

10.1 Introduction

This chapter describes the impacts on visual resources that would result from construction and operation of each of the build alternatives. The sections that follow describe the visual resources study area, the methods used to analyze the impacts, the affected environment, and the impacts of the build alternatives on visual resources. The regulations and guidance related to visual resources are summarized in Section 10.6, *Applicable Regulations*. Appendix O, *Visual Analysis Context and Methods*, provides further information on the *key observation points*¹ (KOPs), which are locations from which the proposed rail line could be observed in the landscape. The appendix also addresses the conceptual rendering assumptions and the scenic quality rating summaries recorded in the field. The contribution of the proposed rail line to cumulative impacts on visual resources is discussed in Chapter 18, *Cumulative Impacts*.

In summary, all of the build alternatives would result in similar types of visual impacts because they would all require vegetation removal, landform changes, building removal, roadway relocations, new culverts, and new bridge structures. All of the build alternatives would affect *sensitive viewers* (viewers considered sensitive to changes in their visual environment such as homeowners, commuters, tribal members, and recreationists). Because of their lengths, the Tongue River Alternatives, Tongue River Road Alternatives, and Moon Creek Alternatives would have the most impacts on visual resources and sensitive viewers. The shorter Colstrip Alternatives and Decker Alternatives would have fewer impacts. OEA concludes that these adverse impacts would range from minor to moderately adverse.

10.2 Study Area

OEA defined the study area for visual resources as the *project viewshed*. A viewshed is the area that is visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (Federal Highway Administration 1988:26–27). A viewshed includes the foreground zone (up to 0.5 mile from the viewer), the middleground zone (0.5 mile to 3 miles from the viewer), and the background zone (from 3 to 5 miles to infinity) (Litton 1968:3). Generally, the study area covers a 30-mile area surrounding the build alternatives.

¹ Terms italicized at first use are defined in Chapter 25, *Glossary*.

10.3 Analysis Methods

OEA used the following methods to evaluate the impacts of construction and operation of the build alternatives on visual resources.

- **OEA identified key concepts for visual assessment.** The aesthetic value of an area is a measure of its *visual character* and *visual quality*, combined with the *viewer response* to the area (Federal Highway Administration 1988:26–27, 37–43, 63–72). *Viewer sensitivity* expresses the degree to which a viewer would notice or be concerned about a change in visual resources. Appendix O, *Visual Analysis Context and Methods*, provides detail on these concepts and terms and their use in visual resource assessment.
- **OEA identified KOPs.** OEA identified KOPs within a 2-mile radius of the rights-of-way of the build alternatives. This represents the distance to the middle portion of the middleground in which elements of the build alternatives would be visible. At greater distances, the mass and visibility of the project elements would be reduced. OEA photographed KOPs from April 15 through 16, 2013, (spring) and from August 12 through 14, 2013 (summer). The locations of these KOPs are shown in Figure 10-1 and the corresponding photographs are included in Appendix O, *Visual Analysis Context and Methods*.
- **OEA analyzed the physical context.** OEA analyzed the physical context of the build alternatives via three steps.
 - Identified the visual features of the landscape form, including any designated scenic vistas or state scenic highways.
 - Assessed the character and quality of those resources relative to overall regional visual character.
 - Determined the importance of these visual resources to sensitive viewers.
- **OEA rendered key observation points.** OEA produced computer-generated conceptual renderings to evaluate visual changes that would result from implementation of each build alternative. These rendered key observation points (RKOPs) illustrate specific project elements from 13 locations. OEA selected vantage points to provide representative public and private views from which specific project elements would be visible. RKOP locations are identified in Figure 10-1 and the renderings are provided in Section 10.5, *Environmental Consequences*, Figures 10-2 through 10-14. Appendix O, *Visual Analysis Context and Methods*, describes the approach to select, prepare, and analyze the renderings and describes the RKOPs in detail.
- **OEA rated the RKOP visual characteristics.** OEA used BLM’s Visual Resource Management (VRM) system to assign scenic quality rating scores to each RKOP. OEA prepared rating forms for both existing and rendered RKOPs and assessed the scenic quality of each based on landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications to determine how existing and rendered views would differ

and contrast from one another. The evaluation forms are provided in Appendix O, *Visual Analysis Context and Methods*, and the resulting scenic quality rating scores are summarized in Appendix O, Table O-3. The scenic quality ratings are representative of changes that are likely to occur at other locations in the study area and across all build alternatives, and are not exclusive to a particular build alternative. A reduction in scenic quality rating constitutes an impact. The resulting classification (Classes I, II, III, IV) indicates how BLM lands will be managed to protect visual resources, as described in Appendix O, *Visual Analysis Context and Methods*. The scenic quality rating scores are defined as follows.

- A rating indicates a very high visual quality.
- B rating indicates a high visual quality.
- C rating indicates a moderately high visual quality.
- D rating indicates a moderate visual quality.
- E rating indicates a moderately low visual quality.
- F rating indicates a low visual quality.
- G rating indicates a very low visual quality.

