

# **Teton Pass Trail**

## **Environmental Assessment**

**June 2001**



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# TETON PASS TRAIL

## Environmental Assessment

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*June 2001*

*Teton Basin Ranger District  
Caribou-Targhee National Forest*

*Jackson Ranger District  
Bridger-Teton National Forest*

**RESPONSIBLE OFFICIAL:**

\_\_\_\_\_  
*District Ranger  
Teton Basin Ranger District  
Caribou-Targhee National Forest*

\_\_\_\_\_  
*Date*

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Chapter  
**1**

# PURPOSE OF AND NEED FOR THE PROPOSED PROJECT

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# CHAPTER 1

## PURPOSE OF AND NEED FOR THE PROPOSED PROJECT

### INTRODUCTION

This Environmental Assessment (EA) discloses the direct, indirect, and cumulative impacts of a proposal to construct a recreational trail from Victor, Idaho, to Wilson, Wyoming. The trail would pass through lands owned by: the City of Victor, Idaho; Teton County, Idaho; the Caribou-Targhee National Forest, Teton Basin Ranger District (Caribou-Targhee Forest); the Idaho Transportation Department (ITD); Teton County, Wyoming; the Wyoming Department of Transportation (WYDOT); and the Bridger-Teton National Forest, Jackson Ranger District (Bridger-Teton Forest). This EA has been prepared by the U.S. Department of Agriculture, Forest Service (Forest Service) in accordance with the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, 1970); the Executive Office of the President's Council on Environmental Quality (CEQ) Regulations for implementing NEPA (40 Code of Federal Regulations [CFR] Part 1500); Forest Service Handbook 1909.15, the Environmental Policy and Procedures Handbook; and the National Forest Management Act of 1976.

### BACKGROUND

Teton Pass has been a corridor for human access to and from Jackson Hole, Wyoming, since prehistoric times and, by the 1880s, was the settlement corridor for homesteading. The first wagon was driven over the pass in 1886, and the wagon route continued to be used until 1913. At that time, the Forest Service began to survey and construct a new road over Teton Pass using horse-drawn equipment. This road became known as the Old Pass Road and was used more or less unchanged until 1961 when the current highway was constructed.

There are a variety of existing recreational trails in the vicinity of Teton Pass. A separated, paved, recreational pathway exists between the Cities of Driggs and Victor, Idaho. This "Driggs-Victor pathway" was built as a transportation enhancement for non-motorized use but is open to motorized use (i.e., snowmobiles) in the winter and closed to motorized use the remainder of the year. Existing trailheads in Victor, Idaho, are located at Victor City Park and Pioneer Park (Young 2000a), although no existing trails are located adjacent to either park. An informal trailhead is located at the north end of the Driggs-Victor pathway at Teton Creek (Young 2000a). An unpaved pathway is located between Tetonia, Idaho, and Ashton, Idaho (Young 2000a). In addition, current plans call for new bike lanes along Ski Hill Road (Forest Service Road 76) between Driggs, Idaho, and Alta, Wyoming, which will total approximately 5 miles of bike lanes providing access to Teton Canyon (Young 2000a).

To the east of Teton Pass, there are multiple existing and planned trails in the Wilson and Jackson, Wyoming, area. All existing and planned pathways are non-motorized and open year-round (Young 2000a). The Wilson Centennial Trail in Wilson, Wyoming, was constructed in 1998. The 1.2-mile-long trail is 10 feet wide, paved, and connects the east side of Wilson (near the Wilson Elementary School) with Wyoming State Route 390 (WY-390) to the east, near the junction of WY-390 and Wyoming State Route 22 (WY-22). A 0.5-mile-long spur trail connects the Wilson Centennial Trail to Fish Creek Road to the northwest. A trailhead is located at the Wilson Elementary School (Young 2000a). At the east end of the Wilson Centennial Trail (at WY-390), rough grading of the Stilson Ranch parking area, which will accommodate 700 vehicles, has been completed (Young 2000a). In addition, Teton County, Wyoming, has received funds to construct a 7.6-mile-long pathway along the entire length of WY-390 from WY-22 to the Grand Teton National Park southern boundary. About 1 mile of this pathway has already been constructed. Over the next year, an additional 5.5 miles will be built, with the remaining distance to be constructed over the next few years (Young 2000a). In addition, another pathway is proposed along WY-22 between the eastern terminus of the Wilson Centennial Trail and the pathway system in the town of Jackson, Wyoming, to the east (Young 2000a). Also, a future 0.25-mile-long Wilson Town Trail section will follow the existing WY-22 right-of-way (ROW) between Fall Creek Road in Wilson and the west end of the Wilson Centennial Trail (near the Wilson Elementary School) (Young 2000a). Design of the Wilson Town Trail corridor has been funded and will begin in late 2000 (Young 2000a).

In addition to the Stilson Ranch parking area and Wilson Elementary School trailhead noted above, there is one additional trailhead located along Trail Creek Road that is associated with the Wilson Centennial Trail (Young 2000a). This trailhead provides access to National Forest (Forest) lands.

## **PROPOSED PROJECT**

The Caribou-Targhee and Bridger-Teton Forests, in conjunction with the City of Victor, Idaho; Teton County, Idaho; ITD; WYDOT; and Teton County, Wyoming; propose to enhance recreational opportunities within the Teton Pass corridor. Figure 1-1 depicts the general Teton Pass Trail Project Area (project area). All pathways proposed under the action alternatives would be designated as non-motorized. The Forest action alternatives would be designated for three-season (i.e., spring, summer, fall) use and would be maintained during these three seasons. The off-Forest segments would likely be designated for year-round, non-motorized use and would be maintained during all seasons (Young 2000a).

### **Forest Segments**

Alternatives A and B propose construction of a non-motorized recreational trail connecting across Teton Pass to the proposed off-Forest segments. Alternative C proposes recreation enhancements, such as providing connections to existing trails and trailheads and reconstructing portions of existing trails. If a decision were made to implement the proposed action, funds would be applied to do so during summer 2001. Implementation is anticipated to take one construction season.

### **Off-Forest Segments**

The proposed off-Forest segments would be a combination of separated, paved pathways and shared use of existing low-volume roads by recreationists and motorists (on-road shared use). Continuation of the Driggs-Victor pathway through the City of Victor and along the Old Jackson Highway to the Caribou-Targhee Forest boundary west of Moose Creek, Idaho, has been funded by the Federal Highway Administration (FHWA) for design and construction through the Millennium Trails Program, an initiative announced by the White House Millennium Council in 1998. The Millennium Trails Program was created to recognize, promote, and support trails that preserve open spaces, interpret history and culture, and enhance recreation and tourism. Construction of the City of Victor and Teton County, Idaho, off-Forest segments would provide a connection from Forest lands westward to Idaho and future Teton Valley trails. The trailheads at Victor City Park and Pioneer Park in Victor, Idaho, would also be located along the proposed City of Victor, Idaho, off-Forest trail segment.

Teton County, Wyoming, would construct an approximate 1-mile, separated, non-motorized recreational pathway along the south side of WY-22 from approximately Fall Creek Road (i.e., the western terminus of the Wilson Town Trail/Wilson Centennial Trail) in Wilson, Wyoming, to the Bridger-Teton Forest boundary. Construction of the Teton County, Wyoming, off-Forest segment would provide a connection from Forest Service lands eastward on the Jackson Hole Community Pathways system, serving the Wyoming-Montana Pathway.

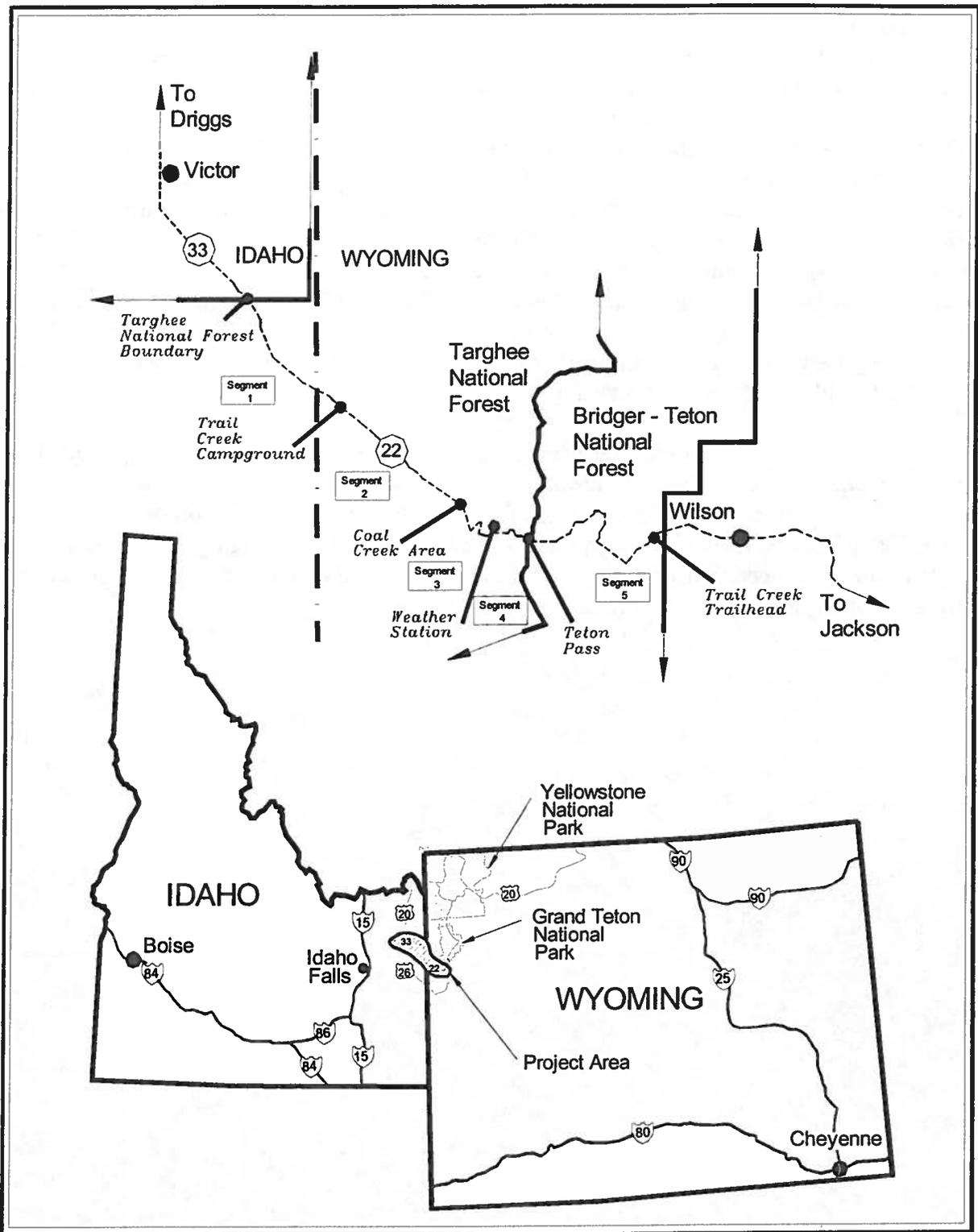


Figure 1-1. Teton Pass Trail Project Area.

## PURPOSE OF AND NEED FOR THE PROPOSED PROJECT

The primary purpose of the proposed Teton Pass Trail Project (project) is to enhance safety and increase opportunities for non-motorized recreational trail use on Forest lands while protecting the natural resources and improving the quality of life for residents and visitors. It may also enhance the safety of motorized vehicle traffic on the Teton Pass Highway (Idaho State Route 33 [ID-33]/WY-22).

The Forest Service has identified the following needs:

- ▶ Enhance recreational trail opportunities for non-motorized use within the corridor by providing a variety of recreational trail opportunities, improving existing recreational sites, and developing proposed recreational sites to meet increasing demand for non-motorized recreational trail opportunities.
- ▶ Connect the community pathway systems of Teton Valley, Idaho, to Jackson Hole, Wyoming, with public lands in a manner that protects natural resources and enhances the quality of life for residents and visitors.
- ▶ Develop a separate pathway/trail system for non-motorized use that provides for safer and more-enjoyable recreational opportunities and may also encourage bicycle touring use, non-motorized, and commuter traffic through the Teton Pass corridor.

Recognizing these needs, the Forest Service, in conjunction with the City of Victor, Idaho; Teton County, Idaho; and Teton County, Wyoming; has proposed improvements to recreational trails and facilities within the Teton Pass corridor.

## SCOPING AND ISSUES

Issues were generated from the following sources:

- ▶ *The Pathways in Jackson Hole Conceptual Plan* (Pathways Task Force 1992);
- ▶ Public and organization comments gathered in February 1997 to determine how to use Teton Pass Recreational Trail Project grant funding;
- ▶ Comments from the public, organizations, and regulatory agencies in response to the January 1999 project scoping letter (described in detail below);
- ▶ Comments made during a project presentation at the spring 1999 Teton Valley Trails and Pathways meeting;

- ▶ Article published in the summer 1999 issue of *Alliance News, the Newsletter of the Jackson Hole Conservation Alliance* (Lichtman 1999);
- ▶ Article published in the August 11, 1999, issue of the *Jackson Hole Guide* (Author unknown 1999);
- ▶ Public scoping transcripts from public design workshops held in Victor, Idaho, and Wilson, Wyoming, in August 1999;
- ▶ Comments made during a project presentation at the October 20, 1999, Eagle Rock Backcountry Horsemen meeting;
- ▶ Coordination with the City of Victor, Idaho; Teton County, Idaho; Teton County, Wyoming; the ITD District 6; and WYDOT District 3;
- ▶ Input from Forest Service resource specialists and County Pathways staff; and
- ▶ Specific resource concerns identified by the Interdisciplinary Team (IDT) during their site visit to the project area.

In January 1999 a letter describing the purpose and need of this project and inviting comments was sent to: (1) members of the public who have expressed interest in the management of the Teton Basin Ranger District and the Jackson Ranger District, (2) other government agencies, and (3) special interest groups. Approximately 102 letters were sent, and 48 written responses were received voicing various concerns, questions, and comments. The comments are summarized in the project file at the Teton Basin Ranger District office in Driggs, Idaho. The project file also contains a list of persons and agencies contacted and the original letters received.

The IDT used the comments from the public and Forest Service resource specialists, as well as their site reconnaissance, to identify issues and specific resource concerns. The issues were originally grouped broadly by resource concerns in the following four categories:

- ▶ Significant issues that have the potential to direct formulation of project alternatives and are also the primary criteria for measuring environmental effects;
- ▶ Relevant issues that are important in the decision-making process but either supplement a significant issue or are generalized statements of concern or approval;
- ▶ Design/mitigation issues that can be addressed during design or via mitigation measures; and
- ▶ Non-relevant issues that can be dismissed.

Comments are grouped by resource component (e.g., wildlife) and issue category (i.e., significant, relevant, design/mitigation, and non-relevant). The 71 significant and relevant issues are pursued throughout the EA. Some of these significant issues direct project alternatives, as discussed below. The remaining significant issues that do not direct project alternative selection are incorporated into the Issues and Indicators Section of this chapter (page 1-5). Relevant issues either supplement a significant issue or are generalized statements of concern or approval. Design/mitigation issues are incorporated into the action alternatives as necessary, and non-relevant issues were dismissed from analysis for the reasons recorded in the project file (located at the Teton Basin Ranger District in Driggs, Idaho).

### **Significant Issues**

All significant issues were evaluated by the IDT to determine which issues actually direct formulation of project alternatives. The ability to direct development of project alternatives was based on the following five criteria:

- ▶ Their potential to conflict with Federal, State, and local laws and regulations;
- ▶ Their potential to conflict with Forest Service objectives, particularly as defined in the *Caribou-Targhee Forest 1997 Revised Forest Plan* (Caribou-Targhee Forest RFP) (Forest Service 1997a) and the *Bridger-Teton National Forest Land and Resource Management Plan* (Bridger-Teton Forest RMP) (Forest Service 1990);
- ▶ The public's intensity of concern for a specific issue;
- ▶ A resource component's specific vulnerability to direct impacts or cumulative impacts; and
- ▶ The potential for substantial impacts to a resource component based on context and intensity, as defined by CEQ guidelines (40 CFR 1508.27).

Based on these criteria, the following 12 significant issues were identified.

#### **Geology and Soils**

Issue #1: Trail development within the Teton Pass corridor could traverse geologic hazards (e.g., avalanche zones, landslides, slumps). Crossing unstable terrain could induce land failure that may affect natural resources, affect trail integrity, impact existing highways, or in extreme cases, compromise human safety.

#### **Water and Aquatic Resources**

Issue #2: Riparian areas/wetlands are sensitive resource components. Trail construction within these components could degrade water quality, aquatic habitat, vegetation, and affect wildlife species in these areas.

### **Wildlife**

Issue #3: Trail construction could affect important wildlife habitat or provide a barrier to wildlife movement. Habitat impacts or barriers to movement could affect the viability of important wildlife species.

### **Cultural Resources**

Issue #4: Trail development within the Teton Pass corridor could degrade cultural resources. The proposed project should include interpretive facilities for the historic Teton Pass corridor.

### **Recreation**

Issue #5: The proposed project should include provisions for expanding or enhancing facilities (e.g., restrooms, parking, trail connections) to meet the growing recreational demands in the Teton Pass corridor.

Issue #6: Expansion and enhancement of facilities could induce excessive recreational use within and adjacent to the Teton Pass corridor area, which could result in unacceptable impacts to natural resources.

Issue #7: Developing a multiple-use, separated trail could require excessive disturbance to the physical and biological components within the project area. Trail design should be minimized to reduce overall land disturbance.

Issue #8: The proposed project should enhance user safety and reduce exposure for natural hazards.

Issue #9: The proposed project should connect the adjacent communities with Forest lands. Connecting the communities of Victor, Idaho, and Wilson, Wyoming, to Forest lands would improve non-motorized Forest access from Victor and Wilson and could encourage more recreation on Forest lands, particularly on Forest lands adjacent to a new trail corridor (e.g., Wilderness areas).

Issue #10: The proposed project should provide universal access facilities for persons with disabilities, thus accommodating more user groups on Forest lands and complying with the overall direction provided in the Caribou-Targhee Forest RFP (Forest Service 1997a) and Bridger-Teton Forest RMP (Forest Service 1990). The proposed project should also serve long-distance cycling and non-motorized transportation.

Issue #11: The proposed project should serve various non-motorized user groups (e.g., pedestrians, equestrians, bicyclists).

Issue #12: Current trail opportunities within the project area sometimes result in user conflicts. The proposed project should provide opportunities for reducing user conflicts.

### **Issues and Indicators**

In addition to providing a basis for alternative development, issues provide the criteria by which to measure potential effects of project implementation. To measure the potential effects of each alternative on the environment, specific indicators for all the significant issues were developed. The indicators were chosen to reflect established evaluation methods and provide quantitative results whenever possible.

### **Geology and Soil Issues**

1. Trail construction could result in excavation of cut and fill slopes in steep and unstable slopes, thus creating the potential for erosion, landslides, and slumps.

**Indicator:** The linear distance that a new trail of a defined width traverses unstable areas identified by past geologic mapping. Unstable areas are areas of mass movement or mass wasting (e.g., landslides, block slides, slumps, debris flows, debris slumps, rock slides, rock falls, earth flows) identified by past geologic mapping.

**Indicator:** The linear distance and acreage that a new trail of a defined width traverses steep slopes (greater than approximately 50 percent grade). The wider the trail, the greater the potential for excavation and fill that could lead to erosion, slumping, or landslides.

2. Trail construction would disturb vegetated soils, which could result in increased erosion.

**Indicator:** The linear distance and acreage that a new trail of a defined width traverses previously undisturbed soils. The wider the trail, the greater the potential for excavation and fill that could lead to erosion and sedimentation. This indicator also quantifies soil disturbance and the area of soil that would be permanently removed from vegetation production by paving, trail hardening, or intensive trail use.

**Indicator:** The linear distance and acreage that a new trail of a defined width traverses previously reclaimed soils (i.e., reclaimed segments of the Old Jackson Highway). Reclaimed soils are previously disturbed areas that are currently fully or mostly vegetated. These include the Old Jackson Highway and the old timber road (located on the south side of West Trail Creek between Mike Harris Campground and just west of State Line Canyon). This indicator quantifies both new disturbance of previously reclaimed soils and the soils that would be permanently removed from vegetation production by paving, trail hardening, or intensive trail use.

### **Water and Aquatic Resource Issues**

1. Trail construction could result in disturbance to relatively pristine riparian areas that currently receive little human use. Recreational activities such as picnicking and fishing along the stream

may increase as a result of the new access that would be provided by the trail. The resulting disturbance to stream-side areas could cause riparian buffer area losses, decreased water quality, and decreased channel stability.

**Indicator:** The linear distance that a trail of a defined width traverses previously undisturbed stream-side areas. Stream-side areas are defined as those areas within a perimeter bounded by a distance of approximately 150 feet from each stream bank.

2. The proposed trail could cross or parallel aquatic influence zone (AIZ). The Forest Service's goals for AIZ are to minimize the adverse effects of proposed management activities on aquatic- and riparian-dependent species.

**Indicator:** The linear distance that a trail of a defined width is located within AIZ. The wider the trail, the greater the potential for adverse effects on aquatic- and riparian-dependent species.

3. The proposed trail could adversely affect native cutthroat trout (*Oncorhynchus clarki bouvieri*) habitat in West Trail Creek, which is listed by Caribou-Targhee Forest as a primary watershed for cutthroat trout. Forest Service guidelines for primary watersheds require that management activities that would degrade habitat be avoided.

**Indicator:** Number and design of new stream crossings (i.e., culverts and bridges) to be built.

**Indicator:** Relative risk (i.e., high, medium, low) of increased in-stream sediment.

4. Trail construction across steep slopes or unstable soils could potentially result in increased erosion and transport of sediment to nearby streams. Unstable soils are areas of mass movement or mass wasting identified by past geologic mapping. They may include landslides, block slides, slumps, debris flows, debris slumps, rock slides, rock falls, earth flows, etc.

**Indicator:** The linear distance that a trail of a defined width traverses unstable areas that have been identified by past mapping in locations that could impact streams. The wider the trail, the greater the potential for excavation and fill that could lead to erosion and sediment transport to nearby streams.

**Indicator:** The linear distance that a trail of a defined width traverses steep slopes (i.e., greater than approximately 50 percent grade). The wider the trail, the greater the potential for excavation and fill that could lead to erosion and sediment transport to nearby streams.

5. Trail construction could capture and channelize overland flow and reduce the effectiveness of the riparian buffer in filtering sediment.

**Indicator:** Acres of new trail surface. This indicator represents the land area that once had overland flow but after trail construction will have the potential to intercept and channelize flow, thus effectively transporting more sediment.

#### **Vegetation Issues**

1. The new trail could impact flora in the area.

**Indicator:** Acres and types of vegetation affected.

**Indicator:** Acres of specific Forest Service sensitive species habitat types removed because of trail construction.

2. The project could lead to an increase in the spread and establishment of noxious weeds in the project area.

**Indicator:** Acres of trail construction disturbance.

#### **Wildlife Issues**

1. The new trail could negatively impact riparian habitat along West or East Trail Creek resulting in loss, degradation, and fragmentation of important habitat for many wildlife species, including several that are designated as sensitive by the Forest Service.

**Indicator:** Acres of riparian habitat directly affected by trail construction.

**Indicator:** Functional value of remaining habitat units and indirect effects of trail use on adjacent habitats and their inhabitants.

2. The new trail could directly and/or indirectly affect big game movement by fragmenting important corridors.

**Indicator:** Big game movement corridor locations with respect to trail placement and existing barriers.

3. Forest Service sensitive species could be adversely affected by a new trail.

**Indicator:** Acres of specific habitat types removed because of trail construction.

**Indicator:** Indirect effects on adjacent habitats.

4. The new trail could adversely affect wildlife by causing habitat loss, habitat fragmentation, displacement of adjacent populations, disturbance to animal movement, and cumulative effects.

**Indicator:** Acres of important wildlife habitats removed because of trail construction.

**Indicator:** Indirect effects on adjacent habitats.

#### **Cultural Resources Issues**

1. Trail development within the Teton Pass corridor could degrade cultural resources. Trail development should include interpretive facilities for the historic Teton Pass corridor.

**Indicator:** Relative risk (i.e., very low to very high) of degrading cultural resources based on cultural resource inventories previously conducted in the project area.

**Indicator:** Whether or not scoping comments regarding eligible historic properties are addressed.

**Indicator:** Whether or not interpretive facilities for the historic Teton Pass corridor are included.

#### **Visual Resource Issues**

1. Construction of the proposed trail could affect visual quality as seen from the highway and existing recreational facilities (e.g., campgrounds, trailheads).

**Indicator:** Change in the character of the existing landscape.

**Indicator:** Acres of Visual Quality Objective (VQO) Retention affected.

#### **Recreation Issues**

1. Some facilities (e.g., parking areas, restrooms) are insufficient for current recreation demands. However, these recreation demands could increase with the construction of a new trail. Recreation in the corridor area could be adversely affected by increasing the numbers of visitors.

**Indicator:** Changes in recreation use levels in the trail corridor.

**Indicator:** Changes in parking demands at trailheads along the corridor.

2. Safety should be enhanced by providing separated (off-highway) trail opportunities for current highway corridor users (e.g., road and touring bicyclists).

**Indicator:** The linear distance of off-highway trails that accommodate current highway corridor users.

3. The proposed trail should provide universal access trails for persons with disabilities (i.e., persons using wheelchairs), per direction provided in the Caribou-Targhee Forest RFP (Forest Service 1997a) and the Bridger-Teton Forest RMP (Forest Service 1990).

**Indicator:** The linear distance of trails providing universal access.

4. Several types of non-motorized recreational trail users could use the proposed new trail, including hikers, equestrians, mountain bikers, road and touring bicyclists, etc. The proposed trail should serve all non-motorized recreational user groups adequately.

**Indicator:** Recreational Trail Uses by Specific User Group.

5. Several types of non-motorized recreational trail users could use the proposed trail, including hikers, equestrians, mountain bikers, road bicyclists, etc. These recreationists could experience user conflicts because of their different recreational needs. Methods of reducing user conflicts should be developed.

**Indicator:** The linear distance of separated native-surface trails adjacent to paved pathways.

6. Trail segments longer than 500 feet should have grades less than 15 percent to accommodate multiple non-motorized users. Similarly, on segments of the existing Bonneville Power Administration (BPA) road exceeding 15 percent grade for more than 500 feet, new pathway switchbacks should be constructed to reduce grade severity.

**Indicator:** Segments of trail that are longer than 500 feet with grades greater than 15 percent for their entire length.

7. An amendment to the Caribou-Targhee Forest RFP that eliminates motorized winter use (i.e., snowmobiles) in the Teton Pass corridor (Caribou-Targhee Forest) could be difficult to enforce.

**Indicator:** The capabilities and resources of jurisdictional authorities to enforce non-motorized use of the Teton Pass corridor (Caribou-Targhee Forest) during winter.

8. The Caribou-Targhee and the Bridger-Teton Forests have limited trail and facility maintenance budgets.

**Indicator:** Changes in trail and facility maintenance requirements.

### **Wilderness, Wilderness Study, and Roadless Areas Issues**

1. Development of the Teton Pass Trail would increase recreation use on adjacent Forest Service lands including the south end of the Jedediah Smith Wilderness, particularly on the Coal Creek and Moose Creek Trails.

**Indicator:** Changes in recreation use levels on the Coal Creek and Moose Creek Trails.

2. Development of the Teton Pass Trail for bicycles would increase illegal bicycle use within the Jedediah Smith Wilderness on the Coal Creek, Phillips Pass, and Moose Creek Trails.

**Indicator:** Changes in illegal bicycle use on the south end of the Jedediah Smith Wilderness.

### **Cumulative Effects Issues**

1. The combination of the proposed project and past, present, and reasonably foreseeable future activities could cumulatively affect the environment.

**Indicator:** Cumulative effects of the proposed project's potential impacts and the impacts of past, present/ongoing, and reasonably foreseeable future activities.

## **RELATIONSHIP TO THE LAND USE AND PLANNING PROCESSES**

The location of the Teton County, Idaho, off-Forest segment is consistent with the City of Victor's planned use of the area (Melville 2000). Similarly, the Teton County, Wyoming, off-Forest segment is included in the *Pathways in Jackson Hole Conceptual Plan* (Pathways Task Force 1992).

Forest management direction is found in the Caribou-Targhee Forest RFP (Forest Service 1997a), the Caribou-Targhee Forest *Motorized Road and Trail Travel Plan* (Forest Service 1999a), and the Bridger-Teton Forest RMP (Forest Service 1990).

The revised Caribou-Targhee Forest *Motorized Road and Trail Travel Plan* (Forest Service 1999a) establishes a motorized system of roads and trails. All other routes not designated in the *Motorized Road and Trail Travel Plan* are to be closed to motorized use. Within the analysis area, two routes are to be closed to motorized use, the old timber road and its associated two-track roads and the Mail Cabin Trail. Decommissioning measures are included in the Forest Alternatives Analyzed in Detail Section of Chapter 2 [page 2-2], and the effects of decommissioning on each resource are described in Chapter 3. This analysis provides the site-specific analysis required for decommissioning, as directed by the Regional Forester in the January 27, 2000, Appeal Decision for the *Motorized Road and Trail Travel Plan*.

### **Forest-Wide Direction**

The Caribou-Targhee Forest RFP (Forest Service 1997a) provides the following Forest-wide direction pertinent to the proposed project:

- ▶ **Goal.** Trails for non-motorized/mechanized use would be sufficient to sustain use over long periods of time with minimal requirements for maintenance or reconstruction. These conditions would be achieved within subsections in the following sequence: Teton Range, Big Hole Mountains, Centennial Mountains, and Caribou Range Mountains (Forest Service 1997a, Goal - Trails, page III-27).
- ▶ **Objective.** Within 3 years, establish travel plan designations (by management prescription areas) for non-motorized winter recreation activity areas with easy access for users such as telemark skiers, snowshoers, and snowboarders. Conform to results anticipated from the Greater Yellowstone Winter Visitor Use Management Assessment currently underway (Forest Service 1997a, Objective - Winter Recreation, page III-25).

The Bridger-Teton Forest RMP (Forest Service 1990) provides the following Forest-wide direction pertinent to the proposed project:

- ▶ **Goal.** A safe road and trail system provides access to a range of recreation opportunities and settings. Retain, improve, and add trails for foot, riding stock, llama, and mountain bike travel (Forest Service 1990, Goals 2.5 and 2.5(d), page 115).
- ▶ **Standard.** Road and Trail Drainage Standard – Existing roads will be evaluated for sediment delivery to live streams, lakes, and riparian areas. Roads and trails will be designed and maintained so that drainage from the road or trail surface does not directly enter live streams, ponds, lakes, or impoundments. Water will be directed off the road or trail into vegetation buffer strips or controlled through other sediment-reduction practices (Forest Service 1990, Access: General, page 139).
- ▶ **Prescription.** Access: Trails Prescription – Non-motorized and motorized trails are provided for a wide variety of uses and difficulty levels. Trails are maintained to appropriate levels or signed as closed with reasons stated. Driveways are maintained for stock movement (Forest Service 1990, Access: Trails, page 140).
- ▶ **Guideline.** Standard Level Maintenance Guideline – National Forest development trails should meet standard level maintenance criteria (Forest Service 1990, Access: Trails, page 140).
- ▶ **Guideline.** Trail User Conflict Minimization Guideline – The trail system should be managed to minimize conflicts among users, including motorized and non-motorized recreation and livestock (Forest Service 1990, Access: Trails, page 141).

### **Applicable Subsection Direction**

The Caribou-Targhee Forest RFP (Forest Service 1997a) provides subsection direction for the Big Hole Mountains Subsection (M331DK) related to recreational trail development necessary to meet desired future conditions (DFCs). Subsection direction pertinent to the proposed project is as follows:

- ▶ Goal. Provide for recreational activity while maintaining the integrity of crucial wildlife habitats such as winter range (Forest Service 1997a, Goal - Wildlife, page III-60).
- ▶ Goal. In recommended wilderness, protect roadless area values to ensure wilderness characteristics are maintained. In all other areas, continue to protect resource values (Forest Service 1997a, Goal - Recreation, page III-60).
- ▶ Goal. Manage Highway 22 over Teton Pass for visual quality allowing needs of the utility corridor (Forest Service 1997a, Goals - Visuals, page III-61).

### **Applicable Management Prescriptions**

Caribou-Targhee Forest management prescription areas offer additional direction pertinent to recreational trail development. Management prescriptions pertinent to the proposed project include the following:

- ▶ **Designated Wilderness.** This applies to large portions of the Jedediah Smith Wilderness near the project area and includes management prescriptions 1.1.6, 1.1.7, and 1.1.8. As depicted on Figure 3-4 (page 3-102), the Jedediah Smith Wilderness is located in the Wyoming portion of Caribou-Targhee Forest.
  - ▶ **1.1.6 Opportunity Class I.** This area is located parallel to and 0.25 mile north of WY-22. A low level of recreation use occurs in these remote areas. There is a lack of system trails, signing, and distributed information. No dispersed recreation facilities are provided (Forest Service 1997a, page III-67).
  - ▶ **1.1.7 Opportunity Class II.** This area provides a corridor around portions of popular trails that receive moderate recreation use (e.g., Taylor Mountain Trail, Coal Creek Trail, Teton Crest Trail). Directional and resource protection signs may be provided (Forest Service 1997a, page III-70).
  - ▶ **1.1.8 Opportunity Class III.** This area provides a corridor around portions of popular trails with relatively high recreation use levels (e.g., Moose Creek Trail, Coal Creek Trail). Directional, informational, regulatory, and resource protection signs may be provided (Forest Service 1997a, page III-72).
- ▶ **1.2 Wilderness Study Area.** Portions of the Caribou-Targhee and Bridger-Teton Forests in Wyoming are designated as Wilderness Study Areas. These mostly pristine areas

are managed to preserve their natural condition. Trails and bridges are constructed and maintained to accommodate heavy foot and horse traffic. Manage for non-motorized classification, although snowmobile use is allowed (Forest Service 1997a, page III-74).

- ▶ **2.1.2 Visual Quality Maintenance.** These areas lie along major travel corridors. Manage these corridors to protect their natural visual quality, to provide various dispersed recreational opportunities, and to maintain stand vigor by controlling tree density. The standard for access currently allows cross-country motorized use during snow seasons (Forest Service 1997a, page III-82).

This EA proposes a non-significant amendment to the Caribou-Targhee Forest RFP to change the access for the Teton Pass corridor that is currently under prescription 2.1.2, Visual Quality Maintenance, to non-motorized during snow seasons (i.e., eliminating snowmobile use) (Caribou-Targhee Forest RFP page III-83). A discussion of this proposed amendment is included in the Decisions to Be Made Section of this chapter (page 1-22).

- ▶ **2.8.3 Aquatic Influence Zone (AIZ).** These areas are associated with project area streams and wetlands. Boundary widths apply until a site-specific analysis is completed. No new roads, trails, or landings will be constructed within these lands until appropriate standards for construction, maintenance, and operation are in place (Forest Service 1997a, page III-106).

- ▶ **4.1 Developed Recreation Sites.** This management prescription applies to existing recreation sites. Provide for a variety of concentrated public recreation uses in a roaded natural setting based on the areas' character and visitors' needs. Provide opportunities for interpretation and short trails to facilities. Avoid new construction on unstable or highly erosive soils (Forest Service 1997a, page III-125).

- ▶ **4.3 Dispersed Camping Management.** Provide a balance between recreation use and other resource values occurring in the same area so that those resources providing attractions to the area are protected and continue to be important recreational attractions. No new roads, trails, or landings will be constructed within these lands until appropriate standards for construction, maintenance, and operations are in place (Forest Service 1997a, page III-131).

- ▶ **8.1 Concentrated Development Areas.** This prescription applies to all existing concentrated developments, including utility corridors. Protect existing trails, and wherever possible avoid development of new trails in or near these concentrated development sites (Forest Service 1997a, page III-157). This direction is provided as guidelines, not standards, for this management prescription area. Some Forest action alternatives (Chapter 2) propose implementation of a new trail along portions of BPA access roads that parallel the BPA transmission corridor, which would violate these guidelines. However, such action

would not require a Caribou-Targhee Forest RFP amendment since it would not be violating Caribou-Targhee Forest RFP standards.

Bridger-Teton Forest management prescription areas designed to achieve DFCs are found in the Bridger-Teton Forest RMP (Forest Service 1990) as follows:

- ▶ **6S Wilderness, Wilderness Study Areas, and Wild Rivers.** The primary resources of these mostly pristine areas are primitive recreation opportunities, scenery, and wildlife. Signs may only be placed at system trail junctions, wilderness restoration sites, and area or trail closures. Management requires a trail system for exclusively non-mechanized (i.e., pedestrian or equestrian only) travel. The trail system will only be expanded into areas without trails after determination that expansion is necessary to meet wilderness-management needs. Study or management does not normally include any excavation, restoration, or on-site interpretation activities (Forest Service 1990, page 185).
- ▶ **9A Developed Recreation Sites.** These areas are managed as campgrounds, other noncommercial areas, and Forest administrative sites, including related roads and sites. Trails are provided for the convenience of people using developed sites. Short trails providing access to facilities and opportunities for interpretation should be developed to whatever density is needed (Forest Service 1990, page 221).
- ▶ **10 Simultaneous Development of Resources, Opportunities for Human Experiences, and Support for Big-Game and a Wide Variety of Wildlife Species.** These areas are managed to allow for some resource development and roads while having no adverse and some beneficial effects on wildlife (Forest Service 1990, page 233).
- ▶ **12 Backcountry Big-Game Hunting, Dispersed Recreation, and Wildlife Security Areas.** These areas are managed for high-quality wildlife habitat and escape cover, big-game hunting opportunities, and dispersed recreation activities. Recreation and other human activities are managed to meet needs of the big-game species (Forest Service 1990, page 241).

