizon of the project, surface water features would be affected during maintenance activities and impacts would be negligible.

4.2.3 Action Alternative

Under the Action Alternative, the transmission line facilities would follow a parallel route to the Proposed Action, approximately 1,800 feet to the east within the SWIP Utility Corridor and includes Segments 6C, 8, 9B, 9C, 9D, and 11. Alternative segments of the Action Alternative include segments 9A instead of 9C as well as Segment 10 instead of segments 9B, 9A, and 9D. The Action Alternative and alternative segment alignments are discussed here.

Construction

Surface Water Resources – Live Waters and Wetlands

Waters of the U.S. impacts, including wetlands, associated with Segment 6C would be the same as the Proposed Action, except for the southern crossing location of the White River (south of Kirch WMA). Under the Action Alternative, the crossing location would occur further north, across a body of water known as the Whipple Reservoir, and would be approximately 810 linear feet. However, under both instances, the span length would be sufficient to avoid any impacts. The alignment of the Action Alternative Segment 6C through this area would not affect live waters and/or wetlands differently than the Proposed Action.

Surface Water Resources – Dry Washes

The majority of the dry wash crossing locations, both named and unnamed, are the same for both the Proposed Action and the Action Alternative. Although separated by approximately 1,800 feet, the character and function of the washes are not significantly different at any alignment location. The Segment 10 alternative would cross Cedar Wash and Big Lime Wash within southeastern Delamar Valley, and then Kane Springs Wash five times in Kane Springs and Coyote Springs Valleys. Segments 9A and 9C both cross several small, unnamed dry washes in southern Lincoln County.

The types and degrees of impacts associated with these dry wash crossings would be the same for the Action Alternative as with the Proposed Action.

Surface Water Resources – Floodplains

Special flood hazard areas are present within portions of Segment 6C in Nye County and in Segment 11 in Clark County. Impacts to these areas would be the same as the Proposed Action.

Groundwater Resources

The construction of the transmission facilities would not affect groundwater resources.

Operations, Maintenance, and Abandonment

Surface Water Resources

In the event that a maintenance access road to any component of the Action Alternative was deemed necessary in a jurisdictional wetland or ephemeral wash area during the service life of the project, this activity could be permitted under either Nationwide Permit No. 12 – Utility Line

Activities (if the road was not previously permitted) or under Nationwide Permit No. 03 – Maintenance (if the road was permitted during construction). However, no impacts to surface water resources as a result of the Action Alternative are anticipated.

Groundwater Resources

The operation, maintenance, and abandonment of the Action Alternative would not affect groundwater resources.

4.2.3.1 Mitigation

Mitigation for the Action Alternative would be the same as for the Proposed Action.

4.2.3.2 Unavoidable Adverse Impacts on Water Resources

Unavoidable adverse impacts on water resources would be unlikely to occur as a result of surface disturbance associated with the transmission line alternatives, since the implementation of BMPs would minimize potential water quality degradation and localized flooding. Although there are special flood hazard areas associated with some of the Action Alternative transmission facilities that may be unavoidable, these impacts are not anticipated to be adverse, since the footprint of transmission line structures is negligible when compared to the total area of the special flood hazard zone that would be impacted.

4.2.3.3 Irreversible and Irretrievable Commitments of Resources

As with the Proposed Action, there would be no irreversible and/or irretrievable commitments of water resources.

4.2.3.4 Relationship of Short-term Uses and Long-term Productivity

The relationship of short-term uses and long-term productivity would be the same as that for the Proposed Action as described in **Section 4.2.2.4**.

4.2.4 No Action Alternative

Under the No Action Alternative, surface water resources would not be impacted by construction or operation/maintenance activities. Drainages, streams, and wetlands would remain in their currently-functioning state and would not be affected.

4.3 Geology and Minerals

4.3.1 Indicators and Methods

The primary indicator for geology and minerals resources is the number and type of claims in the project area disturbance footprint.

4.3.2 Proposed Action

Construction

The transmission facilities (i.e. Robinson Summit Substation, Falcon Substation expansion, and transmission and telecommunication facilities) would be located on Quaternary basin-fill deposits, Tertiary volcanics, Permian to Ordovician shallow marine sedimentary deposits, and Precambrian basement rocks. The transmission line facilities would cross up to 9 different mountain ranges and 11 different valleys. The construction of the transmission line facilities could locally alter surface topography.

There are presently no authorized mining claims, geothermal leases, coal authorizations, solar energy and wind ROWs, or oil shale leases present within 2 miles of the transmission facilities that could be impacted. There are 26 active oil and gas leases and 4 mining districts located within the same township, range, and section of the transmission facilities. The impacts to geology and minerals from the construction of the Proposed Action would be negligible.

Operations, Maintenance, and Abandonment

Access roads may actually increase accessibility to existing and any future authorized mining claims, geothermal leases, solar energy and wind ROWs, and oil shale leases. The anticipated level of impacts to geology and minerals from the operations and maintenance of the transmission facilities would be negligible.

4.3.2.1 Mitigation

Additional mitigation measures are not required.

4.3.2.2 Unavoidable Adverse Impacts on Geology and Minerals

Slight topographic modifications would cause minor unavoidable impacts on geology. There would be no unavoidable adverse impacts to mineral resources.

4.3.2.3 Irreversible and Irretrievable Commitments of Resources

The commitment of the proposed ROWs related to the Proposed Action could affect access to future mineral production at currently unknown locations near the proposed ROWs.

4.3.2.4 Relationship of Short-term Uses and Long-term Productivity

There currently are no known effects to geologic formations or long-term mineral resource productivity due to the construction and operation of the facilities in the proposed ROWs.

4.3.3 Action Alternative

Construction

Due to the relative similarity of the two action alternatives with regard to geologic resources, impacts under the Action Alternative would be the same as those discussed for the Proposed Action.

There are no authorized mining claims, oil and gas leases, coal authorizations, solar energy and wind ROWs, or oil shale leases present within 2 miles of the Action Alternative that could be impacted. The anticipated level of impacts to geology and minerals would be negligible for construction of the Action Alternative.

The anticipated level of impacts to geology and minerals would be long-term and minor for the construction of the Action Alternative.

Operations, Maintenance, and Abandonment

The anticipated level of impacts to geology and minerals from the operations, maintenance, and abandonment of transmission facilities and associated access roads would be negligible.

4.3.3.1 Mitigation

Additional mitigation measures are not required.

4.3.3.2 Unavoidable Adverse Impacts on Geology and Minerals

Unavoidable adverse impacts would be the same as for the Proposed Action.

4.3.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources would be essentially the same as for the Proposed Action.

4.3.3.4 Relationship of Short-term Uses and Long-term Productivity

Relationships of short-term uses and long-term productivity would be essentially the same as for the Proposed Action.

4.3.4 No Action Alternative

The No Action Alternative would result in no effect on geology and mineral resources at or near the proposed project.

4.4 Paleontological Resources

4.4.1 Indicators and Methods

The analysis of impacts to paleontological resources is based on a project-specific paleontological resources assessment that included a literature review of known resources, field survey, and assignment of paleontological sensitivity based on sediments. The following indicators were considered when analyzing potential impacts to paleontology:

- Known paleontological resources
- Proximity to geologic strata with potential to contain paleontological resources
- Depth of excavations associated with project components

Impacts to specific paleontological resources are not presented, as paleontological resources are generally located by active discovery during surveys, by chance during man-made disturbances, by exposure due to erosion, or other means. Known paleontological resources were reviewed and used to determine potential paleontological sensitivities as presented in **Section 3.4**.

4.4.2 Proposed Action

Construction

The Robinson Summit Substation would permanently disturb approximately 108 acres. Excavation would be up to 100 feet below surface. The Falcon Substation expansion would disturb 7 acres. The construction areas for the transmission line facilities would be 200 - 600 feet wide, depending on local terrain and topography conditions, with structures spaced approximately 900 to 1,600 feet apart. The structure footings would each be up to 12 feet in diameter and up to 30 feet in depth. Fiber optic regenerating stations associated with the transmission facilities would measure 30 by 40 feet within the ROW.

There is high potential (Reynolds 2007) for encountering North American Land Mammal Age mammal fossils in the surface Miocene sandstones during construction of the Robinson Summit Substation. Excavation depths are not relevant as the significant paleontological resources, if present, would likely be encountered at surface levels. There is low potential for encountering paleontological resources at the Falcon Substation expansion area (BLM 2001a). Impacts to paleontological resources in this area would be negligible.

Potential impacts from the construction of the transmission line facilities over areas with potential for paleontological resources would be minimized by spanning most areas under the transmission line and disturbing relatively small areas with the support structures. Impacts to paleontological resources would be minor along the transmission line segments. If paleontological resources were encountered during construction activities related to the transmission facilities, mitigation measures described in **Section 4.4.2.1** would apply.

Operations, Maintenance, and Abandonment

No additional impacts to paleontological resources would occur as a result of operations, maintenance, or abandonment of the transmission line facilities.

4.4.2.1 Mitigation

1. Paleontologists may make the determination, based on accumulation of information being learned from inspection and the evaluation of spoil piles and previous grading within areas of high sensitivity, that areas formerly determined high potential are actually low or undetermined where monitoring may be reduced.
2. Upon encountering a large deposit of bone, salvage of bone will be conducted with additional field staff and in accordance with modern paleontological techniques.
3. Fossils collected during the project will be prepared to a reasonable point of identification.
4. A report documenting the results of the monitoring and salvage activities and the significance of the fossils will be prepared.
5. Fossils collected during this work, along with the itemized inventory of these specimens, will be deposited in a museum repository for permanent curation and storage.

4.4.2.2 Unavoidable Adverse Impacts on Paleontological Resources

There would be no unavoidable adverse impacts to paleontological resources.

4.4.2.3 Irreversible and Irretrievable Commitments of Resources

Paleontological resources discovered during construction activities would be removed and this would be an irreversible commitment of these resources. However, these resources would be curated and available for study and/or exhibit providing a beneficial commitment of these resources.

4.4.2.4 Relationship of Short-term Uses and Long-term Productivity

In the short term, paleontological resources encountered during construction activities could be destroyed or degraded, however implementation of the PRIMP would mitigate these potential impacts. There would not be impacts to long-term productivity.

4.4.3 Action Alternative

Construction

These impacts would be essentially the same as those described under the Proposed Action, except for Segment 10.

Potential for encountering paleontological resources along a portion of Segment 10 would be high below surface as it contacts Pliocene sediments. If paleontological resources were encountered during construction activities, mitigation measures described in **Section 4.4.2.1** would apply.

Operations, Maintenance, and Abandonment

No additional impacts to paleontological resources would occur as a result of operations, maintenance, or abandonment of the transmission facilities.

4.4.3.1 Mitigation

The mitigation would be the same as described in **Section 4.4.2.1**.

4.4.3.2 Unavoidable Adverse Impacts on Paleontological Resources

There would be no unavoidable adverse impacts to paleontological resources.

4.4.3.3 Irreversible and Irretrievable Commitments of Resources

Paleontological resources would be removed during construction activities and this would be an irreversible commitment of these resources. However, these resources would be curated and available for study and/or exhibit providing a beneficial commitment of these resources.

4.4.3.4 Relationship of Short-term Uses and Long-term Productivity

In the short term, paleontological resources encountered during construction activities could be destroyed or degraded, however implementation of the mitigation measures would minimize these potential impacts. There would not be impacts to long-term productivity.

4.4.4 No Action Alternative

Under the No Action Alternative, there would be no impacts to paleontological resources.

4.5 Soils

4.5.1 Indicators and Methods

Indicators used to assess potential impacts to soil resources include the following:

- Acres of soil disturbance and acres to be reclaimed
- Suitability of growth medium for reclamation

4.5.2 Proposed Action

4.5.2.1 Physical Changes to Soil Resources

Surface disturbance and removal of soil resources for replacement during reclamation activities would result in direct impacts within the project area. Physical and chemical changes to the soil would be expected to be long-term and minor and would occur by mixing during initial salvage operations and when placed in stockpiles for future reclamation use. Soil that is restored to disturbed areas immediately after construction would begin to conform to more natural conditions. Soil that is stored for extended periods of time in stockpiles for future reclamation use would continue to be affected by compaction and lack of aeration.

Microorganisms such as bacteria and fungi are important in the decomposition of biological materials and the formation and improvement of soil itself (AEHS 2002). Natural processes, such as dust blowing on the site from other areas, would re-inoculate the site with these microorganisms. Root penetration and the development of a rhizosphere environment are also thought to perpetuate the growth of microorganisms (AEHS 2002). Microbiotic soil crusts are recognized as an important aspect of soil quality (BLM 2008a) and damage to these crusts

would occur during disturbance, reducing soil quality by increasing erosion potential and changing the properties of the associated soil.

Direct physical impacts to soil resources include compaction and crushing of the soil and soil crust by equipment during salvage, and stockpiling during construction and subsequent replacement during reclamation. Physical effects of soil compaction would be short-term, minor to moderate, and include reduced permeability and porosity, damage to microbiotic crusts, increased bulk density, decreased available water holding capacity, increased erosion potential, reduced gaseous exchange, and loss of soil structure.

4.5.2.2 Productivity

Productivity is defined as the rate of vegetation production per unit area, usually expressed in terms of weight or energy. Primary factors that influence natural soil productivity include length of growing season, climate and soil depth, and production/fertility. Soil erosion, combined with other impacts from disturbances such as soil compaction, can reduce soil quality and soil productivity (USDA 2007b). As identified in the Ely RMP (BLM 2008a), soil productivity and soil quality are generally stable, but some areas associated with management actions (such as weeds, fire, livestock, recreation, travel, etc.) show declines.

Production and fertility of the stockpiled growth medium would be directly affected by mixing of the soils during salvage operations. Incorporation of slash and vegetative materials into the growth medium during stripping (i.e., vertical mulch) would increase the organic matter content of the material and elevate the production potential. This natural mixing of soils with low coarse fragment content together with soils of high coarse fragment content would serve to dilute the coarse fragment content and is likely to increase the production potential of the growth medium.

The total volume of growth medium available for reclamation activities would come from salvage of material from disturbed areas. The quality of these mixed salvage soils is likely to be similar to or slightly better than the characteristics of the individual soils prior to disturbance.

Recovered soils available would be salvaged from all disturbance areas, including permanently disturbed areas that would not be reclaimed, and would be expected to provide suitable depth to achieve adequate and uniform coverage for seedbed preparation and reclamation. Growth medium suitability parameters have been identified in **Chapter 3** and revegetation species would meet the criteria set by the BLM.

Soil compaction can contribute to soil erosion and reduced soil productivity. Soils in the area of the Proposed Action characteristically have a high percentage of coarse fragments, which would provide moderate support for heavy equipment by reducing the amount of compression on the underlying soils. Productivity loss due to compaction influences would be negligible to minor along the transmission facilities with implementation of the Proposed Action.

4.5.2.3 Soil Loss/Erosion

A portion of the soils within the Proposed Action area would be physically lost during salvage and replacement operations through mechanical and erosion effects. Soil mixing and loss of some soil would also occur during final growth medium distribution and completion of reclamation.

Soil erosion potential is determined based on physical soil characteristics, k-factor rating, and slope. Areas located on steep slopes are inherently susceptible to erosion. Slope values for reclaimed areas under the Proposed Action would tend to have few steep areas. The majority

of reclaimed areas identified in the Proposed Action area would incorporate a generally flat to gently sloped surface during regrading and reclamation activities.

Erosion would occur in areas of new or increased surface disturbance. Potential for erosion would be increased on disturbed areas after soil salvage operations due to removal of the vegetative cover and the loss of surface soil structure. Erosion of growth medium after redistribution on regraded sites would also have a greater potential until the soil is stabilized by successful revegetation. Soil characteristics identified in **Section 3.5.4** suggest that disturbed areas would experience moderate to high erosion potential, either by wind or water. Wind erosion hazard is expected to be low to moderate due to characteristic soil features, such as the high percentage of coarse fragments throughout the soil profiles of many soils in the project area (USDA 2007c). Windblown dust would result from disturbance of fine-textured soils during construction activities and until completion of reclamation.

4.5.2.4 Direct and Indirect Effects on Soils

Potential disturbance impacts to soil resources for the various segments and components of the transmission facilities are listed in **Table 4.5-1**.

TABLE 4.5-1 ACRES OF SOIL DISTURBANCE FOR THE PROPOSED ACTION

PROJECT ELEMENTS	ACRES OF SOIL RESOURCES		
	POTENTIALLY DISTURBED (200–foot ROW for Transmission Line)	SHORT-TERM DISTURBANCE/ RECLAIMED	LONG-TERM DISTURBANCE*
Segment 6C	2,499	2,313	186
Segment 8	1,359	1,338	21
Segment 9A	199	158	41
Segment 9B	263	259	4
Segment 9D	472	324	148
Segment 11	909	646	263
Other Line Components (e.g. Access roads outside of ROW, Fiber-Optic Regeneration Sites, Electric Power Service, and Material/Construction Yards)	1,346	1,346	4
Robinson Summit Substation, includes 50-foot wide access road	149	41	108
Falcon-Gonder Loop-in	9	>8	<1
Falcon Substation Expansion	7	0	7

*Long-term transmission line structure disturbance area or facility footprint area. For transmission line structures, calculations evaluated flat and rough terrain based upon USGS map level review, 0.1 acre for flat terrain and 1.0 acre for rough terrain of long-term disturbance per structure. Also includes 1.0 acre for structures in desert tortoise habitat and permanent access roads in desert tortoise habitat.

The majority of the impacts would be temporary, although the actual footprints of the structures and the substations would result in permanent impacts to soil resources. Cutting of trees and removal of vegetation may occur, but downed vegetation and undisturbed low vegetation would be left in place within this disturbance corridor, where practicable, to serve as soil protection, erosion control, and vertical mulch. Vegetation would only be cleared to the extent necessary, minimizing impacts to soil resources.

Construction

At each transmission line structure site, typical temporary work areas would be approximately 1 acre in flat terrain (0.1 acre permanent disturbance) and 2.0 acres in steep terrain (1.0 acres permanent disturbance), but the size may vary depending upon topography. When practicable, access within the work area would be via overland travel, with minimal to no grading required in the temporary work areas. Soil resources would not be salvaged from temporary work areas unless these areas would be graded, then soil would be salvaged from the areas to be graded for reuse during reclamation. Soil would typically not be salvaged from areas to be permanently disturbed.

Work areas for tensioning equipment and pulling equipment would be approximately 200 x 700 feet (3.2 acres) and would be required about every 2-4 miles, depending on terrain and resource issues, as well as length of conductors. These locations could require larger, less symmetrical pulling and tensioning sites for construction that occurs in steep or rough terrain.

After project construction, all work areas identified as temporary disturbance on the structure location drawings would be reclaimed and salvaged topsoil would be respread during reclamation. No new off-site borrow areas would need to be developed specifically for construction of the transmission line facilities.

With implementation of growth medium salvage and reuse practices, soil conservation measures, BMPs, and other proposed operating procedures, the impacts to the temporarily disturbed acres of this resource would be site-specific, temporary, and moderate. The remaining acres would be reclaimed to the extent possible except for the permanently disturbed areas taken out of productivity (i.e., Robinson Summit Substation, Falcon Substation Expansion, transmission structure foundations and anchors).

Operations, Maintenance, and Abandonment

Long-term periodic maintenance to the transmission line facilities may require access to the linear corridors and substations via existing roads and may result in temporary disturbance; however, this effect would be minor to negligible.

4.5.2.5 Mitigation

1. Ensure that soils are salvaged and there is placement of growth medium on sites ready for immediate reclamation to minimize the need for stockpiling the material. The underlying subsoil material will remain in place or be used elsewhere.

2. Design access roads to fit the terrain by avoiding unstable slopes and highly erodible conditions to the extent practicable to protect soils and prevent excessive sedimentation. These protective measures include, but are not limited to, mulch, matting, or slope length shortening (State of Nevada 1994).

3. When soils are wet, construction, operation, and maintenance activities will be restricted so as to properly support construction or maintenance equipment (i.e., when heavy equipment creates ruts in excess of 4 inches deep over a distance of 100 feet or more in wet or saturated soils). This standard will not apply in areas with silty soils, which easily form depressions even in dry weather. Where the soil is deemed too wet, one or more of the following measures will apply:

   - Re-route all construction or maintenance activities around the wet areas so long as the route does not cross into sensitive resource areas.

- If wet areas cannot be avoided, implement BMPs for use in these areas during construction and improvement of access roads, and their subsequent reclamation. This includes use of wide-track or balloon-tire vehicles and equipment, or other weight dispersing systems approved by the appropriate resource agencies. It also may include use of geotextile cushions, pre-fabricated equipment pads, and other materials to minimize damage to the substrate where determined necessary by resource specialists.
- Limit access of construction equipment to the minimum amount feasible, remove and separate topsoil in wet or saturated areas and stabilize subsurface soils with a combination of one or more of the following: grading to dewater problem areas, utilize weight dispersion mats, and maintain erosion control measures such as surface filling and back-dragging. After construction is complete, re-grade and re-contour the area, replace topsoil, and reseed to achieve the required plant densities.

4. Vegetation will be cleared and the construction ROW will be graded only to the extent necessary. Vegetation within the ROW will be cut or scraped at or near the ground level. Except for the area to be excavated, the vegetative root system and subsurface soils will be left intact to the greatest extent practicable. This will help stabilize the soils within the ROW during construction. ROW boundaries will be clearly staked or flagged and no disturbance would be allowed beyond the limits.

4.5.2.6 Unavoidable Adverse Impacts on Soils

Native soil conditions on disturbed areas would be lost due to the breakdown of soil structure, adverse effects to microorganisms, and discontinuation of natural soil development.

4.5.2.7 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitment of resources includes the disturbance of soil resources with implementation of the Proposed Action. The permanent disturbances associated with the unreclaimed portions of the ROWs would produce an irreversible commitment of soil resources disturbed by these features.

An irretrievable commitment of soils salvaged and utilized in reclamation would initially demonstrate a decrease in infiltration and percolation rates, decrease in available water holding capacity, and loss of organic matter. These effects would slowly be restored by natural soil development processes.

4.5.2.8 Relationship of Short-term Uses and Long-term Productivity

Reclamation of the temporarily disturbed areas would return these soils to long-term productivity by being utilized as growth medium in reseeded areas, while unreclaimed areas would be permanently eliminated from potential production.

4.5.3 Action Alternative

The general construction activities and impacts to soil resources with implementation of the Action Alternative would be the same as those for the Proposed Action, with variations in location (soil types) and acreages. If Segment 10 were utilized, it would require additional disturbances to soil resources as this alternative component of the Action Alternative would be 10 miles longer. **Table 4.5-2** shows a breakdown of the disturbance areas.

TABLE 4.5-2 ACRES OF SOIL DISTURBANCE FOR THE ACTION ALTERNATIVE

PROJECT ELEMENTS	ACRES OF SOIL RESOURCES		
	POTENTIALLY DISTURBED (200-foot ROW for Transmission Line)	SHORT-TERM DISTURBANCE/ RECLAIMED	LONG-TERM DISTURBANCE*
Segment 6C	2,499	2,313	186
Segment 8	1,364	1,338	21
Segment 9A – Alternative	203	162	41
Segment 9B	261	257	4
Segment 9C	159	142	17
Segment 9D	456	308	148
Segment 10 – Alternative	1,115	899	216
Segment 11	938	671	267
Other Line Components (e.g. Access Roads outside of ROW, Fiber-Optic Regeneration Sites, Electric Power Service, and Material/Construction Yards)	Same As Proposed Action		
Robinson Summit Substation, includes 50-foot wide access road			
Falcon-Gonder Loop-in			
Falcon Substation Expansion			

*Long-term transmission line structure disturbance area or facility footprint area. For transmission line structures, calculations evaluated flat and rough terrain based upon USGS map level review, 0.1 acre for flat terrain and 1.0 acre for rough terrain of long-term disturbance per structure. Also includes 1.0 acre for structures in desert tortoise habitat and permanent access roads in desert tortoise habitat.

After project construction, all work areas identified as temporary disturbance on the structure location drawings would be reclaimed and salvaged topsoil would be respread during reclamation. No new off-site borrow areas would need to be developed for construction of the transmission line facilities.

With implementation of growth medium salvage and reuse practices, soil conservation measures, BMPs, and other proposed operating procedures, the impacts to the temporarily disturbed acres of this resource would be site-specific, temporary, and moderate. The remaining acres would be reclaimed to the extent possible except for the permanently disturbed areas taken out of productivity (i.e., Robinson Summit Substation, Falcon Substation expansion, and transmission structure foundations and anchors).

Operations, Maintenance, and Abandonment

Impacts to soil resources for the Action Alternative would be similar to those described in **Section 4.5.2.4**, although location (soil types) and acreage impacts would be different.

4.5.3.1 Mitigation

Mitigation measures necessary with implementation of the Action Alternative would be similar to those identified in the Proposed Action.

4.5.3.2 Unavoidable Adverse Impacts on Soils

The unavoidable adverse physical impacts to soil resources would be similar to those identified in the Proposed Action (**Section 4.5.2.6**).

4.5.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitment of resources includes the disturbance of soil resources with implementation of the Action Alternative. Numerous acres of soil resources would be disturbed with implementation of the Action Alternative. The permanent disturbances associated with the unreclaimed portions of the ROWs would produce an irreversible commitment of soil resources disturbed by these features.

An irretrievable commitment of soils salvaged and utilized in reclamation would initially demonstrate a decrease in infiltration and percolation rates, decrease in available water holding capacity, and loss of organic matter. These effects would slowly be restored by natural soil development processes.

4.5.3.4 Relationship of Short-term Uses and Long-term Productivity

Short-term use and long-term productivity would be similar to the Proposed Action (**Section 4.5.2.8**).

4.5.4 No Action Alternative

Under the No Action Alternative, local effects to soil resources from the construction of these facilities would be eliminated.

4.6 Air Resources

Air quality impacts associated with the project are assessed for the construction and operational phase. The primary indicators of air quality impacts will be the emissions of air pollutants, the federal ambient air quality standards (NAAQS), and the Nevada state ambient air quality standards (AAQS) documented in **Section 3.6.2** that define allowable ambient concentrations of potential air pollutants. Indicators include:

- Emissions in tons per year for each type of regulated pollutant
- Compliance with NAAQS and Nevada AAQS

4.6.1 Proposed Action

Construction

The construction activities would generate air pollutant emissions. Sources of dust emissions would include the earth work for substations, construction yards, transmission line structures, and access roads; wind erosion from those areas where vegetation would be removed; active earth moving or ground breaking activities including digging, blasting, and ground contouring; the concrete batch plants and activities associated with setting foundations for substation structures and transmission line structures; construction traffic on unpaved roads, and potentially tracked out soil material resuspended by paved road traffic. Another source of air pollutant emissions would be exhaust from internal combustion engines associated with the project (mobile construction equipment, stationary engines including generators and construction support equipment, and emissions from vehicles for workers and deliveries to and from the project site).

Robinson Summit Substation construction and the expansion of the Falcon Substation would include most of the emission types described above. Little public impact would be expected near either substation because of the lack of regular human activity in the vicinity of those areas. The transmission facilities would be within, along, or adjacent to the SWIP Utility

Corridor to the Harry Allen Substation. The only places under the Proposed Action where the facilities would be constructed within 3 miles of a residence or area of regular human activity would be on the southern portion. The southern portion of Segment 9D and the northern portion of Segment 11 are adjacent to the Coyote Springs residential and commercial development which has features as close as 1 mile from the transmission line facilities. Further south, Segment 11 would also be constructed within 2 miles of the Moapa Indian Reservation.

Construction yards or staging areas would generally be located on private property. They would produce emissions from wind erosion where soils are disturbed, and dust and combustion exhaust from material movement and management. The three identified construction yards would be located on property already used for industrial purposes, except for the southern most yard that would occur on public land administered by the BLM, within the already permitted ROW area around the existing Crystal Substation. The Ely yard is presently a working rock pit, so no increase in impacts would be expected in any areas of regular human activity, including at the nearest residence one tenth of a mile away. Similarly, little to no increase in air pollutant impacts would be expected near the Caliente yard on the old golf course grounds, where the nearest residences would be three tenths of a mile away across the highway. There are no residences or areas of regular human activity near the third yard at the NV Energy's Crystal Substation.

The equipment used to construct the support structures and install the transmission line facilities would emit exhaust and generate dust. That equipment is expected to include a helicopter for placing structures and pulling lines, trucks to string and tension line components, cranes, excavators, bucket trucks, bulldozers, scrapers, concrete batch plants, concrete trucks, water trucks, and other equipment typically associated with medium duty construction activity. Employees commuting in vehicles to the work site and trucks delivering equipment would generate exhaust and some dust. The equipment used and the number of employees needed would be the same no matter which route (Proposed Action or Action Alternative) was chosen. The construction duration would vary only minimally with the selected alternative, proportional to the linear distance or disturbed acreage.

Table 4.6-1 shows the estimated emissions of criteria air pollutants during the construction process. The most significant contributors to construction emissions would be the exhaust from construction equipment, windblown dust from areas where ground was disturbed, employee commuter tailpipe emissions, and dust generated by the activities of the construction activities. The estimate of dust from exposed ground calculations very conservatively assumes that half of all project areas could be exposed at any one time.

TABLE 4.6-1 CRITERIA AIR POLLUTANT EMISSIONS (TONS/YEAR) OVER THE TWO YEAR CONSTRUCTION DURATION

SOURCE	VOCS	CO	NO_X	PM_{10}	SO_2
Equipment Exhaust	48.9	229.3	829.5	45.2	0.8
Dust Generated by Construction Site Traffic and Heavy Equipment Activity	-	-	-	182.2	-
Windblown Dust from Exposed Ground	-	-	-	1,536.3	-
Commuter Tailpipe Emissions	12.3	130.2	10.0	0.3	0.2
Concrete Batch Plant	-	-	-	4.3	-
Generators	0.6	1.5	3.4	0.5	0.4
TOTAL	**61.8**	**361.0**	**842.9**	**1,768.8**	**1.4**

Those temporary emissions would occur over the 24 month duration of the construction process, across a wide area hundreds of miles long affected by the construction process. Along the transmission line route, active work would not be expected to affect any individual area (other than construction yards or the stationary substations) for more than a number of weeks. The duration of activity building the Robinson Summit Substation would be a little longer. The emissions profile at the Falcon Substation would be expected to resemble that of points along the project's linear component. Given the lack of population or regular human activity near project activity areas, construction impacts would be minor to negligible, with only brief periods when impacts would approach moderate levels in the few areas of regular human activity within a mile of project construction activity.

Operation, Maintenance, and Abandonment

Corona activity on electrical elements in open air could produce limited amounts of gaseous ozone or NOx effluent, on a similar but much smaller scale than thunderstorms which can briefly raise surface ozone concentrations. Heat generating construction equipment including welders and combustion exhaust could also produce minimal quantities of ozone and slightly more ozone precursors. Ozone is naturally occurring in the air, with levels potentially elevated by emissions of gaseous air pollutants and photochemical reactions enhanced by solar radiation. Ozone and NOx levels in the project area are in attainment or unclassified. The emissions resulting from the project would have negligible effects on the local or regional ozone or NOx concentrations.

Sodium hexafluoride (SF_6) would be used as a gaseous dielectric medium in 14 system circuit breakers. Emissions of SF_6 are estimated at a maximum of 14 pounds per year. Atmospheric reactions to those releases would potentially contribute to greenhouse gases by leading to the formation of 167 tons of CO_2 equivalent per year.

Ground disturbance along the ROW access road would be 24 feet wide and would be subject to wind erosion. Maintenance surveys would be expected to result in dust and exhaust emissions from routine checks by vehicles along that linear access road and at the project substation components. Maintenance would be performed as necessary, resulting in emissions types like those described during the construction phase. Maintenance efforts would be intermittent, generally of short duration, and would not approach the level of activity described during the construction phase.

Table 4.6-2 shows the maximum annual criteria air pollutant emissions anticipated during the operational phase. These estimates are based upon the assumption of 2,000 miles of unpaved road travel and 5,000 miles of paved road travel for maintenance surveys and routine maintenance, and heavy equipment maintenance activity at up to one tenth the activity level during construction.

TABLE 4.6-2 CRITERIA AIR POLLUTANT EMISSIONS (TONS/YEAR) DURING THE PROJECT'S OPERATIONAL PHASE

SOURCE	VOCS	CO	NO_X	PM_{10}	SO_2
Equipment Exhaust	4.9	22.9	82.9	4.5	0.1
Dust Generated by Maintenance and Operation Site Traffic	-	-	-	18.2	-
Windblown Dust from Exposed Ground	-	-	-	466.8	-
Commuter Tailpipe Emissions	1.2	13.0	1.0	0.0	0.0
Concrete Batch Plant	-	-	-	0.4	-
Generators	0.1	0.2	0.3	0.1	0.0
TOTAL	**6.2**	**36.1**	**84.2**	**490.0**	**0.1**

Reclamation of impacts during construction would reduce the acreage of exposed (i.e. not vegetated) ground along transmission line facilities created during the construction phase down to an access road, plus 108 graveled acres at the Robinson Summit Substation and 7 more graveled acres than currently disturbed at the Falcon Substation. Total acreage with permanently disturbed ground surfaces potentially opened to wind erosion as a result of this project would be approximately 497 acres under the Proposed Action. That would reduce the acreage with ground disturbance that could potentially cause windblown dust from the construction phase as the project becomes operational. Isolated impacts from dust could persist near the remaining areas where transmission facilities would feature soil disturbances. Mitigation measures described in this section would minimize those emissions. Operation, maintenance, and potential abandonment of the transmission facilities would have negligible direct impacts on air quality.

The Proposed Action would potentially significantly reduce the rate of air pollution emissions per unit of energy regionally by providing a mechanism to bring renewable energy sources to the market. The proposed transmission line facilities would improve the ability for delivering solar, wind, geothermal, or other renewable and potentially non-polluting energy sources to the regional consumer base. That would make those renewable energy options more practical to develop by making the energy they could produce more affordable to deliver, and therefore more realistic alternatives to traditional fossil fuel energy facilities that generate significant quantities of greenhouse gases and contribute to climate change concerns.

Clean Air Act Conformity

The Clean Air Act of 1990 requires federal agencies to ensure their actions conform to the Act's requirements and federally enforceable plans including State Implementation Plans (SIPs). The conformity assessment process ensures that federal agency actions would not cause or significantly contribute to an exceedance of ambient air quality standards, and would not delay timely progress toward compliance with ambient air quality standards in areas where they are not currently being met.

Project construction impacts, described above, would be temporary in nature and minor to moderate in magnitude. Those emissions would not be sufficient to cause any new violations of ambient air quality standards, or to significantly contribute to CO levels or adversely affect plans to attain CO standards in the CO non-attainment area at the southern terminus of the project in Clark County, the only section of the project area that is not currently meeting federal or state ambient air quality standards.

Direct project operational impacts on air quality would be minimal, not adversely affecting compliance or plans to attain compliance anywhere in the project area. Indirectly, the Proposed Action would support plans to attain ambient air quality standards in areas not yet attaining those standards, and also enhance regional air quality by supporting practical delivery of renewable energy onto the local energy grid.

4.6.1.1 Mitigation

Construction:

1. Construction staging areas will not be placed within 500 feet of residences.
2. Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard, which is the distance from the top of the truck bed in the material being hauled.
3. Sweep streets of visible soil material carried onto adjacent paved public streets.

Mobile and Stationary Source Controls:

1. Reduce construction-related trips of workers and equipment, and unnecessary idling from heavy equipment.
2. Prohibit any tampering with engines to increase horsepower, and require continuing adherence to manufacturer's recommendations.
3. If practicable, lease new, clean equipment meeting the most stringent of applicable Federal or State Standards.
4. Require low sulfur diesel he1 (4 5 parts per million), if available.
5. Locate diesel engines, motors, and equipment as far as possible from residential areas and sensitive receptors (schools, daycare centers, and hospitals).

4.6.1.2 Unavoidable Adverse Impacts

The Proposed Action would result in temporary construction impacts of fugitive dust and engine exhaust and limited long-term air quality impacts from emissions of air pollutants resulting from maintenance operations and conductors as described above.

4.6.1.3 Irreversible and Irretrievable Commitments of Resources

The irreversible commitment of air resources would be limited to exhaust emissions associated with construction of the project, and to a much lesser degree with the maintenance and operation of the project components. Those emissions would represent a negligible, temporary emission of greenhouse gases, and ongoing emissions of minimal greenhouse gases or greenhouse gas precursors like SF_6.

The Proposed Action would potentially allow NV Energy to bring to market low or zero emissions renewable energy sources in place of traditional fossil fuel fired energy sources that would emit greenhouse gases. Though the project would help reduce future climate change,

the potential phasing in of renewable energy options possible by this project would have negligible effect on climate change. On a global scale, greenhouse gases previously emitted, or to be emitted in the future, would continue to have the potential to affect the climate well into the future.

4.6.1.4 Relationship of Short-term Uses and Long-term Productivity

There would be short-term air quality impacts from construction of the facilities, which would not affect the long-term productivity characteristics or air quality conditions of the area. The contribution of the project to the local and regional power grid would potentially support low or non-impacting renewable energy development, which could aid the local economy without adversely affecting local or regional air quality.

4.6.2 Action Alternative

The Action Alternative would result in the same types of impacts described above, along a slightly different linear route. The Action Alternative route would be along the SWIP Utility Corridor, with potential alternative deviations described as Segment 9A or Segment 10 options. The differences in emissions from those reported under the Proposed Action would be less than 5 percent. The Action Alternative or its alternative deviations would not bring the project in any closer proximity to areas of regular human activity, nor would it result in any appreciable difference in project air quality impacts.

4.6.2.1 Mitigation

Mitigation would be similar to that described under the Proposed Action.

4.6.2.2 Unavoidable Adverse Impacts

The Action Alternative would result in temporary construction impacts of fugitive dust and engine exhaust and limited long-term air quality impacts from emissions of air pollutants resulting from maintenance operations and conductors as described above.

4.6.2.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources would be similar to that described under the Proposed Action.

4.6.2.4 Relationship of Short-term Uses and Long-term Productivity

Short-term uses and long-term productivity would be similar to that described under the Proposed Action.

4.6.3 No Action Alternative

The No Action Alternative would not result in any construction or operational air emissions associated with the ON Line Project. The only changes in air quality impacts in the local area would come from future projects or alternative uses of the land. However, if the proposed transmission line facilities were not built, it would be more difficult to bring renewable energy projects in eastern Nevada to the market. The cost of delivering renewable energy would remain prohibitive without the proposed transmission line, and NV Energy's and the state's goal for renewable energy as a significant component in the regional energy market would be challenged. The expected electricity demand would need to be satisfied from other sources, including potentially from traditional fossil fuel fired power plants that could significantly contribute to ambient air quality impacts and greenhouse gas buildup potentially accentuating climate change concerns.

4.6.4 Climate Change

Climate change analyses are comprised of several factors, including greenhouse gas (GHG) emissions, land use management practices, the albedo effect, etc. The tools necessary to quantify specific climatic impacts of those factors are presently unavailable. As a consequence, impact assessment of specific effects of anthropogenic activities cannot be determined. Additionally, specific levels of significance have not yet been established. Therefore, climate change analysis for the purpose of this document is limited to accounting and disclosing of factors that contribute to climate change. Qualitative evaluation of potential contributing factors is included where appropriate and practicable. GHG emissions are estimated with and without the Proposed Action. An increase in unsequestered GHG emissions would lead to incrementally increased GHG concentrations in the atmosphere. This in turn would contribute to further manifestations of climate change.

4.6.4.1 Proposed Action

The construction effort associated with the Proposed Action would emit greenhouse gases during the construction period, which could last up to 24 months, primarily from the exhaust of equipment and transportation of employees and materials. **Table 4.6-3** provides an estimate of cumulative CO_2 emissions associated with the construction phase of the project. Those would be one-time emissions, which would cease when the construction phase is completed.

TABLE 4.6-3 ESTIMATED GREENHOUSE GAS AIR EMISSIONS (TONS/YEAR) OVER THE TWO YEAR CONSTRUCTION DURATION

EMISSION	TONS
CO_2	9.791
CO	361
NOx	843
PM	1,769
SO_2	1
VOC	62

The operational phase would include SF_6 loss from the substation condensers that would be expected to result in an additional 167 tons of CO_2 equivalent per year in the atmosphere. Maintenance activities would include vehicular travel and construction activities which would release greenhouse gases. **Table 4.6-4** provides an estimate of annual CO_2 emissions estimated per year for the operational phase of the project. The CO_2 emission calculations assume 5,000 miles of paved road travel, 2,000 miles per year of unpaved road travel, and maintenance/construction activity at one tenth of the level during the project's construction phase.

TABLE 4.6-4 ESTIMATED GREENHOUSE GAS AIR EMISSIONS (TONS/YEAR) DURING THE PROJECT'S OPERATIONAL PHASE

EMISSION	TONS
CO_2	1,064
CO	36
NOx	84
PM	339
SO_2	0.1
VOC	6

4.6.4.2 Action Alternative

Climate change impacts would be essentially the same as those described under the Proposed Action.

4.6.4.3 No Action Alternative

For NV Energy to comply with the orders of the PUCN and supply adequate power to their customers without increasing their dependence on purchased power, they must increase their generating capacity (see **Sections 1.2 and 1.3**, Purpose and Need). At the same time, they have been charged with increasing their system-wide ratio of renewable power sources to fossil fuel sources.

The No Action Alternative describes what could occur if the ON Line Project is not developed. Essentially NV Energy would continue to be obligated to supply power to their customers, depending on load demands. They would have limited ability to shift power from northern Nevada to demand areas in southern Nevada, and no ability to bring potential renewable energy resources from east central or southeastern Nevada to the market. NV Energy would be challenged to achieve the mandated higher percentage of renewable energy in the state's portfolio by 2025.

Renewable Energy Resources

The Proposed Action does not specifically include construction of renewable, low GHG emission energy generating plants, but construction of the proposed transmission line facilities would provide the infrastructure to distribute energy from renewable resource plants in the area and reduce overall costs of developing those facilities. NV Energy has issued a request for proposals to develop renewable energy that can be affordably delivered to the Nevada market.

4.6.4.4 Mitigation

The proposed transmission line facility's potential to bring renewable energy to the market represents an air quality mitigation measure, minimizing GHG emissions while meeting state and regional energy needs and supporting efforts to meet the requirements of the Nevada Renewable Portfolio Standard. No additional mitigation measures beyond those described are required.

4.7 Vegetation, Including Noxious and Non-Native, Invasive Weeds and Special Status Plants

Both permanent and temporary impacts would occur as a result of the project. Permanent impacts would occur in construction ROWs where project elements would be built, resulting in vegetation loss. Temporary impacts to vegetation would also occur during the construction phase, but they would be short-term and would be reclaimed upon completion of construction.

4.7.1 Indicators and Methods

As described in **Section 1.9.2**, indicators for vegetation resources focus on acreage of vegetative community disturbance. For noxious and non-native, invasive weeds, indicators focus on the acreage of disturbed areas and the proximity of existing noxious and non-native, invasive weeds to the disturbance areas. For special status plants, indicators focus on the acreage of disturbance of species habitat, as well as the potential for individual take of special status species. The following factors were considered in determining an effect on vegetation resources, including communities, noxious and non-native, invasive weeds, and special status plants:

- Magnitude of disturbance or loss
- Biological importance of the resource
- Uniqueness or rarity of the resource
- Federal, state, and/or local protection status of the resource
- Susceptibility of the resource to disturbance

4.7.2 Proposed Action

Direct permanent impacts on vegetation resources would occur due to construction of the transmission line facilities. Temporary impacts would occur during the construction phase due to construction activities, access road usage, plus impacts at other pulling, staging, and temporary use areas located outside the right-of-way on private lands. **Table 4.7-1** shows the estimated acreage of permanent disturbance within the substation footprints and along the transmission line segments of the Proposed Action, by vegetative community.

TABLE 4.7-1 LONG-TERM ACREAGE OF IMPACT TO VEGETATIVE COMMUNITIES ASSOCIATED WITH THE PROPOSED ACTION[1]

VEGETATIVE COMMUNITY AND/OR LAND TYPE	PROJECT ELEMENT							
	ROBINSON SUMMIT SUB-STATION *	FALCON SUB-STATION	TRANSMISSION LINE STRUCTURES ONLY (CALCULATIONS INCLUDE 0.1 ACRE DISTURBANCE FOR EACH STRUCTURE, 5 STRUCTURES PER MILE, EXCEPT WITHIN DESERT TORTOISE HABITAT)					
			6C	8	9A	9B	9D	11
Wyoming Sagebrush	98.1	0	21.7	4.1	0	0	0	0
Creosote Bush	0	0	0	0	3	0	78.0	144.0
Pinyon-Juniper	6.1	0	16.5	0	0	0	0	0
Greasewood	0	7.0	7.0	0	0	0	0	0
Douglas Rabbitbrush	0	0	0.6	12.8	0	0	0	0
Joshua Tree	0	0	0	9.7	0	0.5	0	0
Black Sagebrush	3.3	0	1.8	1.1	0	0	0	0
Winterfat	0	0	3.4	0.3	0	3.3	0	0
Burn/Fire-affected	0	0	0	0	0.9	0.7	0	9
Blackbrush	0	0	0	0	3.2	0	0	0
Rubber Rabbitbrush	0	0	0.4	0	0	0	0	0
Desert Playa	0	0	0	0	0	0.9	0	0
Disturbed	0	0	0	0	0	0	0	0
Riparian	0	0	0	0	0	0	0	0
Basin Big Sagebrush	0.1	0	0.2	0	0	0	0	0

[1] Values less than 0.1 acre are not reported.
*includes access road and Falcon-Gonder Loop-in acreage

Permanent impacts (i.e. substation, actual structure location footprints, and access roads within desert tortoise habitat) would likely be long-term but minor, as the vegetative communities present within each of the project elements are common and widespread throughout the area. BMPs would be implemented to control and minimize the spread of noxious and non-native, invasive weeds, and site-specific surveys would be completed for special status plants prior to construction within suitable habitats to avoid direct effects. Indirect effects due to construction would be temporary and minor as many of the disturbed acres would be seeded and reclaimed.

Construction

Permanent impacts to vegetative communities resulting from construction of the Robinson Summit Substation include 98 acres of Wyoming sagebrush, 6 acres of pinyon-juniper, and 3 acres of black sagebrush. These communities are common and widespread, and typical of higher-elevation areas such as the Robinson Summit Substation location.

Permanent impacts to vegetative communities resulting from construction of the Falcon Substation expansion would include 7 acres of greasewood-dominated vegetation. This community is common and widespread in the Boulder Valley area.

Permanent impacts to vegetative communities resulting from construction of transmission line facilities would occur from the installation of transmission line support structures and associated facilities, including access roads within desert tortoise habitat. Since exact structure locations have not been determined at the time of the DSEIS, for analysis purposes it was assumed that structures would be located every 1,050 feet along the proposed corridors, or approximately five structures per mile. In relatively flat areas, a total of 0.1 acre of permanent disturbance per structure was assumed, except within desert tortoise habitat where 1.0 acre was used. Permanent impacts from structure locations to vegetation communities are slightly underestimated in **Table 4.7-1**, since a total of 1.0 acre of permanent disturbance per structure should be assumed for areas where steeper and/or rough terrain is present.

As indicated in **Table 4.7-1**, vegetative communities most affected by transmission facilities primarily include Wyoming sagebrush, pinyon-juniper, Douglas rabbitbrush, Joshua tree, and creosote bush. Winterfat communities, a sensitive vegetation type, would be impacted in the largest amounts within Segments 6C and 9B. Effects to these overall vegetation communities are considered minor, as they are common and widespread throughout the project area. It should be noted that, while wetland and riparian areas are present within the Proposed Action alignment, these communities would be spanned by transmission line facilities and would not be impacted (see **Section 4.2.2.2)**. Permanent impacts are limited to the ground-level structure foundation and anchor areas.

Indirect effects and short-term impacts as a result of construction of the transmission line facilities would be associated with temporary construction areas for new structure locations, access roads to the ROW and within the ROW (outside desert tortoise habitat) to be used during the construction phase, wire stringing sites, and other temporary use areas located inside and outside the ROW, including some areas to be situated on private lands. The effects would occur in the same vegetative communities as the direct effects. Existing roads would be employed to a great extent, and improved where necessary to allow for safe passage of equipment and vehicles. Wire stringing sites would occur on or near the centerline within the ROW, and would be reclaimed after construction is complete. Newly constructed access roads inside and outside the ROW (outside of desert tortoise habitat), along with other staging and temporary use areas located outside the transmission line ROW, would be reclaimed or returned to a pre-construction condition after construction is complete.

Special status plants have the potential to occur in selected locations within the project area, particularly in Lincoln and Clark counties. White River catseye and Tiehm's blazing star, BLM sensitive plants, were observed at select locations within the transmission line alignment. However, pre-construction surveys and selective structure placement design would allow for avoidance and/or minimization of impacts to significant special status plant communities, thereby rendering impacts to these special status plants negligible. Additional details for mitigation are provided in **Section 4.7.2.2**.

Known Las Vegas buckwheat populations, a candidate species for listing as threatened or endangered, are located within close proximity (approximately 3,150 feet from the eastern edge of the Proposed Action ROW alignment) to Segment 11. No construction activities or disturbance (including access roads) would occur east of the SWIP Utility Corridor and, as a result, there would be no direct impacts to Las Vegas buckwheat populations. Indirect impacts could occur as a result of increased OHV activity and the spread of noxious and non-native, invasive weeds. Indirect impacts as a result of increased OHV activity are expected to be negligible, as there are already existing designated roads in closer proximity to these plant locations. As described in **Section 4.7.2.1** and **Table 4.7-2**, there is a moderate risk that project activities would result in some areas becoming infested with noxious and non-native, invasive weed species and that control measures are essential to prevent the spread of these species. Control measures would include prompt reclamation and revegetation of the access roads (and other construction disturbance) following construction, as well as the development of a noxious and non-native, invasive weed management plan following construction (See **Section 4.7.2.1**). These control measures and other BMPs in place are expected to reduce the impacts of noxious and non-native, invasive weeds to negligible.

Operations, Maintenance, and Abandonment

Operation and maintenance activities for the Proposed Action would cause long-term negligible to minor impacts to vegetation resources as a result of temporary access for repairs. Vegetation management would require the selective removal of some trees within the long-term ROW. This activity may require occasional mechanical thinning within the ROW, temporarily disturbing surface communities.

4.7.2.1 Effect of the Proposed Action on Noxious and Non-Native, Invasive Weeds

Noxious and non-native, invasive weeds are known to occur and/or were observed throughout the area of analysis during baseline surveys (**Section 3.7.3.2**). Noxious and non-native, invasive weeds such as whitetop, various thistle and knapweed species, and salt cedar could be affected by the Proposed Action. The spread of these species through new disturbance areas and new dispersal corridors is of significant concern; however, an active management plan as a result of the project could prove to be beneficial in controlling, and even reducing, noxious and non-native, invasive weed communities in the area. A BLM Risk Assessment for Noxious and Non-Native, Invasive Weeds (form/method provided by Bonnie Million, Weeds Coordinator, Ely District BLM) was completed for the Proposed Action and is provided in **Table 4.7-2**. Factor 1 assesses the likelihood of noxious and non-native, invasive weeds species spreading to the project area, while Factor 2 assesses the consequences of noxious and non-native, invasive weed establishment in the project area. The Risk Rating is the result of multiplying Factors 1 and 2. **Table 4.7-3** provides a general description of the scoring categories, while a detailed explanation of Proposed Action project element-specific scoring is provided below.

Factor 1 Scores

The presence and relative location of existing noxious and non-native, invasive weed individuals and communities were the most significant influences on Factor 1 scores. Other considerations included the type(s) and density of noxious and non-native, invasive weeds species present, their ability to infest an area, and their manner of dispersal.

Where noxious and non-native, invasive weeds were not present within the study area, but were located in areas adjacent to it, a Factor 1 score of 1 to 3 was attributed to that project element, based on the number of noxious and non-native, invasive weed species present, as well as their relative proximity to the element. A score of 1 was attributed to Segments 6C, 8, 9A, and 9B of the transmission line alignment. Individuals, or small populations, of noxious and non-native, invasive weeds were observed near, but not immediately adjacent to, these elements. A score of 2 was attributed to Segment 9D. No project elements were attributed a Factor 1 score of 3.

Where noxious and non-native, invasive weeds were present either within the project area or immediately adjacent to it, a Factor 1 score between 4 and 7 was attributed to that project element. A score of 4 was attributed to the Robinson Summit Substation. Small populations of noxious and non-native, invasive species are present within each of these elements, although only to a limited extent.

TABLE 4.7-2 NOXIOUS AND NON-NATIVE, INVASIVE WEEDS RISK ASSESSMENT FOR THE PROPOSED ACTION

PROJECT ELEMENT	NOXIOUS AND NON-NATIVE, INVASIVE WEED RISK[1]			
	FACTOR 1	FACTOR 2	RISK RATING	RISK DEGREE CATEGORY
Robinson Summit Substation	4	4	16	Moderate
Segment 6C	1	3	3	Low
Segment 8	1	3	3	Low
Segment 9A	1	1	1	Low
Segment 9B	1	1	1	Low
Segment 9D	2	1	2	Low
Segment 11	5	3	15	Moderate

[1] From BLM Ely District Risk Assessment for Noxious and Non-Native, Invasive Weeds protocol

TABLE 4.7-3 NOXIOUS AND NON-NATIVE, INVASIVE WEEDS RISK ASSESSMENT SCORING[1]

FACTOR 1		FACTOR 2		RISK DEGREE CATEGORY	
None (0)	Noxious and non-native, invasive weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious and non-native, invasive weed species in the project area.	Low to Nonexistent (1-3)	None. No cumulative effects expected.	None (0)	Proceed as planned.
Low (1-3)	Noxious and non-native, invasive weed species are present in the areas adjacent to, but not within, the project area. Project activities can be implemented and prevent the spread of noxious and non-native, invasive weeds into the project area.	Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.	Low (1-10)	Proceed as planned. Initiate control treatment on noxious and non-native, invasive weed populations that get established in the area.
Moderate (4-7)	Noxious and non-native, invasive weeds species located immediately adjacent to or within the project area. Project activities area likely to result in some areas becoming infested with noxious and non-native, invasive weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious and non-native, invasive weeds within the project area.	High (7-10)	Obvious adverse effects within the project area and probable expansion of noxious and non-native, invasive weed infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.	Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious and non-native, invasive weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious and non-native, invasive weeds and follow-up treatment for previously treated infestations.
High (7-10)	Heavy infestations of noxious and non-native, invasive weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious and non-native, invasive weeds on disturbed sites throughout much of the project area.			High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious and non-native, invasive weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious and non-native, invasive weeds and follow-up treatment for previously treated infestations.

[1] From BLM Ely District Risk Assessment for Noxious and Non-Native, Invasive Weeds protocol

A score of 5 was attributed to Segment 11, where Sahara mustard and whitetop were observed along US-93, immediately adjacent to the proposed transmission line alignment. No project elements were attributed Factor 1 scores greater than 5.

Factor 2 Scores

Factor 2 scores were primarily influenced by the relative consequence of new and/or expanded infestations of noxious and non-native, invasive weeds within each project element, including cumulative effects on native communities. Native plant communities throughout the Proposed Action area are common and widely spread throughout the region, therefore significant cumulative effects are unlikely. A Noxious and Non-Native, Invasive Weed Management Plan would be developed for the agency-preferred alternative; however, common BMPs and mitigation measures associated with noxious and non-native, invasive weeds were considered for the Factor 2 scores for each project element.

Where little to no effects would be caused by noxious and non-native, invasive weed infestations, a Factor 2 score of 1 to 3 was attributed. Scores of 1 or 2 were attributed to Segments 9A, 9B, and 9D. While there exists the potential for introduction of new noxious and non-native, invasive weed populations in these segments, the project areas are relative small and permanent disturbance is limited to the structure locations within the transmission line alignment. BMPs would serve to manage the introduction or spread of new individuals during construction and long-term maintenance, and native plant communities within these segments are common and widespread throughout the region. A score of 3 was attributed to Segments 6C, 8, and 11. The conditions in these transmission line segments are the same as above; however, the segments are significantly longer, and therefore the consequences of a new introduction are slightly higher.

Moderate adverse effects on site, as well as possible expansion of infestations, were attributed Factor 2 scores of 4 to 7. The Robinson Summit Substation was attributed a score of 4, due to the nature of construction (site development, clearing and grading) and the likelihood of new infestation as a result. An active management plan for the project would limit the adverse effects and spreads of noxious and non-native, invasive weeds on and adjacent to the project. The footprint for the substations is relatively small; therefore the lower midrange score was used. No Factor 2 scores greater than 4 were attributed to any of the Proposed Action components.

Risk Rating and Risk Degree Category

The risk rating is calculated by multiplying the Factor 1 and Factor 2 scores, and the degree categories range from None to High (**Table 4.7-4**). Segments 6C, 8, 9A, 9B, and 9D all received Risk Ratings between 2 and 10 and Risk Categories of Low, therefore impacts from noxious and non-native, invasive weeds would be minimal. The Robinson Summit Substation and Segment 11 received a Risk Rating between 14 and 36 and a Risk Category of Moderate; therefore impacts from noxious and non-native, invasive weeds would be moderate.

4.7.2.2 Mitigation

1. Safely store salvageable cacti and yucca in temporary plant storage sites; plant salvage from areas of permanent disturbance will be moved once, and replanted during revegetation/reclamation activities.
2. Site-specific and targeted special status plant surveys will be conducted during the appropriately timed survey window, prior to final siting of transmission line structures and temporary use areas. If communities of special status plant species are present at a given structure location or temporary use area, all efforts to relocate that structure or

temporary use area will be made to avoid such plants to the extent practicable. If relocating a specific structure or temporary use area is not feasible due to operational constraints and requirements, the individuals and/or community of special status plants to be impacted will be transplanted to an approved location through appropriate and close coordination with the BLM.

3. Locate temporary use areas at least 0.5 mile away from winterfat dominated sites whenever reasonable. Where reasonable, locate temporary access roads outside winterfat dominated sites.
4. In portions of the project area adjacent to populations of Las Vegas buckwheat, new long-term disturbance would consist only of the centerline access road and ground-level structure foundation and anchor areas. All other disturbance (e.g., wire stringing sites and other staging and temporary use areas) would be limited to within the existing SWIP Utility Corridor.

4.7.2.3 Unavoidable Adverse Impacts on Vegetation Resources

There would be unavoidable adverse impacts to vegetation due to permanent disturbance of existing vegetation communities within specific footprints of proposed project elements (i.e. substation equipment and access road and structure foundations and anchor areas). However, there are no biologically unique, rare, or protected communities proposed for permanent disturbance. As noxious and non-native, invasive weeds are present on or adjacent to the Proposed Action and are known to spread as a result of disturbance, it is likely that there would be some minor impacts due to the spread of these species.

4.7.2.4 Irreversible and Irretrievable Commitments of Resources

There are some vegetative resources that could be reclaimed at the end of the service life of the Proposed Action. However, portions of some vegetative communities would be irreversibly committed due to permanent facilities that would remain even after future abandonment. There are no unique or rare vegetative resources that would be committed as part of the project.

