3.6 LAND USES – GRAZING AND REALTY

Land use within the Project Area is characterized by a mix of public and private land holdings managed and regulated by the Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS), the State of Oregon, and Harney County. BLM Burns District administers over 3.2 million acres of public land, primarily in Harney County, including major portions of the Project Area and surrounding area (Figure 1.1-1). BLM lands are managed under a set of coordinated land use plans that address a wide range of resource management activities under individual unified plans. Lands within the Project Area administered by the USFWS include the Malheur National Wildlife Refuge (MNWR), which is managed under USFWS prepared resource management plans. Privately owned lands within the Project Area are managed and regulated by the Harney County Planning Department through a county-wide comprehensive planning process, which is implemented through the Harney County Zoning Ordinance. This remainder of this section describes existing land uses within the Project Area and how the proposed Project would affect future land use, both during the short-term construction phase and the long-term operational phase of the Project.

3.6.1 Methodology

This section was prepared using information from a variety of federal, state, and local planning documents, including:

- Harney County Comprehensive Plan.
- Harney County Zoning Ordinance.
- Oregon Statewide Planning Program.
- Three Rivers Resource Management Plan.
- Andrews Management Unit Resource Management Plan.
- Steens Mountain Cooperative Management and Protection Area Resource Management Plan.
- Malheur National Wildlife Refuge Master Plan.

Additional policy and procedural guidance was obtained from the following sources:

- Federal Land Policy and Management Act of 1976, as amended.
- BLM National Environmental Policy Act Handbook (H-1790-1).
- Part 603 USFWS Manual.
- Part 340 USFWS Manual.

The information obtained from these sources was used to identify the existing land use conditions within the Project Area and to assess the permanent and temporary effects of the Proposed Action, Alternatives, and No Action Alternative on existing and future land use within the Project Area. Where appropriate, mitigation measures have been identified to reduce or avoid anticipated adverse effects resulting from construction and operation of the proposed Project.

The analysis was prepared considering comments received from the public during the EIS scoping process. Comments from agency representatives, local organizations and private citizens requested that the following issues relevant to land use, grazing, and realty be addressed in the EIS:

- The appropriateness of BLM potentially granting a right-of-way (ROW) for the transmission line through the CMPA. The majority of these comments argued that the project would violate the Steens Mountain CMPA's direction "to conserve, protect, and manage the long-term ecological integrity of Steens Mountain for future and present generations."
- The compatibility of the proposed project crossing the MNWR with the purposes of the National Wildlife Refuge System Act of 1966 (NWRSA).
- Evaluation of whether the BLM can authorize a ROW for the proposed transmission line consistent with the non-impairment mandate of the Federal Land Policy and Management Act of 1976 (FLPMA), as amended.

3.6.2 Affected Environment

For the purposes of this analysis, the Project Area was defined to include the area within the 150-foot wide transmission line ROW and all areas affected by the construction and operation of access roads, interconnection stations, substations, turbine towers, power collection systems, and other permanent and temporary project features, including temporary laydown areas and tensioning sites.

3.6.2.1 Regional Setting and Existing Land Use

The Project Area is located in a broader geographic region that extends from the upper slopes of Steens Mountain on the south and east, to Jackass Mountain on the west, Malheur Lake and the community of Crane on the north, and extensive state-owned rangelands on the east (Figure 1.1-1). The southern half of this regional area is generally characterized as high desert with large expanses of sagebrush typical of the Great Basin. Land use in this area is a mix of federal lands managed by BLM and large privately-owned ranches and agricultural fields. Large blocks of lands within this area are used for livestock grazing. The northern half of this region is characterized by a varied landscape of lakes, rivers, marshes, irrigated meadows, sagebrush-grass uplands, alkali flats, lava beds, broad high desert plateaus, valleys, and mountains. Malheur, Mud, and Harney Lakes are located within a closed basin that receives waters from the Blitzen and Silvies Rivers and Silver Creek. The terrain surrounding the lakes is flat to gently rolling. The flat and narrow Blitzen River Valley extends south from the lake region and is bordered by rugged rimrock landscapes. The Blitzen River flows north from Steens Mountain through the Blitzen Valley before entering Malheur Lake. Small ponds, wetlands and sloughs are interspersed among irrigated meadows along the valley floor.

The MNWR occupies much of the land within the Blitzen Valley. The refuge manages this land as marshes, riverine, riparian, and irrigated meadows for breeding, nesting and the rearing of migratory birds, as well as other fish and wildlife resources. The refuge area is also rich in cultural resources dating back some 9,000 years, as well as more recent historic cultural resources. To provide habitat for migratory birds and other wildlife, a network of low dikes and canals/ditches allow water management to maintain a variety of habitats such as marshes and meadows. Similar water regulation and distribution systems can be found in the Diamond and Happy Valleys creating large areas of productive agricultural land. Land use in the higher elevations south of Diamond is a mix of federal lands managed by BLM and large privately-owned ranches. The 10,500 acre site where the Echanis Wind Energy Project would be developed is located approximately 12 miles southeast of the community of Diamond. The site is comprised of several large privately owned parcels currently used for livestock grazing.

There are also several small unincorporated communities and rural commercial areas within the broader geographic region, several of which would be directly or indirectly effected by the Project. These communities and commercial areas provide goods and services to local farmers and ranchers, and visitors. Each community is described below:

- Princeton is a small 8.5-acre community of single-family homes, a postal contract station office, and a general store. Highway 78 passes through the community and the Lava Beds Road intersects with Highway 78 just south of Princeton. Both of these roads are paved two-lane roads. There is no public water, sewer, or fire service available in the community.
- Crane is a 124-acre community consisting of single-family homes, several commercial establishments, a public boarding school, and three churches. The Crane-Venator County Lane, a paved two-lane county road, passes through Crane. There are several small local streets, but public water, sewer, and fire service are not available.
- Diamond is a small 1.8 acre community of single family homes, a small hotel and restaurant. Two bed-and-breakfast businesses are located in the valley nearby. The paved two-lane Diamond Valley Road runs through Diamond. Public water, sewer, and fire service are not available.
- Frenchglen is a 15.1 acres community consisting of several single-family homes, a retail commercial store, a hotel, and a school. State Highway 205 runs through Frenchglen. The community has several local streets, but public water, sewer, and fire service is not available.

3.6.2.2 Grazing Allotments

Much of the BLM-administered rangelands in the region are grazed by livestock under a system of permits and leases in which ranchers pay grazing fees for the use of public land. BLM manages grazing on public lands through a system of grazing allotments. There are often unfenced private lands within these allotments that are managed in conjunction with the allotment. Table 3.6-1 lists the 14 grazing allotments located in the Three Rivers and Andrews RAs affected by the Echanis Wind Energy Project and the proposed Alternative Actions (Figure 3.6-1).

Table 3.6-1 Grazing Allotments in the Project Area

Allotment	Size (ac.)			Season of Use	Total Permitted AUM*
	Public	Private	Total		
Mann Lake FFR (06120)	1,629	26,456	28,085	summer, fall	22
Otley Brothers FFR (06133)	313	8,682	8,995	spring, summer, fall	21
Chimney (06033)	14,769	10,125	24,894	spring, summer, fall	2,015
Krumbo (06008)	14,413	1,130	16,224	spring, summer, fall	4,133
East Warm Springs (7001)	179,559	13,124	192,683	spring, summer	7,594
East Ridge (06010)	5,066	5,440	10,506	spring, summer	431
Clemens FFR (05323)	906	9,016	9,922	summer	78
Smyth-Kiger (05331)	22,506	7,341	29,847	spring, summer, fall	2,295
Virginia Valley (05316)	16,241	1,489	17,730	spring, summer	4,428
Kegler FFR (05320)	166	578	744	spring, summer	16
Baker FFR (05314)	26	996	1,022	na	24
Thompson FFR (05217)	1,237	6,115	7,352	fall	77
Crane (05597)	2,080	8,019	10,099	spring, summer	183
Harney Crane (05585)	1,318	6,715	8,033	spring	34

* AUM (animal unit month) is the amount of forage needed to sustain one cow and her calf for a month

