

## 3.9 VISUAL RESOURCES

Visual resources, as defined by the BLM, are the visible physical features of a landscape (e.g., land, water, vegetation, animals, structures, and other features). All land has inherent visual values that warrant different levels of management. Aesthetic judgment, especially related to landscape views, is often considered subjective. Over the past 30 years, the BLM has developed, refined, and implemented visual analysis and management systems that provide a tool for assessing visual qualities of the landscape in objective terms. Visual assessment of the landscape using these tools establishes identifiable, consistent qualities that can be described and measured. For the BLM, the Visual Resource Management (VRM) methodology has been developed to evaluate scenic resources under its jurisdiction and to develop management objectives for those resources. Using the BLM's VRM methodology, this section describes the Visual Resources within the Project Area, the expected effects of the Project on those resources, and the proposed mitigation measures for visual resources.

### 3.9.1 Applicable Regulations

NEPA sets forth a policy to "...assure for all Americans...esthetically pleasing surroundings..." (Section 101(b)) and to use "a systematic, interdisciplinary approach which will ensure the integrated use of environmental design arts in the planning and decision making [for a project]" (Section 102). As a Federal land-management agency, BLM is charged with managing the scenic resources of public lands through the Federal Land Policy and Management Act of 1976 as amended (FLPMA). Section 102(8) of the FLPMA declares the policy that, in combination with other values, public land will be managed to protect the quality of scenic values and, where appropriate, preserve and protect certain public land in its natural condition. Federal land within the Steens Mountain Cooperative Management and Protection Area (CMPA) is also managed under the Steens Mountain Cooperative Management and Protection Act of 2000 (Steens Act), 16 U.S.C. § 460nnn to 460nnn-122. To meet visual resource objectives, BLM developed the VRM methodology, which is a systematic way to evaluate and compare the potential visual effects of the different alternatives and options of this Project. This visual resources analysis applies the BLM's VRM methodology to evaluate the potential visual effects of the Project.

Once effects are identified, visual design techniques are applied to ensure surface-disturbing activities and structures are in harmony with their surroundings. Guidelines for identification of visual resource inventory classes on public land are contained in BLM Manual Handbook H-8410-1, Visual Resource Inventory (USDI 1986). Establishment of visual resource management classes on public land is based on evaluation of the landscape's scenic qualities, public sensitivity toward the landscape, and visibility of the landscape from travel routes or observation points. The VRM classes for BLM land crossed by this Project were established through Three Rivers RMP (USDI 1991), Andrews Management Unit (AMU) ROD/RMP and Steens Mountain CMPA ROD/RMP (USDI 2005a/2005b). The VRM class objectives in these planning areas and which encompasses the Project Area are managed through application of BLM Manual Handbook H-8431-1, Visual Resource Contrast Rating.

The Proposed Action (Alternative B – West Route), its two route options (Hog Wallow and South Diamond Lane), and its 115-kV Transmission line option cross federal lands managed by the BLM and USFWS as well as private lands. Alternative C (North Route) and its 115-kV Transmission line option crosses federal lands managed by the BLM, state lands, and private lands. The Proposed Action would cross the Malheur National Wildlife Refuge (MNWR) managed by the USFWS. Visual resources are not specifically managed by the USFWS other than to provide opportunities for the public to engage in recreational wildlife viewing and to conserve the natural habitat of the refuge for migratory birds and other wildlife. In addition to the Refuge, the private and state lands are not managed with a system or methodology to assess the visual effects to the existing landscape. While BLM methodology does not apply to non-Federal lands, the VRM methodology was used – for consistency -to assess potential visual effects for the entire Project Area and its alternatives.

### 3.9.1.1 Methodology

This section describes the methodology used for developing an inventory of visual resources within the affected environment by using the BLM's VRM methodology.

The analysis was informed by comments from the public scoping process which occurred from July to September, 2009. Comments from agency representatives, local organizations and private citizens requested that the following issues be addressed with regards to visual resources:

- Potential effects to tourism and recreation from an altered viewshed.
- Simulations of the following:
  - Effects of blinking lights on the wind turbines, if applicable.
  - Moving simulations of the wind turbines and transmission line.
  - Nighttime views of the Project facilities.
- Potential effects to the Project Area viewshed, including the following areas:
  - Buena Vista Butte
  - Steens Mountain
  - CMPA
  - Kiger Wild Horse viewing area
  - Diamond Loop Back Country Byway
  - Kiger Gorge
  - Other recreational areas

Several comments concerning visual resources are referred to other sections of this document. Readers seeking information concerning potential effects to tourism and recreation from altered viewsheds should also review Section 3.7, Recreation. The visual analysis does include simulations taken from areas where recreators and tourists would travel or recreate.

Simulations of blinking lights on wind turbines, wind turbine movement, and nighttime views were not prepared, but effects from these proposed Project operations were considered in this section. This section also includes an analysis of Project effects to visual resources as viewed from all areas mentioned in the scoping report.

### 3.9.1.2 VRM Methodology - Inventory

The BLM's VRM methodology is composed of two stages: inventory and analysis. An inventory has been completed for the Project Area that is on BLM land as noted in the Three Rivers RMP (USDI 1991), Andrews Management Unit (AMU) ROD/RMP and Steens Mountain CMPA ROD/RMP (USDI 2005a/2005b). Figure 3.9-1 is a Visual Resource Management map. Under the BLM methodology three factors are considered in developing the inventory: scenic quality rating, sensitivity level and distance zones (USDI, 1980, 1984, 1986). Through the inventory process, landscape units are assigned one of four visual resource inventory classes. Class I is assigned to all special areas where the current management situations requires maintaining a natural environment essentially unaltered by man. Classes II, III, and IV are assigned based upon a combination of factors that include scenic quality, sensitivity level, and distance zones. The classes and their associated BLM management objectives are as follows:

- Class I: The objective of this class is to preserve the existing character of the landscape. The class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.
- Class II: The objective of this class is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.
- Class III: The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.
- Class IV: The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating basic elements.

The inventory for the North Steens Project involved identifying the existing BLM visual classes on BLM lands and identifying visual resources within private lands and assigning them to inventory classes. The process of identifying visual resources has four steps, including Scenic Quality Evaluation; Sensitivity Level Analysis; Delineation of Distance Zones; and Visual Resource Classes and Objectives. The methodology for the inventory phase followed the “BLM Handbook H-8410-1, Visual Resource Inventory” and is included in the appended Visual Resources Technical Report (Appendix D). While BLM methodology does not apply to non-Federal lands, the VRM methodology was used for the entire Project Area to provide a consistent method of assessing potential visual effects for the Project alternatives. When applicable, the existing VRM Class was utilized for areas that had previously been surveyed by the BLM. For the purposes of this Project, the most appropriate Visual Resource Classification for the BLM lands nearest to a KOP was used for lands not managed by the BLM and that lacked a VRM classification.

Data collected included U.S. Geological Survey quadrangle maps, Google Earth maps, aerial photographs, surface photographs, Project maps, and maps of existing BLM lands and Visual Resource classes. These items were utilized to analyze vegetation types, land uses, and regional topography. Fieldwork consisted of driving and walking Project Areas to qualitatively determine the visibility of the proposed transmission lines, turbines, and other facilities from residences, major roads, recreational areas, and potential sensitive views.

### *Scenic Quality Evaluation*

The Scenic Quality Evaluation is a measure of the visual appeal of a tract of land. Consistent with BLM Manual 8410-1, public lands are given an A, B, or C rating based on the apparent scenic quality determined by seven visual qualities: landform, vegetation, water, color, influence of adjacent scenery, scarcity (common vs. rare), and cultural modifications (changes made by humans). All but the cultural modifications (changes made by humans) are scored on a scale of 5 to 1 with a 5 representing the most dramatic visual presence and 1 the least. Cultural modifications are scored on a scale from 2 to 4 based upon their ability to harmonize or detract from the surrounding landscape. Those areas with the most variety and most harmonious composition have the greatest scenic value. Scores given to each visual quality reflect the evaluator’s overall impression of the area and range from a high of more than 19 (an A-rating), to a mid-range of 12-19 (B-rating), or may be as little as 11 (C-rating).