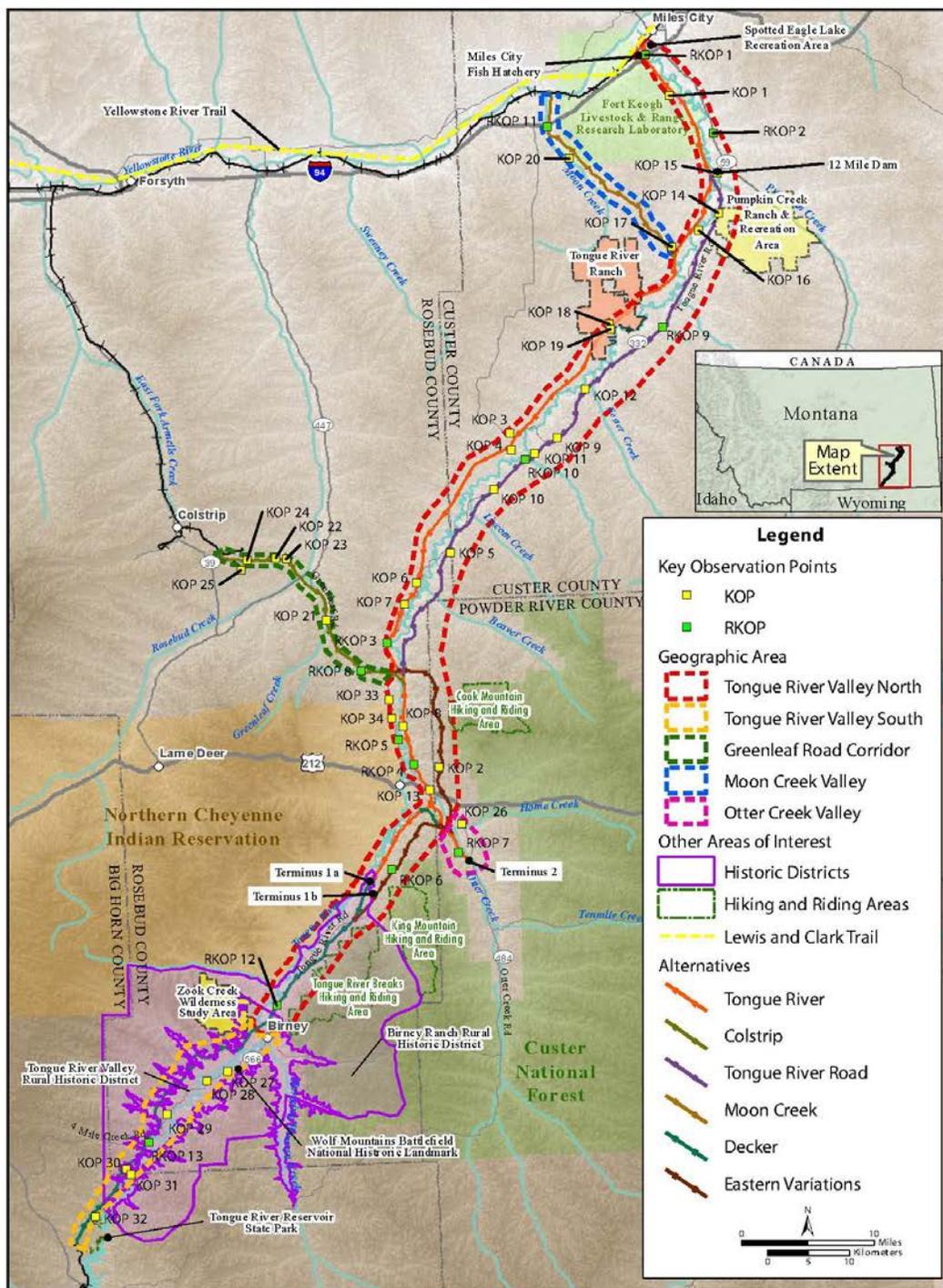


Figure 10-1. Key Observation and Rendered Key Observation Point Locations

10.4 Affected Environment

The study area is located at the northwestern edge of the Great Plains geographic region, within 150 miles of the Rocky Mountain geographic region. The natural environment reflects a transition zone between the two regions and comprises small plains intermixed with hills and mountains. Small valleys, streams, plateaus, and buttes make up this topographically varied landscape. Grasslands and pasturelands mixed with silver-green sagebrush grow on flatter lands and up hillsides that also support evergreen forests. Exposed substrate reveals multicolored rock faces, boulders, gravels, and soils. In this natural environment, the visual landscape is mostly intact and unaltered by humans. Outstanding scenic views result from the varied landforms against vast skies within a fairly undeveloped landscape that combine with an absence of distracting anthropogenic (i.e., human-made) features, such as large-scale buildings and transportation structures and large amounts of visible utility infrastructure that are inharmonious with the rural landscape. The study area is high in vividness, intactness, and unity; the resulting visual quality is high.

The natural environment consists of five broad geographic areas, shown on Figure 10-1: Tongue River Valley North, Moon Creek Valley, Greenleaf Road Corridor, Otter Creek Valley, and Tongue River Valley South. The built environment is described in terms of developed areas, light sources, and roadways and infrastructure. These characteristics are typical of the more developed areas of Miles City, Colstrip, and Ashland, as well as smaller communities in the study area. The characteristics of the natural and built environments are provided in Appendix O, *Visual Analysis Context and Methods*.

Within the study area, several land categories share similar visual characteristics based on their location in the landscape. These land categories are the Bureau of Land Management (BLM), tribal, state, recreational, and private lands and lands that support Section 106 of the National Historic Preservation Act resources; all are described in Appendix O, *Visual Analysis Context and Methods*.

Viewers in the study area include unaffected viewers, rural viewers, tribal viewers, roadway viewers, recreational viewers, and viewers who reside or work in the Colstrip Subdivision. The sensitivity of these viewers to visual change ranges from high sensitivity (rural residents, tribal residents, recreational viewers) to moderate sensitivity (travelers on local roadways, viewers in the Colstrip Subdivision) to with low sensitivity (travelers on freeways. Categories of viewers are described in Appendix O, *Visual Analysis Context and Methods*.

10.5 Environmental Consequences

Impacts on visual resources could result from construction and operation of any build alternative. The impacts common to all build alternatives are presented first followed by impacts specific to the build alternatives.

10.5.1 Impacts Common to All Build Alternatives

All of the build alternatives would require vegetation removal, landform changes, building removal, roadway relocations, new culverts, and new bridge structures. All of the build alternatives would traverse scenic landscapes and would affect sensitive viewers. Therefore, all of the build alternatives would result in similar types of visual impacts. The severity and intensity of these impacts would depend on the change to the viewscape, on viewer sensitivity, and on proximity of the viewer to the build alternative. The longer build alternatives would result in more visual resource impacts than the shorter build alternatives.

Table 10-1 summarizes impacts of the proposed rail line for typical RKOPs in the study area and indicates changes in visual quality ratings. The table also indicates which build alternatives could affect each RKOP although, again, all of the build alternatives would result in similar impacts. These RKOPs are shown in Figures 10-2 through 10-14 and the criteria for selecting these sites are discussed in Appendix O, *Visual Analysis Context and Methods*.

Table 10-1. RKOPs Typical of All Build Alternatives in the Study Area

RKOP	KOP Rating (Existing Vista)	RKOP Rating (Post-Project Vista)	Difference in Rating	Build Alternatives Affected	Reason for Change in Rating
1	E	E	–	Tongue River Tongue River East Tongue River Road Tongue River Road East	The build alternative would not stand out. Underpass would be similar to current underpass. Build alternative would be at-grade, comparable to existing transportation infrastructure, would require limited vegetation removal, and would be viewed by motorists passing by at high speeds.
2	C	D	-1	Tongue River Tongue River East Tongue River Road Tongue River Road East	The build alternative would add a geometric landform to a natural viewshed but would not dominate the viewshed. Small to large areas of cut slopes would result in landscape scars, and small to large areas of fill would result in new landforms. Large areas would be denuded of vegetation.
3	B	C	-1	Tongue River Tongue River East	The build alternative would require road relocation but the relocated roadway would blend with surrounding terrain. The build alternative would disrupt the gently sloping terrain at the base of the hills, create a notch in the distance hillside, and introduce an industrial-looking feature into a rural landscape.
4	C	D	-1	Tongue River Tongue River East Colstrip Colstrip East Moon Creek Moon Creek East	The build alternative would require visible at-grade road crossings but the relocated roadway would blend with surrounding terrain. The build alternative would cut and fill large areas, which would be prominent in the foreground. Mature vegetation would be removed. While the relocated roadway would blend with the terrain, the rail tracks would add industrial features.
5	C	C	–	Tongue River Tongue River East Colstrip Colstrip East Tongue River Road Tongue River Road East Moon Creek Moon Creek East	The build alternative would cut a large slope and would require vegetation removal; however, the build alternative would not dominate the viewshed. Landform alterations would blend in because of natural color striations and presence of existing exposed earth that is visible on the hillsides. This RKOP is representative of the impacts that could occur from other available vantages on the Northern Cheyenne Indian Reservation as seen from Tongue River Road.
6	C	E	-2	Tongue River East Colstrip East Tongue River Road East Decker East	The build alternative would introduce fill and a geometric landform into a natural landscape. Large earthen berms would create visual masses segmenting views. Riparian vegetation would be removed where culverts are required.