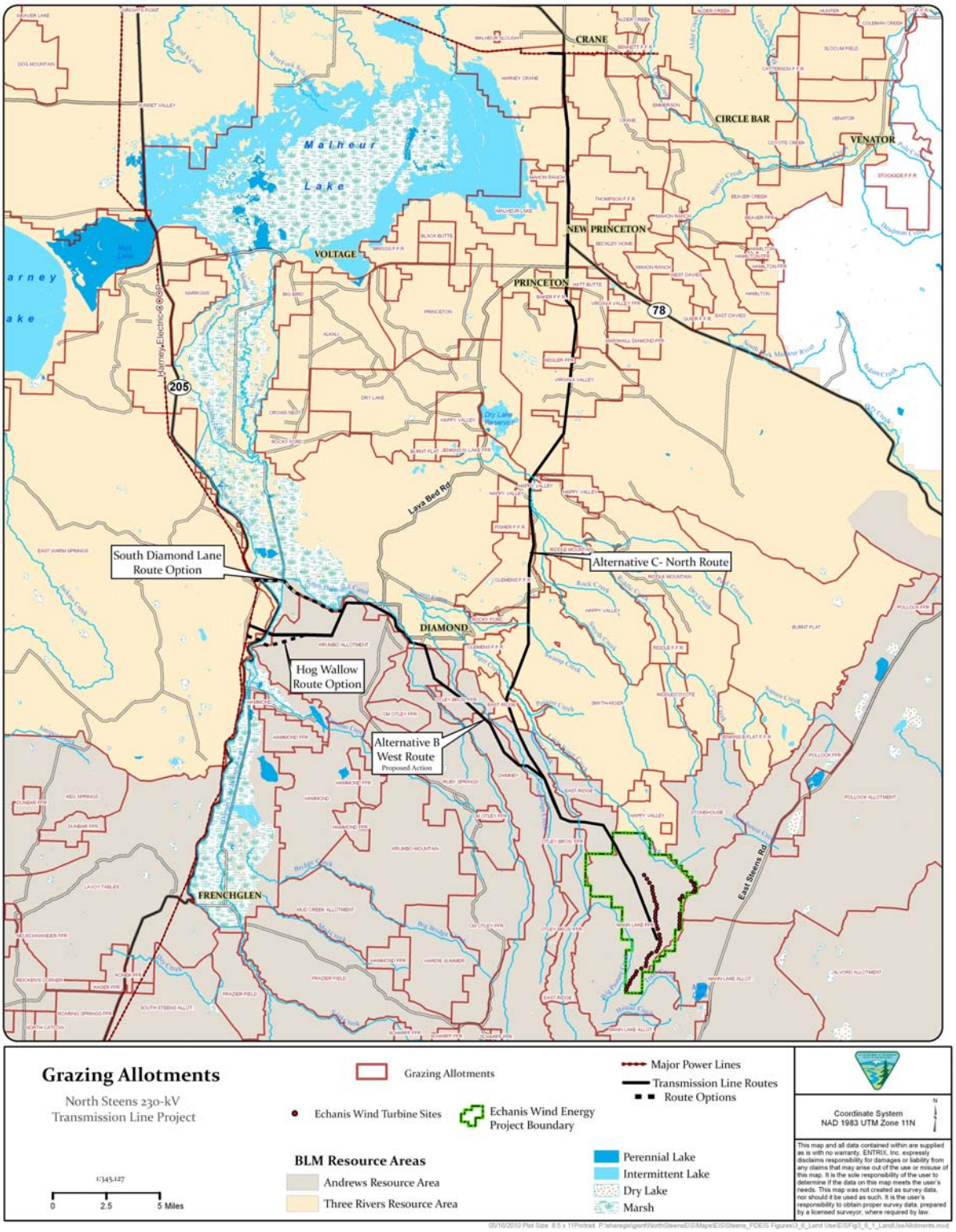

Figure 3.6-1 Livestock Grazing Allotments.

The Bureau does not make an annual "count" of the livestock that graze on BLM-managed lands because the actual number of livestock grazing on public lands on any single day varies throughout the year and livestock are often moved from one grazing allotment to another. Instead, the BLM compiles information on the number of Animal Unit Months (AUM) used each year, which takes into account both the number of livestock and the amount of time they spend on public lands. An AUM is the amount of forage needed to sustain one cow and her calf for a month. The sizes of the affected allotments range from a low of 360 acres (Baker FFR) to a high of 198,937 acres (East Warm Springs). Most allotments are used during the spring, summer and fall grazing seasons. The animal unit month (AUM) totals range from a low of 16 (Kegler FFR) to a high of 8,225 (East Warm Springs).

3.6.2.3 Land Use Plans and Policies

Bureau of Land Management

The Bureau of Land Management (BLM) Burns District Office (DO) manages over three million acres of public land located primarily in Harney County, Oregon. For management purposes, the Burns District is divided into two Resource Areas (RAs); the Andrews RA and the Three Rivers RA. The two RAs differ in the major types of management activities that occur due to differences in types of natural resource values present. The Andrews RA and a portion of the Three Rivers RA are further subdivided into management areas within the boundaries of the Steens Mountain Cooperative Management and Protection Area (CMPA) and those lands within the Andrews RA, but outside the CMPA boundary, referred to as the Andrews Management Unit (Figure 3.6-2).

BLM manages these lands following the prescribed goals, objectives, and allowable uses defined in three land management plans that guide the use of public lands within the area. These plans include the Three Rivers Resource Management Plan (RMP), the Andrews Management Unit RMP, and the Steens Mountain CMPA RMP. All three plans strive to implement BLM's responsibilities under the Federal Land Management and Policy Act (FLMPA) of 1976 which requires the agency to manage public lands on the basis of multiple use and sustained yield, and in a manner that protects the quality of scientific, scenic, historical, ecological, environmental, air and atmosphere, water resource and archaeological values. Each RMP is described below.

THREE RIVERS RESOURCE MANAGEMENT PLAN

The Three Rivers RMP covers 1.7 million acres of public land in the northern half of the Burns District on the northern extreme of the Great Basin and the southern end of the Blue Mountains. The plan has been in effect since 1992 and addresses issues related to grazing management practices, land tenure, wildlife forage and habitat, fire management, and BLM special management areas (including Outstanding Natural Areas, Areas of Critical Environmental Concern, and Research Natural Areas). Relative to ROW for transmission lines, the Three Rivers RMP includes the specific objective of meeting public needs for use authorizations (such as ROW, leases and permits) and eliminating unauthorized use of public lands. Currently, most ROW and other realty related authorizations are processed on a case-by-case basis as applications or proposals are received.

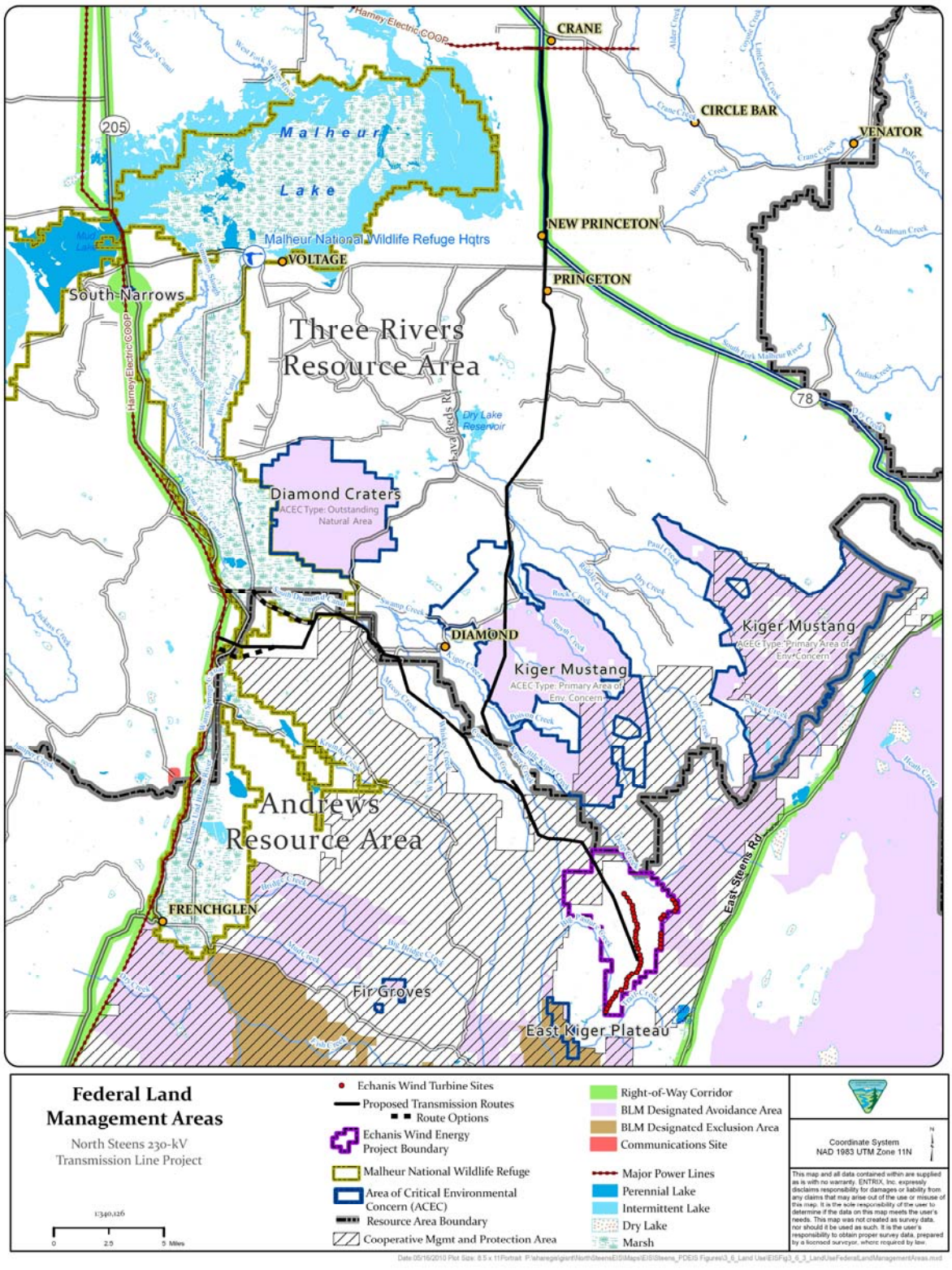

Figure 3.6-2 Federal Land Management Areas.

Section 503 of FLPMA provides for the designation of ROW corridors and encourages utilization of ROW in-common to minimize environmental effects and the proliferation of separate ROW. Bureau policy, as described in BLM Manual 2801.13B1, is to encourage prospective applicants to locate their proposals within corridors. The Three Rivers RMP formally designated over 185 miles of ROW corridor (Figure 3.6-2). These corridors include all trans-district electrical transmission lines, identified by the Western Regional Corridor study, all Federal and State highways, and all railroads. The corridor width is 1,000 feet on each side of the center line of existing facilities, except where the alignment is co-located with the boundary of a special management area, in which case the width is increased to 2,000 feet on the side opposite the boundary. The plan encourages all applicants for electrical transmission lines greater than 69 kV, all mainline fiber optic facilities, and all pipelines greater than 10 inches in diameter to locate their facilities within designated ROW corridors.

In addition to ROW corridor designations, the Three Rivers RMP also designates ROW and realty use avoidance and exclusion areas. Designation of avoidance and exclusion areas provides early notice to potential applicants when they are planning ROW or other land use projects. Facilities and uses may be permitted in avoidance areas if they are compatible with the purpose for which a special area is designated and would not otherwise be feasible on land outside the avoidance area. Designation of exclusion zones provides protection of lands and resources, which have values not compatible with ROW or other land uses.