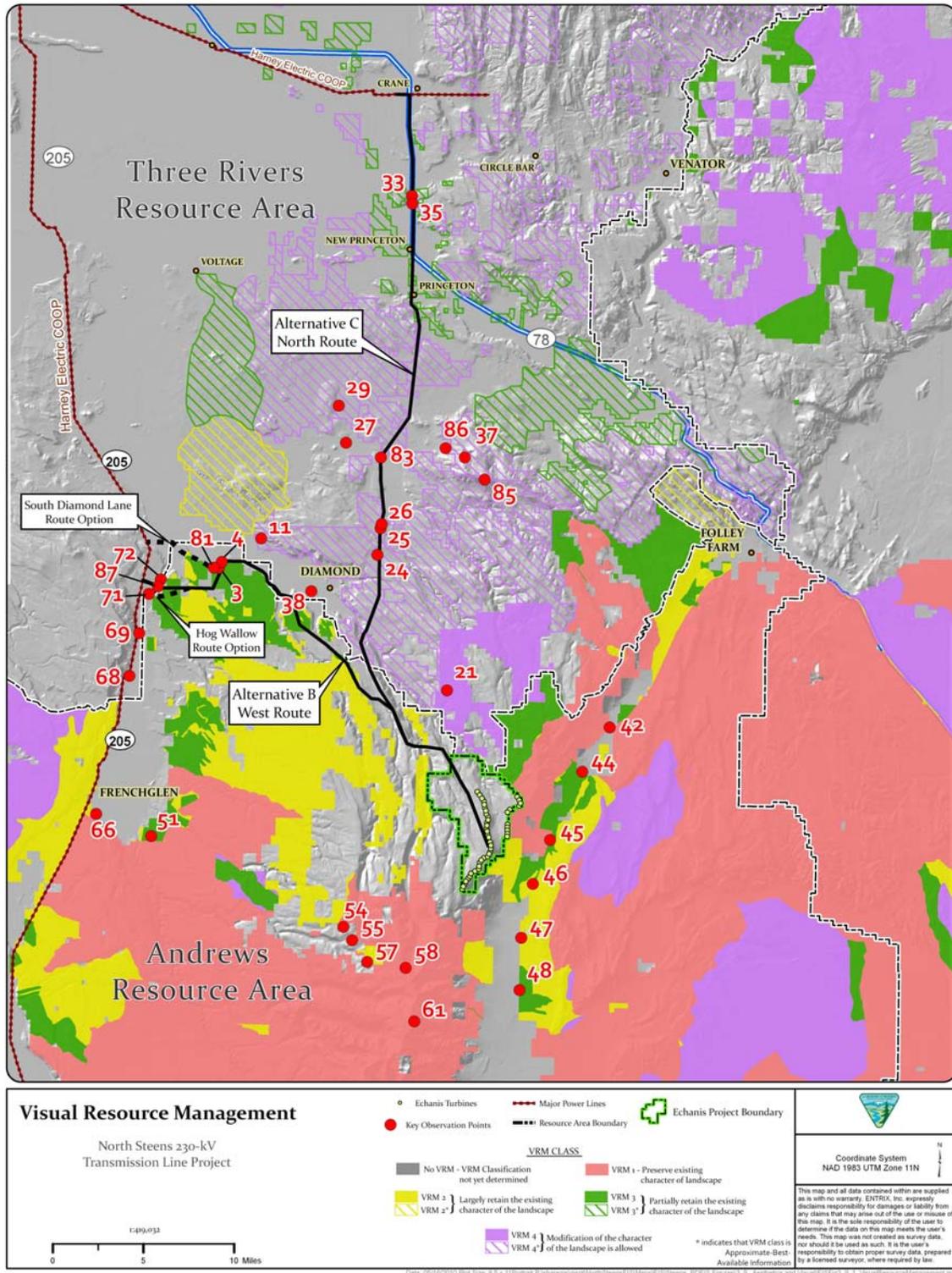


Figure 3.9-1 Visual Resource Management.

### *Sensitivity Level Analysis*

This analysis measures public concern for scenic quality. Consistent with BLM Manual 8410-1, public lands are assigned a high, medium, or low sensitivity level by analyzing the various indicators of public concern, including type of users, amount of use, public interest, adjacent land uses, special areas, and other factors.

The types of users in the Project Area include residents and workers on the ranches, residents of the towns of Frenchglen, Crane, Diamond, and Princeton, and travelers on the various scenic byways, and recreators to the Steens Mountain Wilderness Area, Malheur Refuge, and other facilities in the area. Recreators in the Project Area would have a high visual sensitivity, whereas travelers through the area would have a lower visual sensitivity because of the shorter viewing times and engagement in driving. The amount of use of the Project Area is seasonally driven for recreators with visitation occurring predominately between March and October. The Project Area is also of interest to the Burns Paiute Tribe who attach cultural significance to natural landscape components. Other factors to consider are the number and diversity of human-made objects in the landscape, including the existing transmission lines, roads, grazed and irrigated land, and structures associated with the ranches and the towns.

### *Delineation of Distance Zones*

The delineation of a distance zone involves identifying the Project Area's relative visibility from travel routes or observation points. These distance zones are "foreground-middle ground," "background," and "seldom seen." As defined by BLM criteria, the foreground-middle ground zone is an area less than 3 to 5 miles away from viewers and the background zone is an area between 5 to 15 miles away. Areas that are not in the foreground-middle ground or background zones are in the seldom seen zone. Key Observation Points (KOPs) represent the basic building block of the BLM's VRM methodology. KOPs, or the specific points with views of the Project, were identified based upon areas of high visual sensitivity, angle of observation, number of viewers, public access, length of time the project is in view, relative project size, season of use, and light conditions.

KOPs were utilized to illustrate the characteristic landscape types found at significant viewpoints of the Project Area. The VRM process of Scenic Quality Evaluation was utilized to describe the visual attributes of the area and assign a visual resource class to private lands visible from KOPs. Each KOP is summarized in Tables 3.9-2 through 3.9-6. Figure 3.9-2 shows the location of each KOP point. The KOPs were taken from the major access roads and publically accessible routes with views to the Project Area.

#### **3.9.1.3 VRM Methodology – Analysis**

The analysis stage involves determining whether the potential for visual effects from proposed surface-disturbing activities or developments would meet the management objectives established for the area, or whether design techniques would be applied to ensure that surface-disturbing activities are in harmony with their surroundings. The principal measure for assessing Project construction and operation effects to visual resources lies in the BLM's use of a "contrast rating." A visual contrast rating entails comparing Project features with the major features in the existing landscape using the basic design elements of form, line, color, and texture. The steps in the contrast rating process are outlined in the BLM Manual H-8431 – Visual Resources Contrast Rating." The analysis stage is described below.