4.7.2.5 Relationship of Short-term Uses and Long-term Productivity

Short-term impacts to vegetation resources within the Proposed Action area are most directly related to wildlife habitat and range resources, and are more accurately addressed in those respective sections. Long-term effects of vegetation resources would be similar in relation to wildlife and range.

4.7.3 Action Alternative

Direct permanent impacts on vegetation resources would occur because of construction of substations and transmission line structures. As with the Proposed Action, additional temporary impacts would occur during the construction phase due to access road usage and other construction-related activities.

Construction

Impacts to vegetative communities from the Robinson Summit Substation and the Falcon Substation expansion would be the same as for the Proposed Action.

Permanent impacts to vegetative communities resulting from construction of the Action Alternative are presented in **Table 4.7-4** and were calculated in the same manner as discussed in **Section 4.7.2**.

TABLE 4.7-4 LONG-TERM ACREAGE OF IMPACT TO VEGETATIVE COMMUNITIES ASSOCIATED WITH THE ACTION ALTERNATIVE[1]

VEGETATIVE COMMUNITY AND/OR LAND TYPE	PROJECT ELEMENT							
	TRANSMISSION LINE STRUCTURES ONLY (CALCULATIONS INCLUDE 0.1 ACRE DISTURBANCE FOR EACH STRUCTURE, 5 STRUCTURES PER MILE, EXCEPT WITHIN DESERT TORTOISE HABITAT)							
	6C	8	9A (Alt.)	9B	9C	9D	10 (Alt.)	11
Wyoming Sagebrush	21.5	4.5	0	0	0	0	0	0
Creosote Bush	0	0	3	0	1.7	78	95	152
Pinyon-Juniper	17.8	0	0	0	0	0	3.7	0
Greasewood	6.9	0	0	0	0	0	0	0
Douglas Rabbitbrush	0	11.7	0	0	0.1	0	0	0
Joshua Tree	0	9.8	0	0.4	0	0	24	0
Black Sagebrush	2.1	2.0	0	0	1.2	0	0	0
Winterfat	3.1	0.2	0	2.6	0.2	0	0	0
Burn/Fire-affected	0	0	0.8	0	0	0	6.7	0
Blackbrush	0	0	3.3	1.9	0	0	0	0
Salt Desert Shrub	0	0	0	0	0	0	0.6	0
Desert Playa	0	0	0	0.4	0	0	0	3
Riparian	0.1	0	0	0	0	0	0	0
Basin Big Sagebrush	0.2	0	0	0	0	0	0	0

[1] Values less than 0.1 acre are not reported.

Indirect effects of the transmission line facilities for the Action Alternative would be the same as described for the Proposed Action. The effects would occur in the same vegetative communities as the direct effects. Existing roads would be utilized to a great extent, and improved where necessary to allow safe passage of equipment and vehicles. Wire-stringing sites would occur on or near the centerline, and would be reclaimed after construction is complete. Newly constructed access roads inside and outside the ROW (outside desert tortoise habitat), along with other staging and temporary use areas located outside the transmission line ROW would be reclaimed or returned to a pre-construction condition after construction is complete.

The Action Alternative would pass approximately 1,600 feet closer to known populations of Las Vegas buckwheat than the Proposed Action, but would still be situated within the authorized SWIP Utility Corridor. As with the Proposed Action, there would be no disturbance outside the 200-foot ROW to the extent necessary but all within the SWIP Utility Corridor and, as a result, no direct impacts. The control measures, BMPs, and mitigation would be the same as for the Proposed Action; however, the possibility for indirect impacts from the introduction of noxious and non-native, invasive weeds is increased due to the increased proximity of new disturbance. As a result, it is expected that impacts could range from negligible to minor. Impacts to other special status plants would be the same as for the Proposed Action.

Operations, Maintenance, and Abandonment

Long-term periodic maintenance to the transmission line facilities under the Action Alternative would be the same as described for the Proposed Action and may require access to the corridors via existing roads and may result in temporary disturbance; however, this effect would be minor to negligible.

4.7.3.1 Effect of the Alternative Action on Noxious and Non-Native, Invasive Weeds

As with the Proposed Action, noxious and non-native, invasive weeds were observed throughout the Action Alternative, (including alternative segments) project element areas. As for the Proposed Action (**Section 4.7.2.1**), a BLM Risk Assessment for Noxious and Non-Native, Invasive Weeds was completed for the Action Alternative project elements and is provided in **Table 4.7-5**. **Table 4.7-3** provides a general description of the scoring categories. Scores, risk ratings, and risk degree categories are the same as the Proposed Action for the Robinson Summit Substation, Falcon Substation expansion, Segments 6C, 8, 9A, 9B, 9D, and 11, and are discussed in **Section 4.7.2.1**. Action Alternative Segments 9C and 10 are discussed below.

TABLE 4.7-5 NOXIOUS AND NON-NATIVE, INVASIVE WEEDS RISK ASSESSMENT FOR THE ACTION ALTERNATIVE

PROJECT ELEMENT	NOXIOUS AND NON-NATIVE, INVASIVE WEED RISK[1]			
	FACTOR 1	FACTOR 2	TOTAL	DEGREE CATEGORY
Robinson Summit Substation	Same as Proposed Action			
Segment 6C	Same as Proposed Action			
Segment 8				
Segment 9A (Alt)				
Segment 9B				
Segment 9C	1	1	1	Low
Segment 9D	Same as Proposed Action			
Segment 10 (Alt)	2	5	10	Low
Segment 11	Same as Proposed Action			

[1] From BLM Risk Assessment for Noxious and Non-Native, Invasive Weeds protocol

Factor 1 Scores

A score of 1 was attributed to Segment 9C. Individuals, or small populations, of noxious and non-native, invasive weeds were observed near, but not immediately adjacent to, this segment. A score of 2 was attributed to Segment 10.

Factor 2 Scores

A score of 1 was attributed to Segment 9C. While there exists the potential for introduction of new noxious and non-native, invasive weed populations in this segment, the project area is relatively small and permanent disturbance is limited to the structure locations within the transmission line alignment. BMPs would serve to manage the introduction or spread of new individuals during construction and long-term maintenance, and native plant communities within these segments are common and widespread throughout the region. Segment 10 was given a score of 5. The proximity of existing noxious and non-native, invasive weeds to the two transmission line segments indicates a possibility of expansion to the segments; however, disturbance would be limited to structure locations, therefore BMPs should limit this potential.

Risk Rating and Risk Degree Category

The risk rating is calculated by multiplying the Factor 1 and Factor 2 scores, and the degree categories range from None to High (**Table 4.7-3**). Segments 9C and 10 received Risk Ratings of 1 and 10, respectively and a Risk Category of Low, therefore impacts from noxious and non-native, invasive weeds would be minimal. Risk Ratings and Risk Categories for all other elements of the Action Alternative were the same as for the Proposed Action.

4.7.3.2 Mitigation

Mitigation measures for the Action Alternative are the same as for the Proposed Action (see **Section 4.7.2.2**).

4.7.3.3 Unavoidable Adverse Impacts on Vegetation Resources

Unavoidable adverse impacts would be the same as the Proposed Action (**Section 4.7.2.3**).

4.7.3.4 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources would be similar in scale and degree as to the Proposed Action (**Section 4.7.2.4**).

4.7.3.5 Relationship of Short-term Uses and Long-term Productivity

Short-term uses and long-term productivity would be similar in scale and degree as to the Proposed Action (**Section 4.7.2.5**).

4.7.4 No Action Alternative

Under the No Action alternative, vegetative communities would continue to function in their current capacity. Noxious and non-native, invasive weeds would continue to be managed in their current capacity and would likely continue to spread nominally through continued normal activities and practices. Special status plants would not be affected.

4.8 Wildlife Resources, Including Special Status Wildlife, Migratory Birds, Fisheries, and Aquatic Species

4.8.1 Indicators and Methods

The construction and operation of the project may directly or indirectly impact wildlife through direct disturbance or habitat fragmentation. This may impact game species and wildlife populations and indirectly affect hunting, fishing, and wildlife watching activities.

In response to these and other issues identified during scoping, the following indicators were considered when analyzing potential impacts to wildlife resources and special status species:

- Acres of different wildlife habitats (vegetation community types) physically disturbed and the juxtaposition of that disturbed habitat over the life of the project
- Acres of disturbance to, and the proximity of the proposed operations to, high value habitats such as: crucial and or high value big game ranges, wetlands, and seep and spring areas
- Acres of game species habitat and watchable wildlife disturbed by the project

4.8.2 Proposed Action

The following categories of wildlife inhabit and/or forage within the majority of the project area. Impacts to these species would be similar for all of the project features regardless of the specific element or transmission line segment. Unless otherwise noted, they will not be discussed under each specific project feature.

Bats: Most of the bat species present in the Ely District are sensitive species. Bat roosting areas could be present within some of the transmission line segments. Construction activities (especially blasting for transmission structure footings) in these areas could disturb bats. These impacts would be temporary and negligible. Bats likely use most of the project area for foraging opportunities. Construction activities could cause bats to temporarily abandon foraging within active work zones. No long-term adverse effects to bats are expected to occur from the operations, maintenance, or abandonment of any of the Proposed Action elements.

Migratory Birds: Several sensitive and numerous common avian species utilize the project area for foraging and nesting. Construction activities would affect avian species that currently forage or nest in these areas causing these species to displace to adjacent undisturbed areas. Mitigation measures (**Section 4.8.2.1**) would be employed prior to and during construction activities that would greatly reduce the likelihood of avian species nesting behavior being directly impacted or disrupted and/or nests being destroyed.

Small Mammals, Predatory Mammals, and Reptiles: Common small mammals (i.e., black-tailed jackrabbits and ground squirrels), common predators (i.e. kit fox, coyote, and badger), and common reptile species (i.e., sagebrush and fence lizards) that are known to occur throughout the project area would be displaced into adjacent undisturbed lands during construction activities. However, some small and less mobile wildlife species would be killed or injured during these construction activities.

Direct permanent impacts to wildlife habitat would occur due to construction of the substations and transmission line facilities. Additionally, temporary impacts would occur during the construction phase due to access road usage and other temporary construction-related activities inside and outside the transmission line ROW. **Table 4.7-1** shows the approximate acres of long-term disturbance impacts of the Proposed Action, by vegetative community/wildlife habitat. Where temporary impacts occur, those areas would be reclaimed after construction is complete. Permanent impacts would not be reclaimed and these impacts would likely be long-term but minor, as the vegetative communities/wildlife habitat present within each of the project elements are common and widespread throughout the area. Wetland impacts would be avoided in all Proposed Action elements (wetlands are discussed in additional detail in **Section 4.2**).

Construction

The Proposed Action transmission line facilities would pass over a wide range of vegetation communities as described in **Section 3.7**. The most common vegetation communities are dominated by Wyoming sagebrush, creosote bush, pinyon-juniper, Joshua tree, and Douglas rabbitbrush. Together, these communities make up a large majority of the project area.

Permanent disturbance to habitat would occur at each transmission structure location, as well as the Robinson Summit Substation and the Falcon Substation expansion area. Long-term acreage impacts to the various vegetation communities/wildlife habitats within the project area for the Proposed Action are described in **Section 4.7**. Soils and vegetation would be removed from or compacted in these areas, essentially eliminating forage production for the duration of disturbance. More sensitive wetland and riparian areas are present within various portions of the

Proposed Action area as described in **Section 4.2** and **4.7**, but these habitats would be spanned by transmission line facilities and would not be impacted under the Proposed Action. Therefore, impacts to aquatic species or fisheries within the project area are not anticipated during construction of the transmission line facilities.

Most of the wildlife species that inhabit the Proposed Action area are highly mobile and would likely vacate the construction area and alter movement patterns as construction personnel progress with construction activities. Species that are slow-moving or tend to retreat underground when approached could be directly affected by construction equipment and excavations for structure and substation equipment foundations. Excavations for foundations would be made with vehicle-mounted augers, backhoes, and other power equipment. In rocky areas, drilling and blasting may be necessary. The increased human activity and noise associated with construction activities would likely cause wildlife to temporarily avoid the area and displace into adjacent, undisturbed suitable habitat causing increased competition for resources. Approximately 500 workers, over a 24-month period, spread out along various portions of the ROW, would be necessary to complete the construction of the ON Line Project. Increased traffic associated with construction activities has the potential to cause an increase in wildlife-vehicle collisions.

Threatened, Endangered, Proposed, and Candidate (TEPC) Species

Desert Tortoise: The desert tortoise is the only TEPC species that is known to occur within the project area for the Proposed Action. Tortoise habitat is known to occur in Segment 9D, Segment 11, and southern portions of Segment 9A. Approximately 430 acres of desert tortoise habitat, of which 246 acres is desert tortoise critical habitat, would be permanently disturbed under the Proposed Action by the construction of transmission facilities in Segments 9A, 9D, and Segment 11.

In order to avoid any direct effects to individual tortoises, all BMPs and federal threatened species protocols specific to desert tortoises would be employed prior to and during the construction of the transmission line facilities. An application to append current Biological Opinions (BOs) is being prepared for this project that analyzes the potential impacts to TEPC species within the project area. Following the approval of the application to append, all applicable mitigation measures and Terms and Conditions of existing BOs would need to be implemented and followed, which would become part of the Final COM Plan.

BLM Sensitive and State of Nevada Special Status Species

Greater sage-grouse: **Figure 3.8-2** illustrates the location of leks within 2 miles of the project area and **Table 4.8-1** below shows the proximity of these leks to the nearest transmission line segment. Two active, two inactive, and two unknown status leks would be in proximity to Segment 6C. Human disturbance associated with construction activities could disturb greater sage-grouse during the breeding season. **Section 4.8.2.1** identifies mitigation measures that would be taken in order to minimize construction phase disturbance to greater sage-grouse. Outside of the breeding season and within suitable greater sage-grouse habitat, greater sage-grouse using the project area would be displaced into adjacent undisturbed habitat and suitable habitat would be impacted. The construction of transmission line facilities would have a negligible to moderate, short-term impact on greater sage-grouse within the construction area and minor, long-term impacts on potentially suitable habitat.

TABLE 4.8-1 GREATER SAGE-GROUSE LEKS PROXIMITY TO THE PROPOSED ACTION

LEK NAME	ACTIVE / NOT ACTIVE/ HISTORIC	APPROXIMATE DISTANCE FROM THE NEAREST TRANSMISSION LINE ROW
Ellison Creek N	Active	0.5 miles from Segment 6C
Ellison Creek N N	Inactive	Within Segment 6C
Runway	Unknown	0.6 miles from Segment 6C
Ellison Creek	Inactive	1.3 miles from Segment 6C
Ellison Knobs	Unknown	2.0 miles from Segment 6C
White River	Active	0.5 miles from Segment 6C

Pygmy Rabbit: Pygmy rabbits, or their sign, were recorded in Segment 6C. Pygmy rabbits are highly mobile and would likely vacate the construction area and alter movement patterns as construction personnel progress with construction activities. As with other ground-dwelling species, pygmy rabbits could be directly affected by construction activities such as destruction of burrows. The construction of transmission line facilities would have a negligible, short-term impact on pygmy rabbits within the construction area and minor, long-term impacts on potentially suitable habitat.

Raptors: Many species of raptors utilize the diversity of habitats that exist throughout all of the proposed transmission line segments. Noise and human disturbance associated with the construction of the transmission line facilities would have a temporary impact on foraging raptors and would temporarily displace them to areas outside the active construction zone. Mitigation measures (**Section 4.8.2.1**), such as timing restrictions and active nest buffers, would be employed prior to and during construction activities that would greatly reduce the likelihood of raptor nesting behavior being disrupted or nests being destroyed. The intensity of these impacts would vary according to species, but impacts that are a direct result of construction activities are not expected to exceed a negligible level. The installation of transmission line structures would increase the perching opportunities for raptors throughout the project area.

Western Burrowing Owl: As stated in **Section 3.8.4.2**, burrowing owl nests have not been observed within Proposed Action elements. If burrowing owls are present, construction activities would have temporary, negligible impacts to burrowing owls by discouraging them from foraging or nesting within the active construction zone and by displacing them to adjacent areas with suitable foraging and nesting habitat. In order to avoid direct impacts to burrowing owls, mitigation measures (**Section 4.8.2.1**) would be employed prior to and during construction activities that would greatly reduce the likelihood of burrowing owl nests being destroyed.

Banded Gila Monster: Potential banded Gila monster habitat exists within the vicinity of the southernmost portions of the transmission line facilities in Lincoln and Clark counties. Its geographic range approximates that of the desert tortoise. Please refer to **Section 4.8.2.1** for specific mitigation measures regarding the banded Gila monster.

General Wildlife

Pronghorn Antelope: With the exception of some higher elevation areas, pronghorn year-round range exists within all transmission line segments that are north of Segment 9A. No pronghorn crucial winter range exists within the project area. Noise and increased human activity would likely cause pronghorn to be displaced to neighboring areas with suitable habitat during construction of the transmission line facilities. Impacts to pronghorn resulting from construction activities would be temporary and negligible to minor.

Mule Deer: Several transmission line segments pass through small portions of mule deer crucial winter range (**Figure 3.8-4b**). **Table 4.8-2** below indicates which transmission line segments are within and/or adjacent to mule deer crucial winter range. Noise and increased human activity in these areas and other suitable mule deer range would likely cause mule deer to be displaced to neighboring areas with suitable habitat during construction of the transmission line facilities. Construction activities during winter months that occur adjacent to crucial winter range could displace some mule deer to higher elevations, thus increasing population density within this winter range. Where appropriate, construction activities within crucial mule deer winter range would be restricted between November and March. Therefore, impacts to mule deer resulting from construction activities would be temporary and minor.

TABLE 4.8-2 MULE DEER CRUCIAL WINTER RANGE PROXIMITY TO THE PROPOSED ACTION

TRANSMISSION LINE SEGMENT	PROXIMITY TO TRANSMISSION LINE SEGMENT
Segment 6C	Adjacent to crucial winter range where Segment 6C intersects Highway 6
Segment 6C	Portions within crucial winter range near Wells Station in the Grant range
Segment 6C	Adjacent to crucial winter range near the northern toe of the Golden Gate Range
Segment 6C	Portions within crucial winter range of Silver King Pass on the Schell Creek Range
Segment 8	Portions within crucial range surrounding the Bristol Wells area.
Segment 8	Adjacent to crucial range along the western slope of the Highland range

Elk: There is no elk crucial winter range or crucial summer range within the project area. Segments of the transmission line facilities that are situated in mid to upper elevations pass through elk year-round habitat. **Table 3.8-6** and **Figure 3.8-4c** detail these areas. Elk sign was numerous in the vicinity of the Robinson Summit Substation and the Silver King Pass portion of Segment 6C**.** Noise and increased human activity would likely cause elk to be displaced to neighboring areas with suitable habitat during construction of the transmission line facilities and/or the Robinson Summit Substation. Impacts to elk resulting from construction activities would be temporary and would not be expected to exceed a negligible level.

Bighorn Sheep: No occupied Rocky Mountain bighorn sheep range is located near any of the transmission line facilities. Several transmission line segments pass through occupied and potential desert bighorn sheep range (**Figure 3.8-4d**). **Table 4.8-3** below indicates which transmission line segments are within and/or adjacent to occupied desert bighorn sheep range.

Within Clark County and where appropriate outside of Clark County, surface activity within occupied desert bighorn sheep habitat would be restricted from March 1 through May 31 and from July 1 through August 31. Noise and increased human activity would likely cause bighorn sheep to be displaced to neighboring areas with suitable habitat during the construction of transmission line facilities. Impacts to bighorn sheep resulting from construction activities would be temporary and minor.

TABLE 4.8-3 OCCUPIED DESERT BIGHORN RANGE PROXIMITY TO THE PROPOSED ACTION

TRANSMISSION LINE SEGMENT	PROXIMITY TO TRANSMISSION LINE SEGMENT
Segment 6C	Portions within occupied range surrounding Silver King Pass of the Schell Creek Range
Segment 9A	Within occupied range
Segment 11	Portions within occupied range of the Arrow Canyon Range

Waterfowl: Two key waterfowl areas have been identified within the project area. Segment 6C passes just south of the southern portion of the Kirch Wildlife Management Area and the northern portion of Segment 9D passes less than a thousand feet from the Pahranagat National Wildlife Refuge. Noise and increased human activity associated with the construction of the transmission line facilities could have temporary impacts on nesting and foraging activities of waterfowl. The intensity of these impacts would vary according to species, but impacts that are a direct result of construction activities would be temporary and are not expected to exceed a minor level.

Operations, Maintenance, and Abandonment

Wildlife could be periodically disturbed by annual maintenance/inspections and any unplanned repairs that may be required to correct any failures. The substations would be visited regularly to perform routine maintenance. Vegetation would be trimmed as-needed under and along the transmission line facilities to minimize potential interference with the transmission line facilities. Planned operations and maintenance on transmission line facilities would consist of annual line patrol by two linemen by helicopter. Additional unscheduled patrols may be required by ATV, truck, or bucket truck, if issues are encountered. Because of the intermittent nature of maintenance operations, the presence of linemen and their equipment are not anticipated to result in any long-term effects on wildlife.

Threatened, Endangered, Proposed, and Candidate (TEPC) Species

Desert Tortoise: Desert tortoises could be affected by personnel and equipment necessary for routine and unscheduled maintenance. In order to reduce the chance of direct impacts to tortoises, all applicable mitigation measures and Terms and Conditions in pertinent BOs would be applied prior to and during operations, maintenance, or abandonment procedures.

BLM Sensitive and State of Nevada Special Status Species

Greater sage-grouse: Power lines can provide hunting perches for raptors in treeless areas. Greater sage-grouse may also be injured or killed by flying into these structures. Power lines most likely impact grouse near leks, in brood-rearing habitat, and in wintering areas that also support large numbers of wintering raptors. Construction of new power lines contributes to habitat degradation when accompanied by new roads or other infrastructure, e.g., pipelines, fences, etc. (Kobriger and McCarthy 2005).

Utilities commonly make power line structures safe for raptors to use as perches, but this poses a dilemma in sage-grouse habitat. It is important that parties involved with power lines utilize appropriate guidelines (Avian Power Line Action Committee Guidelines) when designing raptor perch sites and perch guards (Kobriger and McCarthy 2005).

Power lines not only increase habitat fragmentation, but also provide perches for avian predators of sage-grouse (Braun 1998). Although the magnitude of such effects on sage-grouse habitats and populations is unknown, sage-grouse use has been shown to increase as distance from power lines increases (Braun 1998). Disturbance from raptors, particularly golden eagles (*Aquila chrysaetos*), may disrupt strutting males on leks (Rogers 1964, Ellis 1984); thus, structures that provide perches for raptors may increase such disturbance. Studies in California identified three factors associated with power lines that could decrease sage-grouse numbers or lek use, either singly or in combination: 1) raptors, especially immature golden eagles, hunt more efficiently from perches such as transmission line structures and may harass or take adult grouse near or on leks; 2) common ravens (*Corvus corax*) may use the structures as perches and nest sites, and prey on eggs and young of sage-grouse near leks; and 3) sage-grouse may

respond to structures as potential raptor perch sites and thus abandon, or decrease their use of, a lek from which structures can be seen (Rowland 2004).

Section 4.8.2.1 identifies specific mitigation measures that would be applicable to transmission line facilities in both occupied and suitable greater sage-grouse habitat. These measures include transmission structure design features that are intended to reduce collisions and help negate greater sage-grouse predation by discouraging raptors from utilizing power lines as hunting facilities.

Greater sage-grouse leks in close proximity to transmission line facilities could be abandoned. The operations, maintenance, and abandonment of transmission facilities would have both short-term and long-term impacts on greater sage-grouse. The magnitude of these impacts could range from negligible to major (i.e. if abandonment of an active lek occurred as a result of the transmission line).

Pygmy Rabbit: The construction of the transmission line facilities within or near suitable habitat, would result in direct sagebrush habitat loss and would provide raptor perches that facilitate predation, disrupts pygmy rabbit dispersal corridors, and increases human access for recreational activities, all of which impact pygmy rabbits and their habitat. Power line structures can provide hunting and roosting perches, and nesting support, for many raptor species that can prey upon pygmy rabbits. Power lines are often accompanied by maintenance roads that may serve as travel corridors for predators, spread weeds, and offer access for hunters and recreationists (Haworth 2005). However, the project would utilize mostly existing roads for construction, and operations, and maintenance. Access along the project ROW for construction would only be temporary disturbance, and restored as described in previous sections. There would be no new permanent access roads in pygmy rabbit habitat.

The operations, maintenance, and abandonment of transmission facilities would have both transient and long-term impacts on pygmy rabbits. The magnitude of these impacts could range from negligible to minor.

Raptors, includes bald eagle: Numerous studies have been conducted and published on the interactions between raptors and transmission lines. Raptor electrocution continues to be one of the major wildlife concerns of state and federal agencies. Collisions with and electrocutions by power lines are common and have been well documented for at least four decades.

Transmission lines and structures have been known to have a beneficial effect on raptors as well. Despite design features that are intended to discourage roosting, perching and nesting, transmission lines have been known to provide areas that facilitate hunting. While these effects are beneficial for raptors, they are adverse to prey species (including sensitive species like greater sage-grouse and pygmy rabbits).

The Avian Power Line Interaction Committee (APLIC) published a book entitled *Suggested Practices for Avian Protection on Power Lines: The State of the Art 2006.* This document would be employed as a BMP with regard to the design, construction, operations, and maintenance of the ON Line project. The implementation of these guidelines should significantly reduce the number of raptors that could potentially collide with or fly into transmission line facilities. Therefore, impacts to raptors are expected to be negligible to moderate and long-term.

Western Burrowing Owl: As with all avian wildlife, the introduction of new transmission line facilities increases the likelihood of burrowing owls experiencing in-flight collisions with structures and lines. However, due to their keen eyesight and small stature, impacts to burrowing owls would likely be less severe than those anticipated for larger birds of prey. The

presence of transmission line facilities may deter burrowing owls from nesting in previously occupied habitat. The operations, maintenance, and abandonment of transmission line facilities would have both short-term and long-term impacts on burrowing owls. The magnitude of these impacts could range from negligible to moderate.

General Wildlife

Pronghorn Antelope: Due to the vast availability of suitable pronghorn habitat, and the ability of this species to habituate to human-made structures, no long-term impacts to pronghorn are expected to occur due to operations, maintenance, and abandonment of any of the transmission facilities.

Mule Deer: Due to the ability of mule deer to habituate to human-made structures, no long-term impacts to this species are expected to occur due to operations, maintenance, and abandonment of any of the transmission facilities.

Elk: Elk may experience short-term impacts following the construction of the Robinson Summit Substation. Elk would likely alter their current movement and foraging patterns in order to avoid this newly constructed feature. However, due to the ability of elk to habituate to human-made structures, no long-term impacts to this species are expected to occur due to operations, maintenance, and abandonment of the transmission facilities.

Bighorn Sheep: No long-term impacts to this species are expected to occur due to operations, maintenance, and abandonment of any of the transmission facilities.

Avian Wildlife: The Avian Power Line Interaction Committee (APLIC) published a book entitled *Suggested Practices for Avian Protection on Power Lines: The State of the Art 2006.* This document would be utilized as a BMP for minimizing adverse impacts to avian wildlife. Engineers have also incorporated design features for transmission line structures that are intended to reduce collisions, electrocutions, roosting, perching, and nesting.

Waterfowl: As noted in **Section 3.8.3.3,** several species of waterfowl inhabit various portions of the transmission facilities. As with all avian wildlife, the introduction of new transmission line facilities increases the likelihood of waterfowl experiencing in-flight collisions with structures and lines. As mentioned above, design features intended to reduce collisions by making transmission line facilities more visible to waterfowl would be applied in all areas that waterfowl commonly migrate through.

4.8.2.1 Mitigation

Desert tortoise mitigation measures are already included as part of the Proposed Action, see Chapter 2. In addition, all Terms and Conditions of applicable BOs will be implemented and followed.

1. Banded Gila Monster Mitigation Measures

Banded Gila monsters can occur within the southern portion of the Project Area in southern Lincoln and northern Clark counties. Measures provided by NDOW in a November 1, 2007 publication entitled *Gila Monster Status, Identification and Reporting Protocol for Observations* are to be followed by the Proponent and their private contractors so as to minimize impacts on the Gila monster associated with the ON Line Project:

- Live Gila monsters found in harm's way on the construction site will be captured and then detained in a cool, shaded environment (<85°F) by the project biologist or equivalent personnel until a NDOW biologist can arrive for documentation, marking, and obtaining biological measurements and samples prior to releasing. Despite that a Gila

monster is venomous and can deliver a serious bite, its relatively slow gate allows for it to be easily coaxed or lifted into an open bucket or box carefully using a long handled instrument such as a shovel or snake hook (*Note: it is not the intent of NDOW to request unreasonable action to facilitate captures; additional coordination with NDOW will clarify logistical points*). A clean 5-gallon plastic bucket with a secure, vented lid; an 18"x 18"x 4" plastic sweater box with a secure, vented lid; or, a tape-sealed cardboard box of similar dimension may be used for safe containment. Additionally, written information identifying the mapped capture location, Global Positioning System (GPS) coordinates in Universal Transverse Mercator (UTM) using the North American Datum (NAD) 83 Zone 11. Date, time, and circumstances (e.g. biological survey or construction), and habitat description (vegetation, slope, aspect, substrate) would also be provided to NDOW.

- Injuries to Gila monsters may occur during excavation, blasting, road grading, or other construction activities. In the event a Gila monster is injured, it should be transferred to a veterinarian proficient in reptile medicine for evaluation of appropriate treatment. Rehabilitation or euthanasia expenses would not be covered by NDOW. However, NDOW will be immediately notified of any injury to a Gila monster and which veterinarian is providing care for the animal. If an animal is killed or found dead, the carcass will be immediately frozen and transferred to NDOW with a complete written description of the discovery and circumstances, date, time, habitat, and mapped location (GPS coordinates in UTM using NAD 83 Z 11).
- Should NDOW's assistance be delayed, biological or equivalent acting personnel on site will detain the Gila monster out of harm's way until NDOW personnel can respond. The Gila monster should be detained until NDOW biologists have responded. Should NDOW not be immediately available to respond for photo-documentation, a digital (5 megapixle or higher) or 35mm camera would be used to take good quality images of the Gila monster in situ at the location of live encounter or dead salvage. The pictures will be provided to NDOW along with specific location information including GPS coordinates in UTM using NAD 83 Z 11, date, time and habitat description. Pictures would show the following information: (1) Encounter location (landscape with Gila monster in clear view); (2) a clear overhead shot of the entire body with a ruler next to it for scale (Gila monster should fill camera's field of view and be in sharp focus); (3) a clear, overhead close-up of the head (head should fill camera's field of view and be in sharp focus).

2. Avian Wildlife Mitigation Measures

For a complete list of protected birds see 50 C.F.R. 10.13.

A. Greater sage-grouse

In order to minimize the possibility of disruption of mating strategies of greater sage-grouse, the Proponent will employ the following:

- No construction activities will occur during the period from March 1 through May 15 within two miles of active greater sage-grouse leks. However, construction traffic can proceed through the area during this period, outside the 0.25 mile no surface occupancy area around leks, except from 2 hours before sunrise until 10:00 am.
- Modified transmission line structure design, including H-frame structures and perch deterrents, will be used in locations within two miles of known active leks and in areas of combined nesting, wintering, and summer brooding habitat. The final placement of modified structures would be determined based on current data and identified in the

COM Plan. Within identified winter habitat, site specific surveys may be conducted to confirm winter use and habitat.

B. Migratory Birds

- Land disturbing construction and vegetation clearing activities will be scheduled outside of the breeding season (March 15 through July 30 - in upland desert habitats and ephemeral washes containing upland species and March 1 through August 30 - in riparian and higher elevation areas). Where construction is required during the breeding season, the area impacted will be surveyed for nests prior to construction. If no nests are found, construction could proceed. Project area surveys will be done to ensure 100 percent coverage. Methods will be selected based on the plant community and/or topography. Field notes and reports will thoroughly describe methodology and rationale for use and archived.
- If active migratory bird nests (i.e. contains eggs or young) are encountered during the surveys, land disturbing construction activities will be avoided while the birds are allowed to fledge. An appropriate construction avoidance buffer area, to be determined for the species and in conjunction with the BLM, will apply to all active nests for migratory bird species.

C. Western Burrowing Owls and Ground Nesting Species

- Surveys are to include burrowing owls and other ground nesting species. If active nests containing eggs and/or young were to be found, then an appropriately-sized buffer area will be established, marked and avoided during construction so that egg laying, incubation and the rearing of young continues until such time as the young fledge.
- For construction activities from October 1 to March 14, the wildlife biologist will collapse all burrows, holes, crevices, or other cavities on the construction site only after thoroughly inspecting them for inhabitants, in accordance with agency protocols. This will discourage burrowing owls from potentially occupying the burrows, holes, crevices before and during construction activities.
- If burrowing owls are observed during surveys after March 15, the wildlife biologist will be notified. The wildlife biologist will rely on behavioral observations to determine their breeding status. Should breeding behavior be observed, the wildlife biologist assumes that an active nest is present and the area will be avoided until the young fledge. This ensures that any eggs or young are not abandoned due to project activities. The owl's total nesting cycle takes a minimum of 74 days, during which time construction activity needs to cease within the buffer area on the site. Generally, owl eggs may be laid between mid-March to the end of May, and young may be present from mid-April through August. (Adapted from USFWS recommendations)

D. Raptors

- Raptor nests within the project area will be identified during pre-construction surveys for migratory and ground-nesting birds. All active raptor nests will be avoided. Known raptor nest sites will be checked two to five days prior to construction activities in a given area. If an active raptor nest site is discovered, construction activities will be restricted within 0.5 miles of the active nest site from May 1 through July 15.

3. Big Game Mitigation Measures

- Within the BLM Southern Nevada District, construction activities will be restricted within occupied desert bighorn sheep habitat from March 1 through May 31 and from July 1 through August 31.

4.8.2.2 Unavoidable Adverse Impacts on Wildlife Resources

The Proposed Action would permanently impact wildlife habitat within portions of the long-term ROWs for the transmission facilities. **Table 4.7-1** details the potential disturbance impacts to wildlife habitats, as represented by the vegetation communities that would occur under the Proposed Action. This loss of habitat would be small compared to the available undisturbed wildlife habitat within the project area. These habitat losses could be replaced over decades if the ON Line Project operations and maintenance activities ceased and the project elements were removed.

Some long-term unavoidable adverse effects on wildlife populations would potentially occur as a result of mortalities during construction and operation activities.

4.8.2.3 Irreversible and Irretrievable Commitments of Resources

An irreversible commitment of resources occurs if the commitment cannot be changed once made. There are no foreseeable irreversible commitments of wildlife resources associated with the ON Line Project and its facilities.

An irretrievable commitment of resources occurs when resources are used, consumed, destroyed, or degraded during project construction, operation, and maintenance and cannot be reused or recovered for the life of the project or beyond. Both protected and general wildlife species within the project area may be subject to irretrievable commitment of resources with regard to the following types of disturbance: (1) disquieting and excessive noise, (2) increased human disturbance, (3) habitat loss and fragmentation, and (4) increased roads and vehicle traffic, for the life of the ON Line Project or beyond.

4.8.2.4 Relationship of Short-term Uses and Long-term Productivity

Temporary disturbance and loss of habitat used by numerous species of wildlife could be considered a short term use. Most impacts to wildlife resources would initially result from construction activities and be temporary in duration, but some would persist for the operational life of the ON Line Project.

4.8.3 Action Alternative

As stated and described in **Section 4.8.2**, bats, migratory birds, small mammals, predatory mammals, and reptiles also inhabit and/or forage within the majority of the project area for the Action Alternative components. Potential impacts to these species would be similar for all of the components of the Action Alternative, including alternative segments as described for the Proposed Action.

Construction

Construction of the Action Alternative would have similar impacts to those described under the Proposed Action.

Wyoming sagebrush, creosote bush, pinyon-juniper, greasewood, and Douglas rabbitbrush communities make up the majority of potentially impacted areas for the Action Alternative.

As stated previously, more sensitive wetland and riparian areas are present within various portions of the transmission line facilities as described in **Section 4.2** and **4.7**, but these habitats would be spanned by transmission line facilities and are not anticipated to be impacted. Therefore, impacts to aquatic species or fisheries within the project area are not anticipated from the Action Alternative.

Threatened, Endangered, Proposed, and Candidate (TEPC) Species

Desert Tortoise: The desert tortoise is the only TEPC species that is known to occur within any of the transmission facilities for the Action Alternative. Tortoise habitat is known to occur in Segments 9C, the southern portions of Segments 9A and 10, and Segment 11. Approximately 1,311 acres of the ROW for the Action Alternative transmission line facilities would occur within desert tortoise habitat; 938 acres within critical desert tortoise habitat and 373 acres within known desert tortoise outside of critical habitat in Segment 9D (approximately 207 acres) and 11 (approximately 731 acres). Within Segment 10 (alternative component), up to 672 acres of the ROW would occur within desert tortoise habitat (372 acres within critical habitat). Within Segment 9A (alternative component), up to 26 acres of the ROW would occur within desert tortoise habitat. Permanent impacts within the ROW would result from the actual structure footprints and access roads.

Potential effects to desert tortoise and mitigation measures concerning this species would be identical to those previously discussed in **Section 4.8.2**.

BLM Sensitive and State of Nevada Special Status Species

Greater sage-grouse: As described in **Section 4.8.2**, greater sage-grouse habitat occurs throughout the project area for the transmission facilities. There are numerous leks within or less than 2 miles of the transmission facilities under the Action Alternative. **Figure 3.8-2** illustrates the location of leks and **Table 4.8-4** below shows the proximity of the leks to the nearest transmission line segment. One active, two inactive, and four unknown leks would occur within two miles of the Action Alternative transmission line segments.

As described under the Proposed Action, human disturbance associated with construction activities could disturb greater sage-grouse during the breeding season. In order to minimize or eliminate these disturbances, transmission line construction activity would be restricted as described in **Section 4.8.2.1**. Outside of the breeding season and within suitable greater sage-grouse habitat, greater sage-grouse using the project area would be displaced into adjacent undisturbed habitat and suitable habitat would be impacted.

TABLE 4.8-4 GREATER SAGE-GROUSE LEKS PROXIMITY TO THE ACTION ALTERNATIVE

LEK NAME	ACTIVE / NOT ACTIVE/ HISTORIC	APPROXIMATE DISTANCE FROM THE NEAREST TRANSMISSION LINE ROW
Blackjack W	Unknown	1.8 miles from Segment 6C
Gardner Ranch N	Unknown	1.8 miles from Segment 6C
Ellison Creek N N	Inactive	Within Segment 6C
Runway	Unknown	0.3 miles from Segment 6C
Ellison Creek	Inactive	1.0 miles from Segment 6C
Ellison Knobs	Unknown	1.7 miles from Segment 6C
White River	Active	0.2 miles from Segment 6C

Pygmy Rabbit: As applicable, effects and mitigation measures concerning pygmy rabbits would be the same as described in **Sections 4.8.2** and **4.8.2.1**.

Raptors: As applicable, effects and mitigation measures concerning raptors would be the same as those described in **Sections 4.8.2** and **4.8.2.1**.

Western Burrowing Owl: Burrowing owls have been observed within Segment 10. As applicable, effects and mitigation measures concerning burrowing owls would be the same as those described in **Sections 4.8.2** and **4.8.2.1**.

Banded Gila Monster: As applicable, effects and mitigation measures concerning the banded Gila monster would be the same as those described in **Sections 4.8.2** and **4.8.2.1**.

General Wildlife

Pronghorn Antelope: With the exception of some higher elevation areas, pronghorn year-round range exists within all transmission line segments that are north of Segments 9C and 9A. Impacts to pronghorn would be the same as those described in **Section 4.8.2**.

Mule Deer: Effects to mule deer and mule deer crucial winter range would be the same as the effects discussed in **Section 4.8.2**.

Elk: Impacts to elk would be the same as those described in **Section 4.8.2**.

Bighorn Sheep: No occupied Rocky Mountain bighorn sheep range is located near any of the transmission line facilities. Several transmission line segments for the Action Alternative pass through occupied and potential desert bighorn sheep range (**Figure 3.8-4d**). **Table 4.8-5** below indicates which transmission line segments are within and/or adjacent to occupied desert bighorn sheep range. In general, impacts to bighorn sheep would be the same as those described in **Section 4.8.2**.

TABLE 4.8-5 OCCUPIED DESERT BIGHORN RANGE PROXIMITY TO THE ACTION ALTERNATIVE

TRANSMISSION LINE SEGMENT	PROXIMITY TO TRANSMISSION LINE SEGMENT
Segment 6C	Portions within occupied range surrounding Silver King Pass of the Schell Creek Range
Segment 9A (Alternative)	Within occupied range
Segment 9C	Within occupied range
Segment 10 (Alternative)	Portions within occupied range of the Delamar Mountains and adjacent to occupied range along the western foothills of the Meadow Valley Mountains
Segment 11	Portions within occupied range of the Arrow Canyon Range

Waterfowl: Segment 6C passes just south of the southern portion of the Kirch Wildlife Management Area, as described under the Proposed Action, and the northern portion of Segment 9D passes less than a thousand feet from the Pahranagat National Wildlife Refuge. Impacts to, and mitigation measures concerning, waterfowl would generally be the same as those described in **Sections 4.8.2** and **4.8.2.1**.

Operations, Maintenance, and Abandonment

General impacts to wildlife from operations, maintenance, and abandonment activities associated with the transmission facilities would be similar to those described in **Section 4.8.2.**

Threatened, Endangered, Proposed, and Candidate (TEPC) Species

Desert Tortoise: Potential effects to desert tortoise and mitigation measures concerning this species would be identical to those previously discussed in **Section 4.8.2**.

BLM Sensitive and State of Nevada Special Status Species

Greater sage-grouse: The effects of operations, maintenance, and abandonment of the transmission line segments under the Action Alternative would be similar to the effects under the Proposed Action. Mitigation measures and BMPs associated with the transmission lines would be similar to those discussed in **Sections 4.8.2** and **4.8.2.1**.

Pygmy Rabbit: Effects and mitigation measures concerning pygmy rabbits would be the same as those described in **Sections 4.8.2** and **4.8.2.1**.

Raptors: Effects and mitigation measures concerning raptors would be the same as those described in **Sections 4.8.2** and **4.8.2.1**.

Western Burrowing Owl: Effects and mitigation measures concerning burrowing owls would be the same as those described in **Sections 4.8.2** and **4.8.2.1**.

General Wildlife

All of the effects to general wildlife due to operations, maintenance, and abandonment of the Action Alternative would be the same as those discussed in **Section 4.8.2.2**.

4.8.3.1 Mitigation

As applicable for the Action Alternative, mitigation measures for this alternative would be the same as those listed under the Proposed Action (**Section 4.8.2.1**).

4.8.3.2 Unavoidable Adverse Impacts on Wildlife Resources

The Action Alternative would permanently impact wildlife habitat within portions of the long-term ROWs for the transmission facilities and substations. This loss of habitat would be small compared to the available undisturbed wildlife habitat within the project area. These habitat losses could be replaced over decades if the ON Line Project operations and maintenance activities ceased and the project elements were removed.

Some long-term unavoidable adverse effects on wildlife would potentially occur as a result of mortalities during construction and operation activities.

4.8.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources for this alternative would be the same as those discussed under the Proposed Action (**Section 4.8.2.2**).

4.8.3.4 Relationship of Short-term Uses and Long-term Productivity

Short-term uses and long-term productivity for this alternative would be the same as those discussed under the Proposed Action (**Section 4.8.2.3**).

4.8.4 No Action Alternative

Under this alternative there would be no construction or operation of the ON Line Project. Therefore, there would be no loss or modification of wildlife habitat and no direct or indirect impacts to wildlife.

4.9 Range Resources

4.9.1 Indicators and Methods

Proposed disturbances associated with the ON Line Project would pass through certain allotments and an HMA, and could affect forage resources within the project area over the short and/or long term. Access to water sources and the quality and quantity of water sources available within the direct and indirect effects area of allotments and the HMA could be affected.

The following indicators were considered when describing the affected environment for range resources:

- Total vegetation and forage production within the direct effects area
- Number of livestock allotments or HMAs that have one or more elements of the ON Line Project within them, and the numbers of livestock or horses currently using, or approved to use, these areas
- Locations of watering holes, springs, and other range improvements in relation to the direct affects area

These indicators were evaluated using the following criteria:

- Percentage of each HMA or allotment in the project area that would be affected
- Estimate of the number of AUMs lost in each affected allotment or HMA
- Estimate of the type and value of forage lost on each affected allotment/HMA
- Number of acres of winterfat communities within each transmission line segment
- Number of water sources that would be affected within, or within 2 miles of the project area, and the number of other, alternative water sources available within the affected allotments or HMAs

The following methods were used to evaluate these criteria:

- Review soils and vegetation data contained in this SEIS (**Sections 3.5** and **3.7**) and review forage production estimates found in the web-based NRCS Rangeland Productivity Information (NRCS Undated) for areas within and near transmission line segments. Using this information, estimate changes to forage availability during construction and operation for those transmission line segments that are within allotments and HMA boundaries.
- Using GIS technology, map and measure the extent of transmission line segments in acres or linear feet that are within affected allotment and HMA boundaries and determine the approximate total area of land that would be lost to forage production within these areas due to construction and/or operation of the transmission line facilities in both short- and long-term time frames.
- Using GIS technology, map BLM well and spring data and well data described in **Section 3.9** of this SEIS. Compare this to transmission line segment locations to evaluate whether access to water supplies would be affected by the transmission line facilities.

4.9.2 Proposed Action

Construction

Pre-construction surveying, soil testing, and flagging of roads and boundaries would occur months in advance of the start of construction. These activities would not create long-term roadways, trenches, or other land disturbances.

Construction mobilization, equipment yards, and other transmission line facilities components as outlined in **Chapter 2** would include localized blading, cut-and-fill, leveling work, and excavation and foundation construction for transmission line structures. Temporary access roads and storage yards would be constructed within the ROW whenever possible. Approximately 2,300 acres of other transmission line facility components (i.e., material storage yards, wire stringing/pulling sites, batch plant sites, and regeneration sites), including access roads that need to be improved or newly constructed within and outside of the transmission ROW would be needed. The final locations for these components would be identified in the final COM Plan in coordination with NV Energy, the construction contractor, and the BLM. In addition, 149 acres of disturbance (41 temporary, 108 permanent) would occur during construction of the Robinson Summit Substation, and 7 acres would be disturbed at the Falcon Substation. Vegetation would be removed from these areas during their active use, eliminating forage production for the life of construction activities, which is estimated to be 18 to 24 months. Permanent fences would be constructed around the proposed 108-acre Robinson Summit Substation and around the 7 acres that would be added to the existing Falcon Substation. In addition, an access road would be permanently maintained to the Robinson Summit Substation.

In an effort to provide some quantification of impacts from structure installation, since actual structure locations are unknown at this time, temporary disturbance during construction was estimated at 1 acre of temporary disturbance and 0.1 acre of permanent disturbance for every transmission line structure (approximately five structures per linear mile) in **Table 4.9-1**, except within desert tortoise habitat where 1.0 acre of permanent disturbance was used. Permanent impacts from structure locations within allotments are slightly underestimated in **Table 4.9-1**, since a total of 1.0 acre of permanent disturbance per structure should be assumed for areas where steeper and/or rough terrain is present.

All water sources within the ROWs for the transmission facilities could likely be avoided, as there is flexibility in locating the actual structures and temporary work areas, thus eliminating potential disturbances to existing water sources used by livestock or wild horses.

<u>Vegetation and Forage Production</u>

The Proposed Action transmission line facilities would pass over a wide range of plant communities as described in **Section 3.7**. Creosote bush and sagebrush are the most common vegetation communities that would be impacted. Structure locations would impact approximately 7 acres of winterfat communities within the proposed ROW for the Proposed Action.

Vegetation and forage production for selected areas within the transmission facilities area are listed in **Table 3.9-2**, which shows common vegetation productivity rates for Ecological Sites found within the alignment. It is important to note that areas with high vegetation/forage production are not common. An example of such a site is the Saline Bottom Ecological Site (028BY004NV), found in riparian areas in Segment 6C. It has an average vegetation production rate of 1,100 pounds per acre, and 770 pounds per acre for forage production.

Much more common are drier areas found in Ecological Sites such as the Shallow Calcareous Hill 14+P.z. (028BY090NV), also found within Segment 6C. This site is dominated by black

sage (*Artemisia nova*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and Indian ricegrass (*Achnaetherum hymenoides*), and typically produces 250 pounds of vegetation per acre and 88 pounds of forage per acre.

The Limy 5-7 P.z. (R030XB005NV), the most common Ecological Site in Segment 11, is dominated by shrubs and annual forbs and grasses. The Tonopah soil occurs within this Ecological Site. It typically produces 240 pounds of vegetation per acre and only 60 pounds of useable forage per acre.

These examples show that forage production is variable, and much of the land in the project area has low vegetation and forage productivity. The exact value of forage lost due to construction of the transmission facilities would depend on the exact location of project elements, which would not be known until construction designs are available.

As committed to in **Section 2.2.2.2** *Construction Activities: Clearing and Grading*, after line construction, "all work areas identified as temporary disturbance on the structure location drawings would be restored." Re-establishment of vegetation production takes about three to five years after a range area has been re-seeded, thus, the duration of these effects would be considered short-term. The quality of re-established vegetation can vary however, as discussed below.

The overall success of revegetation efforts would depend on whether weeds or perennial species grew in after construction was complete. Adverse effects would occur where weedy species became established in areas previously containing significant amounts of perennial vegetation. Beneficial effects would occur where desirable forage species established in previously weedy areas. Total forage value of a successful seeding could equal or exceed pre-project forage production levels. The quality and magnitude of the effects of transmission facility construction on forage resources would be tied to the duration and season in which activities takes place on the ground, the productivity of the areas affected, and what vegetation, particularly forage species, persisted after construction. Overall, effects to forage production would be negligible because of the large area of similar, unaffected lands on which forage would be produced.

Livestock Allotments

Potential temporary impacts during construction activities could total approximately 6,000 acres (although this includes the entire 200-foot ROW corridor which would not be completely disturbed, the substation footprints, and other potential disturbance areas outside the ROWs). Permanent impacts would total approximately 800 acres. A minor portion of this acreage would not be on public lands and/or within allotments (i.e., Falcon Substation expansion and portions of some transmission facility segments), but for the sake of this analysis, small private inholdings are included.

The Proposed Action passes through 27 allotments which include approximately 3,000,000 acres of range. Thus, the total acreage temporarily lost from forage production across all allotments due to construction of the Proposed Action would be approximately 0.2 percent. Permanent losses would be less than 0.01 percent. At an average value of 20 acres per AUM (understanding that acres per AUM varies with the Ecological Site, yearly climatic conditions, and other edaphic factors), construction activities would cause the temporary loss of approximately 318 AUMs out of about 140,835 total AUMs available across all allotments encompassing any component of the Proposed Action. The effects on particular allotments would be greater or less, as further discussed below. The total allotment acreage and AUMs per allotment are listed in **Table 3.9-1**.

Table 4.9-1 below provides a calculation of the linear miles to be affected under the Proposed Action in each allotment. It estimates the number of transmission line structures that would be constructed in each allotment, and the temporary and permanent disturbance associated with these structures, with the assumption of flat terrain. It also shows the acreage associated with construction of the Robinson Summit Substation and expansion of the Falcon Substation.

TABLE 4.9-1 ACRES OF DISTURBANCE BY ALLOTMENT FOR THE PROPOSED ACTION

PROJECT ELEMENT	ALLOTMENT	LINEAR MILES AFFECTED	NUMBER OF STRUCTURES**	DISTURBANCE ACRES*	
				SHORT-TERM (200-FOOT ROW)	LONG-TERM (STRUCTURES ONLY)
Robinson Summit Substation & access road	Thirty Mile Spring	Not applicable	Not applicable	41.8	107.6
Falcon-Gonder Loop-in	Thirty Mile Spring	0.46	2.3	11.3	0.2
Segment 6C	Badger Springs	11.0	55.1	266.9	5.5
	Cove	5.0	24.8	120.1	2.5
	Douglas Canyon	2.3	11.4	55.0	1.1
	Douglas Point	4.2	21.0	101.9	2.1
	Forest Moon	11.9	59.6	289.1	6.0
	Fox Mountain	11.0	55.0	266.7	5.5
	Giroux Wash	13.1	65.5	317.7	6.6
	Hardy Springs	9.3	46.5	225.3	4.7
	Indian Jake	4.4	21.8	105.6	2.2
	McQueen Flat	1.2	6.1	29.7	0.6
	North Cove	4.1	20.5	99.2	2.1
	Sunnyside	8.2	41.1	199.4	4.1
	Thirty Mile Spring	2.8	13.8	66.9	1.4
	Tom Plain	9.1	45.6	221.1	4.6
	Wells Station	3.1	15.5	75.1	1.6
	Wilson Creek	2.4	12.2	59.4	1.2
Segment 8	Cliff Springs	7.7	38.5	186.5	3.8
	Ely Springs	11.2	56.0	271.3	5.6
	Ely Springs Sheep	1.7	8.3	40.2	0.8
	Oak Springs	14.2	71.1	344.6	7.1
	Simpson	2.2	10.9	53.0	1.1
	Wilson Creek	19.1	95.5	462.9	9.6
Segment 9A	Buckhorn	7.2	36.0	174.7	3.6
	Lower Lake East	1.0	5.1	24.5	5.0

PROJECT ELEMENT	ALLOTMENT	LINEAR MILES AFFECTED	NUMBER OF STRUCTURES**	DISTURBANCE ACRES*	
				SHORT-TERM (200-FOOT ROW)	LONG-TERM (STRUCTURES ONLY)
Segment 9B	Buckhorn	10.86	54.3	263.2	5.4
	Oak Springs	0.01	0.04	0.2	0.0
Segment 9D	Delamar	0.0	0.0	0.28	1.0
	Lower Lake East	9.0	45	212.2	45.0
Segment 11	Arrow Canyon	All allotments have been relinquished and are inactive			
	Delamar				
	Dry Lake				
	Pittman Well				

* Used 0.1 acre of permanent impact acreage/structure for calculation purposes, except in desert tortoise habitat. However, in areas of steep terrain, structures could result in permanent disturbance of up to as much as 1.0 acre/structure.
**Number of structures was calculated assuming 5 per mile, therefore resulting in fractions.

The acreage figures assume that the entire 200-foot wide transmission line corridor ROW could be disturbed during construction, and that permanent disturbance would cover 0.1 acre per transmission line structure. Please refer to **Table 3.9-1** to compare affected acreage with the total acreage of allotments within the transmission facilities area.

The allotment with the most ROW acres affected due to transmission facilities construction is Wilson Creek located in northwest Lincoln County. Segment 6C and Segment 8 would pass through this allotment. Transmission construction activities could temporarily impact approximately 522 acres in this 1,071,661 acre allotment. This is 0.04 percent of the acreage in the allotment. At an average of 20 acres per AUM, the project could temporarily affect 26 AUMs. Out of 54,070 AUMs, this is less than 1 percent of the AUMs available.

The allotment with the highest proportion of its ROW acres affected is the Simpson allotment, a small allotment off the south end of the Wilson Creek allotment. Approximately 0.7 percent of its acreage would be affected. At an average of 20 acres per AUM, the project could affect 2 AUMs. Out of 747 AUMs in the allotment, the project would affect less than 1 percent of the AUMs available.

Both of these situations would result in negligible impacts. Since all other allotments would have a lower percentage of their lands affected, it can be assumed that effects on all allotments are negligible.

None of the allotments within the direct and indirect effects area in the Southern Nevada District Office boundary are active. This includes the Arrow Canyon, Pitman Well, and Dry Lake allotments. The AUMs in these allotments have been relinquished. Thus, there would be no effects to livestock in these allotments.

No fencing of transmission line structures would occur during construction. Livestock would be able to access virtually all of the acreage within the transmission facilities ROW, with the exception of construction areas at the Robinson Summit and Falcon Substations. However, the acreage lost during construction at Robinson Summit Substation would be less than 0.1 percent of the allotment. The Falcon Substation is located on private ground, and thus is not within an allotment administered by the BLM. Effects of the construction of transmission facilities on

allotments, including substation construction and expansion, would be negligible and mainly short-term in duration once the majority of disturbed acreage is successfully reclaimed. Negligible long-term impacts would also occur from permanent disturbances.

The three sheep trails that run through the area would be temporarily impacted. Approximately 88 acres of the sheep trail would be impacted. Since the trails and allotments overlap, the impacted acres of trail do not increase the total acres of range resources impacted. The trail markers, cedar posts put in during the 1940s to mark the sheep trail boundaries, would not be moved or disturbed by construction.

Herd Management Areas

For the Proposed Action, about 655 acres situated in the Silver King HMA could be impacted during construction activities (this includes the entire 200-foot ROW corridor which would not be completely disturbed, the substation footprints, and other potential disturbance areas inside and outside the ROWs). This is a temporary loss of about 1 percent of all of the acreage available to horses within this HMA.

In the long term, approximately 135 structures would occupy acreage within the Silver King HMA under the Proposed Action, disturbing approximately 13.5 acres.

Effects of transmission facility construction on the Silver King HMA would be negligible and short-term in duration. Long-term impacts from the presence of transmission facilities would also be negligible.

Water Sources

There are no mapped water sources within 2 miles of the Proposed Action facilities. However, there may be springs or ponds that are utilized by livestock or wild horses that have not been recorded or mapped. If construction activities came near water supply locations, livestock or horses might be skittish of the activity and avoid these areas. However, all activities except those associated with equipment and staging areas would move steadily across the landscape of each HMA, allowing animals time to get used to, or avoid, construction workers and activities.

Temporary access roads and transmission structure locations would be shifted to the extent possible to avoid direct impacts on springs or other range improvements. Erosion control, using effectively installed BMPs, would protect nearby water sources. There would be negligible and transient effects on access to, and quality of, watering holes and range improvements. There would be no significant use of water in the construction and maintenance of power lines, thus no drawdown of water wells is expected. No effects to water quantity or quality are anticipated.

Operations, Maintenance, and Abandonment

Permanent impacts across the project area would total approximately 120 acres in 27 livestock allotments, and 13.5 acres in 1 HMA due to transmission structure placement. Approximately 108 acres would be permanently disturbed for the Robinson Summit Substation within the 188,872-acre Thirty Mile allotment. This substation is not within an HMA. The Falcon Substation is not within an allotment or an HMA, thus no impacts to BLM-administered allotments or HMAs are expected from the expansion of this substation.

Long-term periodic maintenance to the transmission line facilities may require access to the corridor via existing roads and may result in temporary disturbance to forage resources, livestock allotments, and HMAs; however, this effect would be negligible.

No water sources have been identified within the Proposed Action area. No effect to water sources is expected.

4.9.2.1 Mitigation

Additional mitigation measures are not required.

4.9.2.2 Unavoidable Adverse Impacts on Range Resources

Construction activities would result in a less than 1 percent loss of rangeland available to livestock and wild horses for grazing. Reclamation of disturbed lands can result in poorer vegetation productivity than the native rangeland, although this is not always the case. In areas that are already degraded by weeds, perennial plant seedings in a good year can result in improved forage values.

