

### **3.11 VISUAL RESOURCES**

#### **3.11.1 Environmental Setting**

##### **3.11.1.1 Physical Setting**

The Montana portion of the proposed project is located in the Broad Valley Rockies section of the Northern Rocky Mountain physiographic province (Fenneman 1931) which includes Zones 1 through 4 and the northwestern part of Zone 5. The southern part of the project area in Idaho is located in the Snake River Plain section of the Columbia Plateau physiographic province (Fenneman 1931) and includes much of Zone 5 and all of Zone 6.

The Broad Valley Rockies in Montana and northern Idaho is an area of mountain ranges separated by broad valleys. The valleys occupy up to about 50 percent of the area and are 2 to 15 miles wide and may reach 100 miles long. Low-lying foothills, buttes, and stream-cut terraces provide a transition between the valley floors and the mountain ranges. Mountain ranges are typically round-topped and appear to be massive from the valley floors. Glaciers are not present, and very few permanent snowfields are present. In the project area the Missouri River and its tributary rivers (such as the Big Hole and Jefferson) and large reservoirs (such as Clark Canyon) are the dominant water features. The typically wide and flat nature of the valleys causes the rivers to meander, creating oxbows, cutoffs, and abandoned channels. Valley vegetation is generally grassland, including croplands, pastureland, hay fields, and sagebrush grasslands. Mountain vegetation consists of conifer forests interspersed with grasslands and aspen groves. Riparian corridors in both valley and mountain areas include many broadleaf and deciduous tree and shrub species such as willow, aspen, plains cottonwood, birch, alder, huckleberry, serviceberry, thimbleberry, and snowberry.

The Snake River Plain region is characterized by a broad, flat, somewhat irregular plain that is covered with black volcanic deposits and is interspersed with buttes and lava cones. The section of the plain in the project area is flat and nearly 70 miles wide. Buttes and rhyolite domes provide vertical punctuation across the landscape. The native vegetation is sagebrush and bunchgrass. In some areas, it has been replaced with irrigated cropland. Foothill scrublands/grasslands and barren mountains define the borders of the section.

To further characterize the landscapes the project alternatives would pass through, reference is made to seven landscape character types that were identified in the Visual Resource Technical Report prepared to support NorthWestern's MFSA application (NorthWestern 2008a). Based on landform and development characteristics, the seven landscape types are mountain, foothill, valley, plain, canyon, water body, and developed. These are described in detail in Appendix C.11.1.

In addition to natural features, human activities have helped influence the setting of the project area. In addition to agricultural practices that generally occur in the valley floors of Montana or in areas in Idaho located between volcanic deposits, buttes, and lava cones, human settlement has resulted in small towns, communities, subdivisions, and scattered residences being built in parts of the project area. Large-scale infrastructure such as railroads, state and interstate highways, local roads, and electrical transmission lines pass through the project area and both influences its character and in some cases provides viewing opportunities. The influence of electrical transmission lines on the landscape is discussed in detail in Appendix C.11.1.

### 3.11.1.2 Electric Transmission Lines in the Project Area

Electric transmission lines are a long-standing feature of the landscape in Montana and Idaho. In the project area in Montana and Idaho, most transmission lines are lower-voltage lines (from less than 100 kV up to 345 kV). In Montana, these lines are most often supported on wood-pole H-frame structures. In Idaho, both wood H-frame and lattice steel structures are used. In the Montana portion of the project area, a 500-kV transmission line, the Colstrip transmission line (also known as the Garrison-Taft transmission line) was built in 1984 and 1985. Even though the proposed project's structures would be different from those of the Colstrip's, the Colstrip line provides an example of how a 500-kV transmission line might impact the landscape of the project area. For a more detailed discussion and illustrations of the Colstrip line and other transmission lines, as well as other studies that examine the visual impacts of transmission lines, see Appendix C.11.1.

A post-construction visual monitoring study of the (then) newly built Colstrip line was conducted in 1987 by a team of landscape architects from the Bonneville Power Administration, Lolo National Forest, Deerlodge National Forest, and MDNRC (Embree et al. 1987). The study documented the visibility and visual impacts of the line, evaluated the effectiveness of the mitigation measures that had been applied, and made recommendations for supplemental mitigation in specific locations. These observations found that the Colstrip line towers were either not detectable or were barely detectable in views in the 1.0-mile to 2.45-mile range in which the towers were backdropped (that is, as seen against a landscape background). Towers were found to be "recognizable" in views that were partially skylined and located at distances ranging from 0.56 mile to 2.44 miles. A fully skylined tower located at a distance of 0.53 mile was found to be highly visible. Observations of a view of a skylined tower located 4.6 miles in the distance determined that this tower would be barely detectable. Unsurprisingly, towers painted to provide aeronautical safety warning were found to be highly visible at distances of up to 3 miles, even when backdropped. An important conclusion of this monitoring project was that: "For views with backdropped conditions, most structures were barely detectable or not detectable at middleground or background distances. For skylined conditions, towers were recognizable or highly visible" (Embree, et al. 1987, p. 8).

These findings are the basis for much of the emphasis in this EIS evaluation being on potential impacts to viewers within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) distances. Within these distances, transmission lines would be clearly visible (unless blocked by topography or objects such as trees and structures) to viewers from sensitive viewing areas such as residences, recreation facilities, and interstate highways, and impacts would in most cases be considered to be high.

Other conclusions of the Embree monitoring study include the following:

- "Where the facility is highly visible, structures and conductors are the major contributors to that visibility. Other line components—right-of-way clearing, access roads, or tower site clearing—seldom contribute to high visibility." (pp. 6)
- "Impacts will be increased where a landscape setting, lack of man-made modifications, or other factors focus an observer's attention on the facility. Focused views occur primarily on segments of highway tangential to one or more structure...Where the landscape setting does not focus viewing attention on the facility or where the foreground is dominated by man-made modifications, the impact of the facility is lessened." (pp. 7)
- "Sun angle and viewer position are the controlling variables affecting conductor visibility." (pp. 7)

### 3.11.1.3 Zones, Alternatives, Links, and Local Routing Options

For discussion purposes, the project area has been divided into smaller units called landscape zones (Figures 3.11-1 through 3.11-6 at the end of this section). The six zones are as follows:

- Zone 1: Townsend to Mill Creek (Figure 3.11-1)
- Zone 2: Mill Creek to Glen (Figure 3.11-2)
- Zone 3: Glen to State Line (Figure 3.11-3)
- Zone 4: State Line to Sheep Station (Figure 3.11-4)
- Zone 5: Sheep Station to Coffee Point (Figure 3.11-5)
- Zone 6: Coffee Point to Midpoint (Figure 3.11-6)

For each zone, a review was undertaken of each link or LRO that would pass through it. Existing natural characteristics, human development patterns (including existing transmission lines), and areas or features that are considered visual resources were noted. This information was summarized in the description of each link or LRO route. Each description briefly describes the landscape the route would pass through; existing transmission lines it would be located near (within 0.25 mile); federal lands the route would travel through and the visual management objectives of those lands; areas along the route where residences are found; and other sensitive non-residential viewing areas within 1 mile of the links such as parks, trails, significant fishing rivers, travel ways, and interstate highways. These non-residential viewing areas are identified in Appendix C.11.1. Twenty-eight Key Observation Points (KOPs) were selected from around the project area. Their locations are depicted in Figures 3.11-1 through 3.11-6. These KOPs are intended to illustrate the “before” and “after” views of a number of different potential routes from various locations such as residential areas, interstate highways, recreational resources such as fishing areas, National Forest roads, and scenic roads. The “before” photographs and “after” photographic simulations of the KOPs are identified in Table 3.11-1. Eleven of the KOPs are included at the end of this section, and all 28 are included in Appendix C.11.4.

**Table 3.11-1. Key Observation Points—Where to Find Existing Views and Simulations**

Link/LRO Associated With	KOP	Description	Figure Location in the EIS	Figure Location in Appendix C.11.4
LRO2-3b (Boulder Hill)	KOP1-8	Existing view (A) and simulation (B) of Link 2-3b looking north along the I-15 corridor in the Boulder River Valley.	NA	C.11.4-8
Link 2-3c	KOP1-1	Existing view (A) and simulation (B) of proposed Link 2-3c looking north from entrance to the Whitehouse Campground and Boulder River Road in the BDNF National Forest.	3.11-7	C.11.4-1
Link 3-1	KOP1-2	Existing view (A) and simulation (B) of proposed Link 3-1 looking east toward the Missouri River near Toston.	NA	C.11.4-2
	KOP1-4	Existing view (A) and simulation (B) of proposed Link 3-1 looking southwest from Cottonwood Road off of I-90.	NA	C.11.4-4
Link 4-2b	KOP1-3	Existing view (A) and simulation (B) of proposed Link 4-2b looking southeast from State Highway 69 toward Doherty Mountain.	NA	C.11.4-3

**Table 3.11-1. Key Observation Points—Where to Find Existing Views and Simulations**

Link/LRO Associated With	KOP	Description	Figure Location in the EIS	Figure Location in Appendix C.11.4
Link 6-1	KOP1-5	Existing view (A) and simulation (B) of proposed Link 6-1 looking southeast from Homestake Lake area within the BDNF National Forest and adjacent to I-90.	3.11-8	C.11.4-5
LRO6-2 (South of Butte)	KOP1-6	Existing view (A) and simulation (B) of proposed LRO6-2 looking north on Continental Drive from residential area south of Butte.	3.11-9	C.11.4-6
Link 8-1	KOP1-7	Existing view (A) and simulation (B) of proposed Link 8-1 looking northwest from Miles Crossing area.	NA	C.11.4-7
Link 11-4	KOP2-1	Existing view (A) and simulation (B) of proposed Link 11-4 looking north toward the Big Hole River access site at Maiden Rock.	NA	C.11.4-9
Link 12	KOP2-7	Existing view (A) and simulation (B) of proposed Link 12 crossing of Highway 41 (looking south from State Highway 41 near Airport Road, approximately 3 miles south of the intersection with State Highway 2).	3.11-13	C.11.4-15
	KOP2-2	Existing view (A) and simulation (B) of proposed Link 12 looking east toward the Big Hole River near Notch Bottom Fishing Access Site.	3.11-10	C.11.4-10
Link 15-2d	KOP3-2	Existing view (A) and simulation (B) of proposed Link 15-2d looking west from the east side of Clark Canyon Reservoir.	NA	C.11.4-18
Link 15-2d	KOP3-3	Existing view (A) and simulation (B) of proposed Link 15-2d looking south toward a Red Rock Subdivision.	NA	C.11.4-19
	KOP3-4	Existing view (A) and simulation (B) of proposed Link 15-2d looking north along the I-15 corridor in the Boulder River Valley.	3.11-14	C.11.4-20
Link 16-3c	KOP3-1	Existing view (A) and simulation (B) of proposed Link 16-3c looking east from the interpretive overlook of the Clark Canyon Reservoir.	NA	C.11.4-17
Link 18	KOP4-1	Existing view (A) and simulation (B) of proposed Link 18 looking northeast toward the Beaver Valley from West Camas Creek Road approximately 350 feet east of I-15.	3.11-15	C.11.4-21
Link 19	KOP5-2	Existing view (A) and simulation (B) of proposed Link 19 looking northwest from Highway 22 at Visual Resources Management (VRM) Class II lands.	NA	C.11.4-23

**Table 3.11-1. Key Observation Points—Where to Find Existing Views and Simulations**

Link/LRO Associated With	KOP	Description	Figure Location in the EIS	Figure Location in Appendix C.11.4
Link 20	KOP5-1	Existing view (A) and simulation (B) of proposed Link 20 looking west along the Idaho Scenic Byway Lost Gold Trails Loop west of Dubois.	3.11-16	C.11.4-22
Link 21-2	KOP5-3	Existing view (A) and simulation (B) of proposed Link 21-2 looking northwest from Cedar Butte WSA.	NA	C.11.4-24
Link 22	KOP5-4	Existing view (A) and simulation (B) of proposed Link 22 looking east from the base of Big Southern Butte.	NA	C.11.4-25
Link 24	KOP6-1	Existing view (A) and simulation (B) of proposed Link 24 looking east from Highway 24.	NA	C.11.4-27
	KOP 6-2	Existing view 9A) and simulation (B) of proposed Link 24 looking northeast from the kiosk near Crystal Ice Cave Road.	NA	C.11.4-28
Link 27	KOP2-3	Existing view (A) and simulation (B) of proposed Link 27 (along far ridgeline) looking southwest from I-90 frontage road (Ramsay Place).	NA	C.11.4-11
	KOP2-4	Existing view (A) and simulation (B) of proposed Link 27 looking north from Forest Road 8505 (Divide Creek Road).	3.11-11	C.11.4-12
Link 27	KOP2-5	Existing view (A) and simulation (B) of proposed Link 27 looking southwest of Forest Road 447447 (Fleecer Mountain Road).	3.11-12	C.11.4-13
	KOP2-6	Existing view (A) and simulation (B) of proposed Link 27 (located between grasslands and lower edge of forested area) looking west from I-15 southbound rest area.	NA	C.11.4-14
Link 31	KOP2-8	Existing view (A) and simulation (B) of proposed Link 31 looking east from the Big Hole River near the Maiden Rock Fishing Access Site.	NA	C.11.4-16
Link 40	KOP5-5	Existing view (A) and simulation (B) of proposed Link 40 crossing Tabor Road looking northwest from Tabor Road.	3.11-17	C.11.4-26

**Zone 1: Townsend to Mill Creek**

Zone 1 is located in Montana and represents the northernmost portion of the project area. It includes Alternatives 1A, 1B, 1C, and 1D along with Links 1 through 10. The project route starts in the northeast part of Zone 1. As part of the project, a new substation, about 5 miles south of Townsend (Townsend

Substation), would be constructed. The project would connect the new Townsend Substation to a proposed substation adjacent to the existing Mill Creek Substation, approximately 68 miles to the west. The southwest and west parts of Zone 1 are the most populous areas within the entire project study area and include the cities of Butte and Anaconda, which have populations of approximately 35,000 and 9,400, respectively (U.S. Census Bureau 2000b). The central and eastern areas of Zone 1 include the smaller communities of Boulder, Townsend, and Three Forks, which have populations of between 1,300 and 1,900 (U.S. Census Bureau 2000b). Principal roadways include I-90, which crosses the zone northwest to southeast; I-15, which crosses the zone from north to southwest; and U.S. 287, which crosses the eastern side of Zone 1 from north to south. Zone 1 contains the Colstrip transmission line, the only existing 500-kV transmission line in the project area.

Zone 1 includes portions of the BDNF and lands managed by the BLM Butte Field Office. The project routes in Zone 1 cross the Montana counties of Silver Bow, Deer Lodge, Jefferson, and Broadwater. The Continental Divide National Scenic Trail and the Lewis and Clark National Historic Trail driving route pass across and/or near Zone 1 alternative routes.

**Alternatives–Zone 1.** Zone 1 contains three alternative project routes that would connect the proposed Townsend Substation with the Mill Creek Substation. The alternative routes and their associated links are described below.

- Alternative 1A is comprised of Links 1, 2-1, 2-2, 2-3a, 2-3b, 2-3c, and 2-3d.
- Alternative 1B is comprised of Links 1, 4-1a, 4-1b, 4-2a, 2b, 5, 6-1, 6-2, 7-1, 7-2, 7-3, 7-4, 9-1, 9-2a, 9-2b, 9-2c, 9-3, and 10.
- Alternative 1C is comprised of Links 3-1, 3-2, 5, 6-1, 6-2, 8-1, 8-2, and 10.
- Alternative 1D is comprised of Links 1, 4-1a, 4-1b, 4-2a, 4-2b, and 5.

**Townsend Substation.** The new 52-acre Townsend 500-kV substation site would be located 5 miles south of the town of Townsend in a valley landscape character type. Areas near the site contain a mixture of center-pivot irrigated agriculture and pasture lands.

**Link 1.** Link 1 would leave the proposed Townsend Substation and head west 6.3 miles toward (but 3 miles east of) the town of Radersburg. The alignment generally parallels (approximately 0.5 mile south) the existing Colstrip line. However, its route is far enough away from the Colstrip line that a new 220-foot-wide right-of-way (ROW) would be created to accommodate Link 1. The eastern third of Link 1 would pass through a valley devoted to center-pivot irrigated agriculture. It would also cross over the Missouri River and its riparian forest corridor. The western two thirds of the route would cross an open, grassland-dominated, foothill landscape.

Approximately 1.2 miles of Link 1 would pass through BLM land with a VRM objective of Class IV (definitions of VRM classifications are in Section 3.11.2.1). Most of these lands lie within an area that has recently been adopted as the Elkhorn Mountains Area of Critical Environmental Concern (ACEC).

Most residences near Link 1 are found at the eastern (near Holker) and western (east of Radersburg) ends of the route. In addition to residences, Link 1 would be located within 1 mile of two other sensitive viewing locations, the Missouri River and the Lewis and Clark National Historic Trail.

**Links 2-1, 2-2, 2-3a, 2-3b, 2-3c, 2-3d, LRO2-2, and LRO2-3b.** These links comprise most of Alternative 1A and are the northernmost of all the links being evaluated. The lengths of the links are as

follows: 2-1 (3 miles), 2-2 (4.3 miles), 2-3a (20.4 miles), 2-3b (4.4 miles), 2-3c (39.4 miles), and 2-3d (3.9 miles). LROs would replace Links 2-2 and 2-3b and are described below.

Most of the links would pass through foothills and mountains covered with areas of grasslands and forest. Links 2-3b and 2-3d would pass through the upper Boulder River and Deerlodge valleys, both of which contain extensive grassland areas. Links 2-1, 2-2, 2-3a, and part of 2-3c would parallel the existing Colstrip line. They would generally be no closer than 0.5 mile from the Colstrip line and would require the construction of an entirely new 220-foot-wide ROW. Other links would follow existing transmission lines for varying lengths. Link 2-3c would veer away from the Colstrip line near MP 19 and continue 20 miles along a new route (crossing over I-90) to the intersection with Link 2-3d. A number of existing transmission lines would be in the vicinity of Link 2-3d, and it would follow a 100-kV transmission line (within 0.25 mile) its entire length.

Parts of Links 2-2 and 2-3a west of Radersburg would pass through 10.4 miles of BLM lands that have recently been adopted as part of the Elkhorn Mountains ACEC. All of the BLM lands along Link 2-2 are managed under VRM Class IV. Along Link 2-3a, 1.9 miles of BLM land is VRM Class III, and 8.5 miles is VRM Class IV. Link 2-3a would pass through 3.3 miles of a corner of the BDNF known as the Elkhorn Area. It would pass through areas with Visual Quality Objectives (VQOs) of Retention (0.1 mile) and Partial Retention (3.2 miles) (See Section 3.11.3.3.1 for details on VQOs). After leaving the Elkhorn portion of the BDNF, Link 2-3a would connect with Link 2-3b which would pass through the Boulder Valley. Link 2-3c would reenter the BDNF via mountainous terrain north of Basin and would parallel the Colstrip line southwest to the Boulder River Valley where it turns west. Link 2-3c would pass through 27.4 miles of the BDNF. Between its eastern entry point and the Bernice Research Natural Area (RNA), Link 2-3c would be located between the river and Forest Road (FR) 82 and the Colstrip line. Near the Bernice RNA, Link 2-3c would veer to the southwest away from the valley and Colstrip line and climb over a series of ridges and foothills before leaving the BDNF and descending into the Deerlodge Valley. This part of the BDNF uses Scenic Integrity Objectives (SIOs) rather than VQOs (see Section 3.11.3.3.1). The SIOs for the portions of Link 2-3c that pass through this part of the BDNF are a mixture of High (17 miles) and Moderate (10.4 miles). Once out of the BDNF and in the Deerlodge Valley, Link 2-3d would head west and then south to the Mill Creek Substation.

These links would pass through several areas that contain concentrated and/or scattered areas of residences. The greatest numbers of residences are near the communities of Radersburg (Links 2-1 and 2-2), Boulder and Basin (Links 2-3b and 2-3c), and Anaconda and Opportunity (Link 2-3d). In addition to residences, the various links would pass over or within a mile of other sensitive viewing areas; these include the Radersburg Off-highway Vehicle (OHV) Trailhead (Links 2-2 and LRO2-2) and FR 258, which provides access to the Elkhorn State Park and the community of Elkhorn (Link 2-3a). Link 2-3c would pass by a number of areas within the BDNF that include Concern Level I Travel Ways (FR 82—the Boulder River Road and the Continental Divide National Scenic Trail) and Concern Level I Use Areas (Basin Day Use Area, Whitehouse Campground, and Orofino Campground) as well as two Concern Level II Use Areas (Mormon Gulch Campground and Ladysmith Campground). Link 2-3b and LRO2-3b would both cross I-15 and be very visible from it, as would Link 2-3c where it would cross over I-90.

*LRO2-2 (Radersburg LRO):* This 4.8-mile-long LRO would replace Link 2-2. It would start north of Radersburg, pass west of the town, and continue to the southwest where it would join Link 2. The land it would pass through is very similar to that of Link 2-2. It would pass through 2.2 miles of BLM lands (VRM Class IV) that are part of the Elkhorn ACEC.

*LRO2-3b (Boulder Hill LRO):* This 4.1-mile-long LRO would replace Link 2-3b. It would pass over private lands at the upper (north) end of the Boulder River Valley. The LRO would be located

approximately 1 mile farther north from the center of the community of Boulder than Link 2-3b, and it would be closer to a number of residences north of it than Link 2-3b would be.

**Links 3-1 and 3-2.** The 41.6-mile-long Link 3-1 would begin at the proposed Townsend Substation and end south of Doherty Mountain approximately 10 miles east of White Hall. Link 3-2 would be 4.7 miles long and would continue approximately 5 miles west to near the junction of I-90 and SH 69. Both links would pass through a variety of landscape types. Part of Link 3-1 would follow the Missouri River along most of its length at a distance of zero to 1.75 miles. After crossing the river, Link 3-1 would head south for about 18 miles along foothills that generally lie 1.5 to 5 miles east of U.S. 287. The link would cross U.S. 287 and I-90 and travel westward for about 15 miles through the open, grass-covered foothill area that lies along the south side of I-90.

Just south of Doherty Mountain, Link 3-1 would connect with Link 3-2, travel west, cross to the north of I-90, and travel westward through the partially timbered landscape along Doherty Mountain's southern edge to its intersection with Link 5. The first 10 miles of Link 3-1 would not be located within 0.25 mile of existing transmission lines. Beginning 3 miles south of Toston, Link 3-1 would follow (within 0.25 mile) a 100-kV transmission line for 10 miles before leaving it and heading southwest. The alignment would travel another 10 miles away from existing transmission lines, requiring an entirely new ROW, turn west near Three Rivers and follow existing 161-kV and 230-kV transmission lines (within 0.25 mile) 15 miles to its end point. Link 3-2 would follow the same 161-kV and 230-kV transmission lines its entire 4.7-mile length.