## DECISIONS TO BE MADE

This document provides information necessary to make the following decisions:

- ▶ Whether to approve construction of the project through the selection of one alternative or a combination of alternative features;
- ▶ What subsequent additional management action or activities, mitigation measures, and monitoring activities to apply to the project; and

- ▶ Whether to amend the Caribou-Targhee Forest RFP for non-motorized use in the Teton Pass corridor.

Because they have jurisdiction within their respective ROWs, the City of Victor, Idaho; Teton County, Idaho; and Teton County, Wyoming; will decide whether to approve construction of the project based on information provided in this EA. The City of Victor, Idaho, will decide on segments of the pathway located on City of Victor-owned lands; and the Teton County, Idaho, Board of Commissioners will decide on segments of the off-Forest segment located on Teton County, Idaho, lands. Similarly, The Teton County, Wyoming, Board of Commissioners will decide on segments of the pathway located on Teton County, Wyoming, lands. Since Wilson, Wyoming, is not an incorporated town, Teton County, Wyoming, also has jurisdiction over segments located in Wilson, Wyoming.

The Forest Service lands analyzed in this EA are located within both the Teton Basin Ranger District (Caribou-Targhee Forest) and the Jackson Ranger District (Bridger-Teton Forest). The District Ranger for the Jackson Ranger District has delegated the decision to the District Ranger for the Teton Basin Ranger District. Based on public comments, information presented in this EA, and recommendation from the Jackson District Ranger, the Teton Basin District Ranger will decide whether to approve construction of the project on Forest Service lands through the selection of one alternative or a combination of alternative features. The alternative or combination of alternative features that is selected will be the alternative that best serves the public interest within the framework of the Caribou-Targhee Forest RFP and Bridger-Teton Forest RMP.

#### **Amendment to the Caribou-Targhee National Forest 1997 Revised Forest Plan**

The Teton Basin District Ranger will determine whether or not to amend the Caribou-Targhee Forest RFP to change the access for the Teton Pass area that is currently under prescription 2.1.2, Visual Quality Maintenance, to non-motorized during snow seasons (i.e., eliminating snowmobile use) (Forest Service 1997a, page III-83). Establishing the 2.1.2 prescription area for non-motorized winter recreation is not consistent with the standard for the management prescription area, but it is consistent with the Forest-wide objective to establish travel plan designations for non-motorized winter recreation activity areas (Forest Service 1997a, page III-25). A decision to change the access would result in a non-significant amendment to the Caribou-Targhee Forest RFP.

#### **Authorizing Actions and Required Permits**

Approvals and permits from both the Forest Service and other jurisdictional agencies will be required prior to implementation of the project. These approvals and permits, which will be required for both the Forest alternatives and the off-Forest segments, include the following:

- ▶ Teton Basin District Ranger, in consultation with the City of Victor, Idaho; Teton County, Idaho; Teton County, Wyoming; ITD; WYDOT; and the Jackson District Ranger - Decision Notice and Finding of No Significant Impact (FONSI) approving the project and issuing an Authorization for Construction.

- ▶ ITD, District 6 - Authorization to construct within the highway ROW (e.g., underpasses, trail segments on highway fill slopes).
- ▶ WYDOT, District 3 - Authorization to construct within the highway ROW (e.g., underpasses, trail segments on highway fill slopes).
- ▶ U.S. Army Corps of Engineers (Corps) - A Nationwide or an Individual Permit (per Nationwide Permit revisions that will become effective on June 5, 2000), pursuant to Section 404 of the Clean Water Act for minor discharges of dredged or fill material in Waters of the United States.
- ▶ U.S. Environmental Protection Agency, Region 10 - General Permit for Storm Water Discharges from Construction Activities (in Idaho only), under the National Pollutant Discharge Elimination System (NPDES), for ground disturbances of 5 acres or more.
- ▶ Wyoming Department of Environmental Quality (DEQ), Water Quality Division - Authorization to Discharge Storm Water Associated with Construction Activity (in Wyoming only), under the NPDES (permit #WYR10-0000), for ground disturbances of 5 acres or more.
- ▶ Idaho DEQ - Water Quality Certification pursuant to Section 401 of the Clean Water Act. *This will be considered part of the Federal notice regarding NPDES or Section 404 permits.*
- ▶ Wyoming DEQ, Water Quality Division - Water Quality Certification pursuant to Section 401 of the Clean Water Act. *This will be considered part of the Federal notice regarding the Section 404 permit.*
- ▶ Idaho Department of Water Resources - Idaho Stream Alteration Permit.
- ▶ Idaho State Historic Preservation Office (SHPO) - Concurrence that no historic properties will be affected and that effects from the project on historic and archaeological resources have been taken into account, in accordance with Section 106 of the National Historic Preservation Act (NHPA).
- ▶ Wyoming SHPO - Concurrence that no historic properties will be affected and that effects from the project on historic and archaeological resources have been taken into account, in accordance with Section 106 of the NHPA.
- ▶ U.S. Fish and Wildlife Service (USFWS) - Consultation regarding threatened and endangered species in compliance with Section 7 of the Endangered Species Act (ESA) of 1973, as amended. The information presented in Appendix B serves as the Biological Assessment in compliance with Section 7 of the ESA of 1973, as amended.

Chapter  
**2**

# ALTERNATIVES

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# CHAPTER 2 ALTERNATIVES

## INTRODUCTION

This chapter describes and compares the No Action Alternative – located on Forest lands – with three alternatives that fully or partially meet the intent of the Purpose and Needs described in Chapter 1. This chapter also describes the action alternatives located outside Forest lands (off-Forest segments). This chapter includes information on how alternatives were formulated, which alternatives were considered and eliminated from detailed study, which alternatives were analyzed in detail, and those features (e.g., management actions and requirements) common to all action alternatives. The chapter concludes with a comparative summary of environmental consequences, which are detailed in Chapter 3, that would result from the alternatives analyzed in detail. This information, combined with the detailed disclosure of environmental impacts in Chapter 3, provides the deciding officials with sufficient information to make informed decisions.

## PROCESS USED TO FORMULATE ALTERNATIVES

Issues were generated through comments from the public, organizations, and regulatory agencies; articles in various publications; public scoping transcripts from design workshops held in Victor, Idaho, and Wilson, Wyoming; coordination with the City of Victor, Idaho, Teton County, Idaho, Teton County, Wyoming, ITD, and WYDOT; input from Forest Service resource specialists; and specific resource concerns identified by the IDT during its site visit to the project area.

The Forest Service, in conjunction with public input from two workshops, developed a range of possible trail scenarios that appeared feasible, could meet the project purpose, and addressed major public issues. These trail scenarios consisted of various combinations of trail design options implemented along different geographical segments of the Teton Pass corridor. These trail concepts became the basis for the alternatives analysis and the generation of practicable alternatives that could address significant issues.

All of the trail design options were evaluated based on their ability to meet the following criteria:

- ▶ Ability to meet the project Purpose and Needs;
- ▶ Ability to address significant issues;
- ▶ Ability to meet specific recreational needs;

- ▶ Feasibility of engineering; and
- ▶ Ability to mitigate adverse environmental effects.

## **FOREST ALTERNATIVES ANALYZED IN DETAIL**

Three action alternatives and the No Action Alternative are analyzed in detail. Table 2-1 (page 2-3) summarizes the trail design options that are analyzed in detail under each geographical segment of the Forest alternatives. These geographical segments are numbered Segment 1 through Segment 5 from west to east and are depicted on Figure 1-1 (page 1-4):

- ▶ Segment 1: Caribou-Targhee Forest boundary west of Moose Creek to Trail Creek Campground,
- ▶ Segment 2: Trail Creek Campground to Coal Creek area,
- ▶ Segment 3: Coal Creek area to Weather Station,
- ▶ Segment 4: Weather Station to Teton Pass, and
- ▶ Segment 5: Teton Pass to Bridger-Teton Forest, Trail Creek Trailhead.

**Table 2-1. Forest Alternatives Analyzed in Detail.**

FOREST ALTERNATIVE (FIGURE NUMBER)	SEGMENT 1: TARGHEE FOREST BOUNDARY TO TRAIL CREEK CAMPGROUND	SEGMENT 2: TRAIL CREEK CAMPGROUND TO COAL CREEK AREA	SEGMENT 3: COAL CREEK AREA TO WEATHER STATION	SEGMENT 4: WEATHER STATION TO TETON PASS	SEGMENT 5: TETON PASS TO TRAIL CREEK TRAILHEAD
<p><b>Forest Alternative A: High-Standard Trail (Figure 2-1)</b></p> <p>This continuous, non-motorized pathway would consist of a 10-foot-wide paved path and an adjacent, separated 24-inch-wide native-surface trail (where feasible). Road bicyclists, mountain bikers, equestrians, and pedestrians would be accommodated. Some portions would also support universal access<sup>a</sup>.</p>	<p><b>North Option:</b> Decommission motorized use on the old timber road and left, middle, and right fork roads<sup>b</sup>. Construct the new pathway on existing segments of the Old Jackson Highway<sup>c</sup> and by connecting segments of the Old Jackson Highway<sup>c</sup>. Build a highway underpass at the Trail Creek Campground northwest of Trail Creek Campground for 10 vehicles. Continue pathway adjacent to Trail Creek Campground, with a connector segment that leads to the campground.</p> <p><b>South Option:</b> Decommission motorized use on the left, middle, and right fork roads<sup>b</sup>. Construct the new pathway on the Old Jackson Highway<sup>c</sup>. Provide an at-grade highway crossing at Mike Harris Campground. Construct the pathway on the south side of Trail Creek. Construct a new trailhead northwest of Trail Creek Campground to accommodate 10 vehicles. Connect the pathway and new trailhead by bridging Trail Creek.</p>	<p><b>North Option:</b> Construct the new pathway between Trail Creek and the south side of the highway from Trail Creek Campground to Mail Cabin Road. Build a highway underpass at the Mail Cabin Road area. Because of resource constraints there would not be a separated, 24-inch-wide, native-surface trail in this segment.</p>	<p>Construct the pathway on the existing BPA road north of the highway.</p>	<p>Construct a highway underpass at the Weather Station. Construct the new pathway south of the highway to the Teton Pass Trailhead.</p>	<p>Construct the new pathway from the Teton Pass Trailhead to the old pass road<sup>d</sup> along the existing trail. Repave the old pass road<sup>d</sup>. Reconstruct the entire historic wagon route to a standard Forest Service trail<sup>e</sup>, and provide interpretation of the route.</p>

**Table 2-1. Forest Alternatives Analyzed in Detail (cont.).**

FOREST ALTERNATIVE (FIGURE NUMBER)	SEGMENT 1: TARGHEE FOREST BOUNDARY TO TRAIL CREEK CAMPGROUND	SEGMENT 2: TRAIL CREEK CAMPGROUND TO COAL CREEK AREA	SEGMENT 3: COAL CREEK AREA TO WEATHER STATION	SEGMENT 4: WEATHER STATION TO TETON PASS	SEGMENT 5: TETON PASS TO TRAIL CREEK TRAILHEAD
<p><b>Forest Alternative B: Varying Opportunity Trail (Figure 2-2)</b></p> <p>This continuous, non-motorized trail would be 24-inches wide (unless otherwise noted) and would consist of varying surfaces. Mountain bikers, equestrians, and pedestrians would be accommodated.</p>	<p>Decommission motorized use on the old timber road and left, middle, and right fork roads<sup>a</sup>. Construct the new trail on the Old Jackson Highway<sup>c</sup> and the existing BPA road north of the highway.</p>	<p>Build a highway underpass at the Trail Creek Campground area. Use existing segments of BPA road in their current condition. Construct three new trail segments that connect the two existing BPA road segments.</p>	<p>Connect the Coal Creek Trailhead parking area to the existing BPA road to the east. Use the existing BPA road to the Weather Station.</p>	<p>Use the existing BPA road in its current condition from the Weather Station to its terminus on Mount Glory. Construct a new connector trail from the BPA road terminus at Mount Glory to the highway. Provide an at-grade highway crossing at Teton Pass.</p>	<p>Connect Teton Pass Trailhead to the old pass road<sup>d</sup> via the existing trail. Repair and spot repave, if necessary, the old pass road<sup>d</sup>. Reconstruct parts of the historic wagon route, and provide interpretation of the route.</p>
<p><b>Forest Alternative C: Recreation Enhancements (Figure 2-3)</b></p> <p>Connections to existing trails and trailheads would be provided. A variety of recreational facilities would be enhanced, and some portions of existing trails would be reconstructed. Mountain bikers, equestrians, and pedestrians would be accommodated. Some segments would also support universal access<sup>a</sup>.</p>	<p>Decommission motorized use on the old timber road and left, middle, and right fork roads<sup>a</sup>. Upgrade the existing Crest Trail from its junction with the Mike Harris-Mail Cabin Trail to Teton Pass to a standard Forest Service trail<sup>b</sup>. Construct a universally accessible<sup>a</sup>, interpretive trail on the south side of Trail Creek to Trail Creek Campground, providing access to the highway and campground entrance road. Provide an at-grade highway crossing to connect the existing access road for the BPA road (north of the highway) to the new trail on the south side. Connect the existing Old Jackson Highway<sup>c</sup> to the existing BPA road with a standard Forest Service trail<sup>b</sup>.</p>	<p>Construct no new trails between rail Creek Campground and Mail Cabin Trailhead. Improve Mail Cabin Trail to a standard Forest Service trail<sup>b</sup> from its trailhead to Mosquito Pass.</p>	<p>Construct a universally accessible<sup>a</sup>, interpretive trail from Coal Creek Trailhead to the old way station north of the trailhead. Connect Coal Creek trailhead to the existing BPA road to the east with a standard Forest Service trail<sup>b</sup>. Use the BPA road to the Weather Station.</p>	<p>Make no enhancements in this segment.</p>	<p>Widen the existing trail from Teton Pass Trailhead to the old pass road<sup>d</sup>. Repair and spot repave, if necessary, the old pass road<sup>d</sup>. Reconstruct portions of the historic wagon route and provide interpretation of the route. Construct a standard Forest Service trail<sup>b</sup> to connect the two existing BPA road segments northeast of Phillips Bench Trailhead. Construct a standard Forest Service trail<sup>b</sup> between Phillips Bench Trailhead and the existing BPA road to its south. Improve Phillips Bench Trailhead to accommodate 15 vehicles and 3 horse trailers.</p>

Table 2-1. Forest Alternatives Analyzed in Detail (cont.).

FOREST ALTERNATIVE (FIGURE NUMBER)	SEGMENT 1: TARGEE FOREST BOUNDARY TO TRAIL CREEK CAMPGROUND	SEGMENT 2: TRAIL CREEK CAMPGROUND TO COAL CREEK AREA	SEGMENT 3: COAL CREEK AREA TO WEATHER STATION	SEGMENT 4: WEATHER STATION TO TETON PASS	SEGMENT 5: TETON PASS TO TRAIL CREEK TRAILHEAD
Facility Enhancements Included in Forest Action Alternatives A, B, and C (Figures 2-1, 2-2, and 2-3)	Construct a new trailhead at Mike Harris Campground (in overflow camping area) to accommodate 15 vehicles and 5 horse trailers.	Make no facility improvements in this segment.	Improve Coal Creek Trailhead parking area to include parking for 5 horse trailers. Replace the existing restroom.  Decommission motorized use on the Mail Cabin Trail.	Make no facility improvements in this segment.	Improve the Teton Pass parking area for better traffic flow. Consolidate signing to one location. Provide an information kiosk. Incorporate a shuttle staging area. Add a restroom.  Improve the Trail Creek Trailhead parking area to accommodate 20 vehicles and 3 horse trailers.
Alternative D: No Action	Make no improvements to the existing roadway and Forest Service trail system.	Make no improvements to the existing roadway and Forest Service trail system.	Make no improvements to the existing roadway and Forest Service trail system.	Make no improvements to the existing roadway and Forest Service trail system.	Make no improvements to the existing roadway and Forest Service trail system.

a. Universal access indicates that the trail would be accessible by physically challenged persons, i.e., persons using wheelchairs.

b. The old timber road splits into three separate two-track roads approximately 0.83 mile east of Mike Harris Campground, or 1,700 feet east of Mikesell Canyon Creek. The left (east) fork runs southeast along the bench on the south side of West Trail Creek, the middle fork heads along the ridge to the south, and the right (west) fork is the continuation of the old timber road to the south/southwest.

c. The Old Jackson Highway is the section of the old highway from Victor, Idaho, to Moose Creek, Idaho, and is currently a City of Victor, Idaho, and Teton County, Idaho, roadway.

d. The old pass road is the section of the old highway from just east of Teton Pass to the Trail Creek Trailhead, Wyoming.

e. A standard Forest Service trail is 24-inches wide, full-treaded, and native-surfaced with a 48-inch-wide cleared area on each side of its centerline.

### **Alternative A: High-Standard Trail**

Alternative A would establish a continuous, multi-use trail on Forest lands between Victor, Idaho, and Wilson, Wyoming. This high-standard trail would consist of a 10-foot-wide paved path (with additional native-surface shoulders on both sides) plus an adjacent, separated, 24-inch-wide native-surface trail where feasible. The entire pathway system would serve multiple non-motorized user groups, including road bicyclists, mountain bicyclists, equestrians, and pedestrians during three seasons (i.e., spring, summer, fall). Some portions would also accommodate persons requiring universal access (i.e., persons using wheelchairs).

By connecting to the off-Forest segments proposed for construction up to the Caribou-Targhee Forest and Bridger-Teton Forest boundaries on both ends of the Teton Pass corridor, Alternative A would provide a separated, high-standard, continuous pathway that connects without interruption from Victor, Idaho, to Wilson, Wyoming. Alternative A could encourage non-motorized commuter traffic through the Teton Pass corridor and would increase opportunities for non-motorized recreational trail use on Forest lands. Alternative A would also include decommissioning (i.e., closing) some non-system roads to unauthorized motorized use. Figure 2-1 (page 2-8) depicts the alignment and facility options for Alternative A. Specific trail design options within each geographical segment to be included in Alternative A are presented below.

#### **All Segments of Alternative A**

- ▶ Switch-back trails will be built where the slope exceeds 15 percent for a distance longer than 500 feet.
- ▶ In Segment 1, construct a new trailhead northwest of Trail Creek Campground to accommodate 10 vehicles.
- ▶ In Segment 2, construct a skewed underpass from the Mail Cabin Road area to the cutback and swale associated with the BPA road on north side of WY-22 (just east of the Coal Creek area).
- ▶ Construction of an adjacent, separated 24-inch-wide native-surface trail in Segment 2 would not be possible because of resource constraints.
- ▶ The paved trail will be designed to incorporate permanent post-construction storm water runoff controls. Sheet flow from the paved trail surface will be controlled to prevent flow concentration and gully formation. Adequate drainage will be provided through the use of outsloping or crowning, drain dips, and/or insloping in conjunction with vegetated ditches and cross-drains/culverts, as appropriate. Outfalls from drain dips, cross-drains, and drainage culverts will be protected with rock and will dissipate runoff into stable, well-vegetated areas. Drainage features will be spaced to ensure that flow that accumulates in ephemeral swales or gullies remains in its natural path and is not intercepted by the paved trail. Drain dips, cross-drains, and culverts will be spaced to outlet runoff at frequent intervals, thereby minimizing the potential for the trail surface to channelize runoff.

- ▶ For three years following project completion, streambank areas adjacent to the trail will be monitored annually to identify any areas where unauthorized recreational stream access paths are causing sediment inputs into the stream. Identified areas will be hardened to minimize erosion potential or blocked off and revegetated.
- ▶ To alleviate safety conflicts between trail users, design and construction measures will include bicycle-slowng features (e.g., speed bumps) and pull-outs (e.g., at the Mail Cabin Road area underpass). Other safety-enhancing measures will include trail-side interpretive signs that focus on yielding, trail etiquette, and the general education of trail users about trail safety.

**Segment 1 (Caribou-Targhee Forest Boundary West of Moose Creek to Trail Creek Campground)**

**North Option:**

- ▶ Construct the pathway on the existing segments of the Old Jackson Highway at the Caribou-Targhee Forest boundary west of Moose Creek. Develop new segments of pathway where necessary to connect the existing segments of Old Jackson Highway.
- ▶ Build an underpass under WY-22 at Trail Creek Campground area.
- ▶ Continue the pathway construction adjacent to Trail Creek Campground, with a connector segment that leads to Trail Creek Campground.

**South Option:**

- ▶ Construct a new pathway that connects to the existing Old Jackson Highway across the existing bridge at Moose Creek, Idaho.
- ▶ Continue on the existing Old Jackson Highway segment to its terminus located across ID-33 from the entrance road to Mike Harris Campground.
- ▶ Provide an at-grade highway crossing to the entrance road to Mike Harris Campground using standard striping and signing.
- ▶ Construct a pathway on the south side of West Trail Creek using the old timber road that extends from Mike Harris Campground to just west of State Line Canyon. Continue by constructing a new pathway along the bench/hillside that extends along the south side of West Trail Creek to just west of Trail Creek Campground, bridging State Line Canyon Creek.
- ▶ Construct a wood laminate bridge spanning West Trail Creek to provide access to the proposed new trailhead (that would be constructed northwest of Trail Creek Campground) from the new pathway on the south side of West Trail Creek. Continue the new pathway construction on the south side of West Trail Creek.

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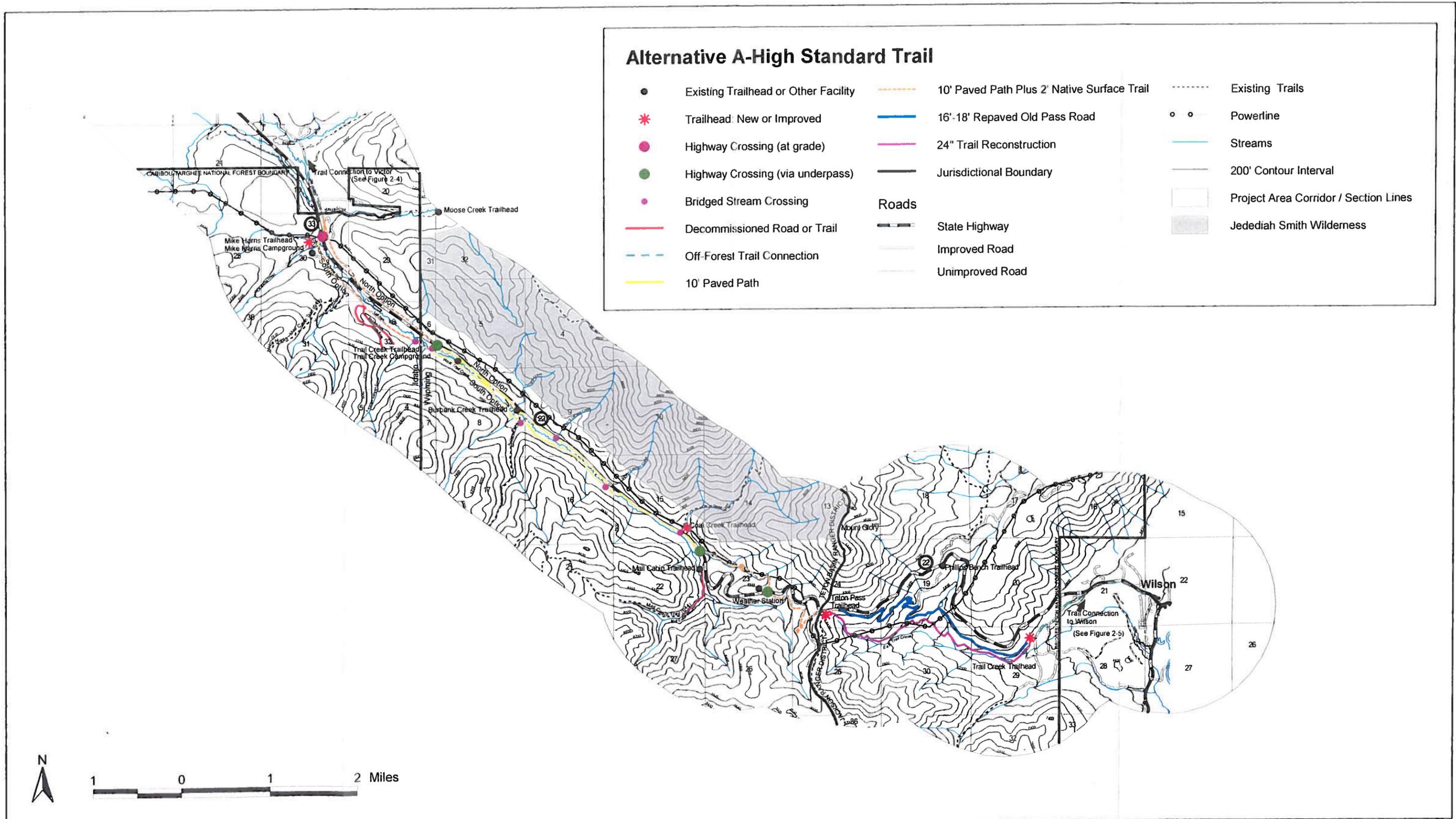
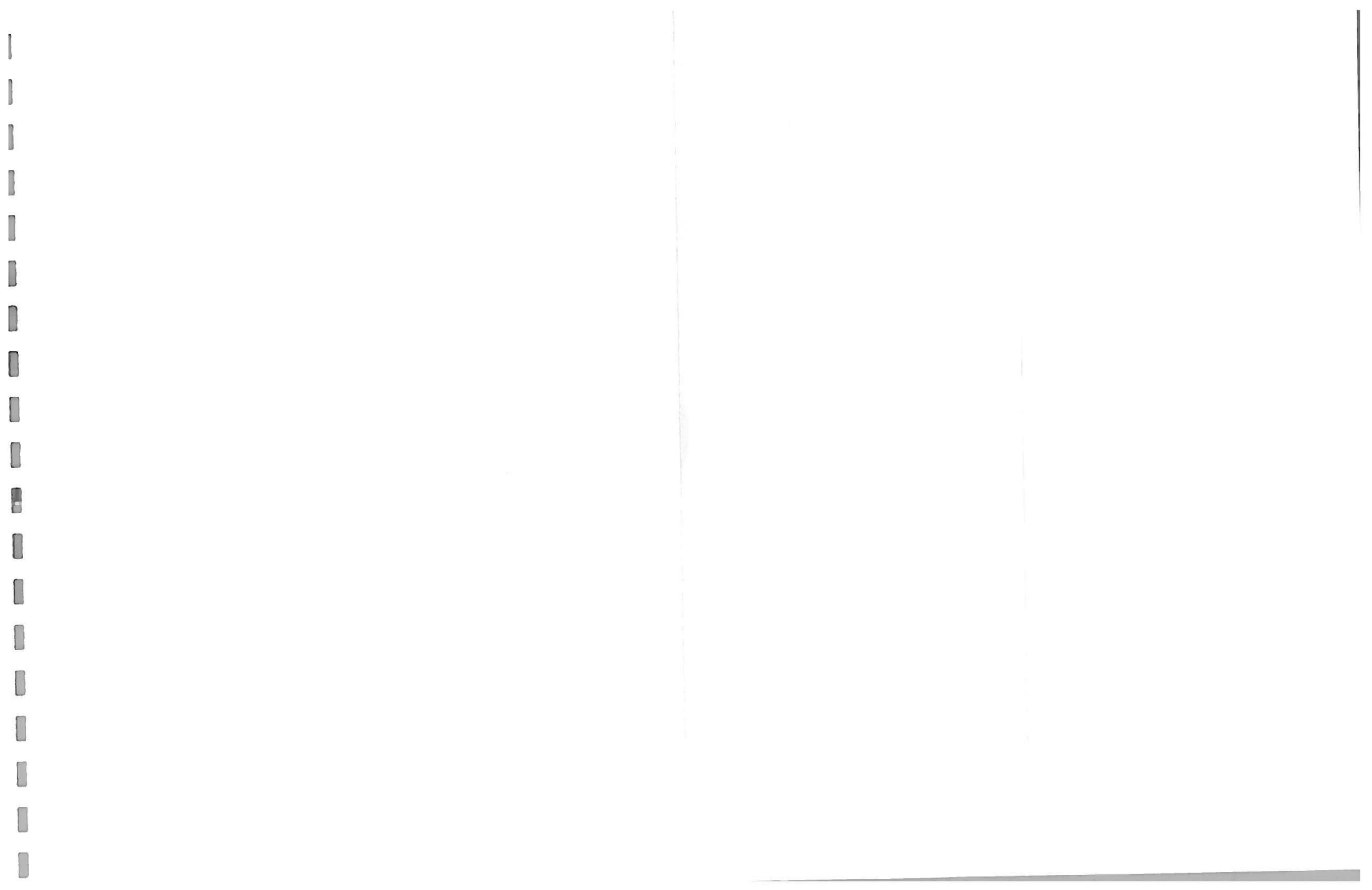


Figure 2-1. Alternative A - High-Standard Trail.



## **Segment 2 (Trail Creek Campground to Coal Creek Area)**

### **North Option:**

- ▶ In areas where the trail alignment is located between ID-33/WY-22 and West Trail Creek, the trail will be built on the existing highway fill slope using fill material and retaining walls so that existing riparian vegetation is not impacted. In trail segments where riparian vegetation must be removed to accommodate the trail, a detailed site investigation will be conducted by a qualified scientist to determine whether vegetation removal will cause substantial impacts to water quality or aquatic habitat. This investigation will include collection of quantitative data that adequately describe current water quality conditions, current levels of fine sediment within streambed substrates, and current aquatic habitat conditions for Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*). The site investigation will be conducted prior to initiation of construction.
- ▶ Construct a pathway between West Trail Creek and the south side of WY-22 from Trail Creek Campground to connect with Mail Cabin Road, bridging Talbot Canyon Creek and Coal Creek.

### **South Option:**

- ▶ Construct a pathway on the south side of West Trail Creek from Trail Creek Campground to Burbank Creek.
- ▶ Cross Burbank Creek with a bridge. Continue the pathway on south side of West Trail Creek.
- ▶ Construct a wood laminate bridge to cross West Trail Creek approximately 1 mile southeast of Talbot Canyon and approximately 1 mile northwest of Coal Creek.
- ▶ Continue pathway construction between West Trail Creek and the south side of WY-22 to connect with Mail Cabin Road, bridging Coal Creek.

## **Segment 3 (Coal Creek Area to Weather Station)**

- ▶ Construct a pathway on the existing BPA road (Old Jackson Highway) north of WY-22 to the Weather Station. The pathway would be designed to accommodate BPA's machinery. Any currently eroding slopes associated with the existing BPA road will be revegetated.

## **Segment 4 (Weather Station to Teton Pass)**

- ▶ Construct an underpass from the Weather Station to the south side of WY-22.
- ▶ Construct the new pathway on the south side of WY-22 to the Teton Pass Trailhead.

## **Segment 5 (Teton Pass to Bridger-Teton Forest, Trail Creek Trailhead)**

- ▶ Construct a pathway from the Teton Pass Trailhead to the existing old pass road along the existing gravel single-track trail.

- ▶ Repave the old pass road to 16 to 18 feet wide.
- ▶ Reconstruct the entire historic wagon route to a standard Forest Service 24-inch-wide, full-tread, native-surface trail with a 48-inch-wide cleared area on each side of its centerline for use by pedestrians and equestrians.

### **Alternative B: Varying Opportunity Trail**

Alternative B would have varying surfaces and experiences and would consist of a trail with 24-inch-wide tread and a 48-inch-wide cleared area on each side of its centerline. Alternative B would not be paved, except for spot repaving of the old pass road. The trail's varying surfaces (e.g., native surface, hardened dirt, existing trail surfaces) would accommodate non-motorized user groups including mountain bikers, equestrians, and pedestrians during three seasons (not winter). Road bicyclists would be required to continue using the existing highway (ID-33/WY-22). Alternative B would also include decommissioning (i.e., closing) some non-system roads to motorized use. Figure 2-2 (page 2-11) depicts the alignment and facility options for Alternative B. Specific segment options and facilities included in Alternative B are presented below.

#### **All Segments of Alternative B**

- ▶ Continue to work with the WYDOT and the ITD to plan shoulder enhancements on ID-33/WY-22 that provide wider shoulders.
- ▶ Prior to initiating construction, surveys for flammulated owl (*Otus flammeolus*) will be conducted in all areas containing suitable habitat that would be impacted by construction. All surveys will follow standard Forest Service protocols. If the species is identified in the area, measures will be taken to avoid impacts. These activities may include relocating portions of the trail and timing construction activities to occur outside of critical breeding periods.

#### **Segment 1 (Caribou-Targhee Forest Boundary West of Moose Creek to Trail Creek Campground)**

- ▶ Construct a new trail that connects from the existing Old Jackson Highway across the existing bridge at Moose Creek to the existing BPA road with a new 24-inch-wide native-surface trail. Use the existing BPA road in its current condition.
- ▶ Construct new trail segments of standard (24-inch-wide) native-surface trail to reduce grade severity where the grade on the existing BPA road exceeds 15 percent for more than 500 feet.

### Alternative A-High Standard Trail

- |  |   |   |
|--|---|---|
| ● Existing Trailhead or Other Facility | — 10' Paved Path Plus 2' Native Surface Trail | ⋯ Existing Trails                       |
| * Trailhead: New or Improved           | — 16'-18' Repaved Old Pass Road               | ○ ○ Powerline                           |
| ● Highway Crossing (at grade)          | — 24" Trail Reconstruction                    | — Streams                               |
| ● Highway Crossing (via underpass)     | — Jurisdictional Boundary                     | — 200' Contour Interval                 |
| ● Bridged Stream Crossing              | <b>Roads</b>                                  | ▭ Project Area Corridor / Section Lines |
| — Decommissioned Road or Trail         | — State Highway                               | ▭ Jedediah Smith Wilderness             |
| — Off-Forest Trail Connection          | — Improved Road                               |   |
| — 10' Paved Path                       | — Unimproved Road                             |   |

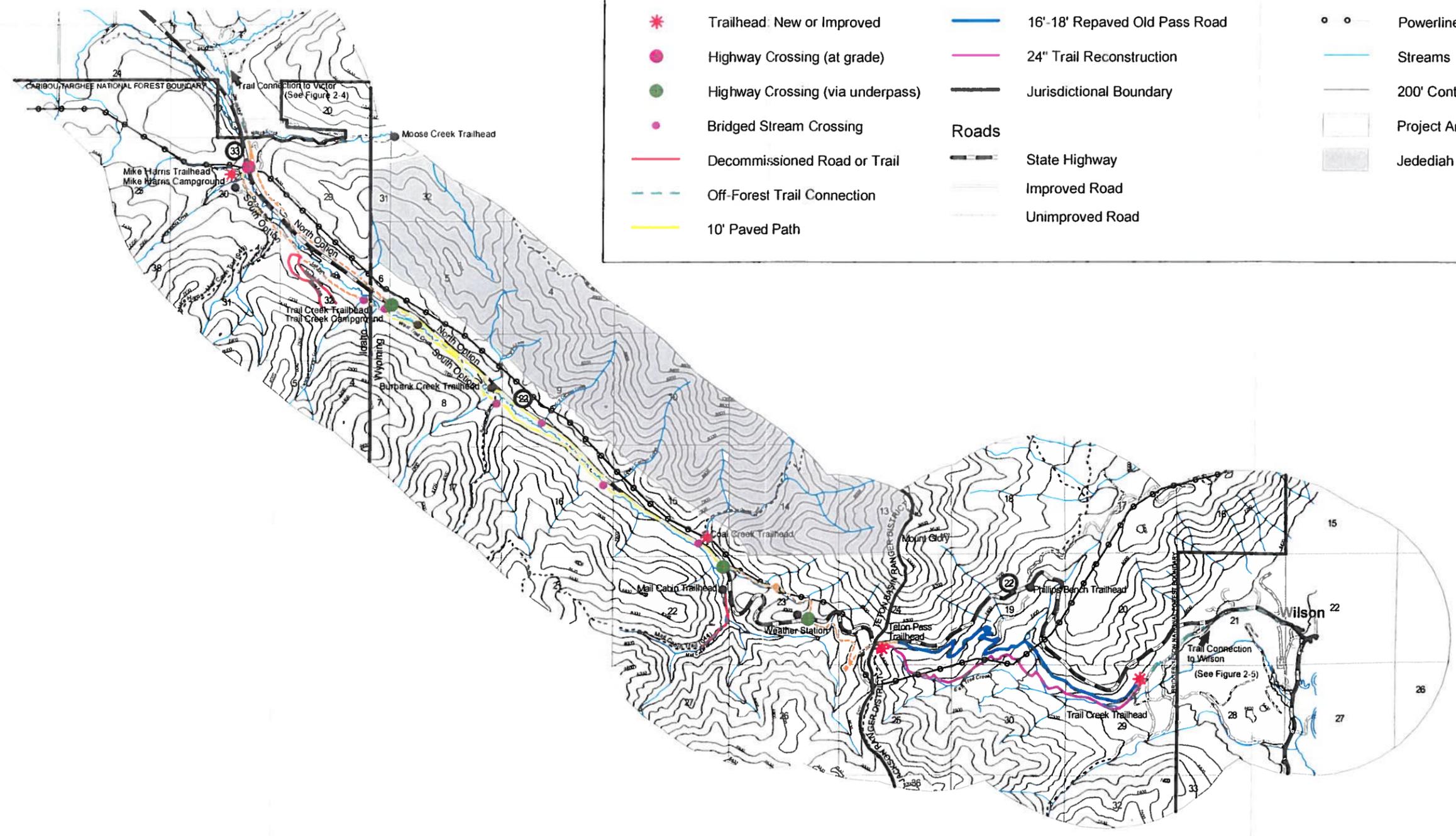


Figure 2-1. Alternative A - High-Standard Trail.