4.9.2.3 Irreversible and Irretrievable Commitments of Resources

Construction of the transmission line facilities would result in the long-term commitment of a small (less than 1 percent) amount of rangeland resources because of the presence of transmission line structures, construction of the Robinson Summit Substation, and expansion of the Falcon Substation. This would cause a slight decrease in the acreage and forage available to grazing animals. These changes would be small compared to the forage and rangeland resources available within the area. Impacts would be negligible.

4.9.2.4 Relationship of Short-term Uses and Long-term Productivity

Most impacts to range resources would result from relatively short-term construction activities, although a negligible amount of long-term impacts from project elements would persist for the operational life of the project. The long-term impacts from construction and operation of the transmission line facilities are minor compared to the long-term increase to the regional supply of electrical power.

4.9.3 Action Alternative

Construction

Construction of the transmission facilities for the Action Alternative would be similar to those described under the Proposed Action. The Action Alternative utilizes a slightly different route along each segment as described in **Chapter 2** and utilizes Segment 9C instead of 9A. Segments 9A and 10 are alternative segments to the Action Alternative. The Action Alternative route so closely parallels the Proposed Action route in Segments 6C, 8, 9B and 9D, that effects to range and wild horse resources along these two segments would be virtually the same as those anticipated for the Proposed Action.

The major differences between the Action Alternative and the Proposed Action involve two options: 1) the deletion of Segment 9A and the addition of Segment 9C, or 2) the deletion of Segments 9A, 9B, 9C, and 9D and the addition of Segment 10. These are discussed in more detail below.

<u>Vegetation and Forage Production</u>

Segment 9C*:* Typical vegetation and forage production for selected areas within the project area are listed in **Table 3.9-2.** The forage in the area of the Segment 9C is of similar type and value as the forage that would be encountered in Segment 9A. For example, both routes have Delamar, Veet, Rochpah, and Pinwater soils. The vegetation productivity of these soils ranges from 0 pounds to 800 pounds per acre, and forage values range from 0 to 440 pounds per acre. Neither segment passes through measurable areas of high-productivity soils. If Segment 9C

were constructed, effects to vegetation and forage production would be similar to those expected in the Proposed Action, and effects would be negligible compared to the amount of forage available in the surrounding area.

The effects of construction on forage resources for the remainder of the route would be as described under the Proposed Action.

Segment 10: Forage in the area of Segment 10 is of similar value to that identified in the Proposed Action Segments 9A, 9B, and 9D, except in areas of Segment 10 that contain Geta soils. These soils, which are in Droughty loam 5-7 P.z., Sandy Plain, 5-7 P.z., or Dry Flood Plain Ecological Sites, produce around 1,000 to 1,600 pounds of vegetation in a typical year, 800 to 1,200 pounds of which has forage value. These soils make up about 20 percent of the land within Segment 10, covering approximately 215 acres of the 1,115-acre proposed ROW within this segment. Remaining soils are similar to those found in Segments 9A, 9B, and 9D and are much less productive. Examples of other typical soils found within these four segments include Weiser, Tencees, Turba, Acti, Leo, Handpah, and Veet. An illustration of the soils by segment can be found on figures in **Appendix 3A**.

The effects of construction on forage resources within Segment 10 would be negligible to minor, depending on the amount of Geta soils affected. The effects of construction on forage resources for the remainder of the route would be similar to that described under the Proposed Action.

The Action Alternative would follow the same commitments, and impacts would be affected by the same factors as are listed under **Section 4.9.2**.

Livestock Allotments

Segment 9C: The number of acres that could be affected under the Action Alternative during construction using Segment 9C (approximately 160 acres) would be similar to the number of acres to be affected if Segment 9A (approximately 200 acres) were developed. This is shown by comparing **Table 4.9.2** below, with **Table 4.9.1**, above. These lands support similar vegetation to that described under the Proposed Action.

Segment 9C would require construction of fewer structures. Total transmission line alignment acreage in this segment would be similar to the acreage for the Proposed Action. The route is shown on **Figure 2.2.1b**. The effects of construction on livestock allotments under this alternative would be similar to that expected of the Proposed Action, and would be short-term and negligible.

TABLE 4.9-2 DISTURBANCE ACRES BY ALLOTMENT FOR THE ACTION ALTERNATIVE

PROJECT ELEMENT	ALLOTMENT	LINEAR MILES AFFECTED	NUMBER OF STRUCTURES**	DISTURBANCE ACRES*	
				SHORT-TERM (200-FOOT ROW)	LONG-TERM (STRUCTURES ONLY)
Segment 6C	Badger Springs	10.9	54.5	264.0	5.4
	Cove	4.8	24.0	116.4	2.4
	Douglas Canyon	2.3	11.4	55.1	1.1
	Douglas Point	4.2	20.9	101.2	2.1
	Forest Moon	11.6	58.2	282.3	5.8
	Fox Mountain	12.0	59.9	290.4	6.0
	Giroux Wash	14.7	73.5	356.3	7.4
	Hardy Springs	9.5	47.4	229.7	4.7
	Indian Jake	3.1	15.3	73.9	1.5
	McQueen Flat	1.6	7.8	37.8	0.8
	North Cove	4.1	20.4	99.1	2.0
	Sunnyside	6.5	32.3	156.7	3.2
	Thirty Mile Spring	3.0	14.8	71.5	1.5
	Tom Plain	8.5	42.6	206.7	4.3
	Wells Station	3.0	15.0	72.9	1.5
	Wilson Creek	3.5	17.6	85.3	1.8
Segment 8	Buckhorn	0.1	0.48	2.3	0.1
	Cliff Springs	7.6	37.7	183.0	3.8
	Ely Springs	11.2	56.2	272.3	5.6
	Ely Springs Sheep	1.2	6.0	29.00	0.6
	Oak Springs	14.3	71.6	347.3	7.2
	Simpson	2.7	13.3	64.5	1.3
	Wilson Creek	19.2	96.1	466.1	9.6
Segment 9A (alternative)	Buckhorn	7.28	36.4	176.29	3.6
	Lower Lake East	1.11	5.5	26.78	0.6
Segment 9B	Buckhorn	10.86	54.3	263.2	5.4
	Oak Springs	0.01	0.04	0.2	0.0
Segment 9D	Delamar	0.0	0.0	0.28	0.0
	Lower Lake East	9.0	45	212.2	4.5
Segment 9C	Buckhorn	5	25.2	122.2	2.5
	Lower Lake East	1.5	7.7	37.2	0.8
Segment 10 (alternative)	Buckhorn	2.5	12.7	59.5	1.3
	Delamar	31.7	158.6	769.1	15.9
	Grapevine	11.4	57.1	276.8	5.7

PROJECT ELEMENT	ALLOTMENT	LINEAR MILES AFFECTED	NUMBER OF STRUCTURES**	DISTURBANCE ACRES*	
				SHORT-TERM (200-FOOT ROW)	LONG-TERM (STRUCTURES ONLY)
Segment 11	Arrow Canyon	14.5	72.4	351.0	7.2
	Delamar	4.5	22.5	109.2	2.3
	Dry Lake	6.4	32.1	156.1	3.2
	Pittman Well	10.4	52.2	253.0	5.2

* Used 0.1 acre of permanent impact acreage/structure for calculation purposes. However, in areas of steep terrain, structures could result in permanent disturbance of up to as much as 1.0 acre/structure.
**Number of structures was calculated assuming 5 per mile, therefore resulting in fractions.

Segment 10: The Segment 10 alternative would pass through the Delamar, Grapevine, and a small corner of the Buckhorn allotments. The route is shown on **Figure 3.9-1b**. This route would require the construction of approximately 38 more structures than the Proposed Action along Segments 9A, 9B, and 9D. The total number of acres that could be affected under the Action Alternative during construction using Segment 10 (1,115 acres) would be greater than under the Proposed Action across Segments 9A, 9B, and 9D (919 acres). This would be a difference of approximately 196 acres.

In addition, this segment contains higher-production Geta soils, which are not found in the Proposed Action segments 9A, 9B, and 9D. At a production rate of 800 to 1,200 pounds of forage per acre per year, Geta soils could provide the equivalent of four or more times as many AUMs per acre of disturbance. In comparison, other typical soil types found along Segments 9A, 9B, and 9D as well as Segment 10 include the Geer-Penoyer Association (m.u. 1520 - Lincoln County South Part, nv754), which typically produces 350 pounds of forage per acre per year, and the Arizo-Bluepoint association (m.u. 1030 - Lincoln County North Part, nv784), which typically produces 60 pounds of forage per acre per year.

However, these soils extend beyond the proposed project boundary, providing higher quality forage outside of the proposed affected area. In addition, the total acreage of these soils within the proposed project area is small (220 acres) compared to the size of the smallest allotment on Segment 10 (Grapevine at 22,000 acres): there are large areas of unaffected lands on which forage would be produced.

The effects of construction activities on livestock allotments would be negligible to minor and short term in duration.

The three sheep trails that run through the area would be temporarily impacted. Approximately 94 acres of the sheep trail would be impacted under the Action Alternative. Since the trails and allotments overlap, the impacted acres of trail do not increase the total acres of range resources impacted. The trail markers, cedar posts put in during the 1940s to mark the sheep trail boundaries, would not be moved or disturbed by construction.

Horse Management Areas

Acreage affected in the Silver King HMA under the Action Alternative would be about 664 acres, very similar to that listed under the Proposed Action.

Impacts to the Silver King HMA due to construction activities and presence of transmission facilities would be as described under the Proposed Action. Please refer to **Section 4.9.2**.

Water Sources

Segment 9C: There are no stockwatering facilities within 2 miles of Segment 9C of the transmission facilities.

Segment 10: There are 3 stock watering facilities within 2 miles of Segment 10. Two are reservoirs and one is a tank. As there is some flexibility in locating power lines, structures, and access roads, it is unlikely that these water sources would be affected, thus no impacts are expected.

Impacts to other water sources due to construction activities would be as described under the Proposed Action. Please refer to **Section 4.9.2**.

Operations, Maintenance, and Abandonment

Impacts associated with operations, maintenance, and abandonment would be similar to those described under the Proposed Action.

4.9.3.1 Mitigation

Additional mitigation measures are not required.

4.9.3.2 Unavoidable Adverse Impacts on Range Resources

Unavoidable and adverse impacts on range resources would be the same as that described in the Proposed Action.

4.9.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of range resources would be the same as those described in the Proposed Action**,** as related to impacts associated with the Action Alternative.

4.9.3.4 Relationship of Short-term Uses and Long-term Productivity

The relationship of short-term uses and long-term productivity would be the same as that described in **Section 4.9.2.4** as related to impacts associated with the Action Alternative.

4.9.4 No Action Alternative

Under the No Action Alternative, there would be no project-related impacts to range resources.

4.10 Cultural Resources

4.10.1 Indicators and Methods

The term "historic property" is defined in the NHPA as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register of Historic Places (NRHP)”; such term includes artifacts, records, and remains which are related to such district, site, building, structure, or object. 16 U.S.C. Section 470(w)(5).

The following indicators were considered when analyzing potential impacts to historic properties (i.e. NRHP-eligible cultural resources):

- The number of NRHP-eligible sites impacted
- The projected number of acres of NRHP-eligible site area impacted
- Known historic features in or adjacent to project components
- The number of historic resources within the viewshed potentially impacted indirectly by the project

No TCPs, as defined in **Section 3.10**, have been identified in the project area. Therefore discussion of TCPs will not be carried forward in the impact analysis.

Assessment of potential effects or impacts on cultural resources is based on the NHPA regulations that define an effect as a direct or indirect alteration to the characteristics of a "historic property" that qualify it for inclusion in the NRHP. Adverse effects diminish the integrity of a property's location, setting, design, materials, workmanship, feeling, or association.

As defined in 36 CFR 800.5, adverse effects on historic properties include, but are not limited to:

(i) Physical destruction of or damage to all or part of the property;

(ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary's Standards for the Treatment of Historic Properties (36 CFR part 68) and applicable guidelines;

(iii) Removal of the property from its historic location;

(iv) Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;

(v) Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;

(vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to an Indian tribe or Native Hawaiian organization; and

(vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

In accordance with the Programmatic Agreement, BLM, in consultation with the Nevada State Historic Preservation Office (SHPO), shall to the extent practicable ensure that effects to historic properties be avoided through project design, redesign, or relocation of facilities where feasible. When avoidance is not feasible an appropriate treatment plan shall be designed, in consultation with SHPO, to lessen or mitigate project-related effects to historic properties.

4.10.2 Proposed Action

Potential impacts to cultural resources that are common to the Proposed Action and Action Alternative include the following and are described in detail below.

- Direct impacts to prehistoric and historic sites
- Discovery of unanticipated finds during construction
- Discovery of human remains during construction
- Increased traffic and accessibility
- Impacts to remaining unevaluated sites
- Access roads impacts

Where project-specific inventories were conducted, the numbers of NRHP-eligible sites potentially impacted have been presented. Where project-specific site data was not available, a

quantified prediction of impacts to prehistoric and historic NRHP-eligible sites in acres was calculated based on sensitivity modeling conducted for this project (Carpenter et al. 2008). Due to the fact that the relatively few historic-period sites recorded near the project area are linear in nature, historic concerns are also assigned based on known historic sites present in or adjacent to project components.

Table 4.10-1 presents both specific and projected potential impacts to NRHP-eligible sites.

TABLE 4.10-1 POTENTIAL CULTURAL RESOURCE IMPACTS UNDER THE PROPOSED ACTION

PROJECT COMPONENT	NRHP-ELIGIBLE SITES IMPACTED	PROJECTED ACRES OF PREHISTORIC NRHP-ELIGIBLE SITES	PROJECTED ACRES OF HISTORIC NRHP-ELIGIBLE SITES
Segment 6C	**	131.43	2.3
Segment 8	**	3.47	0.0
Segment 9A	0	n/a	n/a
Segment 9B	**	0.0	0.0
Segment 9D	**	47.88	0.0
Segment 11	**	22.08	0.0
Robinson Summit Substation	2	n/a	n/a
Falcon Substation Expansion	0	n/a	n/a
Totals	**2**	**204.86**	**2.3**

Source: Carpenter et al. 2008
** A Class III cultural resource inventory would be conducted prior to construction activities to determine presence of and impacts to NRHP-eligible cultural resource sites
n/a – Not applicable; component has been inventoried for cultural resources.

Construction

Prehistoric and historic sites eligible for listing in the NRHP are distributed throughout the project area. Direct impacts to prehistoric and historic sites, including surface or subsurface disturbance incurred during project construction could occur anywhere along the Proposed Action. Activities such as access road improvements; transmission line and substation construction, including foundations, structure pads, and guy wire anchor points; vegetation management; and material yards for construction equipment and personnel have the potential to disturb NRHP-eligible cultural resources. These potential impacts would occur during the construction phase.

As stated in the Programmatic Agreement, all sites would be avoided where practicable by project design. If avoidance becomes an issue, further mitigation must be taken by the Proponent in accordance with the Programmatic Agreement. During construction activities, any unanticipated cultural resources discovered would require that all work within a 50-meter area cease immediately and the BLM archaeologist notified immediately. The BLM archaeologist would then resolve the nature of the find.

Robinson Summit Substation

There would be two NRHP-eligible sites impacted by the Robinson Summit Substation construction. The physical destruction of or damage to all or part of NRHP-eligible sites would destroy or diminish the characteristics that make them eligible for the NRHP. Impacts would be

mitigated through data recovery studies and/or other appropriate treatment as described in the Programmatic Agreement. Impacts would be minor and long-term.

Falcon Substation Expansion

There would be no impacts to known cultural resources sites at the Falcon Substation Expansion.

Transmission Line Facilities

According to the sensitivity analysis, it is projected that approximately 205 acres of prehistoric and 2.3 acres of historic NRHP-eligible sites would be present along the Proposed Action transmission line alignment. Transmission line structure placement would be modified to avoid and span eligible sites where possible. Historic concerns along the transmission line alignment include potential impacts to the Currant Mining District, Midland Highway, Ranches/Farming areas, Mining/Ranching areas, and the historic route of US-93. The physical destruction of or damage to all or part of eligible sites that cannot be avoided would destroy or diminish the characteristics that make them eligible for the NRHP. Impacts could potentially be avoided through construction design modification or mitigated through data recovery studies. Impacts would likely be minor to moderate and long-term.

Operations, Maintenance, and Abandonment

No additional direct impacts to NRHP-eligible cultural resources from operations, maintenance, and abandonment at the Robinson Summit Substation and the Falcon Substation would be anticipated.

Unless permanently fenced or otherwise protected, NRHP-eligible sites within the permanent transmission line ROW could be inadvertently impacted during operation and maintenance of the transmission line facilities. Disturbance could potentially occur during activities such as routine vegetation removal and emergency repairs. Further, public access into these areas increases the potential for unauthorized artifact collection and vandalism at these sites.

4.10.2.1 Mitigation

Additional mitigation measures are not required.

4.10.2.2 Unavoidable Adverse Impacts on Cultural Resources

Unavoidable or residual adverse impacts to NRHP-eligible cultural resource sites could include compromised site integrity and loss of data due to physical damage to the sites. Impacts would be mitigated to the extent possible through data recovery or other appropriate treatment prior to any construction activities through an approved treatment plan. The presence of upgraded public access roads could lead to increased casual visitation to nearby site locations resulting in greater vulnerability to site disturbance, unauthorized artifact collection, and vandalism.

4.10.2.3 Irreversible and Irretrievable Commitments of Resources

Any loss of context or destruction of NRHP-eligible or unevaluated cultural resource sites would constitute an irreversible commitment of that resource. This loss would be site-specific, as well as a loss of cumulative data on the local and regional level. Mitigation of impacts through data recovery would also constitute an irreversible commitment of that resource.

4.10.2.4 Relationship of Short-term Uses and Long-term Productivity

The short-term use of the area during project activities would result in adverse effects to cultural resource sites located within the project area. These impacts would be mitigated to the extent possible through data recovery or other appropriate treatment. The potential for inadvertent

damage or destruction of cultural sites during construction, operation, maintenance, or associated activities, could result in the loss of significant information. Further, information and data retrieved through mitigation measures (i.e., data recovery) would represent short-term use of cultural resources at the expense of future research opportunities. Therefore, long-term productivity would be lost.

4.10.3 Action Alternative

Table 4.10-2 presents both specific and projected potential impacts to NRHP-eligible sites.

TABLE 4.10-2 POTENTIAL CULTURAL RESOURCE IMPACTS UNDER THE ACTION ALTERNATIVE

PROJECT COMPONENT	NRHP-ELIGIBLE SITES IMPACTED	PROJECTED ACRES OF PREHISTORIC NRHP-ELIGIBLE SITES	PROJECTED ACRES OF HISTORIC NRHP-ELIGIBLE SITES
Segment 6C	**	124.02	2.3
Segment 8	**	3.5	0.0
Segment 9A (Alternative)	0	n/a	n/a
Segment 9B	**	0.0	0.0
Segment 9C	**	0.0	0.0
Segment 9D	**	46.22	0.0
Segment 10 (Alternative)	10	n/a	n/a
Segment 11	**	21.84	0.0
Robinson Summit Substation	2	n/a	n/a
Falcon Substation Expansion	0	n/a	n/a

Source: Carpenter et al. 2008
** A Class III cultural resource inventory would be conducted prior to construction activities to determine presence of and impacts to NRHP-eligible cultural resource sites
n/a – Not applicable

Construction

Robinson Summit Substation

Impacts to cultural resources from construction of the Robinson Summit Substation would be the same as those described under the Proposed Action.

Falcon Substation Expansion

Impacts to cultural resources from the expansion of the Falcon Substation would be the same as described under the Proposed Action.

Transmission Line Facilities

According to the sensitivity analysis, it is projected that approximately 196 acres of prehistoric and 2.3 acres of historic NRHP-eligible sites would be present along the Action Alternative transmission line alignment (using either Segment 9C or 9A). Transmission line structure placement would be modified to avoid and span eligible sites where possible. Historic sites potentially impacted by transmission line facilities include Midland Highway, Historic US-93, Currant Mining District, and known historic ranching/farming areas. Impacts could potentially be

avoided through construction design modification or mitigated through data recovery studies. Impacts would likely be minor to moderate and long-term.

If Segment 10 were utilized rather than Segments 9A, 9B, 9C, and 9D, then it is projected that about 149 acres of prehistoric NRHP-eligible sites, 2.3 acres of historic NRHP-eligible sites, and 10 documented (and recommended) NRHP-eligible sites would be present along the Action Alternative transmission line alignment.

Operations, Maintenance, and Abandonment

Impacts to cultural resources during operations, maintenance, and abandonment would be similar to those described under the Proposed Action.

4.10.3.1 Mitigation

Additional mitigation measures are not required.

4.10.3.2 Unavoidable Adverse Impacts on Cultural Resources

Unavoidable or residual adverse impacts to cultural resource sites would be similar to those described under the Proposed Action.

4.10.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments would be similar to that described under the Proposed Action.

4.10.3.4 Relationship of Short-term Uses and Long-term Productivity

Short-term uses and long-term productivity would be similar to that described under the Proposed Action.

4.10.4 No Action Alternative

Under the No Action Alternative, the ON Line Project would not be constructed and there would be no associated project impacts on NRHP-eligible cultural resource sites (historic properties) or historic resources.

4.11 Native American Concerns

4.11.1 Indicators and Methods

The analysis of potential impacts to Native American Concerns is based on a review of known tribal interests, traditional cultural places, trust assets/treaty rights resources, and consultation with the potentially affected Tribes (see **Section 3.11.3**).

There are 11 potential places of cultural and/or geographic interest to the Tribes within or near the project area. No formal or informal issues or concerns have been raised to date by the various Tribes regarding any religious or traditional cultural property concerns for the ON Line Project.

Impacts to prehistoric cultural resource sites are disclosed in **Section 4.10**. Consultation with the Tribes regarding impacts to NRHP-eligible prehistoric cultural resource sites is required under Section 106 of the NRHP.

4.11.2 Proposed Action

There would be no direct or indirect construction or operational impacts to known places of cultural and/or geographic interest to the Tribes associated with components of the Proposed Action except where noted below.

Segment 6C

There could be direct impacts to one potential place of cultural and/or geographic interest as well as possible indirect impacts to another five places located in the general vicinity of this segment. Consultation with the Tribes is ongoing. No concerns have been raised to date by the Tribes.

Segment 9A

One potential place of cultural and/or geographic interest to the Tribes is located near the southwest portion of this segment. It is unknown if there would be indirect impacts. Consultation with the Tribes is ongoing. No concerns have been raised to date by the Tribes.

Segment 9B

One potential place of cultural and/or geographic interest to the Tribes is located near the southwest portion of this segment. It is unknown if there would be indirect impacts. Consultation with the Tribes is ongoing. No concerns have been raised to date by the Tribes.

Segment 9D

One potential place of cultural and/or geographic interest to the Tribes is located near the southwest portion of this segment. It is unknown if there would be indirect impacts. Consultation with the Tribes is ongoing. No concerns have been raised to date by the Tribes.

Segment 11

One potential place of cultural and/or geographic interest to the Tribes is located near this segment. It is unknown if there would be indirect impacts. Consultation with the Tribes is ongoing. No concerns have been raised to date by the Tribes.

4.11.2.1 Mitigation

Additional mitigation measures are not required.

4.11.2.2 Unavoidable Adverse Impacts on Native American Concerns

There would be no unavoidable adverse impacts on Native American Concerns.

4.11.2.3 Irreversible and Irretrievable Commitments of Resources

There would be no irreversible or irretrievable commitments of resources of Native American Concern.

4.11.2.4 Relationship of Short-term Uses and Long-term Productivity

In the short term, there would be no impacts to known Native American concerns. There would not be impacts to long-term productivity.

4.11.3 Action Alternative

The impacts of the construction, operations, maintenance, and abandonment of the transmission facilities would be similar to those described above in **Section 4.11.1** with addition of the segments below.

Segment 9C

There would be no direct or indirect impacts to known potential places of cultural and/or geographic interest to the Tribes along Segment 9C.

Segment 9A (alternative)

This would be the same as discussed under the Proposed Action.

Segment 10 (alternative)

One potential place of cultural and/or geographic interest to the Tribes is located near this segment. It is unknown if there would be indirect impacts. Consultation with the Tribes is ongoing. No concerns have been raised to date by the Tribes.

4.11.3.1 Mitigation

Additional mitigation measures are not required.

4.11.3.2 Unavoidable Adverse Impacts on Native American Concerns

There would be no unavoidable adverse impacts on Native American Concerns.

4.11.3.3 Irreversible and Irretrievable Commitments of Resources

There would be no irreversible or irretrievable commitments of resources of Native American concern.

4.11.3.4 Relationship of Short-term Uses and Long-term Productivity

In the short term, there would be no impacts to known Native American concerns. There would not be impacts to long-term productivity.

4.11.4 No Action Alternative

No ON Line Project related impacts on Native American concerns would occur under the No Action Alternative.

4.12 Land Use

4.12.1 Land Use Plans and Policies

The BLM Land Use Plans that apply to the project area (i.e., Ely and Las Vegas RMPs in **Section 3.12.3.1**) tend to favor a balanced approach to land management that protects fragile resources but doesn't overly restrict the development of other resources for economic goods and services. None of the action alternatives analyzed in this SEIS appear to conflict with the management goals and objectives of the current RMPs and the Caliente Management Framework Plan (MFP) and Desert Tortoise Amendment.

County land use plans for the southern counties (i.e., Lincoln and Clark) tend to be more developed than those in the northern part of the project area (i.e., White Pine, Eureka, and Nye). This is indicative of the greater growth and population in the south, particularly in Clark County. The location of proposed ROWs would not conflict with any county zones or land use designations.

4.12.2 Land Use and Ownership

The dominant land uses in the project area are livestock grazing/ranching, hunting, and recreation. The public lands administered by the BLM are managed for multiple-use. Impacts of

the ON Line Project to BLM grazing allotments are discussed under Range Resources in **Section 4.9**. Impacts of the ON Line Project to recreation, and hunting as a form of recreation, are discussed in **Section 4.14**. While mining is not a dominant land use within the project area, there are numerous mining claims in the project area (**Section 3.3**) and impacts of the ON Line Project on these claims are discussed in **Section 4.3**.

4.12.3 Indicators and Methods

Impacts on land use caused by project construction or operation were evaluated by determining the potential for:

- Conflicts with existing federal, state, and local land uses, plans, and policies
- Conflicts with existing BLM land use authorizations
- Changes in public land disposition

4.12.4 Proposed Action

The majority of the Proposed Action would be within federally designated utility corridors (i.e. SWIP and West-wide Utility Corridors) which function to minimize environmental and land use impacts and the proliferation of ROWs. The Proposed Action transmission line facilities cross or would be adjacent to several BLM land use authorizations. These are primarily in the form of ROWs for transmission lines, roads, and telephone and fiber optic facilities and include the following large right-of-way holders: NV Energy, Idaho Power, Great Basin Transmission LLC, Nevada Bell, Lincoln County Telephone, Lincoln County Power District, BLM, and NDOT. Because transmission line spans can be modified to avoid potential impacts, no adverse effects to existing ROWs are anticipated.

Table 4.12-1 compares the long-term ROW to the amount of private land that would be affected as a result of granting the ROWs for the transmission line facilities.

TABLE 4.12-1 PROPOSED ACTION LONG-TERM ROWS AND PRIVATE LAND USE ACREAGE

ELEMENT	LONG-TERM BLM ROW (ACRES)	PRIVATE, STATE, OR OTHER AGENCY LANDS AFFECTED (ACRES)
Robinson Summit Substation, includes 50-foot wide access road	108	0
Falcon-Gonder Loop-in	11	0
Segment 6C	2,468	31
Segment 8	1,359	0
Segment 9A	199	0
Segment 9B	263	0
Segment 9D	472	0
Segment 11	909	0
Falcon Substation Expansion	0	7

Construction

Prior to construction, the FAA would be consulted regarding potential interference of commercial and military training air space. As of the date of this document, it is unknown whether the proposed transmission facilities would interfere with the use of air space adjacent to the proposed ROWs.

During transmission line stringing, it would be necessary to erect temporary structures over major roadways for public safety. Access beneath these structures would remain largely unrestricted, with few temporary closures or other alterations to existing transportation routes.

There would be no additional construction-related impacts to land use beyond those already noted above or presented in specific resource sections including **Sections 4.3.2** (Geology), **4.9.2** (Range), **4.14.2** (Recreation), and **4.20.2** (Transportation).

Operations, Maintenance, and Abandonment

No additional impacts to land use would occur as the result of ongoing operations and maintenance of transmission facilities.

4.12.4.1 Mitigation

Additional mitigation measures are not required.

4.12.4.2 Unavoidable Adverse Impacts on Land Use

Unavoidable adverse impacts on land use under the Proposed Action include granting ROWs for various project elements which would change the land use of those parcels.

4.12.4.3 Irreversible and Irretrievable Commitments of Resources

There would be no irreversible commitments of land use allocations. The loss of existing land use of the affected parcels constitutes an irretrievable commitment.

4.12.4.4 Relationship of Short-term Uses and Long-term Productivity

Most impacts on land uses in the project area would result from ROWs being granted. These changes in land use are compared to the longer-term productivity of improving the regional supply of electrical power in Nevada.

4.12.5 Action Alternative

The impacts on land use would be very similar to the Proposed Action except for the different acreages listed in **Table 4.12-2,** which details the acreages of long-term ROWs and the amount of private or other agency land that would be affected as a result of the alternative.

TABLE 4.12-2 ACTION ALTERNATIVE LONG-TERM ROWS AND PRIVATE LAND USE ACREAGE

ELEMENT	LONG-TERM BLM ROW (ACRES)	PRIVATE, STATE, OR OTHER AGENCY LANDS AFFECTED (ACRES)
Robinson Summit Substation, includes 50-foot wide access road	same as Proposed Action	0
Falcon-Gonder Loop-in	same as Proposed Action	0
Segment 6C	2,493	6
Segment 8	1,364	0
Alternative Segment 9A	203	0
Segment 9B	261	0
Segment 9C	159	0
Segment 9D	456	0
Alternative Segment 10	1,114	0
Segment 11	938	0
Falcon Substation Expansion	0	same as Proposed Action

Construction

Impacts would be the same as those described under the Proposed Action and presented in specific resource sections including **Sections 4.3.2** (Geology), **4.9.2** (Range), **4.14.2** (Recreation), and **4.20.2** (Transportation).

Operations, Maintenance, and Abandonment

Impacts would be the same as those described under the Proposed Action in **Section 4.12.4.2**.

4.12.5.1 Mitigation

Additional mitigation measures are not required.

4.12.5.2 Unavoidable Adverse Impacts on Land Use

Unavoidable adverse impacts on land use under the Action Alternative include granting ROWs for the various project elements which would change the land use of those parcels.

4.12.5.3 Irreversible and Irretrievable Commitments of Resources

The irreversible and irretrievable commitments of resources would be the same as those discussed under the Proposed Action (**Section 4.12.4.3**).

4.12.5.4 Relationship of Short-term Uses and Long-term Productivity

The relationship of short-term use and long-term productivity would be the same as that discussed under the Proposed Action (**Section 4.12.4.4**).

4.12.6 No Action Alternative

Under the No Action Alternative, existing land use plans, policies, ownership, authorizations, access, and practices would continue under the current scenario into the foreseeable future.

4.13 Special Designation Areas

4.13.1 Indicators and Methods

This section addresses impacts of the proposed project elements to SDAs from the perspective of people using these areas. Lands outside of BLM jurisdiction were identified and included in the analysis if they were within 50 miles of the project area because recognized natural resources are present on these lands and potential impacts from the project could affect these SDAs. Included are lands administered by the NPS, USFS, National Wildlife Refuge, and Nevada Department of Wildlife Conservation lands. Other Nevada state lands, such as state parks, were not included: these are covered under Recreation Resources.

The following indicators were used to determine potential impacts to SDAs:

- Number of acres of temporary and long-term disturbance in each SDA within the Direct Effects Area
- Potential changes in air quality or other air clarity evaluations that could occur within SDAs due to construction and operation activities
- Potential changes in ambient noise levels that could occur within SDAs due to construction and operation activities
- SDAs or portions of SDAs that would have elements of the Proposed Action or Action Alternative visible, and the relationship between these areas and their Visible Resource Management (VRM) classifications

- Potential changes in erosion or sedimentation rates within SDAs

The following methods were used to evaluate these criteria:

- GIS mapping was used to determine the acreage of project elements that would occur within SDA boundaries.
- Viewshed information was reviewed to determine in what SDAs ON Line Project elements would be visible. The VRM classification of BLM lands within the project area are illustrated in **Figure 3.15-1**. The VRM classification map shows how the viewscape of each SDA is currently managed: should it be kept as pristine as possible (VRM Class I) or are views of occasional man-made objects acceptable (VRM Class II and III), or is an industrial backdrop acceptable (VRM Class IV).The relationship between viewscape, VRM classification, and SDAs is discussed by ON Line Project element.
- USGS maps were reviewed to determine if SDAs within the direct effects area would be prone to erosion due to construction or operation of the ON Line Project.

As noted in **Section 3.13**, only 7 of the 62 SDAs identified within 50 miles of the ON Line Project elements are within the direct effects area. However, several other SDAs could be indirectly affected by the project. These are evaluated below.

4.13.2 Proposed Action

Seven SDAs occur within or are located immediately adjacent to the Proposed Action ROW. There are numerous additional SDAs within 50 miles of the various segments of the Proposed Action as listed and briefly described in **Section 3.13**, **Table 3.13-2**. There are no SDAs within or adjacent to the Falcon Substation expansion area.

Construction

Construction of the Proposed Action would create fugitive dust, emissions from heavy equipment and employee vehicles, areas of light if work continued after dark, and loud noises during excavation activities that could be noticeable to people utilizing SDAs. Construction would last 18-24 months, with construction crews moving through an area at the rate of one to several miles per week.

<u>Land Area</u>

The Proposed Action transmission line facilities would pass through three SDAs: Kane Springs ACEC, Arrow Canyon ACEC, and Coyote Springs ACEC. Approximately 75 miles of the Proposed Action transmission line facilities pass through these SDAs. However, the Proposed Action is within the designated SWIP Utility Corridor in these areas. The transmission line segments would also pass adjacent to four additional SDAs: the Kirch WMA, Delamar Mountains WA, Pahranagat NWR, and Desert Range NWR.

Those SDAs that would be intersected by, or are within the same watershed basin boundary as the Proposed Action, would be most likely to be affected by visual, sound, or other impacts from construction and operation activities. These are listed in **Table 4.13-1**.

TABLE 4.13-1 SDAS THAT ARE LOCATED WITHIN THE SAME WATERSHED BASIN AS THE PROPOSED ACTION

SDA	SDA	SDA
Arrow Canyon ACEC	Delamar Mountains WA	Red Mountain WA
Arrow Canyon WA	Desert Range NWR	Riordan's Well WSA
Bald Mountain WA	Far South Egan WA	Shellback WA
Big Rocks WA	Grant Range WA	South Egan Range WA
Blue Eagle WSA	Kane Springs ACEC	South Pahroc WA
Bristlecone WA	Kirch WMA	Troy Peak RNA
Coyote Springs ACEC	Mormon Mesa ACEC	Weepah Spring WA
Currant Mountain RNA	Pahranagat NWR	White Pine Range WA
		White Pine Peak RNA

Visitors to those SDAs that have at least one mountain range or ridge between them and the transmission facilities would be less likely to see, hear, or be otherwise aware of these facilities. These SDAs are listed in alphabetical order in **Table 4.13-2**.

TABLE 4.13-2 SDAS WITH AT LEAST ONE MOUNTAIN RANGE BETWEEN THEM AND THE PROPOSED ACTION

SDA	SDA	SDA
Beaver Dam Slope ACEC	Moapa Valley NWR	Railroad Valley WMA
Clover Mts. WA	Mormon Mountains WA	Red Rock/Devil's Throat WA
Fortification Range WA	Mount Grafton WA	The Wall WSA
Franklin WMA	Mount Irish WA	Tunnel Spring WA
Gold Butte ACEC, Parts A&B	Muddy Mountains WA	Virgin River ACEC
Great Basin National Park	Palisade Mesa WSA	Virgin Mountains WA
Hidden Valley ACEC	Park Range WSA	White Rock WA
Highland Ridge WA	Parsnip Peak WA	White Rock WA
Lime Canyon WA	Quinn Canyon WA	

Of the SDAs listed in **Table 4.13-2**, eight are located south of I-15 or are separated from the actual facilities by other, more noticeable man-made features such as buildings and freeways. These are the Gold Butte ACECs – Parts A and B (including Gold Butte Townsite), Hidden Valley ACEC, Lime Canyon WA, Red Rock Springs/Devil's Throat ACECs, Muddy Mountains WA, Virgin River ACEC, and the Virgin Mountains ACEC. These are not discussed further in this section.

Air Quality

The estimated volume of fugitive dust created during the 24-month construction period of the transmission facilities is 878.5 tons. This assumes watering of the earthmoving areas for dust control. **Section 4.6** describes these effects as temporary and minor in areas directly adjacent to the work area, which includes those SDAs that are within or immediately adjacent to the electric transmission facilities.

Although there is no prevailing wind data, winds are likely overall from the northwest to southwest. Visitors to those SDAs that are located in easterly directions from electric

transmission facilities construction activities are more likely to experience noticeable changes in air quality from construction activities than visitors to SDAs located in westerly directions. Impacts would become negligible as distance from the activity increased.

Noise

Construction activities would create noise levels that would range from a maximum of 85-88 dBA within 50 feet of construction activities. This would be a maximum noise level of 50 dBA within 1 mile and 45 dBA at a distance of 1.5 miles. Helicopter noise, which would be brief and intermittent, would reach a maximum of 61 dBA at a distance of 1.5 miles. Those SDAs that are neither adjacent to, nor within, the transmission facilities would experience similar to lower noise levels as they are as far from, or farther from, the transmission facilities. Impacts of these noise levels, which would be transient in nature as construction crews move through an area, would be negligible to moderate and short term.

Those SDAs that are adjacent to, or within, the direct effects area would be subject to much louder noises. **Table 4.16-1** shows the mean and maximum decibel levels of loud equipment that is 50 feet away. The loudest noise would come from a helicopter (mean = 102 dBA, maximum = 105 dBA), which could be used only occasionally. A ground scraper, which would be much more commonly used, is typically 90 dBA (maximum = 94 dBA). This is roughly equivalent to a busy urban street. Impacts of these noises, which would be transient in nature as construction crews move through an area, would be minor to moderate and short-term. The effect of these noises to SDAs would dissipate as distance from construction activities increased.

Visitors to those SDAs that are at least one mountain range away from activities, or south of I-15, would likely not be able to hear or discern noises related to the construction activities for the electric transmission facilities.

Viewsheds

The Proposed Action is mostly within the SWIP Utility Corridor which is designated as VRM Class IV. The boundaries of all SDAs that are within or immediately adjacent to the Proposed Action ROW are within 8 miles of at least one of the following: existing paved roads, railroad tracks, operating or historic mines, or existing power lines. Small portions of Segment 9D, within the SWIP Utility Corridor, occur immediately adjacent to the Delamar WA. The SDAs on BLM administered lands are within Class I areas, the remaining SDAs within the direct effects area are within VRM Class III areas. Being able to see the construction activities of a narrow, linear human feature such as a power line would be a relatively insignificant addition of human activity to the viewscape and would fit within the management standards of this VRM classification. A total of 75 miles of the Proposed Action transmission line facilities pass through these SDAs. Construction of the Proposed Action would cause short-term and negligible to minor impacts to SDAs.

Visitors to those SDAs that are at least one mountain range away from activities, or south of I-15, would likely not interpret construction activities related to the Proposed Action as a major distraction from the surrounding viewscape.

Light Pollution

Construction would occur during daytime hours, therefore there would not be any construction lighting after dark.

Erosion and Sedimentation

Construction of the Proposed Action transmission line segments that pass through SDAs could create sediment that could enter ephemeral washes and/or affect the aesthetics of SDAs in the direct effects area. Three SDAs could potentially be affected by erosion and sedimentation. These are the Mormon Mesa, Kane Springs, and Coyote Springs ACECs. These effects are discussed in more detail in **Section 4.1** (Water). Sedimentation would be minimized and/or avoided through the use of BMPs (**Appendix 2A**), such as silt fencing and straw bale check dams. The effects of potential sedimentation would be negligible to minor and short-term in duration.

Operations, Maintenance, and Abandonment

The operation of the Proposed Action would have negligible impacts on SDAs because once construction was completed, exposed construction areas would be reclaimed to a vegetative cover, minimizing fugitive dust, erosion, and air quality issues. Only infrequent activity and/or noise related to inspection and maintenance work would occur.

As discussed under Construction above, changes to the viewscape would be negligible. The power line and substations would be visible from only a few locations in the SDAs located within the direct impacts area, as well as a few others located in close proximity to the facilities. No lights would be present on the transmission structures or lines. It is likely that a few small lights would be used for safety at the Robinson Summit Substation and the existing Falcon Substation. Lighting would only be utilized during nighttime visits for emergency operations or maintenance activities. Non-emergency visits would normally occur during daytime hours. The existing Harry Allen Substation and the Falcon Substation are visible from existing highways that see traffic throughout the night. Robinson Summit Substation would be blocked from view from US-50.

Thus, operations and maintenance of the Proposed Action would cause negligible effects on SDAs. Since activities would occur intermittently throughout the life of the project and the facilities, once constructed, are anticipated to remain for a long time, impacts would be long-term in duration.

Abandonment would require dismantling of the transmission line. Impacts would be the same as those described under Construction, above.

4.13.2.1 Mitigation

Additional mitigation measures are not required.

4.13.2.2 Unavoidable Adverse Impacts on Special Designation Areas

Unavoidable adverse impacts to SDAs would occur from any permanent and unreclaimed disturbance areas created during construction activities within SDAs.

4.13.2.3 Irreversible and Irretrievable Commitments of Resources

It is not anticipated that irreversible and irretrievable commitments of resources to SDAs would occur.

4.13.2.4 Relationship of Short-term Uses and Long-term Productivity

Most impacts on SDAs would result from relatively short-term construction activities, but others (such as visual impacts) would persist for the operational life of the substations and transmission line. This is compared to the longer-term productivity of improving the regional supply of electrical power in Nevada.

4.13.3 Action Alternative

Construction

Construction of Action Alternative transmission facilities would create similar impacts to those already described under the Proposed Action.

Land Area

Visitors to those SDAs that are within or adjacent to the Action Alternative would most likely be affected by visual, sound, or other impacts from the transmission facilities construction and/or operation. These are the same as the Proposed Action and listed in **Table 4.13-1** above.

Visitors to those SDAs that have at least one mountain range or ridge between them and the transmission facilities would be less likely to see, hear, or be otherwise aware of these facilities. These SDAs are listed in alphabetical order in **Table 4.13-3** below.

TABLE 4.13-3 SDAS WITH AT LEAST ONE MOUNTAIN RANGE BETWEEN THEM AND THE ACTION ALTERNATIVE

SDA NAME	SDA NAME	SDA NAME
Bald Mountain WA	Mount Grafton	Seitz Canyon/Echo Lake RNA
Bluebell WSA	Mount Moriah WA	Shellback WA
Bristlecone WA	North-South Schell Peaks RNA	South Egan Range WA
Cleve Creek Baldy RNA	Pearl Peak RNA	South Pequop WSA
Franklin WMA	Red Mountain WA	Steptoe Valley WMA
Goshute Peak WSA	Ruby Lake NWR	White Pine Range WA
Government Peak	Ruby Mountain WA	Meadow Valley Range WA

Air Quality

The estimated volume of fugitive dust created during the 24-month construction period of the entire electric transmission facilities is 878.5 tons.

Noise

Changes in noise levels would be similar to those described under the Proposed Action, **Section 4.13.2**.

Viewshed

Viewshed impacts would be similar to that described under the Proposed Action.

Light Pollution

Impacts would be similar to those described for the Proposed Action.

Erosion and Sedimentation

Impacts to SDAs from erosion and sedimentation during construction activities would be the same as described in **Section 4.13.2**.

Operations, Maintenance, and Abandonment

The effects from operation of the transmission facilities would be the same as that described in **Section 4.13.2**.

4.13.3.1 Mitigation

Additional mitigation measures are not required.

4.13.3.2 Unavoidable Adverse Impacts on Special Designations

Unavoidable adverse impacts caused by construction and operation of the ON Line Project using the Action Alternative would be similar to those described under **Section 4.13.2.2**.

4.13.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and Irretrievable Commitments of Resources using the Action Alternative would be similar to those described under **Section 4.13.2.3**.

4.13.3.4 Relationship of Short-term Uses and Long-term Productivity

The relationship of Short-term Uses and Long-term Productivity would be similar to those described in **Section 4.13.2.4**.

4.13.4 No Action Alternative

Under the No Action Alternative there would be no air emissions as a result of the construction activities or operation related to the Proposed Action or Action Alternative. There would be no potential impacts to flora, fauna, and water quality in SDAs related to this project. There would be no increased noise due to ON Line Project construction and operation.

4.14 Recreation

4.14.1 Indicators and Methods

Impacts on recreation areas and uses caused by project construction or operation were evaluated by determining the potential for:

- Conflicts with existing federal, state, and local recreation management plans and policies
- Changes in access to existing recreation areas or sites
- Changes in levels of use of existing recreation areas or sites

4.14.2 Proposed Action

The Proposed Action would not conflict with existing BLM RMPs across the project area. Management objectives related to recreation would remain viable and implementable. The 2004 Nevada SCORP identified the desire to protect, maintain, and increase public access to public lands as the top recreation management priority for the State of Nevada. The Robinson Summit Substation site would restrict public access to approximately 108 acres. None of the other proposed project elements would significantly affect public access to public lands. **Section 3.14.3.1** details all of the existing recreation management plans that are associated with the project area. There would be no conflicts with existing county land use or recreation management plans and policies.

Construction

The transmission line facilities would be constructed on lands within the Loneliest Highway, Chief Mountain, and North Delamar SRMAs. Of the 661,892 acres in the Loneliest Highway SRMA, Segment 6C would affect much less than 1 percent (about 250 acres) of the SRMA. The Robinson Summit Substation would affect an additional 149 acres of the Loneliest Highway SRMA. Electric transmission lines would also be constructed within the Ely, Caliente, and

Pioche SRP Areas. Of the 218,048 acres in the Ely SRP, Segment 6C would affect less than 1 percent (730 acres) of the SRP. Segment 6C would also affect 51 acres of the Pioche SRP's 418,968 total acres. Construction could be scheduled to avoid interruption of or conflict with permitted activities (motorized races, for example). As BLM lands are managed for multiple use and multiple resource values, higher priorities or other management concerns may render altering construction schedules impractical. Short-term impacts to permitted recreation activities could range from negligible to major.

There are no developed recreation sites within the proposed short-term or long-term ROWs for transmission facilities. Segment 6C does pass along the western boundary of the Chief Mountain OHV Area and Segment 8 would intersect the Silver State OHV Trail System in at least four places in Lincoln County. The quality of dispersed recreation adjacent to the ROW could be adversely affected by visual disruption (**Section 4.15**), noise (**Section 4.16**), fugitive dust (**Section 4.6**), and increased traffic (**Section 4.20**), though this recreation use is more conducive to this type of disturbance than most dispersed recreation uses.

Segments 6C and 9D would be near the Kirch WMA and Pahranagat NWR, respectively. Segments 9D and 11 would be adjacent to the Desert National Wildlife Refuge. Construction of the transmission line facilities may temporarily affect the presence of watchable wildlife adjacent to the ROW and along the eastern boundary of the refuge.

Recreation trails that intersect the ROW would be affected by vegetation removal within the ROW and the possibility of short-term trail closure due to construction activities.

The upgrading and use of existing access roads and the construction of new access roads would change the physical setting and may temporarily limit public access to active areas of transmission line construction for dispersed recreation purposes. The presence of equipment and areas of linear disturbance would introduce elements into the landscape that may temporarily alter recreation use patterns, especially OHVs. Transmission line facilities construction would cause temporary, minor impacts to dispersed recreation.

Operations, Maintenance, and Abandonment

Operation and maintenance activities for transmission facilities would cause long-term negligible to minor impacts to recreation activities adjacent to the ROW. Vegetation management would require the selective removal of some trees within the long-term ROW. This activity may require occasional mechanical thinning within the ROW, temporarily limiting access and introducing noise and odors that may impact the recreation experience for users in the area.

Transmission line structures would increase raptor perch sites. This would increase the possibility of raptor presence and its role as watchable wildlife, and conversely could decrease other watchable wildlife species due to increased predation. The presence of structures would also change the physical setting and introduce a visual intrusion that could affect the recreation experience for dispersed recreation users.

The presence of improved access roads to the ROWs may increase dispersed recreation (e.g., OHV) use and increase resource degradation of previously unused or little used areas. This could also increase access within the Chief Mountain OHV Area.

4.14.2.1 Mitigation

1. Construction schedules will be coordinated with permitted recreation activities to avoid conflicts.

4.14.2.2 Unavoidable Adverse Impacts on Recreation

The granting of 108 acres of long-term ROW for the Robinson Summit Substation (including the associated access road) and the location of the structures within the 200 foot wide ROW for the transmission line facilities would remove a small portion of these lands from public access and dispersed recreation opportunities.

4.14.2.3 Irreversible and Irretrievable Commitments of Resources

The loss of dispersed recreation use at the Robinson Summit Substation constitutes irreversible and irretrievable commitments of recreation resources.

4.14.2.4 Relationship of Short-term Uses and Long-term Productivity

Most impacts on recreation resources would result from relatively short-term construction activities, but others (such as visual or visibility impacts) would persist for the operational life of the ON Line Project. This is compared to the longer-term productivity of improving the regional supply of electrical power in Nevada.

4.14.3 Action Alternative

Construction

The impacts associated with the construction of the Action Alternative would be similar to those described for the Proposed Action in **Section 4.14.2**.

Segment 8 of the Action Alternative would affect 245 acres of the Chief Mountain SRMA's 111,182 total acres. Segment 8 of the Action Alternative would affect 152 acres of the Caliente SRP's 438,151 total acres.

The Segment 10 alternative would affect 242 acres of the North Delamar SRMA's 202,892 total acres.

Operations, Maintenance, and Abandonment

The impacts associated with the operation and maintenance of the Action Alternative would be similar to those described for the Proposed Action in **Section 4.14.2**.

4.14.3.1 Mitigation

1. Construction schedules will be coordinated with permitted recreation activities to avoid conflicts.

4.14.3.2 Unavoidable Adverse Impacts on Recreation

Unavoidable adverse impacts caused by construction and operation of the ON Line Project using the Action Alternative would be similar to those described under **Section 4.14.2.2**, above.

4.14.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and Irretrievable Commitments of Resources using the Action Alternative would be similar to those described under **Section 4.14.2.3**, above.

4.14.3.4 Relationship of Short-term Uses and Long-term Productivity

These are the same as those discussed under the Proposed Action in **Section 4.14.2.4**.

4.14.4 No Action Alternative

Under the No Action Alternative, the proposed project would not be constructed. This would result in no change to any existing recreational land use or access in the project area.

4.15 Visual Resources

This section discusses potential impacts of the Proposed Action and Action Alternative on visual resources, and consistency with VRM objectives.

4.15.1 Indicators and Methods

The following indicators were considered when analyzing potential impacts to visual resources:

- Level of contrast with established BLM VRM classes
- Visible project elements from surrounding sensitive areas
- Change in scenery, from baseline to projected, from various public and occupied points within the project area
- Line of sight of night-lighted project elements from surrounding sensitive areas

The assessment of visual impacts is based on impact criteria and methodology described in the BLM Visual Contrast Rating System (BLM 1986a). The quality of the visual environment is defined by VRM classes. Two issues are addressed in determining impacts: (1) the type and extent of actual physical contrast resulting from a proposed action, and (2) the level of visibility of a facility, activity, or structure. Impacts are considered to be major if visual contrasts that result from landscape modifications affect the quality of: scenic resources having rare or unique values; views from, or the visual setting of, designated or planned parks, wilderness areas, natural areas, or other visually sensitive land uses; views from, or the visual setting of, travel routes; and/or views from, or the visual setting of, established, designated, or planned recreational, educational, or scientific facilities, use areas, activities, viewpoints, or vistas.

The extent to which the project would affect the visual quality of its viewshed depends on the degree of visual contrast between proposed facilities and existing landscape elements (form, line, color, texture) and features (land and water surface, vegetation, structures). Assessing the Proposed Action's contrast in this manner indicates the magnitude of potential impacts and allows for development of mitigation measures that fulfill VRM objectives.

4.15.2 Proposed Action

Appendix 4A contains Visual Contrast Rating Worksheets that were prepared based on field examination of the visual settings of each KOP. The worksheets describe the existing conditions of the characteristic landscape seen from each KOP, types of viewers, sensitivity of viewers, and other relevant information. As described in **Section 3.15.3.1**, VRM Classes have been assigned by the BLM to all the KOPs and will be used as a basis to determine the level of contrast. Described below are potential visual impacts of project elements on the landscape when viewed from the KOPs.

Construction

Construction of transmission facilities would begin with surveying and soil testing followed by identification of structure locations, material yards, staging areas, wire stringing and tensioning sites, and concrete batch plant sites. Equipment access would be required to every transmission structure. New roads would be constructed if necessary; existing access roads would be used where possible. As viewed from KOPs, most of the ground disturbance would be hidden by existing vegetation. Equipment and workers would be most visible when working near major roads. As structures are completed and conductors are strung, the impact of transmission facilities on visual resources would increase from minimal to the final impact associated with the

operational configuration. The Robinson Summit Substation worksite is not anticipated to be visible from KOPs. The construction period is estimated to be approximately 24 months. Dust control BMPs would minimize the potential impact on visibility during construction.

Operations, Maintenance, and Abandonment

There would be industrial type lighting at the Robinson Summit Substation. However, lights would be off at all times unless an employee is in the substation. The floodlights would be directed downward or toward specific equipment. Exterior lighting at the substations would contribute to degradation of night skies to some degree; however, the BMPs presented in **Appendix 2A** would minimize the impact.

The transmission line facilities would be supported by tubular steel H-frame, self-supporting lattice, or guyed-V lattice structures, ranging from 100 to 185 feet high and spaced 900 to 1,600 feet apart, depending on terrain. The single-circuit transmission line would connect the proposed Robinson Summit Substation to the existing Harry Allen Substation. Under the Proposed Action, the transmission line would be visible from KOPs 1 through 6. The proposed transmission line would meet VRM management objectives when viewed from these KOPs, as discussed below.

The Proposed Action is located generally within the designated SWIP Utility Corridor which is designated VRM Class IV. Segment 11 would pass within approximately 0.5 mile of the Meadow Valley Range WA, and within approximately 0.25 mile of the Arrow Canyon WA, both of which are designated VRM Class I. The transmission line would likely be visible and could attract the attention of observers in these WAs. As discussed in **Section 4.15.2.1**, the fact that non-wilderness activities or uses can be seen or heard from Wilderness Areas does not preclude the conduct of those activities outside Wilderness Area boundaries.

The southern end of Segment 6C would pass through a portion of the south Schell Creek Range north of Silver King Mountain, that is designated VRM Class II. Viewers close to the transmission line on the Silver State OHV Trail (within 1 mile) would notice the line, but given the nature of their activity would not likely have their attention unduly attracted. The noticeability of the line to viewers would diminish with distance, as it would increasingly blend with the background landscape. VRM II objectives for this area would be met.

The Robinson Summit Substation would be southwest of the US-50 and would be hidden by rolling hills. Segment 6C would be south of the highway. The closest support structures would be at least 400 feet from the highway. The contrasting vertical lines and color of the support structures would be hidden to some degree by the rolling hills. The transmission line would attract attention, but would not dominate the view because it would be visible from vehicles on the highway for approximately 0.5 mile. The management objectives for VRM Class III and IV would therefore be met.

At KOP 1 Segment 6C crosses US-6. The support structures of the transmission line would be noticeable from approaching vehicles, and would attract attention for some distance on either side of the crossing. The closest support structures would be approximately 600 feet from the highway. The contrast between the transmission line support structures and the flat expanse and uniform color of shrubland in the valley would tend to change the existing character of the landscape, but only in the immediate vicinity of the crossing. As viewed from vehicles on the highway, the effect would be transient and management objectives for the VRM Class IV SWIP Utility Corridor would be met. A photo simulation of the view to the northwest from KOP 1 is presented in **Figure 4.15-1**. This figure shows a simulation of the Proposed Action line on the

left hand side of the figure and a simulation of the Action Alternative line on the right hand side of the figure.

Figure 4.15-1 View to the Northwest from KOP 1, Segment 6C

KOP 2 is in east Dry Lake Valley at the point where Segment 8 would cross US-93. An existing transmission line, access road, and equipment building at this location have degraded the scenic quality of the view. The support structures of the new transmission line would be noticeable from approaching vehicles, and would attract attention for some distance on either side of the crossing. The contrast between the new, lighter colored, vertical support structures and the flat expanse of shrubland in the valley would tend to change the existing character of the landscape in the immediate vicinity of the crossing. As viewed from vehicles on the highway, the effect would be transient and management objectives for the VRM Class IV SWIP Utility Corridor would be met. A photo simulation of the view to the northeast from KOP 2 is presented in **Figure 4.15-2**. This figure shows a simulation of the Proposed Action line on the left hand side of the figure in the distant and a simulation of the Action Alternative line, more prominent, on the right hand side of the figure.

Figure 4.15-3 shows the same view with guyed-V support structures instead of self-supporting lattice structures.

Figure 4.15-2 View to the Northeast from KOP 2, Segment 8

Figure 4.15-3 View to the Northeast from KOP 2, Segment 8, Guyed-V Structures

KOP 3 is on US-93 just south of the Pahranagat NWR at the point where Segment 9D would cross the highway. The vertical structures of the proposed transmission line would contrast with the relatively undisturbed valley and hills, and would tend to attract attention from the highway. However, the nearest support structure would be approximately 600 feet away and at highway speeds, the transmission line would be visible for less than a minute. The objectives for VRM Class IV in the SWIP Utility Corridor would be met.

KOP 5 is located on US-93 west of the Meadow Valley Mountains where Segment 11 would follow the highway. The new transmission line would be a minimum distance of 0.25 mile west of the highway, and therefore less conspicuous than the existing H-frame transmission line. The transmission line would be within the SWIP Utility Corridor and VRM Class IV objectives at KOP 5 would be met. A photo simulation of the view from KOP 5 is presented in **Figure 4.15-4**. This figure shows a simulation of the Proposed Action line which is the farthest line on the left hand side of the figure and a simulation of the Action Alternative line, which is the lattice structure line left of the existing wooden pole line.

KOP 6 is located at the junction of US-93 and I-15. The Harry Allen Substation is approximately 3.5 miles away and Segment 11 would enter the switching station from the far side (i.e., from the northeast). Although a large number of observers view the valley floor from this location, the proposed facilities are far enough away that they would be inconspicuous if they were visible at all. The view from KOP 6 is already affected by dozens of transmission line support structures on the valley floor. Therefore, VRM Class IV objectives would be met.

Following abandonment, removal of support structures and switching stations, and reclamation of access roads, the visual contrast would be greatly reduced and management objectives would be met for VRM Class III and IV land when viewed from KOPs 1 through 3, 5, and 6.

Figure 4.15-4 View to the North from KOP 5, Segment 11

4.15.2.1 Mitigation

Additional mitigation measures are not required.