RKOP	KOP Rating (Existing Vista)	RKOP Rating (Post-Project Vista)	Difference in Rating	Build Alternatives Affected	Reason for Change in Rating
7	C	C	–	Tongue River Tongue River East Colstrip Colstrip East Tongue River Road Tongue River Road East Moon Creek Moon Creek East Decker Decker East	The build alternative would introduce a linear feature into a natural rolling landscape. A culvert would be introduced and vegetation would be removed; however, these changes would not be visually prominent. Vegetation removal would be visible, which would slightly detract from the quality of the view.
8	B	D	-2	Colstrip Colstrip East Tongue River Road Tongue River Road East	The build alternative would introduce a prominent bridge structure over Greenleaf Creek, blocking and segmenting views of the terrain and pastureland. Views of water bodies would be blocked. Large-scale embankments and lattice steel and concrete structures would be introduced. The reclaimed roadway bed would blend with existing pastureland and complement the surrounding terrain.
9	D	E	-1	Tongue River Road Tongue River Road East	The build alternative would introduce geometric features into a natural landscape. Culverts would block views of the stream. Road relocation would modify landforms and require vegetation removal.
10	C	D	-1	Tongue River Road Tongue River Road East	The build alternative would introduce bridges and embankments that would segment views and require vegetation removal. Lighter landforms and the gray lattice steel bridge would contrast with surrounding vegetation.
11	D	E	-1	Moon Creek Moon Creek East	The build alternative would segment views of agricultural land and require vegetation removal in a flat landscape. It would alter the existing landform by creating a sunken railbed to cross under I-94 and remove grassland vegetation. It would split parcels, disrupting the continuity of agricultural land and affecting free-flowing access from lands on either side of the build alternative.
12	C	D	-1	Decker Decker East	The build alternative would introduce safety signals and require road relocation but would not alter landforms. It would split parcels, disrupting the continuity of agricultural land and affecting free-flowing access from lands on either side of the build alternative.

RKOP	KOP Rating (Existing Vista)	RKOP Rating (Post-Project Vista)	Difference in Rating	Build Alternatives Affected	Reason for Change in Rating
13	C	D	-1	Decker Decker East	The build alternative would require large amounts of cut and fill and vegetation removal. Fill would create dam-like embankments.

Notes:

KOP = key observation point; RKOP = rendered key observation point

A rating indicates a very high visual quality

B rating indicates a high visual quality

C rating indicates a moderately high visual quality

D rating indicates a moderate visual quality

E rating indicates a moderately low visual quality

F rating indicates a low visual quality

G rating indicates a very low visual quality





Figure 10-3
Existing View and Conceptual Rendering—RKOP 2



Figure 10-4
Existing View and Conceptual Rendering—RKOP 3



Figure 10-5
Existing View and Conceptual Rendering—RKOP 4

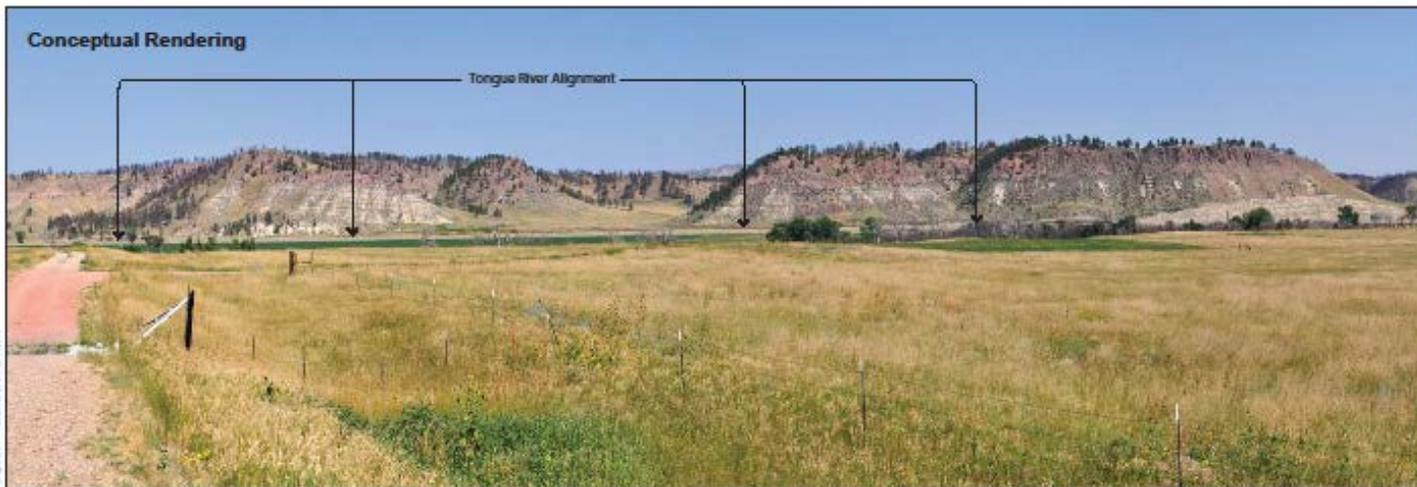


Figure 10-6
Existing View and Conceptual Rendering—RKOP 5



Figure 10-7
Existing View and Conceptual Rendering—RKOP 6



Figure 10-8
Existing View and Conceptual Rendering—RKOP 7

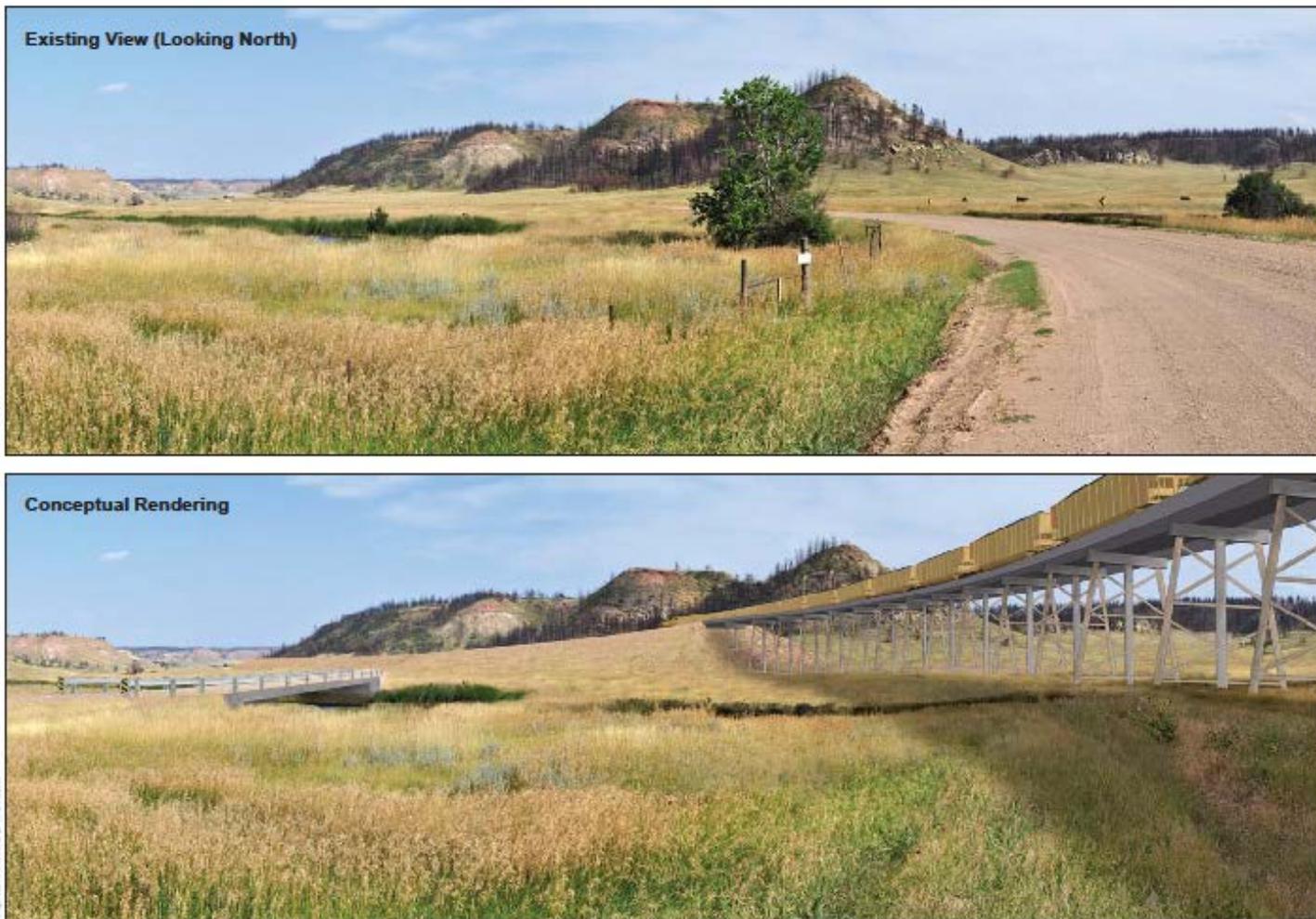


Figure 10-9
Existing View and Conceptual Rendering—
Colstrip Alternative from RKOP 8



Figure 10-10
Existing View and Conceptual Rendering—RKOP 9



Figure 10-11
Existing View and Conceptual Rendering—RKOP 10



Figure 10-13
Existing View and Conceptual Rendering—RKOP 12



Figure 10-14
Existing View and Conceptual Rendering—RKOP 13

10.5.1.1 Construction

Visual changes resulting from introducing construction activities and equipment into the viewsheds of all user groups would be short term and temporary. Construction would migrate along the corridor of each build alternative and would range from 20 months over a period of 2.5 years to nearly 50 months over approximately 6 years, depending on build alternative and whether an 8-month or 12-month construction schedule is adopted (Chapter 2, Section 2.2.9, *Construction Schedule*). This would affect rural viewers, roadway travelers, and recreationists adjacent to or in the construction corridor. Impacts would be greater where there are more viewers and where more of the build alternative would be visible. Although tribal lands would not be immediately adjacent to the construction corridor of any build alternative, viewers from tribal lands would see construction occurring in the middleground from the reservation. All viewer groups are likely accustomed to seeing machinery, trucks, and vehicles on or near the roadway as agriculture and ranching require the use of such equipment, but construction of the proposed rail line would involve heavy machinery that is not commonly used in a rural environment. In addition to these general impacts, the following construction impacts would be common to all build alternatives.

- **Introduce Industrial-Looking Elements into the Viewshed**

Construction activities for any build alternative would introduce heavy equipment and associated vehicles such as dozers, graders, scrapers, and trucks, into the viewshed. The locations of construction staging areas and associated facilities in the right-of-way would be determined in the design process. Depending on location, viewers could see staging areas with temporary field offices, worker parking, and equipment and materials storage areas, which would add industrial-looking elements into viewsheds that are largely rural in nature.

- **Increase Fugitive Dust in the Viewshed**

Construction activities involving heavy equipment use, soil and material transport, and land clearing in the right-of-way, along public roadways, and at construction staging areas would create fugitive dust.

- **Introduce Temporary Nighttime Lights into the Viewshed**

If nighttime construction activities occur, lighting equipment could create glare that might affect sensitive viewers adjacent to the right-of-way.

- **Invade Privacy of Rural Viewers**

Rural viewers could have construction activities occurring adjacent to their homes and agricultural buildings or nearby, evoking a sense of invaded privacy.

10.5.1.2 Operation

Visual changes resulting from operation would affect rural viewers, roadway travelers, and recreationists adjacent to the build alternative. Although tribal lands would not be immediately adjacent to the corridor of any build alternative, viewers from tribal lands would see permanent visual changes and rail operation in the middleground from the reservation. The following operation impacts are common to all build alternatives. The intensity of the impact would vary depending on number of viewers present, proximity of viewers to the build alternative, degree of physical change in the landscape, visibility of the physical change and build alternative, volume of train traffic, and required maintenance. The following operation impacts are common to all build alternatives.

- **Introduce Permanent Nighttime Lights into the Viewshed**

Rural residences and vehicle lights near all build alternatives currently provide nighttime lighting, and any build alternative would introduce a small source of light from the train headlight when traveling at night. However, the trains would move through the study area at a high speed, would not introduce a fixed source of new lighting, and would not affect most viewer groups.

