

Chapter 4

Table of Contents

CHAPTER 4	4-1
4.1 Impact Assessment.....	4-1
4.1.1 Impacts/Effects.....	4-1
4.1.2 Direct Effects.....	4-1
4.1.3 Indirect Effects.....	4-1
4.1.4 Significance.....	4-1
4.1.5 Indicators.....	4-2
4.1.6 Environmental Effect Categories.....	4-2
4.1.7 Mitigation.....	4-2
4.2 Water Resources.....	4-3
4.2.1 Indicators and Methods.....	4-3
4.2.2 Proposed Action.....	4-3
4.2.3 Action Alternative.....	4-7
4.2.4 No Action Alternative.....	4-8
4.3 Geology and Minerals.....	4-8
4.3.1 Indicators and Methods.....	4-8
4.3.2 Proposed Action.....	4-8
4.3.3 Action Alternative.....	4-9
4.3.4 No Action Alternative.....	4-10
4.4 Paleontological Resources.....	4-10
4.4.1 Indicators and Methods.....	4-10
4.4.2 Proposed Action.....	4-10
4.4.3 Action Alternative.....	4-11
4.4.4 No Action Alternative.....	4-12
4.5 Soils.....	4-12
4.5.1 Indicators and Methods.....	4-12
4.5.2 Proposed Action.....	4-12
4.5.3 Action Alternative.....	4-16
4.5.4 No Action Alternative.....	4-18
4.6 Air Resources.....	4-18
4.6.1 Proposed Action.....	4-18
4.6.2 Action Alternative.....	4-23
4.6.3 No Action Alternative.....	4-23
4.6.4 Climate Change.....	4-24
4.7 Vegetation, Including Noxious and Non-Native, Invasive Weeds, and Special Status Plants.....	4-25
4.7.1 Indicators and Methods.....	4-25
4.7.2 Proposed Action.....	4-26
4.7.3 Action Alternative.....	4-32
4.7.4 No Action Alternative.....	4-35

4.8	Wildlife Resources, Including Special Status Wildlife, Migratory Birds, Fisheries, and Aquatic Species	4-35
4.8.1	Indicators and Methods	4-35
4.8.2	Proposed Action	4-36
4.8.3	Action Alternative	4-45
4.8.4	No Action Alternative	4-48
4.9	Range Resources.....	4-49
4.9.1	Indicators and Methods	4-49
4.9.2	Proposed Action	4-50
4.9.3	Action Alternative	4-55
4.9.4	No Action Alternative	4-59
4.10	Cultural Resources.....	4-59
4.10.1	Indicators and Methods	4-59
4.10.2	Proposed Action	4-60
4.10.3	Action Alternative	4-63
4.10.4	No Action Alternative	4-64
4.11	Native American Concerns.....	4-64
4.11.1	Indicators and Methods	4-64
4.11.2	Proposed Action	4-65
4.11.3	Action Alternative	4-65
4.11.4	No Action Alternative	4-66
4.12	Land Use.....	4-66
4.12.1	Land Use Plans and Policies.....	4-66
4.12.2	Land Use and Ownership.....	4-66
4.12.3	Indicators and Methods	4-67
4.12.4	Proposed Action	4-67
4.12.5	Action Alternative	4-68
4.12.6	No Action Alternative	4-69
4.13	Special Designation Areas	4-69
4.13.1	Indicators and Methods	4-69
4.13.2	Proposed Action	4-70
4.13.3	Action Alternative	4-74
4.13.4	No Action Alternative	4-75
4.14	Recreation.....	4-75
4.14.1	Indicators and Methods	4-75
4.14.2	Proposed Action	4-75
4.14.3	Action Alternative	4-77
4.14.4	No Action Alternative	4-77
4.15	Visual Resources	4-78
4.15.1	Indicators and Methods	4-78
4.15.2	Proposed Action	4-78
4.15.3	Action Alternative	4-83
4.15.4	No Action Alternative	4-84

4.16	Noise	4-85
4.16.1	Indicators and Methods	4-85
4.16.2	Proposed Action	4-86
4.16.3	Action Alternative	4-88
4.16.4	No Action Alternative	4-88
4.17	Socioeconomics	4-89
4.17.1	Indicators and Methods	4-89
4.17.2	Proposed Action	4-90
4.17.3	Action Alternative	4-96
4.17.4	No Action Alternative	4-97
4.18	Environmental Justice	4-97
4.18.1	Indicators and Methods	4-97
4.18.2	Proposed Action	4-97
4.18.3	Action Alternative	4-98
4.18.4	No Action Alternative	4-99
4.19	Hazardous Materials and Solid Waste	4-99
4.19.1	Indicators and Methods	4-99
4.19.2	Proposed Action	4-99
4.19.3	Action Alternative	4-100
4.19.4	No Action Alternative	4-100
4.20	Transportation	4-101
4.20.1	Indicators and Methods	4-101
4.20.2	Proposed Action	4-101
4.20.3	Action Alternative	4-102
4.20.4	No Action Alternative	4-103