### Alternative B-Varying Opportunity Trail

- |   |  |   |
|---|--|---|
| ● Existing Trailhead or Other Facility  | — 24" Trail Reconstruction                                 | — Unimproved Road                       |
| ★ Trailhead: New or Improved            | — 48" Trail  | --- Existing Trails                     |
| ⊕ Highway Crossing (at grade)           | — Repaired Old Pass Road (width varies)                    | ○ ○ Powerline                           |
| ● Bridged Stream Crossing               | — 24" Trail Partially Reconstructed - Historic Wagon Route | — Streams                               |
| — Decommissioned Road or Trail          | — Jurisdictional Boundary                                  | — 200' Contour Interval                 |
| - - - Off-Forest Trail Connection       | <b>Roads</b>   | — Project Area Corridor / Section Lines |
| — BPA Road in Existing Condition        | — State Highway  | ■ Jedediah Smith Wilderness             |
| — 24" Trail to Connect Gaps in BPA Road | — Improved Road  |   |

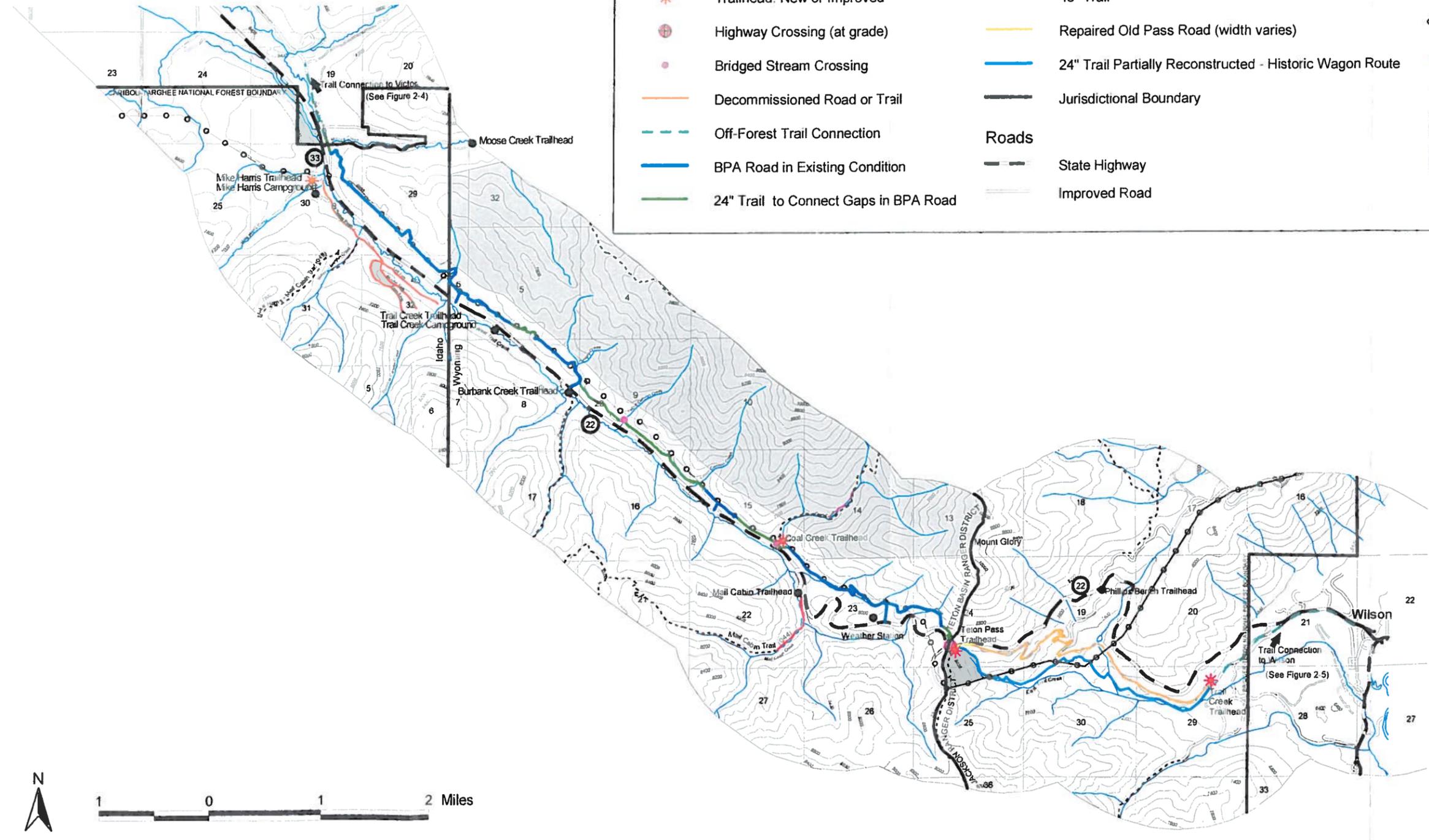


Figure 2-2. Alternative B - Varying Opportunity Trail.

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### **Segment 2 (Trail Creek Campground to Coal Creek Area)**

- ▶ Build an underpass under WY-22 at the Trail Creek Campground area.
- ▶ Use the existing segments of BPA roads in their current conditions.
- ▶ Construct three new trail segments that connect the two existing BPA road segments with 24-inch-wide native-surface trail. New trail segments would include: (1) a 0.30-mile segment west of Hungry Creek, (2) an approximate 1.55-mile segment between Hungry Creek and Squaw Canyon (bridging Talbot Canyon Creek), and (3) a 0.53-mile segment from Coal Creek Trailhead west to the existing BPA road (bridging Coal Creek).

### **Segment 3 (Coal Creek Area to Weather Station)**

- ▶ Construct a new, approximately 1,500-foot-long connector trail from the Coal Creek Trailhead parking area to the existing BPA road to the east, switching back up steep side hills where needed. Maintain grades at less than 15 percent through switchbacks.
- ▶ Utilize the existing BPA road in its current condition to the Weather Station. Construct new pathway switchbacks where the BPA road grade exceeds 15 percent for more than 500 feet.

### **Segment 4 (Weather Station to Teton Pass)**

- ▶ Utilize the existing BPA road in its current condition to connect from the Weather Station to its terminus on Mount Glory.
- ▶ Construct approximately 1,000 feet of new trail from the end of the BPA road to connect to WY-22 at Teton Pass.
- ▶ Provide an at-grade WY-22 highway crossing at Teton Pass using standard striping and signing to connect to the Teton Pass parking lot.

### **Segment 5 (Teton Pass to Bridger-Teton Forest, Trail Creek Trailhead)**

- ▶ Harden and widen to 48 inches the existing single-track trail that connects from the Teton Pass Trailhead to the old pass road.
- ▶ Repair to its existing width (width varies) and spot repave, if necessary, the old pass road to Trail Creek Trailhead.
- ▶ Reconstruct parts of the historic wagon route for equestrians and pedestrians. Reconstruction will include installing erosion-control measures where necessary to prevent further erosion on and off the route.

### **Alternative C: Recreation Enhancements**

Alternative C, Recreation Enhancements, would not include a continuous trail, but it would enhance opportunities radiating from existing trailheads and campgrounds within the Teton Pass corridor. Implementation of Alternative C would enhance a variety of Forest recreational facilities and would reconstruct portions of existing trail segments. Improvements would serve non-motorized user groups including mountain bikers, equestrians, and pedestrians. Some segments would also accommodate persons requiring three-season (spring, summer, fall) universal access. Universal access trails would be 36- or 48-inches wide, depending on the Recreation Opportunity Spectrum (ROS) classification of the area, and would consist of a hardened surface instead of paving.

To provide a through connection between Victor, Idaho, and Wilson, Wyoming, this alternative would require use of the existing highway (ID-33/WY-22). Alternative C would also include decommissioning (i.e., closing) some non-system roads to unauthorized motorized use. Figure 2-3 (page 2-14) depicts the alignment and facility enhancements for Alternative C. Specific segment options and facilities included in Alternative C are presented below.

#### **All Segments of Alternative C**

- ▶ Continue to work with WYDOT and ITD to plan shoulder enhancements on ID-33/WY-22 that provide wider shoulders for bicycle use.
- ▶ Prior to initiating construction, surveys for flammulated owl will be conducted in all areas containing suitable habitat that would be impacted by construction. All surveys will follow standard Forest Service protocols. If the species is identified in the area, measures will be taken to avoid impacts. These activities may include relocating portions of the trail and timing construction activities to occur outside of critical breeding periods.

#### **Segment 1 (Caribou-Targhee Forest Boundary West of Moose Creek to Trail Creek Campground)**

- ▶ Upgrade the existing non-system "Crest Trail" beginning at its junction with system trail #049 (Mike Harris - Mail Cabin Trail) just east of Mike Harris Campground all the way to Teton Pass (via Mosquito Pass) according to Forest Service system trail standards: a 24-inch-wide, full-tread, native-surface trail with a 48-inch-wide cleared area on each side of its centerline.
- ▶ Construct a hardened 48-inch-wide universally accessible trail on the south side of West Trail Creek using the old timber road that extends from Mike Harris Campground to just west of State Line Canyon. Continue by constructing a new, hardened 48-inch-wide universally accessible trail along the bench/hillside that extends along the south side of West Trail Creek to just west of Trail Creek Campground, bridging State Line Canyon Creek.

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### Alternative C - Recreation Enhancements

- Existing Trailhead or Other Facility
- \* Trailhead: New or Improved
- Highway Crossing (at grade)
- Bridged Stream Crossing
- Decommissioned Road or Trail
- - - Off-Forest Trail Connection
- 36" or 48" Universally Accessible Trail, Hardened Surface
- BPA Road in Existing Condition
- 24" Trail - New or Upgraded to Forest System Standards
- 8" Trail - Hardened Surface
- Repaired Old Pass Road (width varies)
- 24" Trail Partially Reconstructed - Historic Wagon Route
- Jurisdictional Boundary
- Roads**
- State Highway
- Improved Road
- Unimproved Road
- - - Existing Trails
- ○ Powerline
- Streams
- 40' Contour Interval
- Project Area Corridor / Section Lines
- ▨ Jedediah Smith Wilderness

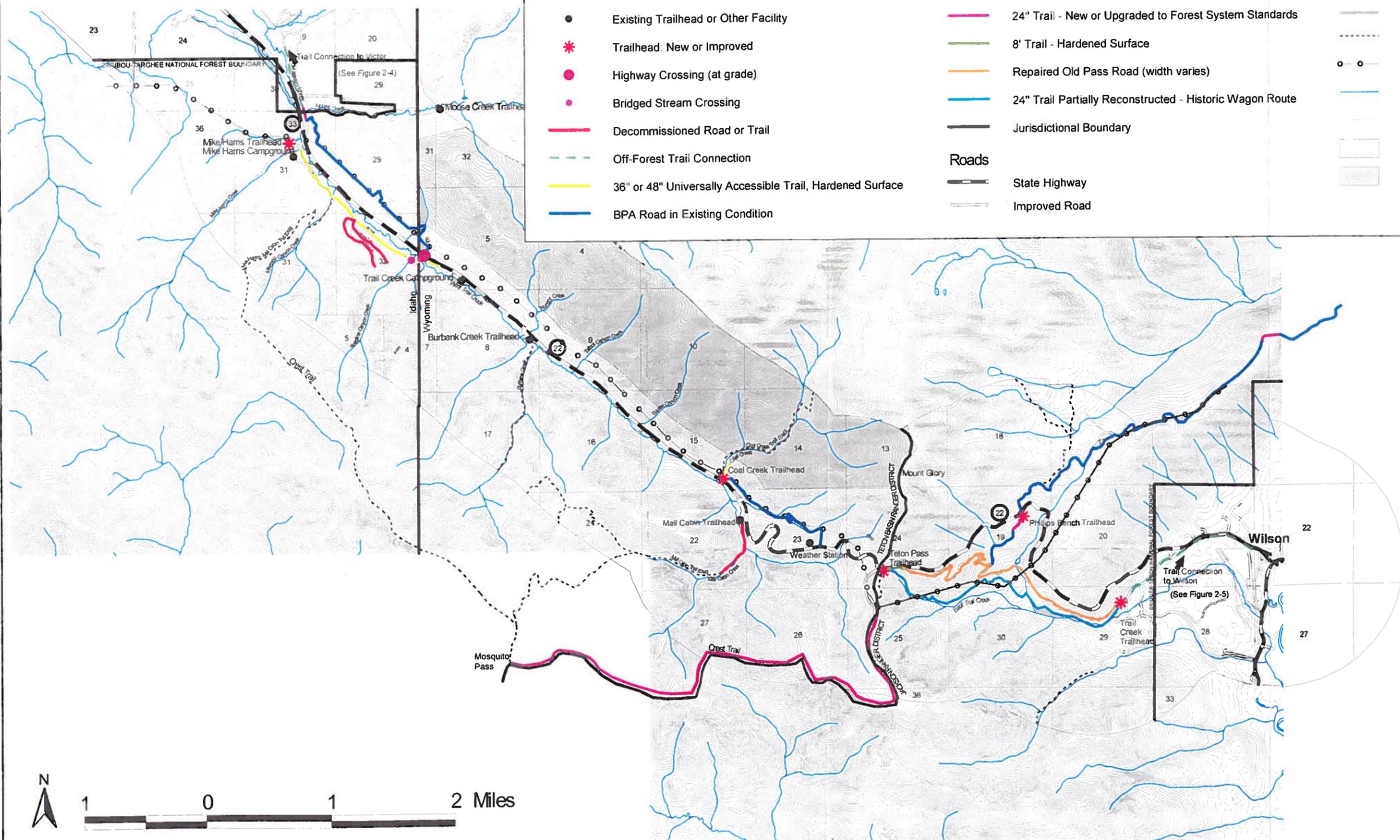


Figure 2-3. Alternative C - Recreation Enhancements.

- ▶ Place interpretive signing along the entire trail segment from Mike Harris Campground to Trail Creek Campground.
- ▶ Construct a universally accessible, wood laminate bridge from the new trail on the south side of West Trail Creek across West Trail Creek (at the new trail's location immediately across the highway from the existing access road for the BPA road [on the north side of WY-22]).
- ▶ Continue the universally accessible trail from the north end of the bridge for approximately 200 feet north to meet WY-22.
- ▶ Provide an at-grade WY-22 highway crossing using standard striping and signing to connect the existing access road for the BPA road (on the north side of WY-22) to the new trail on the south side of WY-22.
- ▶ Continue construction of the universally accessible trail eastward (between the highway and West Trail Creek) for approximately 900 feet to connect the bridge at West Trail Creek to the existing access road to the Trail Creek Campground.
- ▶ Create a trail loop opportunity between this universally accessible trail (south of the highway) and the BPA road (north of the highway) by constructing a new trail connecting the existing Old Jackson Highway across the existing bridge at Moose Creek to the existing BPA road with a 24-inch-wide, full-tread, native-surface trail. Use the existing BPA road in its current condition.
- ▶ Construct new trail segments of standard 24-inch-wide native-surface trail to reduce grade severity where the grade on the existing BPA road exceeds 15 percent for more than 500 feet.

**Segment 2 (Trail Creek Campground to Coal Creek Area)**

- ▶ Construct no new trails between Trail Creek Campground and Mail Cabin Trailhead.
- ▶ Improve Mail Cabin Trail (system trail #044) beginning at the Mail Cabin Trailhead to its connection with the "Crest Trail" at Mosquito Pass according to Forest Service system trail standards: a 24-inch-wide, full-tread, native-surface trail with a 48-inch-wide cleared area on each side of its centerline.

**Segment 3 (Coal Creek Area to Weather Station)**

- ▶ Construct a new 48-inch-wide hardened, universally accessible, interpretive trail from the Coal Creek Trailhead parking area to the old way station located approximately 900 feet north of Coal Creek Trailhead.

- ▶ Construct a new 24-inch-wide, approximately 1,500-foot-long connector trail from Coal Creek Trailhead parking area switching back up the slope eastward to connect to the existing BPA road to the east.
- ▶ Use the BPA road in its current condition to the Weather Station. Construct new pathway switchbacks where the existing BPA road exceeds 15 percent grade for more than 500 feet.

**Segment 4 (Weather Station to Teton Pass)**

- ▶ Make no enhancements in this segment.

**Segment 5 (Teton Pass to Bridger-Teton Forest, Trail Creek Trailhead)**

- ▶ Widen to 8 feet the existing single-track trail that connects from the Teton Pass Trailhead to the old pass road.
- ▶ Repair and spot repave, if necessary, the old pass road to Trail Creek Trailhead to its existing width (width varies).
- ▶ Reconstruct portions of the historic wagon route for equestrians and pedestrians. Reconstruction will include installing erosion-control measures where necessary to prevent further erosion on and off the route.
- ▶ Construct an approximately 1,500-foot-long, 24-inch-wide, native-surface trail with 48-inch-wide cleared areas on each side of its centerline to connect the two existing BPA road segments northeast of Phillips Bench Trailhead. This would enable use of the Phillips Bench trail loop between Phillips Bench Trailhead, Phillips Canyon Trail (system trail #001), Fish Creek Road, and WY-22.
- ▶ Construct a 24-inch-wide, native-surface trail (with 48-inch-wide cleared areas on each side of its centerline) between Phillips Bench Trailhead and the existing BPA road located approximately 400 feet to the south of the trailhead. The BPA road provides access to the old pass road located approximately 0.50 mile to the southwest.
- ▶ Improve the Phillips Bench Trailhead to accommodate 15 vehicles and 3 horse trailers.

**Facility Enhancements Included in Alternatives A, B, and C**

The following facility improvements would be conducted under Alternatives A, B, and C.

**Segment 1 (Caribou-Targhee Forest Boundary West of Moose Creek to Trail Creek Campground)**

- ▶ Construct a new trailhead at Mike Harris Campground (in overflow camping area) to accommodate 15 vehicles and 5 horse trailers.

### **Segment 2 (Trail Creek Campground to Coal Creek Area)**

- ▶ Make no facility enhancements in this segment.

### **Segment 3 (Coal Creek Area to Weather Station)**

- ▶ Improve Coal Creek Trailhead parking area to include parking for 5 horse trailers. Replace the existing restroom.

### **Segment 4 (Weather Station to Teton Pass)**

- ▶ Make no facility improvements in this segment.

### **Segment 5 (Teton Pass to Bridger-Teton Forest, Trail Creek Trailhead)**

- ▶ Improve the Teton Pass parking area for better traffic flow. Consolidate signing to one location. Provide an information kiosk. Incorporate a shuttle staging area (i.e., bus stop/pull off). Add a restroom.
- ▶ Improve the Trail Creek Trailhead parking area to accommodate 20 vehicles and 3 horse trailers.

### **Alternative D: No Action**

In all five geographical segments, the No Action Alternative would consist of the existing roadway (ID-33/WY-22) and the existing Forest trail system with no improvements. The No Action Alternative has been included in the analysis to serve as a baseline with which to evaluate the impacts of the other alternatives and to meet NEPA requirements.

## **FEATURES COMMON TO ALL FOREST ACTION ALTERNATIVES ANALYZED IN DETAIL**

Management activities, Best Management Practices (BMPs), mitigation measures, and monitoring activities that would be implemented for any of the three action alternatives (Alternatives A, B, and C) are described below.

### **Management Common to All Forest Action Alternatives**

The elements listed below are requirements of the Caribou-Targhee Forest RFP (Forest Service 1997a) and/or the Bridger-Teton Forest RMP (Forest Service 1990). These management actions are common to all Forest action alternatives (Alternatives A, B, and C) and will be implemented during or after the project, as appropriate.

### **Geology and Soils**

- ▶ The selected route will be assessed by a professional geologist and/or a geotechnical engineer to evaluate potential slope stability problems and to design mitigation solutions before trail construction begins. These solutions could include additional geotechnical investigations; re-routing portions of the trail to avoid problem areas; and using native

materials, geotextiles, and other materials for retaining walls and slope stabilization. Proper geological and geotechnical engineering techniques, along with minor trail reroutes, are expected to be 95 to 100 percent effective in stabilizing the slopes and trail surface. The slopes will be designed with a safety factor of 1.3 under static conditions and a safety factor greater than 1.0 under seismic conditions.

### **Geology and Soils / Water and Aquatic Resources**

- ▶ A site-specific Storm Water Pollution Prevention Plan (SWPPP) will be developed to minimize erosion and sediment-laden runoff through the implementation of specific BMPs and erosion control/water management measures. Measures will include some or all of the following measures depending on site-specific requirements: installation of silt fences, straw bale barriers, temporary earthen berms, temporary water bars, sediment traps, stone check dams, brush barriers, and stabilized construction entrances as appropriate. The SWPPP will be submitted to the appropriate State agencies prior to the start of construction as part of the NPDES permit process. Proper implementation of a well-designed storm water management and erosion control plan can reduce sediment production by 80 to 90 percent (Novotny and Olem 1994).

### **Water and Aquatic Resources**

- ▶ All cut and fill slopes will be promptly stabilized with mulch or erosion control blankets and revegetated. Proper mulch application can reduce erosion by 75 to 80 percent (Novotny and Olem 1994).
- ▶ Bridges will be constructed at all perennial stream crossings. At each crossing, bridges will be designed to span the width of the active channel and floodplain so as to have no impact on the drainage.
- ▶ Culverts will be installed at all intermittent stream crossings. Culverts will be sized to accommodate high flows, transport sediment effectively, and provide for fish passage. Appropriate inlet and outlet protection will be installed to prevent erosion and dissipate runoff velocities.
- ▶ Eroding banks at trailheads will be revegetated as a component of trailhead improvements that occur near streams. Stream bank revegetation/stabilization can reduce sediment loading by 90 percent (Novotny and Olem 1994).
- ▶ All new, unpaved trails will be built with outslope or frequent, permanent water bars. These water bars will be located so as to direct runoff into well-vegetated, erosion-resistant areas.
- ▶ Measures such as reconstruction of water bars or minor trail relocations will be employed to minimize trail erosion and associated sediment delivery to streams.

### Water and Aquatic Resources / Vegetation

- ▶ The slope of newly constructed cuts and fills will not exceed 2:1 to help ensure that revegetation efforts are successful. Where this is not possible, retaining walls will be installed.

### Vegetation

- ▶ Staging areas for construction will be placed in areas where vegetation can recover quickly (e.g., areas with stable soils and nearby healthy source populations of plants). They will not be placed in riparian areas.
- ▶ All disturbed areas will be revegetated, immediately following construction activities, with seed mixes and plant species found in adjacent upland or riparian plant communities. Seed mixes will be certified as weed free. Topsoil will be salvaged and reused on disturbed areas to ensure proper revegetation.
- ▶ Soil disturbances will be minimized to reduce noxious weed invasion and expansion. In areas where soil disturbance cannot be prevented, the disturbed site will be revegetated with a mix of native species that provides an immediate thick cover. Any mulches and seed mixes required for slope stabilization will be certified weed-free. All equipment will be cleaned of soil and plant material before entering a new area to prevent introduction of weeds.
- ▶ Herbicide application to control vegetation will be restricted to chemicals that do not pollute or persist in wetland, riparian, and aquatic areas. Potential drift and runoff from chemical application will be considered, as will appropriate methods and timing of application. Chemical selection and application will be in compliance with the *EA for Noxious Weed and Poisonous Plant Control* (Forest Service 1987) and the *EA for Management of Noxious Weeds* (Forest Service 1999b).

### Cultural Resources

- ▶ Areas proposed for ground-disturbing activities will be surveyed for cultural resources by a qualified archaeologist prior to initiation of any ground-disturbing activities. A report of this survey will be submitted to the Idaho SHPO and the Wyoming SHPO for their review and consultation prior to initiating ground-disturbing activities. Cultural resource sites, including the historic corral that is eligible for listing in the National Register of Historic Places (NRHP), will be flagged prior to and avoided during construction. During construction activities, the contractor will adhere to Idaho and Wyoming SHPO regulations to minimize impacts to unknown cultural resources.
- ▶ Details of full or partial reconstruction of the historic wagon route, which has already been determined eligible for listing in the NRHP by the Wyoming SHPO, will be coordinated with the Wyoming SHPO to ensure that no adverse effects to this eligible historic property occur.

### **Recreation**

- ▶ Interpretive and regulatory (i.e., allowed-use) signing will be placed at Coal Creek Trailhead and Phillips Bench Trailhead to provide interpretation and to notify users of Teton Pass Trail's non-motorized designation and the closure of Wilderness to bicycles.

### **Wilderness, Wilderness Study, and Roadless Areas**

- ▶ The wilderness boundary will be surveyed and posted where it comes within 0.25 mile of the proposed trail.
- ▶ Wilderness trailheads will be posted for allowed uses.

### **Best Management Practices (BMPs) Common to All Forest Action Alternatives**

Best Management Practices are means of preventing or reducing non-point source pollution in the West Trail Creek and East Trail Creek watersheds and minimizing soil loss and sedimentation. Any of the Forest action alternatives (A, B, or C) will follow these BMPs.

### **Water and Aquatic Resources**

- ▶ Impacts to streams and related fisheries will be minimized by the use of BMPs, which will include all or some of the following as appropriate:
  - ▶ locating waste and excess excavation outside the riparian area to avoid sedimentation,
  - ▶ maintaining construction activities and impacts to within 60 feet of the toe of the existing highway fill where the fill meets the riparian area,
  - ▶ designing underpass headwalls that would prevent sedimentation from road runoff,
  - ▶ routing and containing runoff from the underpasses to the area between the highway fill and the trail, and
  - ▶ reserving vegetation removed during construction for revegetation.

### **Water and Aquatic Resources / Vegetation**

- ▶ Decommissioning procedures will be conducted using the following erosion and sediment control BMPs: surface ripping, seeding and mulching, and noxious weed controls to revegetate the road surface; installation of silt fence to prevent transport of sediment into surface waters during surface ripping procedures; and placement of earthen berms and surface debris to prevent unauthorized motorized access. At the three stream crossings on the Mail Cabin Trail, bridges will be installed or streambanks will be hardened to a width of 24 inches to accommodate the 24-inch-wide trail. Remaining bare streambank areas at these crossings will be stabilized by planting riparian vegetation.

## **Mitigation Measures Common to All Forest Action Alternatives**

The following mitigation measures have been developed to reduce or eliminate impacts to the environmental health of the surrounding community as a result of Alternative A, B, or C. Additional mitigation measures specific to only one or two of these action alternatives are discussed in the Forest Alternatives Analyzed in Detail Section of this chapter (page 2-2).

### **Geology and Soils / Water and Aquatic Resources**

- ▶ Where the trail will be built on a steep slope within 150 feet of West or East Trail Creek, as well as in any other areas where spatial constraints limit the effectiveness of erosion control BMPs during construction, a detailed site investigation will be conducted by a qualified scientist to determine whether short-term increases in sediment delivery will cause substantial impacts to water quality or aquatic habitat. This investigation will include collection of quantitative data that adequately describe current water quality conditions, current levels of fine sediment within streambed substrates, and current aquatic habitat conditions for Yellowstone cutthroat trout. The site investigation will be conducted prior to initiation of construction activity. If the results of the investigation indicate that water quality standards will be exceeded and beneficial uses potentially threatened, appropriate State and/or Federal agencies (e.g., Wyoming DEQ) will be consulted for guidance on required mitigation measures that would ensure beneficial uses are maintained. These would likely include physical removal of accumulated fine sediments from the streambed, streambank revegetation/stabilization projects within the West Trail Creek watershed, or trail relocation to avoid sensitive spawning habitats.

### **Water and Aquatic Resources**

- ▶ Prior to initiating construction in areas where dredge or fill activities would occur, delineate wetlands by a qualified scientist. A delineation report will be submitted to the Corps as part of application for a Nationwide or an Individual Permit, pursuant to Section 404 of the Clean Water Act (see Authorizing Actions and Required Permits Section of Chapter 1 [page 1-23]). Where practicable, trail alignment will be designed to avoid or minimize impacts to wetlands.

### **Vegetation**

- ▶ Localized surveys for Payson's bladderpod (*Lesquerella paysonii*) will be conducted in all grass/forb habitats in Segments 4 and 5 prior to impact to prevent unmapped plants from being destroyed. If individual plants are located within the area of proposed impact, appropriate mitigation measures will be developed. Likely measures include redesign of the trail section to avoid the population and development of a long-term plan to monitor the status of the population.
- ▶ Prior to initiating construction in riparian areas, conduct localized surveys for Ute ladies'-tresses (*Spiranthes diluvialis*) to verify its absence in areas of direct impact. If the species is found, the USFWS will be consulted for further guidance, which would likely include

trail section redesign to avoid the population and development of a long-term plan to monitor the population's status.

### **Wildlife**

- ▶ Prior to initiating construction, surveys for western boreal toad (*Bufo boreas*) spotted frog (*Rana pretiosa*), boreal owl (*Aegolius funereus*), great gray owl (*Strix nebulosa*), and northern goshawk (*Accipiter gentilis*) will be conducted in all areas containing suitable habitat that would be impacted by construction. All surveys will follow standard Forest Service protocols. If these species are identified in the area, measures will be taken to avoid impacts. These activities may include relocating portions of the trail and timing construction activities to occur outside of critical breeding periods.
  
- ▶ Prior to initiating construction, conduct surveys for fisher (*Martes pennanti*) in all areas containing suitable habitat that would be impacted by construction. All surveys will follow standard Forest Service protocols. If the species is identified in the area, measures will be taken to avoid impacts. These activities may include relocating portions of the trail and timing construction activities to occur outside of critical breeding periods.
  
- ▶ Signing that requires dogs to be leashed on all trails will be placed at all trailheads to minimize harassment of wildlife.

### **Recreation**

- ▶ Place regulatory signs at all trailheads. Step-through barricades will be placed at Mike Harris Trailhead to prevent motorized traffic from entering the old timber road and the left, middle, and right forks. The old timber road splits into three separate two-track roads approximately 0.83 mile east of Mike Harris Campground, or 1,700 feet east of Mikesell Canyon Creek. The left (east) fork runs southeast along the bench on the south side of West Trail Creek, the middle fork heads along the ridge to the south, and the right (west) fork is the continuation of the old timber road to the south/southwest. Decommissioning methods will include surface ripping and seeding with native grasses and forbs.

### **Monitoring Common to All Forest Action Alternatives**

The following post-construction monitoring activities will be implemented during or following construction of the selected Forest action alternative.

### **Water and Aquatic Resources**

- ▶ Regular site inspections will be conducted throughout the construction period to ensure that BMPs are properly installed and functioning effectively.
  
- ▶ During construction, water quality monitoring will be conducted above and below potential sediment-contributing sites in order to evaluate the effectiveness of erosion control BMPs. Sites and sampling frequencies will be coordinated with the State of Wyoming and the State of Idaho. If sampling results indicate that construction activities are adversely affecting

water quality, appropriate measures will be taken to ensure that additional controls and BMPs are installed.

- ▶ All permanent culverts, drainage ditches, and other runoff-control features installed as part of the project will be inspected by a qualified hydrologist or engineer during and immediately after the first spring runoff season following completion of trail construction. One inspection will be conducted when flows are at or near peak discharge, and the second inspection will occur immediately after high flows have receded. If detrimental erosion or accumulation of debris or sediment is observed, measures will be taken to correct the problem and prevent future problems. If deemed necessary, corrective measures may include redesign and reinstallation of the drainage feature.

#### **Vegetation / Visual Resources**

- ▶ Revegetation success will be monitored quarterly from 1 to 3 years following construction. Remedial and control measures will be implemented as needed.
- ▶ Long-term monitoring will be conducted annually during the 2 years following construction to identify noxious weed establishment on all disturbed areas. Remedial and control measures will be implemented as needed.

### **OFF-FOREST SEGMENTS ANALYZED IN DETAIL**

This EA also analyzes in detail the off-Forest segments from Victor, Idaho, to the Caribou-Targhee Forest boundary, and from the Bridger-Teton Forest boundary to Wilson, Wyoming. All proposed pathways would be designated as non-motorized (except those segments of shared use of an existing roadway by recreationists and motorists [on-road shared use]) and would include allowed-use signing. The off-Forest segment alternatives include the following:

- ▶ City of Victor, Idaho, Off-Forest Segment;
- ▶ Teton County, Idaho, Off-Forest Segment; and
- ▶ Teton County, Wyoming, Off-Forest Segment.

The trail design options that are analyzed in detail under each of these off-Forest segments are summarized in Table 2-2 (page 2-24), are depicted on Figures 2-4 (page 2-26) and 2-5 (page 2-27), and are listed below.

**Table 2-2. Off-Forest Segments Analyzed in Detail.**

OFF-FOREST SEGMENT (FIGURE NUMBER)	VICTOR CITY, IDAHO, TO TARGHEE FOREST BOUNDARY	TRAIL CREEK TRAIL HEAD TO WILSON, WYOMING
<p><b>Victor City, Idaho, and Teton County, Idaho, Off-Forest Segment (Figure 2-4)</b></p> <p>This continuous, non-motorized pathway would consist of a 10-foot-wide paved path or on-road shared use. The <i>Victor City segment</i> would accommodate road bicyclists, mountain bikers, pedestrians, equestrians, in-line skaters, skateboarders, nordic skiers, and persons requiring universal access<sup>a</sup>. The <i>Teton County segment</i> would accommodate road bicyclists and mountain bikers and pedestrians.</p>	<p><b>Victor City, Idaho:</b> Construct a separated, 10-foot-wide, paved path within Victor City's right-of-way from Cedron Road to Pioneer Park. Continue with a separated, 10-foot-wide, paved path parallel to the existing Old Jackson Highway<sup>b</sup> from Pioneer Park to Baseline Road.</p> <p><b>Teton County, Idaho:</b> Provide on-road shared use by re-surfacing the Old Jackson Highway<sup>b</sup> to the Targhee Forest boundary.</p>	<p>Not applicable</p>
<p><b>Teton County, Wyoming, Off-Forest Segment (Figure 2-5)</b></p> <p>This continuous, non-motorized pathway would consist of different trail design options, depending on which of the two options is selected. The <i>North Plus South Option</i> would accommodate road and touring bicyclists, mountain bikers, pedestrians, equestrians, in-line skaters, skateboarders, and nordic skiers. Some segments would also accommodate persons requiring universal access<sup>a</sup>. The <i>South Only Option</i> would accommodate mountain bikers, pedestrians, equestrians, and nordic skiers.</p>	<p>Not applicable</p>	<p><b>North Plus South Option:</b> Provide on-road shared use on Trail Creek Road from Trail Creek Trailhead to the road's intersection with WY-22. Continue by constructing a 1.10-mile-long, 10-foot-wide paved pathway plus a separated 24-inch-wide native-surface trail along the south side of WY-22 from the end of Trail Creek Road to Wilson. Also construct a 1.10-mile-long, 18-inch-wide native-surface trail along the north side of WY-22 to Wilson.</p> <p><b>South Only Option:</b> Provide on-road shared use on Trail Creek Road from Trail Creek Trailhead to its intersection with WY-22. Continue by improving the existing 18-inch-wide native-surface trail along the south side of WY-22 to Wilson.</p>

<sup>a</sup> Universal access indicates that the trail would be accessible by physically challenged persons, i.e., persons using wheelchairs.  
<sup>b</sup> The Old Jackson Highway is the section of the old highway from Victor, Idaho, to Moose Creek, Idaho, and is currently a City of Victor, Idaho, and Teton County, Idaho, roadway.

**City of Victor, Idaho, Off-Forest Segment**

The City of Victor, Idaho, segment would establish a continuous, non-motorized, multi-use trail consisting of a separated, 10-foot-wide paved path. The pathway termini would connect to the existing Driggs-Victor pathway to the north and to the proposed Teton County, Idaho, off-Forest segment to the southeast. The City of Victor segment would serve multiple non-motorized user groups, including road bicyclists, mountain bikers, pedestrians, equestrians, in-line skaters, skateboarders, nordic skiers, and persons requiring universal access. Figure 2-4 (page 2-26) depicts the alignment through Victor, and specific trail design options are presented below.

- ▶ Provide an at-grade crossing of Cedron Road using standard striping and signing to connect the new pathway to the south end of the existing Driggs-Victor pathway at Cedron Road.

- ▶ Construct a separated, 10-foot-wide, paved path within the City of Victor's ROW, which is 99 feet wide in most cases, from Cedron Road to Pioneer Park. Provide an at-grade crossing of ID-33 using standard striping and signing, and by constructing a refuge island in the center of ID-33.
- ▶ Construct a separated, 10-foot-wide, paved path on previously undisturbed ground parallel to the existing Old Jackson Highway from Pioneer Park to Baseline Road on the City of Victor's property.
- ▶ Install measures (e.g., allowed-use signing, physical barriers, law enforcement) to facilitate compliance with pathway's non-motorized designation.

### **Teton County, Idaho, Off-Forest Segment**

The Teton County, Idaho, segment would consist of on-road shared use. The termini of the pathway would connect to the proposed City of Victor, Idaho, off-Forest segment to the northwest, and to proposed Forest action alternatives to the south/southeast. The Teton County, Idaho, segment would accommodate non-motorized users. Figure 2-4 (page 2-26) depicts the alignment in Teton County, Idaho, and specific trail design options are presented below.

- ▶ Provide on-road shared use by re-constructing to its existing width and re-surfacing the Old Jackson Highway from Baseline Road to the Caribou-Targhee Forest boundary.
- ▶ Install measures (e.g., allowed-use signing, physical barriers, law enforcement) to facilitate compliance with pathway's non-motorized designation.

### **Teton County, Wyoming, Off-Forest Segment**

Two Teton County, Wyoming, segment options are analyzed in detail, as depicted on Figure 2-5 (page 2-27). The North Plus South Option would consist of some on-road shared use, then a non-motorized 10-foot-wide paved path plus an adjacent, separated, 24-inch-wide native-surface trail on the south side of WY-22. On the north side of WY-22, this option would include a non-motorized 18-inch-wide native-surface trail. The termini of the south-side pathway would connect to the proposed Forest action alternatives to the west, and to Wilson Town Trail/Wilson Centennial Trail to the east. The North Plus South Option would accommodate road bicyclists, mountain bikers, pedestrians, equestrians, in-line skaters, skateboarders, and nordic skiers. Some segments would also accommodate persons requiring universal access.

