

## 3.9 VISUAL RESOURCES

Visual resources, as defined by the Bureau of Land Management (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 the 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 the 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 to 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 alternatives and options for this Project. This visual resources analysis applied the BLM's VRM methodology to evaluate the potential visual effects of the Project.

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

The Proposed Action (Alternative B – West Route), its two route options (South Diamond Lane and Hog Wallow), and its 115-kV Transmission Line Option cross federal lands managed by the BLM and U.S. Fish and Wildlife Service (USFWS), as well as private lands. Alternative C - North Route and its 115-kV Transmission Line Option cross federal lands managed by the BLM, state lands, and private lands. The Proposed Action would cross the Malheur National Wildlife Refuge (MNWR), which is 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 MNWR for migratory birds and other wildlife. In addition to the MNWR, private and state lands are not managed with a system or methodology to assess the visual effects to the existing landscape. While the BLM methodology

does not apply to non-Federal lands, the VRM methodology was used, for consistency, to assess the potential visual effects for the entire Project Area and its alternatives.

### 3.9.1.1 Methodology

This section describes the methodology used to develop an inventory of the visual resources within the affected environment by using the BLM's VRM methodology. The analysis was informed by comments obtained from the public scoping process that occurred from July to September 2009 and the DEIS comment period from July to September 2010. Comments from agency representatives, local organizations, and private citizens requested that the following issues be addressed for visual resources:

- Potential effects to tourism and recreation from an altered viewshed.
- Simulations of the following:
  - Effects of blinking lights from 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 about visual resources are referred to other sections of this document. Readers seeking information about the potential effects to tourism and recreation from altered viewsheds should also review Section 3.7 Recreation. The visual analysis includes simulations taken from areas where recreationists and tourists would travel or recreate. The simulations were prepared with the approaches discussed in the BLM's Visual Simulation Techniques contained in BLM Manual 8431, and illustrate the contrast of the proposed Project against the existing landscape. The simulations were prepared using commonly used computer software (MS PhotoShop) at resolutions ideally suited for computer downloads and accessibility.

Simulations of blinking lights placed on top of wind turbine towers, wind turbine movement, and nighttime views were not prepared, but the effects from these proposed Project operations were considered in this section. This section also includes an analysis of the 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 ROD/RMP (BLM 1991), Andrews Management Unit (AMU) ROD/RMP, and the Steens Mountain CMPA ROD/RMP (BLM 2005a/2005b). As discussed below, this EIS also considers the effects to visual resources on private land. 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 (BLM 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 require maintaining a natural environment essentially unaltered by humans. Classes II, III, and IV are assigned based upon a combination of factors that include the 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 that require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating basic elements.

The inventory for the North Steens 230-kV Transmission Line Project involved identifying the existing BLM visual classes on BLM lands and 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 the 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 the 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 purpose of this Project, the most appropriate Visual Resource Classification for the BLM lands nearest to a Key Observation Point (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 the Project Area to qualitatively determine the visibility of the proposed transmission lines, turbines, and other facilities from residences, major roads, recreational areas, and potential sensitive views.

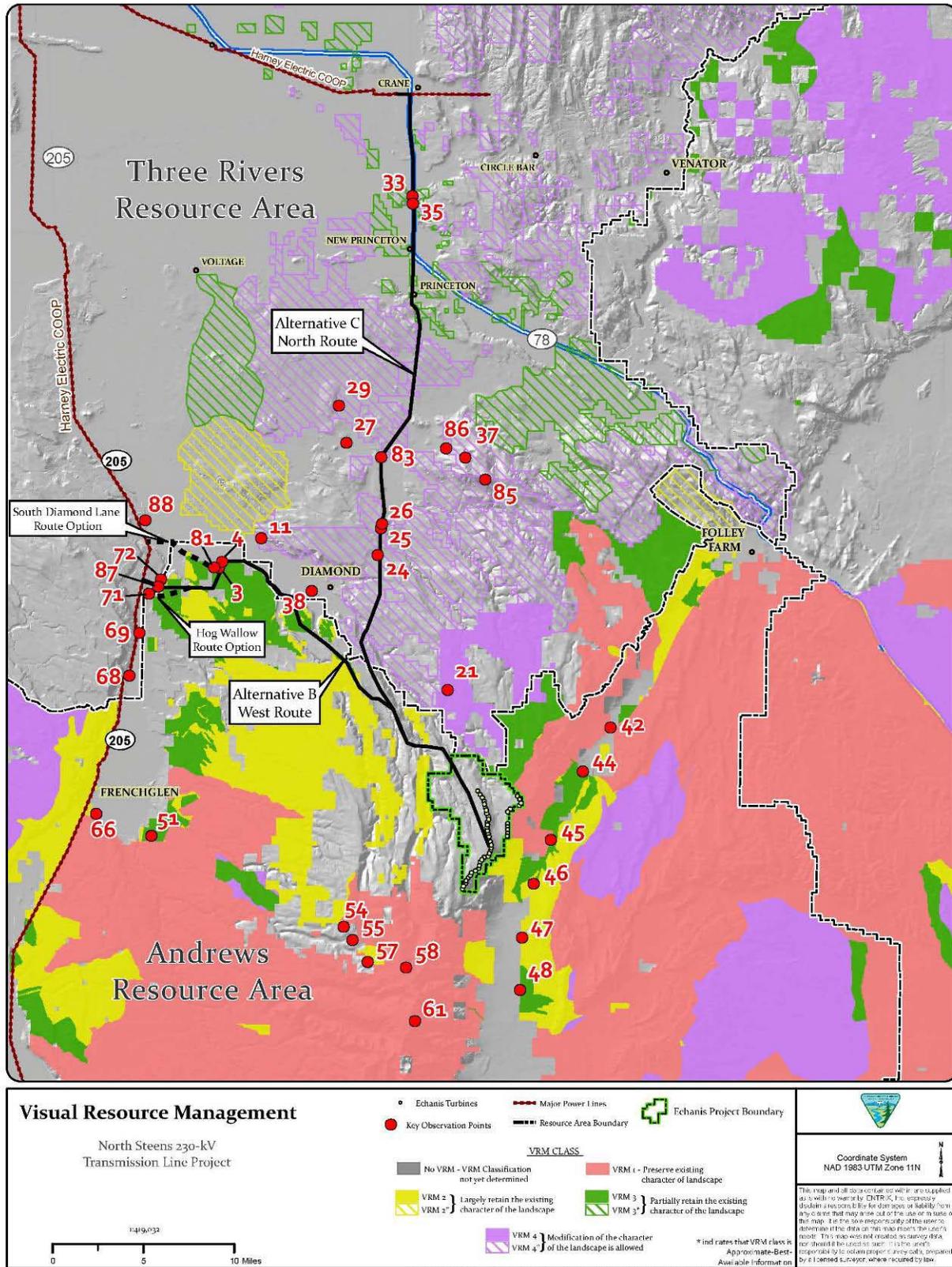


Figure 3.9-1 Visual Resource Management Classifications.

### *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 upon 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 are scored on a scale of 5 to 1, with a 5 representing the most dramatic visual presence and 1 the least presence. Cultural modifications are scored on a scale of 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 to 19 (B-rating), or may be as little as 11 (C-rating).

### *Sensitivity Level Analysis*

This analysis measured public concern for scenic quality. Consistent with BLM *Manual 8410-1*, public lands were assigned a high, medium, or low sensitivity level by analyzing the various indicators of public concern, including the type of users, amount of use, public interest, adjacent land uses, special areas, and other factors. Special areas could include Wilderness Areas, ACECs, WSAs, and WSRs that retain scenic qualities.

The types of users in the Project Area included residents and workers on the ranches; residents of the towns of Frenchglen, Crane, Diamond, and Princeton; travelers on the various scenic byways; and recreationists to the Steens Mountain Wilderness Area, MNWR, and other facilities in the area. Recreationists 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 recreational use of the Project Area is seasonally driven, 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 the 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. For additional information about Project effects to wilderness characteristics (which include scenery), also see Section 3.13 Wilderness.

### *Delineation of Distance Zones*

The delineation of a distance zone involved 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 the 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. 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 was 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 a KOP. Each KOP is summarized in Tables 3.9-2 through 3.9-6. Figure 3.9-2 shows the location of each KOP. The KOPs were located on the major access roads and publically accessible routes with views to the Project Area.