East of Toston, Link 3-1 would pass through 2.4 miles of BLM land managed as VRM Class IV. Between the Missouri River crossing and the crossing of U.S. 287, the link would cross 0.3 mile of BLM land managed as VRM Class III. At the southern end of Doherty Mountain, it would cross 0.3 mile of BLM land managed as VRM Class II. Link 3 would not pass through any NFS lands.

In much of the area that the two links would pass through, there is no residential development. Locations where there are concentrations of residences in the general vicinity of the links are the area east and south of Toston, just north of I-90 (both to the east and west of U.S. 287) and in the foothill area along the south side of I-90 between U.S. 287 and the Link 3-2 crossing of I-90 close to Doherty Mountain. Many of the sensitive viewing areas along Link 3-1 are recreation facilities located along the Missouri River. They include the Missouri River itself, the Lewis and Clark National Historic Trail, the Missouri Rendezvous RV facility, the Toston Dam Camping Units, the Nature Conservancy's Sixteenmile Creek Macrosite, Lewis and Clark Caverns State Park, Tom Bertagnolli Park, Peterson Park, LaHood Park, and the fishing access sites at Toston, Three Forks Pond, Fairweather, Blackbird, Drouillard, and Cardwell Bridge. Approximately 3 miles of Link 3-1 would be located within the immediate foreground (0 to 0.25 mile) zone of I-90 and potentially visible from I-90; 2.4 miles of Link 3-2 also would be located within the immediate foreground (0 to 0.25 mile) zone of I-90 and potentially visible from the highway. Both links would cross I-90 once and would be visible from the highway.

**Links 4-1a, 4-1b, 4-2a, 4-2b, LRO4-2a-1, LRO4-2a-2, LRO4-2a-3, and LRO4-2b.** Link 4-1a would begin 2 miles east of Radersburg and end approximately 8.7 miles to the southwest. Link 4-1a would head southwest approximately 12.2 miles to its intersection with 4-1b and LRO4-2a-1 (Upper Boulder 1). Link 4-1b would continue southwest 1.4 miles. The 12.2-mile-long Link 4-2a would continue in a southwest direction to where it would intersect with Link 4-2b, which would continue west of Doherty Mountain to near the intersection of SH 69 with I-90. Four local routing options would be associated with these links and are described below. Link 4-1a would head southwest through a valley landscape devoted to agricultural activities. For the most of their lengths the rest of Link 4-1a, 4-1b, and 4-2a would pass through a foothill landscape. Link 4-2a would pass within 0.25 to 0.5 mile of the eastern boundary of the Black Sage Wilderness Study Area (WSA). The southernmost 4 miles of Link 4-2b would pass along the

western slopes of Doherty Mountain, a landmark feature visible from SH 69 and the lower Boulder Valley. Much of this portion of the Link 4-2b route would be within between 0.5 and 1 mile of SH 69. None of these links or the associated LROs would parallel existing transmission lines and would require entirely new 220-foot-wide ROW.

Link 4-1a would cross 0.7 mile of BLM lands (part of the Elkhorn Mountains ACEC) that are VRM Class IV. At its southern end, approximately 0.4 mile of Link 4-2b would cross the corners of two BLM parcels on Doherty Mountain that are VRM Class II. None of these links would cross NFS lands.

Most of Links 4-1a, 4-1b, 4-2a, and 4-2b would travel through fairly isolated areas where there are few residences. The two places along these routes having the greatest concentrations of residences are in the valley agricultural lands along the northern portion of the route near Parker (Link 4-1a) and in the corridor along SH 69 in the lower Boulder Valley (Link 4-2b). The three LROs associated with these links are described below.

*LRO4-2a-1 (Upper Boulder 1):* This 8.2-mile-long LRO would potentially replace Link 4-2a and 4-1b. It would pass over low rolling to flat grassland that is privately owned and sparsely populated. The nearest residence would be located between 0.5 and 1 mile from this LRO. No other sensitive viewing areas have been identified near the alignment.

*LRO4-2a-2 (Upper Boulder 2):* The 6.8-mile-long LRO would be approximately 1 mile to the west of LRO4-2a-1 (Upper Boulder #1). This LRO would potentially replace Link 4-2a. The terrain LRO4-2a-2 would pass through is privately owned and is similar to that of LRO4-2a-1. As with LRO4-2a-1, there are few nearby residences, although one residence is immediately adjacent to the ROW. The Black Sage WSA lies within the middleground (0.5 to 3 mile) zone.

*LRO4-2a-3 (Upper Boulder):* This segment is furthest to the south of both LRO4-2a-1 and 4-2a-2 (Upper Boulder #1 and #2) is common to both LROs and heads 5.5 miles in a southwest direction from the node that connects it with both LRO4-2a-1 and LRO4-2a-2. It passes through grasslands that are similar to that of LRO4-2a-1 and LRO4-a-2.

*LRO4-2b (Lower Boulder):* This LRO would traverse 6.6 miles, near the crest and along the southeast face of Doherty Mountain. It would pass through 0.8 mile of BLM land on Doherty Mountain managed as VRM Class II. Residences along this route from where the LRO might be visible tend to be located along the I-90 corridor. The LRO would be very visible from parts of I-90 as it descended the southeast face of Doherty Mountain.

**Link 5.** The 15.5-mile-long Link 5 would travel through the valley and foothill area north of I-90 between SH 69 and Pipestone. The route would generally parallel I-90 and be located north of it at distances ranging from 0.5 to 1 mile. The community of Whitehall lies approximately 1.25 miles south of the link (and I-90) at the link's approximate midpoint. It would pass through a wide variety of landscape types and land uses. The entire length of Link 5 would be sited to the north of, and within 0.25 mile of, 161-kV and 230-kV transmission lines.

Link 5 would cross several small BLM parcels. Approximately 0.5 mile of it would cross VRM Class III lands, and 2.4 miles would cross VRM Class IV lands. The link would not travel through any NFS lands.

Most of the residences from which the link could be potentially visible are located in the Whitehall and Pipestone areas. The Mayflower Bridge Fishing Access Site and the Cardwell Bridge Fishing Access Site would be located within the middleground of the link. Link 5 would be potentially visible from parts of I-

90, particularly along the approximately 2 miles of it that would be located within the immediate foreground (0 to 0.25 mile) zone of I-90. The link would not cross over I-90.

**Links 6-1, 6-2, and LRO6-2.** Link 6-1 would begin near the community of Pipestone and travel west 7 miles along the I-90 corridor to its connection point with Link 6-2 in the Homestake area. Link 6-2 would continue west downhill into the valley south of Butte. For most of its route Link 6-1 would be sited north of I-90 but would cross over it to the south in the Homestake/Continental Divide area. These two links would pass through mountain, foothill, and valley landscape character types. Link 6-1 would follow (within 0.25 mile) existing transmission lines (161 kV and/or 230 kV) for more than 6 miles of its 7.1-mile length. Many parts of the 161-kV and a 230-kV transmission lines (on wood H-frame structures) can be seen from I-90 and nearby areas. Link 6-2 would also be located within 0.25 mile of several existing transmission lines, including a 230-kV transmission line that Link 6-2 would parallel for its entire length.

Approximately 4.6 miles of Link 6-1 would cross BLM lands that are located within the Pipestone Special Recreation Management Area (SRMA). Of the BLM lands, approximately 0.4 mile is managed as VRM Class III, and 2.4 miles are managed as VRM Class IV. Immediately west of the Pipestone Special RMA, Link 6-1 would enter the BDNF. It and Link 6-2 would pass through approximately 4.8 miles of the BDNF, 4.7 miles of which have an SIO of High, and 0.1 mile of which has an SIO of Moderate.

Because most of these links would travel through public lands, residential development in the vicinity of them is concentrated along the eastern part of their routes near Pipestone as well as the westernmost 2 miles (Link 6-2) of the route in the South Butte valley area. Other sensitive viewing areas include I-90, the Continental Divide National Scenic Trail, and the Homestake Lake Picnic Area, all of which are identified in the BDNF Forest Plan as being Concern Level 1 visual resources (Section 3.11.3.3.1 for an explanation of Concern Level 1 visual resources). The Homestake area is very popular for year-round recreation due to its proximity to Butte and extensive resources and road/trail system, which includes the Continental Divide National Scenic Trail.

*LRO6-2 (South of Butte 1 LRO):* The 3.2-mile-long LRO6-2 would depart from Link 6-1 within the BDNF and head northwest and down a forested slope west of I-90 (within the immediate foreground [0 to 0.25 mile] zone for 1.6 miles). It would replace Link 6-2 and would follow within 0.25 mile of an existing 230-kV transmission line located below I-90, along the edge of the valley south of Butte. LRO6-2 would parallel I-90 within 0.25 mile of it for approximately 1.4 miles, wrap around a residential area, and head southwest toward the South Butte Substation. The character of the portion of the LRO6-2 route that would pass through the valley is a mix of residential subdivisions scattered between undeveloped grasslands. The LRO would pass near a number of residences.

**Links 7-1, 7-2, 7-3, 7-4, LRO7-2, and LRO7-4.** These relatively short links are located south of Butte between the South Butte Substation and the Buxton area. Links 7-1 is 2.1 miles long, Link 7-2 is 2.7 miles long, Link 7-3 is 1.5 miles long, and Link 7-4 is 4.8 miles long. Two LROs would be associated with two of the links and are described below. Several existing transmission lines (230-kV, 161-kV, and 138-kV) are in the vicinity of the links, although none parallel any of the links for more than 0.6 mile, thus with the possible exception of the South Butte residential area where an existing ROW would be shared, all of these links would be located in entirely new, 220-foot-wide ROW. The links would travel through similar foothill and valley landscape types. Most of the residences that the links would pass near are located in valleys near Links 7-1 and 7-2 and in the area around Buxton (the western part of Link 7-4). These links would not pass through any BLM or NFS-administered lands. The links would not pass through, or close to, other identified sensitive viewing areas other than I-15, over which Link 7-4 and LRO7-4 would cross.

**LRO7-2 (Beef Trail):** The 2.7-mile-long LRO7-2 would closely parallel Link 7-2 (which it would replace) along a portion of the Link 7-2 route that passes by a residential area. There are no other sensitive viewing areas near LRO7-2.

**LRO7-4 (North of Buxton):** The 6.7-mile-long LRO7-4 would travel north from the Link 7-3 connection. It would then turn west to loop around, and north of, a residential area in the Buxton area. It would connect with Link 9-1/9-2a approximately 9 miles north of the location where Link 7-4 would connect with Link 9-1/9-2a. LRO7-4 would cross over I-15 approximately 2.3 miles north of the Link 7-4 crossing and would be similarly visible to motorists on I-15.

**Links 8-1 and 8-2.** These links would be located southwest of Butte. Links 8-1 (17.2 miles) and 8-2 (2.8 miles) would cross landscapes consisting of valleys and foothills before Link 8-2 would terminate at a point approximately 3 miles southeast of the Mill Creek Substation. For much of their alignments, the links would be built on expansions of existing transmission corridors. Link 8-1 would pass within 0.25 mile of approximately 14 miles of 230-kV transmission line, 22 miles of three different 161-kV transmission lines, and 4 miles of 115-kV transmission lines. Link 8-2 would parallel (within 0.25 mile) two 161-kV transmission lines and one 115-kV transmission line for its entire length. Most of these existing transmission lines are supported by wooden H-frame structures. Link 8-1 would cross SH 2 within its first 0.25 mile and I-15 approximately 9 miles to the northwest. Beyond the I-15 crossing, it would roughly parallel I-90 to the southwest for several miles, but not cross it or come within 0.25 mile of it. Most of the land Link 8 would pass through is private and much of it has been altered by human activities that include agriculture, mining, reclamation, residential development, and a golf course and resort (Fairmont Hot Springs Resort). Link 8 would not pass through any public lands managed by the USFS or BLM.

A considerable amount of rural residential development is scattered along the two link routes. Links 8-1 and 8-2 would pass within 0.5 mile of the Fairmont Hot Springs Resort. Link 8-1 would cross over I-15 and be located less than a mile from I-90.

**Links 9-1, 9-2a, 9-2b, 9-2c, 9-3, LRO7-4, and LRO9-3.** Link 9-1 would begin 1 mile west of Buxton and head northwest. Link 9-3 would be the most northwestern of these five links (9-1, 9-2a, 9-2b, 9-2c, and 9-3), ending approximately 2 miles west of Crackerville. The five links together would pass over 20 miles of hilly terrain. The links and their lengths are as follows: Link 9-1 (2.5 miles), 9-2a (4.0 miles), 9-2b (13.0 miles), 9-2c (2.5 miles), and 9-3 (1.8 miles). Link 9-1 would be parallel to and within 0.25 mile of 161-kV and/or 230-kV transmission lines its entire length, as would the other links except for Link 9-2c, which would be adjacent to 1.5 miles of 161-kV and/or 230-kV transmission line.

After leaving the Buxton area, Links 9-1, 9-2a, and 9-2b would pass through mainly undeveloped east-facing foothills punctuated with tree-lined canyons that empty into large, relatively level grasslands east of the foothills that contain scattered ranches and areas that have been mined. Link 9-2c would pass west of and near the Fairmont Hot Springs Resort. Beyond the resort, Links 9-2c and 9-3 would continue northwest in the direction of Anaconda over largely undeveloped lands.

None of the links would pass through BLM-administered lands. Link 9-1 would travel through 1.2 miles of BDNF, and Link 9-2a would cross 0.4 mile. The two links would cross two “corners” of the BDNF that have SIOs of High due to their proximity to I-15 and I-90 (both of which are identified as Concern Level 1 Travel Ways in the BDNF Forest Plan).

The greatest concentrations of residences near any of the links are in the Fairmont area near Link 9-2c. Other sensitive viewing areas that Link 9-2a and 9-3 would pass near include the Mt. Haggin State Wildlife Management Area and Fleecer Mountain State Wildlife Management Area. Link 9-2c would

**LRO7-2 (Beef Trail):** The 2.7-mile-long LRO7-2 would closely parallel Link 7-2 (which it would replace) along a portion of the Link 7-2 route that passes by a residential area. There are no other sensitive viewing areas near LRO7-2.

**LRO7-4 (North of Buxton):** The 6.7-mile-long LRO7-4 would travel north from the Link 7-3 connection. It would then turn west to loop around, and north of, a residential area in the Buxton area. It would connect with Link 9-1/9-2a approximately 9 miles north of the location where Link 7-4 would connect with Link 9-1/9-2a. LRO7-4 would cross over I-15 approximately 2.3 miles north of the Link 7-4 crossing and would be similarly visible to motorists on I-15.

**Links 8-1 and 8-2.** These links would be located southwest of Butte. Links 8-1 (17.2 miles) and 8-2 (2.8 miles) would cross landscapes consisting of valleys and foothills before Link 8-2 would terminate at a point approximately 3 miles southeast of the Mill Creek Substation. For much of their alignments, the links would be built on expansions of existing transmission corridors. Link 8-1 would pass within 0.25 mile of approximately 14 miles of 230-kV transmission line, 22 miles of three different 161-kV transmission lines, and 4 miles of 115-kV transmission lines. Link 8-2 would parallel (within 0.25 mile) two 161-kV transmission lines and one 115-kV transmission line for its entire length. Most of these existing transmission lines are supported by wooden H-frame structures. Link 8-1 would cross SH 2 within its first 0.25 mile and I-15 approximately 9 miles to the northwest. Beyond the I-15 crossing, it would roughly parallel I-90 to the southwest for several miles, but not cross it or come within 0.25 mile of it. Most of the land Link 8 would pass through is private and much of it has been altered by human activities that include agriculture, mining, reclamation, residential development, and a golf course and resort (Fairmont Hot Springs Resort). Link 8 would not pass through any public lands managed by the USFS or BLM.

A considerable amount of rural residential development is scattered along the two link routes. Links 8-1 and 8-2 would pass within 0.5 mile of the Fairmont Hot Springs Resort. Link 8-1 would cross over I-15 and be located less than a mile from I-90.

**Links 9-1, 9-2a, 9-2b, 9-2c, 9-3, LRO7-4, and LRO9-3.** Link 9-1 would begin 1 mile west of Buxton and head northwest. Link 9-3 would be the most northwestern of these five links (9-1, 9-2a, 9-2b, 9-2c, and 9-3), ending approximately 2 miles west of Crackerville. The five links together would pass over 20 miles of hilly terrain. The links and their lengths are as follows: Link 9-1 (2.5 miles), 9-2a (4.0 miles), 9-2b (13.0 miles), 9-2c (2.5 miles), and 9-3 (1.8 miles). Link 9-1 would be parallel to and within 0.25 mile of 161-kV and/or 230-kV transmission lines its entire length, as would the other links except for Link 9-2c, which would be adjacent to 1.5 miles of 161-kV and/or 230-kV transmission line.

After leaving the Buxton area, Links 9-1, 9-2a, and 9-2b would pass through mainly undeveloped east-facing foothills punctuated with tree-lined canyons that empty into large, relatively level grasslands east of the foothills that contain scattered ranches and areas that have been mined. Link 9-2c would pass west of and near the Fairmont Hot Springs Resort. Beyond the resort, Links 9-2c and 9-3 would continue northwest in the direction of Anaconda over largely undeveloped lands.

None of the links would pass through BLM-administered lands. Link 9-1 would travel through 1.2 miles of BDNF, and Link 9-2a would cross 0.4 mile. The two links would cross two “corners” of the BDNF that have SIOs of High due to their proximity to I-15 and I-90 (both of which are identified as Concern Level 1 Travel Ways in the BDNF Forest Plan).

The greatest concentrations of residences near any of the links are in the Fairmont area near Link 9-2c. Other sensitive viewing areas that Link 9-2a and 9-3 would pass near include the Mt. Haggin State Wildlife Management Area and Fleecer Mountain State Wildlife Management Area. Link 9-2c would

pass within the immediate foreground (0 to 0.25 mile) zone of the closest hole on Fairmont Hot Springs Resort golf course and within the foreground (0.5 mile) zone of the resort's closest buildings. Several of these links would potentially be seen from I-90 (which would be as close as 2 miles away to Link 9-2a). LRO7-4 is described above.

*LRO9-3 (Mt. Haggin):* The 1.7-mile-long LRO9-3 would be located to the west of Link 9-3 (and lower on the hillside on which they are both located) and closer to residences in the Crackerville area than Link 9-2, which it would replace. LRO9-3 would pass over private lands and other than residences, would not pass near other sensitive viewing areas.

**Link 10.** Link 10 would start approximately 2 miles west of Crackerville and end 3.2 miles to the northwest at the Mill Creek Substation. The north end of the link would be approximately 1.5 miles west of the community of Opportunity. The alignment would parallel a 161-kV transmission line for 2.9 miles. It would pass through undeveloped valley grasslands. Link 10 would not pass through any public lands that are managed by the NFS or BLM. Several areas of residential development would be located to the east of Link 10 along SH 1. Link 10 would not pass near any other identified sensitive viewing areas.

### **Zone 2: Mill Creek to Glen**

Zone 2 is located in Montana and includes Alternatives 2A, 2B, 2C, 2D, and 2E. The portions of the Alternatives in the Butte and Mill Creek areas overlap with Zone 1. The northwest part of Zone 2 includes the city of Butte and is the most populous in the zone. Twin Bridges is the next-largest town, with a population of 400 (U.S. Census Bureau 2000a). Smaller communities including Woodin, Divide, Melrose, Navy, Glen, and Apex are located in the central and southern part of Zone 2. Principal roadways include I-90, which crosses Zone 2 northwest to east; I-15, which runs north-south; and state highways including SH 2, which crosses Zone 2 northwest to east, and SH 55 and SH 41, which cross the east side of the zone.

Zone 2 includes parts of the BDNF and BLM land managed by the Butte and Dillon field offices. The project routes in Zone 2 cross into the counties of Butte, Silver Bow, Deer Lodge, Madison, Jefferson, and Beaverhead. The Continental Divide National Scenic Trail and the Lewis and Clark National Historic Trail cross through or near several of the Zone 2 alternative routes.

**Alternatives—Zone 2.** Zone 2 contains five alternative project routes:

- Alternative 2A is comprised of Links 9-1, 9-2a, 9-2b, 9-2c, 9-3, 10, 11-1, 11-2, 11-3, 11-4, 11-5, and 13.
- Alternative 2B is comprised of Links 9-1, 9-2(a-c), 9-3, 10, 11-1, 11-2, 11-3, 11-4, 11-5, 14-1, 14-2, and 14-3.
- Alternative 2C is comprised of Links 6-1, 6-2, 7-1, 7-2, 7-3, 7-4, 9-1, 9-2(a-c), 9-3, 10, and 12.
- Alternative 2D is comprised of Links 2-3d, 9-2b, 25, 26, 27, 28, 29, 30, 31, 32, and 33.
- Alternative 2E is comprised of Link 12.

Links 6-1, 6-2, 7-1, 7-2, 7-3, 7-4, 9-1, 9-2(a-c), and 10 are described in Zone 1, while 11-1, 11-2, 11-3, 11-4, 11-5, 12, 13, 14-1, 14-2, 14-3, 25, 26, 27, 28, 29, 30, 31, 32, and 33 are described below.

**Links 11-1, 11-2, 11-3, 11-4, 11-5, and LRO11-3.** Link 11-1 would begin near Buxton and extend south for 12.9 miles. Link 11-2 would continue south 2.7 miles, 11-3 for 2.2 miles, 11-4 for 2.9 miles, and 11-5 for 1.2 miles before ending 1 mile southwest of Melrose. One LRO is associated with these links and is

discussed below. The route of virtually all of these links would be located in the expanded ROW of a corridor that now contains 161-kV and 230-kV transmission lines, as well as two 115-kV transmission lines. All of these lines are supported on wooden H-frame structures. Almost the entire length of these links would be within 0.25 mile of the existing lines.

The majority of these links would pass through a sparsely populated foothill landscape characterized by grassy vegetation with occasional river valleys containing agricultural lands. Much of Link 11-1 would pass along the lower slopes of Fleecer Mountain, and Links 11-2 to 11-5 would travel through, or near, the Big Hole River Valley. Link 11-4 would cross the river at the Maiden Rock Fishing Access Site, 2.5 miles north of Melrose.

Link 11-1 would pass through 0.25 mile of a BLM parcel that adjoins the Humbug Spires WSA. The small BLM parcel is managed under VRM Class III. Link 11-2 would cross I-15 on BLM land (VRM Class III) south of Continental Divide. Link 11-4 would cross over the Big Hole River on state land (Maiden Rock Fishing Access Site), then pass through 0.7 mile of BLM land within the Lower Big Hole River SRMA and managed under VRM Class III. None of these links would travel through NFS lands.

Relatively few residences are in the vicinity of these links. Most are concentrated around Woodin (Link 11-1) and Melrose (Links 11-4 and 11-5). The links would cross near a number of sensitive viewing areas. Humbug Spires WSA, Primitive Area, and Proposed ACEC would be within the foreground (0 to 0.5 mile) zone of Link 11, and the Continental Divide National Scenic Trail would cross under it. Link 11-4 would cross the Big Hole River near the Maiden Rock Fishing Access Site, and the Salmon Fly Fishing Access Site on the Big Hole River would be in the middleground (0.5 to 3 mile) zone of Link 11-5.