The South Only Option would consist of some on-road shared use, then a separated, non-motorized 24-inch-wide native-surface trail on the south side of WY-22. The termini of the trail would connect to the proposed Forest action alternatives to the west, and to Wilson, Wyoming, and the Wilson Centennial Trail to the east. The South Only Option would accommodate mountain bikers, pedestrians, equestrians, and nordic skiers. Specific trail design options of the Teton County, Wyoming, segment are presented below.



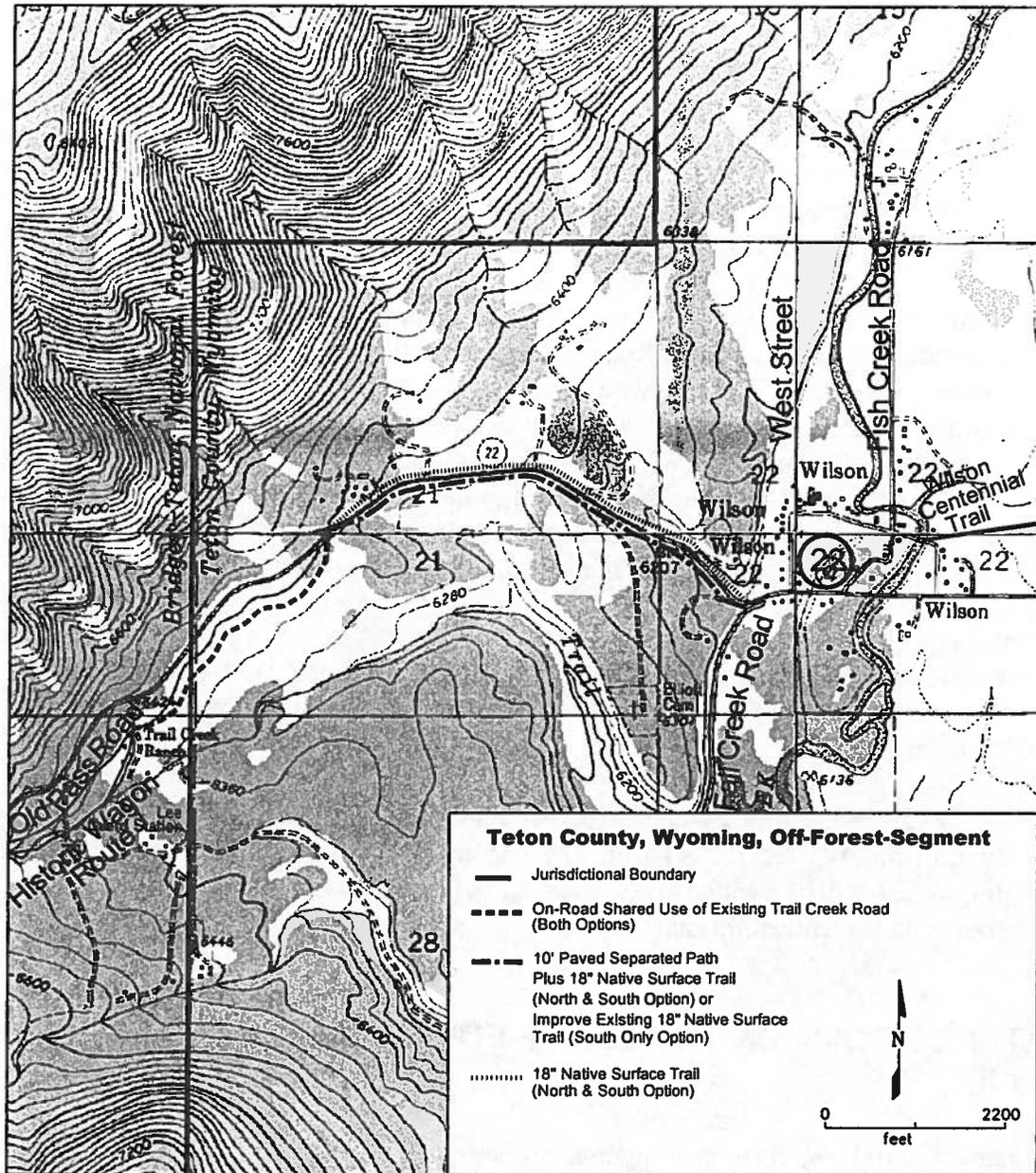


Figure 2-5. Teton County, Wyoming, Off-Forest Segment.

### **North Plus South Option**

- ▶ Provide on-road shared use on Trail Creek Road from Trail Creek Trailhead to the road's intersection with WY-22 (approximately 0.40 mile east of the Bridger-Teton Forest boundary).
  
- ▶ Continue by constructing a 1.10-mile-long, 10-foot-wide paved pathway plus a separated 1.10-mile-long, 24-inch-wide native-surface trail along the south side of WY-22 from the end of Trail Creek Road to the intersection of WY-22 and Fall Creek Road in Wilson, Wyoming. The trails would be located either within the existing WY-22 ROW or within 30 feet immediately adjacent to the ROW, which would require easement acquisition from adjacent property owners. The existing WY-22 ROW is 80 feet wide, with the highway located in its center. It is feasible to put the new trail in the existing ROW, but it would be safer and preferable to acquire an additional 30-foot-wide easement adjacent to the existing ROW for a the trail length of 1.10 miles (Young 2000b).
  
- ▶ Construct a 1.10-mile-long, 18-inch-wide native-surface trail along the north side of WY-22 from the end of Trail Creek Road to the intersection of WY-22 and Fall Creek Road in Wilson, Wyoming. The trail would be located either within the existing WY-22 ROW or within 10 feet immediately adjacent to the ROW, which would require easement acquisition. The existing WY-22 ROW is 80 feet wide, with the highway located in its center. It is feasible to put the new trail in the existing ROW, but it would be safer and preferable to acquire an additional 10-foot-wide easement adjacent to the existing ROW for the trail length of 1.10 miles (Young 2000b).

### **South Only Option**

- ▶ Provide on-road shared use on Trail Creek Road from Trail Creek Trailhead to its intersection with WY-22 (approximately 0.40 mile east of the Bridger-Teton Forest boundary).
  
- ▶ Improve the existing 24-inch-wide native-surface trail along the south side of WY-22 (within the WY-22 ROW) from the end of Trail Creek Road to Wilson, Wyoming. Improve, but do not widen, the western half of this trail. Use the eastern half of the existing trail is its current condition.

## **FEATURES COMMON TO ALL OFF-FOREST SEGMENTS ANALYZED IN DETAIL**

Management activities, BMPs, mitigation measures, and monitoring activities that would be implemented for any of the off-Forest segments are described below.

## **Management Common to All Off-Forest Segments**

The management actions listed below are common to all off-Forest segments and will be implemented during or after the project, as appropriate.

### **Geology and Soils / Water and Aquatic Resources**

- ▶ A site-specific SWPPP will be developed to minimize erosion and sediment-laden runoff through the implementation of specific BMPs and erosion control/water management measures. Measures will include some or all of the following, depending on site-specific requirements: installation of silt fences, straw bale barriers, temporary earthen berms, temporary water bars, sediment traps, stone check dams, brush barriers, and stabilized construction entrances as appropriate. The SWPPP will be submitted to the appropriate County and State agencies prior to the start of construction as part of the NPDES permit process. Proper implementation of a well-designed storm water management and erosion control plan can reduce sediment production by 80 to 90 percent (Novotny and Olem 1994).

### **Water and Aquatic Resources**

- ▶ All cut and fill slopes will be promptly stabilized with mulch or erosion-control blankets and revegetated. Proper mulch application can reduce erosion by 75 to 80 percent (Novotny and Olem 1994).
- ▶ All new unpaved trails will be built with frequent, permanent water bars. These water bars will be located so as to direct runoff into well-vegetated, erosion-resistant areas.

### **Vegetation**

- ▶ Staging areas for construction will be placed where vegetation can recover quickly (e.g., areas with stable soils and nearby healthy source populations of plants). They will not be placed in riparian areas.
- ▶ All disturbed areas will be revegetated with native species, which will be planted to extend or enhance natural vegetation patterns (Teton County, Wyoming 1994), immediately following construction activities. Seed mixes will be certified as weed free. Topsoil will be salvaged and reused on disturbed areas to ensure proper revegetation.
- ▶ Soil disturbances will be minimized to reduce noxious weed invasion and expansion. In areas where soil disturbance cannot be prevented, the disturbed site will be revegetated with a mix of native species that provides an immediate, thick cover. Any mulches and seed mixes required for slope stabilization will be certified weed-free. All equipment will be cleaned of soil and plant material before entering a new area to prevent introduction of weeds.

### **Cultural Resources**

- ▶ Areas proposed for ground-disturbing activities will be surveyed for cultural resources by a qualified archaeologist prior to initiation of any ground-disturbing activities. A report of

this survey will be submitted to the Idaho SHPO and the Wyoming SHPO for their review and consultation prior to initiating ground-disturbing activities. Cultural resource sites will be flagged prior to and avoided during construction. During construction activities, the contractor will adhere to Idaho and Wyoming SHPO regulations to minimize impacts to unknown cultural resources.

### **Recreation**

- ▶ Design and education methods (e.g., educational and regulatory signing, speed control devices) will be implemented on shared-use pathways proposed under the off-Forest segments.

### **Best Management Practices (BMPs) Common to All Off-Forest Segments**

Best Management Practices are means of preventing or reducing non-point source pollution in the West Trail Creek and East Trail Creek watersheds and to minimize soil loss and sedimentation. All of the off-Forest segments will follow this BMP.

### **Water and Aquatic Resources**

- ▶ Impacts to streams and related fisheries will be minimized by locating waste and excess excavation outside the riparian area to avoid sedimentation and reserving vegetation removed during construction for revegetation.

### **Mitigation Measures Common to All Off-Forest Segments**

The following mitigation measure has been developed to reduce or eliminate impacts to the environmental health of the surrounding community as a result of the off-Forest segments.

- ▶ Impacts will be minimized by using a thinning method of clearing rather than clear-cutting. Mature trees will be left in place where possible. A row of trees will be left between the trail and WY-22 to provide visual screening (Young 2000b).

### **Monitoring Common to All Off-Forest Segments**

The following post-construction monitoring activities will be implemented during or following construction of the off-Forest segments.

### **Water and Aquatic Resources**

- ▶ Regular site inspections will be conducted throughout the construction period to ensure that BMPs are properly installed and functioning effectively.

### **Vegetation / Visual Resources**

- ▶ Revegetation success will be monitored quarterly from 1 to 3 years following construction. Remedial and control measures will be implemented as needed.

- ▶ Long-term monitoring will be conducted annually during the 2 years following construction to identify noxious weed establishment on all disturbed areas. Remedial and control measures will be implemented as needed.

## **ALTERNATIVES DISMISSED FROM FURTHER CONSIDERATION**

Several alternatives and trail design options within Forest or off-Forest segments were considered but not fully developed because: they closely resemble alternatives or options that were considered in detail, they did not meet the project Purpose and Needs, they were missing practical implementation components, they conflicted with one or more of the significant issues identified for the project, or they were inappropriate for other reasons as described below.

### **Enhance ID-33 and WY-22 ROW**

This alternative would have included enhancements, such as shoulder widening to provide a bicycle lane, to the existing highway ROW between Victor, Idaho, and Wilson, Wyoming. Widening the shoulder would accommodate road bicyclists. This alternative would also have included improvements to the Teton Pass parking area in Segment 5. This alternative is dismissed from further consideration because highway enhancements between the logical termini of Victor, Idaho, and Wilson, Wyoming on facilities (i.e., the highway) owned and operated by Idaho and Wyoming State governments would require highway reconstruction, which is not included in the current Idaho or Wyoming State Transportation Improvement Programs (Bingham 2000, Holstrom 2000). Furthermore, funding for such reconstruction has not been programmed. However, enhancing highway rights-of-way by encouraging shoulder widening is listed as part of Alternative B (page 2-10) and Alternative C (page 2-13).

### **Correct Recreation and Resource Deficiencies Where They Occur**

This Forest alternative would have included correcting resource deficiencies where they occur in the project area. Such corrections could have included improving existing trailheads, improving signing, and replacing some existing restrooms. The improvements that were considered were:

- ▶ Improve Mike Harris Trailhead and improve highway signing (Segment 1);
- ▶ Improve the Phillips Bench Trailhead and improve the trailhead signing. (Segment 5); and
- ▶ Improve the Teton Pass parking area (Segment 5).

This Forest alternative is dismissed from further consideration because independently correcting resource deficiencies does not meet the project Purpose and Needs, which include developing a separate pathway/trail system, enhancing recreational opportunities, and connecting the community pathway systems of Victor, Idaho, and Wilson, Wyoming with public lands. Because of the importance of the components originally included in this alternative (e.g., trailhead improvements), they are all addressed within one or more of the three action alternatives that are analyzed in detail.

## **Alternate Forest Trail Design Options**

The following Forest trail design options were also evaluated but not studied in detail.

- ▶ Construct the trail along the south side of West Trail Creek, then cross to the north side of West Trail Creek in the vicinity of Burbank Creek. Build a separated path on the south side of WY-22 from Burbank Creek to Coal Creek. This was dismissed because the first component is included in Alternative A, South Option, and the second component is included in Alternative A, North Option, both of which are analyzed in detail. In addition, this option would disturb more area and would require additional stream crossings than the separate North and South Options of Alternative A in this segment.
- ▶ Construct a 24-inch-wide native-surface trail on the south side of West Trail Creek to connect the Trail Creek Campground to Burbank Creek Trailhead. Provide an at-grade highway crossing using standard striping and signing to connect the existing access road for the BPA road (on the north side of WY-22) to Burbank Creek Trailhead on the south side of WY-22. This was dismissed because Alternative A provides a highway crossing via an underpass located northwest of Trail Creek Campground, approximately 1 mile west of the BPA access road and Burbank Creek Trailhead. An underpass would be safer than an at-grade crossing in this vicinity.
- ▶ Construct a 10-foot-wide paved pathway and a separate 24-inch-wide native-surface trail along the highway cutbank on the north side of WY-22 (mostly in the highway ROW), per WYDOT approval. This was eliminated because there is inadequate space between the highway cutbank and the highway to construct a 10-foot-wide paved pathway and a separate 24-inch-wide native-surface trail. Such construction could destabilize the steep cutbank along the highway.
- ▶ Construct a 10-foot-wide paved pathway and a separate 24-inch-wide native-surface trail along the south side of WY-22 (mostly within the highway ROW), per WYDOT approval. This was eliminated because of riparian and wetland impacts, existing steep slope hazards, and because it would result in more disturbance than some other options considered in this segment. It was also dismissed because of safety concerns regarding the drop off/steep slope that would be located on the side of the bin wall and proximity to high vehicle traffic.
- ▶ Construct a new gravel trail along the south side of WY-22. This was dismissed because a pedestrian, equestrian, and mountain biking trail alongside the highway would likely be an undesirable experience, as well as a potential safety problem because of highway traffic.
- ▶ Maintain the existing gravel single-track trail that connects the Teton Pass Trailhead to the upper gate of the old pass road. This was dismissed because it was determined that it was necessary to widen and harden the existing single-track trail from the parking area to the upper gate on the old pass road to meet multiple-use recreational needs and to reduce user conflicts.

- Construct a new 12-foot-wide path from Teton Pass to the upper gate on the old pass road along the existing gravel single-track trail. This was dismissed because the 12-foot-wide path would create more disturbances than the other design options considered along the existing single-track trail connecting Teton Pass to the old pass road.

## SUMMARY OF IMPACTS

A summary of the impacts is provided in Table 2-3 below, and impacts of each alternative are discussed in detail in Chapter 3.

**Table 2-3a. Comparison of Impacts from Forest Alternatives.**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	FOREST ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE B	FOREST ALTERNATIVE C	FOREST ALTERNATIVE D
<b>Proposed Trail Lengths</b>					
Proposed Trail Located on Existing Routes	49,316 linear feet (9.34 miles)	49,316 linear feet (9.34 miles)	82,248 linear feet (15.58 miles)	58,118 linear feet (11.01 miles)	0
Proposed New Trail	36,400 linear feet (6.89 miles)	34,500 linear feet (6.53 miles)	15,100 linear feet (2.86 miles)	16,600 linear feet (3.14 miles)	0
Total Proposed Trail <sup>a</sup>	85,716 linear feet (16.23 miles)	83,816 linear feet (15.87 miles)	97,348 linear feet (18.44 miles)	74,718 linear feet (14.15 miles)	0
<b>Geology and Soil Impacts</b>					
Linear Feet and Acreage of Previously Undisturbed Soils (trail width)	32,733 (10 feet) 13,133 (24 inches) <i>Subtotal: 24.35 acres</i>	30,700 (10 feet) 15,200 (24 inches) <i>Subtotal: 23.24 acres</i>	15,100 (24 inches) <i>Subtotal: 2.08 acres</i>	6,500 (48 inches) 1,900 (36 inches) 3,400 (24 inches) <i>Subtotal: 2.65 acres</i>	0
Linear Feet and Acreage of Reclaimed Soils <sup>b</sup> (trail width)	3,667 (10 feet) 3,667 (24 inches) <i>Subtotal: 0.89 acre</i>	3,800 (10 feet) <i>Subtotal: 0.87 acre</i>	0	3,800 (48 inches) 1,000 (24 inches) <i>Subtotal: 0.40 acre</i>	0
Total New Disturbance of Soils during Construction (acres) <sup>c</sup>	25.24 acres	24.11 acres	2.08 acres	3.05 acres	0
Total Surface Area of New Trail (acres) <sup>d</sup>	9.13 acres	8.62 acres	0.69 acre	1.28 acres	0
Linear Feet and Acreage of Previously Undisturbed Soils on Steep Slopes <sup>e</sup> (trail width)	5,800 (10 feet) 5,800 (24 inches) Total: 4.79 acres	5,800 (10 feet) 5,800 (24 inches) Total: 4.79 acres	13,600 (24 inches) Total: 1.87 acres	1,900 (36 inches) 1,900 (24 inches) Total: 0.66 acre	0

**Table 2-3a. Comparison of Impacts from Forest Alternatives (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	FOREST ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE B	FOREST ALTERNATIVE C	FOREST ALTERNATIVE D
<b>Geology and Soil Impacts (cont.)</b>					
Linear Feet of Unstable Soils within Steep Slopes <sup>f</sup> (trail width)	0	0	3,700 (24 inches)	0	0
<b>Water and Aquatic Resource Impacts</b>					
Linear Feet of Stream-side Areas <sup>h</sup> (trail width)	19,600 (10 feet)	20,960 (10 feet) 1,660 (24 inches)	0	1,660 (48 inches)	0
Linear Feet of Aquatic Influence Zones <sup>i</sup> (trail width)	21,150 (10 feet) 1,550 (24 inches)	22,250 (10 feet) 3,950 (24 inches)	2,700 (24 inches)	3,900 (48 inches) 300 (24 inches)	0
Number and Design of New Stream Crossings	2 bridges 4 culverts	5 bridges 4 culverts	2 bridges 1 culvert	2 bridges 1 culvert	0
Linear Feet of Unstable Soils within Steep Slopes (trail width)	0	0	3,700 (24 inches)	0	0
Linear Feet of Steep Slopes (trail width)	5,800 (10 feet) 5,800 (24 inches)	5,800 (10 feet) 5,800 (24 inches)	13,600 (24 inches)	1,900 (36 inches) 1,900 (24 inches)	0
Acres of New Trail Surface that Could Concentrate Flow <sup>l</sup>	13.63 acres	12.83 acres	1.73 acres	2.42 acres	0
Relative Risk of Increased In-stream Sediment	High	High	Low	Low	Existing trends would continue
<b>Vegetation Impacts</b>					
Vegetation Lost (acres and types)	0.6 Mountain Brush 4.5 Grass/Forb 2.0 Grass/Brush 8.3 Douglas-fir 12.3 Mixed Forest 0.0 Riparian 5.1 Aspen 0.0 Lodgepole Pine 0.5 Spruce 0.8 Non-forested 34.1 Total Acres	0.6 Mountain Brush 4.2 Grass/Forb 0.0 Grass/Brush 8.3 Douglas-fir 17.2 Mixed Forest 1.2 Riparian 0.5 Aspen 1.0 Lodgepole Pine 0.5 Spruce 0.8 Non-forested 34.3 Total Acres	0.0 Mountain Brush 0.3 Grass/Forb 0.0 Grass/Brush 0.4 Douglas-fir 0.9 Mixed Forest 0.0 Riparian 0.5 Aspen 0.0 Lodgepole Pine 0.0 Spruce 0.0 Non-forested 2.1 Total Acres	0.0 Mountain Brush 0.2 Grass/Forb 0.0 Grass/Brush 0.9 Douglas-fir 2.4 Mixed Forest 0.3 Riparian 0.2 Aspen 0.1 Lodgepole Pine 0.1 Spruce 1.3 Non-forested 5.5 Total Acres	No impact
Acres of Disturbance (to measure potential spread of noxious weeds)	25.2 acres	24.1 acres	2.1 acres	3.1 acres	0

**Table 2-3a. Comparison of Impacts from Forest Alternatives (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	FOREST ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE B	FOREST ALTERNATIVE C	FOREST ALTERNATIVE D
<b>Vegetation Impacts (cont.)</b>					
Threatened Species Habitat Removed and/or Indirect Effects on Adjacent Habitats  <i>Ute Ladies'-tresses</i>	No impact	1.2 acre loss of potential habitat	No impact	0.3 acre loss of potential habitat	No impact
Forest Sensitive Species Habitat Removed and/or Indirect Effects on Adjacent Habitats*  <i>Payson's Bladderpod</i>	1.6 acre loss of potential habitat	1.6 acre loss of potential habitat	No impact	No impact	No impact
<b>Fish Impacts</b>					
Fisheries	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Minimal impacts to habitat and reproduction	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Continued degradation of habitat quality at existing stream crossings
Yellowstone Cutthroat Trout*	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Minimal impacts to habitat and reproduction	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Continued degradation of habitat quality at existing stream crossings
<b>Wildlife Impacts</b>					
General Wildlife	<ul style="list-style-type: none"> <li>• 0.0 acre riparian habitat loss</li> <li>• 34.1 acres upland habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• 0.0 acre winter moose cover loss</li> <li>• 2.5 acres winter elk cover loss</li> <li>• No impact to summer elk</li> </ul>	<ul style="list-style-type: none"> <li>• 1.2 acres riparian habitat loss</li> <li>• 33.1 acres upland habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• 1.2 acres winter moose cover loss</li> <li>• 3.2 acres winter elk cover loss</li> <li>• No impact to summer elk</li> </ul>	<ul style="list-style-type: none"> <li>• 0.0 acre riparian habitat loss</li> <li>• 2.1 acres upland habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• 0.0 acre winter moose cover loss</li> <li>• Minor loss of winter elk cover</li> <li>• No impact to summer elk</li> </ul>	<ul style="list-style-type: none"> <li>• 0.3 acre riparian habitat loss</li> <li>• 5.2 acres upland habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• 0.3 acre winter moose cover loss</li> <li>• 3.3 acres winter elk cover loss</li> <li>• Increased disturbance to summer elk</li> </ul>	Continued disturbance and degradation of riparian habitat related to recreational use

**Table 2-3a. Comparison of Impacts from Forest Alternatives (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	FOREST ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE B	FOREST ALTERNATIVE C	FOREST ALTERNATIVE D
Wildlife Impacts (cont.)					
Threatened, Endangered, or Forest Service Sensitive Species Habitat Removed and/or Indirect Effects on Adjacent Habitats  <i>Gray Wolf, Grizzly Bear, Canada Lynx, and Wolverine</i>  <i>Western Boreal Toad, Spotted Frog</i>	No impact  <ul style="list-style-type: none"> <li>• 0.0 acre habitat loss</li> <li>• Habitat fragmentation</li> <li>• Disruption of movement</li> </ul>	No impact  <ul style="list-style-type: none"> <li>• 1.2 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Disruption of movement</li> </ul>	No impact  No impact	Minimal effects related to increased disturbance  <ul style="list-style-type: none"> <li>• 0.3 acre habitat loss</li> <li>• Habitat fragmentation</li> <li>• Disruption of movement</li> </ul>	Continued disturbance from recreationists  Continued disturbance and degradation of riparian habitat related to recreational use
Forest Sensitive Species Habitat Removed and/or Indirect Effects on Adjacent Habitats <sup>h</sup>  <i>Boreal Owl</i>  <i>Fisher</i>  <i>Flammulated Owl</i>	<ul style="list-style-type: none"> <li>• 20.6 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul> increased disturbance  No impact	<ul style="list-style-type: none"> <li>• 25.5 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul> <ul style="list-style-type: none"> <li>• 1.2 acres habitat loss</li> <li>• Increased disturbance</li> </ul> No impact	1.3 acres low-quality habitat loss  No impact  0.9 acre low-quality habitat loss	<ul style="list-style-type: none"> <li>• 3.3 acres habitat loss</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul> <ul style="list-style-type: none"> <li>• 0.3 acre habitat loss</li> <li>• Increased disturbance</li> </ul> <ul style="list-style-type: none"> <li>• 0.5 acre habitat loss</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul>	Continued disturbance from recreationists  Continued disturbance and degradation of riparian habitat related to recreational use  Continued disturbance from recreational use

**Table 2-3a. Comparison of Impacts from Forest Alternatives (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	FOREST ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE B	FOREST ALTERNATIVE C	FOREST ALTERNATIVE D
<b>Wildlife Impacts (cont.)</b>					
<i>Great Gray Owl</i>	<ul style="list-style-type: none"> <li>• 9.8 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul>	<ul style="list-style-type: none"> <li>• 9.8 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul>	0.9 acre low-quality habitat loss	<ul style="list-style-type: none"> <li>• 1.1 acres habitat loss</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul>	Continued disturbance from recreational use
<i>Northern Goshawk</i>	<ul style="list-style-type: none"> <li>• 9.8 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul>	<ul style="list-style-type: none"> <li>• 9.8 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• increased disturbance</li> <li>• Potential loss of nests</li> </ul>	0.9 acre low-quality habitat loss	<ul style="list-style-type: none"> <li>• 1.1 acres habitat loss</li> <li>• Increased disturbance</li> <li>• Potential loss of nests</li> </ul>	Continued disturbance from recreationists
<i>Spotted Bat, Townsend's Big-eared Bat</i>	No impact	1.2 acres foraging habitat loss	No impact	0.3 acre foraging habitat loss	Continued disturbance and degradation of riparian habitat from recreational use
<i>Cavity Nesters</i>	<ul style="list-style-type: none"> <li>• 22.6 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> </ul>	<ul style="list-style-type: none"> <li>• 17.5 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> </ul>	1.8 acres low-quality habitat loss	<ul style="list-style-type: none"> <li>• 3.7 acres habitat loss</li> <li>• Habitat fragmentation</li> <li>• Increased disturbance</li> </ul>	Continued disturbance from recreationists
<b>Cultural Resource Impacts</b>					
Relative Risk (i.e., Very Low to Very High) of Degrading Cultural Resources Based on Cultural Resource Inventories Previously Conducted in the Project Area	Low	Low	Very low	Low	Very low
If Scoping Comments Regarding Eligible Historic Properties (i.e., Historic Wagon Route) Are Addressed	Somewhat addressed	Somewhat addressed	Entirely addressed	Entirely addressed	Not addressed

**Table 2-3a. Comparison of Impacts from Forest Alternatives (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	FOREST ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE B	FOREST ALTERNATIVE C	FOREST ALTERNATIVE D
<b>Cultural Resource Impacts (cont.)</b>					
If Interpretive Facilities for the Historic Teton Pass Corridor are Included	Included on Historic Wagon Route	Included on Historic Wagon Route	Included on Historic Wagon Route	Included on Historic Wagon Route and elsewhere (e.g., Mike Harris Campground to Trail Creek Campground)	Not included
<b>Visual Resource Impacts</b>					
Change in the Character of the Existing Landscape	Moderate	Moderate	Minor	Minor	No impact
Visual Quality Objective Retention Affected (approximate)	25.24 acres	24.11 acres	0	0	0
<b>Recreation Impacts</b>					
Changes in Recreation Use Levels	Moderate increase beyond expected 5 to 7 percent annual increase	Moderate increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase	No increase beyond expected 5 to 7 percent annual increase	No increase beyond expected 5 to 7 percent annual increase
Changes in Parking Demand at Trailheads	Moderate increase in demand beyond expected 5 to 7 percent annual increase; Additional parking for 45 vehicles and 13 horse trailers would be provided	Moderate increase in demand beyond expected 5 to 7 percent annual increase; Additional parking for 45 vehicles and 13 horse trailers would be provided	Minor increase in demand beyond expected 5 to 7 percent annual increase; Additional parking for 35 vehicles and 13 horse trailers would be provided	No increase in demand beyond expected 5 to 7 percent annual increase; Additional parking for 50 vehicles and 16 horse trailers would be provided	No increase in demand beyond expected 5 to 7 percent annual increase
Linear Distance of Off-highway Trails That Accommodate Current Highway Corridor Users (i.e., Bicyclists)	13.16 miles (mountain bikers and road bicyclists)	12.80 miles (mountain bikers and road bicyclists)	4.13 miles (mountain bikers and road bicyclists)	4.13 miles (mountain bikers and road bicyclists)	4.13 miles (mountain bikers and road bicyclists)
Linear Distance of Trails That Provide Universal Access	5.79 miles	5.43 miles	0	1.95 miles	0
Recreational Uses of Trail by Specific User Groups	Pedestrians Equestrians Mountain bikers Road bicyclists Fishing access	Pedestrians Equestrians Mountain bikers Road bicyclists Fishing access Nordic skiers	Pedestrians Equestrians Mountain bikers Road bicyclists Nordic skiers	Pedestrians Equestrians Mountain bikers Road bicyclists Nordic skiers	No new trails would be constructed

**Table 2-3a. Comparison of Impacts from Forest Alternatives (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	FOREST ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	FOREST ALTERNATIVE B	FOREST ALTERNATIVE C	FOREST ALTERNATIVE D
<b>Recreation Impacts (cont.)</b>					
Linear Distance of Separated Native-surface Trails Adjacent to Paved Pathways	8.71 miles	8.41 miles	3.07 miles	3.07 miles	0
Segments of Trail That Are Longer than 500 Feet with Grades Greater than 15 Percent for Their Entire Length	0	0	1.02 miles	1.02 miles	0
Capabilities and Resources of Jurisdictional Authorities to Enforce Non-motorized Winter Use (Caribou-Targhee Forest and Others)	Adequate	Adequate	Adequate	Adequate	Adequate
Changes in Trail and Facility Maintenance Requirements (trail width and/or surface type)	13.16 miles (10-foot paved); 8.71 miles (24-inch native); 2 new trailheads; 3 improved trailheads	12.80 miles (10-foot paved); 8.41 miles (24-inch native); 2 new trailheads; 3 improved trailheads	8.70 miles (BPA road); 5.93 miles (24-inch native); 1 new trailhead; 3 improved trailheads	4.13 miles (BPA road); 1.95 miles (48-inch hard); 0.36 mile (36-inch hard); 9.63 miles (24-inch native); 1 new trailhead; 4 improved trailheads	No increase beyond expected 5 to 7 percent annual increase
<b>Wilderness, Wilderness Study, and Roadless Area Impacts</b>					
Changes in Recreation Use Levels on the Coal Creek and Moose Creek Trails	Coal Creek: Moderate increase beyond expected 5 to 7 percent annual increase  Moose Creek: Moderate increase beyond expected 5 to 7 percent annual increase	Coal Creek: Moderate increase beyond expected 5 to 7 percent annual increase  Moose Creek: Moderate increase beyond expected 5 to 7 percent annual increase	Coal Creek: Moderate increase beyond expected 5 to 7 percent annual increase  Moose Creek: Moderate increase beyond expected 5 to 7 percent annual increase	Coal Creek: Minor increase beyond expected 5 to 7 percent annual increase  Moose Creek: Minor increase beyond expected 5 to 7 percent annual increase	No increase beyond expected 5 to 7 percent annual increase
Changes in Illegal Bicycle Use on the South End of the Jedediah Smith Wilderness Area	Heavy increase beyond expected 5 to 7 percent annual increase	Moderate increase beyond expected 5 to 7 percent annual increase	Heavy increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase	No increase beyond expected 5 to 7 percent annual increase

Footnotes are provided following Table 2-3b.

**Table 2-3b. Comparison of Impacts from Off-Forest Segments.**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	VICTOR, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OR 10N)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
<b>Proposed Trail Lengths</b>				
Proposed Trail Located on Existing Routes	3,700 linear feet (0.71 mile)	14,500 linear feet (2.74 miles)	2,900 linear feet (south) (0.55 mile)	5,800 linear feet (1.10 miles)
Proposed New Trail	3,300 linear feet (0.62 mile)	0	5,800 linear feet (north) (1.10 miles) 5,800 linear feet (south) (1.10 miles) 2,900 linear feet (south) (0.55 mile)	2,900 linear feet (0.55 mile)
<b>Total Proposed Trail*</b>	<b>7,000 linear feet (1.33 miles)</b>	<b>14,500 linear feet (2.74 miles)</b>	<b>17,400 linear feet (3.30 miles)</b>	<b>8,700 linear feet (1.65 miles)</b>
<b>Geology and Soil Impacts</b>				
Linear Feet and Acreage of Previously Undisturbed Soils (trail width)	3,300 feet (10 feet) <i>Subtotal: 1.10 acres</i>	0	5,800 (10 feet) 5,800 (24 inches) 2,900 (18 inches) <i>Subtotal: 2.86 acres</i>	2,900 (18 inches) <i>Subtotal: 0.30 acre</i>
Linear Feet and Acreage of Reclaimed Soils <sup>b</sup> (trail width)	0	0	0	0
Total New Disturbance of Soils during Construction (acres) <sup>c</sup>	1.10 acres	0	2.86 acres	0.30 acre
Total Surface Area of New Trail (acres) <sup>d</sup>	0.76 acre	0	1.70 acres	0.10 acre
Linear Feet and Acreage of Previously Undisturbed Soils on Steep Slopes* (trail width)	0	0	0	0
Linear Feet of Unstable Soils within Steep Slopes <sup>e</sup> (trail width)	0	0	2,800 (10 feet) <sup>g</sup> 2,800 (18 inches) <sup>g</sup>	2,800 (18 inches) <sup>g</sup>
<b>Water and Aquatic Resource Impacts</b>				
Linear Feet of Stream-side Areas <sup>h</sup> (trail width)	0	0	0	0
Linear Feet of Aquatic Influence Zones <sup>i</sup> (trail width)	0	0	0	0
Number and Design of New Stream Crossings	0	0	0	0
Linear Feet of Unstable Soils within Steep Slopes (in locations that could impact streams) (trail width)	0	0	2,800 (10 feet) <sup>g</sup> 2,800 (18 inches) <sup>g</sup>	0

**Table 2-3b. Comparison of Impacts from Off-Forest Segments (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	VICTOR, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
<b>Water and Aquatic Resource Impacts (cont.)</b>				
Linear Feet of Steep Slopes (trail width)	0	0	0	0
Acres of New Trail Surface that Could Concentrate Flow <sup>a</sup>	0.76 acre	0	1.70 acres	0.30 acre
Relative Risk of Increased In-stream Sediment	Low	Low	Low	Low
<b>Vegetation Impacts</b>				
Vegetation Lost (acres and types)	1.1 Sagebrush shrubland  1.1 Total Acres	No impact	0.8 Douglas-fir 2.1 Unknown vegetation types 2.9 Total Acres	0.1 Douglas-fir 0.2 Unknown vegetation types 0.3 Total Acres
Acres of Disturbance (to measure potential spread of noxious weeds)	1.1 acres	0	2.9 acres	0.3 acre
Threatened Species Habitat Removed and/or Indirect Effects on Adjacent Habitats  <i>Ute Ladies'-tresses</i>	No impact	No impact	No impact	No impact
Forest Sensitive Species Habitat Removed and/or Indirect Effects on Adjacent Habitats <sup>b</sup>  <i>Payson's Bladderpod</i>	Not applicable	Not applicable	Not applicable	Not applicable
<b>Fish Impacts</b>				
Fisheries	No impact	No impact	No impact	No impact
Yellowstone Cutthroat Trout <sup>c</sup>	Not applicable	Not applicable	Not applicable	Not applicable
<b>Wildlife Impacts</b>				
General Wildlife	Minimal impacts related to the loss of 1.1 acres low-quality habitat	No impact	Minimal impacts related to 2.9 acres low-quality habitat loss	Minimal impacts related to 0.3 acre low-quality habitat loss

**Table 2-3b. Comparison of Impacts from Off-Forest Segments (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	VICTOR, IDAHO OFF-Forest SEGMENT	TETON COUNTY, IDAHO, OFF-Forest SEGMENT	TETON COUNTY, WYOMING, OFF-Forest SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-Forest SEGMENT (SOUTH ONLY OPTION)
<b>Wildlife Impacts (cont.)</b>				
Threatened, Endangered, or Forest Service Sensitive Species Habitat Removed and/or Indirect Effects on Adjacent Habitats  <i>Gray Wolf, Grizzly Bear, Canada Lynx, and Wolverine</i>	No impact	No impact	No impact	No impact
<i>Western Boreal Toad, Spotted Frog</i>	No impact	No impact	No impact	No impact
Forest Sensitive Species Habitat Removed and/or Indirect Effects on Adjacent Habitats*				
<i>Boreal Owl</i>	Not applicable	Not applicable	Not applicable	Not applicable
<i>Fisher</i>	Not applicable	Not applicable	Not applicable	Not applicable
<i>Flammulated Owl</i>	Not applicable	Not applicable	Not applicable	Not applicable
<i>Great Gray Owl</i>	Not applicable	Not applicable	Not applicable	Not applicable
<i>Northern Goshawk</i>	Not applicable	Not applicable	Not applicable	Not applicable
<i>Spotted Bat, Townsend's Big-eared Bat</i>	Not applicable	Not applicable	Not applicable	Not applicable
<i>Cavity Nesters</i>	Not applicable	Not applicable	Not applicable	Not applicable
<b>Cultural Resource Impacts</b>				
Relative Risk (i.e., Very Low to Very High) of Degrading Cultural Resources Based on Cultural Resource Inventories Previously Conducted in the Project Area	Low	Low	Low	Low
If Scoping Comments Regarding Eligible Historic Properties (i.e., Historic Wagon Route) Are Addressed	Not applicable since historic wagon route is located on Forest lands	Not applicable since historic wagon route is located on Forest lands	Not applicable since historic wagon route is located on Forest lands	Not applicable since historic wagon route is located on Forest lands

**Table 2-3b. Comparison of Impacts from Off-Forest Segments (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	VICTOR, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
Cultural Resource Impacts (cont.)				
If Interpretive Facilities for the Historic Teton Pass Corridor are Included	Not included	Not included	Not included	Not included
Visual Resource Impacts				
Change in the Character of the Existing Landscape	Minor	Minor	Minor	Minor
Visual Quality Objective Retention Affected (approximate)	0	0	0	0
Recreation Impacts				
Changes in Recreation Use Levels	Heavy increase	Moderate increase	Moderate increase	Moderate increase
Changes in Parking Demand at Trailheads	Moderate increase in demand	Heavy increase in demand	Moderate increase in demand; Some demand may also be reduced because fewer vehicles may be used to access trailheads	Moderate increase in demand
Linear Distance of Off-highway Trails That Accommodate Current Highway Corridor Users (i.e., Bicyclists)	1.33 miles (mountain bikers and road bicyclists)	2.74 miles (mountain bikers and road bicyclists using the re-paved Old Jackson Highway in lieu of ID-33)	1.10 miles (mountain bikers and road bicyclists)	1.10 miles (mountain bikers)
Linear Distance of Trails That Provide Universal Access	1.33 miles	0	1.10 miles	0
Recreational Uses of Trail by Specific User Groups	Pedestrians In-line skaters Skateboarders Equestrians Mountain bikers Road bicyclists Nordic skiers	Pedestrians In-line skaters Skateboarders Equestrians Mountain bikers Road bicyclists Nordic skiers	Pedestrians In-line skaters Skateboarders Equestrians Mountain bikers Road bicyclists Nordic skiers	Pedestrians Equestrians Mountain bikers Nordic skiers
Linear Distance of Separated Native-surface Trails Adjacent to Paved Pathways	0	0	2.20 miles (1.10 miles on both the north and south side of WY-22)	0
Segments of Trail That Are Longer than 500 Feet with Grades Greater than 15 Percent for Their Entire Length	0	0	0	0

**Table 2-3b. Comparison of Impacts from Off-Forest Segments (cont.).**

PARAMETER OR ISSUE INDICATOR FROM CHAPTER 1	VICTOR, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
Recreation Impacts (cont.)				
Capabilities and Resources of Jurisdictional Authorities to Enforce Non-motorized Winter Use (Caribou-Targhee Forest and Others)	Not applicable	Not applicable	Not applicable	Not applicable
Changes in Trail and Facility Maintenance Requirements (trail width and/or surface type)	1.33 miles (10-foot paved)	2.74 miles (on-road shared use; maintenance would change from gravel road to paved road)	1.10 miles (10-foot paved); 1.10 miles (18-inch native)	No change
Wilderness, Wilderness Study, and Roadless Area Impacts				
Changes in Recreation Use Levels on the Coal Creek and Moose Creek Trails	No increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase
Changes in Illegal Bicycle Use on the South End of the Jedediah Smith Wilderness Area	No increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase

- <sup>a</sup> Values do not include reconstruction of existing Forest Service system trails.
- <sup>b</sup> "Reclaimed soils" are previously disturbed areas that are currently fully or mostly vegetated and include the Old Jackson Highway and the old timber road.
- <sup>c</sup> Acres of new disturbance are estimated to include cut and fill slopes. Values do not take into account soils that will be revegetated following construction. Values do not include parking lots, reconstruction of existing Forest Service system trails, BPA road, old pass road, or historic wagon route.
- <sup>d</sup> Acres of new trail surface area include detrimentally disturbed or paved-over soils. Values do not take into account soils that will be revegetated following construction (i.e., cut and fill slopes).
- <sup>e</sup> "Previously undisturbed soils on steep slopes" are a subset of values of "previously undisturbed soils."
- <sup>f</sup> "Unstable soils" are areas of mass movement or mass wasting (e.g., landslides, block slides, slumps, debris flows, debris slumps, rock slides, rock falls, earth flows) identified by past geologic mapping. "Unstable soils within steep slopes" are a subset of "previously undisturbed soils on steep slopes."
- <sup>g</sup> Proposed trail would be located on unstable soils<sup>i</sup> that are *not* located within steep slopes. Values of unstable soils are a subset of "previously undisturbed soils."
- <sup>h</sup> Stream-side areas are defined as those areas within a perimeter bounded by a distance of approximately 150 feet from each stream bank.
- <sup>i</sup> The AIZ is a Forest Service term used to describe the land area immediately surrounding water bodies. For the streams within the project area, the AIZ encompasses the area extending 300 feet from each stream bank.
- <sup>j</sup> Values include trail construction on "previously undisturbed soils" and "reclaimed soils," and estimate for trail and shoulder clearing widths. Values do not include cut and fill slopes.
- <sup>k</sup> Assessment of Forest Service sensitive species is a requirement specifically related to Forest Service lands. Therefore, these species are not addressed for the off-Forest segments.