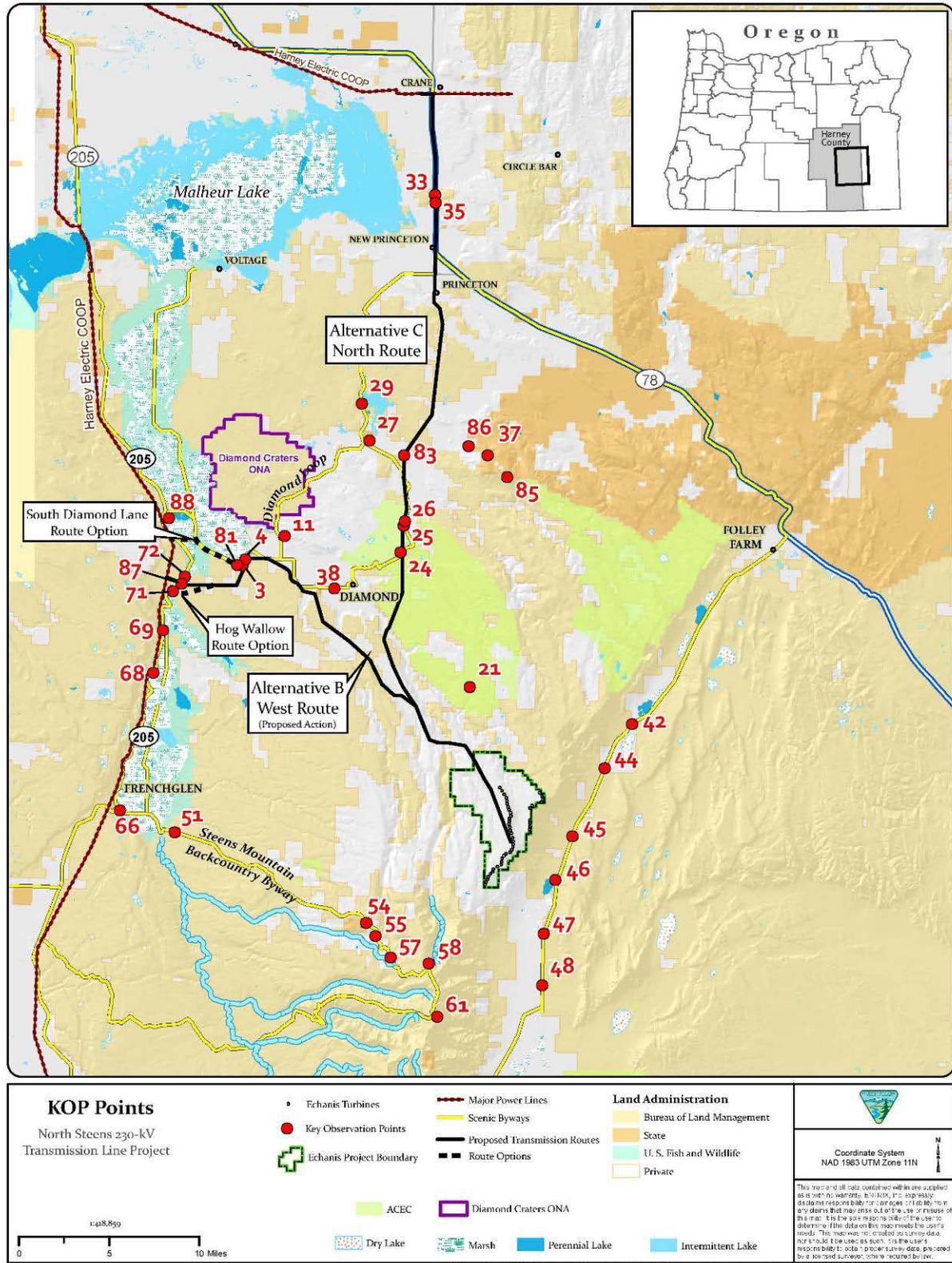


Figure 3.9-2 Key Observation Point (KOP) sites.

### 3.9.1.3 VRM Methodology – Analysis

The analysis stage involved 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 were 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.

#### *KOP Contrast Ratings*

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

- Strong: The contrast demands attention and would not be overlooked by the average observer, and was dominant in the landscape.
- Moderate: The contrast begins to attract attention and begins to dominate the characteristic landscape.
- Weak: The contrast could be seen but did not attract attention.
- None: The contrast was 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 was 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, and IV). This means that a strong contrast rating could 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 the visual effects for the entire Project Area and its alternatives.

## Effect Levels

Effect classifications were based upon the BLM *Manual 8431* and were classified as high, moderate, or low based upon the degree of contrast of the Project compared to the acceptable level of contrast for that visual resource class. The following effect levels were 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 to volcanic uplifts surrounding rugged mountainous terrain. The topography is also distinguished by the dramatic peaks of Steens and Riddle Mountains. The nearly 10,000-foot peak of Steens Mountain and the surrounding Steens Mountain CMPA divides the Project into distinctive areas. To the west of the mountains the landscape is characterized primarily by valleys 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, which is part of a playa or largely dry lake bed. These areas are outside of the Project Area for 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 in the Project Area using 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 ranchland 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 Highway 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 the Project Area

This section provides a comparative analysis of the types of visual resources found within Alternative B - West Route, the two route options (South Diamond Lane and Hog Wallow), 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. The KOPs that were not chosen for additional study included locations from which there would be no view of the Project components, or the KOP would have the same

views 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 action alternatives 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 Alternatives and Route Options (miles)**

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

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 evaluates how Project-related construction and operation activities, which would include transmission line route options, design options, and access roads, would affect the visual resources within the Project Area. 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 visitors and the proposed Project would have both temporary and permanent effects to 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, USFWS, 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 to 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 (PDF) and best management practices (BMP) to reduce the effects upon 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 Appendix A (A.1.8 and A.3.8).

### 3.9.3.1 Alternative A – No Action

The 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 (Echanis Project), thus providing a means of electrical transmission for the power generated by the Echanis Project. The Echanis 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 and would have steel and concrete foundations. 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 have a transformer located near the structure's base and the power would be transmitted via underground power collection cables.

An existing access road from Ham Brown Lane would be improved, widened, and extended to the Echanis Project 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 and enclosed within cyclone fencing that would be topped with a three-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 (see Figure 3.9-3). The wind turbines would be situated near lands that have a Visual Resource Class of I and II. While on private land, the Echanis Project Area would retain landscape characteristics similar to a BLM Visual Resource Class II.

#### PERMANENT EFFECTS

The effect levels of the Echanis 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 would be a result of the introduction of strong vertical, moving, and human-made elements into the largely stationary landscape, particularly along the East Steens Road and East Rim Overlook. The high effect for KOP 46 would result from the introduction of a strong vertical, human-made element along the Steens ridgeline that would be visible in the foreground from both within the Mann Lake recreational area and along the East Steens Road, and would immediately abut VRM Class II lands. Due to the Project's proximity to VRM Class II lands, the Project could affect the scenic view quality from these lands. The character of the adjacent scenery and cultural modifications near the VRM Class II lands immediately near the Echanis Project would change. While these effects would be moderate to high, the Project would not alter the rating of BLM land with VRM Class II management objectives. Furthermore, the and otherwise not meet BLM visual resource management

objectives for ~~VRM Class II lands~~, Echanis Project would be located on private lands that are not subject to BLM's visual resource management objectives.

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

Key Observation Points and Locations	Land Ownership of Viewed Area	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 42 - East Steens Road	<u>BLM and Private (Turbines on Private)</u>	B	Moderate	Distant	III	Weak	Low
KOP 44 - East Steens Road	<u>BLM and Private (Turbines on Private)</u>	B	Moderate	Foreground/Middle ground	III	Weak	Low
KOP 45 - East Steens Road	<u>BLM and Private (Turbines on Private)</u>	B	Moderate	Foreground/Middle ground	III	Weak	Low
KOP 46 - Mann Lake	<u>BLM and Private (Turbines on Private)</u>	A	High	Foreground/Middle ground	II	<u>Strong</u>	<u>High</u>
KOP 47 - East Steens Road	<u>BLM and Private (Turbines on Private)</u>	B	Moderate	Foreground/Middle ground	II	<u>Moderate</u>	<u>Moderate</u>
KOP 48 - East Steens Road	<u>BLM and Private (Turbines on Private)</u>	B	Moderate	Distant	III	<u>Weak</u>	<u>Low</u>
KOP 61 - East Rim Overlook	<u>BLM and Private (Turbines on Private)</u>	A	High	Distant	III	Moderate	Moderate