List of Tables

Table 4.1-1	Summary of Terms used to Describe Effects in the SEIS	4-2
Table 4.5-1	Acres of Soil Disturbance for the Proposed Action	4-14
Table 4.5-2	Acres of Soil Disturbance for the Action alternative	4-17
Table 4.6-1	Criteria Air Pollutant Emissions (Tons/year) Over the Two Year Construction Duration.....	4-20
Table 4.6-2	Criteria Air Pollutant Emissions (Tons/year) During the Project's Operational Phase.....	4-21
Table 4.6-3	Estimated Greenhouse Gas Air Emissions (Tons/year) Over the Two Year Construction Duration	4-24
Table 4.6-4	Estimated Greenhouse Gas Air Emissions (Tons/year) During the Project's Operational Phase.....	4-24
Table 4.7-1	Long-Term Acreage of Impact to Vegetative Communities Associated With the Proposed Action.....	4-26
Table 4.7-2	Noxious and Non-native, Invasive Weeds Risk Assessment for the Proposed Action	4-29
Table 4.7-3	Noxious and Non-Native, Invasive Weeds Risk Assessment Scoring	4-30
Table 4.7-4	Long-Term Acreage of Impact to Vegetative Communities Associated with the Action Alternative	4-33

Table 4.7-5	Noxious and Non-Native, Invasive Weeds Risk Assessment for the Action Alternative	4-34
Table 4.8-1	Greater Sage-grouse Leks Proximity to the Proposed Action	4-38
Table 4.8-2	Mule Deer Crucial Winter Range Proximity to the Proposed Action	4-39
Table 4.8-3	Occupied Desert Bighorn Range Proximity to the Proposed Action	4-39
Table 4.8-4	greater Sage-grouse Leks Proximity to the Action alternative	4-46
Table 4.8-5	Occupied Desert Bighorn Range Proximity to the Action Alternative	4-47
Table 4.9-1	Acres of Disturbance by Allotment for the Proposed Action.....	4-52
Table 4.9-2	Disturbance Acres by Allotment for the Action Alternative	4-57
Table 4.10-1	Potential Cultural Resource Impacts under the Proposed Action	4-61
Table 4.10-2	Potential Cultural Resource Impacts under the Action Alternative	4-63
Table 4.12-1	Proposed action Long-Term ROWs and Private Land Use Acreage	4-67
Table 4.12-2	Action Alternative Long-Term ROWs and Private Land Use Acreage	4-68
Table 4.13-1	SDAs that are Located Within the same Watershed Basin as the Proposed Action	4-71
Table 4.13-2	SDAs with at least One Mountain Range Between Them and the Proposed Action	4-71
Table 4.13-3	SDAs with at least One Mountain Range Between Them and the Action Alternative	4-74
Table 4.16-1	Higher Volume Construction Equipment Noise Sources.....	4-86
Table 4.17-1	Personal Income Totals for Two Counties and the State of Nevada for 2005	4-89
Table 4.17-2	Economic Impact of ON Line Project	4-91
Table 4.17-3	Fiscal Impacts of the Proposed Action in White Pine and Lincoln Counties	4-91

List of Figures

Figure 4.15-1	View to the Northwest from KOP 1, Segment 6C.....	4-80
Figure 4.15-2	View to the Northeast from KOP 2, Segment 8.....	4-81
Figure 4.15-3	View to the Northeast from KOP 2, Segment 8, Guyed-V Structures	4-81
Figure 4.15-4	View to the North from KOP 5, Segment 11.....	4-82
Figure 4.15-5	View to the North from KOP 4, Segment 10.....	4-84

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 Pahranaagat 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 Irrecoverable 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 Irrecoverable 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 Irrecoverable 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 microbotic 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	PM₁₀	SO₂
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 NO_x 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 NO_x 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 NO_x concentrations.

Sodium hexafluoride (SF₆) would be used as a gaseous dielectric medium in 14 system circuit breakers. Emissions of SF₆ 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 CO₂ 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	PM₁₀	SO₂
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 SF₆.

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 Irrecoverable 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 CO₂ 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
NO _x	843
PM	1,769
SO ₂	1
VOC	62

The operational phase would include SF₆ loss from the substation condensers that would be expected to result in an additional 167 tons of CO₂ 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 CO₂ emissions estimated per year for the operational phase of the project. The CO₂ 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
NO _x	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 ACTION¹

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 SCORING¹

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.

¹From 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 Irrecoverable 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 ALTERNATIVE¹

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 Pahranaagat 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 megapixel 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 Irrecoverable 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 Pahranaagat 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.

Vegetation and Forage Production

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.

Vegetation and Forage Production

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 Irrecoverable 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 Irrecoverable 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.

Land Area

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, Pahrnagat 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 Irrecoverable 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 Pahrnagat 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 Pahranaagat 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 Irrecoverable 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 Irrecoverable 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 disproportionately 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 Irrecoverable 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.