Chapter **3**

# AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

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# CHAPTER 3

## AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

### INTRODUCTION

This chapter provides a description of the existing environment in the project area based on literature and data file searches, coordination with local, State, and Federal agency personnel, and field investigations. Only that portion of the existing environment pertaining to the impacts discussion in this chapter is described. This chapter also presents the likely impacts to the natural and human environment or consequences that would result from implementation of the four alternatives under consideration. This chapter describes the direct, indirect, and cumulative impacts associated with the Forest segments, as well as segments located off Forest. Potential cumulative effects are disclosed in the Cumulative Effects Section of this chapter. Additionally, this chapter describes the unavoidable adverse impacts that would remain after implementation of the management measures, BMPs, mitigation measures, and monitoring activities described in Chapter 2.

### FOREST RESOURCES

#### Geology and Soils

##### Existing Conditions

The project area's geology has been mapped (Scott 1982; Oriel and Moore 1985; Oriel et al. 1985; Schroeder 1969, 1972) and straddles the boundary between the Snake River Range and the Teton Range with the two Trail Creeks, one flowing westward from near Teton Pass (West Trail Creek) and the other flowing eastward near Teton Pass (East Trail Creek), serving as the boundary. The two ranges are part of the Utah-Idaho-Wyoming salient of the Cordilleran foreland thrust belt (Oriel and Moore 1985). The West Trail Creek watershed encompasses 16,272 acres, and the East Trail Creek watershed is estimated to encompass approximately 4,480 acres.

The range's bedrock units are primarily composed of resistant limestone, dolomite, and quartzite layers that form ridges, and less-resistant mudstone, claystone, and sandstone layers that form valleys (Oriel and Moore 1985). These sedimentary layers thicken to the west and range from Paleozoic to Mesozoic in age. Soils have developed on all but the steepest bedrock units, and these soils support various vegetation types.

The main geologic hazards in the project area include landslides, avalanches, and seismic events. There are a number of large and small landslides within the project area (Case and Gilmer 1990a, 1990b, 1990c). Many of the soils in the project area have a high potential for mass movement (i.e., slumps or landslides). Locations of unstable soils are depicted on Figure 3-1. Unstable areas are areas of mass movement or mass wasting identified by past geologic mapping. Landslide stabilization efforts were completed for at least one larger landslide adjacent to WY-22. Landslides are present in the project area on both disturbed and undisturbed slopes. The steeply dipping (tilted) rock layers contribute to the instability of the steeper slopes in the project area. Excavation of cut and fills slopes also contribute to slope instability.

There are a number of avalanche or snow slide areas within the project area. The major avalanche chutes, including the Glory Slide, are primarily located on the east side of Teton Pass and associated with Mount Glory (Newcomb 2000). There are some small avalanche chutes to the west of Teton Pass that could also generate slides (Newcomb 2000). Four slide run-out paths, including the Glory Slide, all cross the old pass road on the east side of Teton Pass. Three slide paths may also cross the historic wagon route.

The Teton Fault is present northeast of the east end of the project area and parallels the eastern front of the Teton Range (Oriel et al. 1985, Glass 1996). This fault is considered an active fault capable of a 7.5-magnitude earthquake on the Richter scale. The fault is overdue for a moderate-to-large earthquake (Glass 1996). The Teton Fault appears to end to the north of Wilson, Wyoming, with an older inactive fault present to the south at the base of the Teton Range (Smith 2000). Other faults were mapped throughout the Teton Range west of the Teton Fault, but these faults are not considered active (Oriel et al. 1985, Case 2000, Smith 2000).



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### ***Forest Service Roads and Trails Receiving Unauthorized Motorized Use***

There are various project area roads and trails that currently receive unauthorized motorized use. Beginning at the Mike Harris Campground road, the old timber road extends east along the south side of West Trail Creek (Figures 2-1 [page 2-8], 2-2 [page 2-11], and 2-3 [page 2-14]). The initial 2,000 feet, approximately, of the old timber road follow the Mike Harris - Mail Cabin Trail (system trail #049). At Mikesell Canyon the old timber road continues east while the Mike Harris - Mail Cabin Trail heads south. The old timber road is a two-track road with a bare native track surface (i.e., soil) and either a grass or bare native surface (i.e., soil) in the center of the tracks. The initial 150 to 300 feet of the road are slightly rutted, after which the ruts get deeper until the road splits into three separate two-track roads. This three-way junction is located approximately 4,400 feet (0.83 mile) east of Mike Harris Campground, or approximately 1,700 feet east of Mikesell Canyon. The left (east) fork runs southeast along the bench/hillside on the south side of West Trail Creek for approximately 1,500 feet, and the middle fork heads along the ridge to the south for approximately 2,000 feet. The right (west) fork, which is the continuation of the old timber road, extends to the south/southwest for approximately 4,000 feet (0.75 mile).

The Mail Cabin Trail (system trail #044) begins at the Mail Cabin Trailhead and is currently a two-track road for approximately 0.5 to 1.0 mile from its origin. It crosses West Trail Creek once then Mail Cabin Creek twice in this initial distance, and motorized vehicles currently cross the creek at multiple locations since there are no established crossings. From the trailhead to the first (northern-most) creek crossing, the trail is currently a hardened surface with no rutting. Between the first and second creek crossings, the trail is deeply rutted. At the third, southern-most creek crossing, the two-track road parallels the creek for approximately 100 feet, after which the canyon narrows and the trail becomes a single-tread (24-inch-wide) trail to a double-tread trail (i.e., two separate 24-inch-wide trails) void of any vegetation. At this point, approximately 2.0 to 2.5 miles to the south of the trailhead, the trail enters the canyon and becomes a steep (approximately 30 percent) slope with multiple, eroding bare-tread tracks.

### **Direct and Indirect Impacts**

Impact evaluations were based primarily on the measurement of issue indicators, which are described in Chapter 1, Scoping and Issues (page 1-5). Impacts to Forest segments are also based on observations made during the project IDT's October 1999 site visit. A site visit was not made to the off-Forest segments. Impacts are summarized in Table 3-1 (page 3-5).

The impacts to soil and geology are based on a particular site's potential for long-term degradation. The issue indicators listed in Chapter 1 quantify the amount of soil disturbance. This disturbance could have a number of short- or long-term effects, including loss of vegetation production, removal of ground cover, compaction of soil, acceleration of erosion and sedimentation, alteration of drainage patterns, transportation of sediment to streams, increased risk of mass movement, damage to trails and roads from mass movement or erosion, and formation of rills and gullies. Short-term impacts are those that would occur during trail construction and during the 1-year period following completion of construction. Long-term impacts are those that would remain more than 1 year after construction is complete.

**Table 3-1a. Impacts to Soil and Geology, Forest Alternatives.**

PROPOSED TRAIL LOCATION / DISTURBANCE	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
<b>Total Lengths of Proposed Trail Alternatives</b>					
Proposed Trail Located on Existing Routes					
Linear Feet of BPA Road	7,746 (Segment 3) 5,280 (Segment 4) Subtotal: 2.47 miles	7,746 (Segment 3) 5,280 (Segment 4) Subtotal: 2.47 miles	11,442 (Segment 1) 21,490 (Segment 2) 7,746 (Segment 3) 5,280 (Segment 4) Subtotal: 8.70 miles	11,442 (Segment 1) 7,746 (Segment 3) 2,640 (Segment 5) Subtotal: 4.13 miles	0
Linear Feet of Old Pass Road	20,080 (Segment 5) Subtotal: 3.80 miles	20,080 (Segment 5) Subtotal: 3.80 miles	20,080 (Segment 5) Subtotal: 3.80 miles	20,080 (Segment 5) Subtotal: 3.80 miles	0
Linear Feet of Historic Wagon Route / East Trail Creek Road	16,210 (Segment 5) Subtotal: 3.07 miles	16,210 (Segment 5) Subtotal: 3.07 miles	16,210 (Segment 5) Subtotal: 3.07 miles	16,210 (Segment 5) Subtotal: 3.07 miles	0
Linear Feet of Other Existing Routes	16,210 (Segment 5) Subtotal: 3.07 miles	16,210 (Segment 5) Subtotal: 3.07 miles	16,210 (Segment 5) Subtotal: 3.07 miles	16,210 (Segment 5) Subtotal: 3.07 miles	0
Total Proposed Trail Located on Existing Routes	49,316 feet (9.34 miles)	49,316 feet (9.34 miles)	82,248 feet (15.58 miles)	58,118 feet (11.01 miles)	0
Proposed New Trail	36,400 feet (6.89 miles)	34,500 feet (6.53 miles)	15,100 feet (2.86 miles)	16,600 feet (3.14 miles)	0
Total Length of Proposed Trail <sup>d</sup>	85,716 feet (16.23 miles)	83,816 feet (15.87 miles)	97,348 feet (18.44 miles)	74,718 feet (14.15 miles)	0

**Table 3-1a. Impacts to Soil and Geology, Forest Alternatives (cont.).**

PROPOSED TRAIL LOCATION / DISTURBANCE	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Impacts Based on Issue Indicators (Chapter 1)					
Linear Feet and Acreage of Previously Undisturbed Soils (trail width in feet or inches)	7,333 (10') (Seg. 1) 7,333 (24") (Seg. 1) 19,600 (10') (Seg. 2) 5,800 (10') (Seg. 4) 5,800 (24") (Seg. 4) <i>Subtotal: 24.35 acres</i>	5,600 (10') (Seg. 1) 5,600 (24") (Seg. 1) 3,800 (24") (Seg. 1) 19,300 (10') (Seg. 2) 5,800 (10') (Seg. 4) 5,800 (24") (Seg. 4) <i>Subtotal: 23.24 acres</i>	12,600 (24") (Seg. 2) 1,500 (24") (Seg. 3) 1,000 (24") (Seg. 4) <i>Subtotal: 2.08 acres</i>	5,600 (48") (Seg. 1) 900 (48") (Seg. 3) 1,500 (24") (Seg. 3) 1,900 (36") (Seg. 5) 1,500 (24") (Seg. 5) 400 (24") (Seg. 5) <i>Subtotal: 2.65 acres</i>	0
Linear Feet and Acreage of Reclaimed Soils <sup>a</sup> (trail width in feet or inches)	3,667 (10') (Seg. 1) 3,667 (24") (Seg. 1) <i>Subtotal: 0.89 acre</i>	3,800 (10') (Seg. 1) <i>Subtotal: 0.87 acre</i>	0	3,800 (48") (Seg. 1) 1,000 (24") (Seg. 3) <i>Subtotal: 0.40 acre</i>	0
Total New Disturbance of Soils during Construction <sup>f</sup>	25.24 acres	24.11 acres	2.08 acres	3.05 acres	0
Total Surface Area of New Trail <sup>g</sup>	9.13 acres	8.62 acres	0.69 acre	1.28 acres	0
Linear Feet and Acreage of Previously Undisturbed Soils on Steep Slopes <sup>h</sup> (trail width in feet or inches)	5,800 (10') (Seg. 4) 5,800 (24") (Seg. 4)  Total: 4.79 acres	5,800 (10') (Seg. 4) 5,800 (24") (Seg. 4)  Total: 4.79 acres	12,600 (24") (Seg. 2) 1,000 (24") (Seg. 4)  Total: 1.87 acres	1,900 (36") (Seg. 5) 1,500 (24") (Seg. 5) 400 (24") (Seg. 5) Total: 0.66 acre	0
Linear Feet of Unstable Soils within Steep Slopes <sup>i</sup> (trail width in feet or inches)	0	0	3,700 (24") (Seg. 2)	0	0

**Table 3-1b. Impacts to Soil and Geology, Off-Forest Segments.**

PROPOSED TRAIL LOCATION / DISTURBANCE	VICTOR CITY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
<b>Total Lengths of Proposed Trail Alternatives</b>				
Proposed Trail Located on Existing Routes				
Linear Feet of BPA Road	0	0	0	0
Linear Feet of Old Pass Road	0	0	0	0
Linear Feet of Historic Wagon Route / East Trail Creek Road	0	0	2,900 (South) Subtotal: 0.55 mile	2,900 Subtotal: 0.55 mile
Linear Feet of Other Existing Routes	3,700 Subtotal: 0.71 mile <sup>a</sup>	14,500 Subtotal: 2.74 miles <sup>b</sup>	0	2,900 Subtotal: 0.55 mile <sup>c</sup>
Total Proposed Trail Located on Existing Routes	3,700 feet (0.71 mile)	14,500 feet (2.74 miles)	2,900 feet (South) (0.55 mile)	5,800 feet (1.10 miles)
Proposed New Trail	3,300 feet (0.62 mile)	0	5,800 feet (North) (1.10 miles) 5,800 feet (South) (1.10 miles) 2,900 feet (South) (0.55 mile)	2,900 feet (0.55 mile)
Total Length of Proposed Trail <sup>d</sup>	7,000 feet (1.33 miles)	14,500 feet (2.74 miles)	17,400 feet (3.30 miles)	8,700 feet (1.65 miles)
<b>Impacts Based on Issue Indicators (Chapter 1)</b>				
Linear Feet and Acreage of Previously Undisturbed Soils (trail width in feet or inches)	3,300 feet (10') Subtotal: 1.10 acres	0	5,800 (18") (North) 5,800 (10') (South) 2,900 (18") (South) Subtotal: 2.86 acres	0.30 acre
Linear Feet and Acreage of Reclaimed Soils <sup>e</sup> (trail width in feet or inches)	0	0	0	0
Total New Disturbance of Soils during Construction <sup>f</sup>	1.10 acres	0	2.86 acres	0.30 acre
Total Surface Area of New Trail <sup>g</sup>	0.76 acre	0	1.70 acres	0.10 acre

**Table 3-1b. Impacts to Soil and Geology, Off-Forest Segments (cont.).**

PROPOSED TRAIL LOCATION / DISTURBANCE	VICTOR CITY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
Impacts Based on Issue Indicators (Chapter 1) (cont.)				
Linear Feet and Acreage of Previously Undisturbed Soils on Steep Slopes <sup>1</sup> (trail width in feet or inches)	0	0	0	0
Linear Feet of Unstable Soils within Steep Slopes <sup>1</sup> (trail width in feet or inches)	0	0	2,800 (10') (South) <sup>1</sup> 2,800 (18') (South) <sup>1</sup>	2,800 (18') <sup>1</sup>

**Direct and Indirect Impacts**

Forest Service Region 4 supplement to the Forest Service *Soil Management Handbook* soil quality standards state that, "no more than a total of 15 percent of an activity area may have detrimentally disturbed soils" (Forest Service 1995a). Designated trails and transportation facilities are excluded from activity areas (Forest Service 1995a). For the project, the activity area was defined as the area within 75 feet on each side of the proposed trail, assuming that impacts from trail construction and trail users would not extend farther than 75 feet. Detrimently disturbed soils include soils with adversely affected hydrologic function or productivity losses that have been displaced, compacted, puddled, or severely burned (Forest Service 1995a). Impacts to soils and geology were classified on both a watershed scale and an activity area scale.

**Watershed Scale Impacts**

- < No impact: None of the watershed area would have detrimentally disturbed soils during or following construction.
- < Minor impact: Less than 1 percent of the total watershed area would have detrimentally disturbed soils during or following construction.
- < Moderate impact: Between 1 and 5 percent of the total watershed area would have detrimentally disturbed soils during or following construction.
- < Substantial impact: More than 5 percent of the total watershed area would have detrimentally disturbed soils during or following construction.

### **Activity Area Scale Impacts**

- < Negligible impact: Less than 15 percent of the activity area would have detrimentally disturbed soils.
- < Substantial impact: More than 15 percent of the activity area would have detrimentally disturbed soils.

#### **Alternative A: High-Standard Trail**

Most of the Alternative A route would avoid construction on steep slopes. However, both the North and South Options would involve new construction of a 10-foot-wide paved pathway and the separated 24-inch-wide native-surface trail on steep slopes for a distance of 5,800 feet in Segment 4. Construction of the wide, high-standard trail in steep slope areas would require large volumes of cut and fill material and/or the construction of retaining walls. Cut and fill slopes would be constructed using earthmoving equipment. The excavation of cut slopes could destabilize slopes that are currently stable. Excavation could also destabilize slopes that have moved in the past. Mass soil movement from a destabilized slope could destroy portions of the new trail and cause waterway sedimentation.

The North and South Options would result in the disturbance of both reclaimed soils and previously undisturbed soils and minor short-term and long-term disturbance of soil in the watershed during and after construction.

Both Options would detrimentally disturb soil during construction operations: the North Option would disturb approximately 25 acres, and the South Option would disturb about 24 acres. These short-term disturbances total about 0.12 percent of the West and East Trail Creek watersheds combined. Both the North and South Options would detrimentally disturb and permanently remove soil from vegetation production: the North Option would total about 9 acres, and the South Option would be about 8 acres; both of which total approximately 0.04 percent of the combined watersheds. Shoulder clearing of vegetation would not result in any additional disturbances to soil or geology. Where cut and fill slopes are present, the clear area would be within the cut and fill area. On more-level areas, the understory brush within 1 foot of the 10-foot-wide trail would be removed. For the separated native-surface trail, trees and brush over 30 inches tall and within 36 inches of the trail's edge would be cut or removed.

Parking facility improvements and new trailheads would require additional disturbance of previously undisturbed or reclaimed soils. Because these areas would be located in relatively flat locations, disturbance of steep or unstable slopes would be unlikely.

Under the North Option decommissioning would reduce current erosion and sediment transport resulting from snowmelt or storm water runs down the vehicle ruts, and increase the surface area of soil that is available for vegetation production by approximately 13,200 linear feet (0.9 acre). The decommissioning activities could create a short-term soil disturbance from surface ripping, trenching, installing earthen berms, or recontouring cut and fill slopes, but it would have a minor beneficial long-term impact by reducing erosion in the ruts.

Under the South Option decommissioning would total approximately 6,000 linear feet and return approximately 0.5 acre of soil to vegetation production. Activities here could create a short-term soil disturbance and have a minor beneficial impact on project area soil resources. However, the pavement on the new trail would increase runoff rates and decrease infiltration rates compared with the existing native-surface road segments.

Under both the North and South Options decommissioning would reduce current erosion resulting from snowmelt or storm water running down the vehicle ruts and result in a minor increase (approximately 0.5 acre) in the surface area of soil that is available for vegetation production.

#### **Alternative B: Varying Opportunity Trail**

All of the new trail constructed (except for the 1,500-foot segment from the Coal Creek Trailhead eastward to the end of the existing BPA road) would be located on steep slopes. This new trail would result in: a much narrower footprint than Alternative A, much smaller cut and fill slopes, and less soil disturbance. Any new cut and fill slopes

would largely be constructed using hand tools rather than earthmoving equipment. This smaller trail would be less likely to destabilize a slope than would a wider trail.

Approximately 12,600 feet of new trail would be constructed in Segment 2. A portion (3,700 feet) of this new trail would cross an identified unstable area between Squaw Canyon and Coal Creek. It is unlikely that this 24-inch-wide trail would destabilize the slope. A section of new trail (approximately 1,500 feet long) would be constructed in Segment 3. An additional section of new trail (approximately 1,000 feet long) would be constructed in Segment 4. Neither of these two new trail sections would be constructed within identified unstable areas.

This alternative would result in limited soil disturbance during construction and would detrimentally disturb approximately 2 acres of soil during construction operations. This constitutes 0.01 percent of the West and East Trail Creek watersheds combined. This alternative would detrimentally disturb and permanently remove about 0.7 acre of soil from vegetation production. The long-term disturbance of 0.7 acre is less than 0.01 percent of the combined watersheds. Shoulder clearing would not result in any additional disturbance to soil or geology. Parking facility improvements and a new trailhead at Mike Harris Campground would require additional disturbance of previously undisturbed or reclaimed soils. Because these areas would be located in relatively flat locations, steep or unstable slope disturbance would be unlikely. Some soil would be disturbed during construction, and some soil would be detrimentally disturbed or paved over as part of parking facility improvements. The parking areas would produce increased surface runoff. The project's SWPPP would specify short-term and long-term measures to address the surface runoff and control erosion or sedimentation.

Impacts from decommissioning would be the same as those described under Alternative A.

#### **Alternative C: Recreation Enhancements**

Soil disturbance from constructing a 48-inch wide trail would occur between Mike Harris Campground and Trail Creek Campground for approximately 9,400 feet, of which 3,800 feet would be on the existing old road. A number of additional short trail sections would be constructed, all of which would result in soil disturbance. A total of 3,800 linear feet of new trail would be located on steep slopes.

Alternative C would result in limited soil disturbance during construction and would detrimentally disturb approximately 3 acres of soil during construction operations. This short-term disturbance constitutes about 0.01 percent of West and East Trail Creek watersheds combined. It would detrimentally disturb and permanently remove about 1 acre of soil from vegetation production, or less than 0.01 percent of the combined watersheds.

Several other trail upgrades and enhancements would be conducted on existing Forest Service system trails that include Forest Service BMPs and create little, if any, disturbance. The trail upgrades would result in better storm water management and an overall beneficial impact on soils. No adverse impacts to slope stability are expected from the trail improvements.

Impacts of a parking facility and trailhead improvements would be the same as Alternative B.

Impacts from decommissioning would be the same as those described under Alternative A.

#### **Alternative D: No Action**

The Mail Cabin Trail, the old timber road, and the left, middle, and right two-track roads would not change from their existing conditions. Storm water and snowmelt would continue to erode soil from the roads and trails.

#### **Off-Forest Segments**

The City of Victor, Idaho, off-Forest segment would primarily be constructed in areas that have been previously disturbed by grading, paving, landscaping, or other residential use, except for a portion of the City of Victor, Idaho, segment from Pioneer Park to Baseline Road. This portion is relatively flat and vegetated with sagebrush (Melville 2000). During construction, the City of Victor segment would create short-term disturbances of approximately 1 acre of previously undisturbed soils. It would permanently impact less than 1 acre.

The Teton County, Idaho, off-Forest segment would be entirely located on previously disturbed soils. The Idaho off-Forest segments would not cross any steep slopes, unstable soils, or other geologic hazards.

Both options of the Teton County, Wyoming, off-Forest segment would be constructed within or adjacent to existing ROWs. The North Plus South Option would disturb a total of about 3 acres of previously undisturbed soils during construction and approximately 2 acres permanently. The South Only Option would disturb 0.3 acre of previously undisturbed soils during construction and about 0.1 acre permanently. Either of these options would create minor long-term impacts to soils. Approximately 2,800 linear feet of the proposed trail located on the south side of WY-22 is located within areas mapped as unstable soils, on alluvial fans that have been deposited by mud or debris flows. However, the unstable areas are not located on steep slopes. Constructing the proposed trail on the fans would not initiate slope movement, but debris flows could bury or obliterate the trail.

### ***Summary of Impacts***

Table 3-1 (page 3-5) summarizes impacts of the Forest and off-Forest segments on soil and geologic resources. Alternative A would have the greatest trail length and area located on steep slopes. Alternative B would have the greatest length and area located on unstable soils, but a properly designed 24-inch-wide trail would not be likely to initiate any mass movement. Alternatives A and C would avoid any new disturbance on unstable soils. Alternative C would also enhance approximately 6 miles of 24-inch-wide Forest Service system trails, which would benefit project area soils by decreasing erosion and sedimentation related to the trails. Any of the off-Forest segments would cause minor impacts to soils.

Decommissioning activities under Alternatives A and C would have a minor beneficial impact on soils by increasing soil stabilization and decreasing erosion on approximately 1.4 acres of two-track roads. Decommissioning under Alternative B would have a minor beneficial impact on soils by increasing soil stabilization and decreasing erosion on approximately 1.0 acre of roads. Under Alternative D, storm water and snowmelt would continue to erode soil from unclassified roads and trails.

### **Unavoidable Adverse Impacts**

#### ***Alternative A: High-Standard Trail***

The North and South Options would cause substantial short-term soil disturbance during construction from excavation of cut slopes and the placement of fill material. This short-term impact would be mitigated and not permanently impair project area soil resources. The North or South Option would permanently remove approximately 9 acres of soil from vegetation production, which would be a minor long-term impact on project area soils. Some short-term soil erosion would occur during the decommissioning process and while vegetation is becoming established on the disturbed soils. This is a minor impact.

#### ***Alternative B: Varying Opportunity Trail***

This alternative would result in minor short-term soil disturbance during construction that would be mitigated and would not permanently impair project area soil resources. Approximately 0.7 acre of soil would be permanently removed from vegetation production. This is a minor long-term impact. Some short-term soil erosion would occur during the decommissioning process and while vegetation is becoming established on the disturbed soils. This is a minor impact.

#### ***Alternative C: Recreation Enhancements***

This alternative would result in minor short-term soil disturbance in several small areas during construction that would be mitigated and would not permanently impair soil resources in the project area. Approximately 1.3 acres of soil would be permanently removed from vegetation production. This is a minor long-term impact. Some short-term soil erosion would occur during the decommissioning process and while vegetation is becoming established on the disturbed soils. This is a minor impact.

### **Alternative D: No Action**

The beneficial impacts of decommissioning would not occur. Recreation use would continue to increase, and existing impacts to soils and geology would be concentrated on existing trails rather than being dispersed over a larger area.

### **Off-Forest Segments**

The unavoidable impacts to soil resources from the City of Victor and Teton County, Idaho, off-Forest segments would be the detrimental disturbance and paving of a previously undisturbed area of approximately 1.1 acres. This would be considered a minor long-term impact. The North Plus South Option of the Teton County, Wyoming, off-Forest segment would detrimentally disturb and pave or harden a total of 2.9 acres of previously undisturbed soils, and the South Only Option would disturb 0.3 acre of previously undisturbed soils. Either of these options would be considered a minor long-term impact to soils.

## **Water and Aquatic Resources**

### **Existing Conditions**

Groundwater within the project area discharges from bedrock aquifer seeps and springs. A water table aquifer is present in the unconsolidated alluvium along West Trail Creek. The majority of the precipitation within the project area falls as snow. Annual precipitation totals are approximately 45 inches per year at higher elevations, such as near Teton Pass (BPA and Forest Service 1998). Peak stream flow typically occurs during the spring snowmelt period, with occasional high flows also occurring in response to high-intensity summer rainstorms. Sediment loads carried by streams are generally highest during the spring runoff period.

Stream resources within the project area include West Trail Creek, East Trail Creek, and numerous tributaries including Moose Creek, Mike Harris Creek, Burbank Creek, Mail Cabin Creek, and Coal Creek. These streams are listed in Table 3-2 and are depicted on Figures 2-1, 2-2, and 2-3. The headwaters of both East and West Trail Creek originate near Teton Pass, at an elevation of nearly 8,500 feet. In general, streams within the corridor have high gradients and coarse substrate material. Avalanches, landslides, and debris flows periodically contribute large volumes of sediment and woody debris to the channels. In 1954, an intense summer rainstorm caused debris flows in several West Trail Creek tributaries, including State Line Canyon, Talbot Canyon, and Squaw Canyon. Channel stability in the project area is generally classified as fair to good (Forest Service 1997c), although stream and watershed condition surveys completed by Caribou-Targhee Forest in 1988 and 1989 noted numerous areas on East and West Trail Creek and their tributaries affected by erosion at trail and road crossings (Forest Service 1989a). Poor riparian conditions and eroding streambanks at several developed campgrounds and trailheads were also noted as sources of instability. The proximity of the Teton Pass Highway, ID-33/WY-22, constricts the floodplain of East and West Trail Creek in many areas. Slumping/sliding of highway fill material into the stream are additional causes of channel instability.

**Table 3-2. Streams within Project Area Where New Crossings Would Be Built.**

PROJECT LOCATION	NEW STREAM CROSSING (LOCATION OF CROSSING)	TYPE OF STREAM	TYPE OF CROSSING
Alternative A - North Option			
Segment 1	Unnamed Tributary to West Trail Creek (Idaho)	Intermittent	Culvert
Segment 2	Hungry Creek (Wyoming)	Intermittent	Culvert
Segment 2	Talbot Creek (Wyoming)	Perennial	Bridge
Segment 2	Squaw Creek (Wyoming)	Intermittent	Culvert
Segment 2	Coal Creek (Wyoming)	Perennial	Bridge
Segment 4	Unnamed Tributary to West Trail Creek (Wyoming)	Intermittent	Culvert
Alternative A - South Option			
Segment 1	State Line Canyon Creek (Idaho)	Perennial	Bridge
Segment 1	Unnamed Tributary to West Trail Creek (Wyoming)	Intermittent	Culvert
Segment 1	West Trail Creek (Wyoming)	Perennial	Bridge
Segment 2	West Burbank Creek (Wyoming)	Intermittent	Culvert
Segment 2	Burbank Creek (Wyoming)	Perennial	Bridge
Segment 2	Unnamed Tributary to West Trail Creek (Wyoming)	Intermittent	Culvert
Segment 2	West Trail Creek (Wyoming)	Perennial	Bridge
Segment 2	Coal Creek (Wyoming)	Perennial	Bridge
Segment 4	Unnamed Tributary to West Trail Creek (Wyoming)	Intermittent	Culvert
Alternative B			
Segment 2	Talbot Canyon Creek (Wyoming)	Perennial	Bridge
Segment 2	Squaw Canyon Creek (Wyoming)	Intermittent	Culvert
Segment 2	Coal Creek (Wyoming)	Perennial	Bridge
Alternative C			
Segment 1	State Line Canyon Creek (Idaho)	Perennial	Bridge
Segment 1	Unnamed Tributary to West Trail Creek (Wyoming)	Intermittent	Culvert
Segment 1	West Trail Creek (Wyoming)	Perennial	Bridge

Stream types (i.e., intermittent or perennial) were determined from U.S. Geological Survey 7.5' quadrangle maps.

None of the streams within the project area are currently listed on the Idaho or Wyoming 303(d) lists of water quality limited waters. Field notes taken by Forest Service personnel include narrative observations of localized sediment aggradation and muddy flows in West Trail Creek during spring runoff (Forest Service 1989a). Observations of high springtime sediment loads were also mentioned in scoping comments received by the Forest Service. Although quantitative data on current conditions are not available, these qualitative observations suggest that sediment levels in West Trail Creek may be elevated above natural conditions.

Within the Wyoming portion of the project area, all perennial and intermittent streams are water quality designated as Class 2 waters (cold-water fisheries) by the Wyoming DEQ. (Wyoming DEQ 2000a). Wyoming Class 2 waters are protected as high-quality surface waters, and, consequently, standards are fairly restrictive. Two standards that are potentially relevant to the project include:

- < Turbidity: In all Class 1 and 2 waters that are cold-water fisheries, the discharge of substances attributable to or influenced by the activities of man shall not be present in quantities that would result in a turbidity increase of more than 10 nephelometric turbidity units (NTU); and
- < Temperature: There shall be no artificially induced temperature change over spawning beds in any Class 1, 2, or 3 waters (Wyoming DEQ 2000b).

The Idaho portion of the project area includes West Trail Creek, State Line Canyon, and an unnamed tributary to West Trail Creek. West Trail Creek and these tributaries are currently undesignated surface waters in Idaho. As such, they are protected for beneficial uses including recreation in and on the water, and the protection and propagation of fish, shellfish, and wildlife. Cold-water aquatic life and primary or secondary contact recreation water quality criteria apply to undesignated surface waters (Idaho DEQ 2000). Relevant water quality standards include:

- < Sediment shall not exceed quantities, which impair designated beneficial uses. Determinations of impairment shall be based on water quality monitoring and surveillance;
- < Turbidity below any applicable mixing zone set by the Department shall not exceed background turbidity by more than 50 NTU instantaneously or more than 25 NTU for more than 10 consecutive days; and
- < During the spawning and incubation periods for the particular species inhabiting those waters, water temperatures of 13 degrees Celsius (55 degrees Fahrenheit) or less with a maximum daily average no greater than 9 degrees Celsius (48 degrees Fahrenheit) should be met (Idaho DEQ 2000).

The Wyoming portion of West Trail Creek was classified by the Wyoming Department of Game and Fish as a Class 3 stream having "important trout waters and fisheries of regional importance" (BPA and Forest Service 1998). In addition, West Trail Creek is included in the Caribou-Targhee Forest's list of "primary watersheds" for the Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri* (Forest Service 1997c). These primary watersheds were deemed necessary for species recovery. Forest Service guidelines for these watersheds require that management activities that would degrade habitat or "retard the rate of recovery of degraded habitat features" be avoided (Forest Service 1997c).