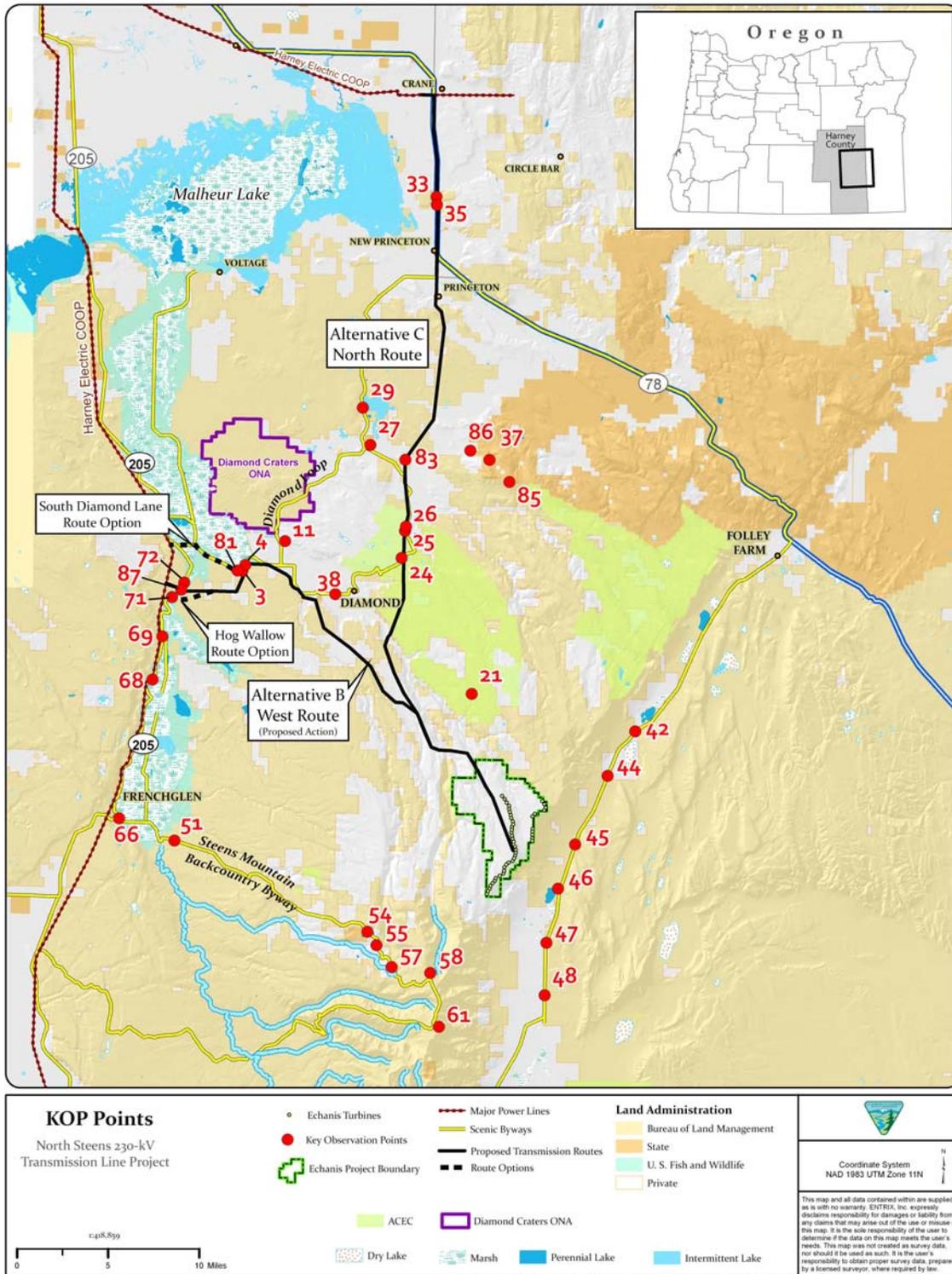


Figure 3.9-2 KOP Points

### *KOP Contrast Ratings*

To evaluate potential visual effects, contrast ratings are assigned to each view by considering the following factors: distance, angle of observation, length of time Project is in view, relativity to size or scale, season of use, light conditions, recovery time, spatial relationship, and atmospheric conditions. The degree of visual change is measured through a contrast rating established in the BLM VRM Manual 8431. Contrast ratings are noted as being none, weak, moderate, and strong depending on the degree of change. Contrast created by the Project is rated as follows:

- Strong:       The contrast demands attention and would not be overlooked by the average observer, and is dominant in the landscape.
- Moderate:    The contrast begins to attract attention and begins to dominate the characteristic landscape.
- Weak:         The contrast can be seen but does not attract attention.
- None:         The contrast is not visible or not perceived.

### *Comparison with Visual Resource Class Objectives*

A contrast rating is provided for each of the KOPs to assist in determining whether Project features meet the VRM objectives. The projected level of contrast is compared to acceptable levels of contrast for the visual resource class of the view as described in the existing conditions. The four levels of contrast are established in BLM Manual 8431 Appendix 2 and roughly correspond to the Visual Resource Class Objective (I, II, III, IV). This means that a strong contrast rating may be acceptable in a Class IV area and probably would be acceptable in a Class III area.

- Class I:      Acceptable contrasts are primarily natural ecological changes.
- Class II:     Contrasts may be seen but should not attract the attention of the casual observer.
- Class III:    Contrasts may attract attention but should not dominate the view of the casual observer.
- Class IV:     Contrast may dominate the view and be the major focus of viewer attention.

As previously noted the BLM Visual Resource Class Objectives would not apply to visual resources located on private land that are affected by the Project, however the BLM methodology was used for all areas of the Project to consistently address visual effects for the entire Project Area and its alternatives..

### *Effect Levels*

Effect classifications are based upon BLM Manual 8431 and are classified as high, moderate, or low based on the degree of contrast of the Project compared to the acceptable level of contrast for that visual resource class. The following effect levels are used:

- High:         Contrast from the Project is substantially greater than acceptable.
- Moderate:    Contrast is somewhat greater than acceptable for the visual resource class.
- Low:         Contrast is acceptable for the visual resource class.
- No effect:    Visual contrast is imperceptible.

### 3.9.2 Affected Environment

Situated in southeastern Oregon near the rural communities of Diamond, and New Princeton, the Project Area is characterized by its remote, relatively undeveloped landscape. Most of the Project Area is exceptionally rural with small communities separated by ranch complexes and undeveloped land managed by the BLM, USFWS, and the Oregon Department of State Lands. The Project Area encompasses a rich variety of landscapes ranging from rolling agricultural valleys incised by eroded canyons and volcanic uplifts surrounding rugged mountainous terrain. The topography is further distinguished by the dramatic peaks of the Steens and Riddle Mountains. The nearly 10,000 ft. peak of Steens Mountain and the surrounding Steens Mountain Cooperative Management and Protection Area divides the Project into distinctive areas. To the west of the mountains the landscape is characterized primarily by valley devoted to livestock grazing and agricultural separated by smaller volcanic uplifts. An expansive wetland and the MNWR separate the community of Frenchglen from the more rugged terrain to the northeast. To the east of the Project Area the peaks of Steens Mountain descend sharply into grazing areas for several large ranches before reaching the Alvord Desert – part of a playa or largely dry lake bed. These areas are outside of the Project Area related to the transmission lines but are considered in this analysis under Indirect and Cumulative Effects because of the visibility of the turbines from this area.

Visitation to the Project Area is facilitated by several scenic byways and private roads that traverse the ranchlands. The majority of visitors arrive at the Project Area on Highway 205, part of the High Desert Discovery Oregon Scenic Byway that connects the community of Burns/Hines to the Steens Mountain Wilderness area. The rangeland on the north side of the Project Area is accessed by the Diamond Loop Back Country Byway, smaller local roads, and unimproved (dirt) BLM roads. Visitation to the land to the east is made possible by U.S. Route 78 and the East Steens Road. Within the Steens Mountain Wilderness area access is provided by the Steens Mountain North and South Loop roads. Due to the relatively undeveloped nature of the country, elevation, and variations in topography there are many opportunities for vistas into the Project Area from relatively long distances.

#### 3.9.2.1 Existing VRM Classes in Project Area

This section provides a comparative analysis of the types of visual resources found within Alternative B (West Route), the two route options (Hog Wallow and South Diamond Lane), and Alternative C (North Route). Table 3.9-1 lists the approximate distances traversed by the Project alternatives through the existing VRM classes currently designated by BLM through the RMPs noted in Section 3.8.1. KOPs were utilized to illustrate the characteristic landscape types found at significant viewpoints of the Project Area. About 87 points were initially identified in the field as potential KOPs. Of these, 35 KOPs were selected for study to analyze the Project's direct, indirect, and cumulative effects. The results of that analysis appear within the Visual Resources Technical Report in Appendix D. Figure 3.9-2 is a map showing the location of each KOP point and the existing BLM VRM classes. Those KOPs that were not chosen for further study included locations from which there was no view of the Project components or the KOP was repetitive in terms of the view of Project components and general location. For the purposes of this Project, in situations where private lands were crossed by the Project and was visible from a KOP, the VRM class of the nearest, most applicable BLM parcel was utilized to develop a contrast rating and analyze the associated Project effect.

Table 3.9-1 lists the distances traversed by the Proposed Action and Alternative Actions through the existing VRM Classes currently designated by BLM through the RMP process described in Section 3.9.1.