Link 11-1 would roughly parallel I-15 and come within the immediate foreground (0 to 0.25 mile) zone of it for 2.3 miles. The link would cross over I-15 east of the town of Woodin. Link 11-2 would cross over I-15 and follow it within the immediate foreground (0 to 0.25 mile) zone for approximately 1 mile to its connection with Link 11-3, where it would parallel the highway within the immediate foreground (0 to 0.25 mile) zone for another 1.3 miles.

*LRO11-3 (Maiden Rock):* The 5-mile-long LRO11-3 would eliminate the need for Links 11-2 and 11-3. It would start at the same point as Link 11-3 but would travel southwest for half a mile and then due south. It would avoid crossing the Big Hole River at the Maiden Rock Fishing Access Site. LRO11-3 would cross 0.9 mile of BLM VRM Class II land before crossing the Big Hole River and 2.5 miles of BLM VRM Class III land after crossing the river. It would not cross I-15.

**Link 12.** The 53.6-mile-long Link 12 would begin near Pipestone and travel south along the western foothills of the Jefferson River Valley and through the mountains to the west and end approximately 10 miles northwest of Dillon. The majority of Link 12 would pass through foothill and mountain landscape types. Link 12 would also cross agricultural land in its northernmost alignment and in the vicinity of Silver Star in the Jefferson River Valley. No transmission lines currently parallel the route of Link 12, so a new ROW would be created to accommodate it. Between Silver Star and the Big Hole River crossing, Link 12 would cross 16 miles of BLM land under the jurisdiction of the Dillon Field Office. These BLM lands are managed under VRM Classes III and IV. The alignment would not pass through NFS lands.

Most of the areas Link 12 would pass through are sparsely populated. Residences along the Link 12 route are concentrated in the vicinity of the communities of Vendome, Silver Star, Twin Bridges, New Biltmore Hotsprings, and Bond. In addition to residences are a number of other sensitive viewing areas near Link 12. The link would cross BLM land within the Lower Big Hole River SRMA, then cross the Big Hole River about 0.75 mile downstream of the Notch Bottom Fishing Access Site and parallel the Lewis and

Clark National Historic Trail and Jefferson River for approximately 10 miles, with much of that distance being within the middleground (0.5 to 3 mile) zone. The Block Mountain ACEC would also be located within a mile of Link 12, as would the Silver Star, Notch Bottom, and Pennington Bridge Fishing Access Sites, New Biltmore Hot Springs, and the campground near Silver Star. The link would roughly parallel the course of U.S. 41 and cross it at the north end of the Jefferson River Valley. Link 12 crosses I-15 near the route's southern terminus. Approximately 3.5 miles of Link 12 would pass through the Silver Star historic mining district. The district is located on private lands and BLM land managed under VRM Class IV. The part of Link 12 that would pass through the portion of the district on private lands would be within 0.25 mile of one residence and within a mile of other residences in the community of Silver Star.

**Link 13.** The 20.3-mile-long Link 13 would follow within 0.25 mile an existing 230-kV transmission line for its entire length. The link would begin southwest of the town of Melrose and end 4 miles southwest of the town of Apex. It would pass through the sparsely vegetated foothills of the Pioneer Mountains along the west side of the Big Hole River Valley. Link 13 would descend in several locations through valleys that generally contain irrigated agriculture, rural residences, and communities. Link 13 would pass through 9.5 miles of BLM land managed under VRM Class III and no NFS lands.

Much of Link 13 would pass through sparsely populated land. The few residences near it are scattered along Rock Creek. The other main sensitive viewing area within a mile of the route is the Big Hole River.

**Links 14-1, 14-2, 14-3, and LRO14-2.** Link 14-1 would begin 1 mile south of the town of Melrose and end 11 miles south. Link 14-2 would continue south for 1.3 miles to its connection with Link 14-3, which would continue south for 7.6 miles, ending approximately 2 miles south of the town of Apex. One LRO is associated with these links and is described below. Links 14-1, 14-2, and 14-3 roughly parallel I-15 and would be located from approximately 2 miles to 0.25 mile to the west of it. The links would also be located west of the small communities of Navy, Glen, and Apex. Virtually the entire length of each link would be located within 0.25 mile of the same existing 161-kV transmission line.

Links 14-1, 14-2, and 14-3 would pass along the foothills of the Pioneer Mountains and the west side of the Big Hole River Valley in an area largely void of trees. Though much of the routes can be described as foothill character type, they would descend in several locations through valleys that contain irrigated agriculture, rural residences, and communities. Links 14-1, 14-2, and 14-3 would cross 4 miles of BLM land managed under VRM Class III and would cross no NFS lands.

Residences are concentrated along the east side of Links 14-1 and 14-2 near the communities of Navy, Glen, and Apex. Scattered residences are found on both sides of Link 14-3. In addition to residences, Links 14-1, 14-2, and 14-3 could potentially be seen from several other sensitive viewing areas; they include Brown's Lake and Kalsta Bridge Fishing Access Sites along the Big Hole River within a mile of the route and I-15, which parallels the southern third of Link 14-1 within immediate foreground (0 to 0.25 mile) zone for approximately 4 miles.

*LRO14-2 (Willow Creek):* The 1.3-mile-long LRO14-2 would eliminate the need for Link 14-2. It would be located 0.25 to 0.5 mile to the west of and parallel to I-15. Most of this LRO is located on BLM lands with a VRM of Class III.

**Link 25.** The first 0.5 mile of the 5-mile-long Link 25 would pass between the community of Opportunity to the west and I-90 to the east. Once south of Opportunity, the alignment would continue south, paralleling the I-90 frontage road, crossing over SR 1, and connecting with Link 8 approximately 0.5 mile northeast of the Fairmont Hot Springs Resort. The northernmost part of the link would pass through a valley-type landscape consisting of grasslands and a meandering river. The middle and southern portions

of Link 25 contain disturbed areas associated with mining. Link 25 would not pass through any BLM or NFS lands.

Residences near Link 25 would be concentrated at the north end near Opportunity and the south end near Crackerville and Fairmont. Other sensitive viewing areas include the Fairmont Hot Springs Resort complex, which the link would be north of, and within the middleground (0.5 to 3 mile) zone.

**Link 26.** From its northern point, the 1.7-mile-long Link 26 would cross a valley landscape until approximately Fairmont Road, where it would gain elevation as it climbed a ridgeline to its intersection with Link 9. Near its southern terminus, Link 26 would be situated near (but not within 0.25 mile of) several existing 161-kV and 230-kV transmission lines. Link 26 would not pass through any BLM or NFS lands.

Most residences would be in the Fairmont area. The link would pass to the east of Fairmont Hot Springs Resort, a sensitive viewing area. It would be in the middleground (0.5 to 3 mile) zone of the main Fairmont Hot Springs Resort facilities (buildings) and within the foreground (0 to 0.5 mile) zone of the resort's RV park.

**Link 27.** Link 27 would begin 2 miles west of the community of Miles Crossing and head south for 15.1 miles, ending about 2 miles southwest of the community of Woodin. The link would pass through mountain, foothill, and valley landscape types, most of which are undeveloped and within the BDNF. Much of the route would be located on east-facing forest and grass-covered foothills of the Fleecer Range and would pass through several canyons and river valleys. The lands Link 27 would pass through are sparsely inhabited. The several scattered areas containing residences are located within private in-holdings or next to the BDNF boundary.

Link 27 would not pass through any BLM-administered lands. It would pass through 9.8 miles of BDNF lands, all of which would have an SIO of High. Link 27 would cross over several resources that are identified in the BDNF Forest Plan as Concern Level 1 Travel Ways, including the Continental Divide National Scenic Trail, FR 8505, and FR 96. The route also would pass within the middleground (0.5 to 3 mile) zone of I-15 (also a Concern Level 1 Travel Way in the BDNF Forest Plan) and the Beaver Dam Campground (a Concern Level 1 site in the BDNF Forest Plan). After leaving the BDNF, the route would pass through the Fleecer Mountain State Wildlife Management Area.

**Link 28.** The 2.5-mile-long Link 28 would begin 2 miles southwest of the community of Woodin and head south to its intersection with Link 29. Link 28 would pass through sparsely populated foothill and valley landscape types. Most of it would travel along southeast-facing foothills of the Fleecer range and pass over several river valleys. Link 28 would have an LRO associated with it.

Link 28 would not pass through any BLM or NFS lands, but would pass through the Fleecer Mountain State Wildlife Management Area. Several residences near the alignment are located in the vicinity of the community of Divide, and others are scattered along Divide Creek between Divide and Woodin. Link 28 would pass a mile beyond, but within the middleground (0.5 to 3 mile) zone of the Divide Bridge Campground and Powerhouse Bridge Sportsman's Access along the Big Hole River.

*LRO28 (Fleecer):* The 3.2-mile-long LRO28 route would zigzag from southeast to southwest to southeast again, much of it passing through the Fleecer Mountain State Wildlife Management Area. Its northern route would be closer to I-15 than Link 28 would be, and its southern part would be farther. LRO28 would not pass through BLM or NFS lands. The closest residential area would be scattered along Divide Creek between Divide and Woodin.

**Link 29.** Link 29 would begin at the terminus of Link 28 and head southeast for 2.5 miles north of the community of Divide. The link would end at the intersection of Links 11-1, 11-2, and 30. It would parallel an existing 161-kV transmission line within 0.25 mile for approximately 0.9 mile. Link 29 would pass through and over the Big Hole River and Divide Creek valleys. It would not travel through any BLM or NFS administered lands. There would be one residence in the foreground (0 to 0.5 mile) zone. Link 29 would be within a mile of the Fleecer Mountain State Wildlife Management Area, and within the immediate foreground (0.25 mile) of the Humbug Spires WSA Primitive Area and Proposed ACEC. The Divide Bridge Campground and Powerhouse Bridge Sportsman's Access along the Big Hole River would be beyond a mile away in the middleground (0.5 to 3 miles) zone. The link would cross I-15 just north of the I-15 SR 43 exit.

**Link 30.** Link 30 would head south from its terminus with Link 29 (approximately 2 miles southeast of the community of Divide) and connect with Links 11-3, 11-4, and 31 approximately 5.2 miles later. It would travel through foothills east of the Big Hole River Valley and cross over the canyons of several tributaries. The link would travel within 0.25 mile of an existing 230-kV transmission line for approximately 1.3 miles. Link 30 would pass through 3.7 miles of BLM land managed under VRM Class III and would not travel through NFS-administered lands. The Link 30 route is sparsely populated, although several residences are scattered along the I-15 corridor. Other sensitive viewing areas include the Humbug Spires WSA Primitive Area and Proposed ACEC within the immediate foreground (0 to 0.25 mile) zone and the Maiden Rock Fishing Access Site on the Big Hole River within the middleground (0.5 to 3 mile) zone. Link 30 would be located within 0.25 mile of I-15 for 1.9 miles and cross over it once near its southern terminus.

**Link 31.** From its terminus with Link 30, 1 mile north of the Maiden Rock Fishing Access Site, Link 31 would cross the Big Hole River on BLM land immediately north of the Maiden Rock Fishing Access Site, then would head southwest and south for 8.8 miles to its connection with Link 32/LRO32. For approximately 0.9 miles it would be located within 0.25 mile of an existing 230-kV transmission line. Link 31 would pass through the remote foothills of the Pioneer Mountains west of the Big Hole River valley and cross the canyons of several tributaries such as Cherry Creek. The link would pass through 6.4 miles of VRM Class III BLM lands. The last 2 miles of its route would be adjacent (within 0.25 mile) to the BDNF. The route would pass east of the community of Glendale, which is where most residences near it are located. Link 31 would be within the middleground (0.5 to 3 mile) zone of the Maiden Rock Fishing Access Site. Approximately 9 miles of Link 31 would pass through the Bryant (Hecla) historic mining district. The portion of the district the link would pass through is south of Glendale and immediately east of (and outside of) the BDNF. The part of the district Link 31 would travel through contains private and BLM (VRM Class III) lands.

**Link 32.** Link 32 begins at the terminus of Link 31 and heads roughly southeast for 3.7 miles. It would have an LRO associated with it. The link would pass through a very isolated area, most of it (3.3 miles) through BLM land with a VRM of Class III. It would not pass through NFS lands. Several residences are downstream along Rock Creek. The Brown's Lake Fishing Access Site on Rock Creek and the Kalsta Bridge Fishing Access Site on the Big Hole River would be located beyond a mile away in the middleground (0.5 to 3 mile) zone. Approximately 2 miles would pass through the Bryant (Hecla) historic mining district on BLM land managed under VRM Class III.

*LRO32 (Rock Creek):* The 4-mile-long LRO32 would eliminate the need for Link 32. It would start at the same point as Link 32, but it would travel west of Link 32 along the outside of the BDNF boundary before turning southeast and connecting with Link 33. LRO32 would cross Rock Creek farther west than Link 32, and it would be closer to several residences located near Rock Creek. The Brown's Lake Fishing Access Site on Rock Creek and the Kalsta Bridge Fishing Access Site on the Big Hole River would be in

the middleground (0.5 to 3 mile) zone. Approximately 2 miles would pass through the Bryant (Hecla) historic mining district on BLM land managed under VRM Class III.

**Link 33.** From its Link 32 terminus, Link 33 would head south 13.5 miles and pass over several Big Hole River tributary canyons such as Lost Creek, Willow Creek, Birch Creek, and Cave Gulch. It would travel across 11.1 miles of BLM land with VRM of Class III. It would not pass through any NFS lands although it would be as close as 0.5 mile from the BDNF boundary for approximately 2 miles. Several isolated residences are located along its route. Other than residences, no sensitive viewing areas are near the link. Approximately 0.5 mile of Link 33 would pass through the Utopia historic mining district where it would cross Birch Creek on BLM land with a VRM of Class III.

### **Zone 3: Glen to State Line**

Zone 3 is located in Montana within the Broad Valley Rockies physiographic province. Within this zone are Alternatives 3A, 3B, and 3C. The city of Dillon is the most populous community in Zone 3, with approximately 3,800 residents (U.S. Census Bureau 2000b). Smaller towns and communities exist in the central and southern part of Zone 3, the most populous of which is Lima with 242 residents. I-15 crosses Zone 3 from north to south. The project corridor in Zone 3 begins near the community of Apex and ends at the Montana-Idaho border near Monida. Zone 3 includes parts of the BDNF and BLM land managed from the Dillon Field Office. The project routes in Zone 3 cross through Beaverhead County. The Lewis and Clark National Historic Trail, Continental Divide National Scenic Trail, Clark Canyon State Recreation Area, and Big Sheep Creek Back Country National Scenic Byway are within 5 miles of the project corridors in Zone 3.

**Alternatives–Zone 3.** Zone 3 contains three alternative project routes that are composed of the following combinations of links:

- Alternative 3A is comprised of Links 15-1, 15-2a, 15-2c, 15-2d, 17-1, 17-2, 17-3, and 17-4.
- Alternative 3B is comprised of Links 16-1, 16-2, 16-3a, 16-3b, 16-3c, 16-3d, 17-1, 17-2, 17-3, and 17-4.
- Alternative 3C is comprised of Links 15-1, 16-3b, 16-3c, 16-3d, 17-1, 17-2, 17-3, 17-4, 36, 37, 38, and 39.

Each link and LRO is described below.

**Links 15-1, 15-2a, 15-2b, 15-2c, and 15-2d.** Links 15-1 (2.4 miles) and 15-2a (2.2 miles), 15-2b (0.6 mile), 15-2c (8.1 miles), and 15-2d (33.5 miles) would begin 4 miles southwest of the community of Apex and end 47 miles to the south, approximately 3 miles southeast of the community of Kidd. From the northern starting point of Link 15-1 to approximately 4 miles north of Clark Canyon Reservoir, these links would be located within 0.25 mile of (and would share a ROW with) an existing 230-kV transmission line. South of Clark Canyon Reservoir Link 15-2d would be located within 0.25 mile of (and would share a ROW with) an existing 161-kV transmission line.

Most of the route would pass through foothill/plain landscapes that are interspersed with valleys and gulches of varying widths and depths. With several exceptions, most of the land these links pass through is undeveloped and has a natural appearance. The links would pass through 26 miles of BLM land and no NFS lands. The BLM lands are located in several parcels. Slightly over 24 miles of the BLM lands Link 15-2d would cross have been designated as VRM Class III, and slightly more than 1 mile is Class IV. The Henneberry Ridge WSA would be in the immediate foreground (0 to 0.25 mile) zone of Link 15-2d where the link would parallel the WSA boundary.

Residences near these links are concentrated in several areas, including west of Dillon (15-2c) and along the Red Rock River Valley (Link 15-2d). Link 15-2d would be within the immediate foreground (0 to 0.25 mile) zone of the Lewis and Clark National Historic Trail (it crosses over the trail) and the Henneberry Ridge WSA and would pass within the middleground (0.5 to 3 mile) zone of the Clark Canyon State Recreation Area, Cameahwait Campground, Beaverhead Campground, Bell/Limekiln Canyons WSA, Hidden Pasture Creek WSA, and Medicine Lodge Creek. Within the Red Rock River Valley, Link 15-2d would parallel I-15 for approximately 7 miles and come within 0.25 mile for 3.8 miles before crossing I-15 near the link's terminus south of Kidd.

Approximately 0.75 mile of Link 15-2c would pass through the Argenta historic mining district. This crossing would occur near Rattlesnake Creek on BLM land with a VRM of Class III. Farther south, approximately 1.25 mile of Link 15-2d would pass through the Bannack historic mining district near Grasshopper Creek. It would pass over private land, then BLM lands with VRMs of Class IV and Class III.

**Link 35.** This link would be located less than 0.5 mile east of Link 15-2a. The area it would pass through is characterized by grassland-covered foothills. It would be located within 0.25 mile of an existing 230-kV transmission line for 1.3 miles. The entire 1.7-mile-long route would pass through BLM land managed under VRM Class III. Unpaved Argenta Road is approximately 2 miles to the south and is the closest developed road to the alignment. It provides access to most of the residences that are near this route and Links 36, 37, and 38. Some residences would be located south of it in the vicinity of Rattlesnake Creek northwest of Dillon. No other sensitive viewing areas have been identified within the foreground (0 to 0.5 mile) to middleground (0.5 to 3 mile) zones.

**Link 37.** Link 37 is located east of Link 15-2a. Most of the route is grass-covered foothills, except for the portion that would pass over the riparian vegetation found along Rattlesnake Creek. This 1.3-mile-long link passes through BLM land managed under VRM Class III. As with Links 35 and 36, some residences would be located in the vicinity of Link 37 in the Rattlesnake Creek area northwest of Dillon. No other sensitive viewing areas have been identified within the foreground (0 to 0.5 mile) to middleground (0.5 to 3 mile) zones.

**Link 38.** This link would extend as much as 3 miles west of the Link 15-2c alignment and would circle around a cluster of approximately six residences. Link 38 would be located within 0.25 mile of an existing 230-kV transmission line for 0.9 mile. As with the previous routes, this route would pass over grass- and sage-covered foothills. All of this 10.3-mile-long route would pass through BLM land managed under VRM Class III. Its north end would cross over SH 278 and several unpaved roads and residences near Rattlesnake Creek. The closest part of the alignment would be at least 6 miles from Bannack State Park and would not be visible from the park due to a series of mountains and ridges that would block views. Approximately 1.25 miles would pass through the Bannack historic mining district near Grasshopper Creek on BLM land managed under VRM Class IV and Class III.

**Link 39.** This link would connect Link 15-2c with Link 16-3a. Most of the route would be along grass- and sage-covered foothills. It would pass over Grasshopper Creek and Lower Grasshopper Creek Road. The 6.6-mile-long route would pass over a mixture of BLM (approximately 5.6 miles) and private lands. It would pass through 4 miles of BLM land managed under VRM Class III and 1.6 miles managed under VRM Class IV. The few residences near the link are located near its southern terminus in the vicinity of Dalys. The southern end of the route would cross I-15 and connect with Link 16 at a location north of the Ney Ranch Recreation Site (and Ney Homestead) and within the near middleground (0.5 to 1.0 mile) of the homestead.

**Links 16-1, 16-2, 16-3a, 16-3b, 16-3c, 16-3d, LRO16-2, and LRO16-3c.** Link 16-1 would begin approximately 2 miles south of the community of Apex and travel 1.4 miles to Link 16-2, which would continue south for 4.7 miles. Link 16-3a would travel 11.4 miles, Link 16-3b 2.8 miles, 16-3c 8.7 miles, and 16-3d 12.8 miles, ending approximately 3 miles southeast of Kidd. Two LROs are associated with Link 16 and are described below. From the Dillon Substation south, these links would share a ROW with an existing 161-kV transmission line. These links would essentially parallel Links 15-1 through 15-2d from north to south and would be located between 1.5 and 4.5 miles to the east of them. Links 16-1, 16-2, and all but the end of 16-3a would be located west of I-15 and the Beaverhead River Valley. Links 16-3b, 16-3c, and 16-3d would be sited on the east side of I-15 and the Red Rock River Valley. These links would pass through a variety of landscapes that primarily include foothills and river valleys. Much of the terrain is covered in grasslands, but areas of sage, forest, and irrigated agriculture are also present.

These links would pass through a number of BLM parcels and no NFS lands. The amount of BLM lands that would be crossed by the links would be as follows: Link 16-1 (none), 16-2 (2.6 miles), 16-3a (2.1 miles), 16-3b (2.6 miles), 16-3c (none), and 16-3d (3.5 miles). All are managed under VRM Class III.

Although most of the areas that these links would pass through are undeveloped, some would be located within the foreground (0 to 0.5 mile) and middleground (0.5 to 3 miles) of several rural residential areas and communities such as Barretts (Link 16-3a), Dalys (Link 16-3b), Red Rock (Link 16-3d), and Kidd (Link 16-3d). Link 16-3a would be within the foreground (0 to 0.5 mile) of the Lewis and Clark National Historic Trail, Ney Ranch, the Clark Canyon Reservoir, and within a mile of the Grasshopper Creek Fishing Access Site. Several other sensitive viewing areas (High Bridge, Pipe Organ Bridge, Henneberry Bridge Fishing Access Sites, and the Beaverhead Campground) would be located beyond a mile away in the middleground (0.5 to 3 mile) zone. I-15 would parallel the entire link at varying distances and would cross under it 2 miles south of Barretts.

*LRO16-2 (Frying Pan Gulch):* This 4.8-mile-long LRO would pass through landscape that is similar to Link 16-2 (which it would replace). LRO16-2 would pass through 2.8 miles of BLM-managed VRM Class III lands. It would be somewhat closer to I-15 (approximately 2 miles west of I-15 at its closest point) than Link 16-2. Several residences are located near LRO16-2. It has no other sensitive viewing areas near it.

*LRO16-3c (Clark Canyon East):* This 7.8-mile-long LRO would depart from Link 16 near Henneberry Gulch and would cross higher up on the foothills (and farther away from I-15 and Clark Canyon Reservoir) than Link 16-3c, which it would replace. It would pass through undeveloped grass- and sage-covered foothills and travel through Clark Canyon approximately 1.7 miles farther east than Link 16-3c. LRO16-3c would pass through 5.8 miles of BLM land managed under VRM Class III. The LRO would pass east of a series of dispersed residences along the west side of the I-15 corridor near Clark Canyon Reservoir. The Grasshopper Creek, High Bridge, Pipe Organ Bridge, and Henneberry Bridge Fishing Access Sites would all be located beyond a mile away in the middleground (0.5 to 3 mile) zone of this LRO.