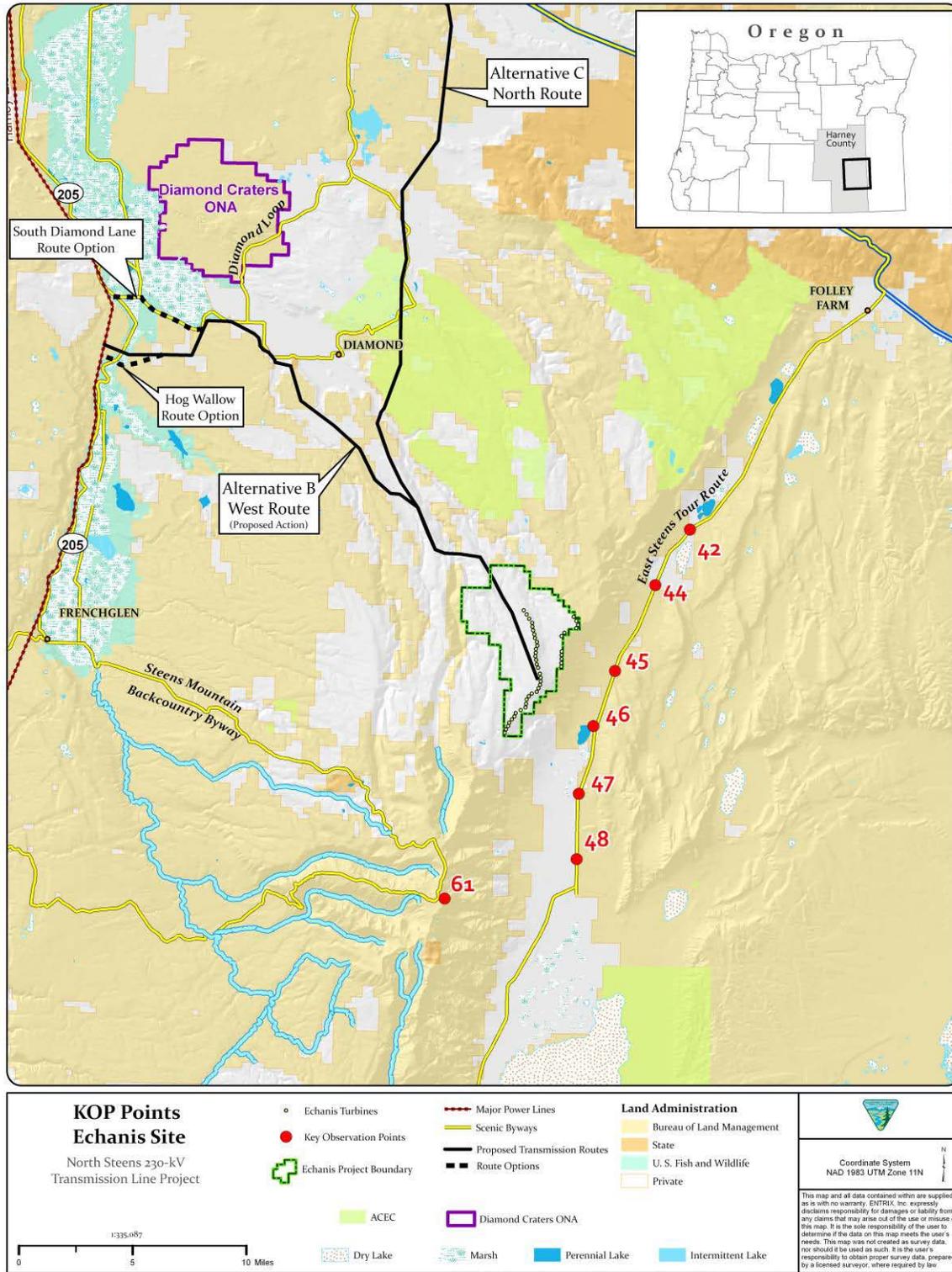


Figure 3.9-3 KOP Points for the Echanis Wind Energy Project Turbines.



**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 Site.**



**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 the East Rim Overlook.**



**Figure 3.9-7 Proposed View from KOP 61 (bottom). The Echanis Wind Energy Project turbines are approximately 7.6 miles away (not visible).**

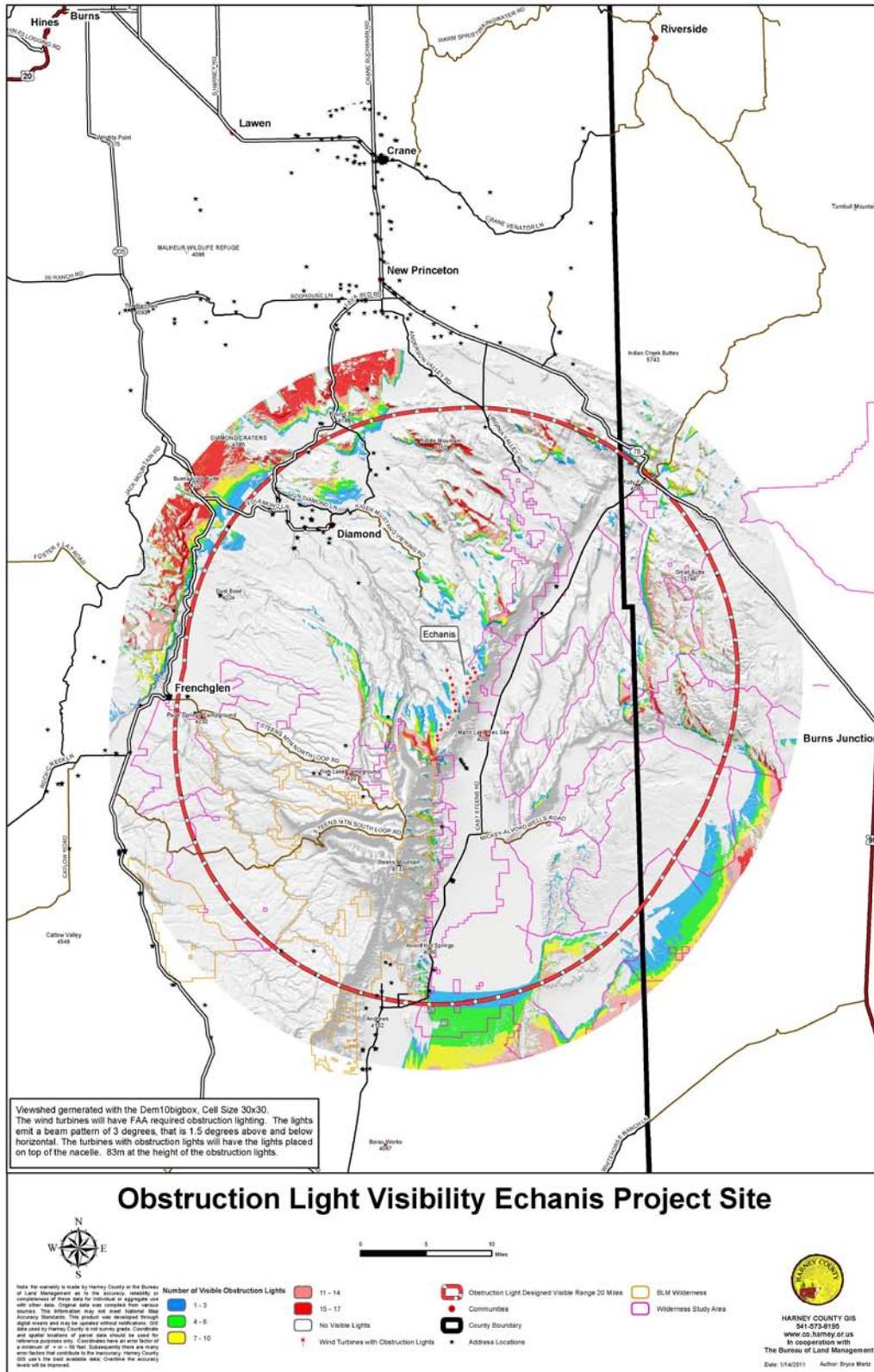
### TEMPORARY EFFECTS

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 could 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 the effects minimized by implementation of the BMPs described in Appendix A (A.1.8). These BMPs, for instance, would diminish the amount of dust and associated atmospheric haze generated during use of the access roads, revegetate areas that are temporarily disturbed by construction, avoid use of paints or other discolorants on the landscape, and remove all stakes and flags when construction was completed.

### LIGHT POLLUTION AND GLARE

In response to comments received during EIS scoping and on the draft, the 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 for 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, strobes, or both that illuminates 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 conditions. The Steens Mountain area has been identified as containing particularly good locations for observational astronomy, as a result of its comparatively clear dark sky away from population centers and its altitude (Danko 2010). The area near Fish Lake at one time served as a location for the Oregon Star Party, a yearly event that is now held near Indian Trail Spring in the Ochoco National Forest under a USFS permit (Danko 2010, Oregon Star Party 2011).