**Table 3.9-1 Existing BLM VRM Classed Lands Crossed by Project Options & Alternatives**

VRM Class	Pre-existing VRM Class lands Crossed by Project (Miles)
<b>Alternative B – West Route</b>	
VRM Class 2	1.89
VRM Class 3	6.08
<b>Alternative C – North Route</b>	
VRM Class 2	0.09
VRM Class 3	2.40
VRM Class 4	3.50
<b>Hog Wallow Route Option</b>	
VRM Class 2	0.01
VRM Class 3	1.05
<b>South Diamond Lane Route Option</b>	
VRM Class 2	0.74
VRM Class 3	0.47

Notes:

For the 115-Kv Transmission Line Option, the distances provided in the table for Alternatives B and C (with their respective route options) would be the same. The Echanis Wind Energy Project does not lie on federal lands and thus does not lie on pre-existing VRM classified lands.

### 3.9.3 Environmental Effects and Mitigation

This section considers how Project-related operations and construction activities, which include transmission line route options, design options, and access roads, would affect the visual resources within the Project Area during the proposed Project. The proposed Project would traverse through lightly populated areas with an estimated 0.8 persons per square mile (<http://quickfacts.census.gov/qfd/states/41/41025.html>). The area is frequently accessed by tourists and recreational visitor and the proposed Project would have both temporary and permanent effects on the visual resources in these areas. As noted previously, the level of effect is contingent upon the contrast rating and the associated management objectives for the visual resource class. Some of these visual resources are situated on BLM lands previously analyzed using the BLM’s Visual Resource Classification system. The Project is also located on State of Oregon, U.S. Fish and Wildlife Service, and private land. For the purposes of this Project, the most appropriate Visual Resource Classification for the BLM lands nearest to the KOP was used for these areas. BLM does not retain the jurisdiction, however, to apply Visual Resource Class Objectives to non-BLM managed lands.

The potential effects on visual resources 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 visual resources, 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 described in Chapter 2 and are listed in Appendix A.

#### 3.9.3.1 **Alternative A – No Action**

Visual effects associated with the No Action Alternative would include the continuance of existing BLM management activities in the Project Area such as those included in the North Steens Ecosystem Restoration Project, Five Creeks Rangeland Restoration Project, and the Steens Mountain Travel Management Plan. The

BLM management activities would have effects to the visual resources in or near the Project Area. These effects have already been considered in previous environmental documents.

### 3.9.3.2 Echanis Project Effects Common to All Action Alternatives

The Project would tie into the Echanis Wind Energy Project thus providing a means of electrical transmission for the power generated by the Echanis Wind Energy Project.

The Echanis Wind Energy Project would consist of multiple Project components, including wind turbines, a power collection system, a substation, access roads, and an operations and maintenance (O&M) building. Between 40 and 69 wind turbines would be situated on the proposed site located near the edge of the northern Steens escarpment overlooking Mann Lake. Turbine towers would vary in height from 213 to 262 feet with a steel and concrete foundation. The towers including the wind rotors would be approximately 400 feet tall. During Project operation, the rotors would be in motion or be still. The exterior of the tower would have a smooth surface. Each turbine would be accompanied by a transformer located near the structure's base and the power would be distributed via power collection cables situated underground. An existing access road from Ham Brown Lane would be improved, widened, and extended to the Echanis site. The road would be topped with sub-course and top-course aggregates. Additional service roads would be constructed along and between the turbine strings. The small 24-foot by 48-foot O&M building and a substation would also be constructed. The substation would be approximately 200 feet long and 100 feet wide, enclosed with cyclone fencing and topped with a 3-strand barbed wire climb barrier. All vegetation within the fenced area would be removed and replaced with gravel. Construction would alter the visual environment through grading, installing foundations for electrical equipment, applying gravel, installing security fencing, and connecting equipment to the new transmission line.

To study the effects of the Project, seven KOPs were identified within the Project Area. The wind turbines are situated near lands that have received a Visual Resource Class of I and II. While on private land, the Echanis Wind Energy Project Area retains landscape characteristics similar to a BLM Visual Resource Class II.

#### PERMANENT EFFECTS

The effect levels of the Echanis Wind Energy Project would be low for KOPs 42, 44, and 48, as shown in Table 3.9-2. A moderate effect level would be experienced from KOPs 45, 47, and 61 and a high effect level would be experienced from KOP 46 (see Figures 3.9-4 through 3.9-7). The moderate effects come from the introduction of strong vertical, moving, human made elements into the largely stationary landscape, particularly along the East Steens Road and East Rim Overlook. The high effect for KOP 46 comes from the introduction of a strong vertical, human made element along the Steens ridgeline that is visible in the foreground from both within the Mann Lake recreational area and along the East Steens Road and immediately abuts VRM Class II lands. Due to the project's proximity to VRM Class II lands, the Project may affect the scenic quality ratings of these lands. The character of the adjacent scenery and cultural modifications near the VRM Class II lands immediately near the Echanis Wind Energy Project would change. While these effects would be moderate to high and otherwise not meet BLM visual resource management objectives for VRM Class II lands, the Echanis Wind Energy Project is located on private lands not subject to BLM's visual resource management objectives.

**Table 3.9-2 Echanis Wind Energy Project Effects**

Key Observation Points	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 42 East Steens Loop	B	Moderate	Distant	III	Weak	Low
KOP 44 East Steens Loop	B	Moderate	Foreground/ Middle ground	III	Weak	Low
KOP 45 East Steens Loop	B	Moderate	Foreground/ Middle ground	III	Weak	Low
KOP 46 Mann Lake	A	High	Foreground/ Middle ground	II	Moderate	Moderate
KOP 47 East Steens Loop	B	Moderate	Foreground/ Middle ground	II	Strong	High
KOP 48 East Steens Loop	B	Moderate	Distant	II	Moderate	Moderate
KOP 61 East Rim Overlook	A	High	Distant	III	Moderate	Moderate