**Links 17-1, 17-2, 17-3, 17-4, LRO17-2, and LRO17-4.** The 4.9-mile-long Link 17-1 would begin 3 miles southeast of the community of Kidd and head southeast along the foothills east of the Red Rock River Valley. Link 17-2 (10.4 miles) would continue along the east side of the valley and cross over the Red Rock River and I-15. Neither Link 17-1 or 17-2 would follow existing transmission lines; both would require new ROWs. Link 17-3 (5.2 miles) and 17-4 (4.8 miles) would follow existing 161-kV transmission lines most of their routes. Link 17-4 would end near Monida at the Montana-Idaho border. There are two LROs associated with these links.

Most of these links would pass over the sage- and grass-covered foothills that line the Beaverhead River and Red Rock River valleys. They would also pass through these valleys in several locations. With the exception of the portion of the Red Rock River Valley that Lima and other communities are located in, these links would pass through a largely undeveloped landscape.

None of the links would pass through NFS lands, but all would pass through BLM lands that are managed under VRM Class III. Link 17-1 would pass through 2.6 miles of BLM lands, Link 17-2 would cross 2.7 miles, Link 17-3 would pass through 0.7 mile, and Link 17.4 would barely pass through 0.1 mile.

Most of the areas that the links would pass through are sparsely developed and populated. Residences from which the links might be seen are generally located near the communities of Dell (Link 17-1), Lima (Link 17-2), and Snowline (Link 17-3). Other sensitive viewing areas beyond a mile away in the middleground (0.5 to 3 mile) zone from which the links might be seen include Big Sheep Creek Back Country National Scenic Byway (Link 17-1) and the Continental Divide National Scenic Trail (Link 17-4). Link 17-2 would cross I-15 and along with other links would be visible from I-15 in a number of places.

*LRO17-2 (Lima):* The 10.8-mile-long LRO17-2 would eliminate the need for Link 17-2. It would cross approximately 7 miles of BLM land with a VRM Class III. It would pass over the grass- and sage-covered foothills south of Sage Creek, pass over Red Rock Creek, and cross I-15 before connecting with Links 17-2 and 17-3 on the west side of I-15. Most of the LRO17-2 route would be located between approximately 0.5 and 1 mile farther east (and higher up the hillside east of I-15) than Link 17-2. The link would potentially be seen from residences in the Lima area and from I-15.

*LRO17-4 (Diamond Butte):* The 4.7-mile-long LRO17-4 would travel along the southern slope and ridgeline of Diamond Butte above Big Beaver Creek and replace Link 17-4. It would pass through approximately 2 miles of BLM land (VRM Class III) and would pass one remote cabin.

#### **Zone 4: State Line to Sheep Station**

Zone 4 is located in the Broad Valley Rockies physiographic province in Clark County, Idaho, and includes Alternative 4A and Link 18. As of the 2000 U.S. Census, all of Clark County had a population of 1,022 (U.S. Census Bureau 2000d). The major communities in Zone 4 are Humphrey, Old Beaver, and Spencer. The principal roadway is I-15, which crosses the landscape zone from north to south. The project corridor starts at the Montana-Idaho border near Monida and ends at the north end of the USDA Sheep Experiment Station.

Zone 4 includes parts of the Dubois Ranger District of the CTNF, BLM land under the jurisdiction of the Upper Snake Field Office, and the northern portion of the Sheep Experiment Station. Link 24 passes over the Continental Divide National Scenic Trail, Lost Gold Trails Loop Idaho Scenic Byway, and Nez Perce National Historic Trail.

**Alternatives–Zone 4.** Zone 4 contains only one project Alternative (4A), which consists of Link 18.

**Link 18.** The 20-mile-long Link 18 would begin at the Montana-Idaho border and terminate 3 miles south of the town of Spencer, at the USDA Sheep Experiment Station. The route would follow a natural low area through the Beaverhead Mountains. Much of Link 18 would pass through undeveloped high-altitude lands.

The link would pass through 0.7 mile of BLM land (0.5 mile is VRM Class II, and 0.2 mile is Class III). It would also travel through 6 miles of CTNF, all of which has been assigned a VQO of Retention. Within

the CTNF in the vicinity of Link 18 are several forest roads that are used to access areas that support activities such as camping, hiking, and hunting.

Most residences in the vicinity of Link 18 are near the community of Spencer and are situated within the foreground (0 to 0.5 mile) and middleground (0.5 and 3 mile) zones. In addition to residences, Link 18 would cross the Continental Divide National Scenic Trail, the Lost Gold Trails Loop Idaho Scenic Byway, and the Nez Perce National Historic Trail. Link 18 would cross I-15 near Humphrey then parallel it (at less than 1 mile to the east) for the remainder of the route.

### **Zone 5: USDA Sheep Experiment Station to Coffee Point**

Zone 5 is located primarily in the Snake River Plain physiographic province in Idaho and includes Alternatives 5A, 5B, and 5C and Links 19 through 23 and 40. The most populous part of Zone 5 is the Snake River Valley, which includes Idaho Falls with a population of about 50,730, Blackfoot with a population of 10,419, and Shelley with population of about 3,800 (U.S. Census Bureau 2000d). Smaller communities include Camas, Hamer, Roberts, Osgood, Basalt, Firth, Moreland, Rockford, Pinegree, Springfield, Sterling, Coffee Point, Cerro Grande, and Atomic City. The principal roadways are I-15, which crosses Zone 5 from north to south; SH 22, which crosses the northern part of Zone 5; SH 33, which bisects the northern third of Zone 5; SH 20, which bisects the southern third of Zone 5; SH 91, which cuts across the southeastern corner of Zone 5; and SH 26 and SH 39, which cut through the southwestern corner of Zone 5.

Zone 5 includes parts of the Dubois Ranger District of the CTNF, BLM land under the jurisdiction of the Upper Snake Field Office, the USDA Sheep Experiment Station, and the DOE. The project routes in Zone 5 cross the Idaho Counties of Clark, Butte, Jefferson, Bingham, and Bonneville.

Lost Gold Trails Loop Idaho Scenic Byway, Sacajawea Idaho Scenic Byway, and the Nez Perce National Historic Trail are within 5 miles of the project corridor in Zone 5.

**Alternatives–Zone 5.** Zone 5 contains three alternative project routes. The links are described below.

- Alternative 5A is comprised of Links 19 and 22.
- Alternative 5B is comprised of Links 20, 21-1, 21-2, and 22.
- Alternative 5C is comprised of Links 20, 23-1, and 23-2.
- Alternative 5D is comprised of Links 20, 21-1, 40, and 23-2.

**Link 19.** The approximately 82.8-mile-long Link 19 would begin at the USDA Sheep Experiment Station and end 2 miles south of Cerro Grande. After approximately 30 miles (near the Amps Substation), Link 19 would join an existing 230-kV transmission line for the remainder of the alignment. Link 19 would pass primarily through a plains landscape, but would also pass through a foothills landscape (the southern foothills of the Medicine Lodge Range). Most of the private land through which Link 19 would pass occurs along the first 40 miles of the alignment. The private land is a mixture of grazing land and irrigated farmland with center pivots. Link 19 would cross about 62 miles of BLM land, 24 miles managed under VRM Class II, and 38 miles managed under VRM Class III. A considerable portion of this BLM land is withdrawn to DOE.

Link 19 would pass several scattered residences, but no areas of concentrated residential development. A number of other sensitive viewing areas are along the Link 19 route. Within the first 5 miles of the alignment, Link 19 would cross the USDA Sheep Experiment Station, I-15, the Nez Perce National Historic Trail (Link 19 would be in view of the Nez Perce National Historic Trail for about the first 40 miles of the alignment), and the Lost Gold Trails Loop Idaho Scenic Byway. Near the SH 22 and SH 28 intersection, it would cross the Sacajawea Idaho Scenic Byway. Where SH 22 turns west and the

Link 19 alignment continues south through the DOE to the link's end point there would be no sensitive viewpoints, although the Big Southern Butte NNL and the Cedar Butte WSA would be the background.

**Link 20.** The 40.4-mile-long Link 20 would begin at the USDA Sheep Experiment Station and end 2 miles north of the Jefferson Substation. Link 20 would pass through a plains landscape type that is characterized by flat, open landscapes. The existing landscape is a mixture of private, state, and federal land. The route would follow an existing 138-kV transmission line for its entire length.

Link 20 would pass through private and federally owned land. Private land is composed primarily of irrigated farmland with center pivots. Link 20 would cross about 13 miles of BLM land, which is managed under VRM Class II and Class III.

Residences are scattered along the Link 20 route, although there is a concentration of residences near the community of Hamer (approximately 1.5 miles west of the alignment). Other sensitive viewing areas that Link 20 would cross include the Lost Gold Trails Loop Idaho Scenic Byway and about 1 mile of the Market Lake State Wildlife Management Area. I-15 parallels the majority of the link 1 to 3 miles to the west and crosses Link 20 about 2 miles south of the town of Sage Junction.

**Links 21-1 and 21-2.** Link 21-1 would begin 2 miles north of the Jefferson Substation and end approximately 32 miles to the southwest. Link 21-2 would continue 17 miles to the intersection with Links 19 and 22. The landscape character type these links would pass through is plains and is characterized by flat, open landscapes. It also contains lava flows, scattered buttes, and rhyolite domes. No existing transmission lines parallel this alignment. Private land along both links is a mixture of undeveloped land and irrigated farm land with center pivots. Public land along this alignment typically has few built features other than an occasional unimproved dirt road. Link 21-1 would cross about 16 miles of BLM land managed under VRM Class II. Link 21-2 would pass through 12.6 miles of BLM land managed VRM Class III. Link 21-2 would pass through VRM Class II land within 0.5 mile north of the Cedar Butte WSA.

**Link 22.** The 24.6-mile-long Link 22 begins about 3 miles east of Big Southern Butte and ends 7 miles south of Coffee Point. The landscape character type is plains, intermingled with lava flows, scattered buttes, and rhyolite domes. Very few residences are located in the vicinity of the route, as most of the land is administered by the BLM. All BLM land the link would cross is managed under VRM Class III. Link 22 would cross Goodale's Cutoff and the Cedar Butte WSA and Wolverine Canyon Campsite are located in the middleground (0.5 to 3 miles) zone of Link 22.

**Links 23-1 and 23-2.** Links 23-1 (68.1 miles) and 23-2 (15.2 miles) would begin 1 mile north of the Jefferson Substation and end 7 miles south of Coffee Point. Links 23-1 and 23-2 would pass through a mixture of plains that are intermingled with lava flows, scattered buttes and rhyolite domes, and areas of irrigated agriculture. Between its starting point and a location west of Shelly, Link 23-1 would share ROW with a 161-kV transmission line. It would parallel an existing 38-kV transmission line along the eastern boundary of the Hell's Half Acre WSA. The private lands the link would pass through contain both undeveloped land and center-pivot-irrigated farm land.

Approximately 33 miles of Link 23 would cross BLM land. On the east side of the Hell's Half Acre WSA, the link parallels the edge of the WSA boundary, crossing 4.7 miles of BLM land managed under VRM Class III. Along the remainder of the alignment, the link would cross 10.8 miles of VRM Class II and 17.6 miles of VRM Class III BLM land.

Link 23-1 would pass through areas west of small communities such as Shelly, Moreland, and Rockford that contain a number of scattered residences and clusters of residences. Link 23-2 would pass through

more sparsely populated areas. Links 23-1 and 23-2 would pass through or near other sensitive viewing areas including Goodale's Cutoff (twice) and the east edge of Hell's Half Acre WSA. SH 26 would pass under Link 23-1 3 miles northwest of the town of Moreland.

**Link 40.** From its beginning at the junction of Links 21-1 and 21-2, the 23.5-mile-long Link 40 would head south to its intersection with Links 23-1 and 23-2, approximately 2 miles north of the community of Springfield. The landscape it would pass through is a mixture of plains, lava flows, and extensive areas of center-pivot-irrigated agriculture. The route would pass through 6.7 miles of BLM land near the southern portion of the route that has a VRM of Class III. It would pass east of (as close as 0.5 mile) to the Cedar Butte Wilderness Study Area. Much of the rest of the route would pass through or near agricultural lands.

The link would not pass by any concentrated residential areas but would pass in the vicinity of scattered residents along the southern portion of its route. Other sensitive viewing areas would include Goodale's Cutoff, which would be crossed by the link, and the Cedar Butte WSA.

### **Zone 6: Coffee Point to Midpoint**

Zone 6 is located in the Snake River Plain physiographic province in Idaho and includes Alternative 6A which is comprised of a single link, Link 24. The major communities in Landscape Zone 6 are Shoshone (population 1,400) and American Falls (population 4,100) (U.S. Census Bureau 2000d). Smaller communities include Quigley, Wapi, DeWolf, Hawley, Minidoka, and Senter. The principal roadways in the project area are SH 24 and SH 93, which intersect at Shoshone.

Zone 6 contains BLM land under the jurisdiction of the Upper Snake, Shoshone, and Burley field offices. The project routes cross the counties of Bingham, Lincoln, Jerome, Minidoka, Blaine, and Power. The Oregon National Historic Trail, Pillar Butte, and the Crystal Ice Cave Road are within 5 miles of the project corridor in Zone 6.

Landscape Zone 6 contains the terminus of the route at Midpoint Substation. Midpoint Substation would be modified to accommodate the project.

**Alternatives—Zone 6.** Zone 6 contains only one project Alternative (6A), which consists of Link 24.

**Link 24.** The 106.8-mile-long Link 24 would begin 7 miles south of Coffee Point, skirt the east and south boundaries of the Craters of the Moon National Monument and Preserve, and end at the Midpoint Substation. The landscape character type is plains, which is characterized by flat, open landscapes interspersed with lava flows, low buttes, and rhyolite domes. The link would primarily cross BLM lands except along a portion of the eastern boundary of the Craters of the Moon National Monument and Preserve, where it would cross about 4 miles of private agricultural land with center pivot irrigation and the Crystal Ice Cave Road, the primary access road to the east side of the Craters of the Moon National Monument and Preserve. Along this portion of the alignment, Link 24 would cross about 88 miles of BLM land of which 64 miles are managed under VRM Class IV, 23 are miles managed under VRM Class III, and 1 mile is managed under VRM Class II. The VRM Class II land is immediately south of the Shale Butte WSA. Link 24 would not share ROW for the first 31 miles of its alignment until it would join the east-west transmission line corridor south of the Craters of the Moon National Monument and Preserve. From here a 138-kV transmission line, a 230-kV transmission line, and three 345-kV transmission lines parallel Link 24 within 1 mile (KOP6-1, Figure C.11.4-26). After Brigham Point, Link 24 would parallel a 345-kV transmission line at an average distance of 0.5 mile. SH 24 crosses the project corridor 1 mile southeast of the town of Owinza.

Most of the alignment would pass through uninhabited lands, but it would pass in the general vicinity of some scattered residences just east of the Craters of the Moon National Monument and Preserve and

along the west end east of the Midpoint Substation. Approximately 9 miles of Link 24 would be in the foreground (0 to 0.5 mile) zone of the Sand Kipuka RNA, Great Rift WSA, and Great Rift NNL, approximately 13 miles would be within the foreground of the Craters of the Moon National Monument and Preserve, and 1 mile would be in the foreground of the Shale Butte WSA.

### **3.11.2 Regulatory Setting**

#### **3.11.2.1 Federal Regulations**

Federal agencies with jurisdiction over public lands in the project area include the BLM, the USFS, the DOE, the USDA (Sheep Experiment Station), and the Bureau of Reclamation. While the DOE, USDA Sheep Experiment Station, and Bureau of Reclamation do not have regulations pertaining to visual resources, the BLM and the USFS do. These are discussed below.

#### **Bureau of Land Management**

The BLM administers lands through RMPs or Management Framework Plans (MFP). These plans discuss visual resources in terms of VRM objectives. BLM's standard VRM definitions are as follows:

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

#### **Montana**

**Butte Field Office. Butte Resource Management Plan.** The Butte RMP (BLM 2009a) establishes the VRM classes and specific actions to manage scenic values in accordance with VRM objectives including the following relevant actions:

- Visual resource design techniques and best management practices will be used to minimize short- and long-term impacts.
- Contrast ratings will be completed for proposed projects in Class I and II areas and for proposed projects in Class III and IV areas that are high-impact projects or are located in highly sensitive areas.

- VRM Class I objectives for all WSAs will be maintained.

**Dillon Field Office. Dillon Resource Management Plan.** The Dillon RMP (BLM 2006a) establishes VRM classes and specific actions to manage scenic values in accordance with the objectives established for VRM:

- Use the visual resource contrast rating system during project-level planning to determine whether proposed activities meet VRM objectives.
- Identify mitigation measures to reduce visual contrast and prepare rehabilitation plans to address landscape modifications on a case-by-case basis.
- Monitor project design features and identified mitigation measures to address visual resource management concerns to ensure compliance with established VRM classes. Where appropriate, monitoring will include the use of the visual contrast rating system, as described in BLM Manual 8400 (BLM 2006b), during project review and upon project completion to assess the effectiveness of project design features and any mitigating measures.
- Protect relevant and important scenic values in the Centennial Mountains ACEC by incorporating landscape design principles into vegetation treatments.
- Protect relevant and important scenic values in the Muddy Creek/Big Sheep Creek ACEC by applying special provisions, if necessary, to protect scenic values during project activities.
- Other standard management provisions that will assist in protection of the relevant and important values include management of the areas under VRM Class II.

**Upper Snake Field Office. Medicine Lodge Resource Management Plan and Environmental Impact Statement.** The Medicine Lodge RMP (BLM 1985) specifies that visual resources be evaluated as a part of project planning and that stipulations may be applied on a project basis to maintain existing VRM classes. The Medicine Lodge Draft EIS states that 26 percent of the resource area (134,000 acres) be managed as VRM Class II and that the remaining 374,300 acres be managed as VRM Class III. It notes that VRM Class II landscapes occur in areas with high scenic quality that are in highly visible locations.

**Big Desert Management Framework Plan.** The Big Desert MFP (BLM 1981a) establishes VRM classes, as well as the objective of maintaining the scenic quality of public land contiguous to major travel routes and special recreation areas including waterway corridors, recent lava flows, and unique or special management areas.

**Big Lost Management Framework Plan.** The Big Lost MFP (BLM 1983) establishes VRM classes.

**Little Lost/Birch Creek Management Framework Plan.** The Little Lost/Birch Creek MFP (BLM 1981b) notes that VRM classes have been designated. The plan calls for protection of the visual integrity of public lands considered backcountry or environmentally sensitive by prohibiting utility lines and other major modifications that do not conform to VRM contrast rating criteria on the Lemhi Foothills Scenery Quality Unit southwest of Birch Creek.

**Shoshone Field Office. Craters of the Moon National Monument and Preserve Management Plan.** The Craters of the Moon Management Plan (NPS 2007a) identifies protection of scenic vistas and open western landscapes as one of the purposes of the monument. The plan establishes VRM classes and objectives.

**Burley Field Office. Monument Resource Management Plan.** The Monument RMP (BLM 1986c) does not identify VRM classes or any scenic value management action or objective. Subsequent to the RMP, BLM developed VRM classes.

### **Forest Service**

The day-to-day management of scenery and visual resources in national forests is guided by forest plans. National forests base the management of scenery and visual resources on one of two systems: Scenery Management System (SMS) (USFS 1995) or the older Visual Management System (VMS) (USFS 1974). Most national forests that have updated or revised their forest plans since 1995 have adopted the SMS system to replace the VMS. Forests that have not completed or finalized updates or revisions of their forest plans often continue to use the VMS. Eventually, all national forests will use the SMS. The *Revised Beaverhead-Deerlodge National Forest Land and Resource Management Plan* (USFS 2009a) uses the SMS to manage scenery resources. The portion of the CTNF through which one alternative would pass is managed under the *Revised Targhee Forest Plan* (USFS 1997) and continues to use the VMS.

The sections below highlight the regulatory framework relevant to scenery and visual resources for the BDNF and the CTNF.

**Montana. Beaverhead-Deerlodge National Forest.** The Record of Decision for the BDNF Revised Plan (USFS 2009a) was signed in January 2009. The BDNF Revised Plan identifies goals, objectives, and standards for scenery resources in the forest at different geographic scales. It provides forest wide scenery objectives and standards as well as more specific guidance for geographic units in the forest called Management Areas. The forest wide goals, objectives, and standards are in Chapter 3 (Forest Wide Goals, Objectives, and Standards) of the BDNF Revised Plan. Management Area-specific objectives and standards are in Chapter 4 (Management Area Direction). The project alternatives that pass through the BDNF would pass through seven Management Areas.

**Idaho. Caribou-Targhee National Forest.** Prior to 1999, the Caribou and Targhee were separate national forests with separate forest plans. The Targhee portion of the CTNF is still managed under the Targhee Revised Forest Plan (USFS 1997) that was adopted in 1997. The Targhee Revised Plan identifies goals, objectives, standards, and guidelines for all resources, including visual resources. Forest wide visual resource goals, objectives, and standards are addressed in the recreation section of the forest wide standards and guidelines (Chapter III, Part 1). The focus is on the way timber harvest impacts the recreating public's concern for visual quality. Visual quality is also addressed at the scale of the forest subsection. The one alternative that would pass through the CTNF is located in the Centennial Mountains Subsection. Two prescriptions have been assigned to this subsection that are associated with visual quality: 5.2.1, Visual Quality Improvement, and 5.2.2, Visual Quality Maintenance. A third prescription (8.1, Concentrated Development Areas) includes guidance for establishing corridors of no more than 600 feet in width for electric transmission lines of 50 kV or greater. A utility corridor along I-15 is indicated in Map 13-A of the "Maps for the Land Management Plan and Final Environmental Impact Statement" in the Targhee Revised Plan.

#### **3.11.2.2 State Regulations**

Under MFSA, the State of Montana requires that visual impacts be considered along with other criteria when making siting decisions for transmission lines (MDEQ 2004b).

#### **3.11.2.3 County Plans and Policies**

The majority of counties that would be crossed by the project alternatives do not regulate visual resources. Those that address visual resources in their planning documents typically do so with general

goals and objectives rather than specific policies. An exception is the standard in the Madison County Comprehensive Plan addressing tall structures, which states that a facility should be located to minimize its visibility from existing residential development on adjacent properties or within a 0.5-mile radius of the project site, whichever distance is greater (Madison County 1997). Goals and policies related to visual resources contained in the planning documents of the counties through which the project alternatives would pass are identified in Tables C.11.2-1 and C.11.2-2 in Appendix C.11.2.