All special management areas identified in the Three Rivers RMP, totaling 95,530 acres, are ROW and realty land use authorization avoidance areas. The largest such area in the Three Rivers planning area is the 64,639 acre Kiger Mustang Areas of Critical Environmental Concern (ACEC), a portion of which would be crossed by Alternative C (Figure 3.6-2). The Kiger Mustang ACEC is open to livestock grazing, camping, plant and rock collection, and other low-impact recreational pursuits. As an avoidance area the plan encourages ROW proponents to consider alternative routes and locations to avoid the Kiger ACEC and to analyze the options through the NEPA process. If no alternatives exist, the plan requires BLM to require stringent mitigation to protect the special management area and its required purpose. The Three Rivers RMP also imposes restrictions on land use proposals based on the potential effect of a proposed project on other resource values such as scenic values, cultural resources or wildlife.

ANDREWS MANAGEMENT UNIT RESOURCE MANAGEMENT PLAN

The Andrews Management Unit (AMU) RMP covers 1.2 million acres of public land in the southern half of the Burns District outside of the Steens Mountain CMPA (Figure 3.6-2). The plan has been in effect since 2005 and like the Three Rivers RMP addresses issues related to grazing management practices, land management, wildlife habitat, fire management, and BLM special management areas. The plan also focuses on the need to provide opportunities for environmentally responsible recreation and commercial activities (including livestock grazing) and to preserve the natural and cultural heritage resources found in the area. The plan strives to strike a balance for managing public land within the AMU consistent with the "multiple-use and sustained yield" requirements of the FLPMA.

ROWs and other land uses including wind, solar, biomass, and other forms of renewable energy development are recognized in the plan as valid uses of public land and are authorized pursuant to Sections 302 and 501 of the FLPMA. The primary form of authorization for wind and other energy projects (not including geothermal) in the AMU is a ROW or other realty use authorization. Applications for ROW, realty use, and renewable energy authorizations are processed on a case-by-case basis in accordance with NEPA and other applicable laws. As with the Three Rivers RMP, the AMU RMP includes designated ROW corridors to encourage prospective applicants to locate proposals within designated corridors. The plan designates avoidance areas and only facilities and uses compatible with the purposes of specially designated areas are permitted. Large areas in the southern and eastern portions of the AMU are designated as avoidance areas. The RMP also designates exclusion areas where most facilities and uses are prohibited outright.

The AMU RMP formally designates over 246 miles of public land as ROW corridors, portions of which are located in the Project Area (Figure 3.6-2). As with the Three Rivers RMP, these corridors include existing trans-district electrical transmission lines identified by the Western Regional Corridor Study, Federal and State highways, and Fields-Denio and Catlow Valley County road corridors. Corridor widths are 1,000 feet on each side of centerline of existing facilities, except where the alignment forms the boundary of a special designated area. Proponents of ROWs for electrical transmission lines greater than 69 kV, mainline communications facilities, and pipelines greater than ten inches in diameter are encouraged to locate in designated corridors. The AMU RMP also imposes restrictions on the development of renewable energy projects, transportation corridors, lands and realty ROWs and utility corridors based on the potential effect of a proposed project on other values and resources.

STEENS MOUNTAIN CMPA RESOURCE MANAGEMENT PLAN

The Steens Mountain CMPA encompasses 496,136 acres of public, private, and State lands within the Andrews RA and a portion (53,343 acres) of the Three Rivers RA (Figure 3.6-2). The Steens Mountain CMPA RMP has been in effect since 2005 and like the Three Rivers and AMU RMPs described above addresses issues related to grazing management practices, land management, wildlife habitat, fire management, and BLM special management areas. The Steens Mountain CMPA RMP provides for environmentally responsible recreation and commercial activities and preserves the natural and cultural heritage resources in the area. The plan encourages cooperative management of CMPA by fostering collaborative arrangements with landowners, permit holders, tribal governments, land managers, and other interested parties.

Most of the Federal land within the CMPA has been designated as ROW and renewable energy avoidance/exclusion areas and there are no formally designated ROW corridors within the CMPA. Where ROWs are allowed, applications for ROW, realty use, and renewable energy authorizations are processed on a case-by-case basis in accordance with NEPA and other applicable laws. The Steens Mountain CMPA RMP also imposes restrictions on the ROW, realty use, and renewable energy authorizations based on the potential effect of a proposed project on other resource values. With only a few exceptions, construction of new roads on Federal lands in the CMPA is prohibited.

In addition, several types of ROW and realty uses on Federal land within the CMPA would be prohibited by law by the Steens Mountain Cooperative Management and Protection Act of 2000. For example, Section 113(f) states:

PROHIBITION ON CONSTRUCTION OF FACILITIES.—No new facilities may be constructed on Federal lands included in the Cooperative Management and Protection Area unless the Secretary determines that the structure—

(1) will be minimal in nature;

(2) is consistent with the purposes of this Act; and

(3) is necessary:

(a) for enhancing botanical, fish, wildlife, or watershed conditions;

(b) for public information, health, or safety;

(c) for the management of livestock; or

(d) for the management of recreation, but not for the promotion of recreation.

BLM would not be responsible for siting the portions of the transmission line within the CMPA because all of the transmission line within the CMPA would be located on private property (see 16 U.S.C. § 460nnn-42 "[n]othing in this Act is intended to affect rights or interests in real property or supersede State law.").

Malheur National Wildlife Refuge

The USFWS manages the 187,757 acre MNWR located in the western portion of the study area (Figure 3.6-3). The refuge is 27 miles wide at the widest point and 41 miles long and includes lakes, shallow marshes, rivers, creeks, rimrocks, irrigated meadows, sagebrush-grass uplands, alkali flats and occasional greasewood-covered alkali uplands. The abundant water and food resources within the refuge support a broad array of fish and wildlife resources, including over 320 species of birds and 58 species of mammals. Its location along the Pacific Flyway provides a wayside for thousands of resident and migratory birds

Currently the Refuge is being managed under the 1985 Master Plan and the 1990 Blitzen Valley Management Plan. The Refuge is in the early phases of a new Comprehensive Conservation Planning process that would replace existing plans with a 15 year planning horizon. The Comprehensive Conservation Plan will be created in compliance with the National Wildlife Refuge System Administration Act of 1966, as amended and other applicable laws, regulations and policies.

The 1966 National Wildlife System Administration Act, as amended by the National Wildlife Refuge System Improvement Act of 1997, requires that activities on National Wildlife Refuges must be compatible with the purposes for which the refuge was established (603 FW 2). Compatibility determinations have been completed for activities that are not directly conducted by the refuge such as haying, grazing, farming, hunting, fishing, wildlife observation, wildlife photography, interpretation, environmental education, and others.

Any activities proposed on lands managed under the National Wildlife Refuge System are evaluated on a case-by case basis and must be consistent with USFWS polices for "appropriate use" of refuge lands (603 FW 1). In general, appropriate uses are those which contribute to the public's understanding and appreciation of the Refuge's natural or cultural resources or are beneficial to the Refuge's natural or cultural resources; can be accommodated without impairing existing wildlife-dependent recreational uses or reducing the potential to provide quality compatible, wildlife dependent recreation into the future; and are manageable within available budget and staff in the future within existing resources (see 603 FW 1 for an explanation of all the factors considered in making an appropriate use determination). If a new use is not appropriate, the refuge manager can deny the use without determining compatibility. If a use is determined to be appropriate, then a compatibility determination must be developed to determine whether the use can be allowed.

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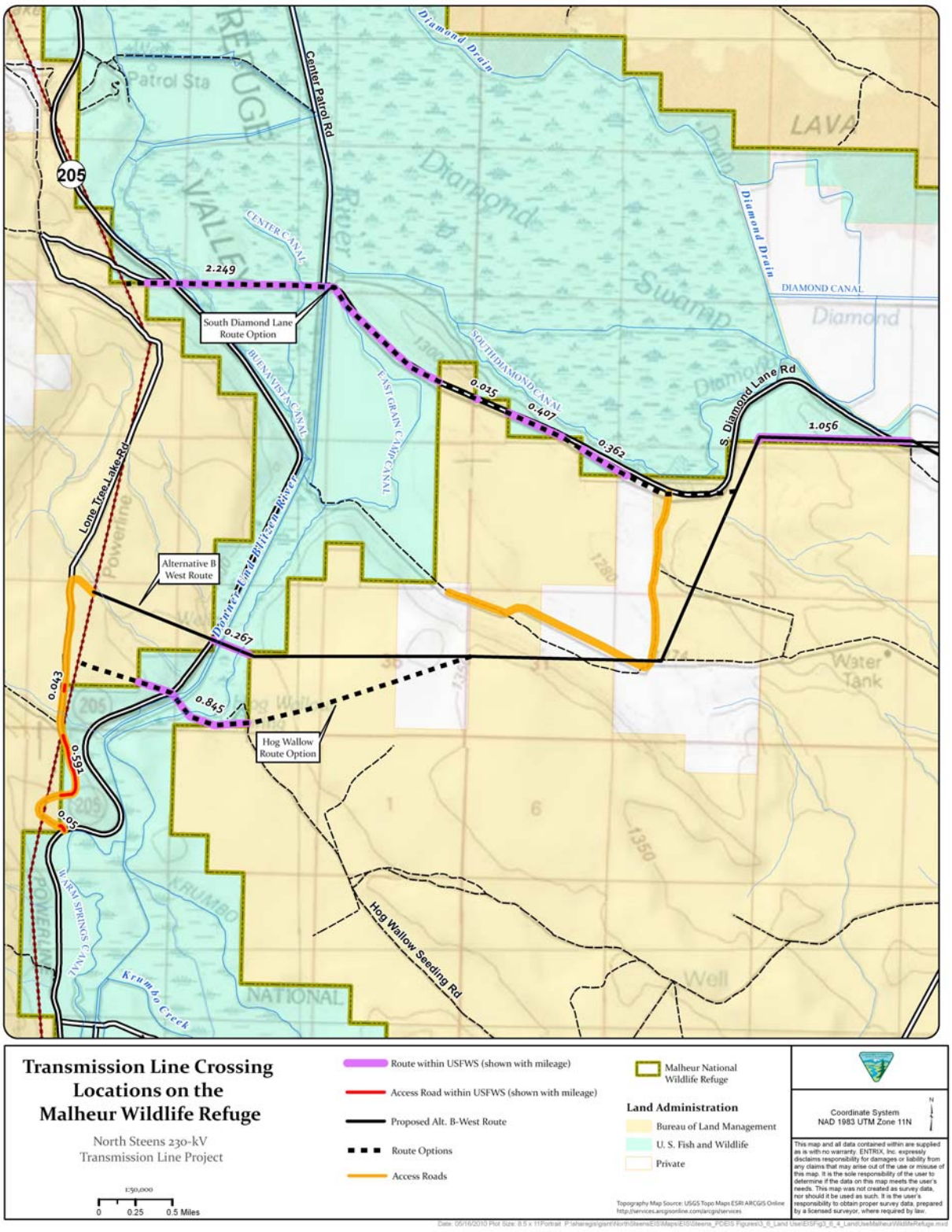

Figure 3.6-3 Transmission Line Crossing Locations on the Malheur Wildlife Refuge.