No streams are present in the portions of the proposed off-Forest segments where new trail construction would occur. Between the City of Victor, Idaho, and the Caribou-Targhee Forest boundary, the existing Old Jackson Highway crosses two canals, two intermittent tributaries to West Trail Creek, and Moose Creek

Depending on the selected alignment, the proposed project may cross and/or parallel as many as nine perennial and intermittent streams and associated AIZ. Forest Service objectives and goals for these areas are to "minimize adverse effects to aquatic and riparian dependent species from past, existing and proposed management activities."

Another goal for AIZ management is that "no new roads, trails, or landings will be constructed within these lands until appropriate standards for construction, maintenance, and operations are in place" (Forest Service 1998). The Features Common to All Forest Action Alternatives (page 2-17), and mitigation measures (page 2-2), are the "appropriate standards" for construction in AIZ.

Unauthorized motorized use of has contributed to deep rutting along roads and unclassified trails, and these ruts tend to collect and hold water from snowmelt and rain events. Motorized vehicle use during wet or muddy conditions leads to erosion and sediment-laden runoff. In addition, motorized use causes soil compaction and prevents disturbed areas from becoming revegetated. The presence of bare, compacted soil leads to increased runoff rates and decreased infiltration rates, further increasing the potential for erosion and sediment-laden runoff. The initial old timber road section and the left fork two-track trail lie within the West Trail Creek AIZ. Existing unauthorized use of the road in these areas is likely causing increased sediment loads to West Trail Creek. These increased sediment loads could adversely affect aquatic life in West Trail Creek, including Yellowstone cutthroat trout.

Unauthorized vehicle stream crossings are typically associated with bare, unstable streambanks devoid of streamside vegetation leading to chronic erosion and increased sediment inputs to Mail Cabin Creek and West Trail Creek. In addition, vehicles crossing a stream disturb aquatic life in the vicinity and cause short-term increases in turbidity by disturbing streambed sediments. The problems associated with vehicle use of unpaved and non-maintained forest roads and stream crossings have been documented. Research by Brown (1994) identified five main processes by which unprotected ford crossings can increase sediment inputs to streams. These include: (1) undercutting of banks by wave action created by vehicles, (2) creation of wheel ruts and concentration of surface runoff, (3) the existence of tracks and exposed surfaces, (4) compaction and subsequent reduction in infiltration rates, and (5) backwash from vehicles. A study by Reid and Dunne (1984) found that heavily used road segments contributed 130 times more sediment than similar road segments receiving no vehicle use. The current unauthorized motorized use of the roads and trail is likely causing increased sediment loads to both streams.

### **Direct and Indirect Impacts**

The alternatives evaluated the number of new stream crossings to be built and the length of new trail segments to be built within streamside areas. Impacts are summarized in Table 3-3. Impacts are considered substantial if the alternative is anticipated to result in exceedences of water quality standards that would impair the designated beneficial uses of the affected water body. Impacts are also considered substantial if the alternative is anticipated to conflict with established Forest Service guidelines.

**Table 3-3a. Impacts to Water Resources, Forest Alternatives.**

INDICATOR	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Linear Feet of Stream-side Areas (trail width) <sup>a</sup>	19,600 (10 feet)	20,960 (10 feet) 1,660 (24 inches)	0	1,660 (48 inches)	0
Linear Feet of AIZs (trail width) <sup>b</sup>	21,150 (10 feet) 1,550 (24 inches)	22,250 (10 feet) 3,950 (24 inches)	2,700 (24 inches)	3,900 (48 inches) 300 (24 inches)	0
Stream Crossings	2 bridges 4 culverts	5 bridges 4 culverts	2 bridges 1 culvert	2 bridges 1 culvert	0
Linear Feet of Unstable Soils within Steep Slopes (in locations that could impact streams) (trail width)	0	0	3,700 (24 inches)	0	0
Linear Feet of Steep Slopes (trail width)	5,800 (10 feet) 5,800 (24 inches)	5,800 (10 feet) 5,800 (24 inches)	13,600 (24 inches)	1,900 (36 inches) 1,900 (24 inches)	0
Acres of New Trail Surface that Could Concentrate Flow <sup>d</sup>	13.63 acres	12.83 acres	1.73 acres	2.42 acres	0
Relative Risk of Increased In- stream Sediment	High	High	Low	Low	Existing trends would continue
Total New Disturbance of Soils during Construction <sup>c</sup>	25.24 acres	24.11 acres	2.08 acres	3.05 acres	0

**Table 3-3b. Impacts to Water Resources, Off-Forest Segments.**

INDICATOR	VICTOR, CITY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
Linear Feet of Stream-side Areas (trail width) <sup>a</sup>	0	0	0	0
Linear Feet of AIZs (trail width) <sup>b</sup>	0	0	0	0
Stream Crossings	0	0	0	0
Linear Feet of Unstable Soils within Steep Slopes (in locations that could impact streams) (trail width)	0	0	2,800 (10 feet) <sup>c</sup> 2,800 (18 inches) <sup>c</sup>	0
Linear Feet of Steep Slopes (trail width)	0	0	0	0
Acres of New Trail Surface that Could Concentrate Flow <sup>d</sup>	0.76 acre	0	1.70 acres	0.30 acre
Relative Risk of Increased In-stream Sediment	Low	Low	Low	Low
Total New Disturbance of Soils during Construction <sup>e</sup>	1.10 acres	0	2.86 acres	0.30 acre

**Alternative A: High-Standard Trail**

Alternative A could result in several direct and indirect impacts to project area water and aquatic resources.

**Distance of Trail in Previously Undisturbed Stream-side Areas and within AIZ:**

Alternative A would potentially affect between 19,600 linear feet (North Option) and 20,960 linear feet (South Option) of previously undisturbed streamside areas, and between 21,150 feet (North Option) and 22,250 feet (South Option) of AIZ. The length of separated 24-inch-wide trail is calculated as additional disturbance to the AIZ, although the separated trail would be located adjacent to the 10-foot-wide pathway in the AIZ.

The total area of AIZ within the Caribou-Targhee Forest portion of the project area is approximately 2,381 acres. Estimating for cut and fill slopes, approximately 0.62 percent (14.78 acres) of this total AIZ area would be disturbed under the North Option, and 0.67 percent (15.87 acres) under the South Option. With the total AIZ width of 600 feet, translates to 172,861 linear feet of AIZ. Of this length, 12.2 percent would be affected by trail construction under the North Option, and 12.8 percent would be affected under the South Option.

Vegetated buffers adjacent to streams help slow runoff, filter sediment and pollutants, strengthen streambanks, maintain cool in-stream water temperatures, provide a source for in-stream large woody debris, and reduce bank erosion (Platts 1991, EPA 1995). Removal of streamside vegetation can potentially result in increased delivery of sediment and pollutants, decreased bank stability, degradation of aquatic habitat, and increased water temperature.

Studies have found that removal of streambank canopy vegetation can result in an increase in maximum summer temperatures of 6 to 15 degrees Celsius (43 to 59 degrees Fahrenheit) (EPA 1995). Erosion from unprotected soils, such as unvegetated stream banks, can result in soil losses of as much as 100 tons per hectare per year (Novotny and Olem 1994). Fine sediments that reach streams could accumulate on the streambed and degrade spawning gravels and pool habitat. Research on cutthroat trout has found that embryo survival rates drop to 50 percent when fine sediment levels reach 20 percent. In addition, some juvenile salmonids have been found to be adversely affected by high turbidity levels in the range of 25 to 50 NTU (Bjornn and Reiser 1991).

Both the North and South Options of Alternative A could potentially cause a reduction in the width of the vegetated buffer along West Trail Creek for a distance of greater than 3 miles. The majority of the estimated impacts to streamside areas and potential effects to riparian vegetation would occur in Segment 2.

Under the North Option, approximately 3,200 linear feet of bare, compacted, 24-inch-wide track within the West Trail Creek AIZ would be converted to a natural vegetated condition between Mikesell Canyon and Trail Creek Campground (Caribou-Targhee Forest) as part of road decommissioning activities. The 3,200 linear feet that would be restored represent approximately 2 percent of the total length of AIZ within the Caribou-Targhee Forest portion of the West Trail Creek watershed. Therefore, the overall beneficial impact is anticipated to be minor.

Under the North and South Options, the Mail Cabin Trail would be barricaded and decommissioned to unauthorized motorized use. It is estimated that approximately 1.5 miles of the existing Mail Cabin Trail are located within the West Trail Creek and Mail Cabin Creek AIZ. This length represents approximately 5 percent of the total length of AIZ within the Caribou-Targhee Forest portion of the West Trail Creek watershed. Therefore, the beneficial impacts of decommissioning the Mail Cabin Trail are anticipated to be minor.

#### **Number of New Stream Crossings:**

Direct impacts to water and aquatic resources would result from installation of new culverts. Because culverts do not provide high-quality habitat for aquatic species, culvert installation would result in habitat degradation through the length of each culvert. Four new culverts (between 16 and 20 feet long) would be installed to accommodate the paved pathway and adjacent native-surface trail and would impact between 64 and 80 linear feet of habitat in intermittent streams. Culverts also have the potential to cause detrimental erosion or sediment accumulation in the stream channel upstream and downstream from the culvert itself, as well as the potential to block fish passage (Furniss et al. 1991). However, these impacts are associated with improper culvert design, installation, and maintenance. The culverts will be designed to allow for fish passage, pass high flows and sediment-loads effectively, and include adequate inlet and outlet protection. Culverts will also be inspected during the spring runoff season following installation to ensure that they are functioning properly. Therefore, no negative upstream or downstream impacts from culverts are anticipated. The North Option would result in the installation of two new bridges and the South Option would result in the installation of five new bridges. There will be no substantial impacts to water and aquatic resources because bridges will be constructed according to the mitigation measures.

#### **Distance of Trail That Traverses Unstable Areas and Steep Slopes in Locations That Could Impact Streams:**

Alternative A would involve 5,800 feet of new construction on steep slopes between the Weather Station and Teton Pass. Construction of the trail would require large amounts of cut and fill where slopes are steep. Because of the volume of ground disturbance, the potential exists for sediment-laden runoff to reach the headwaters of West Trail Creek during construction. However, the distance between down slope tributaries and the proposed trail alignment in this segment would generally be 1,000 feet or more. Because of this distance, it is anticipated that the amount of construction-related sediment reaching streams would be very small. In addition, erosion and sediment control BMPs will be used during construction. Studies have found that proper implementation of a well-designed storm water management and erosion control plan can reduce sediment production by 80 to 90 percent (Novotny and Olem 1994). Therefore, it is anticipated that the impacts associated with trail construction on steep slopes would be minor. After construction is complete, runoff from the paved trail onto the adjacent steep slopes could cause chronic rilling and sediment delivery to downslope tributaries. These impacts would be mitigated through the use of permanent storm water BMPs.

### **Acres of New Trail Surface That Could Concentrate Flow:**

Alternative A would result in 13.63 acres of new trail surface that could concentrate flow under the North Option and 12.83 acres under the South Option. Adequate drainage will be provided through the use of outsloping or crowning, drain dips, and/or insloping in conjunction with vegetated ditches and cross-drains/culverts as appropriate. Outfalls from drain dips, cross-drains, and drainage culverts will be protected with rock and will dissipate runoff into stable, well-vegetated areas. Drainage features will be spaced to ensure that flow that accumulates in ephemeral swales or gullies remains in its natural path and is not intercepted by the paved trail. Drain dips, cross-drains, and culverts will be spaced to outlet runoff at frequent intervals, thereby minimizing the potential for the trail surface to channelize runoff. When looked at in the context of the entire West Trail Creek watershed, the area that would be occupied by the new trail represents approximately 0.08 percent of the overall watershed area. Therefore, it is anticipated that any impacts associated with flow concentration will be minor.

### **Relative Risk of Increased In-Stream Sediment:**

Construction of the trail within the steep highway fill slope in portions of Segment 2 would temporarily cause increased sediment delivery to nearby West Trail Creek. Although well-designed erosion control plans can reduce sediment production by 80 to 90 percent (Novotny and Olem 1994), it is anticipated that the effectiveness of controls within this segment of the trail would be approximately 50 percent. Because of slope steepness and the limited distance between the trail alignment and West Trail Creek, fine sediments that reach the stream could accumulate on the streambed and degrade spawning gravels and pool habitat.

The amount of sediment that would enter West Trail Creek as a result of construction cannot be quantitatively predicted, but it is likely that construction would result in a short-term exceedence of the Wyoming turbidity standard. Any temporary exceedences of water quality standards would not result in impaired beneficial uses because necessary mitigation efforts will be implemented to ensure that no substantial net negative impact results from trail construction.

Road decommissioning activities are anticipated to result in a minor reduction in sediment delivery to streams, eliminating the problem of sediment-laden runoff associated with vehicle traffic when wet or muddy. Because the paved pathway will be constructed with effective erosion and sediment control BMPs and adequate permanent drainage controls, the conversion of the rutted dirt road to a paved pathway would result in an overall decrease in sediment-laden runoff from the road surface. However, the conversion of the existing native-surface, two-track road to a 10-foot-wide impervious paved surface under the South Option would result in an overall increase in runoff rates and a decrease in infiltration. These impacts would largely offset the improvements associated with elimination of the existing rutted road. Overall, decommissioning the old timber road to motorized use under South Option, would result in a very slight beneficial impact to water and aquatic resources.

Under North Option, decommissioning 3,200 linear feet of bare, compacted, 24-inch-wide track within the West Trail Creek AIZ would convert to decrease runoff rates, increase infiltration, and reduce sediment loads to West Trail Creek. Eliminating motorized use of the road would result in a decrease in sediment-laden runoff associated with vehicle traffic when the road is wet or muddy. However, the length of trail that would be decommissioned represents only 2.00 percent of the total length of AIZ and only 0.006 percent of the total area of AIZ within the Caribou-Targhee Forest portion of West Trail Creek watershed. Therefore, the overall beneficial impact is anticipated to be minor.

Under Alternative A, North and South Options, the Mail Cabin Trail would be barricaded and decommissioned to unauthorized motorized use. Approximately 2.0 to 2.5 miles of 24-inch-wide tracks of bare, compacted soil would be converted to a natural vegetated condition. This would reduce erosion, decrease runoff rates, increase infiltration, and reduce sediment loads to the creeks. In addition, approximately 36 linear feet of bare streambanks would become revegetated at the three unauthorized stream crossings. This 36 linear feet assumes the width of each stream crossing is reduced by 6 feet (from 10 feet to 4 feet) on each of the six banks. This streambank revegetation would provide shading and cover and act as a buffer to filter pollutants and sediment. The beneficial impacts of decommissioning the Mail Cabin Trail are anticipated to be minor.

Despite the minor benefits from road decommissioning, the overall relative risk of increased in-stream sediment under Alternative A would be high. Under both the North and South Options, the trail alignment would closely parallel West Trail Creek throughout Segment 2. As discussed above, the effectiveness of construction BMPs would be limited in this segment, and increased levels of sediment delivery to the stream channel are anticipated. In general these effects would be temporary in nature. Once construction is complete and the trail surface is paved, the potential for further erosion and sediment delivery would be substantially reduced. However, implementation of Alternative A would result in the greatest number of new stream crossings, greatest acreage of new trail surfaces, and the greatest distance of affected stream-side areas and AIZ relative to Alternatives B, C, and D (Table 3-3 [page 3-21]). Therefore the long-term risk of increased in-stream sediment would be high under Alternative A relative to the other alternatives.

#### **Alternative B: Varying Opportunity Trail**

Trail construction under Alternative B could result in direct and indirect impacts to project area water and aquatic resources. Impacts from decommissioning the old timber road and the left, middle, and right fork two-track roads under Alternative B would be the same as those described under the North Option of Alternative A. Impacts from decommissioning the Mail Cabin Trail to motorized use would also be the same as those described under Alternative A.

#### **Distance of Trail in Previously Undisturbed Stream-side Areas and within AIZ:**

Alternative B would result in substantially fewer impacts to undisturbed streamside areas and AIZ than Alternative A. New trail construction under Alternative B would involve crossing three tributaries to West Trail Creek and 2,700 feet of associated AIZ; however, no new trails would be constructed alongside (i.e., parallel to) and immediately adjacent to streams (Table 3-3 [page 3-21]). The 2,700 feet of AIZ that would be affected represent less than 2.00 percent of the overall length of AIZ within the Caribou-Targhee portion of the West Trail Creek watershed. In terms of area, only 0.02 percent of the total AIZ area in the watershed would be affected. Impacts to water and aquatic resources resulting from near-stream disturbance would be minor.

#### **Number of New Stream Crossings:**

Minor direct impacts to water and aquatic resources under Alternative B would result from installation of new culverts. Because culverts do not provide high-quality habitat for aquatic species, culvert installation would result in habitat degradation through the length of each culvert. Alternative B would involve the installation of one culvert, approximately 2 to 4 feet long. This is a relatively short length of pipe, so the impacts would be minor. Because the culvert will be designed and installed to allow fish passage and prevent erosion or sediment accumulation (Chapter 2), no negative impacts upstream or downstream from the culvert are anticipated. Alternative B would result in the installation of two new bridges. There will be no substantial impacts to water and aquatic resources because bridges will be constructed according to the mitigation measures described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of Chapter 2 (page 2-17).

#### **Distance of Trail That Traverses Unstable Areas and Steep Slopes in Locations That Could Impact Streams:**

Alternative B would traverse 13,600 feet of steep slopes as well as 3,700 feet of unstable soils within the aforementioned steep slopes. While these linear distances under Alternative B are the greatest of the three action alternatives, the overall area of ground disturbance within steep slope areas under Alternative B would be smaller than under Alternative A. This is because Alternative B involves construction of a small, 24-inch-wide trail, while Alternative A involves construction of a large, 10-foot-wide paved path and adjacent trail. As discussed above, construction within steep or unstable areas could cause transport and delivery of sediment-laden runoff to nearby streams. However, construction of the small trail under Alternative B would require little or no use of heavy equipment. In addition, the majority of construction within steep or unstable areas would not occur near streams. Therefore, anticipated impacts to water and aquatic resources would be minor.

#### **Acres of New Trail Surface That Could Concentrate Flow:**

Approximately 1.73 acres of new trail surface that could concentrate flow would be constructed under Alternative B.

This area represents only 0.01 percent of the overall West Trail Creek watershed area. In addition, the majority of new trail surfaces would be located away from streams. Therefore, it is anticipated that impacts associated with concentration of runoff on the new trail surface would be minor.

**Relative Risk of Increased In-Stream Sediment:**

Because the trail under Alternative B would be small and, for the most part, would be constructed away from stream channels, the risk of increased in-stream sediment would be low.

**Alternative C: Recreation Enhancements**

Trail construction under Alternative C could result in direct and indirect impacts to project area water and aquatic resources. Impacts from decommissioning the Mail Cabin Trail to motorized use under Alternative C would be the same as those described under Alternative A. Under Alternative C, the old timber road and the left fork two-track road would be converted to a hardened

**Distance of Trail in Previously Undisturbed Stream-side Areas and within AIZ:**

New trail construction would affect 1,660 linear feet of undisturbed streamside areas adjacent to West Trail Creek and 4,200 linear feet of AIZ. As discussed above, loss of vegetated buffer width could lead to increased delivery of sediment and attached pollutants to West Trail Creek, as well as decreased bank stability. However, the majority of construction would occur on the existing old timber road, which is primarily located on a bench above the riparian zone of West Trail Creek. In addition, since trail widths would be narrow relative to Alternative A, impacts to the vegetated buffer width would be considerably smaller. The 4,200 feet of AIZ that would be affected represent approximately 2.4 percent of the overall length of AIZ. In terms of area, only 0.05 percent of the total AIZ area would be affected. Therefore, impacts are anticipated to be minor.

**Number of New Stream Crossings:**

Minor direct impacts to water and aquatic resources would result from installation of one culvert, approximately 2 to 4 feet long. This is a relatively short length of pipe, so the impacts would be minor. Because the culvert will be designed and installed to allow fish passage and prevent erosion or sediment accumulation, no negative impacts upstream or downstream from the culvert are anticipated. Installation of two new bridges would cause no substantial impacts to water and aquatic resources because bridges will be constructed according to the mitigation measures described in Chapter 2.

**Distance of Trail That Traverses Unstable Areas and Steep Slopes in Locations That Could Impact Streams:** Alternative C would involve new construction of 24- and 36-inch-wide trails traversing 3,800 linear feet of steep slopes. The majority of this construction on steep slopes would occur on ridge tops, so the potential for sediment-laden runoff to reach streams is small, and impacts are anticipated to be minor.

**Acres of New Trail Surface That Could Concentrate Flow:**

Approximately 2.42 new acres of trail surface that could concentrate flow would be constructed. This area represents less than 0.02 percent of the overall West Trail Creek watershed area. In addition, the new trail would be constructed with permanent storm water BMPs that would minimize the potential for flow concentration. Therefore, it is anticipated that impacts associated with concentration of runoff on the new trail surface would be minor.

**Relative Risk of Increased In-Stream Sediment:**

Because the trail would be relatively small and, for the most part, constructed away from stream channels or on existing disturbed areas, the risk of increased in-stream sediment would be low.

Decommissioning the left fork two-track road would eliminate the problem of sediment-laden runoff associated with motor vehicle traffic on the road when it is wet or muddy. The hardened trail will be constructed with effective erosion and sediment control BMPs and adequate drainage controls. Therefore, the conversion of the rutted dirt road to a hardened trail would result in a decrease in sediment-laden runoff from the road surface. However, because the existing two-track road would be hardened to a 48-inch-wide trail rather than revegetated, overall surface runoff and infiltration rates would remain similar to existing conditions. Therefore, the overall beneficial

impact would be minor.

#### **Alternative D: No Action**

No new impacts to water or aquatic resources would occur and existing resource trends would continue. Mail Cabin Trail, the old timber road, and the left, middle, and right fork two-track roads would not change from their existing conditions. Storm water and snowmelt would continue to cause sediment-laden runoff and erosion from the roads and bare streambanks at the road crossings. Contribution of sediment loads to West Trail Creek and Mail Cabin Creek would continue. Unauthorized motorized use would continue to occur, causing associated sediment-laden runoff.

#### **Off-Forest Segments**

Because the proposed trail would consist of shared use on the existing Old Jackson Highway and no new trail construction would occur in this area, no impacts to these canals and streams are anticipated. The proposed Teton County, Wyoming, off-Forest segment would be built within or immediately adjacent to the existing WY-22 ROW.

#### **Distance of Trail in Previously Undisturbed Stream-side Areas and within AIZ:**

No new trail construction on any of the proposed off-Forest segments would occur within streamside areas or AIZ. Therefore, there would be no impacts to these areas.

#### **Number of New Stream Crossings:**

No new stream crossings would be built under any of the proposed off-Forest segments. Therefore, no impacts from new stream crossings would occur.

#### **Distance of Trail That Traverses Unstable Areas and Steep Slopes in Locations That Could Impact Streams:**

No new trail construction would occur within unstable areas or on steep slopes City of Victor and Teton County, Idaho, off-Forest segments. Construction of the Teton County, Wyoming, off-Forest segment would entail crossing 2,800 linear feet of area on the south side of WY-22 that has been mapped as having unstable soils. The terrain in these areas is flat, not steep, and construction would not cause additional instability or increase erosion rates. Therefore, no impacts to water or aquatic resources resulting from unstable soils are anticipated.

#### **Acres of New Trail Surface That Could Concentrate Flow:**

Construction of the City of Victor, Idaho, off-Forest segment would involve construction of 0.76 acre of new trail surface that could concentrate flow. This area represents only 0.01 percent of the overall West Trail Creek watershed. Construction of the Teton County, Wyoming, off-Forest segment would involve construction of 1.70 acres (North Plus South Option) or 0.30 acre (South Only Option) of new trail surface that could concentrate flow. These areas represent only 0.04 percent and 0.01 percent of the overall East Trail Creek watershed, respectively. All new trails would be constructed with permanent storm water BMPs that would minimize the potential for flow concentration. Therefore, it is anticipated that impacts associated with concentration of runoff on any new trail surfaces would be minor.

#### **Relative Risk of Increased In-stream Sediment:**

None of the new trails would be located near streams or within steep slopes. In addition, the total area of new disturbance under any of the options would represent a very small proportion of the overall East and West Trail Creek watersheds. Therefore, the anticipated relative risk of increased in-stream sediment would be low for all the proposed off-Forest segments.

#### **Summary of Impacts**

Although trail construction under Alternative A has the potential to cause adverse impacts to water and aquatic resources, the implementation of BMPs and mitigation measures will ensure that no substantial long-term net negative impacts result from the project. The net impact of Alternative A with implementation of mitigation measures is anticipated to be moderate, while the negative impacts of Alternatives B and C are anticipated to be

minor. Under Alternative D, existing resource trends would continue. No new negative impacts would result from Alternative D, but the minor beneficial impacts to water and aquatic resources associated with road decommissioning activities would not be realized. Water and aquatic resource impacts of the off-Forest segments would be minor because no new trail construction would occur near streams, and trails would be located on flat terrain.

### **Unavoidable Adverse Impacts**

#### ***Alternative A: High-Standard Trail***

The placement of impervious pavement associated with construction of the 10-foot-wide paved path would reduce infiltration and cause a slight increase in runoff rates. In areas where the paved path is bordered by well-vegetated slopes with deep soils promoting infiltration, the effects of increased runoff would be negligible. However, in Segments 1 and 2 where the paved path would closely parallel West Trail Creek, the opportunity for infiltration between the path and the stream would be limited. In these areas, increased runoff from the path could cause increased channel scour and bank erosion. Because the path will be constructed with permanent storm water BMPs, these impacts are anticipated to be minor. Installation of four new culverts would result in an unavoidable adverse impact to aquatic habitat in the newly piped stream reaches. Overall stream channel length that would be affected is less than 0.05 percent of the total length of streams. Therefore, the impact would be minor.

#### ***Alternative B: Varying Opportunity Trail***

Installation of two new culverts would result in an unavoidable adverse impact to aquatic habitat in the newly piped stream reaches. This impact is considered minor since the length of stream channel that would be affected is less than 0.01 percent of the total length.

#### ***Alternative C: Recreation Enhancements***

Installation of two new culverts would result in an unavoidable adverse impact to aquatic habitat in the newly piped reaches of stream. This impact is considered minor since the length of stream channel that would be affected is less than 0.01 percent of the total length.

#### ***Alternative D: No Action***

Because no new construction would occur, Alternative D would not result in any new unavoidable adverse impacts.

#### ***Off-Forest Segments***

The placement of impervious pavement associated with construction of 3,300 linear feet (City of Victor, Idaho, off-Forest segment) and 5,800 linear feet (Teton County, Wyoming, North Plus South Option) of 10-foot-wide paved path under the proposed off-Forest segments would reduce infiltration rates and cause a slight increase in runoff rates. This would be a long-term effect. However, because the paved pathways would be located on flat terrain away from streams, the effects of increased runoff would be minor. There would be no unavoidable adverse impacts associated with the Teton County, Idaho, off-Forest segment or the Teton County, Wyoming, South Only Option.

## **Vegetation**

### **Existing Conditions**

#### ***General Vegetation***

The project area contains a diverse assemblage of vegetation types including open and forested upland communities and riparian habitats. The vegetation in the area is strongly influenced by topography, climate, aspect, soil type, fire and fire suppression, disease and insect outbreaks, clearing, grazing, avalanches, and landslides.

Open upland vegetation types are composed of a variety of shrubs, grasses, and forbs. On south-facing slopes, mountain mahogany (*Cercocarpus montanus*), big sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus*

sp.), bitterbrush (*Purshia tridentata*), and juniper (*Juniperus osteosperma*) dominate the landscape. Hawthorn (*Crataegus douglasii*), chokecherry (*Prunus virginiana*), serviceberry (*Amelanchier alnifolia*), and snowberry (*Symphoricarpos albus*) also occur on the shrubby hillsides and within the BPA transmission line ROW. These shrub species compose the mountain brush and grass/brush vegetation types. Open upland vegetation types also include areas that are dominated by grasses and forbs (grass/forb vegetation type) such as needle-and-thread grass (*Stipa comata*), giant wild rye (*Elymus* species), Idaho fescue (*Festuca idahoensis*), and cheatgrass (*Bromus tectorum*). Common forbs include lupine (*Lupinus* spp.), Indian paintbrush (*Castilleja* spp.), arrowleaf balsamroot (*Balsamorhiza sagittata*), heartleaf arnica (*Arnica cordifolia*), mule's ears (*Wyethia* spp.), triteleia (*Triteleia grandiflora*), and sticky purple geranium (*Geranium viscosissimum*). In addition, rocky outcrops occur throughout the project area.

Forested vegetation types are composed of lodgepole pine (*Pinus contorta*) in lower-to-middle elevation areas with poorer soils and Douglas-fir (*Pseudotsuga menziesii*) and spruce (*Picea engelmannii*) at the higher elevations. Aspen (*Populus tremuloides*) occurs primarily on the south-facing slopes of the project area. However, the majority of the project area's vegetation is a mixture of conifer species. Species such as snowberry, Rocky Mountain maple (*Acer glabrum*), serviceberry, mountain ash (*Sorbus scopulina*), blue huckleberry (*Vaccinium globulare*), violets (*Viola* spp.), strawberry (*Fragaria virginiana*), lupine, Indian paintbrush, arnicas (*Arnica* spp.), and pinegrass (*Calamagrostis rubescens*) comprise the understory of the forested areas. Designated old growth does not occur in the project area although the forest is relatively mature because of fire suppression.

Riparian and wetland vegetation lie directly adjacent to East and West Trail Creek with smaller pockets located along their tributaries. Shrubby riparian and wetland habitats are composed of dense stands of willows (*Salix* spp.) with occasional red-osier dogwoods (*Cornus stolonifera*), mountain alders (*Alnus viridis*), and spiraeas (*Spiraea betulifolia*). Emergent wetlands can also be found along East and West Trail Creek and their tributaries, but they have not been mapped. Common emergent species include various sedges (*Carex* spp.), rushes (*Juncus* spp.), cow parsnip (*Heracleum lanatum*), and bluebells (*Mertensia paniculata*).

#### **Noxious Weeds**

Noxious weed populations are established in the project area primarily in areas where soils have been disturbed. A survey for noxious weeds conducted in portions of the project area in 1997 (BPA and Forest Service 1998) identified the following invasive species in the project area: Canada thistle (*Cirsium arvense*), musk thistle (*Carduus nutans*), and erect cinquefoil (*Potentilla recta*).

Threatened, endangered, candidate, and Forest Service sensitive species were evaluated based on previous Environmental Impact Statements (EISs) (BPA and Forest Service 1998), the Targhee Forest RFP (Forest Service 1997a), and other work completed in the area.

Threatened, endangered, candidate, and Forest Service sensitive species that are known or suspected to occur within or near the project area based on survey results and/or presence of suitable habitat conditions are the Ute ladies'-tresses (*Spiranthes diluvialis*) and Payson's bladderpod (*Lesquerella paysonii*). The Ute ladies'-tresses species is possibly located along West Trail Creek and its tributaries at elevations below 7,000 feet. This species is listed by the USFWS as a threatened species. In addition, Payson's bladderpod is known to be located on Teton Pass. Its habitat is restricted to open communities with a high bare soil cover and sparse vegetative cover. This species is listed by the Forests as a sensitive species.

#### **Direct and Indirect Impacts**

The potential presence of these species in the project area and the analyses, effects, and conclusions of the planned activities as they relate to these species are discussed in more detail in Appendix B.

The conclusions of the project's effects on sensitive species are summarized in Form 2 (R-1/4/6-2670-95) located in the project file at the Caribou-Targhee Forest, Teton Basin Ranger District office in Driggs, Idaho. The information presented in the Biological Evaluation (Appendix C) and Form 2 serves as the Biological Evaluation for the project

as allowed by Forest Service direction (Forest Service 1995b).

### **Alternative A: High-Standard Trail**

#### **General Vegetation:**

The acres of vegetation that would be directly affected include the permanent removal of between 34.1 acres (North Option) and 34.3 acres (South Option) of vegetation because of new trail construction, and development of cut and fill slopes (Table 3-4). An undetermined amount of vegetation would also be removed during the improvement and expansion of several trailheads and the reconstruction of the historic wagon route in Segment 5. The majority of vegetation types that would be impacted are common in the surrounding area. Thus, the effect would be minimal. Up to 1.2 acres of riparian vegetation would be removed in the South Option, in Segment 1.

In addition, adjacent vegetation would be impacted during construction by the movement of heavy equipment and staging of equipment and building materials. Impacts would be localized and short term. Vegetation would be expected to return to normal within 1 to 2 years following construction. Other indirect impacts to vegetation may occur from recreationists venturing off the new trail, which would cause vegetation trampling. These impacts would be minimal.

Under the South Option, decommissioning activities would minimize the amount of unauthorized motorized use in the general area of the roads to be decommissioned. Vegetation would benefit by being restored to natural conditions in areas where vehicles have traditionally traveled off the trail and along unused portions of existing trail. Under the North Option, the beneficial effects of decommissioning activities would be greater since the beginning of the old timber road near Mike Harris Campground would be barricaded rather than signed. A barricade would be more effective in preventing unauthorized motorized use. Also under the North Option, the old timber road, the three forks, and the Mail Cabin Trail would be decommissioned, resulting in some regrowth of vegetation along the pathways. Under the South Option, this would only occur on the middle and right forks and the Mail Cabin Trail.

**Table 3-4. Acres of General Vegetation That Would Be Removed under Alternative A<sup>a</sup>.**

VEGETATION TYPE LOST	ACREAGE LOST (USING NORTH OPTIONS IN SEGMENTS 1 AND 2)	ACREAGE LOST (USING SOUTH OPTIONS IN SEGMENTS 1 AND 2)
Mountain brush	0.6 acre	0.6 acre
Grass / Forb	4.5 acres	4.2 acres
Grass / Brush	2.0 acres	0.0 acre
Douglas-fir above approximately 7,000 feet elevation	8.3 acres	8.3 acres
Mixed forest	12.3 acres	17.2 acres
Riparian	0.0 acre	1.2 acres
Aspen	5.1 acres	0.5 acres
Lodgepole pine	0.0 acre	1.0 acre
Spruce	0.5 acre	0.5 acre
Non-forested	0.8 acre	0.8 acre
<b>Total Vegetation Removed</b>	<b>34.1 acres</b>	<b>34.3 acres</b>

<sup>a</sup>Acres are approximated based on proposed trail placement, length, width, and disturbance associated with cut and fill slopes.

**Noxious Weeds:**

Because construction of a high-standard trail would involve ground disturbance, Alternative A would potentially result in the spread of noxious weeds within the project area. The North Option would disturb approximately 25 acres, and the South Option would disturb approximately 24 acres. In addition, noxious weed spread and establishment may be facilitated by increased pedestrian, equestrian, and mountain bike recreation use, which can transport seeds. Under the South Option, decommissioning activities would minimize the potential for noxious weed invasion and expansion by reducing the amount of soil disturbance caused by motorized vehicles and the potential for seed introduction. Beneficial effects would be greater under the North Option as a result of implementing more-effective closure methods.

**Threatened, Endangered, and Forest Service Sensitive Species:**

***Ute Ladies'-tresses:*** Under the South Option, potential habitat for Ute ladies'-tresses would be permanently removed along West Trail Creek where the trail would cross the stream and in areas where it would traverse the riparian corridor. In total, up to approximately 1.2 acres of riparian habitat would be directly impacted. The species is not known to occur in the area

***Payson's Bladderpod:*** Potential habitat for Payson's bladderpod would be impacted by the construction of new trails, expansion of existing trails, and improvement of trailheads, primarily in the Teton Pass area. In Segment 4, an estimated 1.6 acres of grass/forb vegetation type would be removed. The location of this vegetation type occurs in the preferred habitat of Payson's bladderpod.

The new section of trail in Segment 4 would be constructed in the general area of a known population of Payson's

bladderpod (BPA and Forest Service 1998). The proposed location of the trail does not overlap the location of the population.

**Alternative B: Varying Opportunity Trail**  
**General Vegetation:**

Direct impacts to vegetation are listed in Table 3-5. Impacts would be similar to those described for Alternative A, with the exception that fewer total acres (2.1 acres) would be impacted by new trail construction. Riparian vegetation would not be impacted. Beneficial effects resulting from road decommissioning would be the same as those described under the North Option of Alternative A.

**Noxious Weeds:**

The potential for the spread of noxious weeds would exist but would be lower than under Alternative A, as fewer areas would be disturbed. Beneficial effects of road decommissioning would be the same as those described for the North Option of Alternative A.

**Table 3-5. Acres of General Vegetation That Would Be Removed under Alternative B<sup>a</sup>.**

VEGETATION TYPE LOST	ACREAGE LOST
Mountain Brush	0.0 acre
Grass / Forb	0.3 acre
Grass / Brush	0.0 acre
Douglas-fir above approximately 7,000 feet elevation	0.4 acre
Mixed forest	0.9 acre
Riparian	0.0 acre
Aspen	0.5 acre
Lodgepole pine	0.0 acre
Spruce	0.0 acre
Non-forested	0.0 acre
<b>Total Vegetation Removed</b>	<b>2.1 acres</b>

<sup>a</sup> Acreages are approximated based on proposed trail placement, length, width, and disturbance associated with cut and fill slopes.

**Threatened, Endangered, and Forest Service Sensitive Species:**

***Ute Ladies'-tresses:*** Because the trail would not be located within the West Trail Creek riparian corridor, potential habitat for Ute ladies'-tresses would not be impacted.

***Payson's Bladderpod:*** Habitat for Payson's bladderpod would not be impacted.

**Alternative C: Recreation Enhancements  
General Vegetation:**

Table 3-6 shows the acres of vegetation would be removed by trail construction. Impacts would be similar to those described for Alternative A with the exception that fewer total acres (5.5 acres) would be impacted by new trail construction. Approximately 0.3 acre of riparian vegetation would be impacted at the West Trail Creek crossing and in areas where the trail would traverse the riparian corridor. In addition, an undetermined amount of vegetation would be removed by the reconstruction of portions of the historic wagon route, as well as construction of approximately 1,500 feet of 24-inch-wide trail connecting the existing BPA road segments northeast of Phillips Bench Trailhead.