To meet the security and safety-oriented objectives for the Project-related facilities, exterior lighting, strobes, or both would be needed on several components of the Echanis Project, which would be situated on private land. The FAA, for instance, requires the mounting of red or white flashing lights on top of structures over 200 feet tall, to avoid aircraft collisions during the day and night. To meet these FAA requirements, wind turbine installations utilize red obstruction lights on top of the nacelle of each wind turbine at the end of a string of turbines, and on turbines within strings on a spacing not to exceed 0.5 mile. Light pollution would be minimized through the use of synchronization, which would simultaneously flash all obstruction lights within the Echanis Project. The utilization of obstruction lights with a narrow vertical beam spread, typically 3 degrees, would further reduce the visible range of the obstruction lights. Obstruction lights are typically visible from less than 25 miles away, under ideal conditions (Patterson 2005). To better understand the effects of night sky illumination, Harney County supplied the BLM with a viewshed map (Figure 3.9-8) that illustrates the geographic areas where obstruction strobes would be visible under the most ideal atmospheric conditions and assuming a lack of vegetation. This analysis indicated that the strobes would be visible from a limited amount of land within a 20-mile radius of the Project because of the narrow vertical beam spread. A photo simulation prepared for the Nine Canyon Wind Project in Washington State approximates the night time views of the Project (see <http://www.efsec.wa.gov/wildhorse/deis>, figures/40 Fig 3.10-9 and 10.pdf).



**Figure 3.9-8 Obstruction Light Visibility from the Echanis Wind Energy Project Site (20-mile viewshed). Courtesy of Harney County.**

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. Because of 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 top of the nacelle of the wind turbines would be most visible from the East Steens Road (KOPs 45, 46, and 47) and the 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. Because the transmission line towers used for the Project would be less than 200 feet tall, they would not be required to have red or white flashing lights. Because of the lack of management objectives for light pollution and glare, and the minimal impacts from the strobes and facility lighting, no mitigation measures other than the light reduction measures and narrow beam spread specifications noted above would be required.

### MITIGATION

To address public concerns regarding potential effects to visual resources caused by the visibility of wind turbines after the DEIS was issued, the BLM has expanded its consideration of potential mitigation measures to include the following:

- Banning commercial messages or symbols (such as logos), trademarks, and messages on turbines towers, and/or ancillary structures; and
- Developing aesthetic offsets where corrective or ameliorative actions are needed to improve the existing condition. Examples could include reclaiming unnecessary roads in the area, cleanup of illegal dumps or trash, or rehabilitation of existing erosion or disturbed areas.

No other potential mitigation measures were identified through a selective analysis of wind energy environmental impact statements for projects involving federal lands, including the *Wind Energy Development Programmatic EIS* (BLM 2005) and *West Butte Wind Power Right of Way EIS* (BLM 2011). The implementation of these measures would be beyond BLM's direct jurisdiction because the Echanis Wind Energy Project would be located on private land.

To reduce the potential for short-term construction effects and long-term visual effects upon recreation, PDFs and BMPs were incorporated into the action alternatives and would be implemented to reduce the potential effects (Appendix A.1.8). Examples would include:

- Any outdoor (i.e., non-FAA required or recommended) lighting would be hooded and directed so as not to shine directly upon adjoining property or public road rights-of-way. Any lighting required or recommended by the FAA for air traffic marking would conform to the approved standards established by the FAA;
- The coloration of all exterior components of the wind turbines would be off-white or light gray for the blades, the towers, and the nacelles. The finish of all of these exterior components would be flat, semi-gloss, or galvanized, to avoid producing significant glare;
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities;
- Access roads and other areas of ground disturbance within the construction limits would be watered, as needed, to remain compact and to avoid the creation of dust;
- No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate the limits of survey or construction activity;

- Nonspecular conductors would be used to reduce impacts; and
- All stakes and flagging would be removed from the construction area and disposed of in a State approved landfill.

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

Alternative B 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 would 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 transmission towers would be 70 to 80 feet tall, with three sets of cross arms that extended approximately 10 to 11 feet horizontally. The towers would be constructed of non-reflective, pre-rusted steel and would be spaced at 600- to 1,000-foot intervals. The towers near the Donner und Blitzen River in the MNWR would be up to 130 feet tall, and the towers that would be used to cross over the Refuge would be more than 1,400 feet apart. 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 additional wind energy projects were proposed for development in the area (see Section 3.19 Cumulative Effects).

The interconnection station with an existing HEC 115-kV transmission line would consist of a 0.69-acre site adjacent to the existing line. The site would be fenced with cyclone fencing and topped with a three-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. This relocation 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 using a directional bore.

The Alternative B transmission line would traverse rolling terrain but would span the wetlands of the MNWR and extend from rimrock to rimrock. KOPs were selected 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 (KOP 88), located just north of Alternative B, was also analyzed for the FEIS. It has views of the South Diamond Lane Route Option transmission line (foreground – middleground). The Overlook is near BLM VRM Class II and Class III lands. Figure 3.9-9 shows the KOP points for Alternative B.

#### PERMANENT EFFECTS

For KOP 3, where the Project Area would be in a Class II area, the Project facilities would have a low to moderate contrast rating, because of the use of non-reflective, pre-rusted monopoles that would reduce the color contrasts with the rolling landscape composed of brown and gold hues (see Figures 3.9-10 and 3.9-11). 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

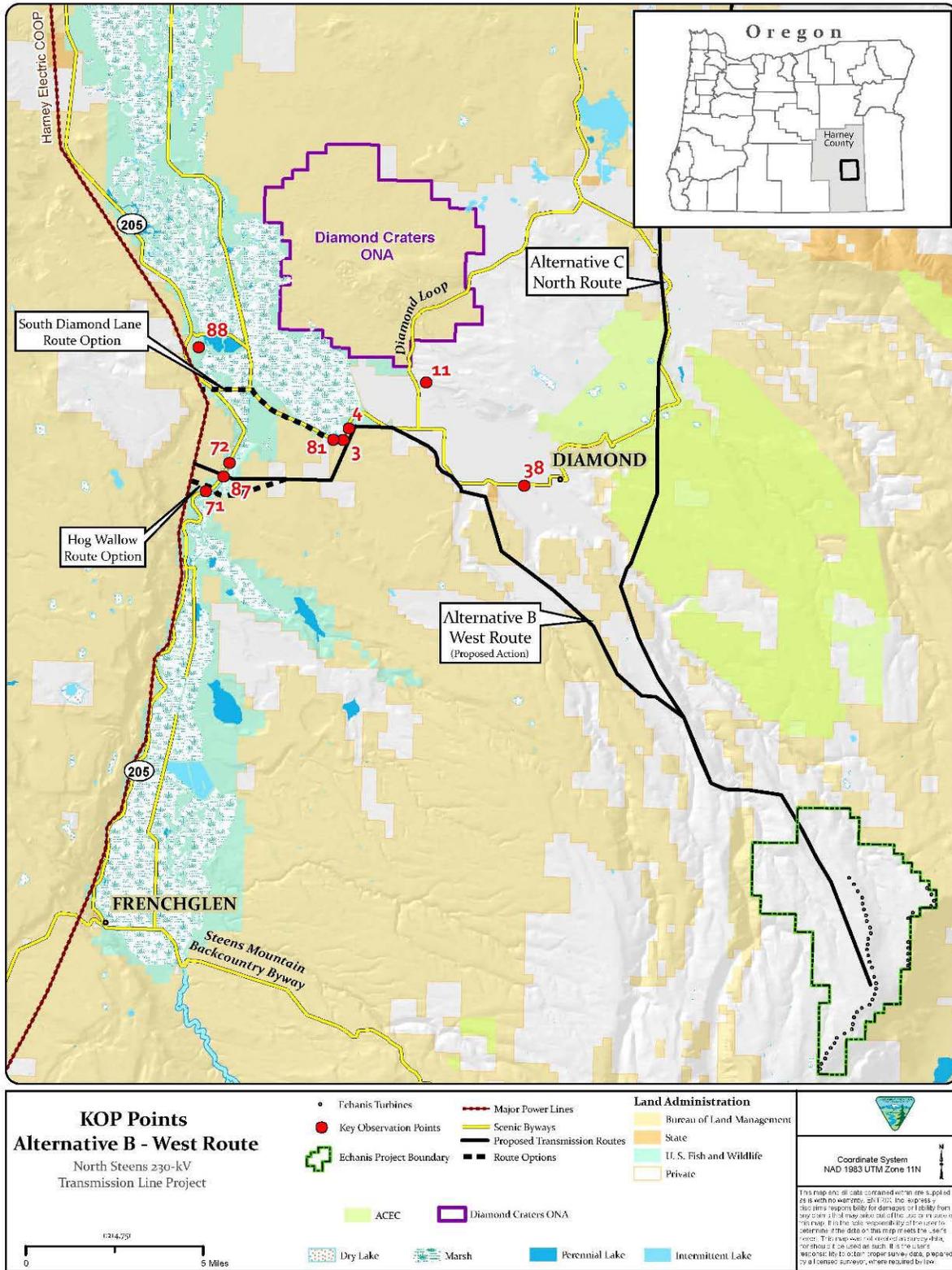
moderate because of the increased height and size of power distribution structures that would attract the attention of the casual observer.