4.15.2.2 Unavoidable Adverse Impacts on Visual Resources

During the construction period, unavoidable adverse impacts to visual resources include the presence of construction equipment and personnel, and possible fugitive dust emissions from disturbed areas that could affect visibility. During the operational phase, the transmission line support structures would be visible from major road crossings.

4.15.2.3 Irreversible and Irretrievable Commitments of Resources

The Proposed Action would have no irreversible effects on visual resources because it would be possible to remove any of the proposed structures/substation equipment and restore disturbed vegetation. There would be an irretrievable commitment of visual resources during the active life of the project as a result of the intrusion of project elements into the existing landscape. As described in **Chapter 2**, transmission facilities would be used for the foreseeable future and removed only if no longer needed.

4.15.2.4 Relationship of Short-term Uses and Long-term Productivity

There are no known short-term uses of visual resources that would adversely affect the maintenance and enhancement of long-term productivity.

4.15.3 Action Alternative

Construction

Potential effects on visual resources during construction of the Action Alternative would be essentially the same as those discussed for the Proposed Action. **Figures 4.15-1** through **4.15-4** all provide simulations of the Action Alternative.

KOP 4 is located along US-93 near Kane Springs Valley Road where the Segment 10 alternative would approach the highway and the transmission line from the east. The proposed transmission line support structures would contrast with the flat terrain and uniformly-colored vegetation in the existing, relatively undisturbed landscape east of the highway. The hills on the south would help hide the transmission line. In the vicinity of the crossing, the transmission line would tend to attract attention from vehicles on the highway, but it would not dominate the view because, at highway speeds, it would be visible for less than a minute or two. The objectives for both VRM Class III and IV would be met. A photo simulation of the view from KOP 4 is presented in **Figure 4.15-5**.

Operations, Maintenance, and Abandonment

Potential effects would be essentially the same as under the Proposed Action. An approximately 0.7-mile length of Segment 9C would be outside, but adjacent to the western edge of the Delamar Mountains WA, which is designated VRM Class I. Segment 9C is within the designated SWIP Utility Corridor which is designated VRM Class IV. Segment 10 would cross the Delamar Mountains, which is designated VRM Class II. Because of the adjacent visually sensitive wilderness areas, the attention of viewers within 3 to 5 miles (i.e., the foreground-middleground) would likely be attracted by the transmission line and management objectives would therefore not be met.

Figure 4.15-5 View to the North from KOP 4, Segment 10

4.15.3.1 Mitigation

Additional mitigation measures are not required.

4.15.3.2 Unavoidable Adverse Impacts on Visual Resources

Unavoidable adverse impacts for the Action Alternative are the same as those discussed in **Section 4.15.2.2**.

4.15.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources for the Action Alternative are the same as those discussed in **Section 4.15.2.3**.

4.15.3.4 Relationship of Short-term Uses and Long-term Productivity

The relationship of short-term uses and long-term productivity for the Action Alternative are the same as those discussed in **Section 4.15.2.4**.

4.15.4 No Action Alternative

There would be no effect on visual resources from the No Action Alternative.

4.16 Noise

4.16.1 Indicators and Methods

The primary indicator of noise levels for this and similar analyses is the A-weighted average noise level measured in decibels (L_{eq}). The one-hour average noise level (dBA L_{eq} (1 hour)) is often used to characterize ongoing operations or longer-term impact analyses. The maximum dBA level (dBA L_{max}) is used to document the highest intensity, short-term noise level. Another commonly used measure of noise impacts is L_{dn}. The L_{dn} value matches the L_{eq} value for noise generated from 7 AM to 10 PM, but accounts for increased public sensitivity to noise at night by the A-weighted equivalent sound level for a 24-hour period with an additional 10 dB imposed on the equivalent sound levels for night time hours of 10 PM to 7 AM.

Neither Nevada nor the counties that the Proposed Action would affect have regulations quantitatively limiting noise generation or impacts from the proposed project during the construction or operational phases. The EPA has prepared a Model Community Noise Control Ordinance to provide guidance for local communities or jurisdictions to design noise control regulations (EPA no date). One of the more commonly used applications of the EPA noise control guidelines is the recommendation that noise levels should be limited to 55 dBA L_{dn} for a daily and hourly average, allowing for higher impacts for shorter term averaging periods, with a maximum noise impact of 75 dBA L_{dn} at any time in residential areas. For this analysis, application of the EPA noise control ordinance guidelines were used as a guide for assessing impacts at the nearest home, ranch, business, or identified receptor, and all identified sensitive receptors.

For the purposes of the noise impact analysis, the following qualitative terms describe the potential impact levels associated with the alternatives:

Major – Noise impacts in residential areas would exceed the thresholds set for residential areas in the commonly implemented version of the EPA Model Community Noise Control Ordinance of:

- 75 dBA L_{dn} instantaneously
- 65 dBA for 15 minute average
- 55 dBA L_{dn} for one hour or 24 hour average

Moderate – Noise impact would represent a noticeable increase over background levels that could approach but not reach the major noise impact threshold.

Minor – Noise impacts could be higher than current background noise levels, but would not approach the major noise impact thresholds on any timeframe.

Negligible – Noise impacts would be at or lower than background noise levels and therefore indistinguishable from typical background noise.

For all project-related construction activity, the nearest sensitive receptor is identified, and impacts to that and other potential receptors have been assessed.

The duration of construction activity at any particular site is generally expected to be brief, measured in weeks to months, except in staging areas and the substations construction/expansion. Along the linear construction lines, a qualitative assessment of impact to sensitive receptors and duration of that impact was completed.

For larger support structures, estimates of noise generation are described, and qualitatively described or roughly quantified, and assessments of potential impacts to sensitive receptors are provided.

Construction staging areas would be placed on land previously used for industrial purposes generally no closer than 500 feet of residences. The schedule for all project construction activity precludes the use of heavy equipment, including those with the largest construction noise producing capability, between 10 PM and 7 AM. Therefore, during construction the day/night weighted noise impacts (L_{dn}) which gives higher value to noise generated during the evening and night when the public is more sensitive, would equal the L_{eq} average noise impact.

The unit of sound level measurement (i.e., volume) is the decibel (dB), expressed as dBA (A-weighted decibel). The A-weighted decibel measure is used to evaluate ambient noise levels and common noise sources. Sound measurements in dBA give greater emphasis to sound at the mid- and high- frequency levels, which are more discernible to humans. The decibel is a logarithmic measurement; thus, the sound energy increases by a factor of 10 for every 10 dBA increase. A 3 dBA change in noise levels is considered barely perceptible, while a 5 dBA change is typically perceptible to most people.

4.16.2 Proposed Action

Construction

NV Energy has identified the equipment anticipated to be used to construct the proposed transmission project. Estimates of noise levels from the equipment anticipated to be used were prepared consistent with guidance from the Federal Highway Administration's Construction Handbook (FHWA 2006). Equipment routinely used, including compressors, bulldozers, and cranes, would generate noise levels up to a maximum of 85 – 88 dBA within 50 feet of their location during operation. Multiple pieces of equipment operating simultaneously are assumed to have a maximum cumulative noise impact of 90 dBA at 50 feet. Two operations, the use of helicopters to set structures and string wire for the linear component, and potential intermittent blasting to support construction, would generate higher sound levels. **Table 4.16-1** documents the equipment anticipated to be used during construction of the project that would generate the highest sound levels. All equipment generating sound levels of 90 dBA or more within 50 feet is expected to be used intermittently. Helicopters are proposed only along the transmission line alignments, not at the substations.

TABLE 4.16-1 HIGHER VOLUME CONSTRUCTION EQUIPMENT NOISE SOURCES

NOISE SOURCE	MEAN NOISE LEVEL AT 50'	MAXIMUM NOISE LEVEL AT 50'
Helicopter	102 dBA	105 dBA
Blasting	94 dBA	N/A
Ground Scraper	90 dBA	94 dBA
Concrete Saw	90 dBA	90 dBA
Pneumatic tools	85 dBA	85 dBA
Bulldozer	82 dBA	85 dBA
Heavy Truck	82 dBA	85 dBA
Concrete Truck	79 dBA	85 dBA
Crane	81 dBA	85 dBA
Ground compactor	80 dBA	83 dBA

Source: Federal Highway Administration Construction Noise Handbook (FHA 2006).

Noise levels were predicted for two construction scenarios: with traditional equipment operating at maximum levels during construction, and when the louder equipment identified in **Table 4.16-1** was in use. Given the physical and geographic characteristics of the basin and range terrain of the project area, natural attenuation of sound was conservatively estimated to be below the average expected.

Construction activity associated with this project would involve work at one existing and one new substation, and building transmission line facilities from the proposed new substation at Robinson Summit south to the Harry Allen Substation.

Maximum construction noise impacts would be 50 dBA within 1 mile and 45 dBA at 1.5 miles with the earth moving and construction equipment anticipated to be used. When helicopters are used occasionally, their noise levels could briefly reach up to 61 dBA within 1.5 miles. Construction noise impacts would be temporary and of short duration at any given location. The magnitude would be minor at all locations 1.5 miles from the transmission line facilities during construction and potentially moderate during the brief construction period in closer proximity. Moderate noise impacts during construction would extend approximately 3.5 miles from the location of activity when helicopters are in use.

There are no residences close enough to Robinson Summit to anticipate construction noise impacts above background levels during construction. If helicopters are used, no sensitive receptor would be expected to be subjected to noise levels over 40 dBA for any significant duration. From Robinson Summit south to the Harry Allen Substation, the only residences or areas of regular human activity within 3 miles of the SWIP Utility Corridor route would be an isolated ranch or two north of Alamo, the Coyote Springs residential and commercial development where Segment 9D meets Segment 10, and the Moapa Indian Reservation within 2 miles, with the nearest residence within 3 miles along Segment 11. Construction impacts at those locations would be temporary and minor, potentially briefly moderate, at the nearest Coyote Springs lots.

Operations, Maintenance, and Abandonment

Noise generation during the operational phase along the transmission line would be expected to be negligible and not significant compared to background levels. Sound generation would be slightly higher at the substations, but because there are no areas of regular human use near those substations the noise would not be sufficient to cause more than negligible to minor human impacts. Maintenance efforts would be intermittent, and would have impacts similar to those described for construction though generally of lower magnitude, depending on the type of equipment used.

4.16.2.1 Mitigation

1. Construction staging areas will be placed no closer than 500 feet of residences. The schedule for all project construction activity will preclude the use of heavy equipment, including those with the largest construction noise producing capability, between 10 PM and 7 AM within 2 miles of sensitive receptors.

4.16.2.2 Unavoidable Adverse Impacts from Noise

While project components are being built, traditional construction and ground moving equipment would be utilized. Other louder equipment would occasionally be required, as mentioned in the discussion for project component construction impacts. Project noise from construction would be an unavoidable, temporary adverse impact.

4.16.2.3 Irreversible and Irretrievable Commitments of Resources

There would be no irreversible and irretrievable commitment of resources due to noise impacts.

4.16.2.4 Relationship of Short-term Uses and Long-term Productivity

There would be no effects on long-term productivity of resources due to noise impacts.

4.16.3 Action Alternative

Construction

The Action Alternative would result in the same types of impacts described above, along a slightly different linear route, generally located approximately 1,800 feet east of the Proposed Action route. As previously described, the Action Alternative route would be situated within the SWIP Utility Corridor, or with potential deviations described as Segment 10 (alternative) or Segment 9C (alternative). There would be little if any difference in sound generation under any of the alternatives. None of the alternatives would bring project activities in any significantly closer proximity to areas of regular human activity, nor would any alternative result in any appreciable difference in project noise impacts.

Operations, Maintenance, and Abandonment

The impacts during operations, maintenance, and abandonment would be the same as those described under the Proposed Action.

4.16.3.1 Mitigation

Mitigation would be the same as that described under the Proposed Action.

4.16.3.2 Unavoidable Adverse Impacts from Noise

While project components are being built, traditional construction and ground moving equipment would be utilized. Other louder equipment would occasionally be required, as mentioned in the discussion for project component construction impacts. Project noise from construction would be an unavoidable, temporary adverse impact.

4.16.3.3 Irreversible and Irretrievable Commitments of Resources

There would be no irreversible and irretrievable commitment of resources due to noise impacts.

4.16.3.4 Relationship of Short-term Uses and Long-term Productivity

There would be no effects on long-term productivity of resources due to noise impacts.

4.16.4 No Action Alternative

The No Action Alternative would result in no construction, so there would be no noise-related construction or operational impacts associated with the Proposed Action. Alternative uses of the lands proposed for improvements not foreseeable at this time could possibly result in their own noise impacts.

4.17 Socioeconomics

Construction and operation of the ON Line Project would result in economic benefits for both White Pine and Lincoln counties. Wages and employment would temporarily increase in the area, and both counties would experience a major, but temporary increase in sales tax revenue during the construction phase. NV Energy is centrally assessed for property taxes (taxes spread to counties based on location of all utility property). NV Energy has little other utility property in either White Pine or Lincoln counties; therefore, the impact on property tax revenue in both counties would be long-term but minor. The construction phase of the ON Line Project would create a short-term, temporary, and minor population increase in the area. Because of the transitory nature of this type of construction, few, if any of the transient construction workers would be traveling with families.

Most of the construction workers would stay in various communities in the affected area. Crews building the Robinson Summit Substation would live in White Pine County while crews building the transmission line facilities from Robinson Summit south to the Harry Allen Substation in Clark County would live in White Pine, Lincoln, and Clark counties. Crews constructing the Falcon Substation expansion would live in Eureka or Elko counties.

When construction is complete, the ON Line Project would be self-sufficient and would not require any additional workforce for its operation and maintenance.

This economic analysis was prepared with information available in late 2007. Economic conditions in the affected area are not static and may change over time from what is described herein. Descriptions and costs for the project may also change over time in a way that is not reflected in this analysis.

4.17.1 Indicators and Methods

Social and economic impacts for the ON Line Project were evaluated in depth for the Lincoln and White Pine counties in Nevada. Although the transmission line would be constructed in Clark and Nye counties, the economy of Clark County is more robust than the economies of Lincoln, Nye and White Pine counties, and construction of the transmission line in Clark and Nye counties and the Falcon Substation expansion in Eureka County would be so brief and minor in impact that in-depth analysis of the socioeconomic impacts of the project on Clark, Eureka, and Nye counties is unwarranted in this document. In fact, the economy of Clark County is so much larger than that of White Pine County (for example) that adding Clark County to the in-depth analysis may have the effect of trivializing the impacts to the Lincoln/White Pine county area. **Table 4.17-1** shows personal income by county for the two-county area and the state, and demonstrates that a project that may have a negligible effect on Clark County might have a major impact in White Pine or Lincoln County.

TABLE 4.17-1 PERSONAL INCOME TOTALS FOR TWO COUNTIES AND THE STATE OF NEVADA FOR 2005

REGION	PERSONAL INCOME FOR 2005
Lincoln County, NV	$100,053,000
White Pine County, NV	$291,403,000
State of Nevada	$86,224,092,00

Source: U.S. Bureau of Economic Analysis, 2007a

In addition to the direct employment and wages associated with construction of the ON Line Project, there would be indirect employment and wages that result from spending by NV Energy and its contractors in the area.

The RIMS II Input-Output model, developed by the U.S. Bureau of Economic Analysis (Bureau of Economic Analysis 2007b), was used to determine the indirect and induced economic impacts of the ON Line Project on Lincoln and White Pine counties. Modeling was conducted by economists at the Utah Bureau of Economic and Business Research and reported in a technical report (Crispin and Isaacson 2008).

The economic impacts described in this section were calculated in fall of 2007 with initial fiscal and employment estimates provided by NV Energy in summer and fall of 2007. Updated information was provided by NV Energy in spring of 2009.

4.17.2 Proposed Action

Tables showing employment, wages, and fiscal impacts during construction are shown here to provide a more complete overview of the primary social and economic impacts that the project would generate. These tables will then be referenced as appropriate in subsequent sections. Due to uncertainties in scheduling the actual construction of the proposed project, the tables use Year 1 and Year 2, etc. instead of calendar years.

Table 4.17-2 presents the total estimated direct, indirect, and induced employment and earnings that would be generated in Lincoln and White Pine counties during construction of the ON Line Project. The direct construction workforce is projected to be 221 in Year 1 and 226 in Year 2. Additionally, there would be indirect and induced employment during the construction phase. The indirect and induced employment generated by local spending would average 281 in Year 1 and 451 in Year 2.

When construction was complete, the project would be self-sufficient and would not require any additional workforce for its operation or maintenance. Therefore, when the ON Line Project is put into service, there would be no continued long-term benefit to, or growth in the local economies of Lincoln and White Pine counties that would be generated by the project.

TABLE 4.17-2 ECONOMIC IMPACT OF ON LINE PROJECT

	MULTIPLIER	YEAR 1	YEAR 2
Annual Average Employment		221	226
Total Wages Paid, $1,000		$63,724.8	$64,882.4
Gravel, $1,000		$791.2	$2,186.7
Ready-Mix-Concrete, $1,000		$9,494,9	$26,240.5
Total Mineral Product Manufacturing, $1,000		$10,286.1	$28,427.2
Employment	9.012	85	235
Earnings, $1,000	0.3874	$3,984.8	$11,012.0
Gasoline, Diesel fuel, lubricants, $1,000		$1,582.5	$4,373.4
Lumber, paint, other similar, $1,000		$63.3	$174.9
Total Retail, $1,000		$1,645.8	$4,548.4
Retail at 33% trade margin, $1,000	33%	$543.1	$1,501.0
Employment	18.5494	9	26
Earnings, $1,000	0.4783	$260.0	$717.6
Local Spending of Wages, 50% of wages	50%	$31,862.4	$32,441.2
Employment	7.3859	187	190
Earnings, $1,000	0.2221	$6107.9	$6,218.9
Total Indirect & Induced Employment		281	451
Total Indirect & Induced Earnings, $1,000		$10,352.7	$17,948.5
Total Employment		502	676
Total Earnings, $1,000		$74,077.5	$82,830.9

Source: Crispin and Isaacson 2008

Note: The Earnings Multiplier represents the total dollar change in earnings of households employed by all industries for each additional dollar of output delivered to final demand by the subject industry. The Employment Multiplier represents the total change in number of jobs that occurs in all industries for each additional $1 million of out output delivered to final demand by the subject industry.

Fiscal Impacts

While both counties in the affected area would experience fiscal benefits resulting from the construction and operation of the ON Line Project, most of the sales tax revenue would accrue to White Pine County while the largest portion of property tax revenue would accrue to Lincoln County. Fiscal benefits during the construction phase include sales/use taxes and property taxes (**Table 4.17-3**).

Information provided by NV Energy indicates that the project would generate a total of $10,919,222 in sales tax in the affected area over a 21 to 24-month period. Lincoln and White Pine counties would receive a total of $385,809 in property taxes through 2021.

TABLE 4.17-3 FISCAL IMPACTS OF THE PROPOSED ACTION IN WHITE PINE AND LINCOLN COUNTIES

YEAR	LINCOLN COUNTY	WHITE PINE COUNTY	TOTAL TAXES
Sales and Use Tax	$4,741,000	$6,178,000	$10,919,000
Property Tax	$243,000	$143,000	$386,000
Totals	**$4,984,000**	**$6,321,000**	**$11,305,000**

Source: Calculated by the Preparer using information provided by NV Energy, 2009.

Construction

Economic Setting

The affected area is primarily rural with population concentrated in Ely in White Pine County. The combined estimated 2006 population of the affected area is 13,888; 9,150 people live in White Pine County. The economy of eastern Nevada has traditionally been focused on mining, with agriculture dampening some of the boom-bust cycle commonly associated with natural resource extraction. In the context of the area's economic history of boom and bust cycles (see **Section 3.17.3.1**) the ON Line Project would do little to improve economic stability in the area.

The east-central Nevada area is rural with limited local sources for the specialized equipment and materials required for construction. Engineers with NV Energy estimate that approximately 13 percent of the non-wage construction funds would be expended locally. The material to be purchased locally includes gravel and ready-mix concrete, gasoline, diesel fuel, lumber, paint and similar items. Engineers designing the transmission line provided estimates of the amount of material purchased locally and the construction hours necessary to build the transmission line. Since most of the workers constructing the transmission line would not be hired locally, they would be maintaining permanent residences elsewhere. Therefore, it was assumed 50 percent of the wages would be spent locally. Applying the RIMS II multipliers to the estimated spending results in the employment and wages presented in **Table 4.17-2**.

The construction of the Robinson Summit Substation could affect property values in White Pine County. The value of the substation and transmission line may increase the total assessed value of property in White Pine and Lincoln counties, which translates to increased property tax collections.

Much of the land near the Proposed Action project area is administered by the BLM in remote areas of Lincoln and White Pine counties. The transmission line may affect the market price of nearby lands, should the BLM sell them to private parties or other government entities (e.g., state, county, or local governments). Until such time as the BLM disposes of these properties, the transmission line would not affect local receipts in lieu of taxes on BLM properties. The federal government makes annual payments in-lieu of property taxes, but the amount is determined annually by congressional action and has little relationship to the actual value of the land.

Population and Demographics

An average of 224 workers would move through White Pine and Lincoln counties over a 21 to 24 month construction period. Most of these workers would be transient, maintaining permanent residences elsewhere and traveling without families. These workers would leave the area when construction is complete; therefore, it is expected that there would be no residual or long-term population impacts. Because of this transitory nature, few construction workers would be living locally with families and they would place little if any burden on the local school system.

Employment and Income

Constructing the ON Line Project would have a minor and temporary impact on the area through additional employment and wages. In addition to the direct employment and wages associated with actual construction, there would be additional indirect employment and wages that result from spending by the construction companies in the area and induced employment and wages that result from workers spending their money in the area.

Since the two counties examined for social and economic impacts are rural, many of the construction workers would reside only temporarily in the area for the duration of the construction project. As many as 75 percent of the construction workers may have to be recruited from outside of the area (based on information from NV Energy). These workers would leave when construction was completed and without the additional spending of construction workers and purchases of goods needed for the project, the indirect and induced jobs would eventually be eliminated.

Land Ownership

Under the Proposed Action, NV Energy would obtain access to BLM managed land via a ROW grant. The effect of this change on property tax receipts is discussed under "local government and finance" below.

Agriculture

Construction of the ON Line Project would remove a small portion of land permanently from agricultural production (approximately 108 acres for the substation). The Robinson Summit Substation would be fenced making it unavailable for agricultural use which is primarily grazing. The BLM currently administers 4.5 million acres in White Pine County.

The construction of the transmission line would temporarily take land out of service during construction activity along the line. Once the line was in service, the majority of this land would be available for grazing. Impacts to livestock grazing are discussed in **Section 4.9**.

Nearly 95 percent of the value of agricultural production in White Pine County is livestock. Livestock is grazed on both public and private lands in White Pine County and only a small percentage of lands used for agriculture in the county would be impacted by the project. Therefore, there would be a negligible impact on farm income in the county due to the substation and transmission line.

Housing

The majority of the workforce constructing the ON Line Project would stay in various communities in Lincoln, White Pine, and Clark counties. Under the Proposed Action, crews working on the Robinson Summit Substation would likely reside in White Pine County while the crews working on the transmission line from Robinson Summit south to the Harry Allen Substation would live in White Pine, Lincoln, or Clark counties. Those working on the Falcon Substation expansion would likely stay in Eureka or Elko counties.

The place of residence for the workers would change as the line progresses to minimize travel time. This change in place of workers' residences would create short-term demand for housing along the route of the transmission line. Because of this transitory nature, few of them would be traveling with families and they would place little if any burden on the local school system.

During past construction projects, some construction workers have lived in private recreational vehicles parked on public land. Both White Pine County and the BLM have stated that they would like to prevent workers living on public lands in recreational vehicles.

There is currently a shortage of workforce housing in White Pine County. There may be moderate impacts on the current housing stock in the county depending on how many workers chose to reside in Ely, McGill, or Ruth. Occupancy of hotel rooms by the construction workforce may also impact tourism and social services in the county. County tourism groups have developed a clientele for special events held in the county. If there are no available motel rooms to house the persons attending these events, they may cease and not continue, even after the

construction phase of the ON Line Project were complete. Social services in White Pine County use motel vouchers to house homeless persons and victims of domestic violence.

Some workers, especially those working on the southern portion of the transmission line, might choose to live in Clark County and commute. In this case, there would be no impact on housing in the affected area.

Community Services

Impacts to community services are described in this section and subtopics for which impacts are assessed include education, law enforcement, fire and emergency response, health and social services, water supply, and solid waste.

School enrollments in the White Pine County School District have been gradually falling in recent years. There appears to be spare capacity in the school district at the moment, but requirements in the education industry are constantly changing. Most of the workers would be relocating without families and would not require services from local educational facilities. Any impact on school districts in the area would be negligible and temporary.

The construction of the ON Line Project could increase demand for law enforcement and traffic control during the 21 to 24-month construction period. The White Pine County Sheriff's Office is responsible for law enforcement throughout the county and provides law enforcement in Ely. The manpower available to patrol the county is limited. The Sheriff's Office currently provides two deputies at a time to patrol the county. The Sheriff's Office has an ongoing effort to hire more deputies, but competition from Las Vegas, which pays about 20 percent higher salaries, make attracting law enforcement personnel to White Pine County difficult.

Based on past experience, the County Sheriff has stated that the crime rate in the county would increase during the construction phase of the ON Line Project. The number of arrests in White Pine County definitely increased during previous construction projects in the county. The number of arrests then drops sharply when the construction workforce leaves the county upon completion of the project.

Past experience with increased arrests during large construction projects coupled with the consistently full holding cell at the county jail suggests that the construction phase of the project may temporarily impact law enforcement facilities in White Pine County. The increased number of arrests may also occupy the Deputy Sheriffs' time to the detriment of other county residents.

White Pine County believes that a zero tolerance policy with regards to drug and alcohol abuse among the construction workforce has the potential to greatly diminish the impacts on law enforcement.

Because the impacts of construction on population would be negligible, the current size of law enforcement agencies in the area is adequate to manage traffic and law enforcement during construction.

White Pine County is served by volunteer fire departments. The City of Ely has a staffed fire department supplemented by volunteers. The County recently established a County operated fire district. The volunteer firefighters are at their place of employment during the day, complicating responses to fires and other emergencies. However, the proposed project is far from residential areas, and, given the type of this project it is unlikely that construction would tax fire departments in the area.

The William Bee Ririe Hospital in Ely has a fairly low occupancy rate. Routine medical care associated with the construction workforce should not pose a problem.

The small number of construction workers anticipated to reside in White Pine County communities suggests a minor, temporary impact to locally-established health care services.

Social services in White Pine County are generally operating at capacity. The county also has difficulties recruiting and retaining mental health care professionals. These difficulties occur even when budgets are available to pay the personnel. Other factors such as the isolation of White Pine County complicate recruiting social service and mental health professionals. There are no homeless or domestic violence shelters located in the county. Currently, a voucher system is used to provide motel rooms for persons needing shelter due either to homelessness or domestic issues. The Social Services Department in White Pine County could face pressure to place persons needing shelter if there are no vacant motel rooms due to the construction workforce living in them.

The City of Ely has sufficient water rights to serve a larger population. The distribution infrastructure may need improvement to support residential development in some areas. Most of the water is supplied by Murray Springs, but it is vulnerable to highway accidents. About 500 new connections are available for the wastewater treatment plant. McGill and Ruth have water and wastewater systems operated by a separate water district. McGill has sufficient water supply and wastewater capacity. Ruth has a shortage of both water and sewer capacity. Both McGill and Ruth have recently replaced their sewer lines. Water for construction and construction workers would not impact existing community water systems.

The landfill has a limited amount of capacity for construction waste. NV Energy has previously contacted the City of Ely Municipal Utilities Department and received correspondence stating that the amount of waste projected during construction should not pose a problem (Crispin and Isaacson 2008). Based on this, construction of the ON Line Project would have negligible short-term impacts to solid waste management at the landfill.

Local Government & Finance

There would be a beneficial impact on local government finances during plant construction. Nevada state sales and use taxes would be due on all construction and consumable materials used for the project.

Property tax revenue would increase on all real and personal property in White Pine and Lincoln counties connected with the substation and transmission line. Total property taxes would be $385,809 through 2021, based on information developed by NV Energy. State sales and use tax paid on construction materials would total $10,919,222 over the 21 to 24-month construction period. (**Table 4.17-3**).

Electric Power Industry

The construction phase would have negligible impact on the Nevada electric power industry's ability to supply power.

Operations, Maintenance, and Abandonment

Economic Setting

Once the project is complete, workers would leave the area and there would be little if any long-term growth in the local area's economy due to the ON Line Project. When complete the facilities would be self-sufficient; thereby reducing the project related workforce. There would be no continuing population-related impacts in White Pine or Lincoln counties after construction of the ON Line Project is complete. Therefore, once construction was over, operation and maintenance of the ON Line Project would have a negligible long-term impact to community

services. Operation, maintenance and abandonment of the substation and transmission line would have a negligible adverse impact on agriculture.

NV Energy would develop a COM Plan in coordination with BLM for the ON Line Project. Once complete, the COM Plan would be used by NV Energy, its agents, contractors, and BLM to clarify construction, operation, and maintenance activities for the project.

Increased property taxes would continue during the operational phase of the ON Line Project. Lincoln County would receive the largest portion of estimated tax revenues. Based on estimates from NV Energy, Lincoln County would receive $242,723 in property taxes through 2021. White Pine would receive a total of $143,086 over the same period.

Local residents who own land near the new facilities may assign a decreased personal value to their property that cannot be measured in economic value, or place different values on different attributes than does the marketplace. They may value their specific piece of property due to family history, rural atmosphere, or lifestyle.

At the end of the useful life of the proposed project, operation of the facilities would be terminated. All facilities would be removed from the ROW. Every effort would be made to restore the land to its original contour and drainage along the ROW as required in coordination with BLM.

The impact of abandonment on law enforcement is dependent on the future use of the land. If the facilities were dismantled, then a temporary workforce visiting the area to dismantle the facilities may result in a temporary increased demand for law enforcement. The issues posed by this temporary workforce would be similar in nature but smaller scale to those posed by the construction workforce.

4.17.2.1 Mitigation

Additional mitigation measures are not required.

4.17.2.2 Unavoidable Adverse Impacts on Socioeconomics

There would be no residual adverse impacts to social and economic resources as a result of constructing and operating the ON Line Project. During the construction phase, there would be a temporary influx of construction workers. The impacts caused by this increase in the population of White Pine and Lincoln counties would subside once construction is complete and most of the construction workers leave White Pine County.

The ON Line Project would be self-sufficient; that is, there would be no additional workforce needed for operation or maintenance.

4.17.2.3 Irreversible and Irretrievable Commitments of Resources

Under the Proposed Action, the social and economic structure of White Pine and Lincoln counties would not be significantly altered.

4.17.2.4 Relationship of Short-term Uses and Long-term Productivity

Under the Proposed Action, the short-term uses of workforce and resources (during construction) provide for long-term fiscal benefits. The short-term uses do not interfere with the long-term economic and social stability of the area.

4.17.3 Action Alternative

Impacts would be essentially the same as under the Proposed Action and negligible in the context of the total cost of the project.

If the Segment 10 alternative component was selected as part of the Action Alternative, there would be additional demand for housing and services in Lincoln County by the crews building the transmission line compared to the Proposed Action. An additional 10 miles of transmission line would be constructed in Lincoln County, therefore there would be a small net increase in employment and wages as compared to the Proposed Action (see **Tables 4.17-2** and **4.17-3**).

Operations, Maintenance, Abandonment

Impacts would be the same as under the Proposed Action.

4.17.3.1 Mitigation

Mitigation for the Action Alternative would be the same as for the Proposed Action.

4.17.3.2 Unavoidable Adverse Impacts on Socioeconomics

Unavoidable adverse impacts from the Action Alternative would be the same as for the Proposed Action.

4.17.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources would be the same as for the Proposed Action.

4.17.3.4 Relationship of Short-term Uses and Long-term Productivity

Relationship of short- and long-term uses would be the same as for the Proposed Action.

4.17.4 No Action Alternative

Under the No Action Alternative, there would be no direct impact on the social and economic resources in Lincoln County or White Pine County relative to current conditions. The economies of Lincoln and White Pine counties would continue to be dependent primarily on mining, ranching, and tourism and subject to the economic cycles of the mining industry.

4.18 Environmental Justice

4.18.1 Indicators and Methods

Areas of minority and/or low-income populations within the project area were reviewed for their potential to be burdened disproportionately by adverse impacts. Significant minority populations of Native Americans occur in Nye and White Pine counties and a significant population living at or below the poverty level occurs in Lincoln County.

4.18.2 Proposed Action

Construction

The increased traffic, noise, and activity associated with construction of the Proposed Action would be focused at the construction sites and along the access routes. Although minority populations are present in the project area counties, no minority populations were identified in the areas most likely to be directly impacted by the project. Low-income households comprise approximately 25 percent of households in Lincoln County, with similar percentages in Eureka, White Pine, and Nye counties. In Clark County, low income households comprise about 12 percent of households. In general, the construction of the transmission line facilities would have beneficial economic effects for residents of the four rural counties. No minority populations were identified in the project area, and low-income households are present throughout the three counties but are not concentrated specifically in the project area. There are no special issues,

such as housing, transportation access, or resource use in the project area that would affect an environmental justice population disproportionately. Income and revenue benefits from the project would be distributed widely, including potential environmental justice populations.

CEQ and EPA guidelines (CEQ 1997, EPA 1998) recommend several specific tests to determine whether minority or low income populations would be disproportionately impacted by adverse project effect. The potential minority population of Native Americans, identified in **Section 3.18**, would not be disproportionally impacted for the following reasons:

- Geographically, no concentrated minority population would be directly impacted (no project facilities on or through the reservation)
- Economically, overall impacts would be positive, not adverse
- Tribes have had, and continue to have, opportunity to participate in project discussions, through the public participation process and in solicited requests (see **Sections 3.11** and **4.11**)

No population of poor is concentrated in any geographically identifiable area, and, as for minority populations, they would not experience any disproportionate adverse effects from the project, during construction or operations. Overall, there would be negligible disproportionate impacts on minority or low-income households from construction of the Proposed Action.

Operations, Maintenance, and Abandonment

Impacts would be the same as described for construction; minority populations were identified in the general project area but would not suffer any disproportionate adverse effects. There would be no disproportionate impacts to minority or low income populations from operation, maintenance, and abandonment of the transmission line facilities.

4.18.2.1 Mitigation

Additional mitigation measures are not required for the Proposed Action.

4.18.2.2 Unavoidable Adverse Impacts on Environmental Justice

There would be no unavoidable disproportionate impacts on minority or low-income populations.

4.18.2.3 Irreversible and Irretrievable Commitments of Resources

There would be no irreversible and irretrievable commitments of resources.

4.18.2.4 Relationship of Short-term Uses and Long-term Productivity

Short-term uses would not impact long-term economic or social stability of minority or low income populations in the area.

4.18.3 Action Alternative

Impacts for construction, operation, and eventual abandonment of the Action Alternative would be the same to those described for the Proposed Action.

4.18.3.1 Mitigation

Additional mitigation measures are not required for the Action Alternative.

4.18.3.2 Unavoidable Adverse Impacts on Environmental Justice

There would be no unavoidable adverse impacts with regards to environmental justice concerns.

4.18.3.3 Irreversible and Irretrievable Commitments of Resources

There would be no irreversible and irretrievable commitments of resources.

4.18.3.4 Relationship of Short-term Uses and Long-term Productivity

This would be the same as under the Proposed Action.

4.18.4 No Action Alternative

There would be no impacts to environmental justice under the No Action Alternative.

4.19 Hazardous Materials and Solid Waste

4.19.1 Indicators and Methods

The following indicators were considered when analyzing potential impacts to resources from hazardous materials and solid waste:

- Tons or pounds per year of hazardous wastes, and by-products
- Amount and type of hazardous materials transported and stored at the project facilities
- Location and type of solid or hazardous waste disposal sites/systems, and
- Existing risk assessments of effects of hazardous compounds

4.19.2 Proposed Action

Construction

Solid waste streams generated during construction of the Proposed Action, including substations, would include municipal solid waste (MSW), sewage, construction debris, non-hazardous regulated wastes, and small quantities of hazardous wastes. MSW from the workforce would be collected, contained and trucked to an off-site permitted Class I landfill or equivalent. Sewage would be collected in portable sanitary facilities and removed by a contractor for off-site treatment and disposal in an existing permitted treatment facility.

Non-hazardous construction debris would be generated during construction consisting of concrete, wood, scrap metal, and waste packaging materials. These materials would be recycled or disposed of off-site in a permitted landfill.

Hydrocarbon or hazardous wastes may be generated from maintenance of heavy equipment in the field. These wastes would include used oil and grease, antifreeze, solvents, rags, and wipers. These wastes would be properly contained, labeled, and recycled or disposed of off-site in existing permitted facilities.

Wastes produced during construction would be managed in compliance with state and federal regulations and recycled or disposed of in existing, permitted facilities. These management practices would therefore produce negligible environmental impacts.

Operations, Maintenance, and Abandonment

Operation of the transmission line facilities and substations would utilize little in the way of hazardous materials and would generate only minor amounts of MSW, which would be brought back to the service center for disposal. Transformer oils would be used in closed transformers and certain other electrical devices. These are highly refined petroleum oils with low vapor pressure, high flash point, and low toxicity. In normal use, they are fully contained within the

electrical apparatus which themselves would be located in secure, fenced facilities. These management practices would therefore produce negligible environmental impacts.

4.19.2.1 Mitigation

Additional mitigation measures are not required.

4.19.2.2 Unavoidable Adverse Impacts due to Hazardous Materials and Solid Wastes

Wastes produced by the Proposed Action would be managed according to all applicable regulations in permitted waste management facilities to minimize environmental impacts. These wastes would contribute to the environmental impacts allowed by the waste management facility permits.

4.19.2.3 Irreversible and Irretrievable Commitments of Resources

Wastes produced during construction and operation of the facilities would be disposed of off-site in existing permitted facilities and would permanently consume some of the waste storage capacity at those facilities.

4.19.2.4 Relationship of Short-term Uses and Long-term Productivity

The use of hazardous materials and generation of solid and hazardous wastes in the construction of the Proposed Action (short-term) would consume some capacity, but not significantly impact the productivity of off-site waste management facilities in the long-term.

4.19.3 Action Alternative

The types of wastes managed and the applicable management practices applied during construction, operation, maintenance, and abandonment of the Action Alternative would be practiced in essentially the same manner as the Proposed Action. The environmental impacts of these practices for the Action Alternative would therefore be the same as the Proposed Action.

4.19.3.1 Mitigation

Additional mitigation measures are not required.

4.19.3.2 Unavoidable Adverse Impacts due to Hazardous Materials

Unavoidable adverse impacts due to hazardous materials would be the same as described for the Proposed Action.

4.19.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources would be the same as described for the Proposed Action.

4.19.3.4 Relationship of Short-term Uses and Long-term Productivity

Relationship of short-term uses and long-term productivity would be the same as described for the Proposed Action.

4.19.4 No Action Alternative

The No Action Alternative would result in the ON Line Project not being constructed or operated so hazardous materials would not be utilized in the project and solid or hazardous wastes would not be generated.

4.20 Transportation

4.20.1 Indicators and Methods

The analysis of impacts to transportation is based on existing access in the area, project requirements, and a project-specific transportation study (HDR et al. 2007). The following indicators were considered when analyzing potential impacts to transportation.

- Current capacity and condition of road system
- Traffic volume
- Projected number of project-related heavy vehicles utilizing roadway
- Changes in existing primary access on public roads through the area
- Project elements and heights that would occur in standard arrival/departure flight paths

4.20.2 Proposed Action

Construction

Access to the transmission line facilities would be from different areas as construction proceeds. Existing paved and dirt roads would be used to the extent possible with upgrading/improvements of dirt roads (grading and gravel) and construction of short segments of new access road as required to allow passage of construction traffic. Construction of the transmission line facilities would proceed rapidly across the project area so access roads servicing any one part of the ROWs would be used for construction for a few weeks or months before the construction moves far enough down the line that other access roads would be used. The center line access road along the transmission line, outside of desert tortoise habitat, would be temporary and reclaimed while the center line access road along the transmission line within desert tortoise habitat would be permanent, to facilitate access for operation and maintenance when necessary. Transmission line installation is not expected to impact traffic flow along major roadways but would impact traffic on secondary roads used for access to the ROWs. There would be temporary and minor to moderate impacts on transportation during transmission line facilities construction.

Operations, Maintenance, and Abandonment

Planned operations and maintenance on the transmission line facilities would consist of an annual line patrol of two linemen by helicopter. It would probably take two days per year to patrol the proposed transmission line facilities. Any ground inspections would be conducted generally following existing access roads within or adjacent to the ROW. This path would also be utilized for required maintenance or repair. Labor required would be 40 to 80 worker days every year.

Access to the Robinson Summit Substation would be from US-50 over an existing dirt road that would be widened and improved and then a new short segment of gravel road that would extend to the substation site. Access to the Harry Allen Substation would be from the existing paved access road off of I-15. Access to the Falcon Substation would be from the existing paved access road off of I-80. Planned operations and maintenance on substations would consist of annual inspections of all major equipment such as transformers, reactors, and breakers (operation verification, visual inspections, infrared inspections, etc.). More intensive inspections and tests would be conducted on major equipment every three to five years (oil

samples, switch alignment, gas maintenance, and manufacturer scheduled maintenance). Based on the proposed project scope, workforce requirements could total 200 to 400 worker days per year.

The operation, maintenance, and abandonment of the transmission facilities would have a negligible impact on transportation.

The transmission structures would range in height from 100 to 185 feet, lower than the aviation obstruction guidelines. The microwave tower that would be constructed at the Robinson Summit Substation would be 100 feet high. The transmission facilities would not impact air transportation.

4.20.2.1 Mitigation

1. NV Energy will coordinate with NDOT and utilize proper signage and traffic controls to avoid potential impacts to roadway conditions due to construction of the Proposed Action.

4.20.2.2 Unavoidable Adverse Impacts on Transportation

There would be no unavoidable adverse impacts on transportation. Improvements made to existing public access routes during project activities would remain after the life of the project.

4.20.2.3 Irreversible and Irretrievable Commitments of Resources

Any changes made during project construction, operation, or maintenance to existing public roads would constitute irretrievable commitments for these roadways. There would be no irreversible impacts to transportation from the project.

4.20.2.4 Relationship of Short-term Uses and Long-term Productivity

The local short-term use of the project area would result in employment and other economic benefits to the local and regional economies. Local public access routes in the project area affected by the project would be restored to conditions equal to or better than existed before the project.

4.20.3 Action Alternative

Construction

Under the Action Alternative, construction impacts would be essentially the same as those described for the Proposed Action.

Operations, Maintenance, and Abandonment

Under the Action Alternative, operation, maintenance, and abandonment impacts would be the same as those described for the Proposed Action.

4.20.3.1 Mitigation

Traffic mitigation measures would be the same as those described for the Proposed Action.

4.20.3.2 Unavoidable Adverse Impacts on Transportation

There would be no unavoidable adverse impacts on transportation. Improvements made to existing public access routes during project activities would remain after the life of the project.

4.20.3.3 Irreversible and Irretrievable Commitments of Resources

Irreversible and irretrievable commitments of resources would be the same as for the Proposed Action.

4.20.3.4 Relationship of Short-term Uses and Long-term Productivity

The local short-term use of the project area would result in employment and other economic benefits to the local and regional economies. Local public access routes in the Project Area affected by the project would be restored to condition equal to or better than existed before the project.

4.20.4 No Action Alternative

Under the No Action Alternative, the ON Line Project and associated facilities would not be constructed. There would be no impacts from the project to existing traffic or the transportation system.

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Chapter 5
Cumulative Effects

5.1 Introduction

Cumulative effects are those impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions on the Cumulative Effects Areas (CEAs). They can result from individually minor, but collectively significant actions taken over a period of time. Major past and present land uses and disturbances in the area, which are also projected to continue into the future, include: roads, wildfires, livestock grazing, agriculture, and mining. Dispersed recreation (including hunting and fishing) and residential development also occur in parts of the CEAs.

The size of CEAs for this SEIS varies by resource. The configuration of the Proposed Action and Action Alternative, as well as public scoping input gathered for this SEIS, provided the foundation for identifying CEAs. Cumulative effects should be evaluated in terms of the specific resource, ecosystem, and human community being impacted. An attempt was made for each environmental resource to determine the extent to which the environmental effect could be reasonably detected and then include the geographic areas of resources that could be impacted by the environmental effect. However, for simplicity, ease of cumulative impact analysis, and in an attempt to avoid having only slightly different CEAs for a number of resources, CEA boundaries were left identical for multiple resources where it seemed reasonable and conservative to do so. The CEA boundaries are reasonably sized to prevent dilution of the cumulative effects over large areas. Guidance from the CEQ, "Considering Cumulative Effects – January 1997," was used in identifying geographic boundaries and ultimately the CEA for each resource. The CEA for each environmental resource – and the rationale for its boundaries – is described below in each specific resource subsection. Maps for the various CEAs are also included.

Table 5.1-1 details the land ownership by CEA. The information in this table will be referred to throughout the discussions by resource topic in the proceeding sections.

Table 5.1-2 details the existing quantifiable land uses within each CEA that will be discussed by resource topic in the proceeding sections.

Table 5.1-3 details the future quantifiable land uses within each CEA that will be discussed by resource topic in the proceeding sections. Detailed descriptions of most of the projects are provided in **Section 5.2**. Projects that are not discussed in **Section 5.2** are detailed under the resource topic for which they are evaluated.

TABLE 5.1-1 LAND OWNERSHIP BY CEA

LAND OWNERSHIP	WATER RESOURCES, ETC[1]		SOCIOECONOMICS		RANGE RESOURCES CEA		LAND USE CEA*		SPECIAL DESIGNATIONS** AND RECREATION CEA	
	ACRES	% OF CEA	ACRES	% OF CEA	ACRES	% OF CEA	ACRES	% OF CEA	ACRES	% OF CEA
Bureau of Land Management	849,470	89.000	16,642,511	69.05	2,961,261	96.01	17,721,616	68.84	13,739,535	74.27
Bureau of Indian Affairs	5,014	0.53	80,290	0.33	4,301	0.14	152,946	0.59	83,974	0.45
Bureau of Reclamation	N/A	N/A	N/A	N/A	746	0.02	30,612	0.12	38,173	0.21
Department of Defense	N/A	N/A	2,585,285	10.73	2	0.01>	2,597,197	10.09	1,146,500	6.20
Department of Energy	N/A	N/A	910,389	3.78	N/A	N/A	910,389	3.54	41,544	0.22
National Park Service	N/A	N/A	183,528	0.76	N/A	N/A	482,447	1.87	476,854	2.58
U.S. Fish & Wildlife Service	58,710	6.15	299,401	1.24	23,369	0.76	341,062	1.32	780,951	4.22
U.S. Forest Service	10,858	1.14	2,751,576	11.42	6,081	0.20	2,736,264	10.63	1,199,674	6.48
Total Federal	**924,052**	**96.81**	**23,452,980**	**97.30**	**2,995,760**	**97.13**	**24,972,533**	**97.00**	**17,507,205**	**94.63**
Open Water	N/A	N/A	1,028	0.00	N/A	N/A	1,177	0.00	472	0.00
Private	29,553	3.10	614,169	2.55	77,821	2.52	695,281	2.70	915,430	4.95
State of Nevada	857	0.09	34,492	0.14	10,843	0.35	74,817	0.29	77,145	0.42
Total All Owners	**954,463**	**100.0**	**24,102,668**	**100.0**	**3,084,423**	**100.0**	**25,743,807***	**100.0**	**18,500,251****	**100.0**

Source: BLM\bnd_landownership_2006_Sept_poly updated with the new Ely Shoshone file
*There are discrepancies among the shape files for land use; therefore the total acreage for the CEA is slightly less than actual.
**The CEA for Special Designations extends into the State of Utah as the CEA includes lands within a 50-mile radius of project components. However, data in this table is only available for the State of Nevada. Therefore, acreages and percentages are slightly less than actual for the CEA.

[1] Includes water resources, soils, vegetation, cultural resources, Native American concerns, visual, noise, geology, minerals, paleontological resources, wildlife and special status species.

TABLE 5.1-2 EXISTING QUANTIFIABLE LAND USES BY CEA

LAND USE DISTURBANCES	WATER RESOURCES, ETC[2]		RANGE RESOURCES		LAND USE		SPECIAL DESIGNATIONS AND RECREATION		SOURCES
	ACRES	% OF CEA	ACRES	% OF CEA	ACRES	% OF CEA	ACRES	% OF CEA	
Mining (active & abandoned)	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	N/A
Mine tailings (KCC-McGill tailings)	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	KCC Undated
Gravel Pits (active & abandoned)	9 acres	>0.01	41 acres	<0.01	22 acres	>0.01	22 acres	>0.01	Source: unknown File Name: gravelpits_poly
Burned Areas	83,267 acres	8.72	214,790 acres	6.96	1,023,504 acres	9.96	1,074,551 acres	5.40	Source: BLM, File Names: 1999, 2000, 2001, 2002, 2003, 2005t, 2006, & 2007
Roads – Interstate and Primary U.S.	1,051 acres 87 linear miles	0.10	1,801 acres 149 linear miles	0.05	10,611 acres 875 linear miles	0.04	10,598 acres 875 linear miles	0.06	Source: http://sagemap.wr.usgs.gov/datalist_thm.asp 100 foot right-of-way assumed to calculate acreage from linear miles
Roads – Secondary State Highway	117 acres 10 linear miles	<0.01	860 acres 71 linear miles	<0.01	9,139 acres 754 linear miles	0.04	6,599 acres 544 linear miles	0.04	
Roads – Local, neighborhood, rural, city	6,407 acres 1,057 linear miles	0.67	23,289 acres 3,843 linear miles	0.76	178,627 acres 29,473 linear miles	0.69	152,284 acres 25,127 linear miles	0.82	Source: http://sagemap.wr.usgs.gov/datalist_thm.asp 50 foot right-of-way assumed to calculate acreage from linear miles
Vehicular Trail – passable by 4WD only	178 acres 98 linear miles	<0.01	927 acres 510 linear miles	<0.01	8,170 acres 4,493 linear miles	0.03	8,009 acres 4,405 linear miles	0.04	Source: http://sagemap.wr.usgs.gov/datalist_thm.asp 15 foot right-of-way assumed to calculate acreage from linear miles
Grazing Lands	860,328 acres	90.14	2,967,342 acres	96.20	20,457,880 acres	79.47	14,939,209	80.75	Assumed to include BLM and USFS lands
Irrigated Agriculture	328 acres	0.03	4,082 acres	0.13	52,554	0.20	53,912	0.27	Source: BLM File Name: nv04 ReGap.mdb

[2] Includes water resources, soils, vegetation, cultural resources, Native American concerns, visual, noise, geology, minerals, paleontological resources, wildlife and special status species.

LAND USE DISTURBANCES	WATER RESOURCES, ETC[2]		RANGE RESOURCES		LAND USE		SPECIAL DESIGNATIONS AND RECREATION		SOURCES
	ACRES	% OF CEA	ACRES	% OF CEA	ACRES	% OF CEA	ACRES	% OF CEA	
Utility ROWs	3,124 acres 258 linear miles	0.32	4,100 acres 338 linear miles	0.13	13,986 acres 1,154 linear miles	0.05	17,371 acres 1,433 linear miles	0.09	Source: http://sagemap.wr.usgs.gov/datalist_thm.asp 100 foot right-of-way assumed to calculate acreage from linear miles
Urban (medium-high density)	100 acres	0.01	342 acres	0.01	3,955	0.02	20,071	0.10	Source: BLM File Name: nv04 ReGap.mdb

Acreages are not necessarily exclusive and may overlap

TABLE 5.1-3 POTENTIAL QUANTIFIABLE PERMANENT DISTURBANCE (IN ACRES) FROM REASONABLY FORESEEABLE PROJECTS

PROPOSED PROJECT DISTURBANCES	WATER RESOURCES, ETC[3]	AIR QUALITY	SOCIOECONOMICS	RANGE RESOURCES	LAND USE	SPECIAL DESIGNATIONS AND RECREATION
Lowry Hazardous Fuels Reduction Project	N/A	4,500	4,500	4,500	4,500	4,500
Ely Airport Expansion	N/A	1,545	1,545	N/A	1,545	N/A
Coyote Springs Community Development	43,000	43,000	29,000	N/A	43,000	43,000
Hidden Valley Community Development	N/A	914	914	N/A	914	N/A
Apex Industrial Park	6,000	6,000	N/A	N/A	6,000	6,000
Northern Nevada Railway Reconstruction	N/A	2,600	2,600	N/A	2,600	2,600
Nevada Wind Company Wind Project	4,470	4,470	4,470	4,470	4,470	4,470
Enexco Wind Project	4,536	4,536	4,536	4,536	4,536	4,536
SNWA	7,888	7,888	7,888	7,888	7,888	7,888
Kane Springs Water Development	21	21	21	21	21	21
Lincoln Co. Power Dist. Alamo 69kV	212	212	212	212	212	212
Lincoln Co. Land Act Groundwater Dev. and Utilities ROW	240	240	240	240	240	240
Great Basin Transmission*	500	500	500	500	500	500

[3] Includes water resources, soils, vegetation, cultural resources, Native American concerns, visual, noise, geology, minerals, paleontological resources, wildlife and special status species.

PROPOSED PROJECT DISTURBANCES	WATER RESOURCES, ETC[3]	AIR QUALITY	SOCIOECONOMICS	RANGE RESOURCES	LAND USE	SPECIAL DESIGNATIONS AND RECREATION
White Pine Energy Station (WPES)	N/A	1,510	1,510	1,510	1,510	1,510
ON Line Project	800	800	800	800	800	800
Totals	**67,667**	**78,736**	**58,736**	**24,677**	**78,736**	**76,277**

N/A: Information not quantifiable, the project does not fall within the CEA, or would not impact the resource.
*Acres of long-term disturbance estimated based on similarity to current project.
Note: Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time but would contribute additional future disturbance.

5.2 Water Resources

5.2.1 CEA Boundary

Surface Water Resources – The CEA for surface water resources is a 2.5-mile buffer either side of the Proposed Action and Action Alternative elements (**Figure 5.2-1**). The total area of this CEA is 954,373 acres and includes BLM, USFS, USFWS, BIA, and private lands.

Groundwater Resources – Groundwater resources would not be affected directly or indirectly by the Proposed Action or Action Alternative, as described in Chapter 4, thus no cumulative impacts. Therefore, no additional consideration of groundwater resources is included in this chapter.

Wetlands – The CEA for wetlands would be the same as that described for surface water (**Figure 5.2-1**).

Rationale

Surface Water Resources – The direct and indirect effects of the Proposed Action and Action Alternative on flow and quality of surface streams would be limited to direct disturbance areas, which are confined within the larger boundaries along the linear facilities.

Wetlands – Wetlands are supported by surface water and near-surface ground water. Wetland resources in the Proposed Action or Action Alternative alignments would be avoided by design (**Section 4.2.3.2**). Impacts by the project on wetlands should not be noticeable beyond the project area.

5.2.2 Introduction

Water Rights

Water physically available for use in any water basin is the difference between the water coming into the basin (e.g. from precipitation or other basins), minus water consumed through natural and anthropogenic uses, and any change in basin storage. Water rights are a legal requirement for use of water in Nevada, and represent the cumulative use of water by people living and working in the State. The Nevada State Engineer's Office is responsible for administering water rights in a way that ensures that water will be put to beneficial use, and that water used will not exceed that which is available on an annual basis. One subject of **Section 5.2** is to discuss the availability of water for the Proposed Action and Action Alternative in the context of other foreseeable demands for available water in the project area.

Surface Water Resources

Surface water hydrology of the project area is described in **Section 3.2** of this document and depicted on **Figure 3.2-1**. Direct and indirect impacts of the construction and operation of the transmission line and associated facilities are described in **Section 4.2**. Potential cumulative effects to surface water resources within the CEA can occur from any surface disturbance, change in vegetation, surface water withdrawal for irrigation or other purposes; change in land use or alteration of natural drainage patterns; and deposition impacts that change water quality.

Water quality is discussed in **Section 3.2.3.2**, including water quality degradation that is attributed to past and current development.

Wetlands

Locations and descriptions of wetlands in the project area are found in a report by JBR (2007a), which is summarized in **Section 3.2.3.3**. These include naturally occurring wetlands, as well as those created by developed facilities (e.g., irrigation reservoirs, irrigation or drainage ditches) or heavily influenced by anthropogenic development. See also **Figures 3.2-1a-d**. Naturally occurring wetlands are primarily associated with surface water features such as streams and springs, but wetlands in the CEA also occur as wet meadows in areas of local high groundwater. The USGS estimates that 52 percent of native wetlands in Nevada have been lost since European settlement. According to USGS (1996):

> More than one-half of Nevada's original wetlands have been lost, primarily due to conversion of wetlands to cropland and diversion of water for agricultural and urban use; many others have been seriously degraded by human activities. Some wetlands have been created by mine dewatering and sewage treatment.

5.2.3 Past and Present Disturbances

Surface Water Resources

The primary source of impacts to surface water resources is surface disturbance, which is directly affected by land use. Impacts can be to water quality or water quantity, which are interrelated in many cases (see **Section 3.2.2**). Types of development that might affect surface water resources would include road construction and maintenance, livestock grazing, timber harvest, agricultural activities, residential development, energy development, recreational trails/facilities, utility corridors, landfills, and mining activities. Point-source wastewater and storm drain discharges from urbanization and industrial development are regulated under National Pollution Discharge Elimination System (NPDES) permitting, which minimizes their impact on receiving surface water quality. Non-point storm water runoff from land uses such as transportation corridors, livestock grazing, and timber harvest are less easily regulated and have the potential to affect surface water quality as well as the timing and volume of surface water flows. Events such as wildfires or failed culverts can have impacts on water quality.

Analysis of cumulative effects on surface water for the ON Line Project is simplified by NV Energy's proposed use of existing utility corridors. Active grazing and agricultural activities, including irrigation, dominate surface use in the CEA.

<u>Land Use</u>

Table 5.1-1 gives land ownership by acreage and **Table 5.1-2** gives land uses for the surface water CEA. Note that there is a great range of potential impacts within some categories. For example, a paved multi-lane highway, like US-93, would have different impacts than an unpaved, abandoned logging road. Land use is described in greater detail in **Sections 3.12**, **4.12**, and **5.12**.

Agriculture, Forestry, and Similar Sources of Surface Disturbance

Other anthropogenic impacts to surface water in the CEA include reservoirs in the White River Basin, such as those in the Kirch Wildlife Management Area in Nye County (Tule Field, Haymeadow, and Whipple reservoirs) (NDOW 2007d). Irrigation reservoirs, diversions, and delivery systems (e.g., ditches) impact surface water by altering natural drainage systems as well as the timing and volume of runoff. Irrigated agricultural lands can result in increased sediment and nutrient loads in surface water.

Figure 5.2-1 Surface Water CEA

Agricultural and forestry practices can alter or remove vegetation temporarily or over long periods. This has the potential to increase erosion and sediment delivery to streams or other surface water features. In addition, fertilizer and other chemicals applied to the land can be carried into surface water bodies. **Table 5.1-2** lists the areal extent of agriculture and related land uses in the CEA.