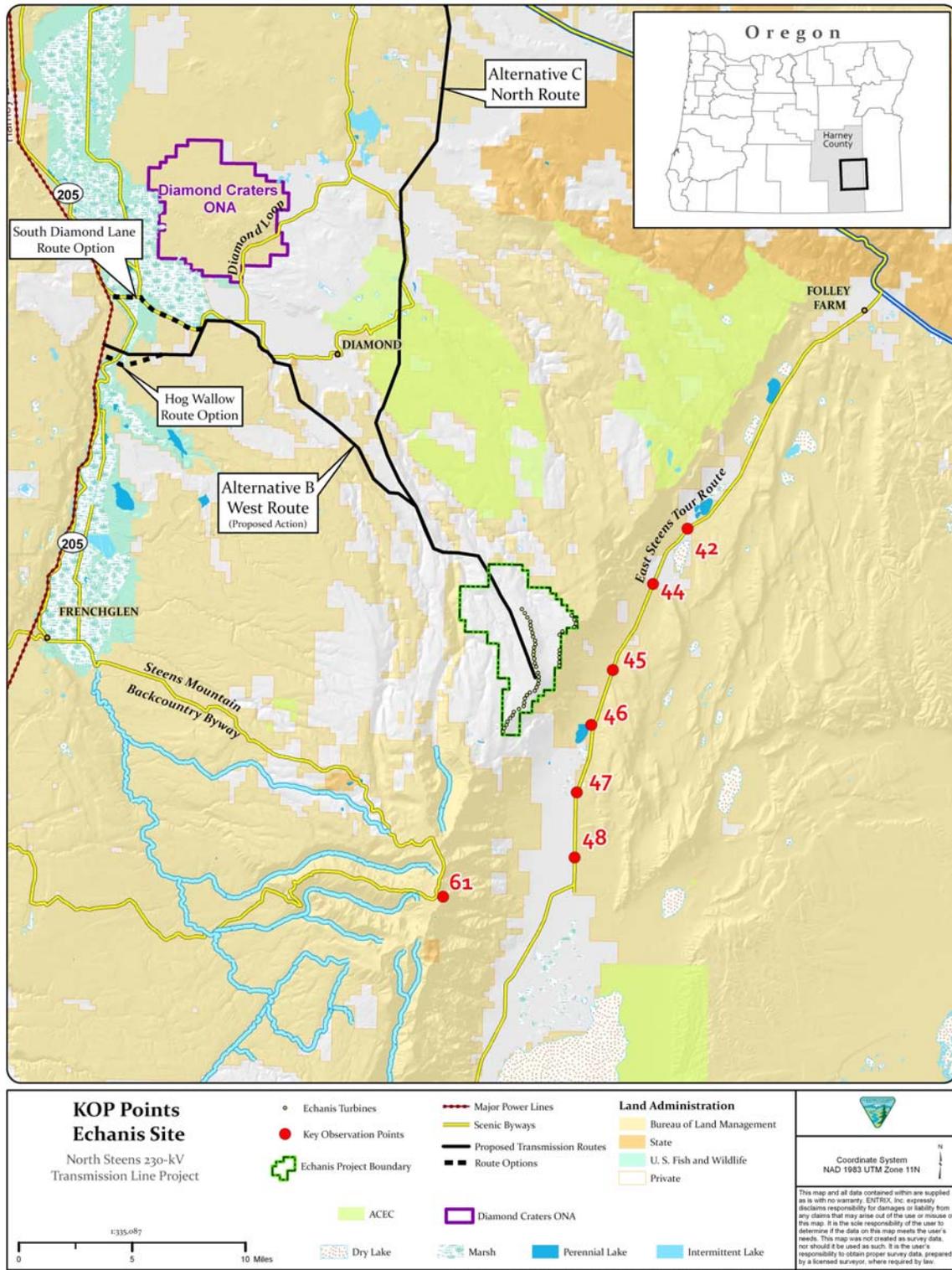


Figure 3.9-3 KOP Points Echanis Turbines



**Figure 3.9-4 Existing view of KOP 46, Mann Lake (top). This view is taken from the parking lot for the Mann Lake Recreation area.**



**Figure 3.9-5 Proposed view from KOP 46 (bottom). The Echanis Wind Energy Project turbines are approximately 3.5 miles away on the ridge above the lake.**



**Figure 3.9-6 Existing View of KOP 61, East Rim Overlook (top). View of Steens Mountain from East Rim Overlook.**



**Figure 3.9-7 Proposed view from KOP 61 (bottom). The Echanis Wind Energy turbines are approximately 7.6 miles away.**

### TEMPORARY EFFECTS

In general, construction equipment and materials have the potential for moderate to strong contrast against the existing landscape of the Project Area due to their differences in form, line, texture, and color. Furthermore, construction activities would occur where sensitive viewers visit the Project Area. Construction equipment, laydown and tensioning site areas, access roads, as well as excavation and dust plumes may be seen along the transmission line corridor. While construction activities would not meet existing VRM objectives for some classified lands, these activities would be short term and transitory with effects minimized by best management practices described in Chapter 2.

### LIGHT POLLUTION AND GLARE

In response to comments received during scoping, Project effects from light pollution and glare were analyzed. The RMPs for the Three Rivers, Andrews Management Unit, and the Steens Mountain CMPA do not contain overall management objectives pertaining to light pollution and/or glare generated from private lands as well as agency activities or agency permitted activities on BLM-administered lands in the Project Area. Light pollution can be caused by the use of exterior light fixtures or strobes or both that illuminate landscape features that would otherwise be largely devoid of light during the evening. Excessive lighting could also be visible during the day in low light situations.

In order to meet security and safety-oriented objectives for Project-related facilities, exterior lighting or strobes or both are needed on several components of the Project related to the Echinus Wind Energy Project, which is situated on private land. The FAA, for instance, requires structures over 200 feet be equipped with red or white flashing lights mounted on the nacelle of a wind turbine to avoid aircraft collisions during the day and night. Additional lighting at the substation and O&M facility would be limited to reduce nighttime light pollution through the use of directed lighting, timers, and motion sensors. Due to their minimal visibility outside of the immediate Project Area, these facilities would have a minimal effect upon nighttime light pollution. The red or white flashing lights on the nacelle of the wind turbines would be most visible from the East Steens Road (KOPs 45, 46, 47) and Steens Mountain East Rim Overlook (KOP 61). While these strobes would contrast against the nighttime visual environment, they would be intermittent and would not contribute to light pollution. Since the transmission line towers used for the Project fall below 200 feet they would not be required to have red or white flashing lights. Due to the lack of management objectives for light pollution and glare, no mitigation measures are required.

### MITIGATION

No mitigation for affects to visual resources would be implemented for the Echanis Wind Energy Project. Best Management Practices (BMPs) and Project Design Features (PDFs) described in Chapter 2 are designated to reduce effects from the proposed Project; therefore, no additional mitigation would be required.

#### **3.9.3.3 Alternative B – West Route (Proposed Action)**

The West Route would consist of a 28.9 mile long transmission line from the Echanis Substation to the Harney County Electric Cooperative (HEC) tie in. The transmission components for Alternative B include a new 230-kV transmission line, an interconnection station with an existing 115-kV transmission line, numerous laydown areas and tensioning sites, new and improved access roads, and relocation of an existing HEC distribution line along Diamond Lane. The mono-pole type transmission towers would range in height from 70 to 80 feet with three sets of cross arms that extend approximately 10 to 11 feet horizontally. Initial construction would involve installing a single circuit of the proposed double-circuit transmission line. The second circuit would be installed in the future, if needed, to serve additional wind energy projects proposed for development in the area. The towers near the Donner und Blitzen River in the MNWR would rise up to approximately 130 feet. The towers would be constructed of non-reflective, pre-rusted steel and would be spaced at intervals that range from 600 to 1,000 feet apart. The towers that are to be used to cross over the

Refuge would be more than 1400 feet apart. The interconnection station with an existing HEC 115-kV transmission line would consist of an 0.69 acre site adjacent to the existing line. The site would be fenced with cyclone fencing and topped with a 3-strand barbed wire climb barrier. All vegetation within the fenced area would be removed and replaced with gravel. Approximately 2.0 miles of the existing access road from Highway 205 to the interconnection station site would be improved by grading and widening. Approximately 1,000 feet of new access road would be constructed from the existing road to the interconnection station site. Project components would also include the grading and/or widening of existing roads and the clearing and grading of new roads along the Project corridor. The Project would also include a 1.4 mile distribution line relocation along South Diamond Road that would involve placing an existing 24.9-kV transmission line underground by excavating and backfilling a 6-foot trench or by placing it under waterways through a directional bore.

The transmission line of the West Route would traverse rolling terrain but would span the wetlands of MNWR and extend from rimrock to rimrock. KOPs were situated along Diamond Lane, North Diamond Loop Road, and Highway 205 southbound. From these observation points the distance from the Project Area to viewers varied from 800 feet to 2.8 miles. KOPs 4, 11, 38, and 72 are located in Class III Visual Resource classified areas. KOP 3 is located in a Class II Visual Resource classified area. The Buena Vista Overlook, located just north of Alternative B was also analyzed at a preliminary level for the DEIS. It may have views of the Transmission line (foreground – middleground) and wind turbines (background). The Overlook is near BLM VRM Class II and Class III lands. Figure 3.9-8 shows the KOP points for Alternative B.