**Table 3-6. Acres of General Vegetation That Would Be Removed under Alternative C.<sup>a</sup>**

VEGETATION TYPE LOST	ACREAGE LOST
Mountain Brush	0.0 acre
Grass / Forb	0.2 acre
Grass / Brush	0.0 acre
Douglas-fir above approximately 7,000 feet elevation	0.9 acre
Mixed forest	2.4 acres
Riparian	0.3 acre
Aspen	0.2 acre
Lodgepole pine	0.1 acre
Spruce	0.1 acre
Non-forested	1.3 acres
<b>Total Vegetation Removed</b>	<b>5.5 acres</b>

<sup>a</sup> Acreages are approximated based on proposed trail placement, length, width, and disturbance associated with cut and fill slopes.

Decommissioning activities would be the same as those described for Alternative A, South Option. Beneficial effects to vegetation would be slightly greater than the South Option of Alternative A since a barricade would be more effective in preventing motorized use.

**Noxious Weeds:**

Potential for the spread of noxious weeds would be lower than under Alternatives A, as fewer areas would be disturbed. Beneficial effects of road decommissioning would be greater than the South Option of Alternative A as a result of implementing more effective closure methods.

**Threatened, Endangered, and Forest Service Sensitive Species:**

*Ute Ladies'-tresses*: Potential habitat for Ute ladies'-tresses would be permanently removed along West Trail Creek where the trail would cross the stream and in areas where it would traverse the riparian corridor. Approximately 0.3 acre of riparian habitat would be directly impacted by these actions. The species is not known to occur in the area.

*Payson's Bladderpod*: Potential habitat for Payson's bladderpod would not be impacted.

**Alternative D: No Action**

Vegetation would generally remain as it currently exists. Some change would occur because of natural processes and other existing influences.

**Off-Forest Segments**

Because the assessment of Forest Service sensitive species is a requirement specifically related to Forest Service lands, this group of species is not addressed for the off-Forest segments. Impacts were determined based on descriptions of the project area provided by Teton Valley Trails and Pathways (Melville 2000) and by Teton County, Wyoming (Young 2000b).

**General Vegetation:**

Impacts to vegetation from trail construction of the off-Forest segments would be minimal (Table 3-7). Much of the trails would be built within disturbed areas of existing ROWs and on existing trails. However, some undisturbed vegetation would be impacted in localized areas. Along the City of Victor, Idaho, portion of the off-Forest segment, a small segment (3,300 feet) of new trail would be constructed through sagebrush shrubland resulting in the loss of 1.1 acres of sagebrush shrubland. Along the Teton County, Wyoming, portion of the off-Forest segment, trail construction would require approximately 0.3 acre of vegetation, 0.1 acre of which is Douglas-fir, removed under the South Only Option, while approximately 2.9 acres would be removed under the North Plus South Option. Under the North Plus South Option, approximately 0.8 acre of the 2.9 acres is Douglas-fir, all of which is located on the south side of WY-22. Impacts to Douglas-fir would be minimized by using a thinning method of clearing, and leaving mature trees where possible. Wetland and riparian areas are not known to occur within the trail course on either side of the project area.

**Noxious Weeds:**

The potential for noxious weed spread and establishment on off-Forest segments would be increased by soil disturbance during trail construction. This would include 1.1 acres on the City of Victor, Idaho, segment; 0.3 acre on the Teton County, Wyoming, segment (South Only Option); and approximately 2.9 acres on the Teton County, Wyoming, segment (North Plus South Option).

**Threatened and Endangered Species:**

Threatened and endangered species would not be impacted by the proposed off-Forest segments. Suitable habitat for Ute ladies'-tresses is not known to occur.

**Table 3-7a. Impacts to Vegetation, Forest Alternatives.**

INDICATORS	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)		ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)		ALTERNATIVE B		ALTERNATIVE C		ALTERNATIVE D
Vegetation Lost (acres and type) <sup>a</sup>	0.6 Brush	Mountain	0.6 Brush	Mountain	0.0 Brush	Mountain	0.0 Brush	Mountain	No Impact
	4.5	Grass/Forb	4.2	Grass/Forb	0.3	Grass/Forb	0.2	Grass/Forb	
	2.0	Grass/Brush	0.0	Grass/Brush	0.0	Grass/Brush	0.0	Grass/Brush	
	8.3	Douglas-fir	8.3	Douglas-fir	0.4	Douglas-fir	0.9	Douglas-fir	
	12.3	Mixed	17.2	Mixed	0.9	Mixed	2.4	Mixed	
	0.0	Riparian	1.2	Riparian	0.0	Riparian	0.3	Riparian	
	5.1	Aspen	0.5	Aspen	0.5	Aspen	0.2	Aspen	
	0.0	Lodgepole	1.0	Lodgepole	0.0	Lodgepole	0.1	Lodgepole	
	0.5	Spruce	0.5	Spruce	0.0	Spruce	0.1	Spruce	
	0.8	Non-forested	0.8	Non-forested	0.0	Non-forested	1.3	Non-forested	
	34.1	<b>Total</b>	34.3	<b>Total</b>	2.1	<b>Total</b>	5.5	<b>Total</b>	
Acres of Disturbance (to measure potential spread of noxious weeds) <sup>b</sup>	25.2 acres		24.1 acres		2.1 acres		3.1 acres		0
Threatened Species Habitat Removed and/or Indirect Effects on Adjacent Habitats	No Impact		1.2 acre loss of potential habitat		No Impact		0.3 acre loss of potential habitat		No Impact
<i>Ute Ladies'-tresses</i>	No Impact		1.2 acre loss of potential habitat		No Impact		0.3 acre loss of potential habitat		No Impact
Forest Sensitive Species Habitat Removed and/or Indirect Effects on Adjacent Habitats <sup>c</sup>	1.6 acre loss of potential habitat		1.6 acre loss of potential habitat		No Impact		No Impact		No Impact
<i>Payson's Bladderpod</i>	1.6 acre loss of potential habitat		1.6 acre loss of potential habitat		No Impact		No Impact		No Impact

Footnotes are provided following Table 3-7b.

**Table 3-7b. Impacts to Vegetation, Off-Forest Segments.**

INDICATORS	VICTOR CITY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
Vegetation Lost (acres and type) <sup>a</sup>	1.1 Sagebrush shrubland  1.1 Total	No Impact	0.8 Douglas-fir 2.1 Unknown vegetation types 2.9 Total	.1 Douglas-fir .2 Unknown vegetation types .3 Total
Acres of Disturbance (to measure potential spread of noxious weeds) <sup>b</sup>	1.1 acres	0	2.9 acres	0.3 acre
Threatened Species Habitat Removed and/or Indirect Effects on Adjacent Habitats <i>Ute Ladies'-tresses</i>	No impact	No impact	No impact	No impact
Forest Sensitive Species Habitat Removed and/or Indirect Effects on Adjacent Habitats <sup>c</sup> <i>Payson's Bladderpod</i>	Not applicable	Not applicable	Not applicable	Not applicable

<sup>a</sup> Acres of vegetation were determined using broad-scale, satellite imagery-based mapping provided by the Caribou-Targhee and Bridger-Teton Forests. Because riparian and wetland areas were not mapped, impacts were quantified using streamside aspen vegetation.

<sup>b</sup> Acres of disturbance were obtained from the total new disturbance of soils during construction (Table 3-1) so may not be identical to values of vegetation lost<sup>a</sup>.

<sup>c</sup> Assessment of Forest Service sensitive species is a requirement specifically related to Forest Service lands. Therefore, these species are not addressed for the off-Forest segments.

**Summary of Impacts**

Of the three action alternatives, Alternative B would result in the least amount of impacts to vegetation, while Alternative C would impact slightly more vegetation than Alternative B. Alternative A, South Option, would have a similar amount of impact to vegetation as Alternative A, North Option. Alternative A, South Option, would have the greatest impact to riparian habitat. Decommissioning the middle and right fork two-track roads under Alternatives A, B, and C would provide revegetation opportunities.

Impacts to the off-Forest segments would be relatively minor because of the location of the trail adjacent to existing roadways. The South Only Option of the Teton County, Wyoming, portion of the off-Forest segment would have the least amount of impacts on vegetation and noxious weeds compared with the North Plus South Option. Threatened and endangered species would not be affected on the off-Forest segments.

**Unavoidable Adverse Impacts**

**Alternative A: High-Standard Trail**

Unavoidable adverse impacts include the permanent loss of vegetation because of new trail construction and damage incurred from off-trail use by recreationists. Some noxious weed spread would also be inevitable. There would be

no unavoidable adverse impacts to Ute ladies'-tresses under the North Option. There would be a loss of up to 1.2 acres of potential Ute ladies'-tresses habitat under the South Option. Under both the North and South Options, there would be a loss of 1.6 acres of potential Payson's bladderpod habitat. The loss of potential habitat would not constitute a substantial impact as these species are not currently known to occur in the area of proposed direct impact.

**Alternative B: Varying Opportunity Trail**

Unavoidable adverse impacts to general vegetation would be similar to, but less than, those described for Alternative A, because of the reduced amount of impacts. There would be no unavoidable adverse impacts to Ute ladies'-tresses or Payson's bladderpod habitat.

**Alternative C: Recreation Enhancements**

Unavoidable adverse impacts to general vegetation would be similar to those described for Alternatives B. There would be a loss of approximately 0.3 acre of potential Ute ladies'-tresses habitat. The loss of potential habitat would not constitute a substantial impact as this species is not currently known to occur in the area of proposed direct impact.

**Alternative D: No Action**

Unavoidable adverse impacts to vegetation would not occur under Alternative D.

**Off-Forest Segments**

Unavoidable adverse impacts include the permanent loss of vegetation because of new trail construction. Losses would be minor because of the currently disturbed state of the majority of the proposed pathway route. Some noxious weed spread would also be inevitable.

## **Wildlife, Including Threatened and Endangered Species**

### **Existing Conditions**

#### ***Fisheries***

The only indigenous trout species in the general area is Yellowstone cutthroat trout, which is both a sensitive species and a management indicator on the Caribou-Targhee Forest. The lower reaches of West Trail Creek provide spawning and rearing habitat for fluvial populations of Yellowstone cutthroat trout from the Teton River. Habitat in the upper reaches is likely limited by the steeper gradients. The species was reported in West Trail Creek during distribution surveys conducted in 1998 (Forest Service 1998).

Other fish reported in West Trail Creek include brook trout (*Salvelinus fontinalis*) and sculpin (*Cottus* sp.) (Forest Service 1998). Streams on the northeast side of WY-22 likely support few fish since the streams cross the highway through a culvert, thereby impeding fish passage. One brook trout was discovered during distribution surveys of Burbank Creek, while Mail Cabin Creek was determined to be fishless. However, all perennial streams in the project area are considered to provide potential spawning habitat for fish from West Trail Creek.

#### ***Wildlife***

Much of the project area contains unfragmented, mature conifer and aspen forests intermixed with small meadow openings. This type of complex is attractive to a number of species, such as those that: depend on high densities of insect prey found in the dead woody material, require protective cover for movement corridors and bedding areas, need large snags for roosting and/or nesting, and/or require protected forested habitat for nesting next to open areas for foraging. Such species include a diverse assemblage of raptors, woodpeckers, owls, furbearers, songbirds (especially during migration), and big game. Habitat is less suitable for this type of wildlife community near the Teton Pass Highway and other roads, campgrounds, and trails because of the concentration of human-related

disturbances that deter use by some wildlife species.

Other habitats that are of high value to project area wildlife include riparian and wetland areas. In particular, portions of West Trail Creek support a healthy willow community that is used by species such as moose (*Alces alces*), amphibians, waterfowl (e.g., mallards [*Anas platyrhynchos*]), shorebirds (e.g., spotted sandpipers [*Actitis macularia*] and dippers [*Cinclus mexicanus*]), and many songbirds. Despite the limited amount of riparian and wetlands areas in the project area, these habitats add substantially to the biological diversity by attracting a diverse assemblage of wildlife species that would not otherwise occur in the general area. Wildlife use willows and other riparian shrubs for protective cover from nearby disturbances associated with recreational sites and roadways. The shrubs also supply forage material and nest sites for small birds.

Elk (*Cervus canadensis*), mule deer (*Odocoileus hemionus*), and moose inhabit the project area year round. However, winter range is the most critical period for big game because of the increased stress the animals endure during this time. Winter range includes areas at lower elevations with reduced snow accumulation. Designated elk winter range occurs on the lower slopes on the north and south sides of the highway from the western boundary of the project area to the Trail Creek Campground. Moose winter range is designated at the lower elevations of the project area along the north and south sides of the highway from the western boundary to Burbank Creek Trailhead. Riparian habitats along West Trail Creek are especially important to moose during this time. Elk summer range occurs throughout much of the project area on the southwest side of the highway.

The two-track roads/trails in the project area currently receive unauthorized use by all-terrain vehicles (ATVs), four-wheel drive vehicles, and motorbikes. This type of trail use, in particular, adversely affects wildlife by causing displacement, disrupting movement corridors, and reducing habitat quality in the surrounding area.

#### **Management Indicator Species**

Management indicator species for aquatic and riparian habitats on the Caribou-Targhee Forest consist of bald eagle (*Haliaeetus leucocephalus*), trumpeter swan (*Cygnus columbianus*), spotted frog (*Rana pretiosa*), common loon (*Gavia immer*), harlequin duck (*Histrionicus histrionicus*), and Yellowstone cutthroat trout. Within the project area, habitat is available for spotted frog and Yellowstone cutthroat trout (Forest Service 1997c). Occasionally, bald eagles are reported foraging along West Trail Creek during the winter. Existing conditions for management indicator species are discussed in more detail below.

#### **Threatened, Endangered, and Forest Service Sensitive Species**

Threatened, endangered, candidate, and Forest Service sensitive species identified as potentially occurring in the project area are summarized in Table 3-8.

#### **Direct and Indirect Impacts**

Table 3-9 provides a summary of impacts to wildlife, including threatened, endangered, and Forest Service sensitive species. The potential presence of threatened, endangered, candidate, and Forest Service sensitive species in the project area and the analyses of effects, are discussed in detail in the Biological Assessment (Appendix B) and the Biological Evaluation (Appendix C). The conclusions of the effects on sensitive species are summarized in Form 2 (R-1/4/6-2670-95) located in the project file at the Teton Basin Ranger District office.

#### **Alternative A: High-Standard Trail**

Impacts would be slightly greater under the South Option than under the North Option of Alternative A.

**Table 3-8. Threatened, Endangered, and Forest Service Sensitive Species That Potentially Occur in the Project Area.**

COMMON NAME (SCIENTIFIC NAME)	STATUS	POTENTIAL FOR PRESENCE
<i>Wildlife</i>		
Whooping Crane ( <i>Grus americanus</i> )	E	Unlikely because of lack of habitat.
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	T	Known but infrequent and temporary.
Grizzly Bear ( <i>Ursus arctos</i> )	T	Possible throughout the project area.
Canada Lynx ( <i>Lynx canadensis</i> )	T	Possible in undisturbed areas.
Mountain Plover ( <i>Charadrius montanus</i> )	C	Unlikely because of lack of habitat.
Western Boreal Toad ( <i>Bufo boreas</i> )	C	Possible in seeps and springs.
Boreal Owl ( <i>Aegolius funereus</i> )	S	Known. Abundant habitat available.
Common Loon ( <i>Gavia immer</i> )	S	Unlikely because of lack of habitat.
Fisher ( <i>Martes pennanti</i> )	S	Possible. Habitat along West Trail Creek.
Flammulated Owl ( <i>Otus flammeolus</i> )	S	Known. Abundant habitat available.
Great Gray Owl ( <i>Strix nebulosa</i> )	S	Possible. Abundant habitat available.
Harlequin Duck: ( <i>Histrionicus histrionicus</i> )	S	Unlikely because of lack of habitat.
Northern Goshawk ( <i>Accipiter gentilis</i> )	S	Possible. Abundant habitat available.
Peregrine Falcon ( <i>Falco peregrinus</i> )	S	Unlikely because of lack of habitat.
Spotted Bat ( <i>Euderma maculatum</i> )	S	Possible. Foraging habitat along streams.
Spotted Frog ( <i>Rana pretiosa</i> )	S	Possible. Seeps, springs, and streams.
Three-toed Woodpecker ( <i>Picoides tridactylus</i> ) and Other Cavity-Nesting Species	S	Three-toed woodpecker unlikely because of lack of habitat. Other cavity-nesters known. Habitat abundant throughout.
Townsend's Big-eared Bat ( <i>Plecotus townsendi</i> )	S	Possible. Foraging habitat along West Trail Creek.
Trumpeter Swan ( <i>Cygnus buccinator</i> )	S	Unlikely because of lack of habitat.
Wolverine ( <i>Gulo gulo</i> )	S	Sighted at Trail Creek Campground. Infrequent occurrence.
Gray Wolf ( <i>Canis lupus</i> )	E/N	Known. Habitat present throughout.
Yellowstone Cutthroat Trout ( <i>Oncorhynchus clarki bouvieri</i> )	S	Known in West Trail Creek. Habitat predominantly downstream of project area.

E = Listed by the USFWS as an endangered species.  
T = Listed by the USFWS as a threatened species.  
C = Listed by the USFWS as a candidate species.  
S = Listed by the Caribou-Targhee and Bridger-Teton Forests as a sensitive species.  
E/N = Listed by the USFWS as an experimental nonessential species.

**Table 3-9a. Impacts to Wildlife, Forest Alternatives<sup>a</sup>.**

WILDLIFE IMPACTED	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Fish					
Fisheries	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Impacts to habitat and reproduction because of increased sediment and pollutant delivery and higher temperatures	Minimal impacts to habitat and reproduction	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Continued habitat quality degradation at existing stream crossings
Yellowstone Cutthroat Trout <sup>b</sup>	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Impacts to habitat and reproduction because of increased sediment and pollutant delivery and higher temperatures	Minimal impacts to habitat and reproduction	Impacts to habitat and reproduction because of increased delivery of sediment and pollutants and higher temperatures	Continued habitat quality degradation at existing stream crossings
Wildlife					
General Wildlife	X 0.0 acre riparian habitat loss X 34.1 acres upland habitat loss X Habitat fragmentation X Increased disturbance X 0.0 acre winter moose cover loss X 2.5 acres winter elk cover loss X No impact to summer elk	X 1.2 acres riparian habitat loss X 33.1 acres upland habitat loss X Habitat fragmentation X Increased disturbance X 1.2 acres winter moose cover loss X 3.2 acres winter elk cover loss X No impact to summer elk	X 0.0 acre riparian habitat loss X 2.1 acres upland habitat loss X Habitat fragmentation X Increased disturbance X 0.0 acre winter moose cover loss X Minor loss of winter elk cover X No impact to summer elk	X 0.3 acre riparian habitat loss X 5.2 acres upland habitat loss X Habitat fragmentation X Increased disturbance X 0.3 acre winter moose cover loss X 3.3 acres winter elk cover loss X Increased disturbance to summer elk	Continued riparian habitat disturbance and degradation related to recreational use
Gray Wolf, Grizzly Bear, Canada Lynx, Wolverine	No impact	No impact	No impact	Minimal effects related to increased disturbance	Continued disturbance from recreationists
Western Boreal Toad, Spotted Frog	X 0.0 acre habitat loss X Habitat fragmentation X Disruption of movement	X 1.2 acres habitat loss X Habitat fragmentation X Disruption of movement	No impact	X 0.3 acre habitat loss X Habitat fragmentation X Disruption of movement	Continued riparian habitat disturbance and degradation related to recreational use
Boreal Owl <sup>b</sup>	X 20.6 acres habitat loss X Habitat fragmentation X Increased disturbance X Potential loss of nests	X 25.5 acres habitat loss X Habitat fragmentation X Increased disturbance X Potential loss of nests	X 1.3 acres low-quality habitat loss	X 3.3 acres habitat loss X Increased disturbance X Potential loss of nests	Continued disturbance from recreationists

**Table 3-9a. Impacts to Wildlife, Forest Alternatives<sup>a</sup> (cont.).**

WILDLIFE IMPACTED	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Wildlife (cont.)					
Fisher <sup>b</sup>	X Increased disturbance	X 1.2 acres habitat loss X Increased disturbance	No impact	X 0.3 acre habitat loss X Increased disturbance	Continued riparian habitat disturbance and degradation related to recreational use
Flammulated Owl <sup>b</sup>	No impact	No impact	X 0.9 acre low-quality habitat loss	X 0.5 acre habitat loss X Increased disturbance X Potential loss of nests	Continued disturbance from recreational use
Great Gray Owl <sup>b</sup>	X 9.8 acres habitat loss X Habitat fragmentation X Increased disturbance X Potential loss of nests	X 9.8 acres habitat loss X Habitat fragmentation X Increased disturbance X Potential loss of nests	X 0.9 acre low-quality habitat loss	X 1.1 acres habitat loss X Increased disturbance X Potential loss of nests	Continued disturbance from recreational use
Northern Goshawk <sup>b</sup>	X 9.8 acres habitat loss X Habitat fragmentation X Increased disturbance X Potential loss of nests	X 9.8 acres habitat loss X Habitat fragmentation X Increased disturbance X Potential loss of nests	X 0.9 acre low-quality habitat loss	X 1.1 acres habitat loss X Increased disturbance X Potential loss of nests	Continued disturbance from recreationists
Spotted Bat, Townsend's Big-eared Bat <sup>b</sup>	No impact	X 1.2 acres foraging habitat loss	No impact	X 0.3 acre foraging habitat loss	Continued riparian habitat disturbance and degradation of from recreational use
Cavity Nesters <sup>b</sup>	X 22.6 acres habitat loss X Habitat fragmentation X Increased disturbance	X 17.5 acres habitat loss X Habitat fragmentation X Increased disturbance	X 1.8 acres low-quality habitat loss	X 3.7 acres habitat loss X Habitat fragmentation X Increased disturbance	Continued disturbance from recreationists

**Table 3-9b. Impacts to Wildlife, Off-Forest Segments<sup>a</sup>.**

WILDLIFE IMPACTED	VICTOR CITY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
Fish				
Fisheries	No impact	No impact	No impact	No impact
Yellowstone Cutthroat Trout <sup>b</sup>	Not applicable	Not applicable	Not applicable	Not applicable
Wildlife				
General Wildlife	Minimal impacts related to 1.1 acres low-quality habitat loss	No impact	Minimal impacts related to 2.9 acres low-quality habitat loss	Minimal impacts related to 0.3 acre low-quality habitat loss
Gray Wolf, Grizzly Bear, Canada Lynx, and Wolverine	No impact	No impact	No impact	No impact
Western Boreal Toad, Spotted Frog	No impact	No impact	No impact	No impact
Boreal Owl <sup>b</sup>	Not applicable	Not applicable	Not applicable	Not applicable
Fisher <sup>b</sup>	Not applicable	Not applicable	Not applicable	Not applicable
Flammulated Owl <sup>b</sup>	Not applicable	Not applicable	Not applicable	Not applicable
Great Gray Owl <sup>b</sup>	Not applicable	Not applicable	Not applicable	Not applicable
Northern Goshawk <sup>b</sup>	Not applicable	Not applicable	Not applicable	Not applicable
Spotted Bat, Townsend's Big-eared Bat <sup>b</sup>	Not applicable	Not applicable	Not applicable	Not applicable
Cavity Nesters <sup>b</sup>	Not applicable	Not applicable	Not applicable	Not applicable

**Wildlife:**

Impact to wildlife would result from the permanent loss of riparian habitat (approximately 1.2 acres in Segment 1, South Option). Although the amount of loss would be relatively minor, any loss of riparian habitat would adversely affect wildlife. Trail placement within the riparian zone would remove important habitat for a number of species including moose, amphibians, waterfowl, shorebirds, and songbirds.

In addition to the loss of riparian habitat, approximately 34.1 acres (North Option) or 33.1 acres (South Option) of upland habitat would be permanently removed because of trail placement. Mountain brush, grass/forb, grass/brush, aspen, Douglas-fir, lodgepole pine, spruce, and mixed forest vegetation types would be impacted. Effects of the loss of upland habitat on general wildlife populations would be relatively insubstantial given the abundance of similar habitat in the surrounding area.

Trail placement through riparian and upland habitats ultimately divides the habitats into smaller, and sometimes non-functional, units. Long-term effects of fragmentation would occur in areas where new trail construction is proposed in currently undisturbed areas. Fragmentation of habitat would potentially result in increased stress or displacement to adjacent habitats and cause the habitat to be unusable to species that require large, undisturbed areas. The effects of fragmentation would be minimal in areas where the trail would be placed near the highway, such as in portions of Segment 2 (North Option), or on existing roadways, since habitat is of lower value because of current disturbances.

The placement of the trail adjacent to and within the riparian corridor, including approximately 12,000 feet of trail in Segment 1 (South Option) and 12,500 feet of trail in Segment 2 (South Option), would disturb associated wildlife during trail construction and subsequent use. Because trail construction and use would coincide with the breeding season, impacts would be detrimental to nesting birds that are sensitive to human presence. Although portions of the trail in the North and South Options of Segment 2 would lie adjacent to the West Trail Creek riparian corridor, the trail would be placed near the existing highway under the North Option rather than along the south side of West Trail Creek in the South Option. Trail use in these sections would not cause a substantial additional disturbance beyond what already occurs from current road use.

Disturbance during trail construction and subsequent use would be localized and temporary in adjacent upland areas. Because upland habitats are relatively common in the general area and trail use would be non-motorized, disturbance impacts would be relatively minor.

Alternative A would affect big game species by removing cover and forage during trail construction, and by contributing to an increase in human presence in the general area during certain times of the year. In both the North and South Options, 1.2 acres of riparian vegetation in moose winter ranges would be removed at the West Trail Creek crossings and in areas where the trail would traverse the riparian corridor under the South Option. Although the amount of loss would be relatively minor, any loss of cover and forage would be detrimental to moose. No riparian vegetation would be removed under the North Option. Moose would be minimally affected by the fragmentation of the riparian habitat along West Trail Creek. The two proposed crossings of West Trail Creek would likely not impede moose movement, as the species will cross roads and trails, especially if disturbances are absent. Construction of the trail and the majority of recreational use would not occur during the winter, the primary period of moose presence. Moose are tolerant of limited human presence. Minimal disturbance is not anticipated to unduly stress wintering individuals. In addition, the riparian vegetation that would be lost in areas where the trail traverses the corridor (Segment 1, South Option) is located along the edge of the corridor and in areas where the floodplain is relatively wide. The remaining habitat would likely still be functional for moose.

The trail would be located along the edge of elk summer range. Elk winter range overlaps the western portion of the project area from Moose Creek to the Trail Creek Campground. Within the area that is designated as elk winter range, there would be a loss of 2.5 acres (North Option) or 3.2 acres (South Option) of mixed forest, aspen, lodgepole pine, and riparian vegetation types. Impacts to wintering elk would include a reduction in areas that potentially provide protective shelter, forage material, bedding areas, and movement corridors. Impacts would be minimal since these resources are expected to be common in the surrounding areas in adjacent forested habitats.

Habitat would be fragmented in areas where new trail construction is proposed in currently undisturbed forested areas within elk winter range. Similar to loss of habitat, impacts of fragmentation would be minimal since suitable habitat is common in the surrounding area and movement would not be impeded by trail use during the winter months. Construction of the trail and the majority of recreational use would not occur during the winter, the primary period of elk presence in this area. Elk are tolerant of limited human presence and minimal disturbance is not anticipated to unduly stress wintering individuals.

Wildlife would benefit from decommissioning efforts to prevent unauthorized motorized use. For instance, a small, and likely minor, amount of habitat would be gained in areas where roads would be decommissioned and in areas

where motorized vehicles traditionally travel off trails. More importantly, wildlife in the vicinity of West Trail Creek and Mail Cabin Creek would benefit from a reduction in disturbance levels. The elimination of motorized use would lead to a lower potential for displacement, disruption of movement corridors, and reduced habitat quality in the surrounding habitat. Wildlife associated with the West Trail Creek riparian corridor would benefit the most, as this type of habitat is rare in the general area. Wintering elk and moose would not benefit from decommissioning efforts since the period of recreational use would not coincide with the period of big game presence. The small gain in habitat would benefit the species somewhat, depending on the level of revegetation. Elk within designated summer range would benefit from a reduction in disturbance levels within the Mail Cabin Trail area.

Under the North Option, beneficial effects to wildlife would be greater than under the South Option since the beginning of the old timber road would be barricaded rather than signed near Mike Harris Campground. A barricade would be more effective in preventing unauthorized motorized use. In addition, two-track roads would be decommissioned, resulting in some regrowth of vegetation along the pathways and, as such, a greater habitat gain.

### **Threatened, Endangered, and Forest Service Sensitive Species:**

Because the project area does not contain suitable habitat for whooping crane, mountain plover, common loon, harlequin duck, peregrine falcon, three-toed woodpecker, and trumpeter swan, impacts to these species would not occur. In addition, presence of bald eagle in the project area is considered to be infrequent and temporary. Thus, this species would not be affected. Effects to the remaining threatened, endangered, and Forest Service sensitive species are discussed below.

**Gray Wolf, Grizzly Bear, Canada Lynx, Wolverine:** Gray wolf, grizzly bear, Canada lynx, and wolverine are uncommon in the project area primarily because of the project area's distance from the core ranges of these species and their naturally low densities. Adverse effects would be minimal as the species maintain large home ranges and have relatively general habitat requirements. Habitat that would be affected by trail construction and subsequent use is located near existing trail systems, roads, and campgrounds and is of low value. Thus, these species would not be expected to be impacted.

**Western Boreal Toad and Spotted Frog:** Under the South Option, up to approximately 1.2 acres of riparian habitat would be removed. Although western boreal toad and spotted frog have not been documented in the area, the riparian vegetation provides suitable habitat for these species. The dense cover created by the vegetation is important in maintaining adequate shelter, temperature ranges, humidity levels, and prey densities for these species and other amphibian populations. Because riparian habitat is limited within the general area, any loss would adversely affect western boreal toad and spotted frog. The stream crossings would result in fragmentation of the riparian corridor. Fragmentation of habitat would potentially restrict the amphibians' ability to access adjacent areas.

Western boreal toad and spotted frog would benefit from decommissioning efforts. In particular, a small amount of riparian habitat associated with West Trail Creek would be gained in areas where the roads would be decommissioned and in areas where unauthorized motorized vehicles traditionally travel off trails.

**Boreal Owl:** Approximately 20.6 acres (North Option) and 25.5 acres (South Option) of Douglas-fir and mixed fir forest would be permanently removed by trail construction. This type of habitat is well distributed within the area; thus, the loss of habitat would not be expected to substantially affect boreal owls. Because boreal owls have been determined to be somewhat tolerant to disturbances during the nesting season (Hayward 1994), analyzed in Detail Section. Loss of birds and/or reduced reproductive success are not anticipated. In addition, if nesting boreal owls are detected during pre-construction surveys, trees within the established nest stand buffer would not be removed.

The trail placement in Segment 4 would cause the long-term fragmentation of suitable boreal owl habitat in a currently undisturbed area. Fragmentation would potentially divide habitat into smaller, non-functional units. Fragmentation may cause stress and displacement of boreal owls.

Boreal owl would benefit with a small gain in habitat and reduced disturbance from decommissioning.

**Fisher:** Suitable habitat for fisher occurs in association with the stretch of riparian vegetation between Mike Harris Creek and Hungry Creek. Impacts would occur at the West Trail Creek crossings and in areas where the trail would traverse the riparian corridor. Although the amount of loss would be relatively minor (1.2 acres), any loss of riparian habitat would adversely effect fisher by removing important habitat components such as protective shelter from adverse weather conditions and predators and prey habitat.

The effects of fragmentation of the riparian corridor on fisher would be relatively minor. The West Trail Creek crossing would likely not impede movement as the species would be expected to cross the trail. In addition, the area of impact where the trail would traverse the riparian corridor is located along the edge of the corridor and in areas where the floodplain is relatively wide. The remaining habitat would likely still be functional for fisher. Trail use in these sections would not cause additional disturbance over what already occurs from current road use.

Fisher would also benefit with small gain in habitat and reduced disturbance in some areas from decommissioning efforts.

**Flammulated Owl:** Suitable nesting habitat for flammulated owl generally occurs between the Mike Harris Campground area and Coal Creek on the south- and southeast-facing slopes that contain mature Douglas-fir and aspen forests. This type of habitat would not be removed by trail construction. In addition, the trail would not be placed near suitable nesting habitat. Thus, impacts related to disturbances during construction and subsequent use of the trail would not occur. Compared with nesting habitat, foraging habitat occurs throughout the project area. Foraging habitat is not considered as critical a habitat component for flammulated owls as is nesting habitat. Thus, impacts associated with the loss of or disturbance to foraging habitat would be considered minor.

**Great Gray Owl:** Suitable habitat for great gray owl consists of mature lodgepole pine/Douglas-fir/aspen forests mixed with open areas for hunting. Approximately 9.8 acres of lodgepole pine, Douglas-fir, and aspen forests, intermixed with grass/forb vegetation, would be directly impacted by trail construction. This type of habitat is well distributed within the general area; thus, the loss of habitat would not be expected to greatly affect great gray owls. The trail placement in Segment 4 would cause the long-term fragmentation of suitable habitat for great gray owl in a currently undisturbed area. Fragmentation would potentially divide habitat into smaller, non-functional units. Other indirect impacts would include disturbance to great gray owls during trail construction and subsequent use.

Habitat is unsuitable for great gray owl along new segments of trail that would be located near the highway (North Option) because of the associated levels of existing disturbance. Similarly, habitat is also considered of low value in areas where the proposed trail would use existing roadways; current human use likely deters adjacent occupancy by great gray owl. Thus, the species would not be impacted in these areas.

Great gray owl would benefit with a small gain in habitat and reduced disturbance in some areas from decommissioning efforts.

**Northern Goshawk:** Suitable habitat for northern goshawk consists of mixture of aspen and mature Douglas-fir/lodgepole pine, and adjacent open areas. Approximately 9.8 acres of suitable northern goshawk habitat would be directly impacted by trail construction. This type of habitat is well-distributed within the general area; thus, the loss of habitat would not be expected to greatly affect northern goshawks. Other direct impacts would potentially include the loss of nests during trail construction. This could lead to the loss of individual birds and reduced reproductive success. The trail placement in Segment 4 would cause the fragmentation of suitable habitat in a currently undisturbed area. Fragmentation would potentially divide habitat into smaller, non-functional units. Other indirect impacts would include disturbance to northern goshawks during trail construction and subsequent use.

Habitat is unsuitable for northern goshawks along new segments of trail that would be located near the highway

(North Option) because of the associated levels of existing disturbance. Similarly, habitat is also considered of low value in areas where the proposed trail would use existing roadways; current human use likely deters adjacent occupancy by northern goshawks. Thus, the species would not be impacted in these areas.

Northern goshawk would benefit with a small gain in habitat and reduced disturbance in some areas from decommissioning efforts

**Spotted Bat and Townsend's Big-eared Bat:** Riparian habitat provides a prey base for foraging bats, such as spotted and Townsend's big-eared. Up to approximately 1.2 acres of riparian habitat would be removed under the South Option. The effects of riparian habitat fragmentation would be minimal on spotted bats and Townsend's big-eared bat as these species are wide ranging and would not be affected by a disruption in the vegetation.

**Cavity Nesters:** Between 17.5 acres (South Option) and 22.6 acres (North Option) of forested habitat would be removed by construction of new trail. Cavity nesters would be adversely impacted by the loss and fragmentation of potential nesting habitat. However, overall impacts are expected to be minimal given the abundance of similar habitats in the surrounding area and their general tolerance to disturbances during the nesting season (Montana Chapter of the Wildlife Society 1999).

Cavity nesters would benefit with a small gain in habitat and reduced disturbance in some areas from decommissioning efforts.

**Yellowstone Cutthroat Trout:** Some loss of streamside vegetation would occur in Segment 2 where the trail would be located between the highway and West Trail Creek. The removal of streamside vegetation would increase the delivery of sediment and pollutants into the stream and raise in-stream temperatures. The construction of the trail within the steep highway fill slope in portions of Segment 2 could also result in a temporary increase in sediment delivery to West Trail Creek. These changes in stream conditions could have an adverse effect on fish habitat and reproduction impacts would be slightly greater under the South Option than under the North Option.

Yellowstone cutthroat trout would benefit from decommissioning activities because of improved stream conditions in West Trail Creek and Mail Cabin Creek. In general, the delivery of sediment would be reduced by decreasing the erosion potential of the trail surfaces, restricting motorized use, and restoring natural vegetative conditions along the streams. Fisheries benefits would be slightly greater under the North Option compared with the South Option.

#### ***Alternative B: Varying Opportunity Trail Fisheries:***

Benefits to fisheries related to road decommissioning would be the same as those described under Alternative A, North Option.

**Wildlife:** A total of approximately 2.1 acres of upland habitat would be permanently removed because of trail placement. Effects of the upland habitat loss on general wildlife populations would be relatively insubstantial given the abundance of similar habitat in the surrounding area. In addition, the habitat that would be impacted is of low value to most wildlife species because of its proximity to existing roads and trailheads.

Wildlife disturbance during trail construction and subsequent recreational use could potentially occur in adjacent areas. However, these areas already receive some level of use by recreationists, Forest Service personnel, and BPA personnel. Additional non-motorized use of the area would not greatly change the wildlife composition. Disturbance impacts would be relatively minor.

Because the trail would not be associated with the West Trail Creek riparian corridor, the primary location for moose winter range, important habitat would not be impacted. In addition, the proposed trail would not coincide with elk summer range. A small amount of cover may be removed in elk winter range in areas of Segment 1 where the existing BPA road grade exceeds 15 percent. Impacts of vegetation removal and fragmentation would be

minimal as these resources are currently of low value and common in adjacent forested habitats because of surrounding disturbances. Trail construction and the majority of recreational use would not occur during the winter, the primary period of elk presence. This alternative could result in some disturbance of elk. However, elk are tolerant of limited human presence. Minimal disturbance is not anticipated to unduly stress wintering individuals, and elk would be expected to freely move across the trail.