As shown in Table 3.9-3, KOPs 4, 11, 38, 72, and 88, where the Project would appear in a Class III area, the permanent effect was determined to be low because of the relatively low scenic quality, proximity to 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 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 the visual effects. For those sections of the Proposed Action within BLM-managed VRM Class III areas, the VRM management objectives would be met.

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

Key Observation Points	Land Ownership of Viewed Area	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 3 - Diamond Lane	<u>BLM (T-line on BLM)</u>	C	Moderate	Foreground/ Middle ground	II	Moderate	Moderate
KOP 4 - Diamond Lane	<u>BLM and Private (T-line on Federal)</u>	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 11 - N. Diamond Loop Road	<u>BLM and Private (T-line on BLM)</u>	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 38 - View from Diamond School	<u>BLM and Private (T-line on BLM)</u>	B	Moderate	Foreground/ Middle ground	III	Low	Low
KOP 72 - Highway 205, southbound	<u>BLM and Private (T-line on BLM and Private)</u>	B	Moderate	Foreground/ Middle ground	III	Moderate	Low
<u>KOP 88 - Buena Vista Overlook</u>	<u>BLM and Private (T-line on BLM and Private)</u>	<u>B</u>	<u>High</u>	<u>Foreground/ Middle ground</u>	<u>III</u>	<u>Low</u>	<u>Low</u>

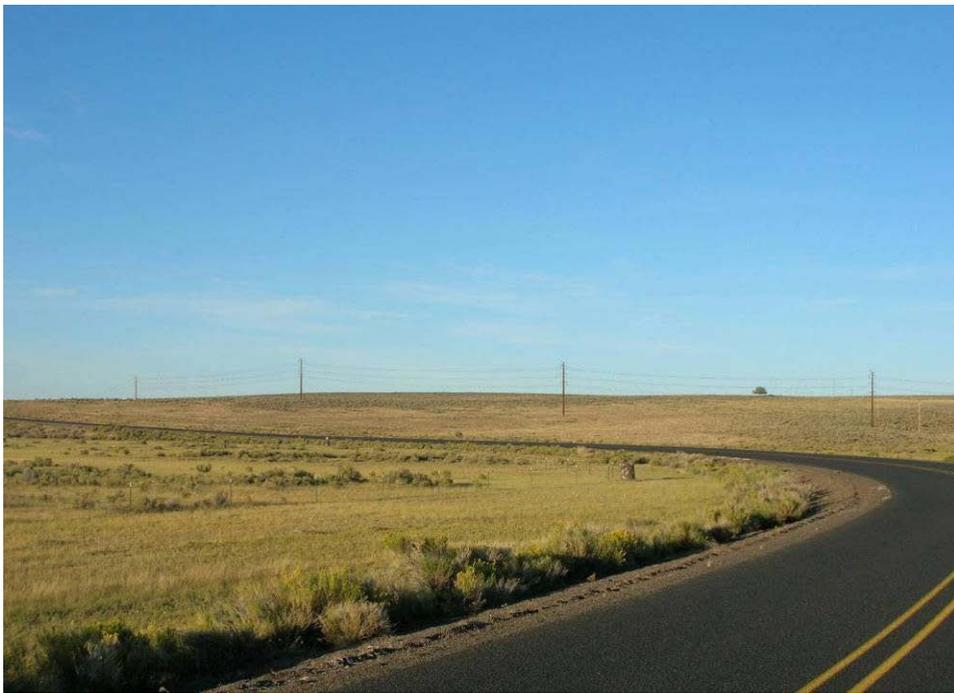
For those sections of the Proposed Action situated within BLM-managed VRM Class II areas, the VRM management objectives would not be met. When a proposed alternative or preferred action does not conform to management goals and objectives (i.e., manage public land actions and activities in a manner consistent with VRM class objectives), a RMP Amendment has to be prepared. For this alternative to be approved by the BLM, an RMP Amendment would be prepared.



**Figure 3.9-9 KOP Points for Alternative B – West Route.**



**Figure 3.9-10 Existing View of KOP 3 (Diamond Lane) (top). View looking northeast from Diamond Lane, near the town of Diamond.**



**Figure 3.9-11 Proposed View from KOP 3 (bottom). The transmission line is approximately 800 feet from the viewer.**

### TEMPORARY EFFECTS

In general, construction equipment and materials have the potential for moderate to strong contrast against the existing landscape of the Project Area because of 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 could be seen along the transmission line corridor. While construction activities would not meet the existing VRM objectives for some classified lands, these activities would be short-term and transitory, with the effects minimized by the BMPs described in Appendix A (A.1.8). These BMPs, for instance, would diminish the amount of dust and associated atmospheric haze generated during use of the access roads, revegetate areas that are temporarily disturbed by construction, avoid use of paints or other discolorants on the landscape, and remove all stakes and flags when construction was completed.

### FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-kV

The upgrade of the initial single-circuit transmission line to a double-circuit 230-kV transmission line would require a second construction phase at a future date, when additional capacity was 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

To address public concerns regarding potential effects to visual resources caused by the visibility of transmission lines after the DEIS was issued, the BLM has expanded its consideration of potential mitigation measures to include the following:

- Placing more electrical conduit than currently proposed below ground to minimize the visual presence on Class II lands;
- Banning commercial messages or symbols (such as logos), trademarks, and messages on the transmission lines and/or ancillary structures;
- Developing aesthetic offsets where corrective or ameliorative actions are needed to improve the existing condition. Examples could include reclaiming unnecessary roads in the area, cleanup of illegal dumps or trash, or rehabilitation of existing erosion or disturbed areas; and
- Developing interpretive materials or displays that provide information about the Echanis Project wind turbines for public distribution.

No other potential mitigation measures were identified through a selective analysis of wind energy environmental impact statements for projects involving federal lands, including the *Wind Energy Development Programmatic EIS* (BLM 2005) and *West Butte Wind Power Right of Way EIS* (BLM 2011). The implementation of these measures would be beyond BLM's direct jurisdiction because the Echanis Wind Energy Project would be located on private land.

To reduce the potential for short-term construction effects and long-term visual effects upon recreation, PDFs and BMPs were incorporated into the action alternatives and would be implemented to reduce the potential effects (Appendix A.1.8). Examples would include:

- Weathered steel poles, which have a rusted appearance, would be used for the 230-kV transmission line to reduce visual contrasts;
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities;
- Access roads and other areas of ground disturbance within the construction limits would be watered, as needed, to remain compact and to avoid the creation of dust;
- No paint or permanent discoloring agents would be applied to the rocks or vegetation, to indicate the limits of survey or construction activity;
- Nonspecular conductors would be used to reduce impacts;
- All stakes and flagging would be removed from the construction area and disposed of in a State approved landfill; and
- Any outdoor (i.e., non-FAA required or recommended) lighting would be hooded and directed so as not to shine directly upon adjoining property or public road rights-of-way.

### *South Diamond Lane Route Option*

The South Diamond Lane Route Option would consist of a 4.6-mile corridor that extended 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 option would parallel South Diamond Lane for nearly the entire distance and would be approximately 800 feet south of 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 option would cross land within the MNWR, approximately 1.4 miles would cross BLM-administered land, and approximately 0.2 mile would cross private land.

#### PERMANENT EFFECTS

The permanent effects of this route option would be 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 because of 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. Because of 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 of the Buena Vista Overlook (KOP 88). This viewpoint has a high sensitivity level because of its high visitation and the presence of stationary viewers. But, the Project would have a low contrast and low effect because of the elevated perspective of the viewers, the distance between the viewers and the Project, and the Project's presence below the horizon reduces the Project's visual effect upon existing landscape characteristics.