3.6.3 Environmental Effects and Mitigation

The Proposed Action and Alternatives analyzed below (including transmission line route options, design options, and access roads) would require ROW grants from BLM and USFWS. ROW would also be needed from approximately 10 to 30 property owners (depending on alternative or route option) to construct transmission lines and access roads across private lands, including two parcels owned by the State of Oregon. For all action alternatives the permanent ROW width would be 150 feet. In certain areas, an additional 10 feet of temporary construction easement would be required on each side of the ROW to allow for equipment operation during installation of poles, conductors and any required guy wires. A 40-foot wide ROW would be required on public lands to accommodate new and improved access roads.

The Project proponent has submitted applications to BLM and USFWS for ROW grants to cross Federal lands. Project proponents are also currently negotiating agreements with private land owners to develop 18.7 miles of transmission lines and 22.0 miles of new or improved access roads on private lands. The Project applicant has made formal arrangements with the owners of the Echanis site to deploy between 40 to 69 wind turbines, 14.8 miles of new access roads, a system of underground electric cables, a substation, and an operations and maintenance building on the site.

The potential effects on land use, grazing, and realty during the short-term construction phase and the long-term operational phase of the Project are described below. It should be noted that a variety of project design features and best management practices to reduce the effects on land use, from both the Echanis project and the transmission line alternatives, would be implemented as part of proposed action. These measures are not repeated in the mitigation sections below, but are summarized in Chapter 2 and are listed in Appendix X.

3.6.3.1 Alternative A – No Action

Under the No Action Alternative, no new transmission lines, substations, interconnection stations, or related wind energy facilities would be constructed. Improvements to existing access roads would not be needed and new access roads would not be constructed. No new ROW would be obtained from BLM or USFWS and the existing HEC distribution line located along South Diamond Lane would remain above ground. The Echanis site would remain undeveloped and would continue to be used for livestock grazing.

3.6.3.2 Echanis Project Effects Common to All Action Alternatives

PERMANENT EFFECTS

The Project would involve the deployment and operation of 40 to 69 wind turbines on a 10,500 acre privately owned site in rural Harney County (Figure 1.1-1). The proposed wind turbines would be arranged in multiple "strings" placed along several exposed ridgelines on the site. The Project would include approximately nine miles of 34.5-kV underground power collection lines to connect the turbine strings to a new 200-foot by 400-foot substation located near the center of the site. A 24-foot by 48-foot operations and maintenance (O&M) building would be located next to the substation.

An existing access road that currently connects the Echanis site to South Diamond Lane would be widened, improved, and extended to the new Echanis substation. The completed access road would be 18.95 miles long and would cross approximately 14.73 miles of the Andrews RA and 4.22 miles of the Three Rivers RA, including approximately 7.12 miles on private land within the Steens Mountain CMPA. Of the 18.95 mile total, 17.47 miles would be on private property and 1.48 miles would be on public land administered by the

BLM. No portion of the main access road to the Echanis site would be located on public land within the CMPA.

Assuming the main access road would be located within a 40-foot wide easement on private land, and a 40-foot wide ROW on BLM administered land, approximately 84.7 acres of private property and 7.18 acres of BLM administered land would be affected by easement and ROW needs for the main access road to the Echanis site.

Approximately 17.11 miles of additional service roads (i.e. string roads) would be developed on the Echanis site to provide access between the operations and maintenance building, wind turbines, and other wind energy related facilities on the site. The new string roads would convert approximately 33.18 acres of existing rangeland to non-rangeland use. The wind turbines would convert about 2.41 acres to non-rangeland use, while the new substation and O&M building would convert about 1.85 acres to non-rangeland use. These features combined would occupy only 0.4 percent of the land area within the boundaries of the Echanis site. Land use on the remaining portions of the 10,500 acre site would remain available for rangeland use. This includes livestock grazing on land located within the Mann Lake FFR (06120) grazing allotment.

Ongoing operations and maintenance activities would involve periodic inspections and maintenance of the main access road to the Echanis site, as well as the 40 to 69 wind turbine on the site. Operations and maintenance of the wind turbines would include inspection and repair of towers, generators, turbine blades, and other equipment.

TEMPORARY EFFECTS

Temporary effects on land use during construction would include the temporary interruption of grazing activities within all areas of proposed ground disturbance, structure assembly, materials storage, and equipment operation. Additional temporary effects related to construction would include noise and disruption due to the presence of workers and equipment, and visual effects from the stockpiling of materials and the presence of large-scale construction equipment.

MITIGATION

- During construction, temporary construction laydown areas and pulling/tensioning sites would be located to minimize disturbance to grazing livestock.
- During operation, the owner/operator would avoid adverse effects on grazing activity, to the extent reasonably possible, when performing facility inspections, and maintenance and repair activities.

3.6.3.3 Alternative B – West Route (Proposed Action)

PERMANENT EFFECTS

RIGHT-OF-WAY REQUIREMENTS

The proposed 230-kV transmission line under Alternative B would be approximately 28.87 miles long, extending from the new substation at the Echanis site to the proposed interconnection station adjacent to the HEC 115-kV transmission line west of Diamond Junction (Figure 1.1-1). Approximately 18.70 miles of the alignment would cross privately-owned rangeland, 8.85 miles would cross BLM-administered land, and 1.32 miles would cross land (at two locations) within MNWR (Table 3.6-2, Figure 3.6-3). Approximately 343.31 acres of ROW for the transmission line would be acquired from 10 different land owners to secure access across 28 privately-owned parcels. A total of approximately 157.97 acres of ROW would be required from BLM administered lands and

approximately 24.05 acres would be required from land administered by the USFWS. The total ROW needs for the transmission line from all ownership categories would be 525.32 acres.

Approximately 26.25 miles of the transmission line would cross the Andrews RA, and 2.62 miles would cross the Three Rivers RA. While approximately 5.89 miles of the transmission line would be located on private land within the Steens Mountain CMPA, no portion of the transmission line would cross public land within the CMPA.

Table 3.6-2 Transmission Line ROW Requirements for Alternative B – West Route

Ownership	Length in Miles	Acres within 150-foot ROW
Private Land	18.70	343.31
BLM-administered Land	8.85	157.97
USFWS-administered Land	1.32	24.05
Total	28.87	525.32

New and improved access roads (approximately 2.19 miles) and overland access routes (approximately 25.68 miles) would also be placed within ROW obtained from underlying property owners (Table 3.6-3). Access roads and overland access routes would be needed for vehicle and equipment access to the transmission line corridor during initial construction; and for inspections, maintenance and repair of poles, insulators, and conductors during long-term operation. Existing unpaved access roads would be widened and new access roads would be constructed across BLM and USFWS administered lands. These roads would be widened or constructed to a width of approximately 20 to 22 feet within a permanent 40-foot wide ROW. The additional ROW beyond the 20- to 22-foot wide travel surface would be needed to accommodate construction, reconstruction, drainage improvements, snowplowing and shoulder work.

Overland access routes would be required on private land, BLM administered land, and land administered by the USFWS. Overland access routes would have a single 8-foot wide travel lane and would traverse the landscape over open ground; no roadbed improvements would be required. Approximately 23.43 acres of additional ROW outside of the transmission line ROW would be required to accommodate overland routes. While approximately 5.90 miles of overland roads would be located on private land within the Steens Mountain CMPA, none of the overland roads would cross Federal land within the CMPA.

Table 3.6-3 Access Road ROW Requirements for Alternative B – West Route

	Private Land		BLM-Administered Land		USFWS-Administered Land	
	Miles	Acres	Miles	Acres	Miles	Acres
Improvements to Existing Access Roads	0	0	1.41	2.73	0.59	1.14
New Access Roads	0	0	0.19	0.37	0	0
Overland Access Roads	17.53	16.19*	7.43	7.01*	0.72	0.23*
Total	17.53	16.19	9.03	10.97	1.31	1.37

*Figure only includes acres of ROW needed outside the 150-foot transmission line ROW.

LAND USE EFFECTS

Permanent land use conversion would occur in areas affected by installation of transmission line poles, construction of the interconnection station adjacent to the HEC 115-kV transmission line, development of new and widened access roads, and development of other permanent Project features. Transmission line poles, spaced approximately 600 to 1,000 feet apart, would support the conductors (i.e. transmission line wires) extending from the Echanis substation to the interconnection station near the HEC transmission line. Assuming a distance of 600 feet between transmission line poles (a conservative estimate for the purposes of this analysis), approximately 168 poles would be placed on private land, approximately 80 poles would be placed on BLM administered land, and approximately 12 poles would be placed on USFWS administered land within the MNWR. While pole placement on refuge lands in the Blitzen Valley would be avoided, approximately 10 poles would be placed on refuge lands along a 1.06 mile segment of the alignment just inside the refuge boundary, west of the intersection of South Diamond Lane and Lava Beds Road (Figure 3.6-3).