Vegetation loss and soil permeability can be severely impacted by wildfires and efforts to control them. During the last nine years, over 83,267 acres within the CEA burned, and most notably, nearly 67,442 of those acres burned in 2005 (BLM 2007h). Widespread burning of lands can result in deposition of sediment in surface water; loss of riparian areas (shading of streams and temperature effects); change in quantity and timing of runoff; and loss of the organic soil layer, impeding new vegetation and infiltration. Fuels reduction and habitat restoration projects may have similar effects in the short-term, but beneficial effects in the long-term by reducing the incidence of catastrophic wild fire.

Community Development

Community development can affect quantity and timing of storm water runoff. Hardscaping, such as buildings, roads and parking lots, can affect surface water by reducing or eliminating infiltration over large areas and changing drainage patterns. This, in turn, affects the timing and quantity of overland flow and runoff to surface water features, and can lead to increased sediment yield by increasing the erosion potential of runoff by concentrating it. **Table 5.1-2** gives an indication of overall urbanization, roads, and industrial land uses within the CEA. Most roads and hardscaping development in recent years has integrated infiltration basins and other best management practices into their storm water design and permitting, substantially mitigating the effect of development on surface water resources.

Extractive Industry (Mining, Gravel Pits, Gas and Oil Exploration/Development)

Development associated with extractive industry (mining, oil/gas exploration) includes road construction, drilling, mining disturbance, dewatering, and supportive facilities. Extractive industry disturbance is more likely to be long-term in nature as the extractive process is lengthy, and rehabilitation of disturbances can take many years. The extractive industry can impact water quality through increased acidity, metals, nutrients, or sediment in the water. Mining can affect both surface and ground water resources, and, in some cases, consumes substantial quantities of water.

Section 3.3.3.3 describes the mining districts within the CEA or adjacent to it. **Table 3.3-2** shows the project element nearest to each mining district, the mineral commodities (e.g., gold, copper, phosphate), and the mining claim number for active claims. **Figure 3.3-4** shows the locations of the districts. **Table 5.3-2** expands on **Table 3.3-2** to include a larger area (the minerals CEA), and historical context to mining in the area. **Section 3.3.3.3** also shows active oil and gas leases in the area and authorized geothermal leases. The preceding was obtained primarily from BLM databases. In addition to the active mines and oil and gas leases, there are mining claims within the project area that have been abandoned or patented (BLM 2007h), such as a portion of the Robinson Nevada Mine (Mine Development Associates 2004), 22 miles west of Ely.

Abandoned mines can be troublesome for surface water, since many of them were mined before environmental regulations, reclamation bonding, or other types of permitting went into effect. At some sites, disturbed areas do not support plant growth, particularly on tailings or waste rock depositories. Consequently, these sites may yield higher sediment loads, acid mine

drainage, metals, and other water quality contaminants. The Nevada Bureau of Mines and Geology (NBMG) estimates that there are as many as 225,000 to 310,000 inactive and abandoned mine sites statewide, including 102,464 that had been digitized statewide as of 1995 (NBMG 1995).

Table 5.3-1 shows current sand and gravel operations in the geology CEA, and **Section 5.3** describes other current, historic, and anticipated mining activities in the project area. Gravel pits can result in deposition of sediment in surface waters, as well as changes in drainage patterns. Landfills in the project area are discussed in **Section 5.19**.

Grazing

In the case of the water resources CEA the predominant land use is grazing for livestock and for wild horses. **Figures 3.9-1a**, **3.9-1b**, and **Figure 3.9-2** show BLM grazing allotments and the HMA, which are described in **Sections 3.9** and **4.9**, under Range Resources. Grazing can result in loss of vegetation leading to increased sediment delivery, promotion of less palatable species, loss of riparian vegetation, increased nutrients in surface waters, and stream bank failure due to trampling and loss of riparian vegetation. BLM is reducing grazing impacts through increased monitoring and use restrictions on new and renewed grazing leases.

Industrial Development

The Apex Industrial Park (the Park) is located at the southern tip of the CEA in Clark County. It is noteworthy that the Park appears to represent substantial industrial development in close proximity to the project area. The Park consists of 21,000 acres with contiguous lots ranging from 5 to 500 acres. The Park is zoned allowing most industrial uses, pays no corporate income tax, and has utility services access, including electric transmission and distribution service, an interstate natural gas pipeline, and fiber-optic communications capability. The Park currently contains operating power plants, as well as quarries, industrial facilities, and landfills. Existing utility infrastructure includes Harry Allen Substation, Chuck Lenzie Generating Station, numerous transmission lines, and other types of utilities (such as underground petroleum pipelines). The electric generating plants here use dry cooling which reduces water consumption compared to wet-cooled plants. Permitting requirements under the federal CWA have mitigated impacts from wastewater at industrial facilities.

The Western Elite (Bedrock) property is located approximately 5 miles north of the Lincoln/Clark County line along US-93. The Western Elite (Bedrock) Land fill consists of 83 acres. This includes an open gravel pit for dumping.

Recreation

BLM's Ely District contains the majority of the area within the CEA. OHV activity is a popular recreational pursuit in Nevada (see **Section 3.14**). OHVs are notably destructive of natural resources under some conditions, damaging vegetation, compacting soils in some areas and breaking up soil in others. These impacts lead to increased erosion, changes in infiltration of precipitation, and mobilization of sediment. Restricting OHV use to well defined and maintained areas can substantially mitigate impacts to water resources.

Roads

Roads within the CEA result in changes in drainage patterns, vegetation, infiltration, and wetlands. Sanding and deicer materials may affect vegetation and result in vegetative loss, ultimately impacting water quality through increased sedimentation. BLM's Ely District RMP (2008a) currently restricts OHV use to existing roads and trails. Previously, OHV use on the Ely

District was unrestricted, and present use within the BLM's Southern Nevada District is unrestricted. Unrestricted use of OHVs results in creation of a network of social roads that lead to a wide range of resource impacts. Vehicular trails greatly increase sediment delivery, overland flow, flood risk, and erosion, while decreasing vegetation.

Utility Production and Distribution

Existing power production and transmission within the CEA includes the Harry Allen complex consisting of the generating station, switchyards, and substations; and segments of numerous transmission lines. Utility ROWs within the CEA have been developed for power transmission, and placement of water and gas pipelines and fiber optic cable. The majority of acreage disturbed within the CEA by utilities installation (for example, transmission lines associated with the Harry Allen Substation; and existing SNWA, Lincoln County and NV Energy transmission lines) is in the southern portion of the CEA, within the utility ROW.

The Kern River gas pipeline enters the southern tip of the CEA and terminates in the Apex Industrial Park. The project consists of a 36-inch diameter natural gas pipeline originating in Salt Lake City, Utah.

Utility line construction and operation can increase sediment, affect quantity and timing of runoff, and adversely impact water quality. Construction of power generation facilities and towers supporting associated transmission lines have had short-term adverse impacts due to ground disturbance, and permanent adverse effects on water resources as existing permeable surfaces (vegetated areas) have been replaced by structures creating impermeable surfaces. Placement of existing water supply lines, gas lines, and fiber optic cable within utility ROWs also have resulted in ground-disturbing activities. However, because there are little or no surface facilities associated with these buried lines, there would be minimal permanent impacts.

Wastewater Discharge

NDEP Bureau of Water Pollution Control reports no industrial NPDES permits for discharge of wastewater to surface water in the project area (Kaminski 2007). All sources permitted for wastewater disposal are classified as having "zero discharge to waters of the State" (Kaminski 2007). "Waters of the State" are defined as follows in Nevada Revised Statutes (NRS 445A.415):

> all waters situated wholly or partly within or bordering upon this State, including but not limited to:
>
> 1. All streams, lakes, ponds, impounding reservoirs, marshes, water courses, waterways, wells, springs, irrigation systems and drainage systems; and
> 2. All bodies or accumulations of water, surface and underground, natural or artificial.

This definition is quite broad and inclusive, covering closed basins and other waterbodies that are not federally regulated Waters of the U.S. (see **Section 3.2.3.3**).

Wetlands

Anthropogenic influences on wetlands within the CEA are described in **Section 3.2.3.3**. A number of significant wetland features in the CEA were created and/or maintained as a result of human development, such as those related to the Kirch WMA.

5.2.4 Foreseeable Future Disturbances

Surface Water

Land Use

Agriculture, Forestry, and Other Sources of Surface Disturbance

The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project is within several CEAs. For this project 3,253 acres are proposed for mechanical treatment and 844 acres are proposed for prescribed fire treatment. Two similar projects are partly within the surface water CEA. The White Pine Sagebrush Restoration Project intends to enhance sagebrush habitat and reduce the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush.

Projects like the Lowry Fuels Reduction Project cause short-term disturbance but long-term benefits to water resources by reducing wildfire risk, restoring native vegetation to pre-development conditions, and, in some cases, increasing water yield.

Community Development

Another prominent development within the CEA that would result in surface disturbance will be the Coyote Springs community development. The planned development, currently in initial stages of construction, is on private property located on the Clark/Lincoln County line, east of US-93 and separated from the Desert National Wildlife Range by the highway and the SWIP Utility Corridor. The development is planned for a total of 43,000 acres, of which 12,000 acres are planned for a nature preserve, trail system, parks, open spaces, and multi-species habitat. In addition, the development is planned to include a 17-acre lake (Las Vegas Review-Journal 2007a) and several golf courses, portions of which are already complete (Coyote Springs Investment 2007). The first phase of development is planned to include 13,000 acres in Clark County, 3,000 acres of which would accommodate approximately 10,000 homes. Coyote Springs developers own 6,100 af/y of water rights; their application for an additional 16,000 af/y brought objections from federal agencies and environmental advocacy groups. The Nevada State Engineer has put a five-year moratorium on new water rights in the area while a study of sustainable levels of water use from local sources can be completed. The moratorium is delaying construction of the project.

Extractive Industry (Mining, Gravel Pits, Gas and Oil Exploration/Development)

Oil and gas exploration and development are accelerating in the CEA, with BLM and the USFS actively leasing lands for this use. The Humboldt-Toiyabe National Forest released a ROD authorizing 255,603 acres of National Forest for oil and gas exploration leases (USFS 2007b). The ROD minimizes erosion hazards by restricting leasing on hillsides with a high potential for slope failure or difficult restoration after project completion; the ROD also stipulates “No Surface Occupancy – 30 meter buffer on perennial streams, springs, ponds, and wet meadows and 15 meter buffer on seasonal or subsurface streams” (USFS 2007b) as a means of minimizing impacts on surface water quality. Inspections, regulations, and construction requirements for the handling of hazardous materials and the drilling and construction of wells would minimize the risk that fresh water aquifers would be contaminated through the exploration, production, and closure of oil and gas wells (USFS 2007b). The proposed ON Line Proposed Action and/or Action Alternative transmission line within the SWIP Utility Corridor crosses the White Pine Division of the USFS project. With these and other restrictions on surface occupancy, road

construction, and seasonal use, oil and gas development leasing by the USFS and the BLM would have minimal cumulative effect on water resources.

Grazing

The majority of the grazing permits within the CEA are managed under the Ely District RMP. Under the RMP, the goal is to manage livestock grazing on public lands to provide for a level of livestock grazing consistent with multiple use, sustained yield, and watershed function and health. The objective is to allow livestock grazing to occur in a manner and at levels consistent with multiple use, sustained yield, and the standards for rangeland health. Management actions in support of this goal and objective include:

- Continue livestock grazing at current levels of 545,267 AUMs on 11,246,900 acres on a long-term basis.
- Unavailability of the following lands for livestock grazing:
    - Mormon Mesa, Kane Springs, and Beaver Dam Slope ACECs (203,670 acres);
    - Baker Archeological Site ACEC (80 acres) and Snake Creek Indian Burial Cave ACEC (40 acres);
    - Leased public lands associated with the Coyote Springs Development (6,200 acres); and
    - Private/Utah Allotment above Beaver Dam State Park (4,400 acres).
- Allowing allotments or portions of allotments within desert tortoise habitat, but outside of ACECs, to remain at current stocking levels unless a subsequent evaluation indicates a need to change the stocking level.
- Continuing to monitor and evaluate allotments to determine if they are continuing to meet, or are making significant progress toward meeting the standards for rangeland health. Changes, such as improved livestock management, new range improvement projects, and changes in the amount and kinds of forage permanently available for livestock use, can lead to changes in preference, authorized season-of-use, or kind of livestock. Such changes will continue to meet the RMP goals and objectives, including the standards for rangeland health.

While historic grazing practices have damaged upland and riparian vegetation as well as stream banks and water quality, public agencies, like BLM, are promulgating more stringent regulations for new and renewed grazing leases that will mitigate these impacts to water resources over time.

Industrial Development

Approximately 6,000 acres of the Apex Industrial Park have been available for immediate sale and development for a wide range of industrial uses for the past 8 – 10 years. A privately held travel-center developer plans to develop a travel center at the intersection of I-15 and US-93. Providing access to US-93, I-15, and the Union Pacific Railroad, the Park is marketing future development of commercial business (truck, retail, transportation, lodging), warehousing and distribution, light and heavy industrial, and light and heavy manufacturing. Surface disturbance related to this development could affect surface water quality and drainage patterns. These would be controlled through compliance with State of Nevada requirements for storm water pollution prevention BMPs.

Recreation

The population of White Pine and Lincoln counties may temporarily increase with construction of the ON Line Project (**Section 4.17.2.1** and BLM 2008c). Increased population could likely also increase recreational pressure on surrounding public lands. Increased ground disturbance from roads and trails caused by increased recreational use would impact water resources.

Roads

Nevada Department of Transportation, the counties, and federal agencies have ongoing road improvement projects in their jurisdictions (see **Appendix 5A**, Past, Present and Reasonably Foreseeable Projects). Disturbance during construction, and increased hardscaping, affect the timing, quantity, and quality of runoff (e.g., suspended and dissolved sediment), but standards for storm water management on new roads and on road improvement projects mitigate these impacts to a minimal level.

Utility Production and Distribution

Two major planning efforts identified/designated federal utility corridors: The West-Wide Energy Corridor (WWEC) Programmatic EIS (PEIS) and the SWIP Utility Corridor. The WWEC encompasses the SWIP Utility Corridor. These corridor projects address the same utility corridor within the CEA in their planning (NEPA) documents. These designated corridors provide for utility development in support of the Energy Policy Act of 2005.

The WWEC PEIS plans for a 3,500-foot-wide corridor where possible, and specifies actual widths allotted along various segments. Within the project area, the width varies from 2,640 to 3,500 feet.

Segments of the SWIP Utility Corridor proposed for the transmission line alignment associated with the ON Line Project (Segments 6C, 8, 9B, 9C (Action Alternative), 9D, and portions of Segment 11) are generally designated to be 2,640 feet wide in the WWEC PEIS, although some portions are up to 3,500 feet wide.

The Lincoln County Conservation, Recreation, and Development Act (LCCRDA), enacted on November 30, 2004, became Public Law 108-424. The LCCRDA designated utility corridors to be used for ROWs for roads, wells, pipelines, power lines and other infrastructure needed for construction and operation of a water conveyance system in Lincoln County. The LCCRDA corridor width is 3,500 feet wide in the area where a portion of Segment 10 (alternative), which could be utilized under the Action Alternative of the ON Line Project, would be located.

Several additional utility projects have been proposed and are in various stages of planning and development, including the SNWA Ground Water Development Project. SNWA has submitted a ROW application to the BLM for the Clark, Lincoln, and White Pine counties Groundwater Development (GWD) Project. The project includes pipelines, pumping stations, storage facilities, a treatment facility, pressure reducing stations, power lines, and electrical substations. The GWD Project would convey approximately 170,000 af/y of water, including approximately 134,000 af/y of groundwater developed by SNWA and the remaining capacity provided for Lincoln County. The permanent disturbance associated with this project is estimated to be 7,888 acres. The facilities would be within the designated utility corridors discussed above.

The Kane Springs Valley Groundwater Development Project would develop a system for tapping groundwater resources in the Kane Springs Valley Hydrographic Basin. The proposed pipeline would have the capacity to transport 5,000 af/y of water. The project would be located in the designated utility corridor with a permanent disturbance of 21 acres.

Lincoln County Power District #1's Alamo 69 kV Transmission Project involves upgrades to the existing Alamo North Substation and construction of approximately 12 miles of 69 kV power line within the existing permitted BLM ROW (N-63042), construction of approximately one mile of new 69 kV power line on BLM-administered lands, and construction of approximately 1.5 miles of 69 kV power line on private lands. The disturbance associated with this project would be 212 acres and would mostly be within the designated LCCRDA utility corridor.

The Lincoln County Land Act Groundwater Development and Utility Right-of-Way Project includes groundwater facilities, electrical power infrastructure, communication facilities, and a natural gas pipeline. The Lincoln County Water District, in cooperation with the Lincoln County Power District No. 1, and the Lincoln County Telephone Company, is proposing to construct groundwater facilities and ancillary utility infrastructure designed to pump and convey groundwater that has been permitted or may be permitted by the Nevada State Engineer in the Clover Valley and Tule Desert Hydrographic Areas for use by Lincoln County Water District customers. In addition, Southwest Gas Corporation is proposing to construct and operate a natural gas line and metering facility within the southernmost portion of the water project corridor to serve planned development in the area. Permanent disturbance associated with this project would be 240 acres. It is within the CEAs for socioeconomics and land use.

The Great Basin Transmission Line is an amendment to the transmission line ROW within the previously approved ROW within the SWIP Utility Corridor by the current authorized project proponent, Great Basin Transmission LLC (previously Idaho Power Company and then White Pine Energy Associates LLC).

With the high percentage of public land in Nevada, linear projects must undergo public scrutiny through NEPA and are subject to state and federal environmental regulation. In addition, while buried utilities may disturb a significant number of acres during construction, permitting regulations require restoring land contours and prompt revegetation of disturbed areas that in the long-term generally returns the majority of the disturbed areas to pre-existing conditions, thus minimizing impacts to water resources.

White Pine Energy Associates, LLC. (WPEA) has proposed construction of a 1,590 MW, coal-fired power plant, the White Pine Energy Station (WPES) approximately 34 miles north of Ely, Nevada in Township 22 North and Range 64 East (BLM 2008c). The proposed WPEA project would include 1,902 acres of temporary disturbance and 1,510 acres of permanent disturbance for the power plant, transmission lines from the plant to the proposed Thirtymile Substation adjacent to the SWIP Utility Corridor, rail connection to the Nevada Northern Railway, a groundwater supply system, distribution power lines for the plant and well field, and an aggregate open pit. Only the proposed transmission lines and the Thirtymile Substation would be situated within the CEA for water resources. This project has been postponed by WPEA for an indefinite period of time. It would be within the CEAs for land use and socioeconomics.

NV Energy proposed in 2006 to construct and operate a coal-fueled electric generating facility about 20 miles north of Ely, in White Pine County, Nevada, referred to as the Ely Energy Center (EEC) (BLM 2009b). NV Energy announced in February 2009 its plan to postpone development of the EEC indefinitely and proceed with just the transmission facilities component of the original project to connect NVE's northern and southern service territories. NV Energy submitted a revised Plan of Development and ROW application to the BLM specifically for the ON Line Project; because the previous application was withdrawn and the current application does not include the EEC, the EEC is not considered a reasonably foreseeable project and will not be included in the cumulative effects analysis.

Nevada Wind Company has identified a site in the North Egan Range for development of potential wind generation facilities. The proposed project would cover 4,470 acres. North Wind Energy has been monitoring the site and is expected to propose development. A 4,536-acre project has been proposed by Enexco, also in the North Egan Range. Construction of the ON Line Project may facilitate these power generating projects.

Geothermal Energy Leasing Programmatic ROD. The BLM issued a ROD to facilitate geothermal leasing of the federal mineral estate in 12 western states, including Nevada, in December 2008. This decision (1) allocates BLM lands as open to be considered for geothermal leasing or closed for geothermal leasing, and identifies those National Forest System lands that are legally open or closed to leasing; (2) develops a reasonably foreseeable development scenario that indicates a potential for 12,210 megawatts of electrical generating capacity from 244 power plants by 2025, plus additional direct uses of geothermal resources. The ROD amends the Elko, Wells, and Las Vegas RMPs, opening 10,932,025 acres to geothermal leasing in those districts and projecting 238 MW of production by 2015 and 488 MW of production by 2025.

The above described power generation projects are entirely outside of the water resources CEA but are mentioned here because the electricity they would generate would potentially be transmitted by the ON Line Project or other power transmission lines within the water resources CEA.

Wetlands

The reasonably foreseeable developments with the potential to impact wetlands in the CEA are the same as those described above.

5.2.5 Cumulative Disturbances

Table 5.1-3 shows the acreage that would be disturbed by the reasonably foreseeable activities in the CEA. The table is based on the proposed actions as described in the respective EISs, NOIs, or other documents.

Surface Water

Quantifying the past and present surface disturbance in the CEA requires clarifying assumptions for a number of reasons, including the following:

- disturbances from various sources may overlap, such as utility corridors and grazing allotments,
- impacts of wildfires on a watershed, or the extent of these impacts, cannot always be accurately determined,
- historical disturbances, such as abandoned mines and old roadways, may have been reclaimed naturally over time or by agency action; and,
- filling or draining of wetlands was common practice for many years and acreage was not recorded, therefore, a baseline or starting point may not be definite.

Consequently, the past and present surface disturbance in the CEA that could actually impact surface water could range from the sum of all disturbances in the CEA, which would be 924,052 acres (see **Table 5.1-2**) out of the total area of the CEA, which is 954,373 acres (96.8 percent). This includes all acres in grazing allotments, as well as urban areas, highways, mine tailings, and burned areas. To lump all of these types of disturbances together would not provide an accurate picture of the CEA, much of which, though grazed or burned, is relatively undisturbed.

Removing these two disturbance categories (grazed and burned) leaves areas of long term disturbance, and a total disturbed acreage of 10,887 acres or 1.1 percent.

5.2.6 Cumulative Effects

Surface Water

Under the Proposed Action or Action Alternative, cumulative effects to surface water resources in the surface water CEA would be negligible, based on the findings in **Sections 3.2, 4.2,** and **5.2**. Best management practices and storm water management during construction and operation would prevent any significant storm water runoff or wastewater from disturbed or hardscaped areas from reaching surface water features, groundwater, or wetlands. During operations, permitting requirements would ensure that water quality standards are met.

Wetlands

Under the Proposed Action or Action Alternative, cumulative impacts to wetland resources in the surface water CEA would be minimal, if any. The extensive historical damage to wetlands has occurred primarily from conversion to cropland or similar activities (see **Section 5.2.2**). Wetlands along the transmission line alignments would be avoided.

5.3 Geology, Minerals, and Topography

5.3.1 CEA Boundary

The CEA for geology, minerals, and topography is the same as the surface water CEA and consists of a 2.5-mile buffer surrounding the direct effects study area, including the Proposed Action and Action Alternative transmission line alignment (including the SWIP Utility Corridor) and substations (**Figure 5.2-1**). The total area of this CEA is 954,373 acres.

Rationale

The direct and indirect effects of the Proposed Action and Action Alternative on these resources would be confined to the actual disturbance areas. However, the boundaries of the project area are larger than the actual disturbance areas within them and impacts to these resources would be undetectable outside of these larger boundaries.

5.3.2 Introduction

Potential effects to the geology, mineral, and topographic resources consist of mineral resource depletion, removal of mineral resources from availability for development, and topographic changes.

Sections 3.3 and **4.3** discuss in detail the geology of the project area and the project's likely affect on mineral resources, respectively. **Figures 3.3-2a-b** show geological resources of the project area.

The past, present, and future disturbances with cumulative impacts to geology, minerals, and topography discussed below are described in detail in **Sections 5.3.3** and **5.3.4**.

5.3.3 Past and Present Disturbances

Current land ownership and uses within the geology, minerals, and topography CEA are presented in **Tables 5.1-1** and **5.1-2**, respectively.

Extractive Industry (Mining, Mine Tailings, Gravel Pits, Oil & Gas Exploration/ Development)

The Nevada Bureau of Mines and Geology (NBMG) shows no major mines in the CEA (NBMG 2007). **Table 5.3-1** shows mining operations in the CEA, taken from the Nevada Department of Business & Industry (NDBI) Directory of Mine Operations for 2006 (NDBI 2007), which includes smaller operations than the NBMG major mines database. All of these operations are in or are adjacent to the proposed transmission segments.

TABLE 5.3-1 MINING OPERATIONS IN THE CEA

OPERATION NAME	COUNTY	SECTION, TOWNSHIP, RANGE	COMMODITY/OPERATION
American Asphalt & Grading Co.	Clark	Sec 21, T13S, R63E	Aggregate, rock, sand, crushing
Silver States Landfill at Apex	Clark	Secs 13, 14, T18S, R63E	Sand, sand/gravel, crushing, screening
Coyote Springs Service Rock Products	Lincoln	Sec 13, T11S, R62E	Sand/gravel, crushing, screening

Source: NDBI 2007

Transmission lines and associated facilities overlap with mining districts where mining could have occurred in the past (see **Figure 3.3-4**). As described in **Section 5.2**, a substantial number of abandoned mine sites are found throughout the CEA. As commodity prices fluctuate and new uses are found for specific metals and other mineral products, some of these abandoned resources may become economically viable in the future and reopened. Since a substantial portion of the ON Line project is located on alluvial fans and basin-fill material, it is highly unlikely that construction and operation of the ON Line Project would preclude development of any metallic mineral resources in the area. **Table 5.3-2** gives some history of the mining districts, which overlap or are adjacent to project facilities; the table is taken from NBMG Report 47, “Mining Districts of Nevada” (1998).

TABLE 5.3-2 MINING DISTRICTS IN THE CEA

NAME/ COUNTY	YEAR ORGANIZED/ COMMODITIES	COMMENTS
Arrow Canyon Range / Clark	silica, building stone	The Arrow Canyon Range lies east of US-93 about 8 miles west of Moapa. Silica and building stone deposits occur along the east and west flanks of the southern part of the range.
Bristol / Lincoln	1971/ silver, copper, lead, zinc, gold, manganese, montmorillonite	The Bristol district is located in the northern Bristol Range about 15 miles north of Pioche. The historic Blind Mountain district (1871) covered the southern part of the present district. Bristol originally included only the area around mines on the western slope of the Bristol Range, and the Jackrabbit district included the area on east side of the range.
Currant / Nye & White Pine	1914/ gold, lead, copper, tungsten, magnesite, uranium, fluorspar	This district encompasses the southern White Pine Range, the Horse Range, and the northernmost part of the Grant Range. Kral (1951) included Railroad Valley (Butterfield) Marsh along with Silverton, to the west, in a large Currant district. Deposits of magnesite occur in the White Pine County part of the district.
Delamar / Lincoln	1892/ gold, silver, copper, lead, perlite	Delamar came into use as the district name starting in mid-1930s. The main portion of the Delamar district is located on the western front of the range between Monkey Wrench Wash and Cedar Wash, although the district extends to the east almost to Rainbow Canyon and includes the upper part of Taylor Mine Canyon.
Ely Springs / Lincoln	silver, zinc, lead, gold	The Ely Springs district is on the west side of the Ely Springs Range, about 13 miles west of Pioche.

NAME/ COUNTY	YEAR ORGANIZED/ COMMODITIES	COMMENTS
Meadow Valley Mountains / Lincoln	gold, silver, uranium	Located east of US-93.
Robinson / White Pine	1868/ copper, gold, silver, zinc, lead, iron, manganese, tungsten, molybdenum, rhenium, platinum, palladium, nickel	The Robinson district is centered near the towns of Ely and Ruth, in the Egan Range. Originally organized as the Robinson district and includes the towns of Ely, East Ely, Ruth, Reipetown, Veteran, Kimberly, and Lane City (formerly Mineral City).
Silver King / Lincoln	1874/ silver, lead, copper, gold	The Silver King district includes a small area near Silver King Well on the west side of the southern Schell Creek Range (historic Lake Valley Range) in T7N, R62E, 16 miles northwest of Bristol, Lincoln County, and about 12 miles southeast of Sunnyside, Nye County.

Source: NBMG 1998

Section 4.3 describes in detail current oil and gas leases in the project area, as recorded in the BLM database. **Table 5.3-3** is taken from the Nevada Oil and Gas Well Database (NBMG 2004), last updated in 2004. All of the wells in the table are within the CEA. Out of the 20 wells that were permitted, 6 were never drilled (as of 2004) and 13 were abandoned; the status of the remaining well, permitted in 2002, is described only as "drilled." Despite the outcome of these wells, the leases identified in **Section 4.3** demonstrate renewed interest in finding and producing oil and gas in the CEA.

TABLE 5.3-3 NEVADA OIL AND GAS WELLS IN THE CEA AS OF 2004

COUNTY	SEC	TOWN	RANGE	PERMIT ISSUED	STATUS*	DEPTH (FT)	SHOW
Clark	14	18S	63E	10 JUN 81	P & A	17,110	Gas
Clark	7	18S	64E	02 JUN 50	A	1,455	
Nye	18	10N	61E	25 AUG 89	Never Drilled		
Nye	18	10N	61E	24 MAY 93	P & A	7,118	Oil
Nye	28	11N	60E	11 SEP 56	P & A	692	
Nye	10	5N	61E	09 JUL 84	Never Drilled		
Nye	11	5N	61E	09 JUL 84	Never Drilled		
Nye	14	5N	61E	07 OCT 02	Drilled		
Nye	33	5N	62E	02 JUL 98	P&A	4,447	Oil
Nye	33	5N	62E		Never Drilled		
Nye	5	8N	60E	19 MAY 70	P & A	800	
White Pine	3	13N	61E	09 JUL 84	Never Drilled		
White Pine	4	14N	61E	27 SEP 71	P & A	2,603	Water
White Pine	9	14N	61E	27 JAN 74	D & A	271	
White Pine	9	14N	61E	10 JUL 75	P & A	4,600	
White Pine	33	14N	61E	23 MAY 85	P & A	1,442	
White Pine	14	14N	61E	23 MAY 85	P & A	464	
White Pine	29	15N	61E	19 MAY 70	Never Drilled		
White Pine	29	16N	61E	21 OCT 93	P & A	7,356	
White Pine	16	19N	61E	19 MAY 70	P & A	712	

*A = abandoned; D = drilled; P = plugged
Source: NBMG 2004

5.3.4 Foreseeable Future Disturbances

Future disturbances to geology, topography, and minerals are quantified in **Table 5.1-3** above.

Community Development

Use of mineral products for the construction of roads, railroads, buildings and other facilities would likely continue in the future. Impacts from use of licensed gravel pits and other borrow sources are regulated and minimal.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Oil and gas wells, mines for various commodities, and other mineral resources would likely continue to be developed as their economic value increases.

Utility Production and Distribution

The construction and operation of the proposed WPES would require borrow and other construction materials. The WPES project includes a proposed a borrow pit of approximately 40 acres. The power plant would dispose of combustion solid waste on site in above-grade landfills. This construction project would reduce existing aggregate supplies in the immediate area to a negligible effect. The topographic effects of the borrow pits and the combustion waste landfills would be minor.

5.3.5 Cumulative Disturbances

Within the CEA, known quantifiable past and present disturbances total approximately 10,900 acres. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CEA. Other potential permanent disturbance, as presented in **Table 5.1-3**, totals 67,667 acres, about one-third of which would be within the designated utility corridors.

5.3.6 Cumulative Effects

The cumulative effects of the ON Line Project on mineral and geological resources would be minimal, and its effect on topography would be negligible. No existing or foreseeable mining districts or petroleum products wells would be affected by the project, either directly or by affecting site access.

5.4 Paleontological Resources

5.4.1 CEA Boundary

The CEA for Paleontological Resources would be the same as described for Surface Water (**Figure 5.2-1**). This boundary encompasses 954,373 acres.

Rationale

Because the project should not affect paleontological resources outside of the direct effects area, this CEA was chosen mainly for simplicity purposes, as defined in **Section 5.1**. Activities attached to the Proposed Action and Action Alternative that might affect paleontological

resources could occur outside of the actual disturbance area, but not likely outside of this proposed CEA.

5.4.2 Introduction

Southeastern Nevada has yielded paleontological resources that have contributed to our understanding of the development and history of life on earth. Many studies and research papers include discussions and analysis of these (Reynolds 2007). Paleontological resources are subject to cumulative impacts via loss through both natural processes of erosion and weathering, and man-made disturbances.

Cumulative effects to paleontological resources occur through the incremental degradation of the resources from various impacts, which reduce the information and scientific research potential of the resources.

The past, present, and reasonable foreseeable future disturbances with cumulative impacts to paleontological resources discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.4.3 Past and Present Disturbances

The current land ownership and uses for (thus disturbances within) the paleontological resources CEA can be found in **Tables 5.1-1** and **5.1-2** above.

Recreation, Land Use, and Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

The primary activities/disturbances that have already affected paleontological resources in the CEA include off-highway vehicle use, recreational collecting, lands and realty management, and mining activities. Fossils have been and continue to be discovered during ground disturbances related to developments such as mining, oil and gas development, landfill development, quarrying, and other activities in the CEA. Natural processes such as soil erosion and rock weathering have also exposed fossils.

As discussed in **Section 3.3.3**, there are mining districts within or near the CEA (**Figure 3.3-4**). Also noted in **Section 3.3.3**, there are active oil and gas leases within the CEA. All of these endeavors include ground disturbing activities related to exploration, development, and extraction that could encounter paleontological resources. There is no quarrying or gravel pit disturbance in the CEA.

Roads, Utility Production, and Distribution

Roads, power lines, pipelines, and utility construction can impact near surface deposits of paleontological resources in general and possibly deeper deposits in areas that required excavation through landforms.

Vertebrate fossils such as dinosaurs, mammals, fishes, reptiles, and uncommon invertebrate fossils are collected by trained researchers under BLM permit. These remain public property and are placed in museums or other public institutions after they are studied. Although the resources are removed from their original context, the documentation adds to the body of knowledge about paleontological resources in the region. However, casual use and un-permitted collection of fossils has contributed to the loss of the resource and its research potential and interpretation. The lack of regular site monitoring and public education about fossil collecting has led to illegal commercial collecting of trilobites and excessive unauthorized collection (BLM 2008a).

5.4.4 Foreseeable Future Disturbances

Future disturbances to paleontological resources are quantified in **Table 5.1-3**. The reasonably foreseeable future actions all have the potential to impact paleontological resources. However, as much of the land in the CEA is publicly administered, these projects would all be subject to NEPA and federal and state regulations protecting paleontological resources.

Geological formations with exposures containing paleontological resources would continue to be impacted by natural agents (e.g., erosion, rock weathering, surface water drainage).

Community Development

Community development projects, such as the Coyote Springs Development (43,000 acres), have the potential to impact paleontological resources as well. Private development does not afford the same protections and standard operating procedures as activities under federal administration.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Any future mining development on public lands would require an inventory of paleontological resources, as well as documentation or collection of specimens uncovered during operations (BLM 2008a).

The White Pine & Grant-Quinn Oil & Gas Leasing program (USFS 2007b, 2007c) would lease up to 255,603 acres of National Forest System lands for oil and gas development, including exploration and possibly well development. A small portion of this falls within the paleontological resources CEA boundary.

Utility Production and Distribution

Ground disturbances related to the proposed WPES would have the potential to expose/uncover significant fossils. As proposed, the WPES plant site would disturb 1,510 acres of land. Numerous linear developments, including projects within the SWIP Utility Corridor and the WWEC have been proposed through the CEA. These include new or expanded utility ROWs for power transmission, water pipelines, roads (e.g., residential developments or access to other uses), fiber-optic, petroleum products, natural gas, and others (see **Appendix 5A**). Most of the proposed utility developments would be within the designated utility corridors (**Table 5.1-3**).

5.4.5 Cumulative Disturbances

Within the CEA for paleontological resources, known quantifiable past and present disturbances total approximately 10,900 acres. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CEA. Additional projects would amount to 67,667 acres (**Table 5.1-3**) of disturbance, of which much would be within the designated utility corridors.

5.4.6 Cumulative Effects

Encountering paleontological resources during development/disturbance has the potential to destroy and/or lose the resource. However, it also has the potential of providing additional data and rare or previously unknown specimens which can further scientific knowledge. Additional

impacts to paleontological resources in conjunction with the ON Line Project would not be known until discovered and evaluated. Impacts to paleontological resources associated with federal land management decisions/actions would be minimized or reduced in accordance with federal legislation and existing standard operating procedures. Thus, cumulative impacts to paleontological resources would be negligible to minor.

5.5 Soils

5.5.1 CEA Boundary

The CEA boundary for soils would be the same as described for surface water (**Figure 5.2-1**).

Rationale

This CEA boundary is the same as surface water due to the effect that soil disturbance has on surface water quality through erosion and sedimentation. Soil resources outside the watersheds for the Proposed Action and Action Alternative would not be affected.

5.5.2 Introduction

Section 3.5 details typical soil mapping units for the ON Line Project area and depicts them on the figures provided in **Appendix 3A**. **Section 4.5** describes the impacts that would disturb soil resources and reduce their value or function for the short- or long-term. Very little soil disturbance would occur on steeper slopes that would increase erosion potential.

As noted in **Section 4.5**, disturbed soil loses its structure and porosity when disturbed through displacement or compaction by heavy equipment. Consequently, the soil is more prone to erosion by water or wind and may be less able to support some kinds of vegetation (loss of productivity).

5.5.3 Past and Present Disturbances

The types of past and present disturbances that may affect soils in the CEA are the same as those described for surface water in **Section 5.2**. The current land ownership and uses for (thus disturbances within) the soils CEA would be the same as those described for surface water resources in **Tables 5.1-1** and **5.1-2**.

5.5.4 Foreseeable Future Disturbances

The foreseeable future disturbances in the CEA that may affect soils are the same as those described for surface water in **Section 5.2**. Future disturbances to soils are quantified in **Table 5.1-3**.

5.5.5 Cumulative Disturbances

The cumulative disturbances in the CEA that may affect soils are the same as those described for surface water in **Section 5.2**.

5.5.6 Cumulative Effects

Under the Proposed Action or the Action Alternative, disturbance to soil resources would be minor to moderate during construction and negligible to minor post-construction. Use of BMPs during construction, and prompt post-construction reclamation, assures that temporary soil disturbance would be of short duration and minimal impact. The same can be said of the WPES

project, and all proposed projects in or adjacent to the CEA, individually and cumulatively, based on current regulatory requirements for storm water permitting. The most likely source of moderate to severe impacts to soils in the CEA, short-term or long-term, is from wildfires, abandoned mines, and unrestricted use of OHVs (see **Section 5.2.3** and **Section 5.2.4**).

5.6 Air Resources

5.6.1 CEA Boundary

The CEA for air quality includes the area within 50 miles of the linear components (including the proposed Robinson Summit Substation), plus a 5 kilometer (3.1 mile) circle around the Falcon Substation. No Class I areas are located within the CEA. It would include one FLM-identified sensitive Class II area, Great Basin National Park. Generally, the CEA includes only light development and population density that result in only small volumes of air pollutant emissions, with the exception of portions at either end which reach to Las Vegas and Clark County, and to the lesser developed town of Ely and Steptoe Valley.

Rationale

The primary air pollutant emissions associated with the project, during construction and operation would be fugitive dust and engine exhausts including gases that contribute to global warming.

The direct project impact review of dust sources and particulate impacts would be limited to sources in or potentially impacting the valleys the linear project component traverses, since the surrounding valley walls would channel flow and prevent transport cross valley.

This cumulative effects analysis analyzes all activities in and affecting the CEA for their potential effects on all applicable ambient air quality standards. It considers the impacts of major sources outside the CEA, especially energy generation facilities that generate or transmit their electricity within the region, because the cumulative impact analysis will include an analysis of energy production and transmission options with and without the Proposed Action and their implications on air quality, greenhouse gas contributions, and climate change.

5.6.2 Introduction

Section 3.6 documents that air quality in the project area, with the exception of along the far southern end of the transmission line alignment after it crosses into Clark County, is generally better than the National and Nevada Ambient Air Quality Standards. Air pollutant measurements at the previously proposed (and now postponed indefinitely) EEC plant site locations in Steptoe Valley showed concentrations less than 15 percent of those standards for all pollutants except ozone. Other regional monitoring results reported by NBAPC (current PM_{10} monitoring in Elko and Battle Mountain, historic PM_{10} monitoring in the Steptoe Valley) and the IMPROVE monitoring network (historic and ongoing PM_{10}, $PM_{2.5}$, and ozone monitoring) show air pollutant concentrations well below those air quality standards in local urban areas (except in Clark County) and regional sensitive areas including parks and wilderness areas. Winter inversions occur in the valleys along the project area, but proposed activity levels are generally low enough that not enough air pollutants are emitted to lead to significant buildups of pollution levels (as documented by air quality monitoring data collected at the proposed EEC plant sites). Dispersed air pollution sources in the CEA include emissions resulting from ranching and land management activities including agricultural burning, dust from disturbed ground, and smoke from wildfires and prescribed burning. Regional haze studies including the recent Western

Regional Air Partners (WRAP) regional haze modeling effort show impacts within acceptable ranges from large regional sources, including power plants. The results of those WRAP studies have included permit compliance follow-up at facilities shown to have the potential to adversely affect ambient air quality or limits on incremental degradation. Cumulative effects to air quality in the CEA from past, present, and foreseeable future activities are documented in this section.

5.6.3 Past and Present Disturbances

In Steptoe Valley, just north and east of the ON Line Project's northern terminus, historic operations of the McGill Smelter resulted in McGill and Steptoe Valley failing to meet SO_2 ambient air quality standards and being declared non-attainment for SO_2. The smelting activities were closed down in the late 1970s bringing ambient concentrations of pollutants, including SO_2, in line with low regional background values. Those changes contributed to the current status of attainment with all applicable ambient air quality standards, including SO_2. The section of Clark County traversed by the project is considered non-attainment for ozone, likely due to emissions from in and around the Las Vegas area.

The Robinson Mine outside of Ruth continues to produce copper, silver, gold, and molybdenum. A number of larger mines operate well north of the project area, toward the Carlin Trend. Three large Carlin Trend mines operate approximately 10 miles northeast of the Falcon Substation. Dust is generated from mining activities at operating mines. That windborne dust could contain metals.

Regional population and development across the CEA historically and currently generate regional air pollutant emissions referred to as regional area sources. Few if any of those area sources have air quality permits. These sources include vehicle emissions along roadways and in the towns and cities; space heating emissions from residences, ranches, and businesses; emissions associated with residential or business land management like dust generation from disturbed surfaces or small equipment exhaust; and any other small engine emissions or fossil fuel burning equipment. These sources also include smaller industrial emission sources like gas stations, vehicle maintenance facilities, and dry cleaners.

Table 5.6-1 documents the existing permitted industrial sources in the CEA north of Clark County, and their allowable potential criteria air pollutant emission rates. All except the Robinson Mine (outside Ruth) and the Foreland Refinery (west of Lund) are in the Steptoe Valley near Ely, west or northeast of the ON Line Project's northern terminus. All except the Robinson Mine have emissions low enough to qualify as minor sources with the NDEP. Non-permitted air emissions sources potentially affect historic and current air quality in the CEA. Dust sources would include vegetation disturbing land management practices, including: ranching; private and public grazing and agriculture; ground clearing in open lands and along utility corridors; road dust; smaller mining and rock crushing operations; recreational activities; and regional construction and maintenance efforts. Smoke is generated from agricultural burning, and wild and prescribed fires. Sources of gaseous air pollutants not requiring an air permit generally have low emission volumes individually, but could represent higher emission volumes cumulatively. Existing emission sources, permitted or non-permitted, were accounted for in the analysis consistent with actual activity levels during the air quality monitoring period, since the impact of their emissions was included in the background concentrations measured. Those sources include the regional area sources described above.

TABLE 5.6-1 EMISSION RATES FOR PERMITTED FACILITIES WITHIN THE CEA NORTH OF CLARK COUNTY

FACILITY NAME	UTM E	UTM N	PERMITTED POTENTIAL TO EMIT (POUNDS PER HOUR)		
			PM10	NOX	SO2
Robinson Nevada Mining Company	671580	4347540	104.4	4.0	5.8
J & M Trucking, Inc.	684020	4346150	0.9		
Reck Brothers	689110	4348990	4.5	2.3	
Reed Distributing, Inc.	682780	4348580	0.005		
Cooper & Sons, Inc.	688350	4356200	10.8	3.2	
Country Construction	685820	4353520	3.3		
White Pine County School District	684170	4346840	2.1	0.1	0.3
Chevron Environmental Management Company	683560	4347130		0.4	
Foreland Refining Corp. Eagle Springs Refinery	620240	4275540	11.5	0.0	0.0
NV Dept of Corrections Ely State Prison	677220	4361750	0.5	5.0	16.0
Nevada Slag, Inc.	691300	4364600	14.3	2.4	

Air pollution sources occur in higher density in Clark County, especially close to Las Vegas. While the proposed project ends northeast of Las Vegas at the Harry Allen Substation in the Apex Valley, and is northeast of the PM_{10} and CO non-attainment areas associated with the Las Vegas metropolitan area, the southernmost few miles still traverse the Clark County ozone non-attainment area.

Existing energy industry sources in the CEA include the 650 MW Reid Gardner coal-fired plant, nine natural gas-fired generating stations with a combined capacity of over 3800 MW in the Apex Valley or between there and Las Vegas, the 168 MW (652 MW by 2011) natural gas-fired Harry Allen plant at the proposed southern terminus of the ON Line Project, and two other 500+MW natural gas-fired energy centers in southern Clark County.

Smaller regional coal fired energy production centers, outside the CEA but with the potential to affect air quality and contribute greenhouse gases within the CEA, include the 521 MW Sierra Pacific Valmy plant in north central Nevada west of the Falcon Substation, the 200 MW (coal and natural gas fired) Newmont power plant 5 miles southwest of that substation, and a couple of plants in the 175 MW range in the Salt Lake City vicinity. Each of those coal plants requires volumes of coal fuel each day, typically from Utah or Wyoming, with associated air emissions at the mine, the train loading site, along the rail lines from the diesel train engines, and at the unloading sites at the power plants.

Other potentially major industrial contributors to local air pollutant levels regionally include industries in and around Las Vegas, the military installations north and east of Las Vegas, and the mineral or smelting industry in southeast Arizona and west of Salt Lake City, as well as the mines in central and northern Nevada. A thorough and complete listing of regional air pollutant sources is included in the referenced WRAP study.

5.6.4 Foreseeable Future Disturbances

The most significant potential air pollution sources in the CEA or near enough to have moderate impacts in the CEA are two proposed coal-fired power plants, one in the Steptoe Valley and one east of the southern terminus of the proposed linear component's southern terminus. Construction of the WPES power plant has been postponed by the proponent and air quality impacts from the construction of this project would occur after the ON Line Project is completed. The Toquop power plant is awaiting state and federal permits before construction can commence. **Table 5.6-2** provides details on the two foreseeable coal-fired power plants in the CEA, and the estimated power plant emissions during their operational phase.

TABLE 5.6-2 SOURCE EMISSION RATES FOR FORESEEABLE FACILITIES WITHIN OR IMMEDIATELY ADJACENT TO THE CEA

FACILITY NAME	POWER GENERATION CAPACITY (MW)	POLLUTANT	EMISSION RATE (LB/HR)	LOCATION
LS Power White Pine Energy Station [a]	1590	CO	2,367.5	Steptoe Valley north of McGill
		NO_x	1,098.9	
		PM_{10}	626.5	
		SO_2	1,386.3	
Toquop Energy Project	750	CO	2656	East of Apex Valley
		NO_x	1614	
		PM_{10}	875	
		SO_2	1352	

[a] Emission rates proposed in EIS. Plans for the WPES were indefinitely delayed in March 2009.

Each of these power plants would also require haulage of coal from coal mines to the power plants and handling of the coal at the power plants. The shipping and handling of the coal would produce locomotive exhaust and coal dust emissions.

Other foreseeable regional industrial projects include the proposed 250 MW Sigurd Power Plant east of Great Basin National Park in Utah that already has an air permit.

Foreseeable new non-permitted emission sources, or changes from current emission patterns, are expected to include:

- growth in general rail traffic,
- potential local and regional growth in auto, truck, and air traffic,
- potential energy exploration and/or development,
- proposed mining ventures,
- range improvement and fire management efforts, and
- increases in ground disturbances from:
  - vegetation changes associated with grazing and agricultural activities,
  - vegetation removal under or along utility corridors, along fire breaks, and from construction efforts
- changes in emissions from non-permitted sources identified as currently existing.

Specific projects identified in those categories include:

- The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project within the Air Resources CEA, with 3,253 acres proposed for mechanical treatment and "844 acres are proposed for a primarily prescribed fire treatment".
- White Pine Sagebrush Restoration Project in the CEA, in which the USFS proposes to enhance sagebrush habitat and reduce the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush.

5.6.5 Cumulative Disturbances

The regional energy system potentially could include a number of current and proposed coal and natural gas fired power plants surrounding the CEA.

The emissions and impacts from existing regional power plants with emissions over 250 TPY of any air pollutant were included in the recent WRAP modeling to assess potential air pollutant and regional haze impacts. That study included requirements for Best Available Retrofit Technology (BART) for any facility determined to have excess impacts in any Class I area.

Oil and gas exploration and extraction are established industries to the east and northeast of the CEA in Utah, Wyoming, the Four Corners area, and points beyond. Leasing activity has not occurred much in the CEA, but current planning efforts could result in public land leases for oil and gas exploration in the CEA and its vicinity. Air emission estimates for these activities are speculative at this time because the volume of activity is unknown, though the energy recovery rates are expected to be modest in comparison to developed western fields further east in the Rocky Mountain region.

There are currently at least 11 mines active or open in White Pine County (Driesner and Coyner 2007), including the Robinson Mine outside of Ruth. At least nine other smaller mines exist and are, or could be, active in the county. Outside the CEA, large mining operations exist that could have minor impacts at or near the northern terminus of the ON Line Project.

Public land management efforts are expected to continue to try to minimize large magnitude smoke generation from big wildfires by using prescribed burning and other techniques to control fuel accumulations. That effort would not be expected to change the long-term volume of smoke and air pollutants generated much, but would even the distribution of smoke and combustion by-products out over time and minimize the high uncontrolled exposures that can have the most significant effects on public health.

Ranching and agricultural activities are expected to remain near current levels. Public and private lands management planning could affect dust generation directly or via changes in vegetation strength and density. Grazing management plans indicate trends toward maintaining or possibly gradually decreasing grazing rates for livestock, wild horses, and wildlife. Vegetation management and road building efforts, including the specific projects listed in **Section 5.6-4** are anticipated to result in a slight trend toward increases in disturbed ground and dust generation. Utility corridor maintenance and expansion, including the ON Line Project, would have the same effect. Construction efforts to prepare or maintain improvements throughout the CEA would also represent a source of dust generation and exhaust emissions.

Other regionally distributed contributors to air quality trends are area source emissions associated with transportation, residential and industrial space heating, and other household and small service industry activities associated with population density. All paved highways are sources of exhaust emissions from vehicles, and some dust generation as well. Unpaved roads

generate considerably more dust from the roadbed materials. US-93 and SR-318 serve as main arteries north and south through the project area and CEA, with light to moderate highway traffic volumes. Those roads generally run parallel to the proposed transmission line, within a couple of miles. US-50 also crosses east to west through the southern Steptoe Valley, traversing through Ely and then west toward Ruth via Robinson Summit. Isolated paved and unpaved roads crossing along or running in the vicinity of the project and in surrounding areas in the CEA facilitate local travel patterns. The Ely airport features air and ground operations that generate exhaust and other air pollutant emissions. Commercial rail traffic and associated train exhaust and dust emissions, limited to the UPRR line to the north since the Nevada Northern Railway ceased operation, have the prospect of returning locally, in conjunction with any of the two proposed fossil fuel fired power plants in the immediate vicinity of the CEA. Space heating associated with occupied buildings, including residential, public, and private ownerships occur throughout the CEA consistent with the light population and development patterns. Those emissions, and others, like home, yard and street maintenance, are most concentrated in the few areas with population density in the CEA. The most notable areas where those types of emissions are concentrated are the cities of Pioche and Caliente east of the ON Line Project and screened by intervening terrain. The same effect occurs, to a lesser extent, in the other smaller communities along the proposed transmission line segments.

Regional traffic and population rates are expected to receive a boost as a result of construction of the ON Line Project. That boost would subside after the 24 month construction process and to a lesser extent during the operational phase for the proposed transmission line and substations, though the renewable energy sources the proposed transmission line could help foster, could potentially maintain or subsequently provide another boost to populations and traffic levels. Vehicle exhaust emissions from those traffic increases are expected to remain steady or decrease slightly, with improved efficiency and emission controls offsetting increased volume. Road dust emissions would be expected to increase proportionally to traffic volume increases. Renewable energy projects potentially fostered by the proposed transmission line could have construction and operational emission profiles comparable to this proposed project, but would involve considerably less air emissions per kilowatt hour than the traditional fossil fuel fired power plant alternatives like those proposed in two locations around the CEA.

5.6.6 Cumulative Effects

This section documents ambient air quality impacts of the ON Line Project and other existing or foreseeable activities in the CEA. For the ON Line Project, the predicted cumulative impacts of all current and foreseeable activities are presented in terms of potential impacts on FLM identified sensitive Class II areas, and their impacts on Class II areas everywhere else in the CEA.

5.6.6.1 Ambient Air Quality Impacts with the Proposed Action or Action Alternative

FLM Identified Sensitive Class II Area Impacts

On-site measurements by the IMPROVE monitoring system in Class I areas show that ambient air quality standards applicable in Class I airsheds are currently being met. NPS monitoring has Great Basin National Park and NPS staff concerned about the potential for acidification of lakes in the park with any significant increase in acid deposition. The ON Line Project would not have any direct impact on the park during construction or operation, but could provide an opportunity to help meet regional energy needs without additional fossil fuel burning and the potential associated acid deposition.

The overall impact of the existing and foreseeable emissions sources identified in **Sections 5.6-3** to **5.6-5** would not be expected to significantly change the current air quality levels in the CEA. Air pollutant levels are generally well below state and national ambient air quality standards, except in Clark County. The only foreseeable actions that could bring about moderate impacts would be each of the two proposed coal fired power plants in the near vicinity and/or a combination of a number of other proposed coal-fired power plants. The overall impact of all other activity trends identified would be to maintain current air quality levels, possibly but not definitely a minor upward trend over time. Individual projects could have a very localized moderate impact on air quality, though not likely over any extended duration.

Construction emissions associated with the ON Line Project would be comparable to any potential energy system enhancement in the region, including the numerous projects proposed. Those emissions would be distributed along a long linear path, so that impacts in any one place would be very temporary and minor in magnitude. Operational emissions associated with the ON Line Project would be very minimal.

5.6.7 Climate Change

The construction effort associated with the ON Line Project would emit greenhouse gases during the construction period, which could last up to 24 months, primarily from the exhaust of equipment and transportation of employees and materials. Those construction emissions are documented in **Table 4.6-3**. **Table 4.6-3** provides an estimate of cumulative CO_2 emissions associated with the construction phase of the project. The construction emissions would be one time emissions, which would cease when the construction phase is completed.

The operational phase of the ON Line Project would include SF_6 loss from gas-insulated equipment located inside the substations that would be expected to result in an additional 167 tons of CO_2 per year in the atmosphere. Maintenance activities would include vehicular travel and construction activities which would release greenhouse gases. **Table 4.6-4** provides an estimate of the low annual greenhouse gas emissions estimated for the operational phase of the project.

The ON Line Project is expected to foster the development of renewable energy options in eastern Nevada, and possibly elsewhere, by providing a cost-effective method for bringing the power they produce to the market. Like the ON Line Project, renewable energy sources (other than biomass) would not have routine stack emissions of combustion exhaust. The Nevada Renewable Energy Transmission Access Committee report (NRETAC 2008) indicates two solar energy zones and one biomass zone along the proposed transmission line, with a geothermal zone, a biomass zone, another solar zone, and three wind zones also within the CEA. At least four projects in or immediately around the CEA (one geothermal, two wind, and one solar) have either applied for ROWs or permit approval. Air emissions for these proposed projects are not quantified at this time but would consist of construction emissions of the type similar to those for the ON Line Project (dust and internal combustion engine exhaust). Operational air emissions from these renewable energy projects would be expected to be low but have not been quantified.

The ON Line Project would potentially bring to market renewable energy options that otherwise wouldn't be feasible. The greenhouse gas emissions of the project combined with those associated with renewable energy options are considerably lower than the emissions associated with the traditional energy production options that without the ON Line Project would be the most feasible. Therefore, the project would result in moving the state of Nevada toward the goal

of an increased percentage of their energy from renewable sources, and result in considerably lower greenhouse gas emissions than the only current alternative, fossil fuel combustion.

5.7 Vegetation, Including Noxious and Non-native, Invasive Weeds and Special Status Plants

5.7.1 CEA Boundary

The CEA boundary for vegetation would be the same as described for surface water (**Section 5.2**).

Rationale

In addition to adopting a similar CEA for simplicity purposes, as defined in **Section 5.1**, vegetation can be removed and affected by ground disturbances, which can lead to habitat conversion and can make soil more susceptible to erosion, potentially contributing sediment to surface waters. The soil disturbance areas described previously to delineate the soil CEA boundaries would have associated vegetation disturbances. Cumulative vegetation impacts as a result of the project should not be noticeable beyond this area.

5.7.2 Introduction

The CEA for vegetation includes nearly one million acres in the Central Basin and Range and Mojave Basin and Range ecoregions (EPA 2008). Data on land cover for the CEA for vegetation was obtained from the BLM landcover dataset (BLM 2007h). Thirty-nine land cover types defined in the Nevada GAP data are represented within the CEA for vegetation. To facilitate analysis of land cover, and to better correlate the data with project-specific data presented in **Sections 3.7.4** and **4.7**, the 39 land cover types were condensed into 11 categories based on methodology provided within Nevada's Wildlife Action Plan (NDOW 2006). **Table 5.7-1** indicates the acreage of various types of land cover within the CEA and correlates the land cover types with the project-specific data presented in Chapters 3 and 4.

TABLE 5.7-1 LAND COVER ACREAGES FOUND WITHIN THE CEA FOR VEGETATION

LAND COVER CATEGORIES	VEGETATIVE COMMUNITIES WITHIN PROJECT AREA	LAND COVER ACREAGE WITHIN CEA
Agriculture	Agriculture	328
Barren Lands	N/A	82
Developed/Disturbed (includes medium and low density development, sand and gravel pits, roads; does not include existing utility line development)	Disturbed Lands	7,850
Basins & Desert Scrub	Creosote Bush	426,727
	Greasewood	
	Joshua Tree	
	Salt Desert Shrub	
Lower Montane	Blackbrush	94,023
	Mountain Big Sagebrush	
	Pinyon-Juniper Woodland	
Montane to Alpine	N/A	1,957
Sagebrush Semi-desert	Basin Big Sagebrush	396,514
	Black Sagebrush	
	Douglas Rabbitbrush	
	Rubber Rabbitbrush	
	Winterfat	
	Wyoming Sagebrush	
Sand Dunes & Badlands	Dune	25,709
Riparian/Wetlands	Alkaline Meadow	6,669
	Desert Playa	
	Open Water	
	Riparian	
	Wetland	
Burned Areas	Burn/Fire Affected	711
Invasives[1]	N/A	1,471

[1]Acreage of invasives derived from the nv04_ReGap.mdb file from the BLM, which is based on the southwest regional GPA analysis, and represents gross infested acres.