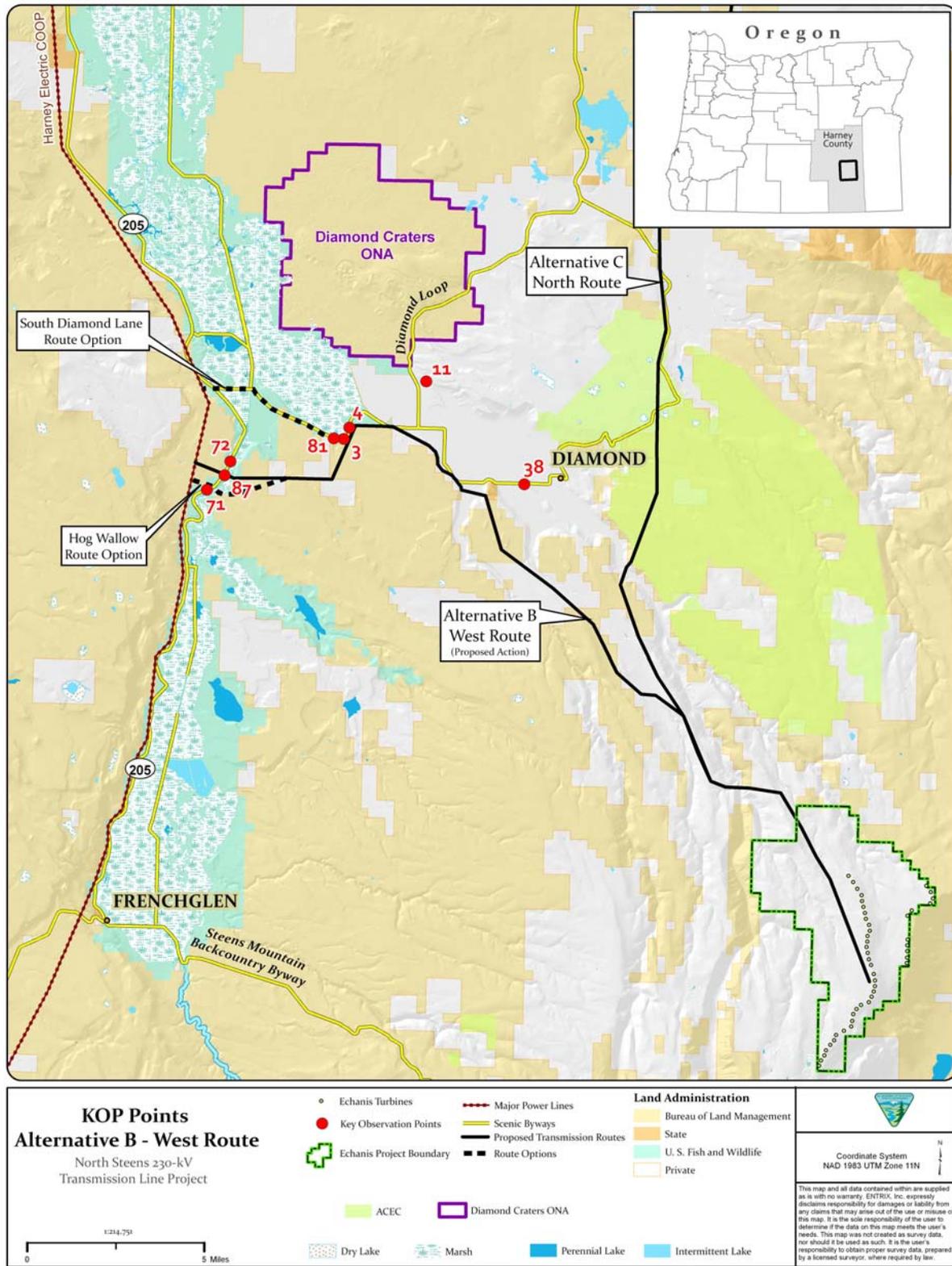


Figure 3.9-8 KOP Points Alternative B

**PERMANENT EFFECTS**

For KOP 3, where the Project Area is in a Class II area, the Project facilities would have a low to moderate contrast rating due to the use of non-reflective, pre-rusted monopoles which would reduce color contrasts with the rolling landscape composed of brown and gold hues (see Figures 3.9-9 and 3.9-10). The management objective for the Class II Visual Resource classification is to retain the existing character of the landscape. Any changes must repeat the basic elements of form, lines, color, and texture found in the predominant natural features of the characteristic landscape. The permanent effect from KOP 3 would be moderate due to the increased height and size of power distribution structures that would attract the attention of the casual observer. As shown in Table 3.9-3, KOPs 4, 11, 38, and 72, where the Project appears in a Class III area, the permanent effect was evaluated as low due to the relatively low scenic quality, proximity to sensitive viewers, and moderate to low contrast rating. For Class III areas, the management objective is to partially retain the existing character of the landscape, and the level of change to the characteristic landscape should be moderate. While the BLM-administered land in the vicinity of the KOPs are designated Class II and Class III areas, existing modifications to the landscape already include fencelines, grazing, and electrical/telephone wires and vertical wood poles. To somewhat reduce the visual effect slightly near BLM Class II lands along South Diamond Lane a 1.4 mile segment of an existing 24.9-kV transmission line along South Diamond Lane would be placed underground to reduce visual effects. For those sections of the Proposed Action situated within BLM-managed VRM Class II areas, the VRM management objectives would not be met. For those sections of the Proposed Action within BLM-managed VRM Class III areas, the VRM management objectives would be met. A KOP at the Buena Vista Overlook will be developed and analyzed for the FEIS.

**Table 3.9-3 Alternative B (West Route) Permanent Effects Visual Resource Analysis**

Key Observation Points	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 3 Diamond Lane	C	Moderate	Foreground/ Middle ground	II	Moderate	Moderate
KOP 4 Diamond Lane	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 11 N. Diamond Loop Road	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 38 View from Diamond School	B	Moderate	Foreground/ Middle ground	III	Low	Low
KOP 72 Hwy-205 southbound	B	Moderate	Foreground/ Middle ground	III	Moderate	Low
Buena Vista Overlook (to be added)	-	-	-	-	-	-

**TEMPORARY EFFECTS**

In general, construction equipment and materials have the potential for moderate to strong contrast against the existing landscape of the Project Area due to their differences in form, line, texture, and color. Furthermore, construction activities would occur where sensitive viewers visit the Project Area. Construction equipment, laydown and tensioning site areas, access roads, as well as excavation and dust plumes may be seen along the transmission line corridor. While construction activities would not meet existing VRM objectives for some classified lands, these activities would be short term and transitory with effects minimized by best management practices described in Chapter 2.



**Figure 3.9-9 Existing View of KOP 3 (Diamond Lane) (top). View looking northeast from Diamond Lane near town of Diamond.**



**Figure 3.9-10 Proposed view from KOP 3 (bottom). Transmission lines are approximately 800 feet from the viewer.**

**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. During the second construction phase, visual resources in the Project Area would experience similar temporary construction related effects as described above, including visible equipment, areas of excavation, and dust. Permanent effects would be the introduction of an additional horizontal element into the visual environment. All simulations were developed to show the full line capacity so that the effects of future construction could be analyzed.

**MITIGATION**

No mitigation for affects to visual resources would be implemented for Alternative B. Best Management Practices (BMPs) and Project Design Features (PDFs) described in Chapter 2 are designated to reduce effects from the proposed Project; therefore, no additional mitigation would be required.

***South Diamond Lane Route Option***

The South Diamond Lane Route Option consists of a 4.6 mile corridor that extends north and west from the proposed action along South Diamond Lane to its intersection with Highway 205 where it would cross the highway and follow a primitive road and short cross-country segment, to a new interconnection station adjacent to the HEC 115-kV transmission line. The route would parallel South Diamond Lane for nearly the entire distance and would be approximately 800 feet south from travelers along the road. The Project would be situated in the same location as an existing utility line. Approximately 3.0 miles of the route crosses land within MNWR, approximately 1.4 miles cross BLM-administered land, and approximately 0.2 mile cross private land.

**PERMANENT EFFECTS**

The permanent effects of this Route Option are similar to those noted for Alternative B (West Route). KOP 81 for this Route Option features views of an area near or on BLM-administered lands that currently have a Class II Visual Resource classification. It is evaluated as having a moderate visual effect due its close proximity to sensitive viewers, scenic quality rating, and moderate contrast rating. This route option would replace the poles from an existing transmission line with larger towers which would attract the attention of the casual observer. Due to the increased prominence of the Project within a Class II Visual Resource area, the VRM management objectives would not be met. This route option would also be visible in the foreground for the Buena Vista Overlook. A KOP for the Buena Vista Overlook will be developed and analyzed for the FEIS. Table 3.9-4 and Figures 3.9-11 and 3.9-12 present Project effects for the transmission lines associated with the South Diamond Lane Option.