- **Disrupt the Vividness, Intactness, and Unity of All Viewsheds**

Rail operation would disrupt the vividness, intactness, and unity of all viewsheds by adding industrial infrastructure to the rural landscape and breaking up the compositional balance between natural landforms and vegetation and by changing natural landscapes to a rail corridor. RKOPs 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, and 13 illustrate this common impact.

The visibility of all build alternatives would vary seasonally and under changing atmospheric conditions. Elements of the proposed rail line would be more apparent in the spring when the built features would contrast more with natural features. For example, darker green grasses contrast against lighter browns, pinks, tans, grays, and oranges of landscape scars, earthen embankments, unvegetated rights-of-way, and road relocations and the grays of built features such as bridges and culverts. Conversely, the proposed rail line would be slightly less visible in the summer and fall when it would blend in with the brown grass and exposed earth. In the winter and early spring, features of the proposed rail line could be obscured by snow, which would apply a uniform white cover over the landscape, obscuring features of the build alternative. Deciduous trees would partially obscure portions of the proposed rail line when in leaf and reveal more views when leafless. Large-scale forest fires in the area have left behind hillsides with few shrubs, little herbaceous vegetation, and charred trunks. Once the forest begins to regrow, over many years, these areas would provide visual buffer from the proposed rail line.

- **Disrupt Visual Continuity of the Agricultural Landscape**

All build alternatives would disrupt the visual continuity of agricultural land, which currently tends to comprise large swaths of uninterrupted land. The degree of visual disruption would depend on the existing terrain and degree of modification, presence or absence of vegetation, and degree of vegetation removal, and the viewer's position in the landscape. The proposed rail line would also disrupt the visual continuity of water bodies (refer to Chapter 9, Section 9.5, *Wetlands*, for additional discussion on these features). The build alternatives would be even wider and more visually pronounced around the 8,500-foot passing sidings and 500- to 4,000-foot set-out tracks. Rural viewers may experience loss of land, fencing, or other landscape features of personal importance. RKOPs 1, 2, 3, 5, 6, 7, 9, 10, 11, and 13 illustrate this common impact.

- **Alter Natural Landforms**

All build alternatives would alter natural landforms in the viewshed, which are described in more detail in Appendix O, *Visual Analysis Context and Methods*. Large areas of cut would remove portions of hillsides and plant cover, leaving behind large landscape scars. Large, long areas of fill in valleys would create substantial earthen berms and introduce raised visual masses between peaks and valleys. These features would often be parallel to local roadways and cross rivers and streams. Viewers can currently see along affected rivers and streams where the waterway may bend and disappear from view behind vegetation and terrain. These berms would create visual masses that would shorten and limit views up and down these curving waterways. These new landforms and structures would also require new culverts under the tracks where streams previously flowed freely. RKOPs 2, 3, 5, 6, 8, 9, 10, 12, and 13 illustrate this common impact.

- **Remove Vegetation**

Areas of cut and fill would remove portions of plant cover on hillsides and flat areas, including grassland areas, shrubs, and mature trees. Vegetation improves visual quality and help screen built features in the landscape. Vegetation removal would make landscape scars and the proposed rail line more visually prominent.

- **Introduce Engineered Vertical Features**

All build alternatives would introduce engineered vertical features across unaltered natural landforms that could disrupt and detract from views of the surrounding landscape. Bridge crossings would create visual masses that segment views upstream and downstream of the bridge. These features also would likely require the removal of riparian vegetation. RKOPs 6, 8, 10, and 13 illustrate this common impact.

TRRC would construct up to six new telecommunications towers. These towers would add tall vertical elements where few to no such features currently exist that would affect visual resources depending on their placement in the landscape; the height, mass,

materials, and associated appurtenances of the structure; and the presence of sensitive viewer groups.

TRRC would install single-phase distribution lines to power the signal system and detectors in areas where few to none currently exist. The lines would consist of two conductors strung on wood-pole structures that are 30 to 50 feet in height, spaced no more than 250 feet apart. Although common along public roadways and on private land easements, single-phase distribution lines are uncommon in most of the study area, particularly along Greenleaf Road and the southern portions of Tongue River Road. New distribution lines would introduce tall vertical features in the areas where they do not currently exist. While new lines would tie into the closest existing line, the addition of new infrastructure associated with the lines would still detract from the visual environment.

All vertical features could disrupt views of the surrounding landscape by detracting from the visual quality of the viewshed, altering the visual landscape to accommodate construction of such features (e.g., vegetation removal and landform modification), or obscuring or limiting visible portions of the surrounding landscape, including the hills and sky.

- **Affect Views on BLM Lands**

All build alternatives would result in visible changes to BLM lands from the introduction of rail line infrastructure, rail operation, large areas of cut and fill, areas of vegetation removal, and potentially new drainage culverts, as described above. While the trains would stand out in some locations and attract viewers' attention on BLM VRM Class III lands crossed by build alternatives north of State Route (SR) 212, the proposed rail line would partially retain the characteristics of the existing visual environment. BLM VRM Class III lands allow for such modifications, so there would not be visual impacts on these parcels. The same is true for BLM VRM Class IV parcels north of SR 212, which allow for major modification to the existing visual character.

Changes to BLM VRM Class II lands crossed by build alternatives south of SR 212 would be the same as those described for VRM Class III parcels. However, VRM Class II parcels have a higher standard of visual management. The proposed rail line would stand out to varying degrees, would not reflect the characteristics of the existing visual environment, would attract viewers' attention, and would therefore result in visual impacts on VRM Class II parcels.

VRM Class I lands in the southern portion of Zook Creek Wilderness Study Area would not be affected by any build alternative.

No existing buildings or residences on BLM lands would be removed for construction of any build alternative (Table 10-2).

- **Create Visual Discordance in the Landscape from Landscape Maintenance**

All build alternatives would require routine vegetation maintenance in the right-of-way, along the rail line footprint, on access roads, and around communications towers. Viewers may see vegetation-clearing activities. Because farming and road maintenance are prevalent in the study area, these activities and equipment within the right-of-way would not likely constitute a visual impact.

- **Alter Views by Relocating Roads and Installing Grade Crossings**

A number of public and private roads affected by all build alternatives would be relocated. TRRC would install grade crossings where the build alternative would cross a roadway. These changes would be visible to rural viewers, roadway travelers, and recreationists. RKOPs 1, 3, 4, 8, 9, and 12 illustrate this common impact.

10.5.2 Impacts by Build Alternative

The impacts on visual resources that are specific to each build alternative are described below and are represented in the following table.

- Table 10-2 shows the visual characteristics of each build alternative. Length is the primary quantitative indicator of visual impacts. Qualitative indicators include extreme changes relative to current landforms and proximity to scenic areas where viewers may be more sensitive to change.