Areas of basins and desert scrub vegetation, the land cover type with the greatest number of acres within the CEA for vegetation, are found within the proposed transmission line alignment through most of Lincoln and Clark counties. Areas of sagebrush semi-desert, the second most prominent land cover type, are found extending from the Robinson Summit Substation into northern Lincoln County within the transmission line segments. Areas of lower montane vegetation are found within the proposed transmission line segments as the third most common land cover type.

Historically, ecosystem process and vegetative cover were altered by grazing practices and development of the West. Present and future disturbance of vegetation in the CEA occurs primarily through activities related to grazing, followed by development of linear facilities, roads and railroad lines, and extractive industries (mining and oil/gas exploration). The most extensive land use within the CEA is grazing.

The extent of special status plant species within the CEA for vegetation is unknown. The USFWS developed a biological sensitivity index and analysis of trust resources on BLM grazing allotments in Nevada (USFWS 2003). According to this analysis, none of the grazing allotments

within the CEA for vegetation contain any plants with designations under the ESA. **Table 5.7-2** details the State sensitive species with a Global and State Rank, defined by the Nevada Natural Heritage Program (NNHP), found within grazing allotments in the CEA for vegetation. In addition, as described in **Section 3.7**, the Las Vegas buckwheat is known to occur east of the SWIP Utility Corridor south of the Coyote Springs Development in Clark County (Segment 11).

TABLE 5.7-2 NNHP STATE SENSITIVE SPECIES FOUND ON GRAZING ALLOTMENTS WITHIN THE CEA FOR VEGETATION

SPECIES SCIENTIFIC NAME	SPECIES COMMON NAME	ALLOTMENT(S) WHERE FOUND	GLOBAL AND STATE RANK
Eriogonum phoeniceum	Scarlet Buckwheat	Wilson Creek	G1 S1
Mentzelia argillicola	Pioche Blazingstar	Wilson Creek	G1Q S1
Mentzelia tiehmii	Tiehm Blazingstar	Wilson Creek	G1G2 S1S2
Frasera gypsicola	Sunnyside Green Gentian	Sunnyside	G1 S1

Source: USFWS 2003

The past, present, and future disturbances with cumulative impacts to vegetation discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.7.3 Past and Present Disturbances

Development of the west changed vegetative conditions through a variety of factors including historic grazing practices (BLM 2009c), poor agricultural practices that led to erosion (Seiberg et al. 2007), the introduction and transportation of invasive and exotic species (Kelly Undated), and fire suppression (MDES 2007). The combination of these led to establishment and expansion of invasive and exotic species, such as cheatgrass (*Bromus tectorum*). Changes in vegetative cover in conjunction with fire suppression led to further changes that favored invasive and exotic species over native vegetative cover. Widespread changes in vegetative cover changed fire regimes and enhanced the effects of uncontrolled fire (Vallentine 1980; Sieberg et al. 2007). Together these effects have altered ecosystems processes and vegetative cover within the CEA.

The current land ownership and uses for (thus disturbances within) the vegetation CEA can be found in **Tables 5.1-1** and **5.1-2**.

Vegetation

Agriculture, Forestry, and Similar Sources of Surface Disturbance

Agriculture accounts for a negligible portion (328 acres) of the CEA. Wildfire burning of over 83,267 acres in the CEA (nearly 8.7 percent) changes the maturity of an area's vegetation, can affect the vegetative composition of an area, and can result in the spread of noxious and non-native, invasive weeds with disturbance in addition to the burn. Controlled burning of vegetation is used to maintain and enhance desired habitats and to reduce hazards from wildfires.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

No data is available estimating the total acreage of disturbance from the extractive industry within the CEA. Sand and gravel pits, including those that are active, inactive, and abandoned, occupy less than 0.01 percent of the vegetation CEA. Extractive industry disturbance has caused long-term disturbance to vegetation because the extractive process, including use of roads, is long-term. Reclamation, either man-made or natural, has resulted in various levels of revegetation of these disturbances. Increased use of roads can lead to transportation of noxious and non-native, invasive weeds into disturbed areas.

Grazing

Nearly 860,300 acres of the nearly one million acre CEA (approximately 90 percent) is available for grazing. The majority of the CEA is enclosed within various BLM administered grazing allotments. Grazing also occurs on USFS and private lands within the CEA. Livestock grazing has utilized and continues to utilize the grass/forb species, reducing competition for natural regeneration of tree/shrub species. In addition, grazing activities can result in specific, localized damage in riparian areas from vegetation removal by cattle as well as increasing the introduction and spread of noxious and non-native vegetation species.

Some allotments within the vegetation CEA have been found to have substandard conditions, such as adversely impacted vegetative cover and riparian areas, most of which were created by historic grazing practices. Substandard conditions resulted in modifications to grazing management in order to achieve improvements in range conditions (BLM 2007a, BLM 2007b, and BLM 2007i).

Nearly 70,000 acres within the CEA lie within the Desert NWR and Pahranagat NWR. NWRs do not allow grazing, thus vegetation should not experience effects from livestock grazing within these NWRs. In addition, under the Ely BLM District RMP (2008a), BLM public lands west of US-93, in the vicinity of the Desert NWR are not open for grazing. Lands within the Desert and Pahranagat NWRs consist predominantly of basins and desert scrub. The southern portion of the CEA that falls within the Desert NWR contains some isolated areas of sand dunes and badlands.

Industrial Development

Apex Industrial Park, located at the southern tip of the CEA, is within an area of basins and desert scrub. It is mostly private lands zoned for industrial use. An unknown portion of the 21,000-acre park is currently developed; therefore actual disturbance to vegetative communities is unknown. It is assumed that within the industrial park, development would result in vegetation removal and construction of structures, roads, and other hardened surfaces. The Western Elite (Bedrock) Landfill has disturbed approximately 83 acres of vegetation.

Roads

In addition to nearly 1,250 miles (7,750 acres) of roads in the CEA impacting vegetation permanently or in the long-term, roads have associated adverse effects on vegetation. In the case of large expanses of sparsely vegetated unfenced public lands (such as BLM lands), roads can beget other roads. Some people drive off road to access an area they want to reach. In desert climates, soil disturbances from vehicles and desert vegetation are slow to recover, and attract future additional vehicle use. Disturbed areas are much more likely to become infested with noxious and non-native, invasive weeds, and vehicles tend to spread seed from these species.

Utility Production and Distribution

The Harry Allen complex is located in an area consisting of basins and desert scrub vegetation. Power generation facilities and substations have a long-term adverse affect on vegetation, as existing vegetation has been replaced by structures. Associated power lines have less impact than the power generation facilities and substations since the majority of disturbance is revegetated post-construction. Placement of existing water supply lines and fiber optic cable within utility ROWs also has resulted in vegetation disturbances. However, because there are little or no surface facilities associated with these buried lines, there would be minimal permanent impacts.

Utility disturbance (Harry Allen complex, natural gas lines, telecommunication lines, Lincoln County, Mt. Wheeler, Alamo, SNWA, Great Basin, and NV Energy power lines, water pipelines, etc.) in the southern part of the CEA would have had a short-term minor impact on basins and desert scrub vegetation. Other utility development disturbance (for example, the Falcon-Gonder transmission line, and the Silver State East fiber optic line) has taken place within areas of sagebrush semi-desert vegetation, but this is much more limited in extent.

Community Development

Community development projects, such as the Coyote Springs Development (ultimately 43,000 acres), have long-term minor to major impacts on vegetation. Private development does not afford the same protections, standard operating procedures, and reclamation requirements as activities under federal administration.

Noxious and Non-native, Invasive Weeds

Noxious and non-native, invasive weeds are prolific in areas of past disturbance. Populations of noxious and non-native, invasive weeds are infrequent in disturbance areas which are outside of drainages, washes, or generally not near moist environments. Estimated total acreage for invasive species within the CEA is approximately 1,471 acres.

Special Status Plants

Past disturbances to special status plant species are unknown; however, because few to no special status plant species were found within the project area, it is unlikely that populations were significantly disturbed by past or present activities within the CEA.

Summary

Previously disturbed areas represent a measurable, but small proportion of the total CEA. In addition to temporarily and/or permanently reducing vegetation in the CEA, past and present disturbances also result in introduction and increased susceptibility for the establishment of noxious and non-native, invasive weeds. Past and present disturbances to special status plant species are unknown, but assumed to be minimal.

5.7.4 Foreseeable Future Disturbances

Future disturbances to vegetation are quantified in **Table 5.1-3**.

Vegetation

Agriculture, Forestry, and Similar Sources of Surface Disturbance

The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project occurs within the vegetation CEA. For this project 3,253 acres are proposed for mechanical treatment and 844 acres are proposed for prescribed fire treatment. One other similar project is partly within the vegetation CEA. The White Pine Sagebrush Restoration Project proposes to enhance sagebrush habitat and reduce the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper and sagebrush. These projects would have a short-term adverse impact from destruction of vegetation. However, the fire break would have indirect long-term beneficial impacts by protecting vegetation from the effects of fire.

Community Development

Ultimately, approximately 43,000 acres (Las Vegas Review-Journal 2007a) of basins and desert scrub vegetation would be disturbed in the Coyote Springs community development and likely

replaced with roads, sports fields, structures (homes and other community infrastructure), and non-native vegetation (lawn grasses and ornamental shrubs and trees).

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities (mining or oil/gas development) is possible in the future. At this time, all known plans are for exploration, which would involve some road construction and drilling in selected areas. Expansion of extractive industries exploration activities would have negligible adverse impacts on vegetation in the CEA. However, should economic feasibility of resource development improve in the future, adverse impacts to vegetation would increase in acreage as well as intensity.

Grazing

Grazing on BLM and USFS lands would continue within authorized allotments of the CEA in the foreseeable future. Per the Ely RMP, the goal is to manage vegetation resources to achieve or maintain resistant and resilient ecological conditions while providing for sustainable multiple uses and options for the future across the landscape. These resistant and resilient ecological conditions include healthy, productive, and diverse populations of native or desirable non-native plant species appropriate to site characteristics. In addition, the RMP specifies goals and objectives to meet range health standards, which are directly related to vegetative cover. Grazing on private lands would also continue.

Future range health on BLM lands would be anticipated to improve. Under the Ely RMP, the BLM will continue to monitor and evaluate allotments to determine if they are continuing to meet or are making significant progress to meeting the standards for rangeland health, and management prescriptions adjusted accordingly.

As discussed in **Section 5.9**, changes to the livestock grazing management systems are proposed to improve the overall management of livestock on certain allotments, and updates to the allotment management plans would help to meet the objectives of the allotments. Future changes to grazing management on these allotments would be designed to improve range conditions, which would also result in improvements to vegetative communities.

Industrial Development

Of the 21,000 acres within the Apex Industrial Park, 6,000 acres of private lands zoned for industrial use are currently for sale and available for future development. It is assumed that development would result in construction of structures and other hardened surfaces, and removal of native basins and desert scrub vegetation.

Recreation

Increased human recreational activity on arid lands from an expected population increase in White Pine County would result in increased disturbed areas, which could lead to infestations of noxious and non-native, invasive weeds, or increased erosion which would further decrease vegetative cover, adversely impacting vegetative resources.

Roads

With increasing community development (i.e. Coyote Springs Development), additional local roads are likely. Adverse effects to vegetation would result from damage to and/or removal of vegetation within the construction zone, and potential invasion of noxious and non-native, invasive weeds into the disturbed area.

Utility Production and Distribution

Several proposed and authorized projects within the CEA would develop power lines and water pipelines to be located within the utility corridors in White Pine, Lincoln, and Clark counties (see **Table 5.1-3** and **Section 5.2.4**). Should the entire SWIP Utility Corridor be maximized with underground water, telecommunication lines, petroleum or natural gas pipelines, the entire 2,640-foot wide utility corridor would be disturbed; however, there would be minor permanent vegetative disturbance. Additional utilities would likely be developed outside the designated utility corridors as well. Because this area consists primarily of basins and desert scrub, adverse impacts to vegetation would be anticipated to be mostly short-term as grasses and smaller shrubs regenerate. Larger species (such as Joshua trees) would sustain longer-term effects.

Utilization of the SWIP Utility Corridor for a combination of power lines and underground pipelines would be most likely, resulting in a combination of short-term and long-term disturbance. It is possible that the entirety of the corridor would not be developed. Construction ROWs can be revegetated; however, disturbance has high potential to lead to the incursion of noxious and non-native, invasive weeds.

As discussed in **Section 5.7.3**, land cover within the Proposed Action or Action Alternative alignments is primarily either basins and desert scrub or sagebrush semi-desert and development along the length of the SWIP Utility Corridor within the CEA would impact both vegetation types. Impacts to basins and desert scrub vegetation from disturbance would likely be short-term as the native vegetation would be more likely to reestablish in 10 years or less after disturbance. Impacts to sagebrush semi-desert vegetation would be long-term as many of the larger species of sagebrush do not reestablish after disturbance for approximately 20 years (Whitson et al. 2004).

Development of wind projects by Nevada Wind and Enexco would result in disturbance to vegetation for construction of bases for wind turbines and other associated facilities (i.e. underground power lines, substation, construction laydown, etc.) totaling 4,470 and 4,536 acres, respectively.

Noxious and Non-native, Invasive Weeds

Indirect effects of any ground disturbing activities would likely include the spread of noxious and non-native, invasive weeds. This would be particularly true for roadway and railroad facility rehabilitation and construction as there are existing infestations along the railway.

Special Status Plants

Development within the SWIP Utility Corridor would be the only activities that would affect the Wilson Creek and Sunnyside grazing allotments where sensitive species are found within the CEA, in addition to the known locations of Las Vegas buckwheat east of the corridor near Segment 11. Given the limited findings of special status plant species within the project area, it is unlikely that populations would be extensive or significantly adversely impacted by utility corridor development in the cumulative impacts scenario.

Summary

Anticipated future disturbances to vegetation within the CEA would be a measurable but relatively small proportion of the total CEA. Future disturbances are anticipated to temporarily and/or permanently reduce vegetation in the CEA. The potential for future vegetation disturbances within the CEA that result in the introduction and increased susceptibility for the

establishment of noxious and non-native, invasive weeds is high. The potential for disturbances to affect special status plant species is unknown, but anticipated to be low.

5.7.5 Cumulative Disturbances

Vegetation

Vegetative cover within the CEA that would be affected by past, present, and foreseeable projects primarily consist of basins and desert scrub and sagebrush semi-desert. Much of the disturbance to vegetation in the CEA has been and will continue to be mitigated by reclamation activities that follow the initial disturbances to reduce the level of impacts.

Permanent existing disturbances within the CEA include grazing, mining, roadways, agriculture, power lines, telecommunication lines, community development, and industrial uses. Additional permanent disturbances are anticipated in the future with the construction of the WPES and several new transmission and water lines. Disturbances to the basins and desert scrub vegetative community would result from construction activities, and would largely be short-term in duration. Long-term impacts would occur to sagebrush semi-desert communities from construction activities due to the length of time required for sagebrush to reach maturity.

Approximately 90 percent of the CEA is available for grazing. Grazing on allotments within the CEA has resulted in disturbance and has impacted vegetation to varying degrees, and would continue in the future. Management of grazing on BLM grazing allotments under the Ely District RMP would result in monitoring of effects from grazing and modification of practices to maintain or improve vegetative communities.

The vegetation CEA totals nearly one million acres. Within the CEA for vegetation, known quantifiable past and present disturbances total approximately 11,300 acres. Proposed future disturbances identified above would potentially disturb another 67,667 acres, including approximately 500 acres for the ON Line Project. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640-to-3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CEA.

Noxious and Non-native, Invasive Weeds

Occurrences of noxious and non-native, invasive weeds within the CEA along the SWIP Utility Corridor where utility development has not taken place are sporadic. However, occurrences of noxious and non-native, invasive weeds in areas of disturbance demonstrate a dense population and wide variety of noxious and non-native, invasive weeds. The probability of invasion of noxious and non-native, invasive weeds into disturbed areas, particularly transportation routes, is high.

Special Status Plants

Cumulative effects to special status plant species are anticipated to be negligible as no plants with designated status under the ESA are identified as being found within the grazing allotments within the CEA. Only two allotments contain a total of four state sensitive species and very few sensitive species were found within the project area. Potential cumulative effects from the ON Line Project to the Las Vegas buckwheat should also be negligible since prompt revegetation activities would be implemented for all temporarily disturbed areas and noxious and non-native invasive weed species would be controlled.

5.7.6 Cumulative Effects

Adding the Proposed Action or Action Alternative disturbances to past, present, and foreseeable future vegetation disturbances, would result in cumulative effects to the vegetative community in the CEA being both short- and long-term and negligible to minor. Cumulative effects from noxious and non-native, invasive weeds would be long-term, minor to moderate. Cumulative effects to special status species would be negligible.

5.8 Wildlife Resources, Including Special Status Wildlife, Migratory Birds, Fisheries, and Aquatic Species

5.8.1 CEA Boundary

Wildlife – The wildlife CEA includes suitable habitat for a given species within a 2.5-mile buffer on each side of the Proposed Action or Action Alternative alignments. The varied distances of suitable habitat from the direct effect areas are further defined to the individual species' likely dispersal capabilities and/or more appropriately enlarged for big game (i.e. herd size and summer/winter ranges). The total area of this CEA is the same as the surface water CEA, 954,373 acres.

Fisheries – Since there are no anticipated direct or indirect effects to fisheries from the ON Line Project, there cannot be any cumulative impacts, thus there is no CEA boundary for fisheries.

Rationale

Wildlife – Most impacts to wildlife would occur within or immediately adjacent to the project disturbance area. Impacts would mostly be limited to localized displacement. Incidental take or permanent displacement of some individuals could occur; however, there should be no significant impacts to wildlife populations on whole. The project area does not provide unique habitats that are not already widely available adjacent to the project area, thus minimizing potential impacts related to displacement. How far individuals would displace, and the impacts of this displacement on resident populations is not known; however, given the scale of this project, it is unlikely that any short-term or long-term, adverse impacts to wildlife species would be noticeable beyond the identified CEA.

5.8.2 Introduction

Sagebrush semi-desert and basins, and desert scrub are the two dominant vegetation types within the CEA (BLM 2007h). Riparian areas and other vegetation communities also occur throughout the CEA in lesser amounts. This diversity in habitat types allows for many wildlife species to utilize the area. Types of wildlife species and their habitat found within the CEA would be very similar to those described in the affected environment for the Proposed Action, in **Section 3.8**.

In addition to BLM lands, over 68,000 acres of the 1.5-million acre Desert NWR and nearly 1,300 acres of the 5,380-acre Pahranagat NWR fall within portions of CEA for wildlife. Both areas are managed by the USFWS, who, "…works with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people" (USFWS 2007h). A portion of the Desert NWR is contiguous with the Coyote Springs ACEC, and portions of the ACEC are contiguous with the Arrow Canyon, Meadow Valley Range, and Delamar Mountains WAs. Taken together, the range and refuge along with the ACEC and WAs provide a large expanse of public lands that provide wildlife habitat, in particular habitat for desert tortoise.

Past, present, and reasonably foreseeable actions in the wildlife CEA have likely resulted in both beneficial and negative impacts, at various levels, on wildlife. The foremost impact to wildlife within the area has been habitat changes associated with past and present grazing, utility development (electric, water, gas, etc.), and extractive industry activity. Negative impacts would include loss of habitat, displacement, and fragmentation as a result of grazing, utility developments, extractive industry activity, roads, private land development, agriculture, and recreation. Other impacts include noise disturbance/displacement from agriculture, extractive industry, roads, and recreational activities.

Past impacts to smaller mobile wildlife species from direct crushing and mortality by livestock, large wild ungulates, and vehicles has likely also occurred within the CEA. In addition, grazing can contribute to impacts by increasing competition for forage, facilitating the spread of noxious and non-native, invasive weeds, changing the structure or composition of native plant communities, and degrading water quality and bank stability. Conditions in some wildlife habitat could be improved through revised grazing allotment management.

The past, present, and future disturbances with cumulative impacts to wildlife discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.8.3 Past and Present Disturbances

Within the CEA, past and present disturbances have primarily resulted from grazing, mining, industrial uses, community development, agriculture, and utility development. The majority of the CEA is within various grazing allotments. In general, wildlife are affected by livestock grazing due to competition for forage, direct mortality by trampling (i.e., amphibians and reptiles), and habitat removal/conversion.

Wildlife

Current land ownership and uses within the wildlife CEA are presented in **Table 5.1-1** and **5.1-2**, respectively.

<u>Agriculture, Forestry, and Similar Sources of Surface Disturbance</u>

In the last nine years, over 8.7 percent of the CEA burned, and most notably, nearly 68,000 of those acres burned in 2005. In years immediately preceding burns, barring other disturbances or significant erosion of burned areas, new vegetation growth can be prolific offering high quality forage for a wide range of wildlife species. However, loss of stands of mature vegetation reduces vegetative cover beneficial to the protection and survival of wildlife, particularly smaller species. With additional or associated disturbance (such as erosion) the spread of noxious and non-native, invasive weeds within burned areas can result, reducing the value of the area for wildlife habitat. Beneficial and adverse effects would be anticipated to be offsetting.

<u>Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)</u>

Extractive industry disturbance is more likely to be long-term in nature as the extractive process is lengthy, and rehabilitation of roads and other disturbance can take many years. Sand and gravel pits, including those that are active, inactive, and abandoned, occupy less than 0.01 percent of the wildlife CEA. Development of sand and gravel pits results in long-term elimination of wildlife habitat, and reduction of the value of areas surrounding pits due to human activity. Increasing the number of roads can lead to transportation of noxious and non-native, invasive weeds into disturbed areas, further degrading wildlife habitat.

Grazing

Studies of selected allotments within the CEA have found in some cases rangeland health standards are not being met (BLM 2007a, BLM 2007b, BLM 2007i). Current grazing practices are largely not to blame for substandard range conditions rather; historic grazing practices resulted in currently experienced substandard conditions. Substandard range health conditions adversely affect wildlife as the forage for sheep and cattle also sustain populations of antelope, deer, and elk. Substandard conditions are found on a relatively small proportion of the CEA. In addition, there are numerous miles of range fence that provide perching opportunities for hunting raptors.

Roads

Approximately 0.13 percent of the CEA for wildlife is disturbed by existing roads. Numerous unmapped dirt and two-track roads access areas within open BLM lands. In addition to reducing forage, increasing opportunity for erosion to degrade habitat, and the increased possibility of introduction of invasive species, roads create breaks in vegetation that make it easier for smaller species to be preyed upon, and ultimately fragment habitat. Higher speed paved roads through undeveloped areas increase risk of collisions of wildlife with vehicles, resulting in increased levels of mortality.

Industrial Development

Apex Industrial Park, a development on private land, is located just south and east of the Coyote Springs ACEC and south of the Desert NWR. Given its proximity to other high quality wildlife habitat, it is assumed that the industrial park formerly contained wildlife habitat prior to development. The current level of development of the 21,000-acre park is unknown. Given the fact that 6,000 acres within the park are advertised for sale, it is assumed that some undisturbed lands remain; however, they would be impacted by other development in close proximity within the park.

Utility Production and Distribution

Approximately 3,124 acres or 0.33 percent within the CEA for wildlife are disturbed by utility ROWs. Utility ROWs within the CEA have been developed for substations, power lines, the placement of water and gas pipelines, and fiber optic cables. Existing power generation and delivery within the CEA includes the Harry Allen complex consisting of the generating station, switchyard, and substations; and segments of numerous utility lines (Alamo Power, Lincoln County Power, Mt. Wheeler Power, Lincoln County Telephone, SNWA, Great Basin Transmission). Permanent structures supporting transmission lines reduce range resources within the tower footprints that support wildlife; they also provide perches and nest sites for raptors, which prey on smaller sensitive species such as pygmy rabbits and greater sage-grouse. Transmission lines can cause mortality to avian wildlife through electrocution and collisions although their design is intended to mitigate this.

Placement of existing water supply lines and fiber optic cables within utility ROWs has disturbed vegetation. Surface facilities associated with water and fiber optic lines include power lines, substations, pumps, vents, splice yards, and regeneration stations. However, the majority of disturbances associated with these buried lines are reclaimed so the impact is short term. Removal of vegetation, that provides both forage and cover during installation of lines or cable, results in both short and long-term adverse impacts to wildlife habitat.

Installation of power lines, water or gas lines, fiber optic lines, or extractive industry access often require construction of roads for access. Roads may be used long-term for ongoing operations or maintenance within a mining claim or utility ROW. Road construction along with utility

construction or mine operations can result in direct mortality of wildlife, while long-term use and maintenance of roads can result in habitat fragmentation. Increased use of roads can lead to transportation of noxious and non-native, invasive weeds into disturbed areas, further reducing the value of habitat in the vicinity of mines and utility development.

Special Status Wildlife

The current land ownership and uses for (thus disturbances within) the special status species CEA would be the same as those described for wildlife in **Tables 5.1-1** and **5.1-2**.

The effects described above are often amplified for special status wildlife. Sensitive species, such as pygmy rabbits, burrowing owls, and greater sage-grouse, are adversely affected by substandard range conditions (often caused by historic grazing practices), as these species also rely on the range for food sources as well as cover. The effect of habitat fragmentation from roads described above is particularly important for smaller sensitive species, such as pygmy rabbits and greater sage-grouse, as the "breaks" in the habitat either separate populations from each other resulting in genetic isolation, separate habitat components that are crucial at different life stages, or offer greater opportunities for predators.

Migratory Birds

The current land ownership and uses for (thus disturbances within) the CEA would be the same as those described for wildlife in **Tables 5.1-1** and **5.1-2**.

The effects described above for general wildlife also similarly impact migratory birds. Past changes in vegetative communities and removal of native vegetation has changed or eliminated habitat used by migratory birds for cover, forage, and reproduction.

5.8.4 Foreseeable Future Disturbances

Future disturbances to wildlife are quantified in **Table 5.1-3**.

Wildlife

Agriculture, Forestry, and Similar Sources of Surface Disturbance

The White Pine Sagebrush Restoration Project proposes to enhance sagebrush habitat and reduce the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush. This project would have an adverse impact on wildlife from the destruction of vegetation that provides forage and cover. However, the fire break would have indirect long-term beneficial impacts by protecting vegetation, and thus wildlife habitat, from the effects of fire.

Community Development

The Coyote Springs community development, described in detail in **Section 5.2.4** under Community Development, would potentially have largely adverse effects on wildlife. Ultimately, approximately 31,000 acres of wildlife habitat (basins and desert scrub vegetation) would be removed for community development. Approximately 12,000 acres planned for parks, open space, and multi-species habitat and a planned 17-acre lake would provide habitat and a new water source, enhancing habitability. However, overall wildlife impacts are anticipated to be long-term and adverse due to loss of habitat that was essentially contiguous with the Desert NWR (separated and somewhat fragmented by US-93) and the Coyote Springs ACEC, and from removal of native vegetation. While provision for open space and development of a man-made water source would enhance wildlife habitat, these changes would likely result in shifts in

the kinds and the population levels of wildlife found as the ecosystem of the immediate area would be permanently altered and differ from the native ecosystem.

Another result of the Coyote Springs Development would be increased traffic on US-93 between Coyote Springs and Las Vegas. Increased traffic in this area surrounded by public lands managed for wildlife values would likely result in increased collisions between wildlife and vehicles, increasing mortality.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities, which would involve some road construction and drilling in selected areas, would have adverse impacts on wildlife, is anticipated to be minimal at this time. However, should economic feasibility of resource development improve in the future, adverse impacts to wildlife (from direct mortality, habitat loss, and fragmentation) would increase.

Grazing

Grazing would be anticipated to continue within the CEA in the foreseeable future. See **Section 5.9** for a detailed discussion of future grazing. Future range health (and therefore wildlife habitat) would be anticipated to improve with changes to the livestock grazing management systems and updated allotment management plans to meet the objectives of the allotments. Future changes to grazing management would be designed to improve range conditions, and as a result, wildlife habitat conditions would improve as well.

Industrial Development

Of the 21,000 acres within the Apex Industrial Park, 6,000 acres are currently for sale and available for future development. As stated above, it is assumed that development would result in construction of facilities that would eliminate any remaining lands from serving as wildlife habitat.

Recreation

Increased population in White Pine County would likely increase recreational pressure on surrounding public lands. Increased human activity, hunting, and potential increased poaching would all lead to short-term impacts to wildlife. Adverse effects to wildlife would also be experienced in the long-term with permanent increases in human population from plant operations.

Roads

While no new major highway development is currently proposed, development within the SWIP Utility Corridor and the WWEC would involve development of roads for construction as well as ongoing maintenance of infrastructure within the future ROWs. Additionally, increased use of public lands would lead to increased development and use of informal roads on public lands that would adversely impact wildlife through increased potential for collisions, displacement, and habitat fragmentation.

Utility Production and Distribution

One of the prominent anticipated disturbances of wildlife within the CEA would be utility production and ROW development.

Two major planning efforts have addressed the development of multiple-use utility corridors: the WWEC PEIS and the SWIP Utility Corridor. These planning projects address the utility corridor within the CEA. The possible development scenarios for this corridor are discussed in greater detail in **Section 5.2**.

Overhead power lines and other underground utilities would result in permanent long-term impacts to wildlife through placement of structures for such facilities, creating perches as well as hazards for birds of prey, and construction of temporary maintenance roads that fragment habitat. Several proposed projects within the CEA would develop water resources and transport the water through pipelines to be located within portions of the utility corridors. Wildlife habitat would be disturbed in the short term due to construction; however, assuming effective reclamation, there would be little permanent disturbance of habitat.

Utilization of the corridor for a combination of overhead facilities (i.e., power lines, substations, communication stations, compressor and pump stations, water detention basins, etc.) and underground facilities (i.e., pipelines, stormwater drains, telecommunication lines, etc.) would be most likely, resulting in a combination of short-term and long-term disturbance. It is possible that the entirety of the corridor would not be developed due to topography constraints and incompatibility of such facilities in close proximity to each other. Additionally, project proponents do not have to locate linear facilities within designated corridors so it is possible that as the SWIP Utility Corridor and the WWEC get developed by linear utilities, future applicants may look outside these corridors for placement of facilities to reduce compatibility, topographic, and other potential conflicts. Temporary construction areas of linear facilities can be revegetated; however, disturbance has high potential to lead to the incursion of noxious and non-native, invasive weeds that reduce the quality of wildlife habitat.

Special Status Wildlife

Future effects to special status wildlife would be similar to those described under past and present disturbances above.

Migratory Birds

Future effects to migratory birds would be similar to those described under past and present disturbances above.

5.8.5 Cumulative Disturbances

The wildlife CEA totals almost one million acres. Within the CEA for wildlife, known quantifiable past and present disturbances total approximately 11,300 acres. Proposed future disturbances, including the ON Line Project, would potentially disturb another approximately 67,667 acres, much of which would be within the designated utility corridors. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CEA.

Approximately 90 percent of the CEA is available for grazing. Grazing on allotments within the CEA has resulted in disturbance, has adversely impacted vegetation to varying degrees, and would continue in the future. Management of grazing on BLM grazing allotments under the Ely District RMP would result in monitoring of effects from grazing and modification of practices to maintain or improve vegetative communities, which would result in improved wildlife habitat.

5.8.6 Cumulative Effects

Threatened, Endangered, Proposed, and Candidate (TEPC) Species

Desert Tortoise

Approximately 138,000 acres of the CEA for wildlife are desert tortoise habitat, located in an area approximately 40 miles either side of the Cark/Lincoln County line. Both above and below ground development within the utility corridors in this area would adversely impact desert tortoises. Temporary adverse impacts to desert tortoise would result from noise and human activity associated with construction activities within the corridor. Short-term impacts could result from direct mortality of individuals and potential destruction of burrows, although these impacts would be reduced and possibly eliminated through implementation of mitigation measures. Short- to long-term impacts to desert tortoise would result from clearing of vegetation that provides forage and cover.

Long-term impacts would result from the permanent loss of habitat as new linear utility facilities would occupy land (i.e., compressor and pump stations, substations, power lines, gas lines, etc.); creating perches for birds of prey (particularly ravens); increasing predation in the vicinity of such structures; from maintained access roads creating permanent breaks in vegetation and potentially fragmenting habitat. Fragmentation is a major contributor to population declines in desert tortoises because tortoises have large home ranges (over 1.5 square miles of habitat per tortoise, USFWS 1994). When home ranges are fragmented, tortoise movements can be restricted and tortoises are potentially less able to self-regulate localized population densities and find mates outside an isolated pool. This can potentially create relatively small populations that are more susceptible to localized mortality.

The Coyote Springs Development, located within the wildlife CEA, is essentially surrounded on the north, east, and south sides by the Coyote Springs ACEC protecting critical desert tortoise habitat. As the development is surrounded by desert tortoise habitat, the development would result in a loss of up to 31,000 acres of desert tortoise habitat, reducing available habitat and further fragmentation of remaining habitat.

Implementation of mitigation measures as those described in **Section 4.8.2.5** would help to reduce potential impacts to desert tortoise. Overall cumulative effects to desert tortoise would be short- and long-term and moderate.

BLM Sensitive and State of Nevada Special Status Species

Greater sage-grouse

Approximately 30 percent of the area within the CEA along the Proposed Action and Action Alternative alignments south from the Robinson Summit Substation to just inside the Lincoln County border is yearlong greater sage-grouse range, totaling over 300,000 acres. In this area, the projects that could result in cumulative effects to greater sage-grouse would include utility corridor development, development and use of roads, and increased recreational activity.

Temporary effects to greater sage-grouse due to human activity during construction would extend to acreage beyond the actual development due to the fact that human disturbance associated with construction activities would discourage habitation of the area. Vegetation trampling and clearing required for transmission facility construction would reduce or eliminate vegetation for foraging and cover in the short term. Because some species of sagebrush require 20 or more years to mature, some adverse wildlife effects from vegetation removal may be long-term as well.

Development of the WWEC/SWIP Utility Corridor would adversely impact greater sage-grouse. Construction of linear facilities would permanently remove lands from greater sage-grouse habitat. In the long term, despite installation of perch prevention devices, new structures, along with existing range fences and older power line structures would likely serve as perches for birds of prey, enhancing predation of greater sage-grouse along the corridor.

Roads developed for construction of the Proposed Action or Action Alternative alignments or ongoing maintenance would be temporary and would be restored after construction. Increased recreational use on public lands could result in increased habitat fragmentation and unintentional disturbance of leks and mating strategies that could lead to further population declines. However, the amount of public lands available for recreation and the extent of potential greater sage-grouse habitat available moderates these effects.

Implementation of mitigation measures such as those described in **Section 4.8.2.5** during work within the utility corridors on public lands would help to reduce potential impacts to greater sage-grouse.

Overall cumulative effects to greater sage-grouse would be short- and long-term, minor to moderate.

Pygmy Rabbits

Because pygmy rabbits are typically found in areas of tall, dense Wyoming sagebrush, and were observed in the northern portions of the project area, they would most likely be found in the northern portions of the CEA in areas of Wyoming sagebrush semi-desert vegetation. Because of the pygmy rabbits' dependence upon sagebrush habitat and susceptibility to predation, cumulative impacts to pygmy rabbits would be very similar to those described above for greater sage-grouse. Overall cumulative effects to pygmy rabbits would be short- and long-term, minor to moderate.

Raptors

Many species of raptors utilize the diversity of habitats that exist throughout the proposed transmission line alignments, and thus would utilize these areas. Noise and increased human activity associated with the construction of the transmission facilities and other developments in the CEA would have a temporary impact on nesting and foraging activities. Mitigation measures similar to those discussed in **Section 4.8.2.5** could be employed prior to and during construction activities that would greatly reduce the likelihood of raptor nesting behavior being disrupted or nests being destroyed. Transmission lines result in adverse effects to raptors due to collisions between birds and lines. Beneficial effects to raptors from transmission lines result from improved hunting opportunities from the towers. The intensity of these impacts would vary according to species, but impacts that are a direct result of construction activities and presence of towers and lines are not expected to exceed a negligible level.

Increased usage of US-93 and human presence on public lands may result in increased mortality and affect habitat usage patterns; however, these long-term adverse effects to raptors would be anticipated to be negligible.

Adding the Proposed Action or Action Alternative disturbances to past, present, and foreseeable future disturbances, would result in expected cumulative effects to wildlife being short- and long-term, minor and adverse.

Burrowing Owls

Suitable habitat for burrowing owls occurs throughout various portions of the project area, and thus throughout the CEA. The introduction of new linear facilities in utility corridors within the CEA for wildlife increases the likelihood of burrowing owls experiencing in-flight collisions with overhead facilities. The presence of above ground structures may also deter burrowing owls from nesting in previously occupied habitat. The operations, maintenance, and abandonment of facilities would have both short-term and long-term impacts on burrowing owls. The magnitude of these cumulative impacts could range from minor to moderate.

Burrowing owls may habituate themselves to humans as well as anthropogenic structures and machinery. As a result, burrowing owls would likely avoid nesting in these areas, but over time may resume foraging in these areas. Overall cumulative effects to burrowing owls would be short- and long-term, negligible to minor.

Bats

Bat roosting areas could be present within the CEA. Construction activities could disturb bats in the short term, while increased population and industrialization could have a longer term adverse impact. Bats likely use most of the CEA for foraging opportunities. Construction activities could cause bats to temporarily abandon foraging within active work zones. Changes to or removal of vegetative cover could reduce the quality of insect life available to sustain bat populations. However, short- and long-term cumulative effects to bats would be anticipated to be negligible.

General Wildlife

Pronghorn Antelope

Most of the CEA for wildlife is habitat for pronghorn antelope, except for the higher elevations. Development within the SWIP Utility Corridor throughout the CEA north of Segment 9B would disturb pronghorn antelope in the short term due to human activity. Cumulative adverse impacts to pronghorn would be short-term and negligible to minor, depending on the magnitude of concurrent development within the SWIP Utility Corridor.

An increase in the human population within White Pine County would result in increased human activity within pronghorn habitat, potentially concentrating pronghorn populations in lesser used areas. Long-term loss of habitat from permanent transmission facility foundations located within the Proposed Action or Action Alternative alignments and from increased human activity within pronghorn habitat would be anticipated to have negligible adverse impacts on pronghorn antelope due to the large extent of suitable habitat within the CEA.

Overall cumulative effects to pronghorn antelope would be short- and long-term, and negligible to minor.

Mule Deer

The majority of development contained within the cumulative effects scenario would not be within the mule deer year-round range. The Proposed Action and Action Alternative alignments cross through summer and winter range, crucial winter range, and migration corridors in several locations. Effects to mule deer from increased traffic on US-93, development of the SWIP Utility Corridor and WWEC, and increased recreational use of public lands would be similar to those described above for pronghorn antelope.

Overall cumulative effects to mule deer would be short- and long-term, and negligible to minor.

Elk

The majority of the area of the CEA for wildlife is potential elk habitat, with exception of the WWEC/SWIP Utility Corridor south of and along US-93 in Lincoln County. The construction of the Robinson Summit Substation in conjunction with development within the Proposed Action or Action Alternative alignments may disturb elk and alter their movement patterns. Because those developments are in the immediate vicinity of US-50, the disturbance could result in increased elk presence along the highway, and increased incidence of collisions with vehicles. All other effects to elk from, increased traffic on US-93, development within the SWIP Utility Corridor and WWEC, and increased recreational use of public lands would be similar to those described above for pronghorn antelope.

Overall cumulative effects to elk would be short- and long-term, and negligible to minor.

Bighorn Sheep

A large area of potential bighorn sheep habitat is found within the CEA for wildlife in the northern portions of the CEA at higher elevations. However, no projects within the cumulative effects scenario are anticipated to impact these areas.

The Proposed Action and Action Alternative alignments within the CEA for wildlife cross both potential and occupied desert bighorn habitat from the vicinity of the proposed Robinson Summit Substation site to the southern terminus of the CEA. Increased traffic on US-93 between Las Vegas and the Coyote Springs Development could result in increased collisions between vehicles and individuals, increasing mortality. Effects to bighorn sheep from development within the SWIP Utility Corridor and WWEC and increased recreational use of public lands would be similar to those described above for pronghorn antelope.

Overall cumulative effects to bighorn sheep would be short- and long-term, and negligible to minor.

Migratory Birds

The introduction of a new transmission line increases the likelihood of avian wildlife and waterfowl experiencing in-flight collisions with structures and lines. Development of utility corridors would increase the number of linear facility structures, increasing the potential incidence of collision. In areas where high-density migration takes place across the utility corridors, including design features intended to reduce collisions by making structures more visible to avian wildlife and waterfowl would be considered. Transmission structures would be designed to reduce electrocutions, roosting, perching, and nesting to the extent practicable. These measures would mitigate most adverse effects.

Overall cumulative effects to migratory birds would be short- and long-term, and negligible to minor.

5.9 Range Resources

5.9.1 CEA Boundary

The CEA boundary for range resources includes the full extent of the allotments which the Proposed Action and Action Alternative alignments cross and the permitted range uses within these allotments that the alignments impact. The total area of this CEA is 3,084,553 acres of BLM, state, and private lands.

Rationale

Portions of each of these allotments and permitted range uses occur within the direct effects area and could be impacted by the project. Livestock displaced from the direct effects area by the project would likely be moved to other portions of the allotments outside of the direct effects area.

5.9.2 Introduction

Figure 5.9-1 depicts the CEA for range resources. The entire CEA for range resources is enclosed within various grazing allotments. Range resources within the CEA would be similar to those described for the project area in **Section 3.9**.

Cumulative effects to range resources in the CEA primarily occur from historic fire suppression activities, historic and ongoing grazing, utility generation and delivery, recreation, community development, and extractive industry activities. These activities reduce public lands available as range resources, or result in adverse effects to the resource such as spread of noxious and non-native, invasive weeds, or loss of vegetative cover.

5.9.3 Past and Present Disturbances

Current land ownership and uses within the range resources CEA are presented in **Tables 5.1-1** and **5.1-2**, respectively.

Development of the West changed range conditions through historic grazing practices; activities that altered natural hydrology; irresponsible use of fire; introduction and transportation of invasive and exotic species; and fire suppression. The combination of these led to establishment and prolific expansion of invasive and exotic species, such as cheatgrass. Changes in vegetative cover in conjunction with fire suppression led to further changes in range conditions that favored invasive and exotic species over native vegetative cover. Widespread changes in vegetative cover changed the fire regime and enhanced the effects of uncontrolled fire (Young and Blank 1995). Together these effects have altered ecosystems processes, vegetative cover, and range resources found within the CEA.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Twenty-six existing mining claims or districts are located within the CEA. Approximately 41 acres or less than 0.01 percent, of the CEA is disturbed by gravel pits. The area disturbed by the extractive industry (mining, gas/oil exploration and development) reduces acreage available for grazing within the CEA, resulting in long-term impacts to range resources. Currently, extractive activities within the CEA for range resources are minimal; therefore adverse impacts would be negligible.

Grazing

The foremost past and present impacts to range resources within the area have been recent past grazing practices, utility generation and delivery, and extractive industries activity. Almost three million acres, over 96 percent of the CEA, is available for grazing.

Past and present disturbances to range resources from grazing would be the same as conditions described for range resources in the affected environment, **Section 3.9**.

Roads

The CEA for range resources contains over 26,000 acres of disturbance from roads. Existing roads impact livestock by reducing acreage available for grazing, separation of grazing allotments, and through collisions between livestock and vehicles. Given that roads only occupy 0.87 percent of the CEA, the impacts on range resources from roads are minimal.

Utility Production and Distribution

Existing utility generation and delivery facilities reduce available acreage in grazing allotments in the long term as structures/equipment (i.e. compressor and pump stations, telecommunication sites, water detention structures, power plants, substations, power lines) permanently remove vegetation and occupy the land.

5.9.4 Foreseeable Future Disturbances

Future disturbances to range resources are quantified in **Table 5.1-3** above.

Agriculture, Forestry and Similar Sources of Surface Disturbance

The Lowry Hazardous Fuels Reduction and Ecosystem Enhancement Project would treat 3,253 acres mechanically and 844 acres by prescribed fire. Similar projects include the White Pine Sagebrush Restoration Project to enhance sagebrush habitat and reduce the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush. These projects would have direct adverse effects by reducing forage and indirect long-term beneficial impacts by protecting range resources from the effects of uncontrolled wildfire, and continued deterioration of range resources.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities (mining or oil and gas development) and related impacts on range resources are anticipated to be minimal. However, should economic feasibility of resource development improve in the future, adverse impacts to range resources would increase in intensity as well as acreage.

Grazing

Grazing would continue within the CEA in the foreseeable future. Management of grazing on BLM land under the Ely BLM District RMP (2008a) is discussed in detail in **Section 5.2.4** above. Under the Ely RMP, the BLM will continue to monitor and evaluate allotments to determine if they are continuing to meet or are making significant progress to meeting the standards for rangeland health, and management prescriptions would be adjusted accordingly.

Future range health would be anticipated to improve. Changes to the livestock grazing management systems are proposed to improve the overall management of livestock on the affected allotments, and updates to the allotment management plans would help to meet the objectives of the allotments. Through the permitting process some allotments have been identified where standards have not been met, however, significant progress is being made toward meeting standards. Future changes to grazing management on any identified substandard allotments would be designed to improve range conditions, resulting in a long-term negligible to minor beneficial impact to range resources. However, without active improvements to grazing management, the substandard conditions could contribute to the expansion of invasive and exotic species and ecological change that result in long-term adverse effects to range resources.

Figure 5.9-1 Grazing CEA

Recreation

Increased human population would likely also increase recreational pressure on surrounding public lands. Increased human activity would likely involve increased vehicular use on public lands, resulting in increased soil disturbance that would lead to increased infestation of noxious and non-native, invasive weeds. These effects could result in long-term degradation of range resource quality.

Roads

Under the Ely District RMP, OHV use will be largely limited to existing roads and trails within the majority of the CEA. Enforcement of this management policy would result in maintaining the number and extent of existing roads and trails, and prevention of establishment of new road disturbance within grazing allotments, avoiding future degradation of range resources.

Utility Production and Distribution

Future WPES generation and delivery facilities constructed when carbon capture/sequestration is commercially feasible, would adversely impact grazing allotments in both the short and long term in the CEA and Steptoe Valley. As proposed, approximately 1,510 acres permanently occupied by the WPES facilities would no longer be available for grazing, potentially reducing the AUM capacity of the allotments. Other proposed linear utility projects would potentially disturb 8,600 acres and the two wind generation projects would potentially disturb another 9,000 acres (**Table 5.1-3**). Impacts to range resources from future utility development would be similar to those discussed above in **Section 5.7**, Vegetation.

5.9.5 Cumulative Disturbances

The CEA for range resources totals over three million acres of BLM, state, and private lands. Within the CEA for range resources, known quantifiable past and present disturbances total approximately 30,970 acres. Proposed future disturbances identified above would potentially disturb another approximately 24,677 acres, including approximately 500 acres for the ON Line Project. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed and authorized developments would be about 106,000 acres or about 3.4 percent of the CEA.

Nearly 96 percent of the CEA is available for grazing. Grazing on allotments within the CEA has resulted in disturbance, has adversely impacted vegetation to varying degrees, and would continue in the future. Management of grazing on BLM grazing allotments under the Ely District RMP would result in monitoring of effects from grazing and modification of practices to maintain or improve vegetative communities, which would result in improved range resources.

5.9.6 Cumulative Effects

Adverse effects have occurred to range resources from historic practices, but the affected acreage is relatively small. Future short- and long-term adverse cumulative impacts to, and permanent loss of range resources would result from construction associated with additional development of utility production and transmission facilities within the CEA. Long-term beneficial impacts to range resources may be realized through modified grazing management practices on allotments with substandard conditions.

Adding the Proposed Action or Action Alternative disturbances to past, present, and foreseeable future range resources disturbances, would result in cumulative effects to range resources, expected to be short- and long-term, minor and adverse.

5.10 Cultural Resources

5.10.1 CEA Boundary

The CEA boundary for cultural resources is the same as that for surface water (**Figure 5.2-1**).

Rationale

The project should not affect cultural resources outside of the direct effects area. Activities associated with the ON Line Project that might affect cultural resources could occur outside of the actual disturbance area, but not likely outside of the CEA.

5.10.2 Introduction

Cultural resources potentially vulnerable to the cumulative effects of the ON Line Project include prehistoric sites, prehistoric landscapes, historic sites, historic structures, and traditional cultural properties. The incremental degradation of the resources reduces the information and interpretive potential of historic properties. Data recovery in the form of excavation or artifact collection is considered an adverse effect. Further, not every site to be impacted is mitigated but rather a representative sample of sites, as directed by the agencies. Therefore there is the loss of information from those sites not mitigated. Although this approach may not have a large impact on cultural resources as a result of a single project, the cumulative effect of many large projects in a region can amount to a major loss of scientific and historic information about the local and regional past.

5.10.3 Past and Present Disturbances

Land ownership and use as it relates to cultural resources is detailed in **Tables 5.1-1** and **5.1-2** above.

Past and present disturbances in the CEA that have potentially affected cultural resources include fire, vandalism/looting, road construction and maintenance, above and below ground utility facilities, mining, mineral material activities (quarry/gravel pit), ranching/agriculture, and other developments (see **Section 5.2.3** and also **Appendix 5A**). Known sites that have been determined ineligible for the NRHP do not require avoidance; have been discharged from management (BLM 2008a); and therefore have likely been impacted by activities requiring the inventory (i.e. development, utility installation, fence projects, energy exploration, etc.). As directed by Section 106 of the NHPA, eligible sites are generally avoided or mitigated if avoidance is not possible for projects with a federal or state nexus. Projects/development disturbances conducted prior to 1966 (i.e., prior to NHPA) and/or those without a federal or state nexus generally did not identify/quantify cultural resource sites or impacts to them.

5.10.4 Foreseeable Future Disturbances

The reasonably foreseeable disturbances in the CEA are described in **Section 5.2.4** and quantified for the cultural resources CEA in **Table 5.1-3** above.

Utility Production and Distribution

As disclosed in the WPES FEIS (BLM 2008c), construction of the WPES would impact six or seven NRHP eligible sites, depending on the plant location. Construction of proposed utilities and other ROW uses (i.e., water detention basins, telecommunication sites) within the SWIP Utility Corridor and WWEC (**Appendix 5A**) could also potentially impact eligible sites.

Community Development, Recreation, and Land Use

Changes to private agricultural lands within the CEA are likely as some of these lands get converted in the future from traditional agricultural utilization (farming and ranching) to more residential, commercial, and recreational utilization. However, specific plans are not known and cannot be evaluated for this analysis. Other lands, private and public, have been proposed and authorized for community development (e.g. Coyote Springs Development).

Impacts to cultural resources would depend on the exact project location and extent of ground disturbance. As much of the CEA is on federal land (96.8 percent), future disturbances would be subject to NEPA, Section 106 of the NHPA, and state and federal regulations providing protection and management of cultural resources.

5.10.5 Cumulative Disturbances

Past and present disturbance to cultural resources in the CEA have been the result of range resource development, utility installation, road development, ranching/agriculture, private development, archaeological excavation, recreational activities, and likely vandalism and unauthorized artifact collection (**Appendix 5A**). Since the majority of the CEA is under federal jurisdiction, impacts to eligible cultural resources have generally been avoided or mitigated through Section 106 regulatory compliance. Cumulative impacts to cultural resources from reasonably foreseeable projects would mostly result from ground disturbance related to new commercial, agricultural, or industrial developments.

Past and present disturbance has impacted cultural resources (**Section 5.2.3**). NRHP-eligible sites within permitted disturbance areas were subject to oversight of Section 106 of NHPA; therefore impacts or the loss of the resource was mitigated.

Increased disturbance from multiple actions could result in cumulative adverse impacts to as yet unknown cultural resource sites. Increased accessibility created by new roads built in association with projects can cause cumulative impacts related to increased public visitation, recreational impacts, unauthorized artifact collection, and vandalism.

The cultural resources CEA totals nearly one million acres. Within the CEA for cultural resources, known quantifiable past and present disturbances total approximately 11,300 acres. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 11 percent of the CEA.

5.10.6 Cumulative Effects

Current and future development will contribute to the cumulative effects, both direct and indirect, on prehistoric and historic cultural resources in the region. All proposed, reasonably foreseeable developments would be completed under the oversight of Section 106 of NHPA if there were a federal nexus and thus project impacts would therefore be individually addressed.

The effects of adding the On Line Project impacts to existing cultural resource disturbances would be minimal. Section 106 of the NHPA requires avoidance and/or mitigation of impacts to NRHP-eligible cultural resources by federal undertakings; therefore, cumulative impacts from the ON Line Project and reasonably foreseeable future activities should be minimal. Data recovery of NRHP-eligible sites would expand the regional database and knowledge of prehistoric and historic contexts. The mitigation measures developed to avoid direct impacts to cultural resource would also minimize contributions to cumulative effects.

5.11 Native American Concerns

5.11.1 CEA Boundary

The CEA boundary for Native American concerns is the same as that for surface water (**Figure 5.2-1**).

Rationale

This boundary was chosen because it encompasses the area where there could be indirect effects to known culturally significant places and direct affects to cultural resource sites.

5.11.2 Introduction

The BLM initiated Native American consultation with regard to the project with the Section 106 consultation letter sent out in July 2007 as a result of the proposed EEC (which included the components of what is now referred to as the ON Line Project), and since then consultation has been ongoing. The Tribes consulted are listed in **Table 3.11-1**. Consultation included letters, phone calls, and meetings. Through this process, the BLM requested information from the Tribes about geographically important places, traditional cultural places (TCPs), and sacred sites that may be impacted by the proposed facilities now referred to as the ON Line Project. Further, previous ethnographic studies have identified places of geographic interest to the Tribes within the CEA.

Native American tribes are generally concerned with public distribution of information regarding the nature or location of TCPs, sacred sites, or geographically important places; therefore any specific information provided to the BLM has been held as confidential.

The ability of Native Americans to practice their traditional culture may be reduced through modification of the landscape; loss of available or open land due to developments and private ownership; and degradation of resources over time. Resources such as water, plants, and wildlife not only provide subsistence, but play an important role in Native American culture and lifeways. In addition, archaeological sites and artifacts retain power and life-force; alteration of these places or removal of objects can disturb traces of the past and existing power relationships.

5.11.3 Past and Present Disturbances

Land ownership and uses for (thus disturbances within) the Native American concerns CEA is detailed in **Tables 5.1-1** and **5.1-2** above.

Past and present impacts to resources utilized by Native Americans, such as water, vegetation, and wildlife, are described in **Sections 5.2**, **5.7**, and **5.8,** respectively. Projects/ developments/disturbances that occurred prior to implementation of the NHPA of 1966 or without a federal or state nexus may have impacted archaeological sites and objects of

importance to the Tribes. In general, artifact collection associated with archaeological surveys and archaeological excavations as mitigation are considered impacts to the Tribes and contribute to cumulative impacts. No previous disturbances to TCPs, sacred sites, or geographically important places were indicated by the Tribes during consultation at this time.

As noted in **Table 5.1-2**, a minimal amount of the CEA has been disturbed. Approximately 1 percent of the CEA has been impacted by disturbances including gravel pits, roads, agriculture, utility and other ROWs, and urban development. Additional unquantified disturbances such as mining and rural development have also disturbed area within the CEA. Further, grazing has taken place on 90 percent of land within the CEA. Cumulative disturbances to resources utilized by the Tribes are presented in the associated sections (**Section 5.2** - Water, **Section 5.7** - Vegetation, **Section 5.8** - Wildlife).

5.11.4 Foreseeable Future Disturbances

Reasonably foreseeable future impacts to resources utilized by the Tribes within the CEA are described in **Section 5.2.4** and would likely include continuation of grazing, recreation, development of private lands, energy development, utility development (water, telecommunication, power, gas), fire management, and mining (see **Appendix 5A**). Disturbances within the CEA are quantified in **Table 5.1-3**.

Utility Production and Distribution

The predominant landscape altering disturbances in the CEA would be the Coyote Springs Development, Bedrock Landfill, ON Line Project, the Nevada Wind Company Wind Project, Enexco Wind Project, and the other utility-related projects (i.e., water, telecommunication, and gas) within the SWIP Utility Corridor and WWEC. These projects are discussed in detail in **Section 5.2.4**.

5.11.5 Cumulative Disturbances

As shown in **Section 5.2.5**, approximately 10,900 acres of the CEA has been disturbed by past and present activities, not including grazing. Cumulative disturbances to water, vegetation, and wildlife are presented in **Sections 5.2**, **5.7**, and **5.8**. Mitigation has been included with the ON Line Project which is protective of the resources.

5.11.6 Cumulative Effects

There are potentially 11 culturally and/or geographically significant areas identified within or in proximity to the CEA (Bengston 2007); not all of these have verified locations but rather identified general vicinities. These areas include traditional use areas, habitations, battle sites, burials, ceremonial areas, and areas associated with traditional stories. The commitment of public land for the projects and developments in the CEA (**Appendix 5A**), would constitute a cumulative effect to Native American tribes that claim the region as their traditional use area. The continued modification of the landscape through numerous regional projects that impact culturally and/or geographically important places or modify the Tribes' visual relationship to the landscape can have a cumulative impact on Native Americans. However, how this cumulative impact affects the Tribes or the individual over time is unknown and difficult to quantify.

5.12 Land Use

5.12.1 CEA Boundary

The CEA boundary for land use includes White Pine, Nye, and Lincoln counties, and a portion of northern Clark County. The total area of this CEA is 25,840,602 acres.

Rationale

Cumulative effects to land use are closely associated with socioeconomics. The majority of lands in the affected counties are federally owned. Shifts in land ownership (such as the sale of public lands into private ownership) and changes in land management (such as wilderness designations) not only indicate shifts in land use, but also indicate shifts in socioeconomic drivers. At the same time, the ON Line Project would facilitate development of renewable and conventional energy facilities which have the potential to affect land use on large tracts of public or private land.

White Pine, Nye, and Lincoln counties are rural; have relatively low populations and economic activities; and contain most of the proposed facilities. Two federal laws passed in recent years direct changes in federal land management and ownership within Lincoln County. A bill recently passed by Congress will provide similar provisions for White Pine County. For these reasons, evaluation of cumulative effects to land use within these counties is appropriate and relevant to this environmental analysis.

The Clark County Comprehensive Plan divides the county into different types of planning areas. The proposed southern terminus of the transmission line and the Harry Allen Substation are located within the Northeast County Rural Planning Area of Clark County. Socioeconomic effects from the proposed project have been evaluated as negligible for Clark County because the City of Las Vegas so overwhelmingly affects the socioeconomics of the county. For these reasons, only the portion of the county that contains the project (the Northeast County Rural Planning Area) is contained within the CEA for land use.

5.12.2 Introduction

Figure 5.12-1 depicts the CEA for land use. County and BLM land use plans for the lands, and land use within the Desert NWR and the Pahranagat NWR, encompassed by the CEA would be the same as those described in **Section 3.12** for the Proposed Action.

The 1.5-million acre Desert NWR and the 5,380-acre Pahranagat NWR fall within the CEA for land use. Both areas are managed by the USFWS, who "…works with others to conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people."

Historically, the predominant use of the lands within the CEA was for ranching/grazing and the extractive industry. The public lands administered by the BLM within the CEA are managed for multiple use including grazing, hunting, recreation, and extractive industries. More recently, energy industry developments have led to an increase in proposals for utility generation, particularly from renewable energy resources, and transmission infrastructure. Over the past 10 years, federal legislation has been enacted directing sale of public lands to private interests and establishment of designated wilderness. Proposed community developments would expand residential communities into previously rural, undeveloped areas.