### **3.11.3 Analysis Methods**

The NEPA and MFSA require project-sponsoring agencies to determine the environmental effects associated with a proposed project. To ensure that potential changes to visual quality resulting from a project are adequately considered, a variety of factors were examined for each project alternative. Together these factors permit the alternatives to be compared and contrasted in terms of their visual effects, providing data and insights that can be used to enable decision makers to make an informed selection of a final route for development of the transmission line. The factors considered in analyzing the visual impacts of the various project alternatives are as follows:

- Consistency with BLM visual resource management objectives for alternatives on BLM land.
- Consistency with USFS visual resource management objectives for alternatives on NFS land.
- Evaluation of simulated views of the project as it would appear from a set of 28 representative viewpoints .
- A GIS-based model that established impact levels for each section of the project route based on proximity to residences and communities; parks, recreation areas, travel routes, and other sensitive viewing areas.
- An inventory by distance zone of residences located within 3 miles of each of the alternatives.

These factors are described in the sections below.

#### **3.11.3.1 Bureau of Land Management Visual Resources Management Methodology**

Visual resources on BLM lands are managed under what the BLM calls its VRM system. This system is broken into two parts: visual resource inventory (BLM 1986c) and visual resource contrast rating (BLM 1986d). The visual resource inventory process is a systematic process used to determine visual values. The inventory consists of a scenic quality evaluation, viewer sensitivity level analysis, and a delineation of distance zones. The three BLM distance zones are based on relative visibility from travel routes or observation points. The foreground-middleground zone includes areas seen from highways, rivers, or other viewing locations that are less than 3 to 5 miles away. The background zone is beyond the foreground-middleground zone, but usually less than 15 miles away. The seldom-seen zone includes areas not seen as foreground-middleground or background.

Considering these three factors, BLM lands are placed into one of four visual resource inventory classifications that represent the relative value of the visual resources. Lands placed in Class I and Class II are the most valued, while lands in Class III are of moderate value. Lands in Class IV are of least value. Inventory classes form the basis for considering visual values in BLM's RMP process. The RMP establishes VRM objectives and guides BLM's management of visual resources along with other resources.

The second part of BLM's VRM system is a visual resource contrast rating (BLM 1986d). This is a systematic process the agency uses to analyze potential visual impacts of proposed projects and to determine whether the impacts would be consistent with the management objective. The process is described in BLM Manual Handbook 8431-1, Visual Contrast Rating. This process involves establishing KOPs at locations where most visitors would view the project most of the time. Impact assessments are completed at each KOP using a Visual Contrast Rating (VCR) Worksheet. This worksheet records a comparison between the existing landscape and how the landscape would appear with the proposed project. The descriptions are supported with a photograph taken of the existing landscape at the KOP and a photo simulation of the proposed project. The difference between the two landscapes is described by degrees of contrast: strong, moderate, weak, or none. A proposed project meets the VRM objective if all of the degrees of contrast are equal to or less than the highest degree of contrast allowed for that objective. Appendix C.11.5 Visual Contrast Rating Worksheets contains a completed worksheet for each KOP on BLM land. Figures C.11.1 1 through C.11.1-6 in Appendix C.11.1 display the VRM objectives of BLM lands in the project area.

### **3.11.3.2 Methodology Used to Assess Consistency with the Resource Management Plans**

The analysis in this EIS presents potential visual impacts and a consistency finding for each of the links and LROs that would cross BLM land. Visual impacts are expressed in terms of degree of contrast: high, moderate, weak, or none. The highest degree of contrast allowed for each VRM classification is as follows:

- VRM Class I: none
- VRM Class II: weak
- VRM Class III: moderate
- VRM Class IV: strong

Consistency with the visual resource management objectives of the RMPs are expressed in terms of whether the link or LRO alignments would be inconsistent with the VRM objective(s); this is usually depicted by miles of the link or LRO that are consistent or inconsistent with the VQOs through which they would travel.

In addition to considering visual impacts from sensitive viewpoints and travel corridors, this analysis considers the visual impact on visitors traveling major highways and I-15. The standard for choosing locations to analyze visual impacts of a proposed project on BLM land is to identify viewpoints and/or travel corridors that represent where most of the viewers would view the proposed project most of time.

Determining the consistency with VRM objectives of the various links on BLM land involved several steps. The first step was to review NorthWestern's 100,000-scale set of Sensitive Views Maps, which indicated the initial impacts (high, medium, and low) of the links on sensitive viewing areas, and their set of Visual Resources Maps, which depicted the degree of contrast (strong, moderate, and weak) that the links would have with the landscapes through which they would pass. The purpose of reviewing the 100,000-scale maps was to become familiar with the computer-generated model's degree of impact on BLM lands prior to the workshop described below.

The second step involved meeting with agency representatives from the BLM, USFS, and the MDEQ at two impact assessment workshops. One was held in Butte on June 2 and 3, 2009, and the other in Dillon on December 1 and 2, 2009. During the workshops, impacts identified by the computer model were compared with computer-generated photographic simulations. Site-specific impact assessments were developed for each KOP using the visual impact assessment methodology developed by the FHWA

(DOT 1988). Impacts were determined by workshop participants based upon reviewing the existing condition photos and the photographic simulations for each KOP and evaluating the views by systematically applying the view rating criteria developed by the FHWA and recording these assessments on FHWA view rating forms. Comparison of the view ratings received by the existing views from each KOP with the ratings of the views as they would appear with the transmission project in place provided the basis for identifying the degree of visual impact the project would have on the view. The impact levels identified through evaluation of the project effects on each of the KOPs were then compared with the impact levels predicted by the computer-generated model. This comparison provided the basis for modification of some of the computer model's impact evaluations to reflect the insights gained through review of the visual changes that would be visible from the KOPs. At the end of the workshop, the FHWA impacts were compared with impact assessments completed at KOPs on BLM land using BLM's VCR sheets. In all but one case the impacts between the two processes were similar.

After the workshops, the third step of the evaluation involved the visual team refining the 100,000-scale contrast ratings based on workshop findings.

### **3.11.3.3 Forest Service Visual Resources Management Methodology**

#### **3.11.3.3.1 USDA Forest Service Methodology**

The methodology used by the USFS to manage visual or scenic resources is established in the SMS and the older VMS. The document *Landscape Aesthetics—a Handbook for Scenery Management* (USFS 1995) describes the SMS system, and the document *National Forest Landscape Management Volume 2: "Chapter 1, The Visual Management System"* (USFS 1974) describes the VMS system.

Both systems provide an overall framework for the orderly inventory, analysis, and management of visual or scenic resources. The systems apply to all national forests and to all USFS activities and other activities taking place on NFS lands. These include, but are not limited to, the following: timber harvesting; road building; stream, range, and wildlife improvements; special-use developments; utility line construction; recreation developments; and fuels management. The components of the two systems that were used to assess impacts from the proposed project are discussed below.

#### **Scenic Attractiveness**

Scenic attractiveness is the primary indicator of the intrinsic scenic beauty of a landscape and of the positive responses it evokes in people. Forests classify the scenic attractiveness of their lands as part of establishing visual/scenery goals for each forest. All of the NFS lands in the BDNF and CTNF that project routes would be located in are either Class A: Distinctive (areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide unusual, unique, or outstanding scenic quality), or more commonly Class B: Typical (areas where landform, vegetation patterns, water characteristics, and cultural features combine to provide ordinary or common scenic quality).

#### **Landscape Visibility, Viewer Concern Level, and Travel Ways/Use Areas**

Landscape visibility is a function of interconnected considerations. The degree to which a landscape is visible to viewers depends upon a number of considerations. Three of the primary considerations of visibility are discussed here.

#### **Distance Zones**

Four distance zones are used in forest plans and for project planning and assessment purposes. Note that these distances are different than the distances described in Section 3.11.3.1. The four USFS distance zones that are used for both the SMS and VMS include the immediate foreground (0 to 300 feet from viewers), the foreground (300 feet to 0.5 mile), the middleground (0.5 to 4 miles), and the background

(4 miles to horizon). Seldom-seen areas (areas not generally visible to forest visitors) are also used in some national forests. It should be noted that the USFS distance zones are slightly different than the distance zones used by the BLM and the distance zones used in the EIS.

**Viewer Concern Level.** Landscapes are viewed to varying degrees from different locations and by different types of viewers; subsequently, they differ in their importance. The USFS has established three concern levels representing degrees of scenery importance: (1) high, (2) medium, and (3) low. These three degrees of importance are determined by the viewer's interest in scenery (the higher the interest, the higher the concern level), the number of people who view an area (the more people who view an area, the higher the concern level generally is), and the area from which they view it (primary travel ways and use areas usually result in higher degrees of concern). For example, a very high viewer-concern level would occur when viewers would have a high degree of interest in scenery, when there are high numbers of viewers, or when viewed from a primary travel way or use area. Alternatively, a low viewer-concern level would likely occur where the viewers have a low degree of interest in scenery, there are a low number of viewers, or the viewing area is a secondary travel way or use area (or has no designation).

**Travel Ways and Use Areas.** Travel Ways and Use Areas are those routes or areas from which people view the landscape in a national forest. Travel Ways are roads or trails that have been given a specific concern level classification in a forest plan that reflects factors such as their level of use, landscapes that are visible from the Travel Ways, and construction material (paved, gravel, dirt). Use Areas are usually developed areas such as campgrounds, day-use areas, or private residences. They may also be assigned concern levels. The concern levels indicate the relative importance of the scenery that is viewed from the Travel Ways or Use Areas. In the BDNF concern levels are either Concern Level 1 (most protection for visual resources seen from it) or Concern Level 2 (less protection than Concern Level 1, but still views from these areas are protected). Travel Ways and Use Areas are usually located within a national forest, but can be located outside of the forest if parts of it can be viewed.

### **Scenic Integrity Levels and Objectives/Visual Quality Classes and Objectives**

Forest plans consider a number of factors when developing an inventory of existing visual or scenic conditions. Existing scenic or visual condition classifications are known as Scenic Integrity Levels (SILL) in the SMS and Visual Quality Classes (VQCC) in the VMS. These levels and classes establish the existing or baseline visual or scenic conditions for a forest when developing policies related to visual or scenic management objectives in a forest plan. Management objectives help establish how a landscape is to be managed in a forest plan. The SMS management objectives are called SIOs, while the VMS calls them Visual Quality Objectives (VQO). The objectives are used to provide management direction in terms of how much a landscape may be altered and still meet forest plan direction for the scenery resource. They are intended to help a forest manage its lands to achieve a desired future condition, including the appropriate SIO or VQO class, if the area does not currently meet objectives. Five SIO classes and corresponding VQOs describe the landscape in varying degrees of naturalness:

- Very High (SIO) or Preservation (VQO): unaltered
- High (SIO) or Retention (VQO): appears unaltered
- Moderate (SIO) or Partial Retention (VQO): slightly altered
- Low (SIO) or Modification (VQO): moderately altered
- Very Low (SIO) or Maximum Modification (VQO): heavily altered

Project routes would pass through three SIOs on the BDNF and two VQOs on the CTNF; they are described below.

- **High (SMS) or Retention (VMS):** These classifications provide for conditions where human activities are not visually evident, and the valued (desired) landscape character appears intact or unaltered. Deviations may be present but must repeat the form, line, color, texture, pattern, and scale common to the landscape.
- **Moderate (SMS) or Partial Retention (VMS):** These classifications refer to landscapes where the valued landscape character appears slightly altered. Noticeable deviations must remain visually subordinate to the landscape being viewed.
- **Low (SMS) or Modification (VMS):** These classifications refer to landscapes where the valued landscape character appears moderately altered. Deviations begin to dominate the valued landscape character being viewed, but they borrow valued attributes such as size, shape, edge effect, and pattern of natural openings and/or vegetative type changes outside of the landscape being viewed.

### **3.11.3.3.2 Methodology Used to Assess Consistency with the Beaverhead-Deerlodge National Forest and Targhee Revised Forest Plans**

#### **Establishing Scenic/Visual Management Objectives for the Beaverhead-Deerlodge National Forest and Targhee Revised Forest Plans**

##### **Beaverhead-Deerlodge National Forest**

The BDNF uses the SMS system in its Revised Forest Plan. The forest has not yet included updated SIOs in its GIS database for most of the forest, including portions of the BDNF through which alternatives associated with the proposed project would pass. Therefore, for the proposed project, as with many other projects, the proponent needs to work with the BDNF to update and/or display SMS data for areas potentially impacted by a proposed project. The SIO data is displayed in Appendix C.11.1. Data were developed by the EIS technical team after reviewing appropriate parts of the BDNF Revised Plan and consulting with BDNF staff. Establishing an SIO is important so that it can be determined whether a proposed project will meet the SIO, and thus, be consistent or inconsistent with the objectives of the forest plan.

SIOs were established by following direction related to specific Management Areas the project routes would pass through, consulting the Revised Plan's three Scenic Integrity Standards, reviewing its Scenic Integrity Level Matrix, and identifying Concern Level 1 and Level 2 Travel Ways and Use Areas identified in the Revised Plan that project routes would pass over or near. For a description of how the SIOs were identified based upon consulting the BDNF Revised Plan and how it provides guidance for establishing SIOs, see Appendix C.11.3.

##### **Caribou-Targhee National Forest**

Management direction related to visual quality objects was provided by the CTNF to NorthWestern as part of the MFSA application (NorthWestern 2008a). Those data were consulted for the EIS. In addition, forest wide prescriptions from the Targhee Revised Plan addressing visual resources were investigated; they are 2.1.2, Visual Quality; 5.2.1, Visual Quality Maintenance; and 5.2.2, Visual Quality Improvement. The one link (Link 18) that would pass through the CTNF would be located in an area with a VQO of Retention that follows I-15 and several forest roads (Appendix C.11.1). Beyond the Retention area are areas designated as Partial Retention and Modification. It should be noted that although the VQO of Retention has been assigned along I-15, a utility corridor has also been approved in the Targhee Revised Plan along the I-15 corridor. For more detail on how this process was conducted (Appendix C.11.3).

### **Consistency with Beaverhead-Deerlodge National Forest and Caribou-Targhee National Forest Revised Forest Plan Visual and Scenery Management Objectives**

A several-step process was used to determine the consistency of the various alternatives with the scenery and visual quality management objectives of the BDNF and CTNF Revised Plans. The first step was to review NorthWestern's 100,000-scale set of Contrast Maps that indicated the degree of contrast (strong, medium, and low) that the alternatives would have with the landscape through which they would pass. The purpose of reviewing the 100,000-scale maps was to become familiar with the computer-generated model's degree of impact on NFS lands prior to the impact assessment workshop described below.

The second step involved meeting with agency representatives from the USFS (BLM and MDEQ also attended) at the two impact assessment workshops previously mentioned. The June workshop held June 2, 3, and 4, 2009, in Butte was used to evaluate the original set of alternatives and LROs. The December workshop held December 2 and 3, 2009, in Dillon was used to evaluate alternatives and LROs that were devised after the first meeting. During the workshops, impacts identified by the computer model were compared with computer-generated photographic simulations. Site-specific impact assessments were developed for each KOP. The impact levels identified through evaluation of the project effects on each of the KOPs were then compared with the impact levels predicted by the computer-generated model. This comparison provided the basis for modification of some of the computer model's impact evaluations to reflect the insights gained through review of the visual changes that would be visible from the KOPs. At the end of the workshop, the degree of contrast that the alternatives would likely have on the landscape and the relationship with contrast and SIOs and VQOs was briefly discussed with USFS staff to set up the parameters for the next step.

After the workshops, the final steps of the evaluation process were completed. The visual team refined the 100,000-scale contrast ratings based on findings from the workshops. Copies of the marked-up proposed adjustments to the contrast ratings of the 100,000-scale visual resource maps were sent to the USFS visual resource staff who were asked to review the adjustments and provide feedback. USFS staff were also asked to comment on the consistency of degree of contrast and the SIO/VQO objectives described below.

- Strong or medium contrasts in the foreground and middleground would not be consistent with High SIO or Retention VQO objectives.
- Strong contrast in the foreground and middleground would not be consistent with Moderate SIO or Partial Retention VQO objectives.
- Medium contrast in the foreground would not be consistent with Moderate SIO or Partial Retention VQO objectives.
- Medium contrast in the middleground could be consistent with Moderate SIO or Partial Retention VQO objectives, depending upon the situation.
- Medium or low contrast in the middleground and background could be consistent with Low SIO or Modification VQO, depending upon the situation.

#### **3.11.3.3.3 Coordination with National Forests**

The EIS visual resources team worked with visual resource professionals (landscape architects) for both forests throughout the process of developing the EIS. Assumptions related to establishing existing SIOs or confirming VQOs were discussed and established with the two landscape architects. Both landscape architects participated in the June workshop (described above) and one (from the BDNF) participated in the December workshop.

### **3.11.3.4 Analysis of Project Impacts by Key Observation Point**

Twenty-eight KOPs were selected for analysis of the potential visual effects of the project (Table 3.11-1; Figures 3.11-1 through 3.11-6). Eleven of the 28 KOPs have undergone detailed analysis for the EIS and are presented at the end of this section. The existing and with-project representations of all 28 KOPs are presented as Figures C.11.4-1 through C.11.4-27 in Appendix C.11.4. On each figure presented at the end of this section and included in Appendix C.11.4, the “A” image is the photo of the existing conditions, and the “B” image is the simulation that depicts how the view would appear with the project in place.

The KOPs were selected through field investigations; consultation with the MDEQ, USFS, and BLM; and a review of EIS scoping comments as well as the scoping comments on the MFSA Application Visual Resources Technical Report. A description of how the simulations were developed is in Appendix C.11.3.

After the initial field recording of existing conditions was completed, FHWA rating sheets (DOT 1988) were completed for the views seen from the KOPs. The FHWA visual quality assessment method is the standard approach for evaluating the aesthetic effects of transportation projects. The proposed project, like many transportation projects, is linear and the FHWA’s system is directly applicable. The FHWA visual quality and aesthetics assessment method is based on a set of broad criteria that consider factors related to the proposed project including:

- The overall visual and aesthetic quality of the area through which the transmission corridor would pass.
- The visual experience and expectations of viewers (including residents, users of parks and other public spaces, pedestrians, and motorists) looking at transmission corridors.
- The scale and contrast between existing and proposed elements in the area.

The FHWA visual quality assessment method has five steps:

1. Determine who has views of the project (“viewer”).
2. Describe and assess the landscape that exists before project construction (“existing environment”).
3. Assess the response of viewers looking at the project, before and after project construction (“viewer sensitivity or concern”).
4. Determine and evaluate views of the project after project construction (“simulations”).
5. Describe the potential visible changes to the project area and its surroundings that would result from the proposed project (“project impacts or effects”).

The exercise of completing the FHWA ratings sheets resulted in the establishment of “preliminary existing” visual quality rating scores for each KOP. To assess the existing visual quality of the views from each KOP and to establish the degree to which the proposed project would alter those existing visual quality levels, the existing views and with-project simulations were evaluated and rated at the impact assessment workshops in June and December 2009 that included participation by members of the EIS visual resources team as well as agency representatives from the BLM, USFS, and MDEQ. Workshop participants collectively determined impacts by applying FHWA methodology and assigned numerical scores to the various visual quality dimensions of the views. The FHWA numerical rating system uses a seven-point scale in which a score of 1 is “very low” and a score of 7 is “very high.”

The assessments were then recorded on FHWA view rating forms (Appendix C.11.5b). Comparison of the ratings received by the existing views from each KOP with the ratings of the views as they would

appear with the project in place provided the basis for identifying the degree of visual impact the project would have on the view. Summaries of the results of the evaluations of the existing visual quality of each of the views, the visual quality of each of the views with the project in place, and the degree of project visual impact on each view are presented in the FHWA ratings forms (Appendix C.11.5b).

### **3.11.3.5 GIS-Based Impact Evaluation Model**

#### **3.11.3.5.1 Visual Impact Assessment Model**

A GIS-based visual impact assessment model using Environmental Systems Research Institute's (ESRI) ArcView software was used to rate the potential degree of visual impact that would be created by the various segments of each alternative. The model rated segments of the project alternatives as having high, medium, and low degrees or levels of potential impacts. The model was designed by NorthWestern and was used to prepare the Visual Resources Technical Report that was submitted as a part of NorthWestern's MFSA Application (NorthWestern 2008a).

A detailed description of how the model was applied to this project is in Appendix C.11.3. In summary, to determine the level of visual impact a link or LRO would have, the model considered a number of factors. These factors included viewer sensitivity to changes in the viewed landscape, the existing visual quality and intactness of the landscape the link or LRO would pass through, the degree of contrast (strong, moderate, or weak) the link or LRO would have with the landscape it would pass through, and the distance between the link or LRO and viewers. To determine potential visual impacts, contrast levels of the link or LRO were "overlain" with visibility and distance zones information from sensitive viewpoints (i.e., residences, recreation areas, and travel routes). The area's scenic quality and visual integrity (level of disturbance or intactness) was also considered. The impact levels were recorded in 0.1-mile increments along each link or LRO. For any given 0.1-mile segment, the highest potential impact among the individual impact types listed above was selected as the overall visual impact.

The model categorized different impacts to different viewers based upon varying contrast categories and viewing distances. High impacts to highly sensitive viewers (residents, recreationists, and travelers using sensitive viewing routes) were determined to occur when a link or LRO would be located within 1,000 feet of the viewer or would produce a strong contrast out to a distance of 0.75 mile from the viewer. Moderate impacts to highly sensitive viewers would occur when a link or LRO would produce a moderate or weak contrast at a viewing distance between 1,000 feet and 0.75 mile, or a strong contrast at a distance of 0.75 mile to 3 miles away. Any link or LRO located beyond 3 miles regardless of contrast level was considered to produce a low impact.

High impacts to moderately sensitive viewers (recreationists and travelers with less concern for the viewed environment or seeing it under different circumstances) would occur when the link or LRO would be constructed within 0.75 mile of the viewer and produce a strong contrast, or be located within 1,000 feet and result in a moderate contrast. Moderate impacts to these viewers would occur when the link or LRO would produce moderate or weak contrasts at the 1,000-foot to 0.75-mile distance, or weak contrast at the 0- to 1,000-foot distance. All impacts beyond these distances would be low.

The maps presented as Figures 3.11-1 through 3.11-6 show the model's determination of the potential level of visual impacts from each link or LRO. Three levels of impact are depicted on the figures: high, medium, and low.

### **3.11.4 Impact Analysis**

The following discussion presents an analysis of the proposed project in relation to the landscapes through which it would pass. The first element is a discussion of the basic impacts, assessment of mitigation measures, and a detailed analysis of residual effects.

#### **3.11.4.1 Impact Description**

Transmission lines are large-scale features in any landscape. The three most visible components of transmission lines are generally the structures, the cleared ROW (particularly in areas that are mountainous and forested), and the conductors (wires) when seen under some lighting conditions. The vertical nature and height of the structures introduce large-scale, vertical elements, into a landscape. ROW in mountainous forested areas can be seen as vertical elements (when travelling up or down a hillside) or horizontal elements (when horizontally crossing a forested slope). Likewise, conductors can be seen as vertical elements in some settings, but they are most commonly noticed as swooping, horizontal elements connecting structures. Other components associated with transmission lines that can have impacts on the seen environment include insulator strings, substations, communication equipment sites, construction and access roads, and temporary construction sites for various activities.