Table 10-2. Visual Impacts by Build Alternative

Build Alternative	Length of Right-of-Way (miles)	Sensitive Viewscapes	Infrastructure Changes
Tongue River	83.7	Spotted Eagle Recreation Area Miles City Fish Hatchery Fort Keogh Twelve Mile Dam State Fishing Access Site Tongue River Ranch Northern Cheyenne Indian Reservation Custer National Forest BLM Block Management Areas Historic sites Rural residences	6 new towers 2 new sidings Remove 2 residences Remove 8 buildings
Tongue River East	86.3	Spotted Eagle Recreation Area Miles City Fish Hatchery Fort Keogh Twelve Mile Dam State Fishing Access Site Tongue River Ranch BLM Block Management Areas Custer National Forest Historic sites Rural residences	6 new towers 2 new sidings Remove 1 residence Remove 18 buildings
Colstrip	42.3	Northern Cheyenne Indian Reservation Custer National Forest BLM Block Management Areas Lee Community District Rural residences	2 new towers 1 new siding Remove 2 residences Remove 8 buildings Construct 1 new building
Colstrip East	45.4	Custer National Forest BLM Block Management Areas Lee Community District Rural residences	2 new towers 1 new siding Remove 2 residences Remove 18 buildings Construct 1 new building
Tongue River Road	83.7	Spotted Eagle Recreation Area Miles City Fish Hatchery Fort Keogh Twelve Mile Dam State Fishing Access Site Pumpkin Creek Ranch and Rec Area Northern Cheyenne Indian Reservation Custer National Forest BLM Block Management Areas Historic sites Rural residences	6 new towers 2 new sidings Remove 2 residences Remove 8 buildings
Tongue River Road East	85.9	Spotted Eagle Recreation Area Miles City Fish Hatchery Fort Keogh Twelve Mile Dam State Fishing Access Site Pumpkin Creek Ranch and Rec Area Custer National Forest BLM Block Management Areas	6 new towers 2 new sidings Remove 1 residence Remove 18 buildings

Build Alternative	Length of Right-of-Way (miles)	Sensitive Viewscapes	Infrastructure Changes
		Historic sites Rural residences	
Moon Creek	82.1	Yellowstone River Trail Fort Keogh Tongue River Ranch Northern Cheyenne Indian Reservation Custer National Forest BLM Block Management Areas Historic sites Rural residences	6 new towers 2 new sidings Remove 3 residences Remove 16 buildings
Moon Creek East	84.7	Yellowstone River Trail Fort Keogh Tongue River Ranch Custer National Forest Historic sites Rural residences	6 new towers 2 new sidings Remove 2 residences Remove 20 buildings
Decker	51.1	Northern Cheyenne Indian Reservation Custer National Forest Zook Creek Wilderness Study Area Wolf Mountains Battlefield Tongue River Reservoir State Park Tongue River Valley Rural Historic District Birney Ranching Rural Historic District BLM Block Management Areas Rural residences	4 new towers 2 new sidings
Decker East	49.6	Northern Cheyenne Indian Reservation Custer National Forest Zook Creek Wilderness Study Area Wolf Mountains Battlefield Tongue River Reservoir State Park Tongue River Valley Rural Historic District Birney Ranching Rural Historic District BLM Block Management Areas Rural residences	4 new towers 2 new sidings

10.5.2.1 Tongue River Alternatives

Tongue River Alternative

The Tongue River Alternative would be 83.7 miles long and would have visual impacts based on length (Table 10-2).

Sensitive Viewscapes

The Tongue River Alternative would affect the sensitive viewscapes described below. The impacts on these sensitive viewscapes are briefly described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

Spotted Eagle Recreation Area

The Tongue River Alternative would merge with the existing rail line southwest of Spotted Eagle Road and would appear visually similar to the existing rail line. Viewers at the Spotted Eagle Recreation Area would see this build alternative from the entry and from Spotted Eagle Road. Dense vegetation would obscure views.

Northern Cheyenne Indian Reservation

Viewers at the Northern Cheyenne Indian Reservation would see cut and fill and altered natural terrain. This build alternative would be more visible from short-range vantage points at the eastern boundary.

Block Management Areas

Tongue River Ranch, Hirsch Ranch, Bice Ranch, and Fix Ranch are private lands used for recreation and would have views of the Tongue River Alternative. Impacts on viewers would vary in intensity depending on the viewer's location in the landscape, proximity to the rail line, and degree of change to the landscape.

Historic Sites

Viewers at historic sites on state and private lands would see cut and fill and altered natural terrain. These sites would include the U.S. Department of Agriculture Fort Keogh Livestock and Range Research Laboratory (Fort Keogh), Hogback Pasture, and the Miles City Fish Hatchery. Fort Keogh is also used for recreation. Impacts would range from close-up and direct views of cut and fill, vegetation removal, road relocations, and structures to distant or obscured views of the build alternative.

Twelve Mile Dam State Fishing Access Site

Viewers at the Twelve Mile Dam State Fishing Access Site would be at a slightly lower elevation and shielded from views of the low-profile railbed, but may see views of cut and

fill. Train headlights could draw viewers' attention toward the train at night. While the Tongue River Alternative would not be a distinct visual feature in the landscape, the sound and motion of trains moving could draw attention to the view and affect the visitor experience.

Custer National Forest

The Tongue River Alternative would pass approximately 1.3 miles away from the closest forest boundary, which is also the western edge of the King Mountain Hiking and Riding Area in Custer National Forest. As illustrated in RKOP 7, features in the middleground are not distinctive. For example, 1 mile away, Otter Creek Road is barely visible, if at all. The Tongue River Alternative would not be a distinct visual feature in the landscape when seen from the nearby forest. Train headlights could draw viewers' attention toward the train at night. While the Tongue River Alternative would not be a distinct visual feature in the landscape, the sound and motion of the trains could draw attention to the view and affect the visitor experience.

New Infrastructure

The six telecommunications towers constructed along the Tongue River Alternative would add tall, vertical elements that could affect visual resources, depending on their placement in the landscape; the height, mass, materials, and associated appurtenances of the structure; and the presence of sensitive viewer groups. The two sidings that would be constructed for this build alternative would add new visual elements to the landscape. New bridges would also be constructed.

Construction of the Tongue River Alternative would require relocating and razing buildings, including two residences and eight additional buildings, which would affect sensitive viewers. These impacts would likely be perceived as a negative visual change to private property. Some of the affected properties are large enough to accommodate replacements structures.

Tongue River East Alternative

The Tongue River East Alternative would be the longest build alternative at 86.3 miles (Table 10-2).