Each pole would require an area of approximately 314 square feet (i.e. 10-foot radius). Vegetation within this area around each pole would be controlled to reduce fire danger and would not likely support grazing. Based on these assumptions, up to 1.21 acres of private land, 0.57 acres of BLM-administered land, and 0.07 acres of USFWS administered land would be permanently converted to transmission line use. In addition, construction of the interconnection station adjacent to the HEC 115-kV transmission line would permanently convert 0.69 acre of BLM-administered land currently used for grazing to transmission line use. No residences or businesses would be displaced or permanently affected by Alternative B.

Unimproved areas within the ROW area for the transmission line and access roads would continue in its current use, including agriculture, resource protection, and livestock grazing within the following allotments (see Figure 3.6-1):

- Mann Lake FFR (06120)
- Otley Brothers FFR (06133)
- Chimney (06033)
- Krumbo (06008)
- East Warm Springs (7001)

Because the amount of acreage that would disturbed by the project within these allotments would be less than one percent of their respective areas, there would be no measurable effect on grazing capacity or change in authorized use for these allotments.

TEMPORARY EFFECTS

Temporary effects on land use would occur along lands within MNWR where the existing 24.9-kV distribution line that runs along the south side of South Diamond Lane would be placed underground as part of the Project. The area along the 1.35-mile trench line within the refuge would be temporarily unavailable for agricultural and resource uses during relocation and burial of the distribution line.

Additional temporary effects would include the interruption of uses and activities at eight proposed laydown areas and 19 proposed pulling/tensioning sites on both public and private land. Up to eight laydown areas (each about five acres in size) would be used for storage and distribution of construction materials and transmission line components. Most of the laydown areas and tensioning sites would be located on private land. The exceptions would be the laydown area and tensioning site near the interconnection station adjacent

to the HEC 115-kV transmission which would be on BLM-administered land. Laydown areas and pulling/tensioning sites would be located within the boundaries of the 150-foot ROW, wherever practical.

Additional temporary construction related effects that could affect land use and grazing activities include noise and disruption due to the presence of workers and equipment, the visual effects from stockpiled materials and construction equipment, and the use of land for temporary laydown areas and active construction sites. Temporary security fencing installed at seven laydown areas within five different grazing allotments would preclude use of up to 35 acres of grazing land during the spring, summer and fall grazing seasons (Table 3.6-4). No effect on grazing livestock is expected from the pulling/tensioning sites because each site would be active for only a day or two during construction.

Table 3.6-4 Grazing Allotments affected by Temporary Laydown Areas – Alternative B

Grazing Allotment	Number of Temporary Laydown Areas	Acres of Affected Grazing Land
Mann Lake FFR (06120)	1	5.0
Otley Brothers FFR (06133)	3	15.0
Chimney (06033)	1	5.0
Krumbo (06008)	1	5.0
East Warm Springs (7001)	1	5.0
Total	7	35.0

FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-KV

The upgrade of the initial single-circuit transmission line to a full double-circuit 230-kV transmission line would require a second construction phase at a future date when additional capacity is required on the transmission line. The second construction phase would not require any additional ROW, access roads, or new permanent features outside of areas previously affected by installation of the initial line. Most effects from installation of the second circuit would be temporary and associated primarily with the use of laydown areas and pulling/tensioning sites. Grazing allotments would experience temporary construction related effects, including the temporary displacement of livestock from laydown areas during the spring, summer and fall grazing seasons. Installation of the second circuit may require equipment upgrades at the interconnection station adjacent to the HEC 115-kV line.

MITIGATION

- Overland access roads, temporary construction laydown areas, and pulling/tensioning sites would be used in a manner that minimizes conflicts with ongoing agricultural, grazing, and land management activities, both during initial construction and any future upgrades to the transmission line.
- Inspection, maintenance, and repair activities during long-term operation of the transmission line would be conducted in a manner that minimizes effects on cultivated land, grazing pastures, and livestock.

3.6.3.4 Alternative B – South Diamond Lane Route Option

PERMANENT EFFECTS

RIGHT OF WAY REQUIREMENTS

The South Diamond Lane Route Option would be approximately 28.26 miles long from the Echanis site to the interconnection station near HEC transmission line (Figure 1.1-1). Approximately 18.08 miles of the alignment would cross privately-owned rangeland, 6.09 miles would cross land administered by the BLM, and 4.09 miles would cross land (in five locations) within the MNWR

(Table 3.6-5, Figure 3.6-3). Approximately 328.88 acres of ROW for the transmission line would be acquired from privately-owned parcels. A total of approximately 109.96 acres of ROW would be required from BLM-administered lands and approximately 75.28 acres would be required from lands administered by the USFWS. The total ROW needs for the transmission line from all ownership categories would be 514.10 acres.

Approximately 25.22 miles of the transmission line would cross the Andrews RA, and 3.03 miles would cross the Three Rivers RA. As with Alternative B, the same approximately 5.89 miles of the transmission line would be located on private land within the Steens Mountain CMPA; however, no portion of the transmission line would cross public land within the CMPA.

Table 3.6-5 Transmission Line ROW Requirements for the South Diamond Lane Route Option

Ownership	Length in Miles	Acres within 150-foot ROW
Private Land	18.08	328.88
BLM-administered Land	6.09	109.96
USFWS-administered Land	4.09	75.28
Total	28.26	514.10

New and improved access roads (approximately 2.19 miles) and overland access routes (approximately 21.29 miles) would also require ROW from underlying property owners (Table 3.6-6). Existing unpaved access roads would be widened and new access roads would be constructed across BLM and USFWS administered lands. Overland access routes would be required on private land, BLM-administered land, and land administered by the USFWS. Approximately 19.26 acres of additional ROW outside of the transmission line ROW would be required to accommodate overland routes. While approximately 5.90 miles of overland roads would be located on private land within the Steens Mountain CMPA, none of the overland roads would cross Federal land within the CMPA.

Table 3.6-6 Access Road ROW Requirements for the South Diamond Lane Route Option

	Private Land		BLM-Administered Land		USFWS-Administered Land	
	Miles	Acres	Miles	Acres	Miles	Acres
Improvements to Existing Access Roads	0	0	1.41	2.73	0.59	1.14
New Access Roads	0	0	0.19	0.37	0	0
Overland Access Roads	16.65	15.43*	3.91	3.60*	0.72	0.23*
Total	16.65	15.43	5.51	6.70	1.31	1.37

*Figure only includes acres of ROW needed outside the 150-foot transmission line ROW.

LAND USE EFFECTS

As with Alternative B, permanent conversion of land use would result from installation of transmission line poles, construction of the interconnection station adjacent to the HEC 115-kV transmission line, development of new and widened access roads, and other permanent Project features. Assuming a distance of 600 feet between transmission line poles, approximately 163 poles would be placed on private land, approximately 55 poles would be placed on BLM-administered land, and approximately 37 poles would be placed on USFWS-administered land within the MNWR, primarily along a 2.25 mile segment crossing the Blitzen Valley along South Diamond Lane, and a

1.06 mile segment about two miles east of that location just inside the refuge boundary west of the intersection of South Diamond Lane and Lava Beds Road (Figure 3.6-3).

The 163 poles would permanently convert up to 1.17 acres of private land, 0.40 acres of BLM administered land, and 0.27 acres of USFWS administered land, to transmission line use. In addition, construction of the interconnection station adjacent to the HEC 115-kV transmission line would permanently convert 0.69 acre of BLM-administered land currently used for grazing to transmission line use. No residences or businesses would be displaced or permanently affected by the South Diamond Lane Route Option.

Unimproved areas within the ROW area for the transmission line and access roads would continue in its current use, including agriculture, resource protection, and livestock grazing within the following allotments affected by Alternative B (see Figure 3.6-1):

- Mann Lake FFR (06120).
- Otley Brothers FFR (06133).
- Chimney (06033).
- Krumbo (06008).
- East Warm Springs (7001).

Because the amount of acreage that would be disturbed by the project within these allotments would be less than one percent of their respective areas, there would be no measurable effect on grazing capacity or change in authorized use for these allotments.

TEMPORARY EFFECTS

As with Alternative B, temporary effects on land use would occur along lands within MNWR where the existing 24.9-kV distribution line that runs along the south side of South Diamond Lane would be placed underground as part of the Project. Additional temporary effects, including the interruption of uses and activities at seven proposed laydown areas and 18 proposed pulling/tensioning sites, would be the same as described for Alternative B. Temporary security fencing installed at five laydown areas within three different grazing allotments would preclude use of up to 25 acres during the spring, summer and fall grazing seasons (Table 3.6-7). No effect on grazing livestock is expected from the pulling/tensioning sites because each site would be active for only a day or two during construction.

Table 3.6-7 Grazing Allotments affected by Temporary Laydown Areas for the South Diamond Lane Route Option

Grazing Allotment	Number of Temporary Laydown Areas	Acres of Affected Grazing Land
Mann Lake FFR (06120).	1	5.0
Otley Brothers FFR (06133).	3	15.0
Chimney (06033).	1	5.0
Total	5	25.0

FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-KV

As with Alternative B, the second construction phase would not require any additional ROW, access roads, or new permanent features outside of areas already affected by installation of the initial line. Most effects from installation of the second circuit would be temporary and associated primarily with use of laydown areas and pulling/tensioning sites.

MITIGATION

Mitigation for the South Diamond Lane Route Option would be the same as described for Alternative B.

3.6.3.5 Alternative B – Hog Wallow Route Option

PERMANENT EFFECTS

RIGHT OF WAY REQUIREMENTS

The Hog Wallow Route Option would be approximately 29.06 miles long from the Echanis site to the interconnection station near HEC transmission line (Figure 1.1-1). Approximately 18.73 miles of the alignment would cross privately-owned rangeland, 68.43 miles would cross land administered by the BLM, and 1.90 miles would cross land (in two locations) within the MNWR (Table 3.6-8, Figure 3.6-3). Approximately 343.87 acres of ROW for the transmission line would be acquired from privately-owned parcels. A total of approximately 151.23 acres of ROW would be required from BLM-administered lands and approximately 33.67 acres would be required from land administered by the USFWS. The total ROW needs for the transmission line from all ownership categories would be 528.77.