The proposed project would introduce a new transmission line into the project area. Descriptions of the project components are in several sections of this EIS. Section 2.3.2.1 describes proposed structures, conductors, and communication equipment. Section 2.3.2.9, Right-of-Way Acquisition, describes the ROW. Tables 3.1-1 and 3.1-2 describe how much area would be temporarily and permanently altered by the proposed project respectively. Appendix C.11.4 has computer-generated graphics of what the proposed project would look like when viewed from various locations around the project area.

#### **3.11.4.2 How Mitigation Measures Would Influence Impacts**

Structures are typically the most visible components of a transmission line; because of their height, it is not possible to completely mitigate their presence in the foreground (0 to 0.5 mile) distance zone. It is possible, however, to somewhat reduce their visibility in some conditions (mainly when back dropped by terrain). This is especially true when viewed beyond approximately the 1.5 to 2-mile portion of the middleground (0.5 to 3-miles) distance zone and the background (beyond 3-miles) distance zone. Treatments to structure surface that help reduce potential reflectivity or color contrast can help to reduce their visibility somewhat, but would not greatly decrease the degree of impact (high, medium or low). Treating conductors to reduce their reflectivity is also a measure that can reduce visibility, particularly in some lighting conditions (low angle sunlight) where they may reflect light. Mitigation measures related to reducing impacts associated with ROW would also somewhat reduce the visibility of ROW, but would not necessarily reduce the degree of impact. Measures developed to reduce impacts at specific locations (for example, road or river crossings) of types of components (minimizing ground disturbance at construction sites and restoring the sites to the degree possible) would also help reduce visual impacts, but would not necessarily change the overall impact rating from high to medium or from medium to low. For these reasons, most of the impacts associated with the proposed project would be considered to be residual impacts and are discussed in Section 3.11.4.3.

##### **3.11.4.2.1 Environmental Specifications**

Visual effects of the proposed project in Montana would be reduced by requirements in MDEQ's draft Environmental Specifications (Appendix B.4). The following discussion including references to sections and appendices refers to the MDEQ's draft Environmental Specifications (Appendix B.4).

A number of measures were developed by the agencies to help reduce visual impacts. These measures are referenced throughout Chapter 3 of this EIS under various topical areas. Several special measures in Section 2.15 of MDEQ's draft Environmental Specifications were developed to reduce the potential reflectivity of structures, conductors, and insulators. Although these measures would not change the degree of impact (high, medium, or low), they would help reduce the reflectivity of these components and thus, the overall visibility of the project. Measures in the Visuals discussion of Appendix A in the draft Environmental Specifications provide direction on how to place structures near existing transmission lines. Properly placed structures create a higher level of visual unity along the transmission line corridors than if the locations of the new structures are not coordinated with the locations of the existing structures. Section 2.15 also discusses using varying types of structures in some areas to reduce visual impacts; the section also includes measures related to crossing rivers and riparian and wetland areas that would reduce visual impacts associated with the crossings.

Section 2.9 of MDEQ's draft Environmental Specifications describes measures to help reduce visual impacts associated with the proposed project ROW. These measures would reduce impacts by minimizing the amount of vegetation that would be removed, directing contractors on how to treat the edges of the cleared area, and minimizing overall disturbance. All of these measures would improve the visual condition of ROW in mountainous areas, particularly when viewed from adjacent roads or trails. Other, more site specific measures for ROW near roads or trails would be established by agencies as explained in Appendix A.

A number of measures in Section 2.7 would help reduce visual impacts associated with access roads. Several of the measures in that section require minimizing the width of access roads and clearing, it also addresses erosion and road maintenance. Scattered throughout Chapter 3 of this EIS are measures related to construction and construction sites (such as for marshalling yards and splicing sites) that would reduce visual impacts. Section 2.15 includes directives related to marking trees and rocks and lighting at marshalling yards that would reduce visual impacts. Section 2.0 includes measures that would reduce visual impacts by preserving natural contours, minimizing disturbance areas, retaining vegetation when possible, and maintaining neat and orderly work areas. Many of the measures in Section 3.0 of MDEQ's draft Environmental Specifications direct the contractor on topics such as restoring to original contours, site cleanup, and site revegetation, all of which would help reduce site-specific visual impacts.

The MDEQ's draft Environmental Specifications Appendix A contains measures that would require site-specific (or "micro-siting") at locations where the proposed project would be sited near certain sensitive areas and area types (e.g., sensitive travel ways, use areas, and campgrounds) that would be identified by the agencies. These measures would be very important in reducing visual impacts at the site level. It will be important that the agencies, NorthWestern, and contractor work closely in these areas to minimize impacts.

#### **3.11.4.2.2 Federal Agency Stipulations**

Both the BLM and USFS included stipulations related to visual and scenic quality as part of their respective agencies, the BLM's *Approved Resource Management Plan Amendments/ROD for Designation of Energy Corridors on Bureau of Land Management Administered Lands in 11 Western States* (BLM 2009a) and the USFS's *Record of Decision (ROD) for the Designation of Section 368 Energy Corridors on National Forest System Land in 10 Western States* (USFS 2009b). The BLM and USFS measures are contained in an appendix to the Plan of Development (Appendix B.4).

The BLM's requirements for assessing impacts were met during the development of this EIS. One of the topics indicates that the applicant shall prepare a Visual Resource Management Plan. As mentioned previously, most of the effort that is described in the requirement was done as part of this EIS. The five

BLM field offices near the alternatives being analyzed (Butte, Dillon, Upper Snake, Burley, Shoshone) would have an opportunity under the requirements specific in Appendix A (Appendix B.4) to review proposed project locations in BLM lands and work with NorthWestern and contractor to determine the relationship between project components and identified sensitive resources.

The USFS IOPs (USFS 2009b) likewise includes a section on Visual Resources and, as was the case with the BLM, the USFS requirements for assessing impacts were met during the development of this EIS. One of the USFS topics also indicates that the applicant shall prepare a Visual Resource Management Plan (or scenery management plan). As mentioned, most of the effort that is described in the requirement was done as part of this EIS. The two National Forests near the various alternatives being analyzed (the BDNF and CTNF) would have an opportunity under Appendix A requirements to review proposed project locations in National Forest lands and work with NorthWestern and contractor to determine the relationship between project components and identified sensitive resources.

#### **3.11.4.2.4 Additional Mitigation Measures**

None suggested.

#### **3.11.4.3 Residual Resource Impacts**

This section identifies the residual visual changes that could occur along each of the proposed project links, LROs, and alternatives with the inclusion of the mitigation measures described in Section 3.11.4.2. It evaluates the degree (high, medium, and low) of the residual visual impact these changes would create; the number of residences (by distance) that each link, LRO, and alternative would potentially be seen from; the consistency of these changes with BLM and USFS visual and scenery management objectives; impacts on other sensitive viewing areas (such as parks, trails, and fishing access facilities); and impacts on views from interstate highways. The analysis begins with an impact assessment summary of each link and LRO that is shown in Table 3.11-2. It then proceeds to assess and compare changes between each LRO and its associated link or combination (also shown in Table 3.11-1). The section concludes by evaluating and comparing alternatives.

This effort will permit the alternative routes within each zone and LRO and their associated link(s) to be compared and contrasted in terms of their visual effects. This will provide data and insights for visual impacts that can be used in conjunction with evaluation results for the other issue or resource areas to enable decision makers to make an informed selection of a final route.

Figures 3.11-1 through 3.11-6 show what the impact of each link or LRO would likely be. Three levels of impact are depicted in the maps: high, medium, and low.

#### **3.11.4.3.1 Visual Impacts by Link and Local Routing Option**

Table 3.11-2 provides a visual impact summary for each link and LRO. It identifies the numbers of miles of the link or LRO; the number of miles by type of impact (high, medium, or low) from the link or LRO; provides the number of residences located near the links or LROs at varying, specified distances; depicts the number of miles of BLM and/or NFS lands that the link or LRO would pass through; identifies the miles of the link that would be inconsistent with the visual management objectives of the relevant BLM or USFS management plans; and identifies KOP(s) that were selected for that link (KOP locations are shown on Figures 3.11-1 through 3.11-6). Text in the last column of the table highlights the impacts the link or LRO would likely have on the views from important other non-residential viewing locations such as communities, recreational sites, scenic sites, and major travel corridors.

Table 3.11-2 is useful for comparing links and LROs. It is also helpful when reviewing the alternative assessments in Section 3.11.1.3 and Table 3.11-3 because Table 3.11-2 provides detailed descriptions of the impacts to the various links that form the alternatives.

#### **3.11.4.3.2 Visual Impact Comparison of Links with Local Routing Options**

Four of the LROs were devised, at least in part, to reduce visual impacts associated with their link counterparts. The four LROs are LRO2-3b (Boulder Hill), LRO4-2b (Lower Boulder), LRO7-4 (North of Buxton), and LRO11-3 (Maiden Rock). As shown in Table 3.11-2 (which also includes comparisons of the impacts of links with the LROs they would potentially be replaced with) some of the LROs would have less visual impact than their link counterparts, others would not. The sections below summarize the differences between LROs and links where there would be some discernable difference.

- LRO2-3b (Boulder Hill) would be preferable from a visual perspective to its counterpart Link 2-3b. Even though the two routes would seem to be similar in terms of impacts (Table 3.11-2) LRO2-3b would be located at the north end of the Boulder Valley in front of the hills backdropped behind. LRO2-3b would not cross through the valley as Link 2-3b would, thus would not be as visible within the valley and to people driving north on I-15. The LRO would also not require the placement of an angle structure adjacent to I-15, as would Link 2-3b.
  - LRO4-2b (Lower Boulder LRO) would avoid travelling through the Boulder River Valley between SR 69 and Doherty Mountain, but would pass over I-90. Link 3-2, which LRO4-2b would connect with, would follow and cross over I-90. Link 4-2b would pass along the edge of the Boulder River Valley below the east side of Doherty Mountain and would pass near residences. LRO4-2b would be seen by fewer people, pass near fewer residences and be preferable than Link 4-2b, but Link 3-2 would be seen by more people.
  - LRO6-2 (South of Butte) and Link 6-2 would have similar high visual impacts in terms of impacts along their routes (2.3 miles for Link 6-2 and 2.9 miles for LRO6-2). Because LRO6-2 would avoid crossing through the middle of a residential area (as Link 6-2 would), it would pass within the immediate foreground (0 to 0.25 mile) zone of 38 fewer residences than Link 6-2.
  - LRO7-2 (Beef Trail) would have little difference between LRO7-2 and Link 7-2. LRO7-2 would pass within the immediate foreground (0 to 0.25 mile) of two fewer residences (four versus six) than Link 7-2 and would have a high impact on 0.4 fewer miles (1.8 versus 1.4).
  - LRO7-4 (North of Buxton) would avoid the one residence in the immediate foreground (0 to 0.25 mile) zone that Link 7-4 would pass near. It would have a high impact on 0.8 mile more than Link 7-4 would have.
  - LRO11-3 (Maiden Rock) would have a slightly higher visual impact than Links 11-3 and 11-4. LRO11-3 would have 0.2 mile of high visual impacts and the most miles (2.5 vs. 0.7) of inconsistency with BLM VRM objectives, although it would impact seven fewer residences in the 0-0.5 mile distance zone. LRO11-3 would have a higher visual impact because it would cross the Big Hole River about 0.75-mile upstream of the existing transmission lines, thus expanding the zone of visual impact along the river.

**Table 3.11-2. Impacts by Link and Local Routing Option**

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
1	6.3	1.5	2.5	2.3	4	0	11	118	NA	0.9/0	NA	Would parallel existing Colstrip 500-kV transmission line (0.5 mile to the south) but would require a new 220-foot-long ROW. Between proposed Townsend Substation and area west of U.S. 287 would have high impacts to residences in the Holker area, along Missouri River, and where crosses over Lewis and Clark National Historic Trail.  <i>Note: Unless noted, all "2" links would parallel existing Colstrip line for their entire distance. All would require their own 220-foot-wide ROW.</i>
2-1	3.0	0.1	2.9	0	1	5	46	20	NA	NA	NA	Would not parallel existing lines. High impact area near Radersburg OHV Trailhead north of Radersburg.
2-2	4.3	1	3.3	0	0	9	37	17	NA	1.4/0	NA	Would not parallel existing lines.
LRO2-2	4.8	1	3.8	0	4	35	7	19	NA	2.2/0	NA	High impacts would be near residences.
<p><i>Link 2-2 vs. LRO2-2:</i> LRO2-2 (Radersburg) would have visual impacts on more residences than Link 2-2 because it would pass within the immediate foreground (0 to 0.25 mile and foreground (0.25 to 0.5 mile) zone of 30 more residences than Link 2-2 would. Other impacts would be very similar.</p>												
2-3a	20.4	2.6	17.8	0	0	2	13	61	NA	9.0/0	3.3/3.3	Would pass over FR 258 (Concern Level 1 Travel Way) just outside of BDNF and not be consistent with BDNF SIOs of High and Moderate. Most impacts would be moderate.
2-3b	4.4	3	1.1	0.3	0	5	16	276	NA	NA	NA	Would not parallel Colstrip or other existing line. Would pass over I-15. Other high impacts would be near residences in upper Boulder Valley.
LRO2-3b	4.1	2.4	1.6	0.1	0	7	20	51	KOP1-8	NA	NA	Would also not parallel Colstrip or other existing lines. High impacts in vicinity of residences in upper Boulder Valley and I-15 crossing.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
<p><i>Link 2-3b vs. LRO2-3b:</i> Despite crossing closer to two residences in the foreground (0.25 to 0.5 mile) zone, LRO2-3b (Boulder Hill ) would be less visible to drivers on I-15 heading south than Link 2-3b would be. This is because LRO2-3b would be located on the northern edge of the Boulder Valley and not crossing through the middle of it as would be the case with Link 2-3b. LRO2-3b would also use available topographic screening and a hillside backdrop to decrease line visibility to people driving north. LRO2-3b would also avoid placing an angle structure immediately adjacent to I-15.</p>												
2-3c	39.4	22.7	15.5	1.2	8	4	41	481	KOP1-1, 1-5	2.7/0	27.4/21.4	Within the BDNF would parallel the Boulder River and FR 82 and be visible in foreground (0 to 0.5 mile) as well as from nearby campgrounds. After leaving Boulder River area, would no longer parallel Colstrip transmission line. The new ROW would not follow an existing transmission line. Would cross the Continental Divide National Scenic Trail. The SIOs in this area are High and Moderate. Link 2-3a would be inconsistent with an SIO of High, but some areas would meet an SIO of Moderate due to increased viewing distances from Concern Level I travel ways. Most residences in the vicinity of the line would be scattered near the communities of Basin or in the Deerlodge Valley.
2-3d	3.9	1.5	2.4	0	6	72	121	72	NA	NA	NA	Would closely parallel and be in vicinity of a number of existing lines (Section 3.11.1.3). High impacts in residential area north of Opportunity and near the Mill Creek Substation and near the I-90 crossing.
3-1	41.6	10.5	25	6.1	32	26	71	801	KOP1-2	1.1/0	NA	Most of route would closely parallel existing line (Section 3.11.1.3). Mostly medium impacts. High impacts would occur near approach and crossing of Lewis and Clark National Historic Trail and Missouri River in addition to residences in the Toston and Three Forks areas and near where it follows and crosses I-90.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
3-2	4.7	2.5	1.7	0.5	0	1	6	86	NA	0.1/0.1	NA	High impacts where link follows and crosses over I-90.
4-1a	8.7	0.9	6	1.8	4	5	7	65	NA	0.7/0	NA	Mostly medium impacts. Would pass near residences in vicinity of Parker. Would not parallel existing lines.
4-1b	1.4	0	0.7	0.7	0	0	0	1	NA	NA	NA	Would not parallel existing lines.
4-2a	12.2	0	10.6	1.6	0	0	0	4	NA	NA	NA	Mostly medium impacts and would not pass near residences. Would pass within 0.25 mile of Black Sage WSA.
4-2b	10	3.1	5.8	1.1	1	1	12	81	KOP1-3	0.8/0	NA	Approximately 3 miles of high impact on the west side of Doherty Mountain near SH 69 and residences.
LRO4-2a-1 (Upper Boulder 1)	8.2	0	2.2	6	0	0	1	6	NA	NA	NA	Generally low impacts along this route.
LRO4-2a-2 (Upper Boulder 2)	6.8	0.5	4.1	2.2	1	0	0	2	NA	NA	NA	High impact near a residence that is adjacent to the route.
LRO4-2a-3 (Upper Boulder 1 and 2)	5.6	0	2.4	3.2	0	0	0	5	NA	NA	NA	Moderate to low impacts along route.
LRO4-2b (Lower Boulder)	6.6	0.4	4.5	1.7	0	0	0	13	NA	NA	NA	High impact where approaches and crosses over I-90.
<p><i>LRO4-2a-1 (Upper Boulder 1) and LRO42a-3 (Upper Boulder 1&amp;2) vs. Link 4-1b and 4-2a:</i> Neither would have high impacts nor pass close to residences. The LROs would have 6.7 fewer miles of moderate impacts.</p> <p><i>LRO4-2a-2 (Upper Boulder 2) and LRO42a-3 (Upper Boulder 1&amp;2) vs. Link 4-1b and 4-2a:</i> LRO4-2a-2 would almost be adjacent to a residence and would have 0.5 mile of high impact. The two LROs would have 4.8 miles less moderate impact than Links 4-1b and 4-2a.</p>												

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
<p><i>LRO4-2b (Lower Boulder) &amp; Link 3-2 vs. Link 4-2b:</i> LRO4-2b and Link 3-2 would have 0.2 fewer miles of high impact than Link 4-2b. The high impacts associated with LRO 4-2b would be where it would pass over I-90. The high impacts associated with Link 3-2 would be where it would pass near and cross over I-90. The high impacts associated with Link 4-2b would be near SH 69 near Doherty Mountain. Link 4-2b would be within 0.25 mile of one residence and within 0.5 mile of a second residence. LRO4-2b would not have any residences within 1 mile.</p>												
5	15.5	2.6	10	2.9	18	47	136	640	NA	2.9/0	NA	Would closely parallel existing lines almost entire length (Section 3.11.1.3). Mostly medium impacts with high impacts near residences in Whitehall area. Would parallel (within 0.25 mile) I-90 for 2.3 miles but not cross over it.
6-1	7.3	5.4	0.7	1.2	3	7	24	419	KOP1-5	2/0	4.7/4.7	Would closely parallel existing lines for much of its length (Section 3.11.1.3). Mostly high impacts. Would follow within 0.25 mile of I-90 for 2 miles. Within the BDNF, would cross and/or be near Continental Divide National Scenic Trail, I-90, and Homestake Pass area and would not be consistent with the High SIO of these BDNF areas.
6-2	2.5	2.3	0.2	0	83	76	195	912	NA	NA	0.1/0.1	Would closely parallel existing lines for much of its length (Section 3.11.1.3). Mostly high impacts including areas near residences in area south of Butte. Would not be consistent with High SIO in portion of route in BDNF.
LRO6-2	3.2	2.9	0.3	0	45	71	227	1,200	KOP1-6	NA	NA	Would closely parallel existing lines for parts of its route (Section 3.11.1.3). Mostly high impacts. Impact on different and fewer residences (in the 0 to 0.25 distance) than Link 6-2. Would follow within 0.25 mile of I-90 for 1.6 miles.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
<p><u>Link 6-2 vs. LRO6-2:</u> Although both LRO6-2 (South of Butte 1) and Link 6-2 would have high visual impact on residential areas, LRO6-2 would not pass through the middle of a residential subdivision as Link 6-2 would and would have impacts on fewer residences in the 0 to 0.5 mile range. LRO6-2 would impact more residences from 0.5 mile out to 3 miles.</p>												
7-1	2.1	1.2	0.9	0	9	57	173	1,126	NA	NA	NA	High impacts near some residences south of Butte. Would not parallel existing lines.
7-2	2.7	1.8	0.7	0.2	6	5	15	845	NA	NA	NA	Would not parallel existing lines. Would have high impacts near some residences south and west of Butte.
LRO7-2	2.7	1.4	1.1	0.2	4	5	15	847		NA	NA	Impacts similar to those of Link 7-2. Would not parallel existing lines.
<p><u>Link 7-2 vs. LRO7-2:</u> LRO7-2 (Beef Trail) would have a minor visual advantage over Link 7-2 due to 0.5 mile less high level of impact and two fewer residences in the immediate foreground (0 to 0.25 mile) zone.</p>												
7-3	1.5	0.4	1.1	0	0	1	5	171	NA	NA	NA	Would not parallel existing line or have many areas of high impact other than near a residence.
7-4	4.8	1.6	2.9	0.3	4	5	16	147	NA	NA	NA	Would not parallel existing line. High impact where it would cross I-15 and near some residences in Buxton area.
LRO7-4	6.7	2.4	4	0.3	0	13	28	270	NA	NA	NA	Impacts would be high at crossing of I-15 and near residences.
<p><u>Link 7-4 vs. LRO7-4:</u> Link 7-4 would have a slight advantage over LRO7-4 (North of Buxton) in that it would have 0.8 mile less of high impact route. However, it would pass by four residences in the immediate foreground (0 to 0.25 mile) zone. LRO7-4 would pass by more residences (13 versus 5) in the foreground (0.25 to 0.5 mile) zone.</p>												
8-1	17.3	7.7	7.9	1.9	67	110	287	1,858	KOP1-7	NA	NA	Would closely parallel existing lines along parts of its route (Section 3.11.1.3). High impact where it would pass several different residential areas south and west of Butte and at I-15 crossing.
8-2	2.8	0.1	2.2	0.5	1	11	68	196	NA	NA	NA	Would closely parallel existing lines entire along length (Section 3.11.1.3).