Sensitive Viewscapes

The Tongue River East Alternative would affect all sensitive viewscapes described for the Tongue River Alternative, except for the Northern Cheyenne Indian Reservation. Additional viewscapes that this build alternative would affect are discussed below. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

Custer National Forest

The Tongue River East Alternative would be closer to Custer National Forest than the Tongue River Alternative and may be visible from Hundred Inch Hill (2 miles), the Cook Mountain Hiking and Riding Area (0.6 mile), and from Cook Mountain peak (3 miles), outside of the hiking and riding area. Viewers would have limited views due to terrain and vegetation, unless at an elevated location or at the very edge of the forest boundary, which is just over 0.5 mile from the closest point of the alignment. This would be a similar distance as illustrated in RKOP 5, where distinct details are hard to discern. Sound associated with the trains could be heard by viewers at Hundred Inch Hill and Cook Mountain, with impacts as described for the Tongue River Alternative.

New Infrastructure

Six new telecommunications towers and two sidings would have visual impacts similar to those described for the Tongue River Alternative. One residence and 18 additional buildings would be removed. New bridges would also be constructed.

10.5.2.2 Colstrip Alternatives

Colstrip Alternative

The Colstrip Alternative would be the shortest build alternative at 42.3 miles (Table 10-2).

Sensitive Viewscapes

The Colstrip Alternative would affect viewscapes of Block Management Areas (BMAs; see Appendix O, *Visual Analysis Context and Methods*, for a description of BMAs in the study area) (Rocker Six Cattle Company and Greenleaf Land and Livestock), the Northern Cheyenne Indian Reservation, Custer National Forest, and rural residences. Impacts would be similar to those described for the Tongue River Alternative. Additional viewscapes that this build alternative would affect are discussed below. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

Historic Sites

The Lee Community District would have views of the Colstrip Alternative. Impacts would range from close-up and direct views of cut and fill, vegetation removal, road relocations, and structures to distant or obscured views of the build alternative.

New Infrastructure

Two new telecommunications towers and one siding would have visual impacts similar to those described for the Tongue River Alternative. Two residences and eight additional buildings would be removed. New bridges would also be constructed.

Construction of a new 1,100-square-foot support facility in Ashland may affect nearby sensitive viewers, depending on where it is located (Chapter 2, Section 2.2.12, *Associated Facilities*). The building would be designed and constructed to complement the existing community. This facility would introduce new sources of nighttime lighting that could affect nearby sensitive viewers. If trains travel at night, light would be introduced from the train headlight. However, the trains would move through at a quick speed and would not introduce a fixed source of new lighting.

The Colstrip Alternative would be constructed along the existing rail line. Construction would be short term and would not substantially affect visual resources. Once in operation, the Colstrip Alternative would appear very similar to the existing rail line. The two proposed 500-foot set-out tracks in the right-of-way adjacent to the existing rail line would not substantially alter the existing visual character of the landscape. The set-out tracks would be relatively short, the existing rail line is already a common visual element in the landscape, and the new segments would be a visual extension of these pre-existing features. Although the bridges could be constructed of visually compatible materials, some sensitive receptors may be affected if the view of these bridges is in the foreground. Construction materials would not stand out from the middleground and background.

Colstrip East Alternative

The Colstrip East Alternative would be 45.4 miles long (Table 10-2).

Sensitive Viewscapes

The Colstrip East Alternative would affect the same the sensitive viewscapes as the Colstrip Alternative, except for the Northern Cheyenne Indian Reservation. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

New Infrastructure

Two new telecommunications towers and one siding would have visual impacts similar to those described for the Tongue River Alternative. Two residences and 18 additional buildings would be removed. One new building would be constructed, as described for the Colstrip Alternative. New bridges would also be constructed.

10.5.2.3 Tongue River Road Alternatives

Tongue River Road Alternative

The Tongue River Road Alternative would be 83.7 miles long (Table 10-2).

Sensitive Viewscapes

The Tongue River Road Alternative would affect the same sensitive viewscapes as the Tongue River Alternative, except for the Tongue River Ranch, BMAs, historic sites, and rural residences. Additional viewscapes that this build alternative would affect are discussed below. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

Pumpkin Creek Ranch and Recreation Area

Views at the Pumpkin Creek Ranch and Recreation Area would range from close and direct views of cut and fill, vegetation removal, road relocations, and structures to distant or obscured views of the proposed rail line. The sound and presence of the train could draw attention to the view and affect the visitor experience.

New Infrastructure

Six new telecommunications towers and two sidings would have visual impacts similar to those described for the Tongue River Alternative. Two residences and eight additional buildings would be removed. New bridges would also be constructed.

Tongue River Road East Alternative

The Tongue River Road East Alternative would be 85.9 miles long (Table 10-2).

Sensitive Viewscapes

The Tongue River Road East Alternative would affect the same sensitive viewscapes as the Tongue River Road Alternative, except for the Northern Cheyenne Indian Reservation. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

New Infrastructure

Six new telecommunications towers and two sidings would have visual impacts similar to those described for the Tongue River Alternative. One residence and 18 additional buildings would be removed. New bridges would also be constructed.

10.5.2.4 Moon Creek Alternatives

Moon Creek Alternative

The Moon Creek Alternative would be 82.1 miles long (Table 10-2).

Sensitive Viewscapes

The Moon Creek Alternative would affect viewscapes of Fort Keogh, Tongue River Ranch, the Northern Cheyenne Indian Reservation, Custer National Forest, BMAs, historic sites, and rural residences with impacts as described for the Tongue River Alternative. Additional viewscapes that this build alternative would affect are discussed below. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

Yellowstone River/Lewis and Clark Trail

The Moon Creek Alternative would commence just south of the Yellowstone River and would tie into the existing BNSF main line. The Lewis and Clark National Historic Trail and the river's shoreline are a part of the Lewis and Clark Special Recreation Management Area (SRMA) within the BLM's National Conservation Lands System (NCLS) because of their recreational value (Bureau of Land Management 2013:3–131, Bureau of Land Management 2015a, Bureau of Land Management 2015b). Views from the Yellowstone River/Lewis and Clark National Historic Trail and the river's shoreline would not be affected because the at-grade rail line would not likely be visible through riparian vegetation and across the slightly raised, existing BNSF railbed. If partial views are visible, changes would be minor because the tie would be in visual keeping with the existing railbed along the shoreline, and it would not affect views associated with the river or shoreline.

New Infrastructure

Six new telecommunications towers and two sidings would have visual impacts similar to those described for the Tongue River Alternative. Three residences and 16 additional buildings would be removed. New bridges would also be constructed.

Moon Creek East Alternative

The Moon Creek East Alternative would be 84.7 miles long (Table 10-2).

Sensitive Viewscapes

The Moon Creek East Alternative would affect the same sensitive viewscapes as the Moon Creek Alternative, except for the Northern Cheyenne Indian Reservation. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

New Infrastructure

Six new telecommunications towers and two sidings would have visual impacts similar to those described for the Tongue River Alternative. Two residences and 20 additional buildings would be removed. New bridges would also be constructed.