For those sections of the Proposed Action situated within BLM-managed VRM Class II areas, the VRM management objectives would not be met. When a proposed alternative or preferred action does not conform to management goals and objectives (i.e., manage public land actions and activities in a manner consistent with VRM class objectives), a RMP Amendment has to be prepared. For this alternative to be approved by the BLM, an RMP Amendment would be prepared.

Table 3.9-4 and Figures 3.9-12 through 3.9-15 present the Project effects for the South Diamond Lane Route Option transmission line.

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

Key Observation Points	Land Ownership of Viewed Area	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 81 - South Diamond Lane	<u>BLM</u>	C	Moderate	Foreground/ Middle ground	II	Moderate	Moderate
KOP 88 - Buena Vista Overlook	<u>BLM, USFWS, and Private (T-line on Federal and Private)</u>	B	High	<u>Foreground/Middle ground</u>	III	<u>Low</u>	<u>Low</u>

**TEMPORARY EFFECTS**

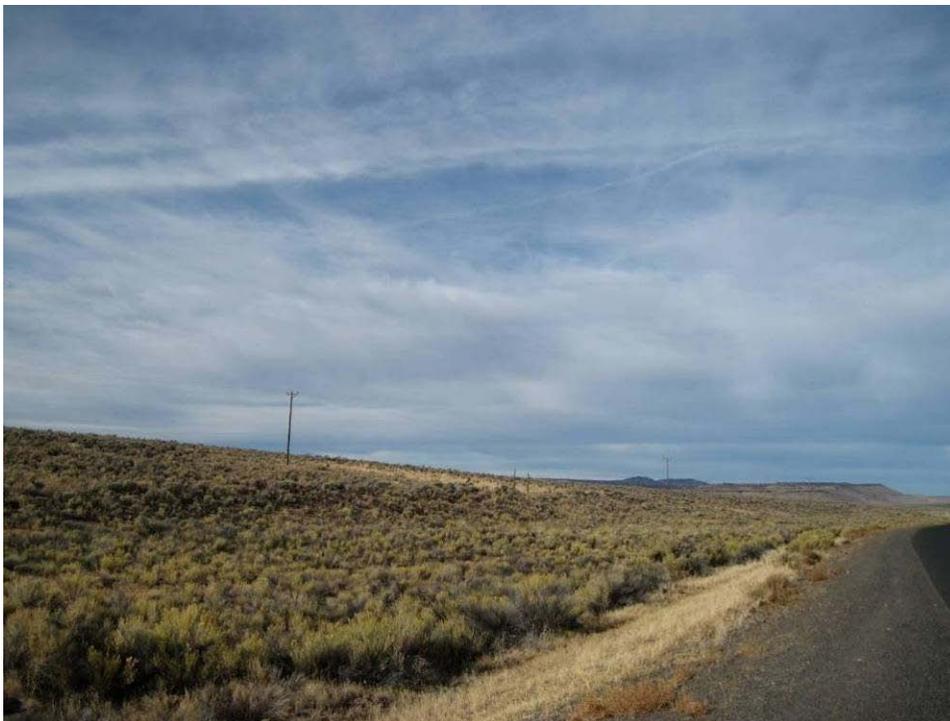
The same temporary effects that were described above for Alternative B would apply to the South Diamond Lane Route Option, including the future upgrade to a double-circuit 230-kV line.

**MITIGATION**

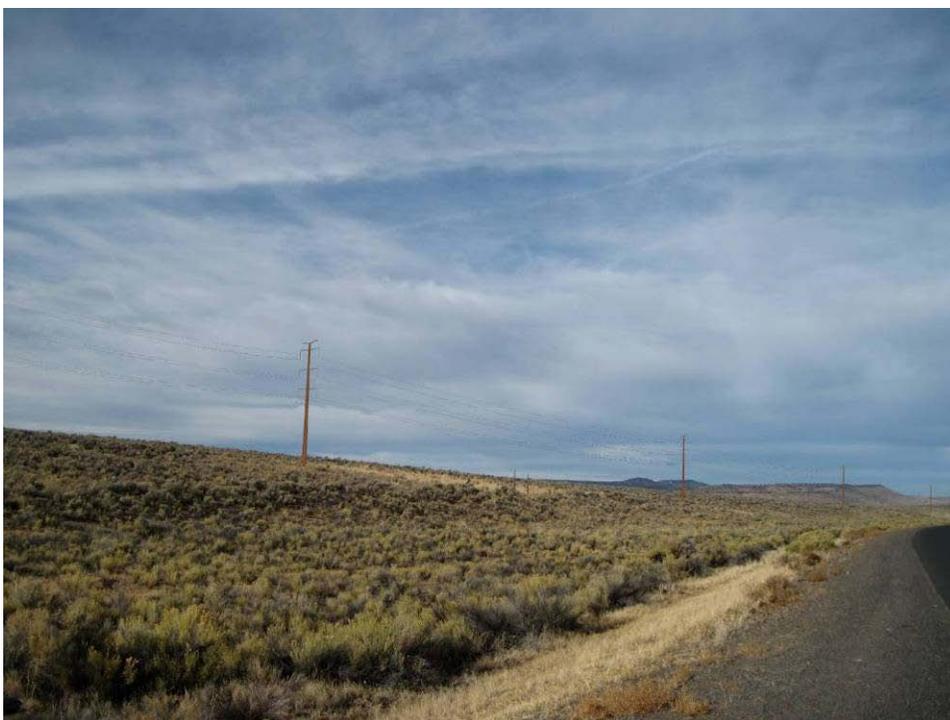
To address public concerns regarding the potential effects to visual resources caused by the visibility of transmission lines after the DEIS was issued, the BLM has expanded its consideration of potential mitigation measures to include the following:

- Placing more electrical conduit than currently proposed below ground to minimize the visual presence on Class II lands;
- Banning commercial messages or symbols (such as logos), trademarks, and messages on the transmission lines and/or ancillary structures;
- Developing aesthetic offsets where corrective or ameliorative actions are needed to improve the existing condition. Examples could include reclaiming unnecessary roads in the area, cleanup of illegal dumps or trash, or rehabilitation of existing erosion or disturbed areas; and
- Developing interpretive materials or displays that provide information about the Echanis Project wind turbines for public distribution.

No other potential mitigation measures were identified through a selective analysis of wind energy environmental impact statements for projects involving federal lands, including the *Wind Energy Development Programmatic EIS* (BLM 2005) and *West Butte Wind Power Right of Way EIS* (BLM 2011). The implementation of these measures would be beyond BLM’s direct jurisdiction because the Echanis Wind Energy Project would be located on private land.



**Figure 3.9-12** Existing View of KOP 81 South Diamond Lane, Near the South Diamond Canal (top). This view is from South Diamond Lane, traveling west.



**Figure 3.9-13** Proposed View from KOP 81 (bottom). The South Diamond Lane Route Option is immediately adjacent to the road.



**Figure 3.9-14 Existing View of KOP 88 Buena Vista Overlook (top). This view is from the Buena Vista Overlook, looking southeast towards South Diamond Lane.**



**Figure 3.9-15 Proposed View from KOP 88 (bottom). The South Diamond Lane Route Option has limited visibility due to the distance (1.3 miles), the Project's position below the horizon, the rusted finish of the poles, and the perspective of the viewer looking down (not visible). The arrow shows the location of the transmission line.**

To reduce the potential for short-term construction effects and long-term visual effects upon recreation, PDFs and BMPs were incorporated into the action alternatives and would be implemented to reduce the potential effects (Appendix A.1.8). Examples would include:

- Weathered steel poles, which have a rusted appearance, would be used for the 230-kV transmission line to reduce visual contrasts;
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities;
- Access roads and other areas of ground disturbance within the construction limits would be watered, as needed, to remain compact and to avoid the creation of dust;
- No paint or permanent discoloring agents would be applied to rocks or vegetation, to indicate the limits of survey or construction activity;
- Nonspecular conductors would be used to reduce impacts;
- All stakes and flagging would be removed from the construction area and disposed of in a State approved landfill; and
- Any outdoor (i.e., non-FAA required or recommended) lighting would be hooded and directed so as not to shine directly upon adjoining property or public road rights-of-way.

### *Hog Wallow Route Option*

The Hog Wallow Route Option would consist of a 2.84-mile corridor that would extend 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 0.25 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 mile 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 route option. 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 as described for Alternative B.