The past, present, and future disturbances with cumulative impacts to land use discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.12.3 Past and Present Disturbances

Current land ownership and uses within the land use CEA are presented in **Tables 5.1-1** and **5.1-2**, respectively.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

In addition to the mining districts adjacent to or within the project area (**Table 3.3-2**), there are 26 mining districts along with oil and gas exploration activities within the CEA. For cumulative effects related to minerals, see **Section 5.3**.

Federal Legislation Governing Land Use

Five laws enacted by Congress within the past 10 years directly affect the land use within the CEA. **Table 5.12-1** outlines the requirements of the various pieces of legislation.

TABLE 5.12-1 RECENT ENACTED FEDERAL LEGISLATION AFFECTING LAND USE AND REALTY

ACT TITLE, YEAR	ACT PROVISIONS
Southern Nevada Public Lands Management Act (SNLMA) of 1998	Within the CEA for land use, the SNLMA: • First piece of legislation establishing authority for retention of land sale proceeds by BLM, State, and County for various uses (Ensign 2008a)
Lincoln County Lands Act of 2000	• Disposal of over 13,000 acres of public land • Retention of a portion of the proceeds by the State for general education • Retention of a portion of the proceeds by the County with an emphasis on support for schools • Retention of a portion of the proceeds by the BLM in special accounts to be used for inventory, evaluation, protection, and management of unique archaeological resources; development of a multi-species habitat conservation plan; reimbursement of the State and County for costs associated with sales; and for acquisition of environmentally sensitive land (GPO 2008)
Clark County Conservation of Public Land and Natural Resources Act (CCCPLNRA) of 2002	Within the CEA for land use, the CCCPLNRA: • Established the Arrow Canyon, Jimbilnan, Jumbo Springs, Lime Canyon, Muddy Mountains, and Pinto Valley WAs • Released WSA lands on the southeast boundary of the Desert NWR, contiguous with the Arrow Canyon, Muddy Mountains, and Lime Canyon WAs, and south of the Lime Canyon WA • Expanded the boundary of the SNPLMA to include 22,000 additional acres identified for disposal, with retention of proceeds for conservation initiatives within Clark County • Transfer of land parcels from the BLM to the USFWS and NPS for administrative jurisdiction (BLM 2008b)
Lincoln County Conservation, Recreation, and Development Act (LCCRDA) of 2004	• Disposal of up to 90,000 acres of public land • Retention of a portion of the land sale proceeds by the State for the educational fund • Retention of a portion of the proceeds by the County for economic development • Retention of a portion of the proceeds by the BLM in special accounts to be used for inventory, evaluation, protection, and management of unique archaeological resources;

ACT TITLE, YEAR	ACT PROVISIONS
	development of a multispecies habitat conservation plan; reimbursement of BLM costs associated with sales; for management of the Silver State OHV Trail; and for management of the wilderness designated by the act • Designation of nearly 770,000 acres of wilderness • Release of over 245,000 acres of WSA • Establishment of utility corridors for the Southern Nevada Water Authority and the Lincoln County Water District, and relocation of an existing utility corridor along US-93 • Designation of the Silver State OHV Trail • Conveyance of nearly 5,000 acres of BLM land to the State and County for use as parks and open space • Transfer of administrative jurisdiction for over 8,000 acres associated with the relocated utility corridor from the USFWS to the BLM, and transfer of over 8,500 acres of land from the BLM to the USFWS near the Desert NWR (Ensign 2008b) • Allows funds to be used to process public land use authorizations and ROWs relating to the development of the 13,000 acres of land conveyed under the Lincoln County Lands Act
White Pine County Conservation, Recreation and Development Act (WPCCRDA) of 2006	• Disposal of up to 45,000 acres of BLM lands • Designation of approximately 558,000 acres of wilderness • Release of over 54,000 acres of WSAs • Allow for jurisdictional land transfers to protect areas around Great Basin NP and expand two Nevada State Parks • Conveyance of approximately 1,750 acres of BLM lands to White Pine County for airport and industrial park expansion • Study of an OHV trail • Transfer of lands into trust for the Ely Shoshone Tribe • Amendments to the SNPLMA • Funding of All-American Canal Projects, in return for which Nevada would be guaranteed the right to divert and consume a portion of water from Lake Mead (Ensign 2008c)

Figure 5.12-1 Land Use CEA

In general, the above legislation resulted in transfer of ownership of public lands to private interests, along with the designation of WAs and release of some WSA lands. Conversion of WSAs to designated wilderness assured permanent protection for the wilderness values for the areas, with no change to existing land use as WSAs are managed as wilderness until final determination is made. The release of WSA lands would have freed the lands under study for broader multiple use.

Grazing

For the most part, grazing in the CEA appears to be in conformance with established BLM RMPs and standards. Substandard conditions on a few allotments, created largely by historic grazing use rather than current use, are being addressed to bring allotments into conformance with plans and standards. For cumulative effects related to grazing, see **Section 5.9**.

Industrial Development

The Apex Industrial Park represents concentrated industrial development within the CEA. Because of the location of the park, it is surrounded by open space and removed from other potentially conflicting uses, such as recreation or communities.

Utility Production and Distribution

Existing electric utility generation and delivery facilities within the CEA for land use include the Harry Allen Generation Station, Crystal Substation, Chokecherry power line, Falcon-Gonder transmission line, numerous transmission lines to and from the Harry Allen Generating Station, Lincoln County Power District transmission lines, Gonder to Machacek transmission line, other NV Energy power lines, water detention basins for Coyote Springs Development, and Mount Wheeler power lines. All existing transmission lines appear to be within authorized utility ROWs.

Summary

Past and present land uses within the CEA for land use appear to be in accordance with BLM land use plans or county zones or land use designations.

5.12.4 Foreseeable Future Disturbances

Future disturbances to land use are quantified in **Table 5.1-3** above.

Community Development

Residential/community development on private land in the Coyote Springs area (described in detail in **Section 5.2**) deviates from the other surrounding and historic land uses in the area. This development would represent a shift in land use in the future. However, this development is consistent with the comprehensive plans for Clark County. The transmission line for the ON Line Project, within the SWIP Utility Corridor, would lie between the Coyote Springs Development and immediately adjacent to the Desert NWR, a prominent land use in the immediate vicinity of Coyote Springs. Development of the residential area and projects within the SWIP Utility Corridor and WWEC would result in three very different land uses occurring in immediate proximity to each other. While these land uses are not necessarily incompatible, they could detract from one another.

Another residential community, Hidden Valley, to be developed on a 914-acre ranch would be located near Moapa, Nevada. The community would include a small commercial center surrounded by over 4,000 homes. Home sites would range from half-acre lots up to multi-family homes with 18 units per acre. The property is adjacent to the Reid Gardner power plant. NV Energy raised concerns about the development limiting future economic growth through

industrial development because of the proximity of the proposed residential development to the power plant (Moapa Valley Progress 2006).

Federal Legislation Governing Land Use

The five pieces of federal legislation listed above provided for release of BLM land for sale into private ownership. While sale of some tracts has been accomplished or is underway, future sales of lands under these laws would continue to result in shifts land use into the future.

Industrial Development

Approximately 6,000 acres of industrial lots are available for sale within the 21,000-acre Apex Industrial Park. The number of acres currently disturbed is unknown. The intent is for further development of industry within the park, which would be compatible with existing uses, and thus would have no adverse impact on land use.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities (mining or oil and gas development) would involve some road construction and drilling in selected areas, and would have negligible adverse impacts on land use. However, should economic feasibility of resource development improve in the future, additional impacts to land use could occur. As extractive operations increase in acreage and legislated land sales reduce availability of public land for recreational activity, conflicts in land use could result. Permits issued by the BLM for planned mining, oil, and gas exploration assure that future exploration and development would be consistent with BLM RMPs.

Airport Expansion

Yelland Field, the airport north of Ely, is proposed for expansion. The conveyance of 1,545 acres of public land to White Pine County has been proposed to lengthen the runway by 5,000 feet and construct additional hangars and fencing. The Yelland Field Expansion project would allow for the expansion and development of airport facilities in White Pine County, and encourage development of air service and aviation-related industry.

Railroad Development

The Nevada Northern Railway is an existing ROW, extending from northern Goshute Valley, near Shafter, Nevada south through Steptoe Valley to the City of Ely, Nevada. The project includes reconstruction of the existing railroad. The City of Ely and the White Pine Historical Railroad Foundation currently own the rail line and ROW, and intend to rehabilitate the track to support economic development in the Ely area. Construction staging areas would be necessary along the ROW. These areas would be on private land and would be located every 20 to 50 miles. No fencing of the private ROW is anticipated. Borrow pits for earth materials would be required for grade construction/rehabilitation.

Reconstruction and use of the Nevada Northern Railway would cross 15 grazing allotments and could affect access of livestock to all areas of these allotments and lead to land use conflicts such as collisions between trains and livestock. Long-term use of the Nevada Northern Railway is intended to increase commercial and industrial development north of Ely which would be a change to the existing agricultural land use.

Recreation

Increased White Pine County population would lead to increased recreational use of public lands in the County and in the vicinity. Increased recreational use could lead to increased use conflicts on those lands. Additionally, the Desert NWR is proposing to develop a visitor center to

improve visitor services, increase wildlife-dependent recreational opportunities, and protect unique natural, cultural, and historical resources. A new visitor facility could result in increased public use of the NWR. New visitor facilities could result in both beneficial and adverse effects to land use. Increased public use could lead to increased land use conflicts. However, increased public contact and information could enhance environmentally responsible use of public lands.

Utility Production and Distribution

Development of the WPES in White Pine County, along with associated infrastructure when commercially feasible, may result in the sale of federal lands into private ownership. Installation of various power lines, gas lines, water supply lines, water detention basins, telecommunication facilities, and petroleum product lines within the SWIP and other utility corridors (discussed in greater detail in **Section 5.7**, disturbance summarized in **Table 5.1-3**) in the CEA would affect surface land uses, such as grazing, to a minor extent in the short term, and to a limited extent in the long term. Utility developments identified within the CEA appear to be consistent with county land use plans and BLM RMPs. Together these developments would result in a slight reduction in federal land ownership and a shift away from grazing uses.

Future identified development of transmission and other utility lines within established utility corridors includes the Great Basin Transmission line, a second circuit on the Harry Allen-Mead transmission line (NV Energy), SNWA transmission and water lines, Lincoln County Power District transmission lines, and the TransCanada transmission lines. These identified developments would be consistent with planned uses for the corridors. Future addition of the transmission line associated with the Proposed Action and the Action Alternative, as well as other proposed power and pipelines would be compatible with existing land uses in the Apex Industrial Park.

Sithe Global Power LLC's proposed development of the Toquop Energy Project, a 750-MW coal-fired electric power plant, located 14 miles northwest of the City of Mesquite, Nevada in Lincoln County, to provide electrical power to utilities in Nevada is also a potential future reasonably foreseeable development. The electric power-generating facility would be located on a 640-acre parcel of land. The plant would average 812 construction workers for the 4-year construction period, and 110 full time operations personnel (Toquop Energy Project 2007). A 2003 BLM Record of Decision on the Toquop Project approved a proposed 1100 MW natural gas fired power plant and its associated components (land, water delivery infrastructure, transmission line). The proposed modification to fuel the plant with coal is based on the increased cost of natural gas and improved environmental controls for coal fired utilities. The new proposal would require additional land for storage of combustion by-products (e.g. ash) and a 31-mile railroad spur for coal delivery. The previously approved plant was granted 2,100 acre-feet per year of the 7,000 acre-feet per year of water needed to run that plant; the Nevada State Engineer was studying the availability of the additional 4,900 acre-feet per year requested (Toquop Energy Project 2007).

Summary

Foreseeable future land uses within the CEA appear to be in accordance with BLM land use plans or county zones or land use designations.

5.12.5 Cumulative Disturbances

Past, present, and future land use appears to be in accordance with BLM land use plans, county zones, or land use designations. Past, present, and future development of utility generation and

delivery facilities, along with residential development, potential extractive (mine, gas, and oil) development, and legislated land sales could result in a trend shifting land ownership from public to private, and land use away from past uses such as grazing to industrial. Additionally land sales would reduce public lands available for recreation and other public use.

The CEA for land use totals 25,840,602 acres. Within the CEA for land use, known quantifiable past and present disturbances total over 220,500 acres. Proposed future disturbances would potentially disturb another approximately 78,736 acres, including approximately 800 acres for the ON Line Project and 1,510 acres for the WPES. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 0.4 percent of the CEA.

5.12.6 Cumulative Effects

Adding the Proposed Action or Action Alternative disturbances to past, present, and foreseeable future land uses, cumulative adverse effects to land use are expected to be long-term and negligible to minor, resulting largely from sale of public lands and increased potential for use conflicts.

5.13 Special Designations

5.13.1 CEA Boundary

The CEA for Special Designations includes all SDAs within a 50-mile buffer of the project area, although the majority of potential effects would be very localized, centered around construction activities for the ON Line Project. The total area of this CEA is 18,500,251 acres (no figure).

Rationale

As stated in **Section 4.13**, analysis of impacts to special designations is from the perspective of people utilizing SDAs. Impacts to SDAs should not be noticeable beyond this area (i.e., people using SDAs outside of the identified CEA would not likely perceive impacts from the Project). The majority of impacts would be localized, centered around and during actual construction activities.

5.13.2 Introduction

There are 53 SDAs within the CEA, established by the federal or state government to protect wilderness, wildlife habitat, and other recreational, ecological, or historical values. Special designations within the CEA are described in detail in **Section 3.13**.

Depending on proximity of SDAs to disturbances, impacts to the areas can be from visual or air quality degradation, or noise. Projects within the CEA could result in adverse impacts to air quality through ground disturbance and emissions, or create visual or auditory disturbances. When combined with the effects of the Proposed Action or Action Alternative, these projects could affect qualities managed for within the Special Designations that are found in the CEA.

The past, present, and future disturbances with cumulative impacts to SDAs discussed below are described in detail in **Section 5.2.3** and **5.2.4**.

5.13.3 Past and Present Disturbances

Current land ownership and uses within the special designations CEA are presented in **Tables 5.1-1** and **5.1-2**.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Existing extractive industry uses within the CEA may impact SDAs. Open pit mined areas are susceptible to wind erosion and can impact air quality and visibility. Mining, oil, and gas exploration involve road construction and use of drilling equipment. Construction has short-term impacts through increased road dust, and the visual intrusion of the equipment. Long-term effects would result from the presence of roads on the landscape.

Grazing

Existing grazing uses throughout the CEA should have little effect on SDAs. Grazing uses can result in dust that would adversely affect air quality and visibility, but the effects would be localized in areas of degraded range conditions and susceptible to wind erosion.

Industrial Development

The Apex Industrial Park containing utility infrastructure, landfills, quarries, and manufacturing could impact SDAs a couple of ways. The power plants produce emissions that in the long term would affect SDAs that lie within a 10 to 15 mile radius of the plants, as well as SDAs down wind. Disturbed areas are susceptible to wind erosion and could impact air quality and visibility downwind in the long term.

Utility Production and Distribution

Existing transmission lines west of US-93 may be in the view shed from portions of the Delamar Mountains WA, and would clearly be visible from backcountry hikers along portions of the Sheep and Las Vegas Ranges within the Desert NWR.

Expanded Recreation Facilities

The Desert NWR has released a Draft EA for development of visitor facilities within the Range. Existing visitor use facilities do not provide adequate capacity or opportunities to inform visitors about recreational opportunities and increased visitation is anticipated to further strain existing facilities. New facilities would include a visitor center and administrative complex, along with associated roads and parking areas (USFWS 2007d).

5.13.4 Foreseeable Future Disturbances

Potential disturbances from reasonably foreseeable actions within the SDA CEA are quantified in **Table 5.1-3**.

Community Development

Development of the residential areas of Coyote Springs and Hidden Valley (described in detail in **Section 5.7** and **5.12.4** above) could impact down-wind SDAs in both the short and long term. Short-term effects would result from construction dust and emissions impacting air quality and visual resources. Long-term effects would result in visual disturbance from the density of development, and adverse impacts to air quality from residents motor vehicle use. Both developments would create new or additional light sources in the area, potentially affecting dark night skies, but those effects would be incremental to the effects of the City of Las Vegas and its suburbs. Construction or operation of transmission lines associated with the Proposed Action or

Action Alternative would not be anticipated to contribute to these cumulative effects to dark night skies.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Future development of mining and gas and oil leases could impact air quality and visual resources through ground disturbance and distribution of dust particles in the air during construction. Long-term impacts to air quality and visual resources could result should mineral resources be developed within claims, resulting in establishment of new mines, or expansion of existing surface mining operations.

Industrial Development

Sale of remaining lots and full development of the approximately 6,000 acres available within the Apex Industrial Park could increase emissions and dust affecting visibility, and could result in increased population affecting recreational use of SDAs in the area.

Recreation

Increased population would lead to increased recreational use of public lands in the county and in the vicinity. Increased recreational use would likely lead to increased contact between persons using remote and wilderness areas, and potentially increased opportunity for degradation of natural conditions. Additionally, the Desert NWR has approved a visitor center to improve visitor services, increase wildlife-dependent recreational opportunities, and protect unique natural, cultural, and historical resources. A new visitor facility could result in increased public use of the NWR.

Utility Production and Distribution

Development of additional power, water, and gas lines and other development within the SWIP Utility Corridor in particular could impact SDAs. Any construction of above ground facilities or underground pipelines could impact air quality and thus, visibility in the short term. Long-term effects from utility development within the SWIP Utility Corridor and WWEC could include visual impacts in proximity to SDAs.

Development of the WPES would result in short-term impacts to air quality and visual resources from ground disturbance and emissions from construction. In the long term the facilities would be visible in the surrounding area, emissions would impact air quality, visibility and visual resources, and night lighting of the facility would impact dark night skies. These effects would impact SDAs in the immediate vicinity and downwind of the power plant.

As discussed in **Section 5.15.4** below, wind generators would introduce large scale visual disturbances on the landscape of Steptoe Valley, potentially visually impacting SDAs in the vicinity.

5.13.5 Cumulative Disturbances

The special designations CEA totals 18,500,251 acres. Within the CEA for special designations, known quantifiable past and present disturbances total approximately 195,000 acres. Proposed future disturbances would potentially disturb another 76,277 acres, including an estimated 1,510 acres for the WPES power plant and related facilities. Acreages of disturbance for future proposed developments within the SWIP Utility Corridor and the WWEC cannot be accurately quantified at this time, but the maximum area within the roughly 2,640 to 3,500-foot wide corridor from the Robinson Summit to Harry Allen substations (about 250 miles) that is subject to disturbance for proposed developments would be about 106,000 acres or about 0.6 percent

of the CEA. The total quantifiable cumulative disturbance to special designations within the CEA would be approximately 380,519 acres, which is approximately 2 percent of the total area of the CEA.

Light Pollution

The night glow from the lights associated with the WPES in Steptoe Valley would adversely impact dark night skies. It would be expected to be noticeable in SDAs located in immediate proximity to the power plant location. Lighting on the Robinson Summit Substation would only be utilized during nighttime visits for emergency operations and maintenance activities. Non-emergency visits would normally occur during daytime hours. Therefore, the substation would only add a man-made light source to the night skies on an infrequent basis. Further, the FAA-required lighting on the wind turbines of the Egan Range Wind Generating Project and the lighting required for the stacks and nighttime operation of the WPES, would also add man-made light sources to the night skies. These new light sources could potentially impact dark night skies in the South Egan Range and Mount Grafton WAs. There would be a cumulative light impact to the generally unpolluted night sky for these SDAs.

Changes to Ambient Air Quality

Section 5.6 of this SEIS discusses air quality due to the proposed construction and operation of the ON Line Project in conjunction with other projects in the Air Resources CEA. Evaluation of past and present projects is contained within analysis of the existing ambient air conditions, and discussed in conjunction with potential impacts of the ON Line Project on SDAs in **Section 4.13.2.1**.

Sections 5.6.6.1 and **5.6.6.2** describe ambient air quality impacts from the Proposed Action and the Action Alternative, to include future projects. The overall impact of the existing and foreseeable emissions sources identified in **Sections 5.6.3** to **5.6.5** would not be expected to significantly change the current air quality levels in the CEA. The same analysis approach described in **Section 4.13.2.1** was used for cumulative impact analysis.

Based on information provided by the BLM, cumulative impacts to air quality in SDAs within a 50 mile radius of the proposed WPES plant site within the CEA would be long-term and would comply with applicable NAAQS. Cumulative effects to air quality of SDAs from ON Line Project in conjunction with other construction in nearby areas within the CEA would be short-term and negligible.

Changes to Viewsheds

In the CEA, cumulative visual effects to SDAs would occur to the Desert NWR, Delamar Mountains, Meadow Valley Range, and Arrow Canyon WAs, and the Mormon Mesa and Kane Springs ACECs from increased development within the SWIP Utility Corridor/WWEC combined with the Coyote Springs Development. Utility corridor development would contribute a short-term impact on visual resources for underground facilities (pipelines), although these often have associated aboveground appurtenances (i.e. pumps, regeneration stations, etc.) that would contribute to long-term impacts. Above ground transmission lines would contribute a long-term impact. Future development, in conjunction with transmission lines in the Apex Industrial Park area would increase the density of development in the area, potentially making it more visible from Coyote Springs ACEC, and the Arrow Canyon and Muddy Mountains WAs. Such development could contribute both short-term (construction) and long-term (permanent structures) visual impacts.

The stacks and boilers from the WPES project would be visible within a broad area of Steptoe Valley (described in detail in **Section 5.15**). Other new visual intrusions in the vicinity of the proposed power plant would include power lines (associated with the WPES and those installed in conjunction with the SWIP Utility Corridor and WWEC). These visual developments would expand the visual intrusion of human development on the natural scene primarily for Goshute Canyon, Becky Peak, Bristlecone, and High Schells WAs, the Pony Express Trail, and for the Cleve Creek Baldy RNA.

Changes to Noise Levels

Cumulative noise effects to the Goshute Canyon, Becky Peak, Bristlecone, and High Schells WAs, and the North-South Schells RNA would result from the cumulative effects of construction and increased worker traffic in the short term, as noise is quickly attenuated by distance and topography (**Section 5.16.1**). Increased noise effects may be noticeable in some nearby SDAs at certain times, depending on wind direction and speed; however, those effects would not be expected to be a prominent disturbance in the natural setting.

Changes in Recreation

The northern section of the CEA in White Pine and northern Lincoln counties would likely see increases in recreational use of SDAs from the population influx associated with construction of the ON Line Project and construction and operation of the WPES. Those SDAs located in closest proximity, or more easily accessed from the developed population centers (Goshute Canyon, Becky Peak, Bristlecone, High Schells and Mount Moriah WAs; North-South High Schells and Cleve Creek Baldy RNAs; and Great Basin NP) would likely see the most intensive recreational use.

5.13.6 Cumulative Effects

Table 5.13-1 indicates which SDAs within the CEA would experience either temporary or permanent impacts to various aspects of the SDA. Those SDAs not listed in **Table 5.13-1** would experience no or negligible effects.

TABLE 5.13-1 CUMULATIVE IMPACTS TO SDAS

SPECIAL DESIGNATION AREA	LIGHT POLLUTION	VISUAL	NOISE	RECREATION
Arrow Canyon WA		X		
Becky Peak WA	X	X	X	X
Bristlecone WA	X	X	X	X
Delamar Mountains WA		X		
Goshute Canyon WA	X	X	X	X
High Schells WA	X	X	X	X
Meadow Valley Range WA				
Mount Grafton WA	X			
Mt. Moriah WA				X
Muddy Mountains WA		X		
South Egan Range WA	X			
Arrow Canyon ACEC				
Coyote Springs ACEC		X		
Kane Springs ACEC		X		
Mormon Mesa ACEC		X		
Desert NWR		X		
Cleve Creek Baldy RNA		X		X
North-South Schells RNA	X		X	X
Great Basin NP	X			X
Pony Express NHT	X	X	X	X

5.14 Recreation

5.14.1 CEA Boundary

The CEA boundary for Recreation is the same as for Special Designations.

Rationale

Recreation impacts should not be noticeable beyond this area (i.e., people recreating outside of the identified CEA would not likely be impacted from the Project).

5.14.2 Introduction

Existing recreational use within the CEA is generally dispersed and light, and includes activities such as hiking, primitive camping, horseback riding, OHV use, hunting, and fishing. In addition to dispersed recreational use, within the CEA there are 28 developed federal and state recreational use areas. Descriptions of dispersed and developed recreational opportunities and associated recreational management plans for areas within the CEA are discussed in detail in **Section 3.14**.

The primary land uses within the CEA are grazing, utility production and distribution, and extractive activities (mining, gas and oil leases). These land uses all have the potential to affect the quality and quantity of recreational activities within the CEA by affecting the actual acreage available for recreation; or visual impacts such as transmission lines, air pollution, or disturbances associated with extractive industries. The transient workforce associated with project construction would increase the area population and would likely introduce different cultures that may use recreational resources differently from the existing culture of the rural area. While the area for dispersed recreation is expansive, developed recreation sites are limited in scope and capacity. With increased population, users of dispersed recreation areas may experience more encounters with other recreational users. Increased levels of recreational use may increase competition for access to developed facilities. Thus, increased levels and

different types of recreational use increases the potential for use conflicts that can reduce the quality of recreational experiences.

The past, present, and future disturbances with cumulative impacts to recreation discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.14.3 Past and Present Disturbances

The current land ownership and uses for (thus disturbances within) the recreation CEA can be found in **Tables 5.1-1** and **5.1-2**.

Federal Legislation Governing Land Use

Five pieces of federal legislation resulted in changes in management of BLM lands, the sale of BLM lands, and the establishment of numerous WAs. Provisions of this legislation are discussed in detail in **Section 5.12** above. Sale of BLM lands would effectively reduce the amount of public lands available for recreation. Conversion of WSAs to designated wilderness assured permanent protection for the wilderness values for the areas, with no change to existing recreational resources.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Past and present extractive activities include approximately 30 mining districts, and numerous oil and gas exploration leases within the CEA. Lands occupied by extractive activities have reduced recreational value, or may reduce acreage available for recreation when vegetation and/or wildlife are adversely affected. Development of roads associated with mining, gas, and oil exploration can enhance recreational use of an area by improving access.

Utility Production and Distribution

Past and present disturbance associated with utility infrastructure includes existing power plants, transmission lines, and underground pipelines within designated corridors. Lands occupied by utilities infrastructure are no longer available for recreation. Existing transmission lines west of US-93 may be visible from portions of the Delamar Mountains WA, and would clearly be visible from backcountry hikers along portions of the Sheep and Las Vegas Ranges within the Desert NWR and hikers in the private Coyote Springs Development.

5.14.4 Foreseeable Future Disturbances

Future disturbances to recreation are quantified in **Table 5.1-3**.

Expanded Recreation Facilities

The Desert NWR has released a Draft EIS for development of visitor facilities within the Refuge. Existing visitor use facilities do not provide adequate capacity or opportunities to inform visitors about recreational opportunities and increased visitation is anticipated to further strain existing facilities. New facilities would include a visitor center and administrative complex, along with associated roads and parking areas (USFWS 2007b).

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Expansion of extractive activities exploration (mining or oil and gas development) is possible in the future, and would minimally adversely impact recreation. However, should economic feasibility of resource development improve in the future, adverse impacts to recreation could increase.

Federal Legislation

The five pieces of federal legislation listed in **Section 5.12.3** provided for release of BLM land for sale into private ownership. While sale of some tracts has been accomplished or is underway, future sales of lands under these laws would continue to result in relatively slight reductions of public lands available for recreation in the future.

Utility Production and Distribution

Construction of the proposed WPES, as well as the Enexco Wind Project and Nevada Wind Company Wind Project, would result in an influx of temporary construction workers followed by permanent operations staff. The effect of increased population would be most evident in the northern portion of the CEA, in White Pine County, where the existing population is relatively small. An influx of temporary workers would also utilize recreational resources in the southern portion of the CEA; however, these effects would be overshadowed by recreational use by people living in the Las Vegas area.

Developed recreational outlets, particularly those in proximity to the WPES, would see increased visitation and more intensive use due to population increases associated with construction and operation. Existing developed campgrounds on federal lands generally are designed to accommodate 10 or fewer parties (publiclands.org 2008). Increased use could mean that facility users recreate in a more heavily used setting, encountering other users and different types of use. User conflicts over the limited number of developed facilities, and adverse impacts to the resource/facilities from intensive use could result. Increased dispersed use within the CEA could make it more difficult to recreate without encountering other people, or experiencing human effects. Increased transient population could result in higher demand for hunting permits, and thus increased competition for limited resources, traditionally utilized by the long-term or permanent residents of the area. Increased transient population could also result in increased illegal hunting that could adversely impact wildlife conditions, further adversely impacting hunting.

Future addition of transmission lines within designated corridors would result in towers supporting transmission lines occupying acreage, thus reducing acreage available for recreation. Other utility lines (pipelines, telecommunications) within the designated corridors would have associated aboveground facilities that would also contribute to a minor reduction in acreage available for recreation. Future ROWs granted for transmission lines could include exclusive access provisions, reducing or eliminating recreational access to certain areas.

Consolidation and development of utility lines within identified corridors (such as the SWIP Utility Corridor and WWEC) reduces potential cumulative effects to recreational resources from utility infrastructure as multiple entities could use the same access roads for construction as well as line maintenance.

5.14.5 Cumulative Disturbances

Grazing, development of utility infrastructure, and extractive industry would have minimal effect on recreation within the CEA as the proportion of lands impacted by these uses in comparison with lands available for recreation is relatively small. Cumulative adverse effects to recreation would primarily result from increased and different types of use of recreational resources within the CEA. Effects of increased population and recreational use of public lands are increased by the sale of BLM lands. Increased use of recreational resources would result in varying kinds of uses that may conflict with each other, increased competition for limited developed facilities

creating potential user conflicts, and could potentially result in degraded quality of recreational experiences and resources from intensive use. However, the proportion of lands available for recreation is far greater than the potential increases in recreational use or lands to be sold into private ownership.

Quantification of acreages of past, present, and anticipated future disturbances to recreation would be the same as those described for special designations in **Section 5.13.5**.

5.14.6 Cumulative Effects

Adding the ON Line Project disturbances to past, present, and foreseeable future disturbances with the potential to impact recreation, cumulative effects to recreation are expected to be long-term and minor to moderate.

5.15 Visual Resources

5.15.1 CEA Boundary

The CEA boundary for visual resources is the same as described for surface water (**Figure 5.2-1**).

Rationale

This boundary was chosen for simplicity purposes, as defined in **Section 5.1**, and the fact that vantage points from which the Proposed Action and Action Alternative alignments, and other past, present, and reasonably foreseeable disturbances can be discerned are roughly contained within these areas.

5.15.2 Introduction

The CEA is within a region of generally north- to south-trending mountain ranges and valleys. Scenic variety exists in the topography and densities, arrangements, and colors of vegetation found in the CEA. The VRM of the BLM lands within the CEA are generally Class III or Class IV with small intermittent areas of Class I and II. The VRM designations (Ely District) that exist within the CEA are shown in **Table 5.15-1**.

TABLE 5.15-1 BLM VRM DESIGNATIONS IN THE CEA

VISUAL QUALITY OBJECTIVE	ELY DISTRICT (ACRES)	SOUTHERN NEVADA DISTRICT (ACRES)	TOTAL ACRES	PERCENT OF BLM IN THE CEA
Class I	42,478	0	42.478	4.86
Class II	44,164	770	44,934	5.15
Class III	295,471	75,611	371,082	42.49
Class IV	390,089	24,747	414,836	47.50
Total	772,201	101,128	873,329	100.00

Source: BLM 2008a

The past, present, and future disturbances with cumulative impacts to visual resources discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.15.3 Past and Present Disturbances

The current land ownership and uses for (thus disturbances within) the visual resources CEA would be the same as those described for surface water resources in **Tables 5.1-1** and **5.1-2**.

Visual disturbances within the CEA are fairly minimal and generally include roads, mining, agriculture, sparse residential development, and utility corridors. Past and present disturbances have visually altered approximately 5 percent of the CEA. Burned areas and agricultural areas are more or less visually acceptable; burned areas if occurring as a natural wildland event are noticeable, but typically are not perceived as man-caused or intrusive development. Agriculture is a common land use in the area, and visually is part of the historic and present landscape. Past and existing mining operations are generally not visible within the CEA.

5.15.4 Foreseeable Future Disturbances

There are several reasonably foreseeable projects with the potential to impact the visual environment in the CEA by adding industrial man-made features to the landscape. Future disturbances to visual resources are quantified in **Table 5.1-3**.

Agriculture, Forestry, and Similar Sources of Surface Disturbance

The White Pine Sagebrush Restoration Project is proposed to enhance sagebrush habitat and reduce the risk of large scale, high severity wildfire throughout 19,000 acres between Currant Summit and Ellison Creek, using various mechanical treatments on pinyon, juniper, and sagebrush. These projects may have short term adverse effects, but would be beneficial in the long-term.

Community Development

Coyote Springs would develop 43,000 acres of land, of which 12,000 acres is slated for green space. However, the development would create a visual change in an area currently undeveloped.

Utility Production and Distribution

Numerous power lines, water lines, water detention basins, telecommunication facilities, and other utility facilities including those proposed to be located within the SWIP Utility Corridor and the WWEC, would also add large-scale man-made elements to the landscape. The utility facilities within the SWIP Utility Corridor and WWEC would be noticed mostly where it parallels in close proximity or crosses transportation routes such as US-93.

Lighting at the Robinson Summit Substation would only be utilized during nighttime visits for emergency operations or maintenance activities. Non-emergency visits would normally occur during daytime hours. Therefore the Robinson Summit Substation would add man-made light sources to the night skies on an infrequent basis.

5.15.5 Cumulative Disturbances

Exterior lighting associated with the Robinson Summit Substation would require exterior lighting that is adequate for safe and efficient operation, and these lights have potential to affect the quality of the night sky. However, lighting at the Robinson Summit Substation would normally only be utilized for emergency operations that had to take place at night. Quantification of acreages of past, present, and anticipated future disturbances to visual resources would be the same as those described for vegetation in **Section 5.7.5**.

5.15.6 Cumulative Effects

Considering the relative remoteness and natural state of the project area, the reasonably foreseeable projects would represent a cumulative impact to the character and scenic integrity of the landscape. Co-location of utility ROWs and communication sites into designated corridors (i.e. SWIP Utility Corridor and WWEC) would serve to lessen impacts.

Further, nighttime skies in the CEA would be cumulatively affected by exterior lighting associated with these projects, even after implementing mitigation measures. There would be a cumulative light impact to the generally unpolluted night sky.

5.16 Noise

5.16.1 CEA Boundary

The CEA boundary for noise is the same as described for surface water (**Figure 5.2-1**).

Rationale

Noise from construction is quickly attenuated by distance, vegetation, and topography. Noise related to construction and operation of the ON Line Project construction is of importance to human receptors along these areas. All of these noise sources are contained within the CEA boundaries.

5.16.2 Introduction

The CEA generally traverses broad valleys in its north to south path from the Robinson Summit Substation to the Harry Allen Substation in Clark County, with a few exceptions where ridges are crossed. Those valleys are typically deep enough to minimize most cross-range noise transport, and generally wide enough to attenuate all but high volume sources of noise across their width. Tight canyons or other features that could concentrate sound exist in a few areas, including along the valley walls, but those features are generally not in or very near the linear path and typically do not feature sensitive receptors in areas where noise from current or foreseeable sources could be concentrated.

Section 3.16 documents current noise levels in the vicinity of the CEA. **Section 4.16** documents the noise anticipated to be generated by the ON Line Project, and the temporary and limited impacts to local residents and on areas of human activity in the vicinity. This cumulative effects analysis assesses anticipated noise levels and impacts within the CEA based upon the ON Line Project in combination with foreseeable activities within or potentially affecting that area.

The past, present, and future disturbances with cumulative impacts to noise discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.16.3 Past and Present Noise Sources

The current land ownership and uses for (thus disturbances within) the noise CEA would be the same as those described for surface water resources in **Tables 5.1-1** and **5.1-2**.

Noise levels in the rural areas that dominate the CEA were estimated with the support of measurements across the Steptoe Valley. Isolated areas near small roads are typically in the 30 dBA L_{eq} range. Noise levels away from the isolated noise sources are low level, typically dominated by natural sources including winds. In areas of concentrated residential

development, like Pioche and Caliente, local noise generation sources combined with slower moving traffic typically result in noise levels in the 50 dBA range. In smaller communities or along roads with moderate traffic volumes, current noise levels are estimated to typically be in the 35 to 40 dBA L_{eq} range.

Aircraft

Air traffic impacts are generally isolated to near the vicinity of the Ely Yelland Field airport outside the CEA, and maybe a few isolated small and/or private air strips in or adjacent to the CEA. Takeoffs and landings generate brief but loud local impacts. Military aircraft utilize a portion of the CEA when flying between Nellis AFB and the DWR/Training Site. Crop spraying can generate higher impacts from low flying planes, but if those efforts occur it would be infrequently during late spring and summer. Air traffic for any other purpose is generally light and infrequent, except in the far southern reaches with heavier traffic to and from the Las Vegas area.

Community Development

As described in **Section 3.16**, the most prominent noise impacts in the CEA result from transportation sources and ranch, residential, or small development sounds generated in areas of comparably higher population density. Natural sound sources including wind represent a significant portion of measurable noise, and average noise volumes are at or below 30 dBA L_{eq}, comparable to sound levels within a typical residential home. Maximum measured noise levels approached 60 dBA L_{eq}, alongside busier stretches of roads, comparable to conversational voice levels at six feet but below FHWA noise mitigation levels for residential areas.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Eleven mines were listed as operating in White Pine County in 2006, though the Robinson Mine outside Ruth is the only one in the CEA with production levels sufficient to list among the major mines of Nevada in 2006 (Driesner and Coyner 2007). Noise from heavy mining machinery and blasting can be significant within the mine property but are attenuated with distance and largely unnoticeable from nearby highways.

Industrial Development

Commercial and industrial activities in the CEA can produce localized noise but these are few in number.

Railroad Facilities

Rail traffic currently generates noise impacts at the southern and southwestern extent of the CEA, with the UPRR traversing toward Las Vegas. Sound generated by current rail traffic along the UPRR elevates current noise levels within ¼-mile of those tracks.

5.16.4 Foreseeable Future Noise Sources

The following section documents foreseeable sources of noise potentially affecting the CEA in addition to those described in **Section 4.16** from the ON Line Project. The nature of those foreseeable actions and their actual or potential noise generation are discussed below. Impacts associated with those actions are discussed in **Section 5.16.6**, Cumulative Effects.

Foreseeable changes in the CEA include potential growth in rail, auto, truck, and/or air traffic, proposed mining ventures, and construction efforts and/or changes in industrial sources.

Airport Expansion

The proposed Yelland Field airport expansion north of Robinson Summit could increase the air traffic noise impacts, and lead to noticeable increases in noise levels along approaching and departing flight paths near the north end of the CEA. Use of helicopters in construction of the transmission lines in the SWIP Utility Corridor and WWEC would produce noise impacts along their flight paths, but only during construction in localized areas of the project after transmission structures have been installed.

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

Six proposed mines in Nye County have either just completed their permitting and approval process or anticipate final decisions by 2009. The larger regional mines have documented their noise generation and impacts through NEPA analysis during their authorization efforts.

Traffic & Transportation

State traffic projections feature modest growth in the current low volume traffic on the major highways paralleling the project activity area from the Robinson Summit Substation to the Harry Allen Substation. Project construction is expected to result in a temporary and minor increase in traffic. During operation, maintenance efforts are expected to have very minor increase in traffic volumes. Development of the renewable energy resources that the Proposed Action hopes to bring to the market could result in an appreciable increase in traffic volumes, which would still be light compared to much of the state's highway network. Development of any of the nearby coal-fired power plants would have impacts on traffic levels in their vicinity.

Utility Production and Distribution

The proposed coal-fired power plants and associated development represent the most prominent foreseeable industrial noise sources outside the CEA. The development of either of those two power plants would likely result in long-term and minor noise impacts in the vicinity of the generating station, approaching moderate impact levels at only the closest residences. The development of either of those power plants would include a construction phase with noise impacts roughly comparable to those described for the Proposed Action but concentrated on a single plot rather than dispersed along a transmission line, and noise impacts associated with coal transport, developing and operating water supplies, and potentially local population and traffic growth directly via bringing in workers or indirectly by stimulating the economy though increased availability of power.

5.16.5 Cumulative Noise Sources

Section 4.16 of this SEIS documents the anticipated direct and indirect impacts of the Proposed Action and Action Alternative.

5.16.6 Cumulative Effects

Noise in the CEA caused by the construction of the Proposed Action or Action Alternative would be combined with the relatively low current noise effects from air, vehicle, and rail traffic in and near the CEA. Increases in commercial activity in and near the CEA could include construction and operation of electrical generation facilities, an airport expansion, and expanded or new mining developments. These would increase noise levels in the immediate vicinities of these activities. Increases in area population due to these developments could increase noise generated by vehicular traffic and recreational vehicles.

5.17 Socioeconomics

5.17.1 CEA Boundary

The CEA for socioeconomics includes Lincoln and White Pine counties (**Figure 5.17-1**). In-depth analysis was only performed for Lincoln and White Pine counties for reasons stated below and in **Section 4.17.1**. The total area of this CEA is 35,118,276 acres.

Rationale

The majority of the transmission line route of the ON Line Project would be constructed in White Pine and Lincoln counties. These counties are rural, have relatively low populations and economic activities, and contain most of the proposed facilities, with the exception of a portion of transmission line in Nye County and the southern terminus of the transmission line at the Harry Allen Substation in Clark County. Nye County is not included in the impact analysis as only a small portion of the transmission line passes through the county and there would be negligible local socioeconomic impacts. Eureka County is not included in the impact analysis as only a small portion of the project (i.e. Falcon Substation Expansion) would be within the county and there would be negligible local socioeconomic impacts. Clark County is not included in the impact analysis for socioeconomics as impacts to Clark County would be negligible and a cumulative impact would be indiscernible compared to the existing and future economic activity in the county driven by the growth of the Las Vegas urban area. Additionally, including the economic activity in this cumulative impact analysis would artificially reduce the significance of the overall economic impact of the project on the two main counties that would be impacted.

5.17.2 Introduction

The social and economic structures and relationships that are in place in White Pine and Lincoln counties of the CEA are described in **Section 3.17**. Along with the description in **Section 3.17**, the analysis presented in **Section 4.17** of the SEIS includes a detailed discussion of the potential direct and indirect social and economic impacts of the Proposed Action and Action Alternative, including the No Action, for the CEA.

The past, present, and future disturbances in regards to cumulative impacts to socioeconomics discussed below are described in detail in **Sections 3.17** and **5.2.4**.

Land ownership within the socioeconomics CEA is presented in **Table 5.1-1**.

5.17.3 Past and Present Disturbances

The past and present disturbances as related to the socioeconomics of White Pine and Lincoln counties of the CEA are discussed in detail in **Section 3.17**.

5.17.4 Foreseeable Future Disturbances

Community Development

Proponents for the Coyote Springs Development project as many as 240,000 residents at full build-out in 30-40 years. The development would encompass 29,000 acres in Lincoln County and include golf courses, conservation areas, and 150,000 homes. A development of this magnitude, if constructed, would have a substantial impact on the economics of Lincoln County. Proponents would first have to obtain enough water rights to support the development (see **Section 5.2.4**).

Extractive Industry (Mining, Gravel Pits, Gas & Oil Exploration/Development)

As discussed in **Section 5.2.4**, interest in oil and gas exploration and production has increased in the project area and the socioeconomic CEA. This interest, coupled with increasing commodity prices that may make previously abandoned mineral mines profitable in the future, have the potential to trigger a new economic "boom" cycle in the CEA.

Federal Legislation

Several Congressional actions have the potential to promote economic growth in Lincoln and White Pine counties. As noted in **Sections 3.17**, **4.17**, and throughout this document, land in Lincoln and White Pine counties is over 90 percent federal in ownership, which limits economic development. The Southern Nevada Public Lands Management Act of 1998; the Lincoln County Lands Act of 2000; the LCCRDA of 2004; and the White Pine County Conservation, Recreation, and Development Act of 2006 all direct transfer of federal lands to private, tribal, state, county or local sectors. In addition to freeing federal lands for development, these acts allow proceeds from land sales to benefit tribal, state, and local governments.

Another likely economic benefit of the above noted legislation is associated with conservation and wilderness areas, which generate tourism and contribute to an area's quality of life. The Lincoln County Conservation of Public Land Natural Resources Act of 2002, for example, designates 770,000 acres of wilderness, and the White Pine County Conservation, Recreation, and Development Act of 2006 designates 558,000 acres of wilderness.

Utility Production and Distribution

The ON Line Project would contribute effects on public services beyond existing levels as there may be a minor but temporary increase in the White Pine County population during construction.

In addition to the ON Line Project there are several other potential projects in the area that would contribute to cumulative social and economic effects: Sithe Global Power LLC is developing the Toquop Energy Project in Lincoln County, the Enexco Wind Project in White Pine County, the Nevada Wind Company Wind Project in White Pine County, the Great Basin Transmission line in White Pine, Lincoln, Nye, and Clark counties, and the SNWA Groundwater Development Project to be located in White Pine, Lincoln, and Clark counties.

The direct employment involved in constructing the ON Line Project is estimated to average approximately 224 workers over the life of the construction project (**Table 5.17-1**). The proposed WPES would have a workforce of about 760 persons (BLM 2008c) while the Toquop Energy Project would employ a construction workforce averaging 500 workers over the 26-month construction period (Toquop Energy Project 2007). The WPES project has been postponed so its construction worker impacts would not be cumulative to those for the ON Line Project. The Groundwater Development Project planned by the SNWA is projected to have an average workforce of about 240 persons (SNWA 2007).

Figure 5.17-1 Socioeconomics CEA

TABLE 5.17-1 CUMULATIVE DIRECT EMPLOYMENT IMPACTS (AVERAGE NUMBER OF ESTIMATED EMPLOYEES)

	CONSTRUCTION	OPERATIONS
On Line Project	224	0
Toquop Energy Project	500	110
SNWA Groundwater Development Project	240	N/A
Totals	964	110

Only the Toquop Energy Project would increase the permanent workforce in the area. The total workforce associated with operating the project is estimated to be about 110 persons. The workforce necessary to operate the SNWA Groundwater Development Project is unknown, but the permanent workforce should be fairly small.

The Toquop Energy Project would be located in the southern part of Lincoln County, approximately 180 miles south of Ely and 80 miles northeast of Las Vegas. Although it would be located in the CEA considered for social and economic impacts, it would have very little impact on White Pine County. Construction is scheduled to begin in 2010. The social and economic impacts arising from the Toquop Energy Project would be concentrated in the southern portion of Lincoln County and extend south into Clark County.

The SNWA Groundwater Development Project is slated for development in six different groundwater basins in Clark, Lincoln, and White Pine counties. Construction in the different basins would be staged and occur at different times. The construction crews building the Groundwater Development Project would be located at different locations during the life of the project, according to what phase is being built at the time. Construction is scheduled to begin in 2009 and continue through 2018. Work in the Spring Valley, the area closest to Ely is scheduled for the first quarter of 2010 through the first quarter of 2016.

The SWIP Utility Corridor and the WWEC are two major utility corridors through eastern and southern Nevada (see **Section 5.2.4**) that would facilitate economic and population growth in the CEA, rather than cause it (indirect impacts). During construction of individual utility facilities (i.e., power lines, gas, and water pipelines, etc.) within the corridors there could be brief population and economic increases, but negligible long-term direct impact.

5.17.5 Cumulative Disturbance

The Toquop Energy Project would generate an estimated $14 million in sales/use taxes for Lincoln County. No estimate of potential property tax impacts is available for Toquop. When the facility is fully operational, sales/use tax payments received by Lincoln County are estimated at $390,000 annually. The estimated annual property tax attributed to the project is $7.0 million. The amount of property tax that would be disbursed to Lincoln County is not available (Toquop Energy Project 2007). Since the SNWA is a government agency, the Groundwater Development Project would be exempt from property tax and property that the SNWA has purchased in Spring Valley for the Groundwater Development Project has been removed from the tax rolls. This represents a decrease of approximately $20,000 in annual property tax payments to White Pine County and the amount may increase to up to $50,000 in subsequent years. Discussions are underway for the SNWA to possibly compensate White Pine County with payments in-lieu of taxes (Las Vegas Review-Journal 2007b).

5.17.6 Cumulative Effects

The cumulative effects of the ON Line Project in conjunction with other upcoming projects would not significantly strain resources in the area such as schools, medical facilities, and housing during the construction phases.

Once construction of the ON Line Project, Toquop Energy Project, the wind projects, and SNWA Groundwater Development Project are complete and the facilities are operational, there may be a minor permanent addition to the workforce, employment, and income of White Pine County.

5.18 Environmental Justice

As discussed in **Sections 3.18** and **4.18**, minority populations of Native Americans were identified as residing in or near the project area, concentrated primarily on the Goshute, Ely, Duckwater, and Odgers Ranch Reservations. In addition, Lincoln County was identified as having a meaningfully greater percentage of individuals and families living at or below the poverty level than the general population of the State of Nevada. For the purpose of cumulative effects analysis, impacts from the ON Line Project combined with operations of the WPES were considered to determine if they would constitute a disproportionate adverse impact on any of these minority or low income populations.

As for analysis of direct and indirect effects of the ON Line Project in **Section 4.18.2.1**, CEQ and EPA guidelines for environmental justice compliance were applied with the following results:

- Geographically, no concentrated minority population (e.g., Goshute, Ely, Duckwater, South Fork (Odgers Ranch), Elko, Wells, and Duck Valley Indian Reservations) would be directly impacted (no project facilities on or through the reservation)
- Economically, overall impacts would be positive, not adverse
- Tribes have had, and continue to have, opportunity to participate in project discussions, through the public participation process, and in solicited requests (see **Sections 3.11** and **4.11**)
- The population of the poor in Lincoln County are not concentrated in any geographically identifiable area, and, as for the minority populations, would not experience any disproportionate adverse effects from the project, during construction or operations

In general, the area is rural. The area is within the traditional use area of Native Americans and dispersed casual use may continue (**Section 5.11** Native American Concerns). The analysis of environmental justice is affected by the incremental effects of employment, income, governmental revenue, and other social and economic characteristics that may change over time. No disproportionately high and adverse impacts to an environmental justice population were identified under past, present, or the reasonably foreseeable future developments for the ON Line Project. Therefore, the overall projected effects of this project to identified minority and low income populations are beneficial impacts resulting from increased economic opportunity, as discussed in **Section 5.17** Socioeconomics.

5.19 Hazardous and Solid Waste Materials

5.19.1 CEA Boundary

The CEA for hazardous and solid waste materials includes all landfills impacted by the Proposed Action and Action Alternative (no figure).

Rationale

Hazardous and solid waste generated by the ON Line Project would be transported by contractors to permitted landfill facilities.

5.19.2 Introduction

This section provides an inventory of existing or reasonably foreseeable facilities that generate, treat, transport, or dispose of solid or hazardous waste in the immediate vicinity of the proposed project, and any landfills that may be impacted by the project. **Section 3.19** describes current conditions of hazardous and solid waste within the project footprint. **Section 4.19** describes in detail the substances, or their hazardous criteria, that would be used by the ON Line Project during construction or operation, and how those substances would be managed in compliance with all applicable state, federal, and local regulations.

5.19.3 Past and Present Disturbances

The City of Ely has a licensed Class I municipal landfill for solid waste (WPCC 2006). This landfill has capacity to accept the solid waste generated during construction and operation of the ON Line Project, along with other local sources. Class II landfills (low volume facilities) were formerly located in Baker, Cherry Creek, Eight Mile Community, Lages, Lund/Preston, Moorman Ranch, Preston, and Schellbourne; an open dump for medical waste was located in Ely (NDEP 2007a). These were removed and are not covered in the White Pine County Solid Waste Management Plan (WPCC 2006).

NDEP lists only one facility licensed to dispose of RCRA hazardous waste in the State of Nevada, which is U.S. Ecology in Beatty. In addition, NDEP lists two private Treatment, Storage, or Disposal (TSD) facilities and two federal TSD facilities (NDEP 2007b). U.S. Ecology also operates a hazardous waste disposal facility at Grand View, Idaho, about 70 miles southeast of Boise. This facility accepts hazardous waste, industrial waste, and low-level radioactive waste. Clean Harbors LLC operates the Aragonite Incinerator facility about 34 miles west of Grantsville in western Utah. It also operates the Grassy Mountain hazardous waste landfill about 80 miles west of Salt Lake City, Utah. Both of these facilities also accept industrial waste.

Energy Solutions operates the Clive landfill about 80 miles west of Salt Lake City. This facility accepts low-level radioactive waste and mixtures of such waste with hazardous waste.

The EPA (2007b) database for White Pine County shows seven conditionally exempt small quantity generators (generating less than 220 lbs RCRA waste in any single month), two transporters of RCRA waste, one small quantity generator (generators of 220 to 2,200 lbs of RCRA waste in any single month), and one “used oil program” facility. The quantity and character of wastes generated by small and conditionally exempt generators is not reported.

The EPA (2005) shows 8,863 tons of RCRA hazardous waste interstate shipments from Nevada, and 50,072 tons of RCRA hazardous waste interstate receipts for 2005. The state’s

five RCRA hazardous waste receivers accepted 61,996 tons of material in 2005 (EPA 2005). Specific routes, transportation corridors, or modes of transportation (e.g. truck, rail) were not reported.

The NLM (2007) shows no Superfund or National Priority List sites in the project area or CEA. The NDEP Bureau of Corrective Actions (NDEP 2007a) shows two active leaking underground storage tank (LUST) sites in White Pine County and five non-LUST sites, all of which were for petroleum product releases (e.g., diesel, gasoline, motor oil). The same source shows 76 closed sites where clean-up and/or remediation have been completed (NDEP 2007a). These sites include some leaks to soil and/or groundwater which occurred during transportation (mobile), buried lines that were dug up, and Brownfields (Old White Pine County Landfill). A number of these sites are within the CEA.

5.19.4 Foreseeable Future Disturbances

Reasonably foreseeable generators of solid and/or hazardous waste in the CEA include the construction/development of the two proposed coal fired power plants in the area. These projects would be required to comply with all state, federal, and local regulations relevant to the handling and disposal of all wastes.

5.19.5 Cumulative Disturbance

All solid and hazardous wastes generated during the construction phase and during the operations phase of the ON Line Project would be transported to licensed facilities off-site for treatment and disposal. In the context of existing and foreseeable solid and hazardous waste generation locally and regionally, the ON Line Project would constitute a minimal increase in waste generation and management, well within existing capacities and infrastructure.

5.19.6 Cumulative Effects

Given the existing capacity and regulatory framework for generators, transporters, and TSD facilities, the ON Line Project would have minimal effects on solid and hazardous waste generation and management. As noted in **Sections 3.19** and **4.19**, the ON Line Project would comply with all local, state, and federal regulatory requirements.

5.20 Transportation

5.20.1 CEA Boundary

The Transportation CEA consists of the existing transportation routes into the project area including US-6, US-50, US-93, and SR-318, I-15 and I-80 (**Figure 3.20-1**), along with major rail lines and airports.

Rationale

Transportation into the project area would primarily be on these existing and established access routes. Transportation should not be noticeably affected outside of these major roads.

5.20.2 Introduction

The transportation system in and around the proposed ON Line Project contains established routes including highways, county roads, local roads, and a railway. Transportation associated with the ON Line Project would continue to be along existing routes. The existing transportation

routes include paved, graveled, and dirt roads providing access to communities, industrial areas, utility ROWs, private land, and public lands. The current condition of the transportation system is generally good with a LOS A designation (free flow, low traffic density, or delay) along US-93 (**Section 3.20**), the main access to the proposed project.

The past, present, and future disturbances with cumulative impacts to transportation discussed below are described in detail in **Sections 5.2.3** and **5.2.4**.

5.20.3 Past and Present Disturbances

Past and present developments, such as mining, utility projects, community development, ranching, and recreation, have influenced transportation routes, their improvement, and increased use.

Population Increases

Increases in state and regional populations (**Section 3.17**, Socioeconomics) have contributed to increased traffic and use of the transportation system. The CEA includes segments of the CANAMEX corridor (US-93, I-15), a generally north-south route running from Arizona north into Canada (NDOT 2000). Being designated as a major regional corridor indicates the importance of US-93 as an interstate and regional route for the transportation of goods in and through Nevada. Recreational use increases (**Section 3.14**, Recreation) have also impacted the area transportation system and likely increased the miles of unimproved dirt roads.

5.20.4 Foreseeable Future Disturbances

Future increases in road use, and subsequent road damage, and road improvements could result in subsequent changes to the LOS designations of roads within the CEA. However, future road improvements could mitigate increased utilization of the transportation system.

Airport Expansion

The Yelland Field Expansion project would allow for the expansion and development of airport facilities in White Pine County, and encourage development of air service and aviation-related industry. Additional air service into the Ely area could result in less long-distance vehicle traffic within the CEA; however, this would be negligible to average traffic volumes on the interstates and highways.

Railroad Facilities

The Nevada Northern Railway is proposed to be reconstructed and upgraded to support economic development in the Ely area. The reconstruction of the railway would provide improved transportation of goods into the area, possibly resulting in less truck traffic on the highways. This would be a beneficial impact. If the Nevada Northern Railway were utilized by the proposed WPES, it is estimated that 12 coal trains would travel to the power plant site per week. Quantity of additional train trips due to other economic development is unknown.

Roads

The NDOT STIP for 2008-2011 and 2008-2017 lists future transportation improvement projects (http://www.nevadadot.com/traveler/construction_projects/STIP/). These include maintenance (resurfacing) projects along US-93 and US-50 (**Table 5.20-1**).

TABLE 5.20-1 PROJECTS FROM THE NEVADA PROPOSED HIGHWAY PROJECTS FOR FY2008-2017 AND STATEWIDE TRANSPORTATION IMPROVEMENT PROGRAM FOR FISCAL YEARS 2008-2011

PROJECT NUMBER	DESCRIPTION	FY '08	FY '09	FY '10	FY '11	PROJECT SPONSOR
WP200501	FH-23, Duck Creek from US-93 north of McGill for 10.2 miles south.	X	X			Forest Service
WP200609	US-50 from 9.93 miles east of Pancake Summit to 3.28 miles east of Jct. Ruth/ Kimberly Rd.	X				State
WP200711	US-50 at 11.40 miles east of Jct. Rd. to Strawberry (SR-892) and at 4.08 miles east of Jct. Ruth/Kimberly Rd.	X				State
WP200812	US-50 at 4.70 miles east of Robinson Summit. WP 54.40	X				State
WP200813	US-50 at 9.30 miles east of Robinson Summit. WP 59.00	X				State
WP200801	US-93 from Cherry Creek Rd. to US-93A. WP 98.56 to 111.76.	X				State
WP200802, WP200803, and WP200811	US-93 from Jct. US-93A north to the WP/Elko County Line. WP 112.76 to 116.69.	X				State
WP200809	US-93 from 15.39 miles north of Jct. Success Summit Rd. to Jct. US-93A. WP 86.00 to 112.76.	X				State

Source: NDOT 2007a and 2007b

Utility Production and Distribution

Projects that would include a large amount of construction workers and materials, and therefore would increase traffic would include the ON Line Project, the WPES, and the Egan Range Wind Generating Project.