**Table 3.9-4 Alternative B (West Route) Project Effects: South Diamond Lane Option**

Key Observation Points	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 81 South Diamond Lane	C	Moderate	Foreground/ Middle ground	II	Moderate	Moderate
Buena Vista Overlook (to be added)	-	-	-	-	-	-



**Figure 3.9-11** Existing View of KOP 81 South Diamond Lane near the South Diamond Canal (top). This view is from South Diamond Lane Travelling West.



**Figure 3.9-12** Proposed view from KOP 81 (bottom). The South Diamond Lane route option is immediately adjacent to the road.

**TEMPORARY EFFECTS**

The same temporary effects described above for Alternative B would apply to the South Diamond Lane Route Option, including the future upgrade to a full double-circuit 230-kV line.

**MITIGATION**

No mitigation for affects to visual resources would be implemented for the South Diamond Lane Route Option of Alternative B. Best Management Practices (BMPs) and Project Design Features (PDFs) described in Chapter 2 are designated to reduce effects from the proposed Project; therefore, no additional mitigation would be required.

*Hog Wallow Route Option*

The Hog Wallow Route Option consists of a 2.84 mile corridor that extends south and west from the proposed action. The route would cross Highway 205 and extend from rim to rim over the MNWR. One tower would be located approximately 100 feet to the west of Highway 205 and another tower would be situated approximately ¼ mile east of the road. The major differences between this route option and Alternative B would be: 1) the interconnection station to the HEC 115-kV transmission line would be 0.5 miles further south; 2) the access road to the site from Highway 205 (the same road used for Alternative B) would be about 0.5 mile shorter; and 3) several additional laydown areas and tensioning sites would be required along the optional route. The 1.4 miles of the existing 24.9-kV distribution system located along South Diamond Lane would be placed underground with this option, using the same construction techniques described for Alternative B.

**PERMANENT EFFECTS**

The two KOPs (71 and 87) that evaluate the permanent effect of the Hog Wallow Route Option are located on Highway 205 and would have views of the Project from the north and south. The view from KOP 87 would have a moderate effect due to the line’s visibility in the foreground/middle ground and the Steens escarpment in the background. Existing landscape characteristics include the roadway, fence lines and utility lines, wetlands, rock formations, as well as linear ridges. Both KOPs feature views of the Project Area located near BLM-administered lands that currently have a Class III Visual Resource classification. The Project would not be a dominant component of the landscape thus the modifications to the existing character of the landscape would meet VRM Class III management objectives. The Buena Vista Overlook may have views of this Project Option. A KOP for the Buena Vista Overlook with be developed and analyzed for the FEIS. Table 3.9-5 presents Project effects for the transmission lines associated with the Hog Wallow Route Option.

**Table 3.9-5 Alternative B (West Route) Project Effects: Hog Wallow Route Option**

Key Observation Points	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 71 Highway 205 northbound	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 87 Highway 205 southbound	C	Moderate	Foreground/ Middle ground	III	Moderate	Moderate
Buena Vista Overlook (to be added)	-	-	-	-	-	-



Figure 3.9-13 Existing View of KOP 87, Highway 205 near Donner und Blitzen River (top). This view is from Highway 205 traveling south.



Figure 3.9-14 Proposed view for KOP 87 (bottom). The Hog Wallow option is approximately 0.45 miles to the south.

### TEMPORARY EFFECTS

The same temporary effects described above for Alternative B and the South Diamond Lane Route Option would apply to the Hog Wallow Route Option, including the future upgrade to a full double-circuit 230-kV line.

### MITIGATION

No mitigation for effects to visual resources would be implemented for the Hog Wallow Route Option of Alternative B. Best Management Practices (BMPs) and Project Design Features (PDFs) described in Chapter 2 are designated to reduce effects from the proposed Project; therefore, no additional mitigation would be required.

### *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 only difference between this option and the routes described above would be the transmission line would carry one 115-kV 3-conductor circuit instead of one 115-kV 3-conductor circuit and one 230-kV circuit. The pole heights, pole spacing, ROW widths, construction methods, interconnection points, and access requirements would be the same as described for the other 230-kV routes.

### PERMANENT EFFECTS

The permanent effects to visual resources of this design option would be largely the same as described for Alternative B and the two route options. The principal difference would be the slightly different visual appearance of the towers in that only one 115-kV 3-conductor circuit would be present rather than the two that are proposed under Alternative B and the two route options. While slightly less of a visual impact, it would not reduce the visual presence of the towers within the overall landscape.

### TEMPORARY EFFECTS

The temporary visual effects for this option would be less than those for Alternative B, South Diamond Lane Route Option, and the Hog Wallow Route Option. This option would not require a second round of construction to add the second 230-kV circuit, nor would equipment upgrades be required at the interconnection station adjacent to the HEC line. With no second round of construction to upgrade to 230-kV, the temporary effects from the presence of construction equipment and materials and lay down areas would be less than those proposed in Alternative B. The remaining temporary effects described above for Alternative B, South Diamond Lane Route Option, and the Hog Wallow Route Option would apply to the 115-kV Transmission Line Option.

### MITIGATION

No mitigation for effects to visual resources would be implemented for the 115-Kv Transmission Line Option of Alternative B. Best Management Practices (BMPs) and Project Design Features (PDFs) described in Chapter 2 are designated to reduce effects from the proposed Project; therefore, no additional mitigation would be required.

### **3.9.3.4 Alternative C – North Route**

Alternative C (North Route) consists of a 45.9 mile long transmission line that follows the same Project corridor as Alternative B until the Project leaves the private lands within the CMPA. This alternative then

turns north and extends through the Kiger Mustang ACEC. This alternative partially follows Happy Valley Road then proceeds northward until it intersects and then follows Highway 78 near New Princeton until it terminates near the community of Crane. For those sections of the route near roads such as the Diamond Loop Road, Happy Valley, and Highway 78, the Project would be visible while traveling either north or south. The Project components include the transmission line, an interconnection station, access roads, and laydown areas and tensioning sites. These Project components would have the same physical characteristics as those proposed for Alternative B.

**PERMANENT EFFECTS**

All of the KOPs used for this alternative are situated either near or on BLM-administered land (see Figures 3.9-15 through 3.9-21). This alternative crosses 0.09 acres of VRM Class II lands as well as 2.4 acres and 3.5 acres of VRM Class III and Class IV lands respectively. The Project would be most visible from KOPs 24, 25, 26, 33, and 35. The Project would introduce new vertical elements into the landscape for KOPs 24, 25, and 26. KOPs 33 and 35 already contain an existing 24.9kV power distribution line with vertical poles and wires. The Project effects for all of these KOPs are low due to the respective Scenic Quality Ratings, visual resource classes, and distance of sensitive viewers from KOPs to the Project Area. Table 3.9-6 summarizes these effects.

**Table 3.9-6 North Route Alternative Project Effects**

Key Observation Points	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 24 SW on Happy Valley Road	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 25 S on Happy Valley Road	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 26 Happy Valley Road	B	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 27 Round Barn Visitor Center	B	High	Distant	II	Weak	Low
KOP 29 Dry Lake Reservoir	B	Moderate	Distant	II	Weak	Low
KOP 33 Hwy 78	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 35 Hwy 78	B	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 37 Riddle Mountain	B	Moderate	Distant	II	Weak	Low