### PERMANENT EFFECTS

The two KOPs (71 and 87) that evaluate the permanent effects 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 because of 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 the VRM Class III management objectives. The Buena Vista Overlook (KOP 88) would have limited to no views of the Hog Wallow Route Option. Table 3.9-5 and Figures 3.9-16 and 3.9-17 present the potential Project effects for the transmission line associated with the Hog Wallow Route Option.

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

Key Observation Points	Land Ownership of Viewed Area	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 71 - Highway 205, northbound	BLM, USFWS and Private (T-line on Private and BLM)	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 87 - Highway 205, southbound	BLM, USFWS and Private (T-line on Private and BLM)	C	Moderate	Foreground/ Middle ground	III	Moderate	Moderate

**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 double-circuit 230-kV line.

**MITIGATION**

To address public concerns regarding potential effects to visual resources caused by the visibility of transmission lines after the DEIS was issued, the BLM has expanded its consideration of potential mitigation measures to include the following:

- Placing more electrical conduit than currently proposed below ground to minimize the visual presence on Class II lands;
- Banning commercial messages or symbols (such as logos), trademarks, and messages on the transmission lines and/or ancillary structures;
- Developing aesthetic offsets where corrective or ameliorative actions are needed to improve the existing condition. Examples could include reclaiming unnecessary roads in the area, cleanup of illegal dumps or trash, or rehabilitation of existing erosion or disturbed areas; and
- Developing interpretive materials or displays that provide information about the Echanis Project wind turbines for public distribution.

No other potential mitigation measures were identified through a selective analysis of wind energy environmental impact statements for projects involving federal lands, including the *Wind Energy Development Programmatic EIS* (BLM 2005) and *West Butte Wind Power Right of Way EIS* (BLM 2011). The implementation of these measures would be beyond BLM’s direct jurisdiction because the Echanis Wind Energy Project would be located on private land.



**Figure 3.9-16** Existing View of KOP 87, Highway 205 Near Donner und Blitzen River (top). This view is from Highway 205, traveling south.



**Figure 3.9-17** Proposed View for KOP 87 (bottom). The Hog Wallow Route Option is located approximately 0.45 mile to the south.

To reduce the potential for short-term construction effects and long-term visual effects upon recreation, PDFs and BMPs were incorporated into the action alternatives and would be implemented to reduce the potential effects (Appendix A.1.8). Examples would include:

- Weathered steel poles, which have a rusted appearance, would be used for the 230-kV transmission line to reduce visual contrasts;
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities;
- Access roads and other areas of ground disturbance within the construction limits would be watered, as needed, to remain compact and to avoid the creation of dust;
- No paint or permanent discoloring agents would be applied to rocks or vegetation to indicate the limits of survey or construction activity;
- Nonspecular conductors would be used to reduce impacts;
- All stakes and flagging would be removed from the construction area and disposed of in a State approved landfill; and
- Any outdoor (i.e., non-FAA required or recommended) lighting would be hooded and directed so as not to shine directly upon adjoining property or public road rights-of-way.

### *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 as were 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 that the transmission line would carry only one 115-kV three-conductor circuit. The pole heights, pole spacing, ROW widths, construction methods, interconnection points, and access requirements would be the same as those described for the other 230-kV routes.

#### PERMANENT EFFECTS

The potential permanent effects to visual resources of this design option would be largely the same as those 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 three-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

To address public concerns regarding the potential effects to visual resources caused by the visibility of transmission lines after the DEIS was issued, the BLM has expanded its consideration of potential mitigation measures to include the following:

- Placing more electrical conduit than currently proposed below ground to minimize the visual presence on Class II lands;
- Banning commercial messages or symbols (such as logos), trademarks, and messages on the transmission lines and/or ancillary structures;
- Developing aesthetic offsets where corrective or ameliorative actions are needed to improve the existing condition. Examples could include reclaiming unnecessary roads in the area, cleanup of illegal dumps or trash, or rehabilitation of existing erosion or disturbed areas; and
- Developing interpretive materials or displays that provide information about the Echanis Project wind turbines for public distribution.

No other potential mitigation measures were identified through a selective analysis of wind energy environmental impact statements for projects involving federal lands, including the *Wind Energy Development Programmatic EIS* (BLM 2005) and *West Butte Wind Power Right of Way EIS* (BLM 2011). The implementation of these measures would be beyond BLM's direct jurisdiction because the Echanis Wind Energy Project would be located on private land.

To reduce the potential for short-term construction effects and long-term visual effects upon recreation, PDFs and BMPs were incorporated into the action alternatives and would be implemented to reduce the potential effects (Appendix A.1.8). Examples would include:

- Weathered steel poles, which have a rusted appearance, would be used for the 230-kV transmission line to reduce visual contrasts;
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities;
- Access roads and other areas of ground disturbance within the construction limits would be watered, as needed, to remain compact and to avoid the creation of dust;
- No paint or permanent discoloring agents would be applied to rocks or vegetation, to indicate the limits of the survey or construction activity;
- Nonspecular conductors would be used to reduce impacts;
- All stakes and flagging would be removed from the construction area and disposed of in a State approved landfill; and
- Any outdoor (i.e., non-FAA required or recommended) lighting would be hooded and directed so as not to shine directly upon adjoining property or public road rights-of-way.

**3.9.3.4 Alternative C – North Route (Preferred Alternative)**

Alternative C - North Route would consist of a 45.9-mile long transmission line that would follow the same Project corridor as Alternative B, until the Project left the private lands within the CMPA. This alternative would then turn north and extend through the Kiger Mustang ACEC. This alternative would partially follow Happy Valley Road, and then proceed northward until it intersected and then followed Highway 78 near New Princeton, until it terminated near the community of Crane. For those sections of the route located 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 would include the transmission line, an interconnection station, access roads, 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 3.9-18 through 3.9-24). This alternative crosses 0.09 acre 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 24.9-kV power distribution line with vertical poles and wires. The Project effects for all of these KOPs would be low because of the respective Scenic Quality Ratings, visual resource classes, and the distance of sensitive viewers from KOPs to the Project Area. Table 3.9-6 summarizes these effects.

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

Key Observation Points	<u>Land Ownership of Viewed Area</u>	Scenic Quality Rating	Sensitivity Level	Distance Zone	Visual Resource Class	Contrast Rating	Effect
KOP 24 - Southwest on Happy Valley Road	<u>BLM (T-line on BLM)</u>	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 25 - South on Happy Valley Road	<u>BLM (T-line on BLM)</u>	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 26 - Happy Valley Road	<u>BLM (T-line on BLM)</u>	B	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 27 - Round Barn Visitor Center	<u>BLM and Private (T-line on BLM)</u>	B	High	Distant	II	Weak	Low
KOP 29 - Dry Lake Reservoir	<u>BLM and Private</u>	B	Moderate	Distant	II	Weak	Low
KOP 33 - Highway 78	<u>BLM and Private (T-line on BLM)</u>	C	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 35 - Highway 78	<u>BLM and Private (T-line on BLM)</u>	B	Moderate	Foreground/ Middle ground	III	Moderate	Low
KOP 37 - Riddle Mountain	<u>BLM and Private (T-line on Private and BLM)</u>	B	Moderate	Distant	II	Weak	Low