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
9-1	2.5	1.7	0.8	0	3	6	17	67	NA	NA	1.4/1.4	Would closely parallel existing line along entire length (Section 3.11.1.3). High impacts near residences and inconsistent with SIOs of High and Moderate in BDNF.
9-2a	4.0	0.8	1.9	1.3	3	2	6	182	NA	NA	0.3/0.3	Would closely parallel existing line along entire length (Section 3.11.1.3). High impacts near residences and inconsistent with SIOs of High and Moderate in BDNF.
9-2b	1.3	0	0.4	0.9	0	0	9	137	NA	NA	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3).
9-2c	2.5	1.7	0.8		8	20	33	88	NA	NA	NA	Would closely parallel existing lines along parts of its route (Section 3.11.1.3). High impacts near residences in the Fairmont Hot Springs area. Would be seen in the 0.5 to 1.0 mile distance from Fairmont Hot Springs Resort.
9-3	1.8	0	1.8	0	0	0	39	205	NA	NA	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3). Due to distance from sensitive viewers, no high impacts.
LRO9-3	1.7	0	1.7	0	0	0	39	205	NA	NA	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3).
<p><i>Link 9-3 vs. LRO9-3:</i> Very little difference between LRO9-3 (Mount Haggin) and Link 9-3 except that LRO9-3 would be located lower on the ridge than Link 9-3 and would be somewhat less visible than Link 9-3.</p>												
10	3.2	0	1.8	1.4	0	1	8	354	NA	NA	NA	Would closely parallel existing lines along most of length (Section 3.11.1.3).
11-1	12.9	3.4	8.8	0.7	6	15	22	85	NA	0.3/0	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3). High impacts near residences, where parallels I-15 within 0.25 mile for 2.3 miles and crosses it (twice), where crosses Continental Divide National Scenic Trail, and would pass within 0.25 mile of the west side of Humbug Spires WSA.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
11-2	2.7	0.9	1.5	0.3	3	0	0	51	NA	1.1/1.1	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3). Would cross BLM land near Big Hole River and would not be consistent with 1.1 mile of VRM Class III. Would parallel I-15 within 0.25 mile for 1.3 miles and cross over it once. Within 0.25 mile of Humbug Spires WSA, primitive area, and ACEC.
11-3	2.2	0.4	0.5	1.3	0	3	5	46	NA	1.1/1.1	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3). Would parallel I-15 for 1.3 miles and cross in vicinity of several residences.
LRO11-3	5.0	3.2	1.8	0	0	7	15	85	NA	4.4/2.5	NA	Would not follow existing transmission lines. The crossing of the Big Hole River would be highly visible and not consistent with 2.5 miles of VRM Class II or Class III. Would cross the river 0.75 mile upstream of Maiden Rock Fishing Access Site.
<p><u>LRO11-3 vs. Links 11-3 and 11-4:</u> LRO11-3 (Maiden Rock) would have a slightly higher visual impact than Links 11-3 and 11-4. LRO11-3 would have 0.2 mile more of high visual impact and the most miles (2.5 vs. 0.7) of inconsistency with BLM VRM objectives, although it would impact seven fewer residences within the 0-0.5 mile distance zone. LRO11-3 would also cross the Big Hole River 0.75 mile upstream from existing transmission lines, expanding the visual impact zone along the river.</p>												
11-4	2.9	2.6	0.3	0	4	7	11	80	KOP2-1	0.7/0.1	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3). Crossing of Big Hole River on state land at the Maiden Rock Fishing Access Site. Would have high impact on river and would not be consistent with 0.1 mile of VRM Class III.
11-5	1.2	0.1	0.2	0.9	0	0	10	92	NA	0.3/0	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3). Would also follow the Big Hole River.

**Table 3.11-2. Impacts by Link and Local Routing Option**

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
12	53.6	6.8	33.5	13.3	1	10	66	326	KOP2-2	21.3/0.5	NA	Mostly medium impacts. Small segments would have high impacts to residences in the vicinity of Silver Star and the Big Hole River crossing 0.75 mile downriver from the Notch Bottom Fishing Access Site.
13	20.3	1.8	5.3	13.2	5	5	14	140	NA	9.5/0	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3). Mostly low impacts.
14-1	11.0	5.4	2.1	3.5	10	6	20	127	NA	3.5/1.3	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3). High impacts would occur near residences and where link parallels I-15 for 4.2 miles. Would cross 1.3 mile of VRM Class III lands, which it would not be consistent with.
14-2	1.3	0.2	1.1	0	1	1	6	33	NA	0.5/0	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3).
LRO14-2	1.3	1.2	0.1	0	1	1	6	33	NA	1.1/1.1	NA	Would not parallel existing lines. Located 0.25 to 0.5 mile west of and parallel to I-15 and would follow within 0.25 mile for 0.4 mile. Very visible from I-15, where impact would be high. Most of LRO is located on BLM lands and would not be consistent with 1 mile of VRM Class III due to visibility from I-15.
<p><i>Link 14-2 vs. LRO14-2:</i> LRO14-2 (Willow Creek) would have 1 mile more high impact than Link 14-2. LRO14-2 would be located approximately 0.25 mile closer to I-15 than Link 14-2 and would be somewhat more visible from I-15.</p>												
14-3	7.6	0.3	3.1	4.2	1	2	2	31	NA	NA	NA	Would closely parallel existing line along entire length (Section 3.11.1.3).
15-1	2.4	0	0	2.4	0	0	0	3	NA	2.4/0	NA	Would closely parallel existing line along entire length (Section 3.11.1.3). Located away from sensitive viewers, and impact would be low.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
15-2a	2.2	0	0.1	2.1	0	0	1	32	NA	1.7/0	NA	Would closely parallel existing line along entire length (Section 3.11.1.3). Located away from sensitive viewing areas.
15-2b	0.6	0	0.6	0	0	0	2	39	NA	0.7/0	NA	Would closely parallel existing line along entire length (Section 3.11.1.3). Located away from sensitive viewing areas.
15-2c	8.1	0.4	3.7	4	3	4	12	78	NA	6.2/0	NA	Would not parallel existing transmission line.
15-2d	33.5	5.2	16.4	11.9	1	9	34	25	KOP3-2, 3-3, and 3-4	14.8/0	NA	Would closely parallel existing lines for parts of route (Section 3.11.1.3). High impacts would occur at crossing of Lewis and Clark National Historic Trail west of Clark Canyon Reservoir, near Clark Canyon State Recreation Area, parallel (within 0.25 mile) I-15 for 3.8 miles, and near a subdivision south of Clark Canyon Reservoir. Would parallel the eastern edge of the Henneberry Ridge WSA.
16-1	1.4	0	0	0	0	0	0	10	NA	NA	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3).
16-2	4.7	0	0.3	4.4	0	0	1	24	NA	2.6/0	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3).
LRO 16-2	4.8	0	2.1	2.7	0	0	2	24	NA	2.8/0	NA	Would closely parallel existing lines along entire length (Section 3.11.1.3).
<i>Link 16-2 vs. LRO16-2:</i> There would be very little to no difference in visual impacts between LRO16-2 (Frying Pan Gulch) and Link 16-2.												
16-3a	11.4	2.2	5.4	3.8	2	6	15	129	NA	2.1/0	NA	Would closely parallel existing line most of its length (Section 3.11.1.3). Would cross Beaverhead River and Lewis and Clark National Historic Trail near Grasshopper Creek Fishing Access Site. Impacts would be high in this area and near some residences.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
16-3b	2.8	0.6	2.2	0	0	0	0	16	NA	2.6/0.5	NA	Would not parallel existing lines. Link would cross BLM land (VRM Class III) overlooking (and within 0.25 mile of) Beaverhead River and Lewis and Clark National Historic Trail. Would not be consistent with 0.5 mile of VRM Class III.
16-3c	8.7	3.5	3.8	1.4	6	6	6	27	KOP3-1	NA	NA	Would closely parallel existing line for part of route (Section 3.11.1.3). High impacts would occur for approximately 1.2 miles where link would parallel I-15 within 0.25 mile, (southern portion of route within 0.25 to 1 mile of Clark Canyon Reservoir), along 1.3 miles following I-15 and near residences. Would be within 1 mile of Beaverhead Campground and High Bridge Fishing Access Site.
LRO16-3c	7.8	0	6.8	1	0	0	0	46	NA	5.8/0	NA	Would not parallel existing lines. On hillside above I-15 and east of Clark Canyon Reservoir. Impacts primarily medium due to distance and screening from I-15, residences, and reservoir. Mostly medium impacts.
<p><i>Link 16-3c vs. LRO16-3c:</i> LRO16-3c (Clark Canyon East) would result in a reduction in visual impacts due to its more remote route. Link 16-3c would have 3.5 miles of high impact near I-15, the Lewis and Clark National Historic Trail, and the Beaverhead River. LRO16-3 would also have less impact on residences and be less visible from Clark Canyon Reservoir.</p>												
16-3d	12.8	0.8	7	5	0	0	10	50	NA	3.5/0	NA	Would not parallel existing lines. Would travel on hillsides east of Beaverhead River and have mostly medium and low impacts. High impacts in vicinity of residences.
17-1	4.9	0.4	3.9	0.6	0	2	1	42	NA	2.6/0	NA	Would not parallel existing lines. High impacts near residences.
17-2	10.4	1.8	4.3	4.3	0	1	16	159	NA	2.7/0.3	NA	Would not parallel existing lines. Impacts at I-15 crossing and near several residences would be high. The crossing of I-15 would not be consistent with 0.3 mile of VRM Class III.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
LRO17-2	10.8	1.3	6.5	3	0	0	2	168	NA	7.1/0.3	NA	Would not parallel existing lines. Would have an area of high impact at crossing of I-15 south of Lima, which would not be consistent with 0.3 mile of VRM Class III.
<p><i>Link 17-2 vs. LRO17-2:</i> LRO17-2 (Lima) would not be substantially different from Link 17-2 in terms of visual impact. Link 17-2 would have 0.5 mile more of high visual impact than LRO17-2, but have 2.2 miles less medium visual impact miles than LRO17-2. These links are located in an area with few residences. With LRO17-2, no residences would be within 0.5 mile of the alignment; for Link 17-2, one residence would be located within the foreground (0.25 to 0.5 mile) zone. In the near foreground (0.5 to 1 mile) zone, Link 17-2 would have 14 more (a total of 16) residences than LRO17-2.</p>												
17-3	5.2	0	1.9	3.3	0	0	0	8	NA	0.7/0	NA	Would closely parallel existing line for most of route (Section 3.11.1.3). Impacts would be low and medium due to distance from sensitive viewing areas.
17-4	4.8	0.4	1.5	2.9	1	0	0	2	NA	0.1/0	NA	Would closely parallel existing line for most of route (Section 3.11.1.3). One area of high impact near a residence.
LRO17-4	4.7	0	3.2	1.5	0	0	1	2	NA	2.0/0	NA	Similar to Link 17-4, but more medium impacts and no high impacts.
<p><i>Link 17-4 vs. LRO17-4:</i> LRO17-4 (Diamond Butte) would not be substantially different from Link 17-4 in terms of visual impact. While Link 17-4 would have 0.4 mile more of high visual impact, it would have 1.7 miles less of medium visual impact compared to LRO17-4.</p>												

**Table 3.11-2. Impacts by Link and Local Routing Option**

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
18	20	9.3	5.6	5.1	5	44	12	10	KOP4-1	0.7/0.7	5.5/5.5	Would closely parallel existing line along entire length (Section 3.11.1.3). Mostly low impacts. Would have high impacts near I-15 in the CTNF. Would pass through 5.5 miles of the CTNF along I-15 corridor that has a VQO of Retention and would be inconsistent. However, the Revised Forest Plan designates a utility corridor along I-15 in this area, and the link would be consistent with the provision for this corridor. Other areas of high impact would occur near residences in the Humphrey and Spencer areas, the crossings of I-15, the Lost Gold Trails Loop, the Continental Divide National Scenic Trail, and the Nez Perce National Historic Trail. Would not be consistent with 0.5 mile of BLM VRM Class II and near the Continental Divide Scenic National Trail and 0.2 mile of VRM Class III BLM land adjacent to I-15.
19	82.8	14.3	19.3	49.2	4	3	2	52	KOP5-2	62.1/15.4	NA	Would closely parallel several existing lines for parts of route (Section 3.11.1.3). Mostly low impacts. High impacts would occur at the crossings of the Lost Gold Trails Loop Idaho Scenic Byway, the Nez Perce National Historic Trail, the Sacajawea Idaho Scenic Byway, the Goodale's Cutoff trail, near several residences, and where the route would parallel SH 22 between the Amps Substation and SH 33. Would not be consistent with 15.4 miles of BLM Class II and III lands.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
20	40.4	0.3	7.1	33	2	2	10	302	KOP5-1	12.5/1.2	NA	Would closely parallel existing lines for parts of route (Section 3.11.1.3). Mostly low impacts. Few areas with high impacts. High impacts for residences east of Hamer. A segment over BLM lands (VRM Class II) near the crossing of SH 33 would not be consistent with 1.2 mile of VRM Class II. Would cross Lost Gold Trails Scenic Byway (east of Dubois) with medium impact.
21-1	32.2	2.7	7.2	22.3	0	0	1	40	NA	16.0/1.3	NA	Would not parallel existing line. Mostly low impacts. High impact along Highway 20 just west of Hell's Half Acre WSA and National Natural Landmark and at the crossing of Goodale's Cutoff. Would not be consistent with 1.3 mile of VRM Class II and III land.
21-2	16.7	4	4.2	8.5	0	0	0	25	KOP5-3	12.6/4.9	NA	Would not parallel existing line. Would cross Goodale's Cutoff three times in last 6 miles within view of the primary access road into Cedar Butte WSA and would have high impact. The link would be inconsistent with 4.9 miles of VRM Class II and Class III of these lands.
22	24.6	0.5	4.8	19.3	0	0	0	2	KOP5-4	23.1/0.5	NA	Would closely parallel existing line for along entire length (Section 3.11.1.3). Mostly low impacts. Small area of high visual impact at Goodale's Cutoff crossing. Would be inconsistent with 0.5 mile of BLM VRM Class III land.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
23-1	61.8	12.3	37.1	12.4	47	101	249	3,198	NA	18.9/12.3	NA	Would closely parallel existing line for part of route (Section 3.11.1.3). Mostly medium impacts. Part of alignment would be near a number of small communities west of Idaho Falls and Blackfoot. The link would pass through and be inconsistent with VRM Class II objectives at six locations. One area would be the area north of where the link would cross SH 20. The remaining areas are to the south end of the Hell's Half Acre WSA. Would be medium impacts from an approximately 4-mile-long segment of the link along the eastern boundary of Hell's Half Acre WSA where the route would travel, paralleling an existing 161-kV transmission line, through BLM land (VRM Class III). This impact would be consistent with VRM Class III. Small areas of high impact would occur in places where the link would pass within the near foreground of residences and at Goodale's Cutoff.
23-2	15.2	3.4	7.8	4	0	5	6	158	NA	12.3/0.4	NA	Would not parallel existing line. Impacts would be high near the crossing of Goodale's Cutoff, which would be inconsistent with 0.4 mile of VRM Class III. Several areas of high impact near residences.

**Table 3.11-2. Impacts by Link and Local Routing Option**

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
24	108.6	0.6	29.7	76.5	1	0	6	86	KOP6-1, 6-2	74.1/1.5	NA	Would parallel 230-kV and 138-kV transmission line for approximately 37 miles. Impacts would be low along most of link, reflecting distance from sensitive viewing areas. About 20 miles of the link would parallel the eastern boundary of the Craters of the Moon National Monument and Preserve. High impacts would occur where it crosses Crystal Ice Cave Road. In a number of areas, particularly in the agricultural area west of Aberdeen, the level of impact would be medium because Link 24 would be visible in far foreground and middleground views of residences. Would be inconsistent with VRM Class II south of Shale Butte WSA.
25	5.0	0.1	4.7	0.2	1	21	100	292	NA	NA	NA	Would not closely parallel existing line but would be in vicinity of existing lines. Would be clearly seen to the west from parts of I-90 that parallel Link 25. High impacts would occur where it passes near a residence. Farther to the south, would be seen from residences near Crackerville and the area around the Fairmont Hot Springs Resort, but would not have a high impact.
26	1.7	1.5	0.2	0	1	6	38	117	NA	NA	NA	Would not closely parallel existing line. Near Fairmont Hot Springs Resort and the Finlen areas would pass over Fairmont Road and near several residences before heading up the west side of a ridge to Link 9. Because of its proximity to residences and the Fairmont Hot Springs Resort, much of Link 26's impact would be high.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
27	15.1	10.7	4.3	0.1	0	3	4	187	KOP2-3, 2-4, 2-5, and 2-6	NA	9.8/9.8	Would not parallel existing lines. After entering BDNF, would pass in the foreground and middleground of a number of Concern Level 1 Travel Ways (Continental Divide National Scenic Trail, I-15, FR 96, and FR 8505) in areas that have SIOs of High. It would not be consistent with an SIO of High. Mostly high impacts.
28	2.5	0.7	1.8	0	0	0	11	70	NA	NA	NA	Would not parallel existing lines. Link 28 would pass through the Fleecer Mountain Game Management Area and be within the middleground of the Big Hole River and several recreational facilities.
LRO28	3.2	0	2.9	0.3	0	0	16	66	NA	NA	NA	Would not parallel existing lines. LRO28 would be located closer to I-15 than Link 28 would be and would have mostly a medium impact.
<p><i>Link 28 vs. LRO28:</i> Relatively little difference in impacts between the two routes in terms of miles of high impacts and numbers of residences impacted. LRO28 (Fleecer) would not have high impacts; whereas Link 28 would have 0.6-mile of high impact. However, LRO28 would be more visible than Link 28 from I-15, Divide Creek, and the I-15 frontage road due to LRO-28 being routed lower on the slopes of Mt. Fleecer and heading toward I-15 at a sharper angle than would be the case with Link 28.</p>												
29	2.5	1	1.5	0	0	1	19	54	NA	NA	NA	Would not parallel existing transmission line. Along most of its route would have medium impact, except at I-15 crossing where impact would be high.
30	5.2	0.5	3.9	0.8	0	0	8	87	NA	3.7/3.7	NA	Would not parallel existing lines. Would cross I-15, on BLM land on both sides of I-15 and would be inconsistent its entire length on BLM land.

Table 3.11-2. Impacts by Link and Local Routing Option

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
31	8.8	2	5.6	1.2	0	2	13	88	KOP2-7	6.4/0.3	NA	Would not parallel existing lines. Would cross Big Hole River at Maiden Rock. At the proposed river crossing, three transmission lines cross river in close proximity to Link 31. The proposal is to move an existing 230-kV transmission line slightly north and replace it with Link 31. Would not be consistent with 0.2 mile of BLM VRM Class III and 0.1 mile of Class II.
32	3.7	0.3	3.1	0.3	0	0	5	27	NA	3.3/0.3	NA	Would not parallel existing lines. Would not be consistent with 0.3 mile of BLM Class III where it would cross Rock Creek Road.
LRO32	4.0	0.3	3.3	0.4	0	0	5	27	NA	3.7/0.3	NA	Would not parallel existing lines. High impact would occur on BLM land near Rock Creek Road. Would be inconsistent with VRM Class III.
<i>Link 32 vs. LRO32:</i> Little difference in visual impacts between LRO32 (Rock Creek) and Link 32.												
33	13.5	3.3	7.5	2.7	0	5	4	51	NA	11.1/0.2	NA	Would not parallel existing lines. Would not be consistent with 0.2 mile of BLM Class III. High impacts would occur at crossing of Rock Creek Road and near several residences.
34	5.4	0	3.8	1.6	0	0	0	24	NA	5.1/0	NA	Would not parallel existing lines.
35	1.7	0	0.6	1.1	0	0	0	21	NA	1.7/0	NA	Would not parallel existing lines.
37	1.3	0.1	1	0.2	0	0	2	39	NA	1.3/0	NA	Would not parallel existing lines.
38	10.3	0	6.9	3.4	0	0	8	48	NA	10.3/0	NA	Would not parallel existing lines.

**Table 3.11-2. Impacts by Link and Local Routing Option**

Link and LRO	Total Miles	Impact on All Lands (Miles)			Residence Counts by Distance Zone				KOP	Miles through BLM or USFS Lands/ Inconsistency with Management Objectives (Miles)		Other Impacts/Notes
		H	M	L	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles		BLM	USFS	
39	6.6	1.3	4.4	0.9	0	0	0	12	NA	5.6/0.4	NA	Would not parallel existing lines. The easternmost part of Link 39 (near Beaverhead River, I-15, and recreation sites) would have high impacts. Would not be consistent with 0.4 mile of BLM VRM Class III.
40	23.5	2.4	10.3	10.8	2	2	11	140	KOP5-5	6.7/0	NA	Would not parallel existing lines. Most of the link would be on private land. Would cross BLM land (VRM Class III) along the southern part of the route.

Table 3.11-3. Alternative Impact Summary Table

Alternative	Total Miles	Impacts by Miles			Impacts to Residences by Distance Zone				Consistency with Management Plan Objectives for Federal Lands (BLM and USFS)				Number of Other Sensitive Viewing Areas Within 1 Mile of Alternative	Impacts on Interstate Highways (I-90/I-15)	
		High	Medium	Low	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles	BLM		USFS			Number of Times Crossed Over	Miles Adjacent to Link/LRO within 0.25 Mile
									Total Miles	Miles Inconsistent	Total Miles	Miles Inconsistent			
<b>Zone 1</b>															
1A	81.8	29	49	3.8	19	92	202	663	13.9	0	30.8	24.4	11	1/1	0.5/0.6
1B	90.2	26	48	16	134	186	434	2,232	7	0	6.5	6.5	8	1/1	4.4/0.5
1C	94.9	27	52	15	191	235	580	3,365	6.5	0.1	4.8	4.8	7	2/1	9.8/0.5
1D	54.1	13	31	10	27	53	158	773	4.9	0	NA	NA	3	0	2.2/0
<b>Zone 2</b>															
2A	57.4	12	25	20	32	53	96	598	30	2.3	1.7	1.7	6	0/1	0/5
2B	57.1	16	27	14	38	56	105	591	7.6	3.6	1.7	1.7	7	0/1	0/19.3
2C	89.7	22	49	19	108	143	342	1,785	23.4	0.5	6.5	6.5	5	2/2	2.7/1
2D	63.4	20	37	6	10	104	236	402	24.5	0.3	9.8	9.8	10	0/2	0.6/2.6
2E	53.6	7	33	13	1	10	66	326	21.3	0.5	NA	NA	7	1/1	0.5/0.5
<b>Zone 3</b>															
3A	72.1	8	33	32	5	16	61	265	72.1	0.3	NA	NA	4	0/2	0.25/4.4
3B	67	10	30	27	9	15	46	346	67.1	0.8	NA	NA	5	0/2	6.7/3.3
3C	71.0	9	37	26	7	9	39	265	71.9	0.9	NA	NA	5	0/2	6.7/3.1
<b>Zone 4</b>															
4A	20	9	6	5	5	44	12	10	0.7	0.7	5.5	5.5	5	0/1	0/5.8

Table 3.11-3. Alternative Impact Summary Table

Alternative	Total Miles	Impacts by Miles			Impacts to Residences by Distance Zone				Consistency with Management Plan Objectives for Federal Lands (BLM and USFS)				Number of Other Sensitive Viewing Areas Within 1 Mile of Alternative	Impacts on Interstate Highways (I-90/I-15)	
		High	Medium	Low	0-0.25 Mile	0.25-0.5 Mile	0.5-1 Mile	1-3 Miles	BLM		USFS			Number of Times Crossed Over	Miles Adjacent to Link/LRO within 0.25 Mile
									Total Miles	Miles Inconsistent	Total Miles	Miles Inconsistent			
<b>Zone 5</b>															
5A	107.4	14	25	68	4	3	2	54	45.1	15.9	NA	NA	5	0/1	0/0.5
5B	114	7	23	83	2	2	11	336	64.2	7.9	NA	NA	5	0/1	0/0.6
5C	117.5	16	52	49	49	108	263	3,525	43.7	13.9	NA	NA	4	0/1	0/0.6
5D	111.3	9	32	70	4	9	27	507	47.5	2.9	NA	NA	3	0/1	0/0.6
<b>Zone 6</b>															
6A	106.8	0.6	29.7	76.5	1	0	6	86	85.4	1.5	NA	NA	4	0	0

Note: Other Sensitive Resources include campgrounds, trails, and trailheads of national significance, historic trails, scenic highways, local parks, and fishing access facilities managed by state or federal agencies. See Appendix C.11.1 for a list of these resources.