Table 3.6-8 Transmission Line ROW Requirements for the Hog Wallow Route Option

Ownership	Length in Miles	Acres within 150-foot ROW
Private Land	18.73	343.87
BLM-Administered Land	68.43	151.23
USFWS-Administered Land	1.90	33.67
Total	28.26	528.77

Approximately 26.66 miles of the transmission line would cross the Andrews RA, and 2.41 miles would cross the Three Rivers RA. As with Alternative B and the South Diamond Lane Route Option, the same approximately 5.89 miles of the transmission line would be located on private land within the Steens Mountain CMPA; however, no portion of the transmission line would cross public land within the CMPA.

ROW would also required from underlying property owners for new and improved access roads (approximately 2.19 miles) and overland access routes (approximately 25.99 miles) (Table 3.6-9). As with the South Diamond Lane Route Option, existing unpaved access roads would be widened and new access roads would be constructed across BLM and USFWS administered lands and overland access routes would be required on private land, BLM administered land, and land administered by the USFWS. Approximately 21.79 acres of additional ROW outside of the transmission line ROW would be required to accommodate needed overland routes. While approximately 5.90 miles of overland roads would be located on private land within the Steens Mountain CMPA, none of the overland roads would cross Federal land within the CMPA.

Table 3.6-9 Access Road ROW Requirements for the Hog Wallow Route Option

	Private Land		BLM-Administered Land		USFWS-Administered Land	
	Miles	Acres	Miles	Acres	Miles	Acres
Improvements to Existing Access Roads	0	0	1.41	2.73	0.59	1.14
New Access Roads	0	0	0.19	0.37	0	0
Overland Access Roads	17.55	15.82*	7.21	5.70*	1.23	0.27*
Total	17.55	15.82	8.81	8.80	1.82	1.41

*Figure only includes acres of ROW needed outside the 150-foot transmission line ROW.

LAND USE EFFECTS

As with Alternative B, permanent conversion of land use would result from installation of transmission line poles, construction of the interconnection station adjacent to the HEC 115-kV transmission line, development of new and widened access roads, and other permanent Project features. Assuming a distance of 600 feet between transmission line poles, approximately 169 poles would be placed on private land, approximately 76 poles would be placed on BLM-administered land, and approximately 17 poles would be placed on USFWS-administered land within the MNWR. Additional poles would be placed on refuge lands primarily along a 0.85 mile crossing of the Blitzen Valley and a 1.06 mile segment just inside the refuge boundary, west of the intersection of South Diamond Lane and Lava Beds Road (Figure 3.6-3).

The 163 poles would permanently convert up to 1.17 acres of private land, 0.40 acres of BLM-administered land, and 0.27 acres of USFWS-administered land to transmission line use. In addition, construction of the interconnection station adjacent to the HEC 115-kV transmission line would permanently convert 0.69 acre of BLM administered land currently used for grazing to transmission line use. No residences or businesses would be displaced or permanently affected by the South Diamond Lane Route Option.

Unimproved areas within the ROW area for the transmission line and access roads would continue in its current use, including agriculture, resource protection, and livestock grazing within the same following allotments affected by Alternative B and the South Diamond Lane Route Option (see Figure 3.6-1):

- Mann Lake FFR (06120).
- Otley Brothers FFR (06133).
- Chimney (06033).
- Krumbo (06008).
- East Warm Springs (7001).

Because the amount of acreage that would be disturbed by the project within these allotments would be less than one percent of their respective areas, there would be no measurable effect on grazing capacity or change in authorized use for these allotments.

TEMPORARY EFFECTS

As with Alternative B, temporary effects on land use would occur along lands within MNWR where the existing 24.9-kV distribution line that runs along the south side of South Diamond Lane would be placed

underground as part of the Project. Additional temporary effects, including the interruption of uses and activities at nine proposed laydown areas and 18 proposed pulling/tensioning sites, would be the same as described for Alternative B. Temporary security fencing installed at seven laydown areas within five different grazing allotments would preclude use of up to 35 acres of grazing land during the spring, summer and fall grazing seasons (Table 3.6-10). No effect on grazing livestock is expected from the pulling/tensioning sites because each site would be active for only a day or two during construction.

Table 3.6-10 Grazing Allotments affected by Temporary Laydown Areas for the Hog Wallow Route Option

Grazing Allotment	Number of Temporary Laydown Areas	Acres of Affected Grazing Land
Mann Lake FFR (06120).	1	5.0
Otley Brothers FFR (06133).	3	15.0
Chimney (06033).	1	5.0
Krumbo (06008).	1	5.0
East Warm Springs (7001).	1	5.0
Total	7	35.0

FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-KV

As with Alternative B, the second construction phase would not require any additional ROW, access roads, or new permanent features outside of areas already affected by installation of the initial line. Most effects from installation of the second circuit would be temporary and associated primarily with the use of laydown areas and pulling/tensioning sites.

MITIGATION

Mitigation for the Hog Wallow Route Option would be the same as described for Alternative B and the South Diamond Lane Route Option.

3.6.3.6 115-kV Transmission Line Option

The 115-kV Transmission Line Option would be a reduced capacity design configuration constructed along the same transmission line alignments described above for Alternative B – West Route and the South Diamond Lane and Hog Wallow Route Options. The 115-kV Transmission Line Option would include a single three-phase (i.e. three conductors) 115-kV circuit. The alignment of the transmission line, pole heights and spacing, ROW width, construction methods, interconnection points, and access requirements would be the same as described for Alternative B, and the two route options.

PERMANENT AND TEMPORARY EFFECTS

The 115-kV Transmission Line Option would have the same types of permanent effects on land use and grazing as described for Alternative B, the South Diamond Lane Route Option, and Hog Wallow Route Option. However, the duration of temporary effects from construction activities would be substantially less because there would be only one construction phase. Construction of access roads would begin in spring and installation of poles and stringing of conductors would occur for approximately five months from spring to fall, as dictated by ground conditions and weather. The same laydown areas and pulling/tensioning sites used for the Alternative B and the South Diamond Lane and Hog Wallow Route Options would be used for the 115-kV Transmission Line Option. Completing construction of access roads and installation of the transmission line in a single construction phase would substantially reduce temporary construction related effects that could affect land use and grazing, including noise and disruption due to the presence of workers and equipment, the visual effects from stockpiled materials and construction equipment, and the displacement of livestock from grazing areas occupies by temporary laydown areas and active construction sites. Long-

term operation and maintenance requirements (inspection and repair) for the 115-kV option would be the same as described for Alternative B and the two route options above.

MITIGATION

The same mitigation described for Alternative B, the South Diamond Lane Route Option, and Hog Wallow Route Option would be implemented for the 115-kV Transmission Line Option.

3.6.3.7 Alternative C – North Route

PERMANENT EFFECTS

RIGHT-OF-WAY REQUIREMENTS

The proposed 230-kV transmission line under Alternative C would be approximately 45.95 miles long, extending from the new substation at the Echanis site to the proposed interconnection station adjacent to the HEC 115-kV transmission line near the community of Crane (Figure 1.1-1). The alignment would parallel the east side of Highway 78 for approximately eight miles between the communities of Princeton and Crane, and would parallel several county roads between the Echanis site and Princeton, including Happy Valley Road, Coon Town Road, North Middle Field Road, Anderson Valley Road and Lava Bed Road.

Approximately 33.66 miles of the alignment would cross privately-owned cropland and rangeland, 12.10 miles would cross BLM administered land, and 0.19 mile would cross two separate parcels located adjacent to Highway 78 owned by the State of Oregon (Table 3.6-11). Approximately 612.31 acres of ROW would be acquired from nearly 30 different land owners to secure access across more than 60 privately-owned parcels. Approximately 220.55 acres of ROW would be needed to cross lands administered by the BLM and approximately 2.98 acres would be needed to cross land owned by the State of Oregon. The total ROW needs from all ownership categories for this alternative would be 835.85 acres.

Table 3.6-11 Transmission Line ROW Requirements for the Alternative C – North Route

Ownership	Length in Miles	Acres within 150-foot ROW
Private Land	33.66	612.31
BLM-Administered Land	12.10	220.55
State-owned Land	0.19	2.98
Total	45.95	835.85

Approximately 12.63 miles of the transmission line would cross the Andrews RA, and 33.31 miles would cross the Three Rivers RA. While approximately 5.89 miles of the transmission line would be located on private land within the Steens Mountain CMPA, no portion of the transmission line would cross public land within the CMPA.

New access roads (approximately 5.03 miles) and overland access routes (approximately 25.05 miles) would also be placed within ROW obtained from underlying property owners (Table 3.6-12). Access roads and overland access routes would be needed for vehicle and equipment access to the transmission line corridor during initial construction; and for inspections, maintenance and repair of poles, insulators, and conductors during long-term operation. New access roads and overland access routes would be required on privately owned lands and lands administered by the BLM.

Approximately 23.26 acres of additional ROW outside of the transmission line ROW would be required to accommodate overland routes. Of this total, approximately 5.90 miles of overland roads would be located on private land within the Steens Mountain CMPA; however none of the overland roads would cross Federal land within the CMPA.

Table 3.6-12 Access Road ROW Requirements for Alternative C – North Route

	Private Land		BLM-Administered Land	
	Miles	Acres	Miles	Acres
Improvements to Existing Access Roads	0	0	0	0
New Access Roads	0.48	0.93	4.55	8.82
Overland Access Roads	17.68	16.32*	7.37	6.94*
Total	18.16	17.25	11.92	15.76

*Figure only includes ROW needs for overland roads outside of the transmission line ROW.

LAND USE EFFECTS

As with Alternative B, permanent conversion of land use would result from installation of transmission line poles, construction of the interconnection station adjacent to the HEC 115-kV transmission line, development of new access roads, and other permanent Project features. Transmission line poles would support the conductors (i.e. transmission line wires) extending from the Echanis substation to the interconnection station near the community of Crane. Assuming a distance of 600 feet between transmission line poles (a conservative estimate for the purposes of this analysis), approximately 303 poles would be placed on private land, approximately 109 poles would be placed on BLM administered land, and possibly 2 poles would be placed on land owned by the State of Oregon.