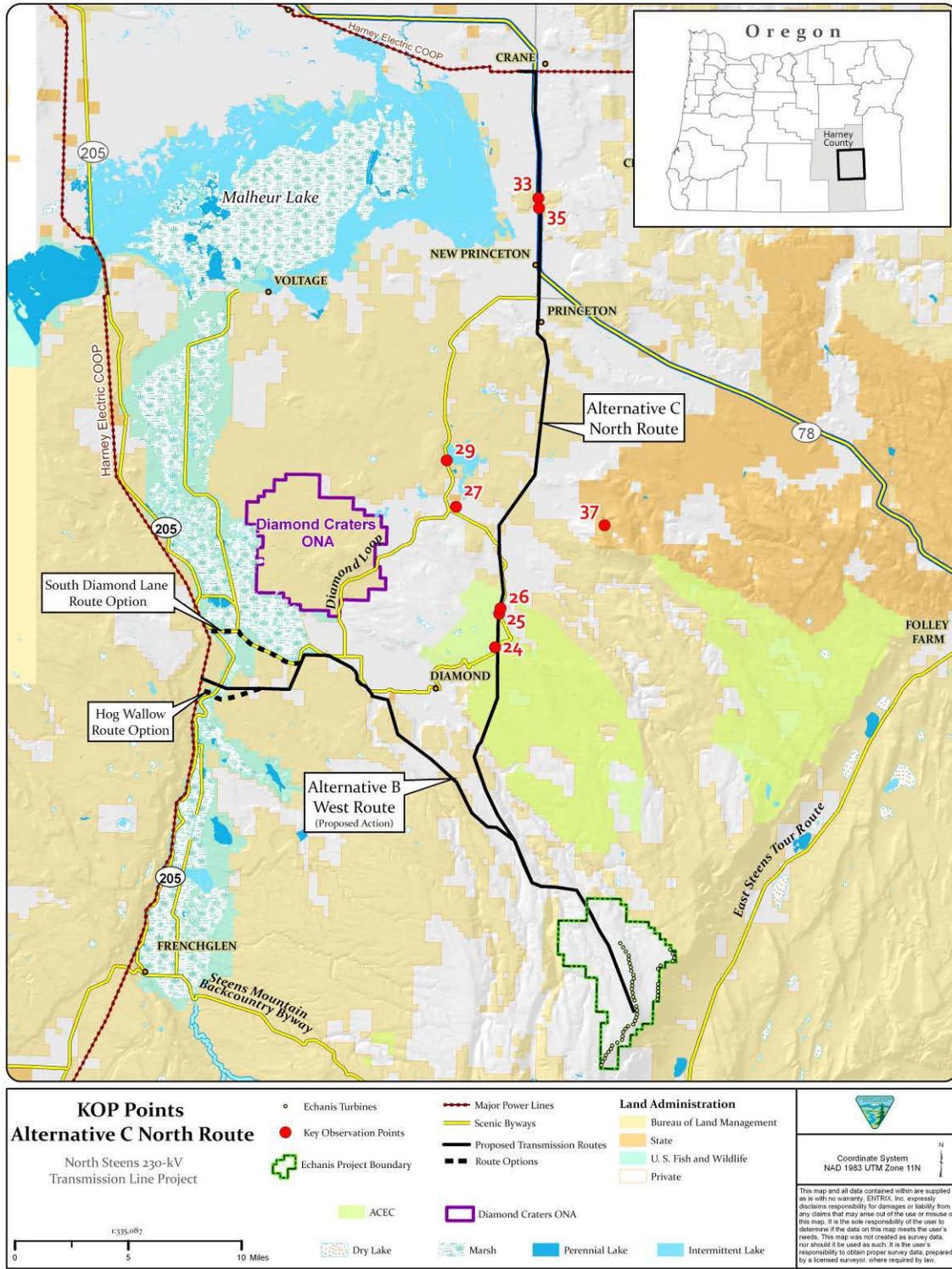


Figure 3.9-18 KOP Points for Alternative C – North Route.



**Figure 3.9-19 Existing View of KOP 24 Happy Valley Road (top). This view is looking southwest on Happy Valley Road.**



**Figure 3.9-20 Proposed View from KOP 24 (bottom). The transmission line is 0.11 mile away.**



**Figure 3.9-21 Existing View of KOP 27, Round Barn Visitors Center (top).** This view is from the parking lot at the Round Barn Visitors Center.



**Figure 3.9-22 Proposed View from KOP 27 (bottom).** The alternative route is approximately 2.25 miles away (not visible).



**Figure 3.9-23 Existing View of KOP 35 Highway 78 Near Crane (top). This view is looking north from Highway 78, near the town of Crane.**



**Figure 3.9-24 Proposed View from KOP 35 (bottom). The alternative 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 to Alternative C.

### FUTURE CONSTRUCTION PHASE – UPGRADE TO 230-KV

The upgrade of the initial single-circuit transmission line to a double-circuit 230-kV transmission line would require a second construction phase at a future date, when additional capacity was 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

To address public concerns regarding the effects to visual resources caused by the visibility of the transmission lines after the DEIS was issued, the BLM has expanded its consideration of potential mitigation measures to include the following:

- Banning commercial messages or symbols (such as logos), trademarks, and messages on the transmission lines and/or ancillary structures;
- Developing aesthetic offsets where corrective or ameliorative actions are needed to improve the existing condition. Examples could include reclaiming unnecessary roads in the area, cleanup of illegal dumps or trash, or rehabilitation of existing erosion or disturbed areas; and
- Developing interpretive materials or displays that provide information about the Echanis Project wind turbines for public distribution.

No other potential mitigation measures were identified through a selective analysis of wind energy environmental impact statements for projects involving federal lands, including the *Wind Energy Development Programmatic EIS* (BLM 2005) and *West Butte Wind Power Right of Way EIS* (BLM 2011).. The implementation of these measures would be beyond BLM's direct jurisdiction because the Echanis Wind Energy Project would be located on private land.

To reduce the potential for short-term construction effects and long-term visual effects upon recreation, PDFs and BMPs were incorporated into the action alternatives and would be implemented to reduce the potential effects (Appendix A.1.8). Examples would include:

- Weathered steel poles, which have a rusted appearance, would be used for the 230-kV transmission line to reduce visual contrasts;
- Ground disturbance would be limited to that necessary to safely and efficiently install the proposed facilities;
- Access roads and other areas of ground disturbance within the construction limits would be watered, as needed, to remain compact and to avoid the creation of dust;
- No paint or permanent discoloring agents would be applied to rocks or vegetation, to indicate the limits of survey or construction activity;
- Nonspecular conductors would be used to reduce impacts;

- All stakes and flagging would be removed from the construction area and disposed of in a State approved landfill; and
- Any outdoor (i.e., non-FAA required or recommended) lighting would be hooded and directed so as not to shine directly upon adjoining property or public road rights-of-way.

### *115-kV Transmission Line Option*

The Project features for the 115-kV Transmission Line Option would be the same as those 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.

#### 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.

#### 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.

### **3.9.3.5 Residual Effects after Mitigation**

The 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 potential effects to aesthetics and visual resources from development of the Echanis Project, primary access road, and each alternative are summarized in Table 3.9-7.

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

Component	Alternative A - No Action	Alternative B			Alternative C - North Route (Preferred Alternative)
		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><u>High level of change would occur for East Steens Road/Mann Lake (KOP 46), East Steens Loop (KOP 46, 47, and 48).</u></p> <p><u>Moderate level of change would occur for East Rim Overlook (KOP 61) and East Steens Road (KOPs 45, 47)</u></p> <p>Low level of change would occur for East Steens Road (KOPs 42, 44, <del>48</del> and 45).</p> <p>Temporary effects to visual resources from dust and visible construction activities.</p>	<p>High level of change would occur for East Steens Road/Mann Lake (KOP 46, 47).</p> <p>Moderate level of change would occur for <u>East Rim Overlook (KOP 61)</u>, Mann Lake and East Steens Road (KOPs 45, 47, 46, 48).</p> <p>Low level of change would occur for East Steens Road and <del>East Rim Overlook</del> (KOPs 42, 44, <del>48, 45, 61</del>).</p> <p>Temporary effects to visual resources from dust and visible construction activities.</p>	<p>High level of change would occur for East Steens Road/Mann Lake (KOP 46, 47).</p> <p>Moderate level of change would occur for <u>East Rim Overlook (KOP 61) and Mann Lake</u> and East Steens Road (KOPs 45, 47, 46, 48).</p> <p>Low level of change would occur for East Steens Road and <del>East Rim Overlook</del> (KOPs 42, 44, <del>48, 45, 61</del>).</p> <p>Temporary effects would occur to visual resources from dust and visible construction activities.</p>	<p>High level of change would occur for <u>East Steens Road/Mann Lake (KOP 46, 47).</u></p> <p>Moderate level of change would occur for <u>East Rim Overlook (KOP 61) and Mann Lake</u> and East Steens Road (KOPs 45, 47, 46, 48).</p> <p>Low level of change would occur for East Steens Road and <del>East Rim Overlook</del> (KOPs 42, 44, <del>48, 45, 61</del>).</p> <p>Temporary effects would occur 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><u>Moderate level of change would occur for Diamond Lane (KOP 3).</u></p> <p><u>Low level of change would occur for all other KOPs.</u></p> <p>Temporary effects would occur to visual resources from dust and visible construction activities.</p>	<p><u>Moderate level of change would occur for South Diamond Lane (KOP 81).</u></p> <p>Low <u>level of change</u> would occur for all <u>other KOPs.</u></p> <p>Temporary effects would occur to visual resources from dust and visible construction activities.</p>	<p><u>Moderate level of change would occur for views southbound on Highway 205 (KOP 87).</u></p> <p>Low <u>level of change</u> would occur for views northbound on Highway 205 (KOP 71).</p> <p>Temporary effects would occur to visual resources from dust and visible construction activities.</p>	<p>Low <u>level of change</u> would occur for all KOPs.</p> <p>Temporary effects would occur to visual resources from dust and visible construction activities.</p>

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