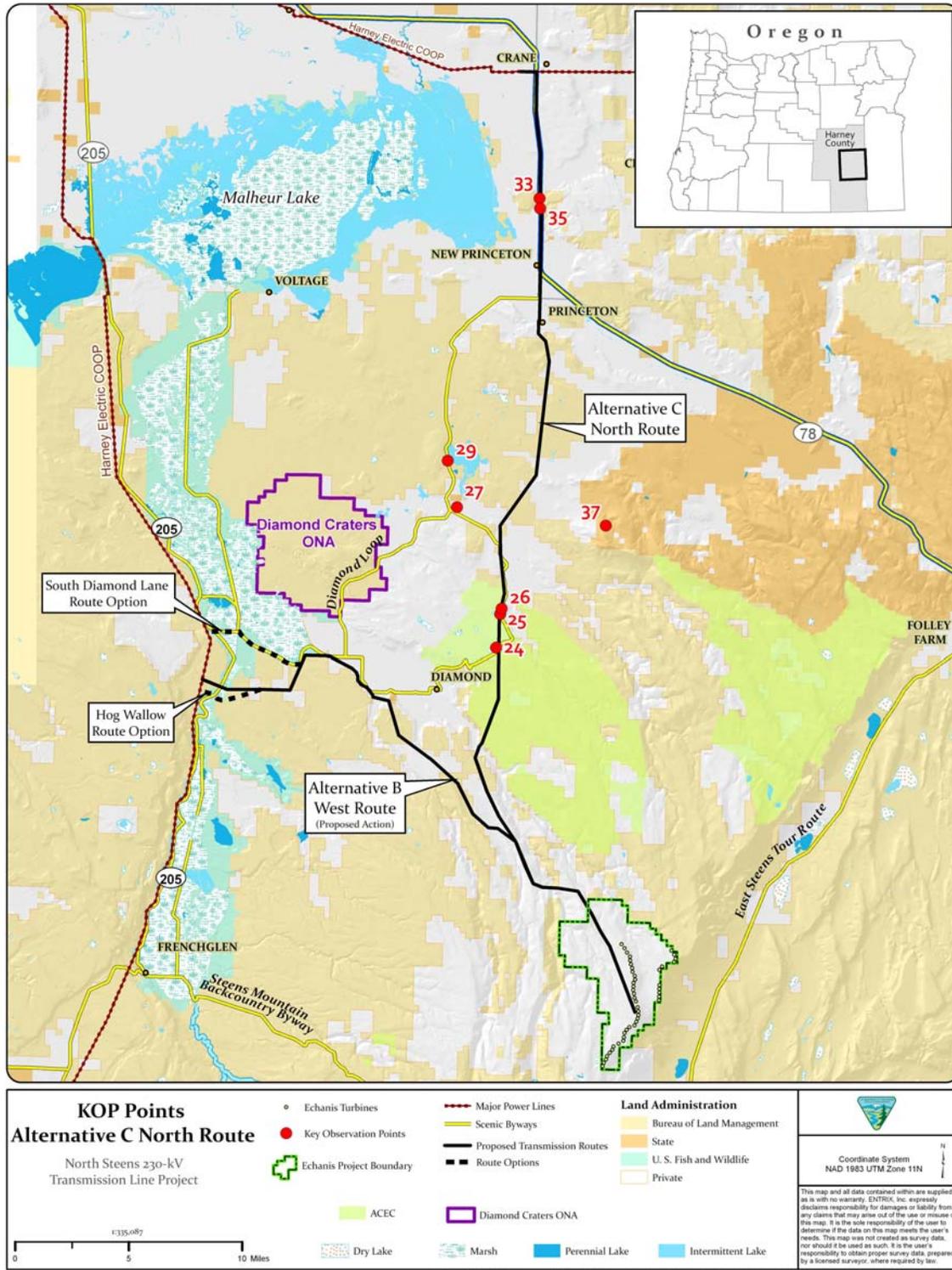


Figure 3.9-15 KOP Points Alternative C.



**Figure 3.9-16 Existing View of KOP 24 Happy Valley Road (top). This view is looking southwest on Happy Valley Road.**



**Figure 3.9-17 Proposed view from KOP 24 (bottom). The transmission Lines are 0.11 mile away.**



**Figure 3.9-18 Existing View of KOP 27, Round Barn Visitors Center (top). This view is from the parking lot at the Round Barn Visitors Center.**



**Figure 3.9-19 Proposed view from KOP 27 (bottom). The alternative route is approximately 2.25 miles away.**



Figure 3.9-20 Existing View of KOP 35 Highway 78 near Crane (top). This view is looking North from Highway 78 near the town of Crane.



Figure 3.9-21 Proposed view from KOP 35 (bottom). The alternate route is approximately 200 feet from the road immediately to the west (left).

### TEMPORARY EFFECTS

The temporary effects described above for Alternative B would also apply for Alternative C.

### 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. During the second construction phase, visual resources in the Project Area would experience similar temporary construction related effects as described above, including visible equipment, areas of excavation, and dust. Permanent effects would include the introduction of an additional horizontal element into the visual environment. All simulations were developed to show the full line capacity so that the effects of future construction could be analyzed.

### MITIGATION

No mitigation for affects to visual resources would be implemented for Alternative C. Best Management Practices (BMPs) and Project Design Features (PDFs) described in Chapter 2 are designated to reduce effects from the proposed Project; therefore, no additional mitigation would be required.

### *115-kV Transmission Line Option*

The Project features for the 115-Kv Transmission Line Option would be the same as described under the 115-kV Transmission Line Option of Alternative B.

### PERMANENT EFFECTS

The same permanent effects described above for the 115-kV Transmission Line Option of Alternative B would apply to the 115-kV Transmission Line Option for Alternative C as well.

### TEMPORARY EFFECTS

The same temporary effects described above for the 115-kV Transmission Line Option of Alternative B would apply to the 115-kV Transmission Line Option for Alternative C as well.

### MITIGATION

The same mitigation described above for the 115-kV Transmission Line Option of Alternative B would apply to the 115-Kv Transmission Line Option for Alternative C as well.

### **3.9.3.5 Residual effects after mitigation**

Residual effects that would last at least as long as the life of the project (an expected 40 years) would include the addition of wind turbines and transmission lines to the visual landscape.

### **3.9.3.6 Summary Comparison of Alternatives**

The effect to aesthetics and visual resources from development of the Echanis wind development, primary access road, and each alternative is summarized in Table 3.9-7.

**Table 3.9-7 Summary of Effects - Aesthetics and Visual**

	Alternative A No Action	Alternative B			Alternative C North Route
		West Route (Proposed Action)	S. Diamond Lane Route Option	Hog Wallow Route Option	
Echanis turbines	Visual effects within the project area would include continuation of existing BLM management activities in the Project Area, including the North Steens Ecosystem Restoration Project, Five Creeks Rangeland Restoration Project, and the Steens Mountain Travel Management Plan.	<p>High level of change for East Steens Loop (KOP 47)</p> <p>Moderate level of change for Mann Lake and East Steens Loop (KOPs 46, 48)</p> <p>Low level of effect for East Steens Loop and the East Steens Overlook (KOPs 42, 44,45,61)</p> <p>Temporary effects to visual resources from dust and visible construction activities</p>	<p>High level of change for East Steens Loop (KOP 47)</p> <p>Moderate level of change for Mann Lake and East Steens Loop (KOPs 46, 48)</p> <p>Low level of effect for East Steens Loop and East Rim Overlook (KOPs 42, 44, 45, 61)</p> <p>Temporary effects to visual resources from dust and visible construction activities</p>	<p>High level of change for East Steens Loop (KOP 47)</p> <p>Moderate level of change for Mann Lake and East Steens Loop (KOPs 46, 48)</p> <p>Low level of effect for East Steens Loop and East Rim Overlook (KOPs 42, 44, 45, 61)</p> <p>Temporary effects to visual resources from dust and visible construction activities</p>	<p>High level of change for 1 KOP 47</p> <p>Moderate level of change for Mann Lake and East Steens Loop (KOPs 46, 48)</p> <p>Low level of effect for East Steens Loop and East Rim Overlook (KOPs 42, 44, 45, 61)</p> <p>Temporary effects to visual resources from dust and visible construction activities</p>
Transmission Line	Visual effects within the project area would include continuation of existing BLM management activities in the Project Area, including the North Steens Ecosystem Restoration Project, Five Creeks Rangeland Restoration Project, and the Steens Mountain Travel Management Plan.	<p>Low Effect for all KOPs</p> <p>Temporary effects to visual resources from dust and visible construction activities</p>	<p>Low Effect for all KOPs</p> <p>Temporary effects to visual resources from dust and visible construction activities</p>	<p>Moderate Effect views southbound on Highway 205 (KOP 87)</p> <p>Low Effect for views northbound on Highway 205 (KOP 71)</p> <p>Temporary effects to visual resources from dust and visible construction activities</p>	<p>Low Effect for All KOPs</p> <p>Temporary effects to visual resources from dust and visible construction activities</p>

*This Page Intentionally Left Blank*