5.20.5 Cumulative Disturbance

The transportation network in the CEA in the reasonably foreseeable future would be the same as past and present with no change to existing transportation routes. Project specific access routes would not provide public thoroughfares. Road upgrades and improvements associated with present and future developments would improve the transportation network and make it generally safer. The added traffic during construction of the ON Line Project, and construction and operation of the WPES would be noticeable to locals.

Twelve coal trains per week would travel along the Nevada Northern Railway to and from the proposed WPES. These train trips may cause some traffic delay at road crossings.

5.20.6 Cumulative Effects

Traffic increases on the transportation network due to construction of the WPES, which is currently postponed, would be expected to last for 4-5 years (BLM 2008c); however, due to postponement it would not overlap with traffic increases associated with construction of the ON Line Project. There would be a cumulative impact on transportation if multiple projects were constructed at the same time. Although there would be an increase in traffic on the entire CEA, the impact would be most noticeable on US-93. This cumulative effect would be temporary during construction and would not affect the overall level of service (LOS A) of US-93.

There would be minor impacts to the transportation network in the CEA as it develops to meet the demands of industrial development and increased population. There would be no net increase or decrease in transportation routes as a result of the ON Line Project. There would be a general need to expand and improve existing infrastructure to accommodate cumulative regional transportation needs.

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Chapter 6
Consultation and Coordination

6.1 Public Participation Summary

6.1.1 Public Scoping Period

The public scoping period was conducted under the originally proposed EEC Project, which included the Robinson Summit Substation, 236-miles of transmission and telecommunication facilities between Robinson Summit Substation and Harry Allen Substation, loop-in of the Falcon-Gonder 345kV line at Robinson Summit, access roads, and temporary work areas now proposed as the ON Line Project. The public was provided a 30-day scoping period at the beginning of the EEC EIS process to identify potential issues and concerns associated with that action and including the components of the now amended ON Line Project as described in **Section 1.1**. The Notice of Intent (NOI) for the EEC EIS was published in the Federal Register on January 26, 2007. A copy of this NOI is included in the EEC Scoping Report dated April 30, 2007 (BLM-JBR 2007). In addition, an NOI to prepare a SEIS for the ON Line Project was published in the Federal Register on July 29, 2009. Although no additional public scoping meetings were held for the ON Line Project, the public comments received during the 30-day scoping period, initiated by the NOI, were also fully reviewed and considered. A legal notice for the originally scoped and analyzed EEC Project was published in local newspapers as follows:

High Desert Advocate	West Wendover, NV	January 25, 2007
Ely Times	Ely, Nevada	January 26, 2007
Las Vegas Review Journal	Las Vegas, NV	January 26, 2007
Reno Gazette Journal	Reno, NV	January 26, 2007
Valley Voice	Alamo, NV	February 2007

A press release was sent to media outlets as follows in **Table 6.1-1**.

TABLE 6.1-1 SCOPING PRESS RELEASE DISTRIBUTION

Television Stations		
KCLV TV 2 (City of Las Vegas)	KLAS TV 8	KFBT TV 33
KVBC TV 3	LV 1	KVWB TV 21
CTV-TV 4 (Clark County)	KLVX TV 10	KFBT & KVWB
KVVU TV 5	KTNV TV 13	KLBC TV 2 Laughlin
Radio		
KCEP 88.1 FM	KBGO 93.1 FM	KXPT 97.1 FM
KHWY 98-99 FM	KWNR 95.5 FM	KBAD 920 AM
KNPR 89.5 FM	KMZQ 100.5 FM	KENO 1460 AM
KUNV 91.5 FM	KXTE 107.5 FM	KKLZ 96.3 FM
KNUU 970 AM	KLUC 98.5 FM	KJUL 104.3 FM
KDWN 720 AM	KSNF 1140 AM	KSTJ 102.7 FM
KLAV 1230 AM	KMXB 94.1 FM	KTSJ 105.5 FM
Metro Sky View Traffic	KXNT 840 AM	KSTAR 102.7 FM
KSNE 106.5 FM	KOMP 92.3 FM	KOAS 105.7 FM
Newspapers		
Las Vegas Review-Journal	Las Vegas Tribune	Nevada Development Authority
Las Vegas Sun	The Business Voice	High Country News
The View Newspapers	Construction Connection	Southern Nevada Home and Garden
Associated Press	Las Vegas Life	S, The Magazine of Summerlin
LV Business Press	U.S. Asian Chronicle	215 South Magazine
In Business	Las Vegas Senior Press	Urban Water Report

City Life Las Vegas Weekly Bullseye NAFB Boulder City News Laughlin Times LV Sentinel Voice LV Asian Journal North Las Vegas Times-Herald Henderson Home News	Nevada Senior World News Senior Spectrum Construction Zone Las Vegas Chinese Daily News Philippine News Jewish Reporter Las Vegas Israelite The Beehive Home & Hearth	Moapa Valley Progress Las Vegas Chamber of Commerce Henderson Chamber of Commerce Urban Chamber of Commerce Latin Chamber of Commerce Asian Chamber of Commerce North Las Vegas Chamber Moapa Valley Progress
Spanish Language Media		
Television Telemundo KBLR TV 39 Univision KINC TV 15 KYRK TV 35 KHDF 19 Azteca LV Newspaper El Mundo Newspaper El Tiempo Libre Latin American Press TV LV	Radio KLSQ 870 AM KQMR 99.3 FM KISF 103.5 FM KDOX 1280 AM KLAV 1230 AM KVBC 105.1 FM KRLV 1340 AM KWID 101.9 FM KDOX 104.7 FM	
Other Media		
Las Vegas Magazine Nevada Business Journal Nevada Magazine Sunset Magazine What's On Magazine Where Magazine of Las Vegas		

A scoping letter was prepared and sent to a list of approximately 1,800 potentially interested individuals, agencies, and organizations. The BLM compiled the initial contact list by using contact lists from previous projects. The initial scoping mailing list is included in the Scoping Report (BLM-JBR 2007).

6.1.2 Scoping Meetings

Five scoping meetings were held at locations around the State of Nevada:

Las Vegas, Nevada	February 5, 2007
Alamo, Nevada	February 6, 2007
Ely, Nevada	February 7, 2007
Elko, Nevada	February 8, 2007
Reno, Nevada	February 9, 2007

All attendees of scoping meetings were asked to sign in and provide their contact information. Lists of individuals who signed attendance sheets at the public meetings are included in the Scoping Summary Report (BLM-JBR 2007). The meetings began each evening at 5:00 PM and continued until 8:00 PM, with a formal presentation at 6:00 PM. The presenting speakers at each venue were the same: Chris Hanefeld and Joe Incardine, BLM, and David Sims, NV Energy. The BLM representatives discussed the meeting structure, how comments could be submitted, and provided an overview of the NEPA process. Mr. Sims presented an overview of the need for the project and a brief description of the EEC Project, including the facilities that now comprise the ON Line Project.

BLM and NV Energy personnel were available to answer questions from the public about the EIS analysis and proposed project, respectively.

Attendees at the scoping meetings were provided with handouts describing the project as well as the NEPA process. Comment forms were also provided to all attendees to facilitate submission of written scoping comments. The public was given the option to provide comments during the meeting, using regular mail, fax, or e-mail.

In addition, information regarding the project and the NEPA process was posted on the BLM's project website.

6.1.3 Scoping Response

The 30-day scoping period on the original EEC Project, during which comments were received, was from January 26 through February 26, 2007. All responses received by BLM were logged, analyzed, and summarized to discern issues of concern. A total of 9,374 letters, emails, and faxes were received in response to the request for public comment regarding the project. Of those responses, 8,996, or approximately 96 percent, were a form letter opposing the original proposed project. The form letter indicated that the signatories for the most part opposed the project on the grounds that the project as originally proposed would use outdated fossil fuel generation technologies that result in unacceptable health and environmental impacts from pollution and destruction of sensitive landscapes.

In addition to the form letter, 377 unique responses were received from various organizations and individuals. Respondents included businesses, preservation organizations, the oil and gas industry, as well as unaffiliated individuals and others. Of the 377 unique responses received, there were approximately 167 non-substantive comment letters that indicated a positive or negative stance, including 16 percent in favor of and 84 percent opposed to the originally proposed project. Respondents who favored the project generally cited the need for power, energy independence, and economic benefits of the project. Those opposing the project expressed concerns mostly over pollution, impacts to fragile desert environs, and carbon dioxide emissions.

Comments received in response to solicitations, including names and addresses of those who commented, are considered part of the public record on this EIS and are available for public inspection at the BLM Ely District Office.

The 30-day scoping period for the ON Line Project, during which comments were received, was from July 29 through August 28, 2009. All responses received by BLM were logged, analyzed, and summarized to discern issues of concern. None of the comments represented new issues or comments that had not already been identified and addressed throughout the DSEIS.

6.1.4 EIS Mailing List

An EIS mailing list of interested persons was initially assembled from the scoping mailing list with the addition of persons who expressed interest in being added to the mailing list during and subsequent to scoping. The mailing list for the project was revised to add those persons who provided comments in response to scoping, requested to be on the mailing list, or signed a scoping meeting attendance list. Respondents that provided more than one comment letter were listed only once in the mailing list.

On January 16, 2008, a newsletter was sent out to the 9,128 persons on the updated mailing list. The newsletter mailing was multi-purpose, as it provided an update on the project schedule, summarized scoping, presented the Mt. Wheeler Power line component (no longer

being considered as part of the ON Line Project), and requested information as to who wanted to remain on the mailing list.

6.1.5 Draft EIS Distribution

The EEC Draft EIS review period was initiated by publication of the Notice of Availability (NOA) for the Draft EIS in the Federal Register on January 2, 2009. The Draft EIS was distributed as follows:

- A NOA was published in the Federal Register specifying dates for the comment period and the date, time, and location of the public comment meetings.
- A news release was provided by the agencies at the beginning of the comment period on the Draft EIS. The news release was submitted to the same news organizations as for the initial public scoping announcement.
- The Draft EIS was distributed to interested parties identified in the updated EIS mailing list, as described above, and also made available via the internet.

Four public comment meetings were held in locations around Nevada as follows:

Reno, Nevada	February 5, 2009
Las Vegas, Nevada	February 10, 2009
Ely, Nevada	February 11, 2009
Elko, Nevada	February 12, 2009

The BLM conducted the four public open-house meetings with a formal presentation and verbal public comment session. Public comment forms were available for attendees to provide a written comment and a court recorder was present at each meeting to record verbal comments. All attendees of meetings were asked to sign in and provide their contact information. Lists of individuals who signed attendance sheets at the public meetings are included in the project record. The meetings began each afternoon at 4:00 PM and continued until 7:00 PM, with a formal presentation at 5:30 PM. The presenting speakers at each venue were the same: Jane Peterson and Joe Incardine, BLM, and David Sims, NV Energy. Attendees were invited to make a public statement after the presentation at each meeting, although their statements and comments were not recorded or considered as official public comments. BLM and NV Energy personnel were available to answer questions from the public about the EIS analysis and proposed project, respectively.

The 90-day formal public comment period concluded on April 3, 2009.

During the Draft EIS review period, NV Energy announced plans to postpone several EEC Project components including the coal-fired power plant until carbon capture/sequestration becomes commercially feasible due to increasing environmental and economic uncertainties surrounding its development. NV Energy also announced plans to continue with the permitting and construction of a reduced set of components of the EEC Project to be referred to as the ON Line Project as described in **Section 1.1**. This announcement occurred in February 2009 between the first and second public comment meeting and therefore was subsequently announced and discussed during the Las Vegas, Ely, and Elko meetings. At these three subsequent meetings, NV Energy reiterated its formal announcement to reduce the scope of the project, including the reasons and components of the project going forward as the ON Line Project. The BLM asked attendees to comment separately, if possible, on the postponed

project components (i.e., coal-fired generation plant) and the proposal to continue forward with the transmission line facilities.

6.1.6 Draft Supplemental EIS Distribution

NV Energy submitted an amended SF-299 application and Plan of Development on March 30, 2009 to describe the change in the project going forward as a reduced subset of the original EEC Project. As a result of the change in project scope being reduced, the BLM decided a Draft Supplemental EIS should be completed in order to define the revised project scope and present the NEPA analysis for the ON Line Project separately. BLM prepared a NOI for the ON Line Project Draft Supplemental EIS, published in the Federal Register on July 29, 2009.

The distribution of this Draft Supplemental EIS was conducted in the same manner as the EEC Draft EIS. The Draft Supplemental EIS review period was initiated by publication of the NOA in the Federal Register. The Draft Supplemental EIS was distributed as follows:

- A NOA was published in the Federal Register specifying dates for the comment period and the date, time, and location of the public comment meetings.
- A news release was provided by the BLM at the beginning of the comment period on the Draft Supplemental EIS. The news release was submitted to the same news organizations as for the initial public scoping announcement on the EEC Project.
- The Draft Supplemental EIS was distributed and/or made available via internet to interested parties identified in the updated EIS mailing list, as described above, and also made available via the internet.

6.1.7 Final Supplemental EIS Distribution

The Final Supplemental EIS distribution will be completed after consideration is given to comments received on the Draft Supplemental EIS. A 30-day Final EIS availability period will be initiated by publication of a NOA for the Final Supplemental EIS in the Federal Register. The Final Supplemental EIS will be released as follows:

- NOA published in the Federal Register.
- Copies of the Final Supplemental EIS will be sent to addresses on the updated mailing list and made available via the internet.
- A news release will be issued to the same newspapers used for previous Project announcements.

6.1.8 Record of Decision

Subsequent to the 30-day availability period for the Final Supplemental EIS, the BLM will prepare a Record of Decision (ROD). The BLM ROD will be distributed to individuals and organizations identified on the updated Project mailing list. A NOA for the ROD will be published in the Federal Register. A news release will be made to the same newspapers used for previous Project announcements.

6.2 Criteria and Methods by Which Public Input will be Evaluated

Letters and oral comments received on the Draft Supplemental EIS will be reviewed and evaluated. Responses will be prepared for substantive comments and modifications or corrections will be made to the Supplemental EIS as determined necessary in response to these

comments. Copies of all comments, along with responses to them, will be included in the Final Supplemental EIS.

Consultation with Others

Two federal agencies were cooperating agencies under the EEC Project; however, after the project was modified to the ON Line Project, these agencies opted out of cooperating status:

- U.S. Department of the Interior, National Park Service
- U.S. Environmental Protection Agency

White Pine County has continued to participate as a cooperating agency throughout the EIS process.

In addition, the following state and federal agencies were consulted during preparation of the EIS:

- U.S. Department of the Interior, Bureau of Indian Affairs
- U.S. Department of the Interior, National Park Service
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture, Forest Service
- U.S. Department of Fish and Wildlife Service
- U.S. Air Force
- Nevada Division of State Parks
- Nevada Division of Environmental Protection, Bureau of Water Pollution Control
- Nevada Division of Forestry
- Nevada Department of Wildlife

6.3 Tribal Consultation

Government-to-Government consultations are maintained and facilitated by the lead agency, Ely District BLM through regularly scheduled (quarterly) open tribal meetings. These meetings allow the agency to brief tribes on the environmental analysis process, proposed projects, provide an opportunity to discuss tribal concerns, and exchange information. Presentations, agency-tribal meetings, and verbal and written communication have been utilized to keep the Tribes informed and apprised of the project.

The public scoping letter for the initial EEC Project, which included components of what is now proposed as the ON Line Project, was sent to tribes and tribal organizations on July 23, 2007. Tribal liaisons have regularly briefed tribes on the project, including the proposed transmission facilities since then. As part of Government-to-Government consultation, Native American consultation letters were sent out by the BLM, Ely District Office on July 23, 2007 to the Tribes and tribal organizations listed in **Table 6.3-1**. The concerns outlined in the responses are summarized in **Table 6.3-1**.

Meetings were held with the Goshute Tribal Council on February 8, 2007 and March 14, 2008 that included the BLM, the Goshute Tribal Council, and NV Energy. A meeting was held with the Ely Shoshone Tribe on April 4, 2007 that included the Tribal Staff, Tribal Chair, and NV Energy. A meeting with the Kaibab Paiute Tribe was held on July 18, 2007 during the Tribal Council Meeting. The purpose of these meetings was to brief the Tribes on the environmental analysis

process, the proposed EEC Project (which included the project components now proposed as the ON Line Project Proposed Action and Action Alternative), and to answer questions.

During the Ely District's September 17, 2009 quarterly open tribal meeting, the BLM again briefed the tribes on the ON Line Project.

Activities/contacts with Tribes are noted in the Project Record. **Table 6.3-2** provides a summary of the formal communications that have taken place with the Native American Tribes for this project.

TABLE 6.3-1 NATIVE AMERICAN TRIBES/TRIBAL ORGANIZATIONS CONSULTED

TRIBE OR GROUP		CONCERNS EXPRESSED
Arizona		
Colorado River Indian Tribes		No concerns at this time.
Kaibab Paiute Tribe		Expressed interest and ongoing participation.
California		
Timbisha Shoshone Tribe		
Nevada		
Duck Valley Shoshone-Paiute Tribes		
Duckwater Shoshone Tribe		Cultural resources, environmental justice, critical habitat for sage grouse, medicinal and food plants used by the Western Shoshone, cumulative impacts to Tribes
Ely Shoshone Tribe		Location of the EEC project in relation to Parcel 4 of the lands transferred to the tribe and placed in trust in the 2006 White Pine Land Act
Las Vegas Paiute Tribe		
Moapa Band of Paiutes		
Pahrump Paiute Tribe		
Shundahai/Western Shoshone		
Te-Moak Tribe of Western Shoshone (including)	Battle Mountain Band	Water use and vegetation concerns
	Elko Band	
	South Fork Band	
	Wells Band	Pine nut harvesting areas could be impacted; air quality could be impacted
Yomba Shoshone Tribe		
Utah		
Confederated Tribes of the Goshute Reservation		
Paiute Indian Tribe of Utah (including)	Cedar Band	
	Indian Peaks Band	
	Kanosh Band	
Other Tribal Organizations		
Bureau of Indian Affairs, Eastern Nevada Agency		
Bureau of Indian Affairs, Southern Paiute Agency		
Western Shoshone Defense Project		

TABLE 6.3-2 SUMMARY OF MEETINGS WITH NATIVE AMERICAN TRIBES

PARTIES INVOLVED	DATE
Goshute Tribal Council, BLM, NV Energy	February 8, 2007
Ely Shoshone Tribe, BLM, and NV Energy	April 4, 2007
Kaibab Paiute Tribe and BLM	July 18, 2007
Te-Moak Tribe of the Western Shoshone Tribe Wells Band Tribal Council and BLM	January 31, 2008
Goshute Tribal Council, BLM	March 14, 2008
Goshute Tribe, Wells Band, Duckwater Shoshone, BLM, Ethnographer	July 15, 2008
Ely District Quarterly Tribal Meeting	September 17, 2009

6.4 List of Preparers and Reviewers

Lead Agency: BLM, Ely District Office

Cooperating Agency: White Pine County

Interdisciplinary Team (IDT) and Technical Specialists: See **Table 6.4-1** below.

TABLE 6.4-1 INTERDISCIPLINARY TEAM (IDT) AND TECHNICAL SPECIALISTS

Resource	Ely District Office	Southern Nevada District Office
BLM Nevada State Office Project Lead – Jacqueline Gratton		
District Office Project Lead	Mike Dwyer	Beth Ransel
Water Resources	Mark D'Aversa	Sara Peterson
Geology/Minerals	Dave Davis	David Fanning
Paleontological Resources	Leslie Riley	Susanne Rowe
Soils	Kari Harrison	Lisa Christianson
Air Quality	Susan Caplan (NOC) Scott Archer (NOC)	Lisa Christianson
Vegetation/Noxious and Non-Native Invasive Weeds	Bonnie Million Mindy Seal Marian Lichtler	Nora Capletta
Wildlife and Habitat	Marian Lichtler	Mark Slaughter
Special Status Species	Marian Lichtler Alicia Styles (Caliente)	Fred Edwards
Range Resources/ Wild Horses (WH)	Mindy Seal Ben Noyes (WH)	Everett Bartz Jerri Bertola
Cultural Resources	Leslie Riley	Susanne Rowe
Native American Concerns	Elvis Wall	Susanne Rowe
Land Use/Access	Doris Metcalf	Beth Ransel
Special Designations	Dave Jacobson	Beth Ransel
Recreation	Kalem Lenard	Robert Wandel
Visual Resources	Sheri Wysong, Kalem Lenard	Michael Johnson

Resource	Ely District Office	Southern Nevada District Office
Noise	Sheri Wysong	
Socioeconomics	Karen Rajala (White Pine County)	Beth Ransel
Environmental Justice	Karen Rajala (White Pine County)	Beth Ransel
Hazardous and Solid Waste	Melanie Peterson	Michael Moran
Transportation	Karen Rajala (White Pine County)	
Climate Change/ Global Warming	Sheri Wysong Susan Caplan (NOC) Scott Archer (NOC)	

TABLE 6.4-2 THIRD PARTY CONTRACTOR – JBR ENVIRONMENTAL CONSULTANTS

Role / Resource	Staff	Experience
Project Manager Ground Water Hazardous & Solid Waste	Brian Buck, PG JBR Salt Lake City	MS Geological Engineering BS Geology 32 Years Experience
Assistant Project Manager Wildlife & Habitat	Greg Brown JBR Salt Lake City	BS Natural Resources 13 Years Experience
Socioeconomics Environmental Justice	Linda Matthews JBR Salt Lake City Jon Schulman JBR Salt Lake City Jan Crispin University of Utah Salt Lake City	BS Environmental Studies 22 Years Experience MS Environmental Engineering MA Journalism BA English 13 Years Experience BA Business Management MBA 22 Years Experience
Cultural Resources Native American Concerns Paleontological Resources Transportation	Jenni Prince Mahoney JBR Salt Lake City	BA Anthropology MC NEPA 14 Years Experience
Visual Resources	Richard Duncan JBR Reno, NV	BA Economics MS Biology 11 Years Experience
Air Quality Noise	Dan Heiser, PE JBR Boise, ID Chris Johnson JBR Boise, ID	BS Chemical Engineering MBA 25 Years Experience BS Math & Earth Sciences 29 Years Experience

Role / Resource	Staff	Experience
Water Resources	Ryan Clerico JBR Salt Lake City Alan Mayo, PhD Alan Mayo Associates Orem, UT EMS-i South Jordan, UT	BS Biology 10 Years Experience MS Geology BS Geology PhD Hydrogeology 28 Years Experience
Vegetation Noxious Weeds & Invasive Species Fire management	Ryan Clerico JBR Salt Lake City	BS Biology 10 Years Experience
Geology Minerals	Jim Sage JBR Salt Lake City	BS Geology 9 Years Experience
Special Status Species	John Curl JBR Salt Lake City	BS Public Lands Policy 8 Years Experience
Range Resources Wild Horses Specials Designations	Marit Sawyer JBR Salt Lake City	BS Range Science 10 Years Experience
Soils Prime & Unique Farmland	Karen Kinsella JBR Elko, NV	BS Resource Management, Soils AS Biology/Computer 8 Years Experience
Land Use & Access Recreation	Tom Hale JBR Salt Lake City	MS Park and Recreation Management MLA Environmental Planning BLA Landscape Architecture 17 Years Experience
Cumulative Effects	Schelle Davis JBR Salt Lake City Jon Schulman JBR Salt Lake City	BA Environmental Studies 18 Years Experience MS Environmental Engineering MA Journalism BA English 13 Years Experience

6.5 Mailing Lists

An important part of the NEPA process is to invite public comment (CEQ §1503.1) by actively soliciting comments from those persons, organizations, or agencies who may be interested or affected by the proposed project. BLM is required to submit the EIS to several agencies and the proponent; these constitute the mandatory mailing list (**Table 6.5-1**). Other agencies (federal, state, local), organizations, and individuals who may be affected by the project, may be stakeholders, or may simply be interested constitute the interested parties mailing list.

6.5.1 Mandatory Mailing List

The following mandatory mailing list (**Table 6.5-1**) was compiled using the BLM NEPA Handbook H-1790-1 mandatory distribution list. The number in parenthesis is the number of hardcopies required.

TABLE 6.5-1 MANDATORY MAILING LIST

Advisory Council on Historic Preservation (*)
Director, Planning & Review
1100 Pennsylvania Ave NW, Ste. 809
Washington D.C. 20004

Army Corps of Engineers (2)
South Pacific Division Chief, Planning Division
1455 Market Street
San Francisco, CA 94103

BLM Planning Office (2)
Mail Stop 850 LS
1849 C Street NW
Washington D.C. 20240

Bureau of Reclamation (2)
Denver Federal Center Bldg. 67 (D-5000)
P.O. Box 25007
Denver, CO 80225-0007

Environmental Protection Agency (5)
Office of Federal Activities, EIS Filing Station
Airel Rios Bldg (S Oval Lobby) Rm 7220
1200 Pennsylvania Ave NW
Washington D.C. 20004

Environmental Protection Agency (2)
Region 9
75 Hawthorne Street
San Francisco, CA 94105

National Park Services (4)
Environmental Quality Division
1201 Eye Street NW
Washington D.C. 20005

National Science & Technology Center (2)
P.O. Box 25047
Building 50
Denver Federal Center
Denver, CO 80225-0047

NV Energy (3)
P.O. Box 98910
Las Vegas, NV 89151

NV Energy (3)
P.O. Box 10100
Reno, NV 89520-0024

Office of Deputy A/S of the USAF (1)
Environment, Safety, and Occupational Health
SAF/RQ Room 4C916, Pentagon
Washington D.C. 20330-0001

US Dept of Energy (2)
Office of NEPA
1000 Independence Ave SW
Mail Code EH-42, Room 3E094
Washington D.C. 20585

US Dept of The Interior (3)
Minerals Management Service
Chief, Environment Ops and Analysis Branch
381 Eldon Street
Herndon, VA 20170-4817

US Dept of the Interior (3)
Geological Survey
Environmental Affairs Program
National Center (423)
Reston, VA 20192

US Dept of the Interior (3)
Director, Office of Environmental Policy and Compliance
1849 C Street NW
2342-MIB
Washington D.C. 20240

US Dept of the Interior (3)
Natural Resources Library
1849 C Street NW
Washington D.C. 20240

US Dept of The Interior (1)
Office of External and Intergovernmental Affairs
1849 C Street NW
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US Dept of the Interior
Fish & Wildlife Service (3)
Assistant Director, Endangered Species
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(*) – No Hardcopy Needed, Will Access From The Web

6.5.2 Interested Parties Mailing List

The Interested Parties mailing list includes persons, organizations, and agencies that were included in the initial scoping mailing list, those who attended scoping meetings, those that commented during the EEC scoping process, respondents to the January 2008 newsletter, those that commented during the EEC DEIS comment period, those who attended the EEC DEIS public meetings, those who commented during the ON Line scoping period, and those who in some other way expressed interest in the project and wanted to be on the mailing list. This mailing list currently includes 562 interested parties. **Table 6.5-2** includes the federal agencies, state agencies, local agencies, government officials, tribal governments, and other organizations. The entire list of interested parties is part of the project record and available upon request. This list will continue to be updated throughout the NEPA process.

TABLE 6.5-2 AGENCIES AND ORGANIZATIONS ON CURRENT MAILING LIST

FEDERAL AGENCIES	STATE AGENCIES
Army Corps of Engineers, Reno Regulatory Office	Nevada Department of Wildlife, Ely, Elko, & Reno, NV
Great Basin National Park, Baker, NV	NDEP Bureau of Water Pollution Control, Carson City, NV
Humboldt-Toiyabe National Forest, Ely, NV	Nevada Division of Environ. Protection, Carson City, NV
National Park Service, Boulder, NV	Nevada Division of Forestry, Las Vegas, NV
Nellis AFB, NV	Nevada Division of State Parks, Baker, NV
US Department of the Interior	Nevada Division of State Parks, Carson City, NV
USDI Bureau of Indian Affairs	Nevada State Clearinghouse, Carson City, NV
US EPA Region IX	Nevada State Historic Preservation Office, Reno, NV
US Forest Service, NV	Nevada State Legislature, Elko, NV
US Fish and Wildlife, Reno, NV	Public Utilities Commission of Nevada, Carson City, NV
US Fish and Wildlife, Las Vegas, NV	
LOCAL AGENCIES	**GOVERNMENT OFFICIALS**
Bear River Watershed Council, Richmond, UT	City of Ely Mayor, George Chachas
Lincoln County Commissioners, Pioche, NV	
Southern Nevada Water Authority, Las Vegas, NV	
McGill Town Council	
Ruth Town Council	
White Pine County Board of Commissioners, Ely, NV	
TRIBAL GOVERNMENTS	**OTHER ORGANIZATIONS**
Colorado River Indian Tribes, AZ	Basin Research Associates
Kaibab Paiute Tribe, AZ	California Native Plant Society
Timbisha Shoshone Tribe, CA	Citizen Alert, Las Vegas
Duck Valley Shoshone-Paiute Tribes, NV	Center for Biological Diversity, San Francisco, CA
Duckwater Shoshone Tribe, NV	Duck Creek Basin Homeowners, McGill, NV
Ely Shoshone Tribe, NV	Ducks Unlimited, Rancho Cordova, CA
Las Vegas Paiute Tribe, NV	Friends of the Schell Creek Range, McGill, NV
Moapa Band of Paiutes, NV	Grand Canyon Trust, Flagstaff, AZ
Pahrump Paiute Tribe, NV	Great Basin Chapter, Trout Unlimited, Baker, NV
Shudahai / Western Shoshone, NV	Nature Conservancy, Reno, NV
Te-Moak Tribe of Western Shoshone, NV	Nevada Conservation League, Las Vegas, NV
Battle Mountain Band	Nevada Green Party, Reno, NV
Elko Band	Post Carbon Salt Lake, Salt Lake City, UT
South Fork Band	Progress Leadership Alliance of Nevada, Reno, NV
Wells Band	Resource Concepts, Inc.
Yomba Shoshone Tribe, NV	Sevier Citizens for Clean Air and Water, Richfield, UT
Confederated Tribes of the Goshute Reservation, UT	Sierra Club Environmental Law Program, SF, CA
Paiute Indian Tribe of Utah, UT	Sierra Club, Reno, NV
Cedar Band	Sierra Club, Utah Chapter, Salt Lake City, UT
Indian Peaks Band	Wasatch Clean Air Coalition, Salt Lake City, UT
Kanosh Band	Western Lands Project, Seattle, WA
Western Shoshone Defense Council, NV	Western Resource Advocates, Carson City, NV
	Western Watershed Project, Boise, ID
	Environmental Policy and Cultural Program, Northwestern University, Evanston, IL
	Bristlecone Alliance, McGill, NV
	White Pine County Tourism and Recreation Board, Ely, NV
	National Parks Conservation Association
	Environmental Defense Fund, Boulder, CO
	Utah Physicians for a Healthy Environment, Salt Lake City, UT

Chapter 7
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Chapter 7
References, Index, Acronyms, Units of Measure, Glossary, and Explanation of Impacts

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7.3 Acronyms

AADT	Average Annual Daily Traffic
AAQS	Ambient Air Quality Standards
ACEC	Area of Critical Environmental Concern
ac-ft	acre-feet
ADA	Americans with Disabilities Act
AFY	acre-feet per year
AML	Appropriate Management Level
APE	Area of Potential Effect
AQRV	Air Quality Related Value
ARPA	Archaeological Resources Protection Act
ASTM	American Standards for Testing and Materials
AUM	Animal Unit Month
AZ/NM/SNV	Arizona/New Mexico/Southern Nevada Power Area
BCT	Bonneville Cutthroat Trout
bgs	Below ground surface
BLM	Bureau of Land Management
BMP	Best Management Practice
BTU	British thermal unit
CA/MX	California Mexico Power Area
CAA	Clean Air Act
CDP	Census designated place
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
cfs	cubic feet per second
CO	Carbon Monoxide
CO_2	Carbon Dioxide
COM	Construction, Operation, and Maintenance
Corps	United States Army Corps of Engineers
CR	County Road
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibel
DNL	day-night sound level

DNWR	Desert National Wildlife Refuge
DOI	Department of the Interior
EEC	Ely Energy Center
EIA	Energy Information Administration
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ET	Evapotranspiration
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FLAG	Federal Land Managers Air Quality Related Values Workgroup
FLM	Federal Land Manager
FLPMA	Federal Land Policy and Management Act
g	force of gravity
GBNP	Great Basin National Park
GLO	General Land Office
gpm	gallon per minute
GPS	Global Positioning System
HMA	Herd Management Area
hr	Hour
IMPROVE	Integrated Monitoring of Protected Visual Environments
IRP	Integrated Resource Plan
KCC	Kennecott Copper Company
km	Kilometer
KOP	Key Observation Point
kV	Kilovolt
kW	Kilowatt
kWh	Kilowatt hour
lb	Pound
LDS	The Church of Jesus Christ of Latter Day Saints
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_{min}	minimum sound level
LOS	Level of Service
MSW	Municipal Solid Waste
MW	Megawatt
n/a	not applicable
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAICS	North American Industrial Classification System
NAIP	National Agriculture Imagery Program
NBAPC	Nevada Bureau of Air Pollution Control
NCA	Noise Control Act
NDEP	Nevada Division of Environmental Protection
NDOT	Nevada Department of Transportation

NDOW	Nevada Department of Wildlife
NDWR	Nevada Division of Water Resources
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NHPA	National Historic Preservation Act
NI	No Indicator
NNHP	Nevada Natural Heritage Program
NO_x	Nitrogen Oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NVCRIS	Nevada Cultural Resources Information System
NWI	National Wetlands Inventory
NWPP	Northwest Power Pool area
NWR	National Wildlife Refuge
NWS	National Weather Service
OBL	Obligate
OGW	Other Ground Water
OHV	Off-highway Vehicle
OHWM	Ordinary High Water Mark
ON Line Project	One Nevada 500 kV Transmission Line Project
OPTC	Operating Permit to Construct
OSHA	Occupational Safety and Health Administration
OSW	Other Surface Water
PA	Programmatic Agreement
PM_{10}	Particulate matter with diameter less than 10 microns
PPA	Pollution Prevention Act
PRIMP	Paleontological Resource Impact Mitigation Program
PSD	Prevention of Significant Deterioration
PUCN	Public Utilities Commission of Nevada
PZ	Precipitation Zone
rd.	Road
RGL	Regulatory Guidance Letter
RMPA	Rocky Mountain Power Area
RMP	Resource Management Plan
RNA	Research Natural Area
ROW	Right-of-way
RV	Recreational Vehicle
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SDA	Special Designation Area
SDWA	Safe Drinking Water Act
SEO	State Engineers Office
SIL	Significant Impact Limits
SNPLMA	Southern Nevada Public Land Management Act
SNWA	Southern Nevada Water Authority
SO_2	Sulfur Dioxide
SODAR	Sonic detection and ranging
SR	State Route
SRMA	Special Recreation Management Area
SRP	Special Recreation Permit
SWIP	Southwest Intertie Project

TCP	Traditional Cultural Property
TE&S	Threatened, Endangered, and Sensitive
TEPC	Threatened, Endangered, Proposed, and Candidate
TV	Television
Ug/m^3	micrograms per cubic meter
UNLV	University of Nevada Las Vegas
UPL	Obligate Upland
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UV	Ultraviolet
VHF	Very high frequency
VOC	Volatile Organic Compound
VRM	Visual Resource Management
WA	Wilderness Area
WECC	Western Electricity Coordinating Council
WMA	Wildlife Management Area
WPES	White Pine Energy Station
WSA	Wilderness Study Area
WWEC	West-wide Energy Corridor
yr	Year

7.4 Units of Measure

C	Celsius
Cfs	cubic feet per second
dB	decibel
dBA	A-weighted decibel sound scale
dw	dry wieght
F	Fahrenheit
ft	feet
g	grams
gal	gallon
gpm	gallons per minute
ha	hectares
in	inch
kV	kilovolt
kW	kilowatt
lb	pound
m	meters
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
mi	miles
mm	millimeters
MM	million
mph	miles per hour
ppm	parts per million
%	percent
$\mu g/m^3$	micrograms per cubic meter

7.5 Glossary

Action. In the context of the National Environmental Policy Act (NEPA), describes actions proposed to meet a specific purpose and need that may have effects on the environment, which are potentially subject to Federal control and responsibility. Federal actions generally fall into the categories of adoption of official policy, formal plans, and programs; or approval of specific projects. For this document, the term action applies to a specific project.

Air Quality. A measure of the health-related and visual characteristics of the air, often derived from quantitative measurements of the concentrations of specific injurious or contaminating substances.

Alluvial. Pertaining to material or processes associated with transportation or deposition of soil and rock by flowing water (e.g., streams and rivers).

Alluvium. Soil and rock deposited by flowing water (e.g., streams and rivers); consists of unconsolidated deposits of sediment, such as silt, sand, and gravel.

Alternative. Any one of a number of options for a project.

Ambient. Surrounding, existing, background conditions.

American Indian tribe (or tribe). Any American Indian group in the conterminous United States that the Secretary of the Interior recognizes as possessing tribal status (listed periodically in the Federal Register).

Animal unit month (AUM). The amount of forage necessary to sustain one cow and one calf (e.g., a 1,000-pound cow and calf) for a period of one month.

Annual (ecology). A plant that completes its development in one year or one season and then dies.

Anthropogenic (climate change/global warming). Resulting from or produced by human beings.

Aquatic. Growing or living in or near the water.

Aquifer. A water-bearing rock unit (unconsolidated or bedrock) that will yield water in a usable quantity to a well or spring.

Archaeological site. A discrete location that provides physical evidence of past human use.

Archaeology. The scientific study of the life and culture of past, especially ancient, peoples, as by excavation of ancient cities, relics, artifacts, etc.

Area of Critical Environmental Concern (ACEC). A Bureau of Land Management (BLM) designation pertaining to areas where specific management attention is needed to protect and prevent irreparable damage to important historical, cultural, and scenic values, fish or wildlife resources, or other natural systems or processes, or to protect human life and safety from natural hazards.

Arroyo. A dry gully, or a stream in a dry region.

Artifact. Any object showing human workmanship or modification, especially from a prehistoric or historic culture.

Assessment. The act of evaluating and interpreting data and information for a defined purpose.

Backfill. The excavated material (soil and/or rock) used to refill a hole/trench created during construction activities (i.e., drilling foundation holes). The excavated material used to fill a hole/trench in the groundbed (i.e., structure foundations). The composition of the backfill varies based on the soil type at the excavation site and the component being covered.

Background (visual). That portion of the visual landscape lying from the outer limit of the middleground to infinity. Color and texture are subdued in this area, and visual sensitivity analysis here is primarily concerned with the two-dimensional shape of landforms against the sky.

Basic Elements (visual). The four major elements (form, line, color, and texture) that determine how the character of a landscape is perceived.

Baseline. The existing conditions against which impacts of the proposed action and its alternatives can be compared.

Basin. A depressed area having no surface outlet (topographic basin); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (water); a depression in the earth's surface, the lowest part often filled by a lake or pond (lake basin); a part of a river or canal widened (drainage, river, stream basin).

Best Management Practices (BMPs). Vegetative and structural methods to control erosion and sedimentation.

Big Game. Large species of wildlife that are hunted (such as elk, mule deer, and pronghorn antelope).

Biological Assessment. Information prepared by or under the direction of the federal agency concerning Endangered Species Act proposed or listed species that may be present in the action area and the evaluation of potential effects of the action on such species and habitats. The purpose of the biological assessment is to evaluate the potential effects of the action on listed or proposed species or designated or proposed critical habitat, and determine whether any such species and habitats are likely to be affected by the action. Biological Assessments are conducted for federal actions that involve project areas and activities with potential to directly or indirectly affect listed species.

Biological Opinion. A document that is the product of formal consultation on a Biological Assessment, stating the opinion of the U.S. Fish and Wildlife Service on whether or not a federal action is likely to jeopardize the continued existence of Endangered Species Act-listed species or result in the destruction or adverse modification of critical habitat.

Butte. A steep hill standing alone in a plain.

Candidate Species. A plant or animal species not yet officially listed as threatened or endangered under the Endangered Species Act, but which is undergoing status review by the U.S. Fish and Wildlife Service.

Clean Air Act of 1990. Federal legislation governing air pollution. The Clean Air Act established National Ambient Air Quality Standards for carbon monoxide, nitrogen oxide, ozone, particulate matter, sulfur dioxide, and lead. Prevention of Significant Deterioration classifications define the allowable increased levels of air quality deterioration above legally established levels and include the following:

Class I – minimal additional deterioration in air quality (certain national parks and wilderness areas)

Class II – moderate additional deterioration in air quality (most lands)

Class III – greater deterioration for planned maximum growth (industrial areas)

Clean Water Act of 1987. National environmental law enforced by the U.S. Environmental Protection Agency that regulates water pollution.

Contrast (visual). The effect of a striking difference in form, line, color, or texture of the landscape features within the area being viewed.

Cooperating Agency. Assists the lead federal agency in developing an environmental assessment or environmental impact statement. The Council on Environmental Quality regulations impelementing NEPA define a cooperating agency as any agency that has jurisdiction by law or special expertise for proposals covered by NEPA (40 CFR 1501.6). Any federal, state, or local government jurisdiction with such qualification may become a cooperating agency by agreement with the lead agency.

Council on Environmental Quality (CEQ). An advisory council to the President established by the National Environmental Policy Act of 1969. It reviews federal programs for their effort on environmental studies and advises the President on environmental matters.

Criteria. Standards on which a judgment or decision can be based.

Cubic feet per second (CFS). Unit of discharge, or volume rate of flow, equal to 0.0283 cubic meters per second. As a rate of streamflow, a cubic foot of water passing a referenced section in one second. A measure of a moving volume of water.

Cultural Resources. Remains of human activity, occupation, or endeavor as reflected in districts, sites, buildings, objects, artifacts, ruins, works of art, architecture, and natural features important in human events.

Cumulative effect (or impact). The impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions. Cumulative impacts are evaluated as part of the EIS, and may include consideration of additive or interactive effects regardless of what agency or person undertakes the other actions.

dBA. The sound pressure levels in decibels measured with a frequency weighing network corresponding to the A-scale on a standard sound level meter. The A-scale tends to suppress lower frequencies (e.g., below 1,000 Hz).

Decibel (dB). One-tenth of a Bel is a measure on a logarithmic scale that indicates the ratio between two sound powers. A ratio of 2 in power corresponds to a difference of 3 decibels between two sounds. The decibel is the basic unit of sound measure.

Direct effect. See effect.

Discharge. Outflow of surface water in a stream or canal (water). Discharge from an industrial facility that may contain pollutants harmful to fish or animals if it is released into nearby water bodies usually requires a permit issued by the U.S. Environmental Protection Agency and is monitored.

Drainage. The natural or artificial removal of surface water and groundwater from a given area. Many agricultural soils need drainage to improve production or to manage water supplies.

Easement. A right afforded to a person, agency, or organization to make limited use of another's real property for access or other pruposes.

Ecology. The relationship between living organisms and their environment.

Effect (impact). A modification of the existing environment as it presently exists, caused by an action (such as construction or operation of facilities). An effect may be direct, indirect, or cumulative. The terms effect and impact are synonymous under the NEPA. A direct effect is caused by an action and occurs at the same time and same place (40 CFR 1508.8(a)). An indirect effect is caused by the action later in time or farther removed in distance, but still reasonably foreseeable. Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water or other natural systems including ecosystems.

Emergent. Vegetation with all or part of their vegetative and reproductive parts above the water.

Emission. Effluent discharged into the atmosphere, usually specified by mass per unit time, and considered when analyzing air quality.

Endangered Species. Species in danger of extinction throughout all or a significant portion of its range. Endangered species are rarely identified by the Secretary of the Interior in accordance with the Endangered Species Act of 1973.

Endangered Species Act (ESA) of 1973. Provides a means whereby the ecosystems upon which threatened and endangered species depend may be conserved and to provide a program for the conservation of such threatened and endangered species. The ESA requires all federal agencies to seek to conserve threatened and endangered species, use applicable authorities in furtherance of the purposes of the ESA, and avoid jeopardizing the continued existence of any species that is listed or proposed for listing as threatened and endangered or destroying or adversely modifying its designated or proposed critical habitat. The U.S. Fish and Wildlife Service is responsible for administration of this act.

Endemic. Plants or animals native to a particular region or country.

Environmental Impact Statement (EIS). A document prepared to analyze the impacts on the environment of a proposed action and released to the public for review and comment. An EIS must meet the requirements of NEPA, CEQ, and the directives of the agency responsible for the proposed action.

Environmental Justice. The fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations and policies. Fair treatment means that no group of people including racial, ethnic, or socioeconomic group should bear a disproportionate share of the negative environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local, and tribal programs and policies (see Executive Order 12898).

Ephemeral stream (wash, creek, waterbody). A stream or portion of a stream which flows briefly in direct response to precipitation in the immediate vicinity, and whose channel is at all times above the water table.

Erosion. The wearing away of the land surface by running water, wind, ice, or other geological agents and by such processes as "gravitation creep."

Evapotranspiration (ET). The portion of precipitation returned to the air through evaporation and transpiration by plants.

Federal Land Policy and Management Act of 1976 (FLPMA). Public Law 94-579 signed by the President on October 21, 1976. Established public land policy for management of lands administered by the Bureau of Land Management (BLM). FLPMA specifies several key directions for the BLM, notably: (1) management on the basis of multiple use and sustained yield; (2) land use plans prepared to guide management actions; (3) public lands for the protection, development, and enhancement of resources; (4) public lands retained in federal ownership; and (5) public participation used in reaching management decisions.

Federal Register. Published by the Office of the Federal Register, National Archives, and Records Administration, the *Federal Register* is the official daily publication for rules, proposed rules, and notices of federal agencies and organizations, as well as executive orders and other presidential documents.

Floodplain. The low and relatively flat areas adjacent to rivers and streams. A 100-year floodplain is that area subject to a 1 percent or greater chance of flooding in any given year.

Folds. A bend in planar features in rocks - like an extended wrinkle. A fold is usually the product of geologic deformation.

Forage. Vegetation used for food by wildlife, particularly big game wildlife and domestic livestock.

Foreground (visual). The visible area from a viewpoint or use area out to a distance of 0.5 mile. The ability to perceive detail in a landscape is greatest in this zone.

Forbs. Any herbaceous plant other than a grass.

Fossil. Any remains, trace, or imprint of a plant or animal that has been preserved by natural process in the earth's crust since some past geologic time.

Game Species. Animals commonly hunted for food or sport.

Geographic Information System (GIS). A system of computer hardware, software, data, people, and applications that capture, store, edit, analyze, and graphically display a potentially wide array of geospatial information.

Geology. The science that relates to the earth, the rocks of which it is composed, and the changes that the earth has undergone or is undergoing.

Geothermal Resource. Heat found in rocks and fluids at various depths within the earth's crust that can be extracted by drilling or pumping for use as an energy source. This heat may be residual heat, friction heat, or a result of radioactive decay.

Global Warming. An increase in the average temperature of the earth's atmosphere and oceans. The term is also used to describe the theory that increasing temperatures are the result of a strengthening greenhouse effect caused primarily by manmade increases in carbon dioxide and other greenhouse gases.

Greenhouse Effect and Greenhouse Gases. The warming of the earth and its atmosphere through the trapping of heat from the sun by gases, known as greenhouse gases, in the earth's atmosphere.

Groundwater. Subsurface water that fills available openings in rock or soil materials to the extent that they are considered water saturated.

Habitat. A specific set of physical conditions in a geographic area(s) that surrounds a single species, group of species, or large community. In wildlife management, the major components of habitat are food, water, cover, and living space.

Headwaters. The source of a stream or river.

Hydrology. The study of the movement, distribution, and quality of water throughout the earth, addresses both the hydrologic cycle and water resources.

Hydric Soils. Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation.

Hydrographic basin (area, region, unit). A geographic area drained by a single major stream or an area consisting of a drainage system comprised of streams and often natural or man-made lakes. See also basin.

Hydrophytic Vegetation. The total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present.

Impact. See effect.

Indirect effect. See effect.

Infrastructure. The facilities, services, and equipment needed for a community or facility to function, such as and including roads, sewers, water lines, and electric lines.

Intermittent. A river or stream that flows for a period of time, usually seasonally during rainy periods, and stops during dry periods. In arid regions, dry periods may be interrupted by occasional flash floods from brief but intense rain storms.

Invasive Species. Describes a large number of non-native plant species whose introduction causes or is likely to cause economic or environmental harm or harm to human health.

Key Observation Point (KOP). An observer position on a travel route used to determine visible area.

Kilovolt (kV). A unit of power equivalent to 1,000 volts (A volt is a measure of electrical potential difference that would cause a current of 1 ampere to flow through a conductor whose resistance is 1 ohm).

Kilowatt (kW). A unit of power equivalent to 1,000 watts.

Labor Force. All persons 16 years of age or over who are either employed or unemployed and actively looking for a job.

Landform. A term used to describe the many land surfaces that exist as a result of geologic activity and weathering (e.g., plateaus, mountains, plains, and valleys).

Land Use Plan. The organized direction or management of the use of lands and their resources to best meet human needs over time, according to the land's capabilities.

Lease. An authorization or contract by which one party (lessor) conveys the use of property to another (lessee) in return for rental payments. In cases of resource production, lessees pay royalties to the lessor in addition to rental payments.

Lithic. Pertaining to stone or a stone tool (for example, lithic artifact).

Megawatt (MW). A unit for measuring power equal to one million watts. The productive capacity of electrical generators is measured in megawatts.

Mesa. An isolated, nearly level land mass, formed on nearly horizontal rocks, standing above the surrounding country and bounded with steep sides.

Mesic. Moist habitats associated with springs, seeps, and riparian areas.

Minimal (impact). Unless otherwise specified "minimal" shall mean non-deleterious impacts that are measureable in the short term, but not significant.

Mitigation. Actions to avoid, minimize, reduce, eliminate, replace, or rectify the impact of a management practice.

National Ambient Air Quality Standards (NAAQS). The allowable concentrations of air pollutants in the air specified by the federal government and established by the Clean Air Act. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare) from any unknown or expected adverse effects of air pollutants.

National Environmental Policy Act (NEPA) of 1969. Our nation's basic charter for protection of the environment. It establishes policy, sets goals, and provides means for carrying out the policy. In accordance with NEPA, all federal agencies must prepare a written statement on the environmental impacts of a proposed action. The provisions to ensure that federal agencies act according to the letter and spirit of NEPA are the CEQ regulations for implementing NEPA 943 CFR 1500-1508).

National Register of Historic Places. A listing, maintained by the Secretary of the Interior, of districts, sites, buildings, structures, and objects worthy of preservation. To be eligible a property must normally be at least 50 years old, unless it has exceptional significance, and have national, state, or local significance in American history, architecture, archaeology, engineering, or culture; and possess integrity of location, design, setting, material, workmanship, feeling, and association; and (a) be associated with events that have made a significant contribution to the broad pattern of history, (b) be associated with the lives of persons significant to our past, (c) embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values; or represent a significant and distinguishable entity whose components may lack individual distinction; or (d) have yielded, or may be likely to yield, information important to prehistory or history.

Negligible (impact). Unless otherwise specified, "negligible" shall mean impacts of such a small scale such as to be non-measureable.

Non-attainment area. An air quality control region (or portion thereof) in which the U.S. Environmental Protection Agency has determined that ambient air concentrations exceed national ambient air quality standars for one or more criteria pollutants.

Noxious Weed. Nonnative plant species that negatively impact crops, native plant communities, and/or management of natural or agricultural systems. Noxious weeds are officially designated by a number of states (including Nevada and Utah) and federal agencies.

Ohm. A unit of electrical resistance equal to that of a conductor in which a current of one ampere is produced by a potential of one volt across its terminals.

Perennial (ecology). A plant whose root remains alive more than two years.

Perennial Stream. A stream that flows throughout the year and from source to mouth.

Permeability. The capacity of porous rock, sediment, or soil to transmit a fluid.

pH. The negative $\log_{10}$ of the hydrogen ion activity in solution; measure of acidity or alkalinity of a solution.

$PM_{2.5}$. Particulate matter less than 2.5 microns in aerodynamic diameter.

PM_{10}. Particulate matter less than 10 microns in aerodynamic diameter.

Prime Farmland. A special category of highly productive cropland that is recognized and described by thee U.S. Department of Agriculture's Soil Conservation Service and receives special protection under the Surface Mining Law of 1977.

Public Land. Land or interest in land owned by the United States and administered through agencies such as the BLM and FS without regard to how the United States acquired ownership, except lands on the Outer Continental Shelf, and land held in trust for the benefit of American Indians, Aleuts, and Eskimos.

Range. A large, open area of land over which livestock can wander and graze.

Raptor. A bird of prey (e.g., eagles, hawks, falcons, and owls).

Reclamation. Restoration of land disturbed by natural or human activity (e.g., mining, pipeline construction) to original contour, use, or condition. Also describes the return of land to alternative uses that may, under certain circumstance, be different from those prior to disturbance.

Recontouring. Return a land surface to or near to its original form through earth-moving equipment such as front-end loaders, backhoes, hand rakes, hoes, shovels, etc.

Record of Decision. A document separate from, but associated with an EIS that publicly and officially discloses the responsible official's decision on a proposed action.

Reservation. Land set aside to achieve a particular land use or conservation objective. For the purposes of this document, reservation refers to those lands managed by an American Indian tribe under the U.S. Department of the Interior's Bureau of Indian Affiars. The reservation land is federal territory held in trust for tribes. The American Indian tribes have national sovereignty.

Revegetation. The reestablishment and development of self-sustaining plant cover. On disturbed sites, this normally requires human assistance such as reseeding.

Right-of-way. Land authorized to be used or occupied for the construction, operation, maintenance, and termination of a project, such as a road or utility.

Riparian. Situated on or pertaining to the bank of a river, stream, or other body of water. Riparian is normally used to refer to plants of all types that grow along streams, rivers, or at spring and seep sites.

Resource Management Plan. Document that establishes direction for the use of resources to best meet the needs of humans over time, according to the resource potential or capability.

Scoping. Procedures by which agencies determine the extent of analysis necessary for a proposed action (i.e., the range of actions, alternatives, and impacts to be addressed; identification of significant issues related to a proposed action; and the depth of environmental analysis, data, and task assignments needed).

Sediment. Solid fragmental material, either mineral or organic, that is transported or deposited by air, water, gravity, or ice.

Sedimentation. The result when soil or mineral is transported by moving water, wind, gravity, or glaciers and depositied in streams or other bodies of water, or on land. Also, letting solids settle out of wastewater by gravity during treatment.

Sediment Load. The amount of sediment (sand, silt, and fine particles) carried by a stream or river.

Sensitive Receptor. In terms of noise, people or animals that might hear a noise or be sensitive to increased noise levels within their range of hearing. In terms of air quality, people or animals that might be impacted by dust or particulate matter within two miles of construction activities.

Sensitive Species. Those plant or animal species that are susceptible or vulnerable to activity impacts or habitat alterations.

Significant (impact). As used in NEPA, requires consideration of both context and intensity. Context means that the significance of an action must be analyzed in several contexts such as society as a whole, and the affected region, interests, and locality. Intensity refers to the severity of impacts (40 CFR 1508.27).

Special Status Species. Wildlife and plant species either federally listed or proposed for listing as endangered or threatened; state-listed; or priority species of concern to federal agencies or tribes.

Substation. A facility where electrical voltage is either increased or decreased through the use of transformers; electric lines are interconnected at one or more voltage; and electric power is metered and regulated to provide safe and stable voltage for end-use customers.

Take. A prohibited action under federal law, except where authorized (i.e., incidental take). To harass, harm, pursue, hunt, wound, kill, trap, capture, or collect a federally listed threatened or endangered species, or to attempt to do so. Take may include disturbance of the listed species, nest, or habitat, when disturbance is extensive enough to disrupt normal behavior patterns for the species, although the affected individuals may not actually die.

Traditional Cultural Property. A Traditional Cultural Property (TCP), as defined in the NHPA, is a property that is eligible for inclusion on the NRHP "because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1994)." Stated another way, a significant TCP is defined as a property with "significance derived from the role the property plays in a community's historically rooted beliefs, customs, and practices (Parker and King 1994)."

Transition Zone. The area between two discrete environmental areas, and thus containing elements of each. For example, the transition zone between an upland pinyon forest and a lowland desert scrub environment.

Threatened Species. Any species of plant or animal which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Tribe. See American Indian tribe.

Undertaking. A project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a federal agency, including those carried out by or on behalf of a federal agency; those carried out with federal financial assistance; those requiring a federal permit, license, or approval; and those subject to state or local regulation administered pursuant to a delegation or approval of a federal agency.

Ungulate. A hoofed mammal.

Vegetation communities. Species of plants that commonly live together in the same region or ecotone.

View-shed. Visible portion of the specific landscape seen from a specific viewpoint, normally limited by landform, vegetation, distance, and existing cultural modifications.

Visibility. The distance to which an observer can distinguish objects from their background. The determinants of visibility include the characteristics of the target object (shape, size, color, pattern), the angle and intensity of sunlight, the observer's eyesight, and any screening present between the viewer and the object (i.e., vegetation, landform, even pollution such as regional haze).

Visual Resource Management Classes. Categories assigned to public lands based on scenic quality, sensitivity level, and distance zones. There are four classes, each of which has an objective that prescribes the amount of change allowed in the characteristic landscape.

Waters of the United States. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce including adjacent wetlands and tributaries to water of the United States; and all waters by which the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce.

Watershed. Drainage basin for which surface water flows to a single point.

Wetlands. Areas inundated by surface water or groundwater with a frequency sufficient to support vegetation or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction.

Wetland Values. Based on societal properties by which wetlands are determined to be useful, or impart public good.

Wilderness. An area formally designated by Congress as part of the National Wilderness Preservation System.

Wilderness Study Area. A roadless area of 5,000 acres or more, or a roadless island, that has been inventoried and found to possess wilderness characteristics as described in Section 2(c) of the Wilderness Act of 1964.

7.6 Explanation of Impacts

Negligible – A change in current conditions that is too small to be physically measured using normal methods or perceptible to a trained human observer. There is no noticeable effect on the natural or baseline setting. There are no required changes in management or utilization of the resource.

Minor – A change in current conditions that is just measurable with normal methods or barely perceptible to a trained human observer. The change may affect individuals of a population or a small (<10 percent) portion of a resource but does not result in a modification in the overall population, or the value or productivity of the resource. There are no required changes in management or utilization of the resource.

Moderate – An easily measurable change in current conditions that is readily noticeable to a trained human observer. The change affects 25 to 75 percent of individuals of a population or similar portion of a resource which may lead to modification or loss in viability in the overall population, or the value or productivity of the resource. There are some required changes in management or utilization of the resource.

Major – A large measurable change in current conditions that is easily recognized by all human observers. The change affects more than 75 percent of individuals of a population or similar portion of a resource which leads to significant modification in the overall population, or the value or productivity of the resource. There are profound or complete changes in management or utilization of the resource. An impact that is not in compliance with applicable regulatory standards or thresholds.