- LRO14-2 (Willow Creek) would have a slightly greater visual impact than Link 14-2 in that it would have a high impact on 1.2 miles as opposed to the 0.2 miles associated with Link 14-2. Link 16-3c would have a greater visual impact than
- LRO16-3c (Clark Canyon East) because it would be routed closer to I-15 (would cross it twice), Clark Canyon Reservoir, Beaverhead Campground, High Bridge Fishing Access Site, the Lewis and Clark National Historic Trail, and the Beaverhead River. Link 16-3c would have a high impact on 3.5 miles while LRO16-3c would have no high impacts.
- The other LROs would have impacts that would be fairly similar to their link counterparts.

#### **3.11.4.3.3 Visual Impacts by Alternative**

Table 3.11-3 shows the visual impacts of each action alternative. It examines impacts by miles (high, medium, and low), displays the numbers of residences that would be located within various distance zones by alternative, identifies total miles of each alternative that would pass through BLM and NFS lands that would be inconsistent with the scenic or visual resource management directives for those lands, identifies the number of non-residential sensitive viewing areas (such as campgrounds, trails, and parks) near each alternative by distances zone, and depicts the numbers of times an alternative would cross an interstate highway (I-15 or I-90) and the miles of the alternative that would be located within 0.25 mile of it. Alternatives where a double circuit 500-kV line would be used are identified in the description of each alternative. This section then summarizes the impacts of alternative by zone and briefly compares and contrasts them.

#### **No Action Alternative**

Under the no action alternative the proposed project would not be built. There would likely be a range of changes to the appearance of the landscape the alternatives (and various links) would pass through without construction of the proposed project. In parts of the project area where the alternatives would follow existing transmission line corridors (where there are multiple lines), there is a very reasonable likelihood that at some point in the future additional transmission lines would be constructed within, or near, the existing corridors. Many of the impacts associated with the proposed project would occur if new lines were constructed. In portions of the project area that are near growing communities, it can be assumed that over time many of the communities would expand, and in some areas, new subdivisions would be developed and isolated rural residences constructed. Various factors such as the economy, fuel prices, wildfire patterns and suppression policies, insect and disease impacts to trees, and changes in land use planning influence the growth of communities and isolated residences. Over time, however, it can be expected that more residences will be in the vicinity of parts of the alternative's routes and that they would cause changes in the appearance of the landscape. On federal lands it can be assumed that the management policies and directions developed by the BLM and USFS will influence the appearance of the lands these agencies manage that the various alternatives and links would pass through. Projects dealing with energy production (wind power, in particular) and energy transmission (such as electrical, natural gas, and oil) may be constructed through these lands and change their appearance. Mining (particularly on BLM land) may continue to occur and change the appearance of the landscape near it as could timber harvest (for forest health or commerce) on parts of the BDNF. Agricultural expansion (or changes in crops) in parts of Montana and Idaho can be reasonably expected to occur over time depending upon factors such as water availability, climate change, public policy, technology, and market conditions. If agricultural practices change (for example, dryland farming replaces irrigated farming if water supplies decrease) or agriculture expands, the appearance of lands near some of the alternatives and links would also change. Other changes to the appearance of the project area would occur as forested areas are affected by insects and disease. It can be assumed that vast areas of forest in the project area would die, and in some areas dead trees would open up views and change the dense tree cover of parts of the project area until they are replaced by new growth.

#### **3.11.4.3.4 Zone 1–Alternatives**

The overall visual impacts of the Zone 1 alternatives would differ by alternative. Alternative 1A would be the northernmost alternative, and at 81.8 miles in length, the third longest. From the Townsend Substation it would travel around the southern end of the Elkhorn Mountains, pass through the upper Boulder Valley, be routed along the Boulder River Valley and over the Boulder Mountains, and descend into and pass through the Deer Lodge Valley to the Mill Creek Substation. This alternative would have the most (29) miles of high impact of any of the Zone 1 alternatives. It would also pass through the greatest amount of BLM land (13.9 miles) and NFS land (30.8 miles). It would be consistent with the visual management objectives of all the BLM lands and would be inconsistent for 24.4 miles within the BDNF. Alternative 1A route would pass within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones of the second fewest (111) number of residences of the Zone 1 alternatives. They would include isolated residences and some outside the communities of Holker, Radersburg, north of Boulder, and Opportunity. Alternative 1A would have the least visual impact on interstate highways of the Zone 1 alternatives.

The first third of the 90.2-mile Alternative 1B would travel southwest through foothills, valleys, and plains south of the Elkhorn Mountains to the I-90 corridor. Once in the corridor it would head west over the Boulder Mountains and through the BDNF, head down into the lowlands and valleys south of Butte, turn westerly, and then near Buxton would turn northwest over foothills and low valleys to the Mill Creek Substation. The route between Buxton and the Mill Creek Station (approximately 15 miles) would be double -circuited. Alternative 1B would have 26 miles of high impacts, most of which would be located near scattered residences and residences near the communities of Holker, Radersburg, Whitehall, Pipestone, Buxton, and Fairmont. It would have high impacts along the lower Boulder Valley (near SR 69 and Doherty Mountain), along the portion of the route that would follow the I-90 corridor that passes through the BDNF, and the two “corners” of the BDNF west of Buxton the alignment would pass through. Alternative 1B would pass through 7 miles of BLM land and be consistent with the visual management objectives of all 7 miles. It would travel through 6.5 miles of the BDNF and be inconsistent with the forest’s SIOs. Next to Alternative 1C, Alternative 1B would have the greatest visual impacts on interstate highways and be located within a mile of eight (which would be the most of the alternatives) non-residential viewing areas.

Alternative 1C would be the longest Zone 1 alternative (94.9 miles) and have the greatest overall visual impacts, but would have the next to lowest visual impact to federal lands. Alternative 1C would be routed along the western edge of the Missouri River valley for parts of the first quarter of its route. From the Three Forks area, it would head west along the I-90 corridor. From the SR 69 (Lower Boulder Valley) intersection with I-90, it would follow (with one exception) the same route as Alternative 1B to the Mill Creek Substation. The exception would be where it would head northwest along the Link 8-1 route between I-15 and a location south of Crackerville. The route between the node near Pipestone where Alternative 2C would begin and the Mill Creek Substation (approximately 36 miles) would be double circuit. Alternative 1C would have the second highest miles (27) of high impacts of the Zone 1 alternatives. Many of the areas of high impact would be near scattered residences and on the outskirts of communities such as Toston, Three Forks, Whitehall, Pipestone, Silver Bow, Miles Crossing, and Fairmont. Other areas of high impacts would include lands southwest of Toston near the Missouri River and the section of the route that would pass through the BDNF along I-90 in the Homestake area (which with this alternative would be double-circuited). Alternative 1C would pass by the most (426) residences within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones of the Zone 1 alternatives and have the greatest visual impact on interstate highways. Of the 6.5 miles of BLM land that Alternative 1C would pass through, it would be inconsistent with 0.1 mile of the VRM classification for this area. It would be inconsistent with all 4.8 miles of the BDNF (High SIO) it would pass through. Alternative 1C would pass within a mile of seven non-residential sensitive viewing areas.

Alternative 1D would have the least visual impact of any of the Zone 1 alternatives. Its route would follow Alternative 1B to a location just west of the Pipestone area (where it would connect with Alternative 2C). Because of its short length (54 miles), it would have the fewest miles (13 miles) of high impact. These impacts would occur near isolated residences and near the communities of Holker, Radersburg, Whitehall, and Pipestone. Alternative 1D would pass through the fewest miles of federal land (all BLM land with which it would be consistent), the fewest residences (80) in the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones and the fewest non-residential sensitive viewing areas (three), and would not cross I-90. It would be parallel to I-90 within 0.25 mile for 2.2 miles.

#### **3.11.4.3.5 Zone 2—Alternatives**

The Zone 2 alternatives would have a range of different kinds of visual impacts to different areas. For their first approximately 36 miles (between their starting point at the Mill Creek Substation to where they diverge west of Melrose), Alternatives 2A and 2B would follow the same route and their impacts would be the same. From their starting point at the Mill Creek Substation, both alternatives would head south through plains, valleys and foothills several miles west of small communities such as Opportunity, Crackerville, Fairmont, Finlen, Miles Crossing, and Buxton. Between the Mill Creek Substation and a location approximately 10 miles to the south, both Alternatives 2A and 2B would be double-circuited. Along this part of their route it would gain elevation and cross two corners of the BDNF and continue in a southern direction through the Fleecer Mountain Wildlife Management Area (the double-circuited portion of the two alternative's alignments would pass through the northernmost corner of the BDNF, but not the southern corner or the Fleecer Mountain State Wildlife Management Area.) The alternatives would continue south along the routes of Links 11-1 through 11-4, which generally follow the I-15 corridor and pass by the communities of Woodin and Melrose. Upon approaching Melrose, the two alternative routes would diverge with Alternative 2A following the route of Link 13 for another 13 miles to its end.

Alternative 2B would follow the route of Links 14-1 through 14-3 west of I-15 and closer to the interstate than Alternative 2A. High impacts along the portion of the route common to the two alternatives would generally be along portions of the routes near scattered residences in the vicinity of the communities mentioned previously, along I-15, and along the Big Hole River (see description of Link 11-4 impacts in Table 3.11-2). South of Melrose, Alternative 2A would have fewer areas of high impact than Alternative 2B because it would be located farther away from I-15 (and many residences) in a more remote area (see the description of Link 14-2 for this part of the Alternative 2B route). Overall, Alternative 2A would have 12 miles of high impact versus 16 miles with Alternative 2B. Both alternatives would pass by similar numbers of residences in the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones (85 and 94, respectively). Alternative 2A would pass through the most BLM land (30 miles) of all the Zone 2 alternatives and would be inconsistent with 1.0 miles of management direction (mostly in the Big Hole River area). Alternative 2B would cross over 7.6 miles of BLM land and be inconsistent with 3.6 miles. Both alternatives would pass through the same two corners (Links 9-1 and 9-2a) of the BDNF (1.7 miles), and both crossings would be inconsistent with management direction. Alternative 2A would follow I-15 within 0.25 mile for 5 miles, and Alternative 2B would follow I-15 within 0.25 mile for 19.3 miles. Both would cross it once. Alternative 2A would pass within a mile of six non-residential viewing areas, and Alternative 2B would pass within a mile of seven.

Alternatives 2C and 2D would both have the greatest number of high impact mileage (22 miles and 20 miles, respectively) of the Zone 2 alternatives. Alternative 2C would pass within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones of 251 residences, some of which are isolated but many of which are on the outskirts of communities such as Silver Star, Pipestone, south of Butte, Miles Crossing, and Finlen. Alternative 2C would follow the Alternative 1B route east from the Mill Creek Substation to a location west of Pipestone, where it would head south and cross I-90. It would

continue south and southwest along the Link 12 route through and adjacent to the Jefferson Valley before linking up with Alternative 3B. Alternative 2C would pass through 23.4 miles of BLM land and be inconsistent with 0.5 miles at the I-90 crossing. It would pass through the same 4.8 miles of the BDNF near Homestake that several of the Zone 1 alternatives would travel through, plus the 1.4 miles of Links 9-1 and 9-2a. It would be inconsistent with the High and Moderate SIOs of the areas it would pass through. This alternative would pass within a mile of five non-residential sensitive viewing areas (which would be fewest of the Zone 2 alternatives). Alternative 2C would cross I-90 and I-15 twice.

Alternative 2D would travel to the west of the other Zone 2 alternatives for most of its route and pass through the greatest amount of federal land (34.3 miles). It would head east from the Mill Creek Substation north of the community of Opportunity and turn south and travel over plains and foothills along the Link 25 route before turning southeast to enter the foothills and mountainous terrain of the BDNF. After leaving the BDNF and passing through the Fleecer Mountain State Wildlife Management Area, it would wend its way south along routes that would be farther east (Link 30) than the other Zone 2 alternatives. It would also be the westernmost (along the Links 31, 32, and 33 routes) of Zone 2 alternatives for most of its route. As mentioned above, Alternative 2D would have 20 miles of high impacts, mostly near the community of Finlen, through the BDNF, at the crossing of I-15 and the Big Hole River and near isolated residences. It would pass within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones of 114 residences, many of which are isolated residences but others which are near the communities of Opportunity, Fairmont, Finlen, and Divide. Alternative 2D would cross I-15 twice. Alternative 2D would pass within a mile of the most (10) non-residential sensitive viewing areas of the Zone 2 alternatives.

Alternative 2E would be the shortest Zone 2 alternative (53.6 miles) and would follow the Route 12 alignment south of I-90. Its 7 miles of high impact would occur near 11 scattered residences in the Jefferson Valley within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones. The Beaverhead River and I-15 crossing would also be high impacts. Approximately 21.3 miles of BLM lands would be crossed by the alternative, of which 0.5 mile at the I-90 crossing would be inconsistent with the VRM it would cross through. It would cross both I-90 and I-15 one time.

#### **3.11.4.3.6 Zone 3—Alternatives**

The overall visual impacts of the Zone 3 alternatives would be fairly similar. All three would be very similar in terms of mileage of high impacts (less than 2 miles difference between them for alternatives ranging from 67 to 72 miles in length). In terms of numbers of residences that the alternatives would pass by in the immediate foreground (0 to 0.25 mile) zone and foreground (0.25 to 0.5 mile), Alternative 3C would pass by slightly fewer residences (16 versus 21 and 24). The routes of all three alternatives would cross BLM lands rather than National Forest lands. Alternative 3C would be inconsistent with BLM management objectives for 1.2 mile, and Alternative 3B would be inconsistent with these objectives for 0.8 mile; Alternative 3A would be inconsistent with these objectives for 0.3 mile. The three alternatives would pass four or five non-residential sensitive viewing areas.

The primary differences between the alternatives would be where the impacts would occur. Impacts along the routes of the three alternatives south of Dell would be the same because the alternatives would follow the same route. North of Dell, the alternatives would have impacts to different areas. Most of the Alternative 3A high impacts (8.2 miles) would be to recreational areas along the west side of Clark Canyon Reservoir (Clark Canyon State Recreation Area and the Lewis and Clark National Historic Trail) and to residential areas on the west side of the Red Rock River Valley south of Clark Canyon Reservoir.

High impacts related to Alternative 3B (10 miles) would consist of impacts near scattered residences and near the place where its route would approach (from the north) and cross the Beaverhead River and I-15,

approximately 6 to 7 miles north of the Clark Canyon Reservoir. This area contains the Beaverhead River and associated fishing access sites, the Lewis and Clark National Historic Trail, and the Ney Ranch Recreation Site. The presence of the proposed transmission line would not be consistent with the area's VRM of Class III. Other areas of high impacts associated with Alternative 3B would include approximately 3.5 miles of it north of Clark Canyon Reservoir (and adjacent to I-15), several areas on the west side of the Red Rock River Valley, residential areas on the outskirts of Lima, and where it would cross I-15.

The high impacts associated with Alternative 3C (9.0 miles) would also occur where its route would approach the Beaverhead River and cross it and I-15. The crossing would be approximately 1 mile south of the Alternative 3B crossing. From this crossing point, Alternative 3C would follow the same route as Alternative 3B and have the same high impacts as those described in Alternative 3B.

#### **3.11.4.3.7 Zone 4–Alternative 4A**

Zone 4 has one alternative. Alternative 4A is composed entirely of Link 18. The impacts associated with Link 18 (highlighted in Table 3.11-2) would apply to Alternative 4A. Of the route's 20 miles, 9.3 miles would be high impact. High impacts would occur in the vicinity of residences, where the route would cross the Continental Divide National Scenic Trail, I-15, the Nez Perce National Historic Trail, and where it would cross through the CTNF. Alternative 4A would pass within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones of 49 residences. The route would travel through 0.7 mile of BLM land and be inconsistent. Of the 5.5 miles of the CTNF it would travel through, all 5.5 would be inconsistent with the area's VQO of Retention. It would cross over I-15 once and parallel it within 0.25 mile for 5.8 miles.

#### **3.11.4.3.8 Zone 5–Alternatives**

The Zone 5 alternatives have the greatest lengths of all the zones and pass through the greatest amount of federal lands. At 107.4 miles in length, Alternative 5A would be the shortest alternative. From its starting point north of Dubois, it would travel southwest over sparsely populated areas to the northern boundary of the DOE where it would pass south through 39 miles of the facility before exiting and continuing south to its end point. Alternative 5A would have 14.4 miles of high impacts that would be located near scattered residences, the crossing of I-15, several areas where it would parallel and/or pass over the Nez Perce National Trail and Goodale's Cutoff historic trail (two locations), the Lost Gold Trails Loop Idaho Scenic Byway, and the Sacajawea Idaho Scenic Byway. It would also pass through a BLM area with a VRM of Class II. Of the 45.1 miles of BLM land that the alternative would pass over, it would be inconsistent with the visual management objectives of 15.9 miles. Alternative 5A, like the other alternatives, would pass within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones of few residences compared to other zones (see Table 3.11-3). It and the other Zone 5 alternatives would also cross over I-15 once and parallel it for between 0.5 and 0.6 miles.

Alternative 5B (114 miles) would travel in a southerly direction several miles east of I-15. At a location several miles west of Roberts, it would turn, cross I-15, and head southwest and south to a location west of Pinegree. From Pinegree, it would head west to its end point. Alternative 5B would cross the most BLM land (64.2 miles) of all of the alternatives, but be inconsistent with the second least amount (7.9 miles) of the Zone 5 alternatives. It would have the least amount (7.5 miles) of high impact of the Zone 5 alternatives. Areas of high impact would include scattered residences, Goodale's Cutoff historic trail and where it would parallel and cross over SR 20.

Alternative 5C would pass closer to the numerous communities and groups of residences located west and/or northwest of the cities of Idaho Falls and Blackfoot. As a result, Alternative 5C would pass by the

largest number of residences within the immediate foreground (0 to 0.25 mile) and foreground (0.25 to 0.5 mile) zones (157) of any of the Zone 5 alternatives. It would also have the greatest amount of high impact (16 miles), much of which would be near the scattered residences and residential areas. The 13.9 miles of route that would not be consistent with BLM visual management objectives is the second greatest of the Zone 5 alternatives.

Alternative 5D would follow the Alternative 5B route for much its 111 miles. It would have very similar visual impacts as those described above for Alternative 5B. In the portion of the Alternative 5D route that would be different (Link 40) it would have high impacts near some scattered residences. Alternative 5D would pass by three non-residential sensitive viewing areas.

#### **3.11.4.3.9 Zone 6—Alternatives**

Zone 6 has one alternative. Alternative 6A is comprised of the 108.6-mile Link 24, which would begin 7 miles south of Coffee Point, travel west then southwest to the Craters of the Moon National Monument and Preserve boundary, head south along the monument boundary joining an existing transmission line corridor, then west to the Midpoint Substation. The landscape is generally flat, and viewers can see for long distances. Alternative 6A would parallel existing 230-kV and 138-kV transmission lines for approximately 37 miles. Impacts would be low along most of the link, reflecting distance from sensitive viewing areas. High impacts would occur where Link 24 would cross Crystal Ice Cave Road, the primary public access to the southeast side of the Craters of the Moon National Monument and Preserve. About 20 miles of the link would parallel the eastern boundary and about 6 miles would parallel the southern boundary of the Craters of the Moon National Monument and Preserve, the Great Rift WSA and the Great Rift NNL. The Craters of the Moon National Monument and Preserve management plan has a goal of perpetuating scenic vistas and open western landscapes for future generations (BLM 2007). Although the Link 24 would not directly cross any NPS lands, it would be within the foreground (0 to 0.50 mile) of approximately 13 miles of the southeastern and southern boundary. For the occasional visitor looking outside the monument near these boundaries, the landscape would be dominated by the transmission line with a background of center pivot irrigated agricultural land to the east and numerous existing power lines and a railroad to the south. One mile would parallel the southern boundary of the Shale Butte WSA, creating a moderate visual contrast that would be inconsistent with the VRM objective. One residence would be in the immediate foreground (0 to 0.25 mile) zone, none in the foreground (0.25 to 0.5 mile) zone, and six in the near middleground (0.5 to 1 mile) zone.

#### **3.11.3.4 Climate Change**

As described in Section 3.3.4.6 (Biological Resources: Climate Change) native plant species and communities that are adapted to local and/or regional climatic conditions will, over the long-term, likely be affected by climate change. These changes will alter the appearance and landscape character of many landscapes in the project area. Most scientists currently expect climate change in the project area to result in general shifts in plant communities northward and upward in elevation (Chambers and Pellant 2008). This could influence several changes in appearance of areas the various links and LRO's would pass through. Among these changes would be that the southern limit for some sagebrush communities may shift to the northern portions of the Great Basin which would be especially important in the Idaho and southern Montana portions of the project area. Although the appearance of the areas the various links and LROs would pass that currently contain sagebrush communities may change, the appearance and impacts of a transmission line and its associated components likely would not change. This would be because views of the transmission lines in sage brush communities are typically not screened by vegetation, and unless sagebrush communities are replaced by trees, the visibility of transmission lines would likely not change.

It is very likely that invasive plant species will continue to expand. The expansion of exotic annual grasses may change the fire regime of the areas they invade and ultimately could result in conversion of native perennial shrublands such as sagebrush to non-native annual grasslands. Although this would change the visual qualities and character of landscape found in the project area, because both native shrublands and non-native annual grasslands are low in stature (and do not screen views of transmission lines), the change would have little effect on the visibility of the various links and LROs transmission lines and their associated components, thus having little influence on visual impacts.

Changes in the appearance of areas near river crossings where riparian communities currently exist might occur over time. It seems probable that riparian habitats could become scarcer over time and that the screening effect of riparian trees on near-by transmission lines and their associated components when viewed from rivers, or river banks, could change if riparian trees die.

As described in Section 3.3.4.6 (Biological Resources: Climate Change) it is possible that over next 50 years, forest productivity will increase because of the fertilizing effect of atmospheric carbon dioxide, strongly tempered by local environmental conditions (Joyce et al. 2001). On the other hand, many researchers conclude that the increase in productivity would be offset by a shrinking land base of suitable sites, predicting that the potential range for forests would first expand through the 2020s, recede to present day limits by 2050, and continue shrinking through 2080, the end of the analysis period. Off-setting that scenario is the likelihood even warmer conditions would likely result in drought-induced losses of forest, possibly enhanced by increased occurrences of severe fires, insect attack and a decrease in sites suitable for lodgepole pine production. Either of these scenarios could change the character of the landscape in many forested areas where the various links and LROs would be located. If there is an increase in the number of trees in an area the links or LROs would pass through, there would be more trees available to potentially screen views of the transmission line, its cleared ROW and other components. On the other hand, more trees could result in more cleared ROW, which in many settings are one of the most visible components of a transmission line. Conversely, if the number of trees in an area decreases, their screening function would be lost, and the transmission line and/or its components might become more visible to viewers. On the other hand, a decrease in cleared ROW through forested areas would decrease the amount of cleared ROW, which as previously stated, is one of the more visible components of a transmission line.