Each pole would require an area of approximately 314 square feet (i.e. 10-foot radius). Vegetation within this area around each pole would be controlled to reduce fire danger and would not likely support grazing. Based on these assumptions, up to 2.18 acres of private land, 0.79 acres of BLM-administered land, and less than 0.01 acres of state-owned land would be permanently converted to transmission line use. In addition, construction of the interconnection station adjacent to the HEC transmission line in Crane would permanently convert 0.69 acre of privately owned land to transmission line use. No residences or businesses would be displaced or permanently affected by Alternative C.

Unimproved areas within the ROW area for the transmission line and access roads would continue in its current use, including agriculture, resource protection, and livestock grazing within the following allotments (see Figure 3.6-1):

- Mann Lake FFR (06120)
- Otley Brothers FFR (06133)
- East Ridge (06010)
- Clemens FFR (05323)
- Smyth-Kiger (05331)
- Virginia Valley (05316)
- Kegler FFR (05320)

- Baker FFR (05314)
- Thompson FFR (05217)
- Crane (05597)
- Harney Crane (05585)

Because the amount of acreage that would be disturbed by the project within these allotments would be less than one percent of their respective areas, there would be no measurable effect on grazing capacity or change in authorized use for these allotments. Where feasible, the transmission lines would be placed along the margins of cultivated fields to reduce the potential for conflict with farm operations.

TEMPORARY EFFECTS

Temporary effects would include the interruption of uses and activities at the nine proposed laydown areas and 36 proposed pulling/tensioning sites. Most of the laydown areas and tensioning sites would be located on private land and would be placed within the boundaries of the 150-foot ROW, wherever practical. Additional temporary construction related effects that could affect land use include noise and disruption due to the presence of workers and equipment, the visual effects from stockpiled materials and construction equipment, and the need to exclude livestock from temporary laydown areas and active construction sites. Temporary security fencing installed at six laydown areas within four different grazing allotments would preclude use of up to 30 acres of grazing land during the spring, summer and fall grazing seasons (Table 3.6-13). No effect on grazing livestock is expected from the pulling/tensioning sites because each site would be active for only a day or two during construction.

Table 3.6-13 Grazing Allotments affected by Temporary Laydown Areas for Alternative C – North Route

Grazing Allotment	Number of Temporary Laydown Areas	Acres of Affected Grazing Land
Mann Lake FFR (06120).	1	5.0
Otley Brothers FFR (06133).	3	15.0
Clemens FFR (05323)	1	5.0
Harney Crane (05585)	1	5.0
Total	6	30.0

FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-KV

As with Alternative B (and the two route options), the upgrade of the initial single-circuit transmission line to a full double-circuit 230-kV transmission line would require a second construction phase at a future date dictated by the demand for additional capacity on the transmission line. The second construction phase would not require additional ROW, access roads, or new permanent features outside of areas previously affected by installation of the initial line. Most effects from installation of the second circuit would be temporary associated primarily with the use of temporary laydown areas and pulling/tensioning sites. Grazing allotments would experience temporary construction related effects, including the temporary displacement of livestock from laydown areas during the spring, summer and fall grazing seasons. Installation of the second circuit may require additional equipment upgrades at the interconnection station adjacent to the HEC 115-kV line.

MITIGATION

- Overland access roads, temporary construction laydown areas, and pulling/tensioning sites would be used in a manner that minimizes conflicts with ongoing agricultural, grazing, and land management activities, both during initial construction and any future upgrades to the transmission line.

- Inspection, maintenance, and repair activities during long-term operation of the transmission line would be conducted in a manner that minimizes effects on cultivated land, grazing pastures, and livestock.

3.6.3.8 115-kV Transmission Line Option

The 115-kV Transmission Line Option would be a reduced capacity design configuration constructed along the same transmission line alignments described above for Alternative C – North Route. The 115-kV Transmission Line Option would include a single three-phase (i.e. three conductors) 115-kV circuit. The alignment of the transmission line, pole heights and spacing, ROW width, construction methods, interconnection points, and access requirements would be the same as described for Alternative C.

PERMANENT AND TEMPORARY EFFECTS

The 115-kV Transmission Line Option would have the same types of permanent effects on land use and grazing as described for Alternative C. However, the duration of temporary effects from construction activities would be substantially less because there would be only one construction phase. Construction of access roads would begin in spring and installation of poles and stringing of conductors would occur for approximately five months from spring to fall, as dictated by ground conditions and weather. The same laydown areas and pulling/tensioning sites used for Alternative C would be used for the 115-kV Transmission Line Option. Completing construction of access roads and installation of the transmission line in a single construction phase would substantially reduce temporary construction related effects that could affect land use and grazing, including noise and disruption due to the presence of workers and equipment, the visual effects from stockpiled materials and construction equipment, and the displacement of livestock from grazing areas occupies by temporary laydown areas and active construction sites. Long-term operation and maintenance requirements (inspection and repair) for the 115-kV option would be the same as described for Alternative C.

MITIGATION

The same mitigation described for Alternative C would be implemented for the 115-kV Transmission Line Option.

3.6.3.9 Residual Effects after Mitigation

There would be no anticipated residual effects to land use after mitigation measure have been implemented.

3.6.3.10 Summary Comparison of Alternatives

Table 3.6-14 compares the effects of the Echanis Wind Energy Project, transmission line route alternatives and route options on land uses, grazing, and realty. It shows the amount of land needed to secure easements and ROW for the main access road to the Echanis site, as well as the land requirements to accommodate the wind turbines, string roads, and other on site project features. The table shows the number of acres needed for transmission line and transmission line access road ROW, and the number acres converted to other uses by transmission line poles, the interconnection station, and various other project features. The table also shows the number of acres temporarily removed from livestock grazing due to space requirements for laydown areas. Table 3.6-15 presents an overall summary of the effects on Land Uses, Grazing, and Realty for all alternatives.

Table 3.6-14 Comparison of Effects - Land Use, Grazing, and Realty

	Alternative A – No Action	Echanis Wind Energy Project	West Route (Proposed Action)	S. Diamond Lane – Route Option	Hog Wallow – Route Option	Alternative C – North Route
Main Echanis Access Road Easement & ROW (ac)	-	9.88	-	-	-	-
Turbines, string roads, substation, and O&M building, and other project features on the Echanis site (ac)	-	54.55	-	-	-	-
Transmission Line ROW (ac)	-	-	525.32	514.10	528.77	835.85
Transmission Line Access Road ROW (ac)	-	-	28.53*	23.50*	26.03*	33.01*
Transmission Line Poles and Interconnection Station (ac)	-	-	2.54	2.53	2.53	3.67
Grazing area affected by temporary laydown areas (ac)	-	-	35	25	35	30

*Figure only includes ROW needs for overland roads outside of the transmission line ROW.

Table 3.6-15 Summary of Effects - Land Uses, Grazing, and Realty

		Alternative B			
Alternative A – No Action	Echanis Wind Energy Project	West Route (Proposed Action)	South Diamond Lane – Route Option	Hog Wallow – Route Option	Alternative C – North Route
Under the No Action Alternative, no new transmission lines, substations, interconnection stations, or related wind energy facilities would be constructed. Improvements to existing access roads would not be needed and new access roads would not be constructed. No new ROW would be obtained from BLM or USFWS and the existing HEC distribution line located along South Diamond Lane would remain above ground. The Echanis site would remain undeveloped and would continue to be used for livestock grazing.	Project would involve the deployment and operation of 40 to 69 wind turbines on a 10,500 acre privately owned site in rural Harney County. Project would include approximately nine miles of 34.5-kV underground power collection lines, a new 200-foot by 400-foot substation, and a 24-foot by 48-foot operations and maintenance (O&M) building. The main access road would be 18.95 miles long and would cross approximately 14.73 miles of the Andrews RA and 4.22 miles of the Three Rivers RA, including approximately 7.12 miles within the Steens Mountain CMPA. Of the 18.95 mile total, 17.47 miles would be on private property and 1.48 miles would be on public land administered by the BLM. No portion of the main access road to the Echanis site would be located on public land within the CMPA. Approximately 84.7 acres of private property and 7.18 acres of BLM administered land would be affected by easement and ROW needs for the main access road to the Echanis site. Approximately 17.11 miles of additional service roads (i.e. string roads) would be developed on the Echanis site. The new string roads would convert approximately 33.18 acres of existing rangeland to non-rangeland use. The wind turbines would convert about 2.41 acres to non-rangeland use, while the new substation and O&M building would convert about 1.85 acres to non-rangeland use. Ongoing operations and maintenance activities	The transmission line would be approximately 28.87 miles long. Approximately 18.70 miles would cross privately-owned rangeland, 8.85 miles would cross BLM-administered land, and 1.32 miles would cross land (at two locations) within MNWR. Approximately 343.31 acres of ROW would be acquired from 10 different land owners to secure access across 28 privately-owned parcels. A total of approximately 157.97 acres of ROW would be required from BLM administered lands and approximately 24.05 acres would be required from land administered by the USFWS. The total ROW needs for the transmission line from all ownership categories would be 525.32 acres. Approximately 26.25 miles of the transmission line would cross the Andrews RA, and 2.62 miles would cross the Three Rivers RA. While approximately 5.89 miles of the transmission line would be located on private land within the Steens Mountain CMPA, no portion of the transmission line would cross public land within the CMPA. New and improved access roads (approximately 2.19 miles) and overland access routes (approximately 25.68 miles) would be placed within ROW obtained from underlying property owners. Overland access routes would be required on private land, BLM administered land, and land administered by the USFWS. Approximately 23.43 acres of additional ROW outside of the transmission line ROW would be required to accommodate overland routes. While approximately 5.90 miles of overland roads would be located on private land within the Steens Mountain CMPA,	The transmission line would be approximately 28.26 miles long. Approximately 18.08 miles of the alignment would cross privately-owned rangeland, 6.09 miles would cross land administered by the BLM, and 4.09 miles would cross land (in five locations) within the MNWR. Approximately 328.88 acres of ROW for the transmission line would be acquired from privately-owned parcels. A total of approximately 109.96 acres of ROW would be required from BLM-administered lands and approximately 75.28 acres would be required from lands administered by the USFWS. The total ROW needs for the transmission line from all ownership categories would be 514.10 acres. Approximately 25.22 miles of the transmission line would cross the Andrews RA, and 3.03 miles would cross the Three Rivers RA. As with Alternative B, the same approximately 5.89 miles of the transmission line would be located on private land within the Steens Mountain CMPA; however, no portion of the transmission line would cross public land within the CMPA. New and improved access roads (approximately 2.19 miles) and overland access routes (approximately 21.29 miles) would also require ROW from underlying property owners. Overland access routes would be required on private land, BLM-administered land, and land administered by the USFWS. Approximately 19.26 acres of additional ROW outside of the transmission line ROW would be required to accommodate overland routes. While approximately 5.90	The transmission line would be approximately 29.06 miles long. Approximately 18.73 miles of the alignment would cross privately-owned rangeland, 68.43 miles would cross land administered by the BLM, and 1.90 miles would cross land (in two locations) within the MNWR. Approximately 343.87 acres of ROW for the transmission line would be acquired from privately-owned parcels. A total of approximately 151.23 acres of ROW would be required from BLM-administered lands and approximately 33.67 acres would be required from land administered by the USFWS. The total ROW needs for the transmission line from all ownership categories would be 528.77. Approximately 26.66 miles of the transmission line would cross the Andrews RA, and 2.41 miles would cross the Three Rivers RA. As with Alternative B and the South Diamond Lane Route Option,	The transmission line would be approximately 45.95 miles long. Approximately 33.66 miles of the alignment would cross privately-owned cropland and rangeland, 12.10 miles would cross BLM administered land, and 0.19 mile would cross two separate parcels located adjacent to Highway 78 owned by the State of Oregon. Approximately 612.31 acres of ROW would be acquired from nearly 30 different land owners to secure access across more than 60 privately-owned parcels. Approximately 220.55 acres of ROW would be needed to cross lands administered by the BLM and approximately 2.98 acres would be needed to cross land owned by the State of Oregon. The total ROW needs from all ownership categories for this alternative would be 835.85 acres. Approximately 12.63 miles of the transmission line would cross the Andrews RA, and 33.31 miles would cross the Three Rivers RA. While