10.5.2.5 Decker Alternatives

Decker Alternative

The Decker Alternative would be 51.1 miles long (Table 10-2).

Sensitive Viewscapes

The Decker Alternative would affect the sensitive viewscapes described below. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

Northern Cheyenne Indian Reservation

Viewers at the Northern Cheyenne Indian Reservation would see cut and fill and altered natural terrain. This build alternative would be more visible from short-range vantage points at the eastern boundary of the reservation.

Tongue River Reservoir State Park

Views of the Decker Alternative from the Tongue River Reservoir State Park would be limited by intervening topography and vegetation.

Zook Creek Wilderness Study Area

Views of the Decker Alternative from the Zook Creek Wilderness Study Area would be limited by intervening topography and vegetation.

State Historic Sites

The Decker Alternative would affect views from Wolf Mountains Battlefield National Historic Landmark, The Tongue River Valley Rural Historic District (overlaps the Wolf Mountains Battlefield National Historic Landmark), and Birney Ranching Rural Historic District (overlaps the Custer National Forest). Views of the Decker Alternative from these historic sites would be limited by intervening topography and vegetation from Wolf Mountains Battlefield National Historic Landmark. The Decker Alternative may be visible from the Tongue River Valley and Birney Ranching Rural Historic Districts, depending on viewers' locations. Impacts would range from close-up and direct views of cut and fill, vegetation removal, road relocations, and structures to distant or obscured views of the build alternative.

Custer National Forest

The Decker Alternative would pass within 540 feet of the Tongue River Breaks Hiking and Riding Area of Custer National Forest. Although views from Poker Jim Butte Lookout, 6.5 miles east of the Decker Alternative, would not be affected (Ruchman pers. comm.), views

from Browns Mountain could span the distance of approximately 1.5 miles as depicted in RKOP 2 and in the middleground of RKOP 12, shown in Figures 10-3 and 10-13, respectively. The sound and motion of the trains could draw attention to the view and affect the visitor experience.

New Infrastructure

Four new telecommunications towers and two sidings would have visual impacts similar to those described for the Tongue River Alternative. No residences would be removed, although two small structures that may be monitoring wells, 1.7 miles northeast of the Tongue River Reservoir and west of Tongue River Road, would be removed. New bridges would also be constructed.

Decker East Alternative

The Decker East Alternative would be 49.6 miles long (Table 10-2).

Sensitive Viewscapes

The Decker East Alternative would be close to the sensitive viewscapes described for the Decker Alternative and would have similar visual impacts. Additional viewscapes that this build alternative would affect are discussed below. The impacts on these sensitive viewscapes are described below, while the impacts on the landscape are described in Section 10.5.1, *Impacts Common to All Build Alternatives*.

Custer National Forest

The Decker East Alternative would cross within 230 feet of the closest forest boundary, north of the King Mountain Hiking and Riding Area. The impacts of train sound and movement drawing viewers' attention from the forest for the southern portion of the Decker East Alternative would be the same as described for the Tongue River East Alternative.

New Infrastructure

Four new telecommunications towers and two sidings would have visual impacts similar to those described for the Tongue River Alternative. No residences or other buildings would be removed. New bridges would also be constructed.

10.5.3 No-Action Alternative

Under the No-Action Alternative, TRRC would not construct and operate the proposed Tongue River Railroad, and there would be no impacts on visual resources from construction or operation of the proposed rail line.

10.5.4 Mitigation and Unavoidable Environmental Consequences

To avoid or minimize the environmental impacts on visual resources from the proposed rail line, OEA is recommending that the Board impose seven mitigation measures, including one volunteered by TRRC (Chapter 19, Section 19.2.7, *Visual Resources*). These measures would require TRRC to direct nighttime light toward construction areas, install visual barriers, grade contours to mimic natural terrain, use native grass and wildflower species in erosion control measures, design rail and road bridges to complement the natural landscape, begin revegetation of cleared slopes as soon as possible, and paint signage and equipment with colors that blend into the landscape.

Even with the implementation of OEA's recommended mitigation measures and TRRC's voluntary measure, the proposed rail line would cause unavoidable impacts on visual resources. All build alternatives would require vegetation removal, landform changes, building removal, roadway relocations, new culverts, and new bridge structures, all of which would affect the project viewshed. All build alternatives would affect sensitive viewers. OEA concludes that these adverse impacts would range from minor to moderate.

10.6 Applicable Regulations

Different federal, state, and local entities are responsible for the regulation of visual resources. These entities and the regulations and guidance related to visual resources are summarized in Table 10-3.

Table 10-3. Regulations and Guidance Related to Visual Resources

Regulation, Statute, Guideline	Explanation
Federal	
National Environmental Policy Act (42 U.S.C. § 4321 <i>et seq.</i>)	Requires the consideration of potential environmental effects, including potential effects of (or on) contaminated sites in the environmental impact statement for any proposed major federal agency action. NEPA implementation procedures are set forth in the President’s Council on Environmental Quality’s Regulations for Implementing NEPA (40 C.F.R. Part 1500).
State and Local	
The proposed rail line could be located in Custer, Rosebud, Big Horn, and Powder River Counties. Only Powder River County has regulations pertaining to visual resources (Powder River County Commissioners 2012:40, 77). The City of Colstrip is the only town or city with applicable regulations.	
Powder River County Land Use Plan Goal	Plans for compatible land uses throughout the County while preserving multiple uses for existing and future agricultural, ranching, natural resource extraction, forestry, and recreational land.
Powder River County Land Development Policy 1	Establishes development standards for new residential, commercial, and industrial uses that abut existing agricultural or ranching lands. Associated buffers and mitigation efforts (e.g., fencing, noise) would be the developer’s responsibility, not the farmer’s or rancher’s responsibility.
Powder River County Land Development Policy 3	Limit incompatible uses such as heavy commercial or industrial uses adjacent to residential uses.
Powder River County Natural Resources Goal	Minimize negative environmental effects from increase in local and regional natural resource development and housing development.
City of Colstrip Comprehensive Growth Policy Growth Policy (2012: 35, 38)	Indicates that industrial development should be “designed and maintained for appealing visual appearance” and that “providing parks and open space in industrial and commercial areas enhances aesthetics and use by employees and customers.”
City of Colstrip Signage, Tree, and Light Regulations (Sterling Codifiers 2013)	Promote safety and public welfare while preserving the natural beauty and visual appeal of surrounding areas.
Notes: USFWS = U.S. Fish and Wildlife Service; BLM = Bureau of Land Management; U.S.C. = United States Code; NEPA = National Environmental Policy Act; C.F.R. = Code of Federal Regulations; Montana FWP = Montana Fish, Wildlife & Parks; MCA = Montana Code Annotated	