Table 3.6-15 Summary of Effects - Land Uses, Grazing, and Realty

		Alternative B			
Alternative A – No Action	Echanis Wind Energy Project	West Route (Proposed Action)	South Diamond Lane – Route Option	Hog Wallow – Route Option	Alternative C – North Route
	would involve periodic inspections and maintenance of the main access road to the Echanis site, as well as the 40 to 69 wind turbine on the site. Operations and maintenance of the wind turbines would include inspection and repair of towers, generators, turbine blades, and other equipment. Temporary effects on land use during construction would include the temporary interruption of grazing activities within all areas of proposed ground disturbance, structure assembly, materials storage, and equipment operation. Additional temporary effects related to construction would include noise and disruption due to the presence of workers and equipment, and visual effects from the stockpiling of materials and the presence of large-scale construction equipment.	none of the overland roads would cross Federal land within the CMPA. Approximately 168 poles would be placed on private land, approximately 80 poles would be placed on BLM administered land, and approximately 12 poles would be placed on USFWS administered land within the MNWR. While pole placement on refuge lands in the Blitzen Valley would be avoided, approximately 10 poles would be placed on refuge lands along a 1.06 mile segment of the alignment just inside the refuge boundary, west of the intersection of South Diamond Lane and Lava Beds Road. Up to 1.21 acres of private land, 0.57 acres of BLM-administered land, and 0.07 acres of USFWS administered land would be permanently converted to transmission line use. Construction of the interconnection station adjacent to the HEC 115-kV transmission line would permanently convert 0.69 acre of BLM-administered land currently used for grazing to transmission line use. Temporary effects on land use would occur along lands within MNWR where the existing 24.9-kV distribution line that runs along the south side of South Diamond Lane would be placed underground as part of the Project. The area along the 1.35-mile trench line within the refuge would be temporarily unavailable for agricultural and resource uses during relocation and burial of the distribution line. Additional temporary effects would include the interruption of uses and activities at eight proposed laydown areas and 19 proposed pulling/tensioning sites on both public and private land. Up to eight laydown areas (each about five acres in size) would be used for storage and distribution of construction	miles of overland roads would be located on private land within the Steens Mountain CMPA, none of the overland roads would cross Federal land within the CMPA. Approximately 163 poles would be placed on private land, approximately 55 poles would be placed on BLM-administered land, and approximately 37 poles would be placed on USFWS-administered land within the MNWR, primarily along a 2.25 mile segment crossing the Blitzen Valley along South Diamond Lane, and a 1.06 mile segment about two miles east of that location just inside the refuge boundary west of the intersection of South Diamond Lane and Lava Beds Road. The 163 poles would permanently convert up to 1.17 acres of private land, 0.40 acres of BLM administered land, and 0.27 acres of USFWS administered land, to transmission line use. Construction of the interconnection station adjacent to the HEC 115-kV transmission line would permanently convert 0.69 acre of BLM-administered land currently used for grazing to transmission line use. Temporary effects on land use would occur along lands within MNWR where the existing 24.9-kV distribution line that runs along the south side of South Diamond Lane would be placed underground as part of the Project. Additional temporary effects, including the interruption of uses and activities at seven proposed laydown areas and 18 proposed pulling/tensioning sites, would be the same as described for Alternative B. Temporary security fencing installed at five laydown areas within three different grazing allotments would preclude use of up to 25 acres during the spring,	the same approximately 5.89 miles of the transmission line would be located on private land within the Steens Mountain CMPA; however, no portion of the transmission line would cross public land within the CMPA. ROW would also required from underlying property owners for new and improved access roads (approximately 2.19 miles) and overland access routes (approximately 25.99 miles). Approximately 21.79 acres of additional ROW outside of the transmission line ROW would be required to accommodate needed overland routes. While approximately 5.90 miles of overland roads would be located on private land within the Steens Mountain CMPA, none of the overland roads would cross Federal land within the CMPA. Approximately 169 poles would be placed on private land, approximately 76 poles would be placed on BLM-administered land, and approximately 17 poles would be placed on USFWS-	approximately 5.89 miles of the transmission line would be located on private land within the Steens Mountain CMPA, no portion of the transmission line would cross public land within the CMPA. New access roads (approximately 5.03 miles) and overland access routes (approximately 25.05 miles) would also be placed within ROW obtained from underlying property owners. Approximately 23.26 acres of additional ROW outside of the transmission line ROW would be required to accommodate overland routes. Of this total, approximately 5.90 miles of overland roads would be located on private land within the Steens Mountain CMPA; however none of the overland roads would cross Federal land within the CMPA. Approximately 303 poles would be placed on private land, approximately 109 poles would be placed on BLM administered land, and possibly 2 poles would be placed on land owned by the State of Oregon.

Table 3.6-15 Summary of Effects - Land Uses, Grazing, and Realty

		Alternative B			
Alternative A – No Action	Echanis Wind Energy Project	West Route (Proposed Action)	South Diamond Lane – Route Option	Hog Wallow – Route Option	Alternative C – North Route
		materials and transmission line components. Most of the laydown areas and tensioning sites would be located on private land. Additional temporary construction related effects that could affect land use and grazing activities include noise and disruption due to the presence of workers and equipment, the visual effects from stockpiled materials and construction equipment, and the use of land for temporary laydown areas and active construction sites. Temporary security fencing installed at seven laydown areas within five different grazing allotments would preclude use of up to 35 acres of grazing land during the spring, summer and fall grazing seasons.	summer and fall grazing seasons.	administered land within the MNWR. Additional poles would be placed on refuge lands primarily along a 0.85 mile crossing of the Blitzen Valley and a 1.06 mile segment just inside the refuge boundary, west of the intersection of South Diamond Lane and Lava Beds Road (Figure 3.6-3). The 163 poles would permanently convert up to 1.17 acres of private land, 0.40 acres of BLM-administered land, and 0.27 acres of USFWS-administered land to transmission line use. In addition, construction of the interconnection station adjacent to the HEC 115-kV transmission line would permanently convert 0.69 acre of BLM administered land currently used for grazing to transmission line use. Temporary effects on land use would occur along lands within MNWR where the existing 24.9-kV distribution line that runs along the south side of South Diamond Lane would be placed underground as	Up to 2.18 acres of private land, 0.79 acres of BLM-administered land, and less than 0.01 acres of state-owned land would be permanently converted to transmission line use. In addition, construction of the interconnection station adjacent to the HEC transmission line in Crane would permanently convert 0.69 acre of privately owned land to transmission line use. Temporary effects would include the interruption of uses and activities at the nine proposed laydown areas and 36 proposed pulling/tensioning sites. Most of the laydown areas and tensioning sites would be located on private land and would be placed within the boundaries of the 150-foot ROW, wherever practical. Additional temporary construction related effects that could affect land use include noise and disruption due to the presence of workers and equipment, the visual effects from stockpiled materials and construction equipment, and

Table 3.6-15 Summary of Effects - Land Uses, Grazing, and Realty

Alternative A – No Action	Echanis Wind Energy Project	Alternative B			Alternative C – North Route
		West Route (Proposed Action)	South Diamond Lane – Route Option	Hog Wallow – Route Option	
				part of the Project. Additional temporary effects, including the interruption of uses and activities at nine proposed laydown areas and 18 proposed pulling/tensioning sites, would be the same as described for Alternative B. Temporary security fencing installed at seven laydown areas within five different grazing allotments would preclude use of up to 35 acres of grazing land during the spring, summer and fall grazing seasons.	the need to exclude livestock from temporary laydown areas and active construction sites. Temporary security fencing installed at six laydown areas within four different grazing allotments would preclude use of up to 30 acres of grazing land during the spring, summer and fall grazing seasons.

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