### **Threatened, Endangered, and Forest Service Sensitive Species**

**Gray Wolf, Grizzly Bear, Canada Lynx, Wolverine:** Adverse effects would be minimal as the species maintain large home ranges and have relatively general habitat requirements. Habitat that would be affected by trail construction and subsequent use is located near existing roads and is, consequently, of low value to these species. Thus, these species are not expected to be impacted. Benefits associated with road decommissioning would be the same as those described for Alternative A.

**Western Boreal Toad and Spotted Frog:** Because the trail would not be constructed within the West Trail Creek riparian corridor, western boreal toad and spotted frog would not be impacted. Benefits associated with road decommissioning would be the same as those described for Alternative A.

**Boreal Owl:** Approximately 1.3 acres of Douglas-fir and mixed forest would be permanently removed by trail construction. This habitat is of low value because of its proximity to the highway. Impacts related to disturbances during trail construction and subsequent use would not occur. Benefits associated with road decommissioning would be the same as those described for Alternative A.

**Fisher:** Because the trail would not be located within or near the West Trail Creek riparian corridor, habitat for fisher would not be impacted. Benefits associated with road decommissioning would be the same as those described for Alternative A.

**Flammulated Owl:** Approximately 0.9 acre of suitable habitat for flammulated owl would be removed by trail construction. Flammulated owl would be adversely impacted by the loss and fragmentation of potential nesting habitat. Disturbance associated with trail construction and subsequent use may cause displacement, increased stress, and/or reduced reproductive success. However, overall impacts are expected to be minimal given the abundance of similar habitats in the surrounding area.

**Great Gray Owl:** Approximately 0.9 acres is suitable habitat for great gray owl would be directly impacted by construction of the trail. This habitat is of low value to great gray owls because of its proximity to the highway.

**Northern Goshawk:** Approximately 0.9 acres is suitable habitat for northern goshawk would be directly impacted by trail construction. This habitat is of low value to northern goshawks because of its proximity to the highway. The trail also would not be placed near suitable habitat. Thus, impacts related to disturbances during trail construction and subsequent use would not occur. Benefits associated with road decommissioning would be the same as those described for Alternative A.

**Spotted Bat and Townsend's Big-eared Bat:** Because the trail would not be located within or near the West Trail Creek riparian corridor, spotted bat and Townsend's big-eared bat would not be impacted.

**Cavity Nesters:** Approximately 1.8 acres of forested habitat would be removed by the construction of new trail segments. This habitat is of low value because of its proximity to the highway. Thus, impacts related to disturbances during trail construction and subsequent use would not occur. Benefits associated with road decommissioning would be the same as those described for Alternative A.

**Yellowstone Cutthroat Trout:** Impacts related to the removal of stream-side vegetation and construction on steep slopes would be negligible. Benefits to fisheries associated with road decommissioning would be the same as those described for Alternative A.

### **Alternative C: Recreation Enhancements**

Approximately 0.3 acre of riparian vegetation would be removed at the West Trail Creek crossing and in areas where the trail would traverse the riparian corridor. In addition to the loss of riparian habitat, 5.2 acres of upland habitat, including aspen, grass/forb, Douglas-fir, spruce, lodgepole pine, and mixed forest vegetation types, would be permanently removed because of trail placement.

Effects of habitat fragmentation on wildlife would be greatest where the new trail is proposed along West Trail Creek. In addition, the placement of the trail adjacent to and within the riparian corridor, including approximately 12,000 feet of trail in Segment 1, would create disturbance to associated wildlife during trail construction and subsequent use. Disturbance would also potentially be increased in large, unfragmented tracts of forested area following improvements to the Crest Trail and connector trails. Because some use of the trail already occurs, overall effects would be minimal.

Alternative C would affect big game species by removing important cover and forage during trail construction, and by contributing to increased human presence in the general area during certain times of the year. In particular, up to 0.3 acre of riparian vegetation within this area would be removed at the West Trail Creek crossing, within moose winter range, and in areas where the trail would traverse the riparian corridor in Segment 1. Although the amount of loss would be relatively minor, any loss of cover and forage would be detrimental to moose.

Effects of fragmentation and disturbance would be similar to those described under Alternative A.

The trail would be located along the edge elk summer range, with the exception of improvements to a portion of the Crest Trail and associated connecting trails. The Crest Trail currently bisects portions of elk summer range. Improvements within these sections would remove little habitat. However, improvements may lead to increased recreational use in the general area and increased disturbance to elk. Because some use of the trail already occurs, overall effects would be minimal. Movement would not be impeded as elk are known to cross openings.

Within elk winter range, elk would be affected by a loss of 3.3 acres of mixed forest, lodgepole pine, grass/brush, and riparian vegetation. Impacts to wintering elk would include a reduction in areas that potentially provide protective shelter, forage material, bedding areas, and movement corridors. Impacts would be minimal as these resources are common in the surrounding areas in adjacent forested habitats. Impacts of fragmentation would be minimal as suitable habitat is common in the surrounding area and movement would not be impeded by the trail during the winter months.

### **Threatened, Endangered, and Forest Service Sensitive Species:**

**Gray Wolf, Grizzly Bear, Canada Lynx, Wolverine:** Gray wolf, grizzly bear, Canada lynx, and wolverine are uncommon in the project area primarily because of the project area's distance from the core ranges of these species and their naturally low densities. Alternative C could potentially indirectly impact the species by increasing the amount of recreational use in a large tract of relatively undisturbed habitat. Little habitat would be removed along the trail corridor during improvements. Movement would not be impeded as these species are known to cross small openings. Because some use of the trail already occurs, overall effects would be minimal. Benefits associated with road decommissioning would be the same as those described under Alternative A.

**Western Boreal Toad and Spotted Frog:** removal of approximately 0.3 acre of riparian habitat would fragment habitat at the stream crossing and potentially restrict the amphibians' ability to access adjacent areas. However, the trail would be 4 feet wide at this location instead of 10 feet wide as proposed under Alternative A. Benefits associated with road decommissioning would be the same as those described under Alternative A.

**Boreal Owl:** Approximately 3.3 acres of Douglas-fir and mixed forest would be permanently removed. Douglas fir and mixed forest habitat is well distributed within the area; thus, the loss of habitat would not be expected to greatly affect boreal owls. Other direct impacts would potentially include the loss of nests during construction of the trail. However, because boreal owls have been determined to be somewhat tolerant to disturbances during the nesting

season (Hayward 1994), loss of birds and/or reduced reproductive success are not anticipated. In addition, if nesting boreal owls are detected during pre-construction surveys, trees within the established nest stand buffer would not be removed. Effects of fragmentation would be relatively minor as the area is already disturbed by the existing trail.

The Crest Trail, the historic wagon route, and the BPA road segments northeast of Phillips Bench Trailhead may also travel through suitable habitat for boreal owls. Although little vegetation would be removed along these corridors during improvements to the existing trails, Alternative C would potentially increase the amount of recreational use. Because some use of the trail already occurs, overall effects would be minimal.

Benefits associated with road decommissioning would be the same as those described under Alternative A.

**Fisher:** Fisher would be adversely affected by the removal of approximately 0.3 acre of riparian vegetation habitat components, such as protective shelter from adverse weather conditions and predators and habitat for prey species. The effects of fragmentation of the riparian corridor on fisher would be relatively minor; movement would likely not be impeded and the remaining habitat would not be greatly degraded. The placement of the trail adjacent to and within the riparian corridor, including approximately 12,000 feet of trail in Segment 1, would create disturbance to fisher during trail construction and subsequent use.

Benefits associated with road decommissioning would be the same as those described under Alternative A.

**Flammulated Owl:** Suitable habitat for flammulated owl (0.5 acre of Douglas-fir and aspen forest) would be removed by trail construction. Impacts would be similar to those described for Alternative B.

**Great Gray Owl:** Approximately 1.1 acres of Douglas-fir, lodgepole pine, and aspen forests would be directly impacted. This type of habitat is well distributed within the general area; thus, the loss of habitat would not be expected to greatly affect great gray owls. Other direct impacts would potentially include the loss of nests during trail construction. Effects of fragmentation would be relatively minor as the area is already disturbed by the existing trail and its use. The Crest Trail, the historic wagon route, and the BPA road segments northeast of Phillips Bench Trailhead may also travel through suitable habitat for boreal owls. Although little vegetation would be removed along these trail corridors during improvements to the existing trails, there would be an increase in the amount of recreational use in a large tract of relatively undisturbed habitat. Because some use of the trail already occurs, overall effects would be minimal.

**Northern Goshawk:** Approximately 1.1 acres of Douglas-fir, lodgepole pine, and aspen forests would be directly impacted. This type of habitat is well distributed within the general area; thus, the loss of habitat would not be expected to greatly affect northern goshawks. Other direct impacts could potentially include the loss of nests during trail construction.

Effects of fragmentation would be relatively minor as the area is already disturbed by the existing trail and its use.

The Crest Trail, the historic wagon route, and the BPA road segments northeast of Phillips Bench Trailhead may also travel through suitable habitat for northern goshawk. Although little vegetation would be removed along these corridors recreational use would increase. Because some use of the trail already occurs, overall effects would be minimal.

Benefits associated with road decommissioning would be the same as those described under Alternative A.

**Spotted Bat and Townsend's Big-eared Bat:** Approximately 0.3 acre of riparian habitat would be removed. Although the loss of habitat is minor, any loss of riparian vegetation would reduce the amount of foraging habitat for spotted bat and Townsend's big-eared bat. Similar to Alternative A, the effects of fragmentation would be minimal.

**Cavity Nesters:** 3.7 acres of forested habitat would be removed by the construction of new trail segments. Cavity nesters would be impacted by the loss and fragmentation of potential nesting habitat. In addition, disturbance associated with trail construction and subsequent use may cause displacement, increased stress, and/or reduced reproductive success. However, overall impacts are expected to be minimal given the abundance of similar habitats in the surrounding area and the species' apparent tolerance to some disturbance levels during the nesting season (Montana Chapter of the Wildlife Society 1999). In addition, some recreational use already occurs along the existing Coal Creek Trail. Cavity nesters may also be affected by the increase in recreational use of the Crest Trail, the historic wagon route, and the BPA road segments northeast of Phillips Bench Trailhead. Effects would be minimal as these trails already receive some use by recreationists. Benefits associated with road decommissioning would be the same as those described under Alternative A.

**Yellowstone Cutthroat Trout:** Impacts to fisheries would be similar to those described for Alternative A, with the exception that fewer impacts would occur as a result of the removal of stream-side vegetation and construction on steep slopes.

Benefits from decommissioning the Mail Cabin Trail would be the same as those described under Alternative A.

#### **Alternative D: No Action**

Because additional recreational development would not be pursued under Alternative D, conditions for fisheries, wildlife, and threatened, endangered, and Forest Service sensitive species would not be expected to change over existing conditions. Disturbance levels and stream degradation associated with unauthorized motorized use would continue along the roads and trails that would not be decommissioned.

#### **Fisheries:**

Because streams would not be affected by trail construction on the off-Forest segments, fisheries would not be impacted.

#### **Wildlife:**

Impacts to wildlife resulting from trail construction on the off-Forest segments would be minimal. Much of the trails would be built within disturbed areas of existing ROWs and on existing trails. Some undisturbed vegetation would be impacted, including 1.1 acres of sagebrush shrubland (Melville 2000) on the City of Victor, Idaho, portion of the off-Forest segment; 0.1 acre of Douglas-fir forest (Young 2000b) and 0.2 acre of unknown sage vegetation types on the Teton County, Wyoming, South Only Option; and approximately 0.8 acre of Douglas-fir forest (Young 2000b) and 2.1 acres of unknown sage vegetation types along the Teton County, Wyoming, North Plus South Option.

The sagebrush shrublands are common in the surrounding area and typically support low numbers of species because of the lack of protective cover and structural diversity. In addition, the value of the sagebrush shrublands to wildlife is reduced by its proximity to existing disturbances. Species that may use this area include foraging raptors like red-tailed hawk (*Buteo jamaicensis*) and Swainson's hawk (*B. swainsoni*), small rodents such as pocket gophers (*Thomomys sp.*), and a few species of songbirds such as vesper sparrow (*Pooecetes gramineus*) and sage sparrow (*Amphispiza quinquestriata*). Because of its low value, the loss of sagebrush shrublands would not constitute a substantial impact to wildlife.

The Douglas-fir forest that would be removed on the Teton County, Wyoming, off-Forest segment is also of low value to wildlife because of its proximity to existing disturbances. However, some species may use the area for cover while in transition between habitats (such as big game species) and/or for temporary roost sites (such as raptors) or foraging areas (such as woodpeckers). Using a thinning method of clearing and leaving mature trees where possible would minimize impacts.

Wildlife associated with wetland and riparian areas would not be impacted as these habitats are not known to occur within the trail course on either side of the project area.

Because the off-Forest segments parallel existing roadways, they do not provide suitable big game winter or summer range.

### **Threatened and Endangered Species:**

The off-Forest segments of the project area do not contain suitable habitat for gray wolf, grizzly bear, and Canada lynx because of their lower elevations. In addition, the proposed trail's location near existing disturbances likely precludes use by individuals.

Because wetland and riparian areas are not known to occur along the proposed alignment on the off-Forest segments, western boreal toad would not be affected by trail construction in this portion of the project area.

Although mountain plover typically inhabit sagebrush shrublands, it is unlikely that they occur along the proposed route on the off-Forest segments because of the existing levels of disturbances associated with the use of the road. Thus, the loss of sagebrush shrublands would not be expected to impact mountain plover.

### **Summary of Impacts**

Table 3-9 summarizes impacts to wildlife. Decommissioning activities under Alternatives A, B, and C would generally benefit wildlife species.

Wildlife impacts from the off-Forest segments would be relatively minor because of the trail's location on or adjacent to existing roadways. Threatened and endangered species would not be affected by trail construction on the off-Forest segments.

### **Unavoidable Adverse Impacts**

Despite the implementation of mitigation measures, some impacts to wildlife, fisheries, and threatened, endangered, and sensitive species would be unavoidable. Unavoidable adverse impacts to wildlife are the same as those impacts identified in Table 3-9. There would be no unavoidable adverse impacts related to road decommissioning. Unavoidable adverse impacts related to trail construction of the off-Forest segments would include the loss of a minor amount of low-quality habitat.

## **Cultural Resources**

### **Existing Conditions**

Previous surveys of the BPA transmission line ROW, access road system, and staging areas, which are within or near portions of the project area, were completed in 1997 and 1998 (BPA and Forest Service 1998). These surveys also included a literature search for existing historic or prehistoric sites. No prehistoric sites were found (BPA and Forest Service 1998). One historic site located within the project area is described below.

The project area's historic site is a wagon road that also served as a stock trail between Jackson Hole, Wyoming (including Wilson and Jackson, Wyoming), and Teton Basin, Idaho, (Polk A. and Polk M. 1998, Polk M. and Southworth 1999). The first wagon was driven over the pass in 1886, and the wagon road continued to be used until 1913. There is also an approximate 300-foot by 100-foot wooden corral located next to the wagon road in a meadow southeast of Teton Pass. A section of the wagon road is visible on the east side of Teton Pass; and it is currently used by hikers/walkers and equestrians. This wagon road, including the associated corral, is eligible for listing in the NRHP (Wyoming SHPO 1998).

### **Direct and Indirect Impacts**

Impacts are summarized in Table 3-10. The Forest Service consulted with Native American tribes to comply with Section 110(d)(6) of the NHPA. To comply with regulations prescribed in 36 CFR Part 800 for implementing Section 106 of the NHPA, the Idaho SHPO and Wyoming SHPO were also consulted.

**Table 3-10a. Impacts to Cultural Resources, Forest Alternatives.**

INDICATOR	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Relative Risk (i.e., Very Low to Very High) of Degrading Cultural Resources Based on Cultural Resource Inventories Previously Conducted in the Project Area	Low	Low	Very low	Low	Very low
If Scoping Comments Regarding Eligible Historic Properties (i.e., the Historic Wagon Route) Are Addressed	Somewhat addressed	Somewhat addressed	Entirely addressed	Entirely addressed	Not addressed
If Interpretive Facilities for the Historic Teton Pass Corridor are Included	Included on Historic Wagon Route	Included on Historic Wagon Route	Included on Historic Wagon Route	Included on Historic Wagon Route and elsewhere (e.g., Mike Harris Campground to Trail Creek Campground)	Not included

**Table 3-10b. Impacts to Cultural Resources, Off-Forest Segments.**

INDICATOR	VICTOR CITY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF- FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF- FOREST SEGMENT (SOUTH ONLY OPTION)
Relative Risk (i.e., Very Low to Very High) of Degrading Cultural Resources Based on Cultural Resource Inventories Previously Conducted in the Project Area	Low	Low	Low	Low
If Scoping Comments Regarding Eligible Historic Properties (i.e., the Historic Wagon Route) Are Addressed	Not applicable since historic wagon route is located on Forest lands	Not applicable since historic wagon route is located on Forest lands	Not applicable since historic wagon route is located on Forest lands	Not applicable since historic wagon route is located on Forest lands
If Interpretive Facilities for the Historic Teton Pass Corridor are Included	Not included	Not included	Not included	Not included

**Alternative A: High-Standard Trail**

The wagon route would be reconstructed along its entire length, which would include reconstructing the route to a standard Forest Service 24-inch-wide, full-tread, native-surface trail with 48-inch-wide cleared areas on each side of its centerline. The reconstructed route would be used by pedestrians and equestrians. The historic corral would be avoided. An information kiosk would be provided at Teton Pass Trailhead. Information provided at the kiosk would include interpretation of the route, which would help preserve the historic integrity of the route as well as

public understanding of its historic significance. Trail reconstruction would enhance and restore this historic site. Reconstructing and designating this route for pedestrians and equestrians, as well as providing historical interpretation of the route, would preserve and enhance the eligible historic wagon route.

#### ***Alternative B: Varying Opportunity Trail***

Various sections of the historic wagon route would be reconstructed for use by pedestrians and equestrians. Reconstruction would include installing erosion-control measures where necessary to prevent further erosion on and off the route. The historic corral would be avoided. An information kiosk would be provided at Teton Pass Trailhead. Trail reconstruction would enhance and restore this historic site, and interpretation of the route would help preserve the historic integrity of the route as well as public understanding of its historic significance. Impacts would be the same as those described under Alternative A.

#### ***Alternative C: Recreation Enhancements***

Changes to the historic wagon route would be the same as those described for Alternative B. The historic corral would be avoided. Impacts would be the same as those described under Alternative B.

The relative risk of degrading unknown cultural resources is low. The majority of the trail would be located within existing disturbed areas

#### ***Alternative D: No Action***

Current environmental stresses would continue to weather and potentially degrade cultural resource sites, including the historic wagon route and any other currently unknown sites in the project area. The relative risk of degrading unknown sites is very low, since Alternative D would not require trail construction and associated disturbance of currently undisturbed areas. Excessive use of the historic wagon route could result in trail deterioration.

#### ***Off-Forest Segments***

The relative risk of degrading unknown cultural resources is low. Previous cultural resource inventories have documented cultural sites associated with other corridors in the general project area. As part of the project, the project corridor will be inventoried and any cultural resource sites identified will be avoided and protected.

#### **Summary of Impacts**

All three Forest action alternatives would avoid the eligible historic corral. All Forest action alternatives would address the scoping comments about designating trail users (i.e., equestrians and pedestrians) and providing trail interpretation. Road decommissioning activities would benefit unknown cultural resources that could be located along roads to be decommissioned. Alternative D would not benefit cultural resources in this way. Overall, the relative risk of degrading unknown cultural resource sites under Alternatives A and C and the off-Forest segments is low, while the risk under Alternatives B and D is very low. The overall relative risk of degrading unknown cultural resources under the off-Forest segments is low.

#### **Unavoidable Adverse Impacts**

Following the implementation of cultural resource management measures there would be no unavoidable adverse impacts to cultural resources. Alternative D would include continued degradation of the historic wagon route.

### **Visual Resources**

#### **Existing Conditions**

Thousands of tourists and recreationists visit or pass through the Caribou-Targhee and Bridger-Teton Forests annually. Outstanding scenic attractions can be found within and around the project area, including Teton Pass, the

Jedediah Smith Wilderness, Idaho State Route 31 Scenic Byway, Grand Teton National Park, and Jackson Hole.

The project area lies at the confluence of two major mountain range systems: the southern end of the Teton Mountains, a spectacular north-south trending mountain range located along the eastern Idaho and western Wyoming boundary; and the northern end of the Snake River Range. East and West Trail Creeks, the primary drainages within the project area, essentially bisect these two mountain ranges. Elevations within the project area range from approximately 6,400 feet near Moose Creek and 6,150 feet in Wilson to over 8,400 feet at Teton Pass, with several nearby peaks exceeding 10,000 feet elevation. The landscape was glaciated to form rugged, barren peaks that transition into more gently rolling, timbered ridges dissected by parallel drainage systems. Vegetation in the project area is a diverse mix of forested and non-forested plant communities.

The areas seen from the highway are mainly confined to the Trail Creek drainages (West Trail Creek and East Trail Creek) on both sides of Teton Pass. The analysis area boundary for visual resources essentially follows the watershed boundaries of these streams. Therefore, the visual analysis area boundary does not extend beyond approximately 2 miles from the highway corridor. Viewers of the project area along the highway include tourists traveling through the area, recreationists using the area, and commuters traveling between Victor, Idaho, and Jackson Hole, Wyoming.

Visual quality objectives (VQOs) for the project area were established during the Forest Service planning process. These VQOs adopted by the Caribou-Targhee Forest RFP and Bridger-Teton Forest RMP are shown in Figure 3-2. Because of the outstanding scenic quality and high level of use along the corridor, the VQO of Retention was prescribed within the foreground distance zone of the highway (i.e., within 0.5 mile of the highway). Middleground areas (i.e., between 0.5 and 5.0 miles of the highway) have the VQO prescription of Preservation (within the Jedediah Smith Wilderness and within the Bridger-Teton Forest portion of the Palisades Wilderness Study Area), Retention, and Partial Retention (within the Caribou-Targhee Forest portion of the Palisades Wilderness Study Area). A VQO of Preservation allows ecological change only, with the exception of low impact recreation facilities. A VQO of Retention allows management activities that are not visually evident. A VQO of Partial Retention allows management activities that are visually subordinate to the characteristic landscape.

Nearly all of the features proposed for each of the three-action alternatives fall within the Retention VQO category. The lone exception includes an approximate 1-mile portion of the historic wagon route that passes through the Bridger-Teton Forest portion of the Palisades Wilderness Study Area with a VQO of Preservation. It is worth noting that the BPA transmission lines and the highway do not currently meet the Retention VQO throughout the project area.

For the purposes of the visual resources analysis, the project area has been divided into three distinct segments: (1) West Trail Creek segment, (2) Teton Pass segment, and (3) East Trail Creek segment. The West Trail Creek segment encompasses approximately 70 percent of the project area and consists of a valley landscape that transitions into rolling to steep mountains along each side of West Trail Creek on Forest Service lands. Typical foreground views in this segment consist of the urbanized area of Victor, Idaho; rural residences and developments along the Old Jackson Highway; West Trail Creek; the highway roadbed; the BPA transmission lines; and developed/dispersed recreation sites throughout the Forest. Middleground views in this segment consist of forested mountain slopes and, east of the Bridger-Teton Forest boundary, rural agricultural valleys. Background views (i.e., greater than 5 miles) consist of the southern portion of the Teton Basin near Victor, Idaho, west of the Caribou-Targhee Forest boundary. Background views are screened by intervening terrain throughout the Forest. The Teton Pass segment encompasses approximately 10 percent of the project area and consists of very steep mountain slopes with similar foreground and middleground views as described for the previous segment. Background views within the Teton Pass segment offer glimpses of distant alpine valley bottoms and mountain ranges to the east. The East Trail Creek segment encompasses the remaining 20 percent of the project area and consists of steep, forested mountain terrain that, moving eastward, transitions to a rural valley. Foreground views include the urbanized area of Wilson, Wyoming; rural residences and developments along Trail Creek Road and the highway; and East Trail Creek. Middleground and background views consist of forested mountain slopes, rural Jackson Hole valley, and the

Town of Jackson.

Roads to be decommissioned are not visible from the highway corridor.

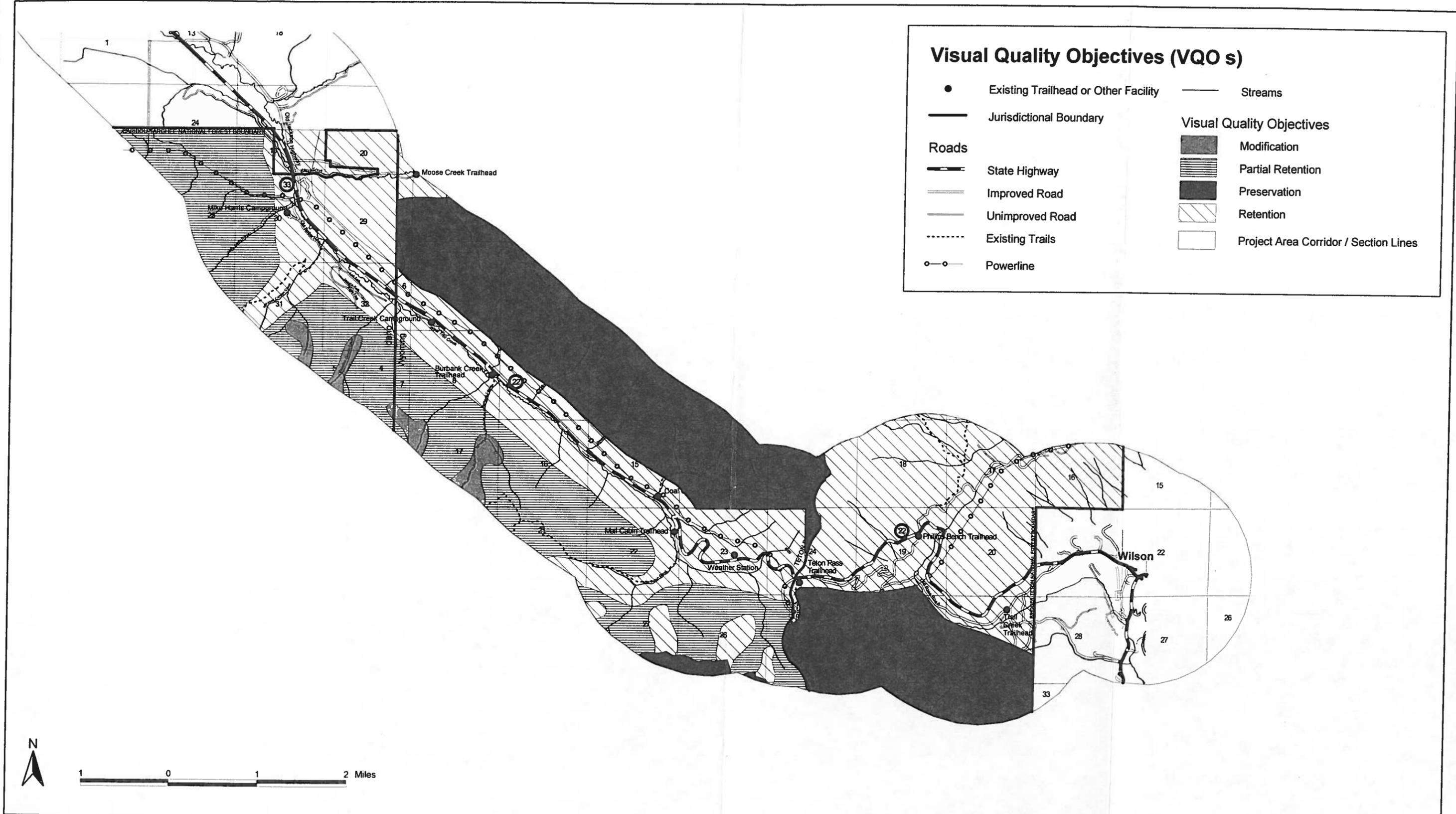


Figure 3-2. Visual Quality Objectives in the Project Area.

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**Direct and Indirect Impacts**

Impact evaluations were based primarily on the measurement of issue indicators, which are described in Chapter 1, Scoping and Issues (page 1-5). Impacts to Forest segments are also based on observations made during the IDT's October 1999 site visit. A site visit was not made to the off-Forest segments. Impacts of each alternative are summarized in Table 3-11.

**Table 3-11a. Impacts to Visual Resources, Forest Alternatives.**

INDICATOR	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Change in the Character of the Existing Landscape	Moderate	Moderate	Minor	Minor	No impact
Visual Quality Objective (VQO) Retention Affected (approximate)	25.24 acres	24.11 acres	0	0	0

**Table 3-11b. Impacts to Visual Resources, Off-Forest Segments.**

INDICATOR	VICTOR CITY, IDAHO, OFF FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING OFF- FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF- FOREST SEGMENT (SOUTH ONLY OPTION)
Change in the Character of the Existing Landscape	Minor	Minor	Minor	Minor
Visual Quality Objective (VQO) Retention Affected (approximate)	0	0	0	0

**Alternative A: High-Standard Trail**

Trail construction under Alternative A would include a 10-foot-wide paved path with 24-inch-wide shoulders plus a separated 24-inch-wide native-surface trail, resulting in a 16- to 20-foot-wide area of landscape disturbance. Additional recreation site improvements along the trail corridor would include new parking and/or facility upgrades at Mike Harris Campground, Trail Creek Campground (Caribou-Targhee Forest), Coal Creek Trailhead, Teton Pass, and Trail Creek Trailhead (Bridger-Teton Forest). Alternative A would also include repaving the old pass road to 16 to 18 feet wide and reconstruction of the entire historic wagon route to a standard 24-inch-wide native-surface trail with 48-inch-wide cleared areas on both sides of its centerline. Final layout of the proposed trail and recreational facilities would be conducted to reduce the visual impacts at recreational facilities or to individuals traveling along the highway. This would be accomplished by locating the trail and associated facilities, wherever practicable, through existing timber stands or behind intervening topography, thus screening sustained views of trail features from the highway. Sustained views are those considered to be greater than 5 seconds from a vehicle traveling at highway speeds.

To comply with the Retention VQO, management activities must repeat the form, line, color, and texture that typify the characteristic landscape to such an extent that they are not visually evident to the average viewer. To comply with the Preservation VQO, management activities must allow ecological change only. Because of the required width of the proposed trail corridor and the unnatural appearance of the pavement surface, the level of trail development under the North and South Options of Alternative A would be visually evident from the highway corridor and adjacent recreation sites, despite efforts to screen the facilities. The pavement surface of the trail and the linear clearing of vegetation along the trail would negate any similarity to the form, shape, color, and texture of the surrounding landscape. Trailhead development and improvements along the highway would be visually evident, although they would be entirely contained within existing disturbances, and would result in a minor impact. Implementation of Alternative A would result in the continued, gradual transition of the characteristic landscape along the trail corridor from a more natural and rural character to a more human-influenced and urban character.

Because of these visible effects on the characteristic landscape, implementation of Alternative A would not meet the Retention VQO along the highway corridor. Trail construction under the North Option would directly impact approximately 25 acres of undisturbed landscape and would also include construction of three highway underpasses (at the Trail Creek Campground area, at the Mail Cabin Road area, and at the Weather Station). Because of the immediate proximity of the trail corridor to the highway under the North Option, nearly the entire alignment in Segments 1 and 2 would be seen from the highway and adjacent recreation sites.

For the South Option of Alternative A, trail construction in previously undisturbed areas would directly impact approximately 24 acres and would also include construction of two highway underpasses (at the Mail Cabin Road area and at the Weather Station) and two wood laminate bridges across West Trail Creek. Because of the distance between the trail and the highway corridor, intervening vegetation (mostly coniferous forest) would screen the majority of the trail between State Line Canyon and approximately 1 mile west of the Coal Creek Trailhead in Segments 1 and 2.

A total of approximately 25 acres of Retention VQO areas would be impacted under the North Option, and approximately 24 acres of Retention VQO areas would be impacted under the South Option. Reconstruction of portions of the historic wagon route would comply with the Preservation VQO established for the Palisades Wilderness Study Area, which allows low visual impact recreation facilities. While management and mitigation measures (Features Common to All Forest Action Alternatives Analyzed in Detail Section of Chapter 2 (page 2-17)) will partially reduce visual impacts associated with Alternative A, full mitigation of visual impacts is not feasible.

The old timber road, three two-track roads, and the Mail Cabin Trail would be decommissioned to motorized use using measures that may include ripping, recontouring, and reseeding with native grasses and forbs. Some beneficial impacts would be realized by trail users through the decommissioning of these existing road segments within the project area. However, these benefits would not be visible from the highway corridor.

#### ***Alternative B: Varying Opportunity Trail***

Trail construction under Alternative B would include a 24-inch-wide path of varying surfaces plus a 48-inch-wide cleared area on each side of its centerline, resulting in a 10-foot-wide area of landscape disturbance along the entire trail corridor. Additional recreation site improvements along the trail corridor include new parking and/or facility upgrades at Mike Harris Campground, Coal Creek Trailhead, Teton Pass, and Trail Creek Trailhead (Bridger-Teton Forest). Alternative B would also include repairing the old pass road and reconstruction of portions of the historic wagon route to a standard 24-inch-wide native-surface trail. Final layout of the proposed trail and recreational facilities would be conducted to reduce the visual impacts at recreational facilities or to individuals traveling along the highway. This would be accomplished by locating the trail and associated facilities, wherever practicable, through existing timber stands or behind intervening topography, thus screening sustained views of trail features from the highway.

To comply with the Retention VQO, management activities must repeat the form, line, color, and texture that typify the characteristic landscape to such an extent that they are not visually evident to the average viewer. To comply with the Preservation VQO, management activities must allow ecological change only. Because the proposed trail corridor's narrow width and its location primarily within and along existing disturbances, the level of trail development under Alternative B would not be visually evident from the highway corridor and adjacent recreation sites. Trailhead development and improvements along the highway would be visually evident, although they would be entirely contained within existing disturbances, and would result in a minor impact. Implementation of Alternative B would not result in any substantial change in the characteristic landscape along the trail and existing highway corridor.

Because of the minimal effects on the characteristic landscape, implementation of Alternative B would not impact Retention VQOs. With a narrow trail corridor, use of native construction materials, and location within and along existing disturbances, no additional substantial impacts to visual resources would occur as a result of implementing Alternative B. Impacts of road decommissioning to visual resources would be the same as those described under Alternative A.

### ***Alternative C: Recreation Enhancements***

As with Alternative B, some trail construction under Alternative C would include a 24-inch-wide path of varying surfaces plus a 48-inch-wide cleared area on each side of its centerline, resulting in a 10-foot-wide area of landscape disturbance. Additional recreation site improvements along the trail corridor would include new parking and/or facility upgrades at Mike Harris Campground, Coal Creek Trailhead, Teton Pass, Phillips Bench Trailhead, and Trail Creek Trailhead (Bridger-Teton Forest). Alternative C would also include repairing the old pass road and reconstruction of portions of the historic wagon route to a standard 24-inch-wide native-surface trail. Final layout of the proposed trail and recreational facilities would be conducted to reduce the visual impacts at recreational facilities or to individuals traveling along the highway. This would be accomplished by locating the trail and associated facilities, wherever practicable, through existing timber stands or behind intervening topography, thus screening sustained views of trail features from the highway.

To comply with the Retention VQO, management activities must repeat the form, line, color, and texture that typify the characteristic landscape to such an extent that they are not visually evident to the average viewer. To comply with the Preservation VQO, management activities must allow for ecological change only. Because of the narrow width of the proposed trail corridor and its location primarily within and along existing disturbances, the level of trail development under Alternative C would not be visually evident from the highway corridor and adjacent recreation sites. Trailhead development and improvements along the highway would be visually evident, although they would be contained entirely within existing disturbances. Implementation of Alternative C would not result in any substantial change in the characteristic landscape along the trail and existing highway corridor.

Because of the minimal effects on the characteristic landscape, implementation of Alternative C would not impact Retention VQOs. Facility development under Alternative C would require construction of one wood laminate bridge across West Trail Creek that would be visually evident from the highway. However, with a narrow trail corridor, use of native construction materials, and location within and along existing disturbances, no additional substantial impacts to visual resources would occur as a result of implementing Alternative C. Impacts of road decommissioning to visual resources would be the same as those described under Alternative A.

### ***Alternative D: No Action***

Under the No Action Alternative, the existing roadway and trail system would remain with no improvements. No further direct or indirect impacts to visual resources would occur as the result of implementing Alternative D.

### ***Off-Forest Segments***

Trail construction on the off-Forest segments would occur primarily along existing disturbances within the urbanized areas of Victor, Idaho, and Wilson, Wyoming, and along existing roadways from outside of these towns

to the Forest boundaries. In these areas, there are no established VQOs because they are not located on Forest Service lands. However, Teton County land development regulations do have a scenic resources overlay, and half of the County section is located within this. Pathways are allowed with mitigation as proposed. Community infrastructure (e.g., roads, sidewalks, street lights) and residential developments occur throughout each off-Forest segment. Because of the urbanized landscape character along the off-Forest segments and because no VQOs or other visual criteria exist in these areas, implementation of the off-Forest segments would only result in minor impacts to the existing landscape character. Although a few mature trees and other woody vegetation would likely be removed along certain portions of the off-Forest segments, particularly under the Teton County, Wyoming, segment, construction would not alter the existing landscape character in the affected communities. Efforts will be made to minimize tree removal and maintain a vegetative screen between the pathway and the highway, wherever feasible, as described in the Features Common to All Off-Forest Segments Analyzed in Detail Section of Chapter 2 .

### **Summary of Impacts**

Impacts to visual resources associated with Alternative A would be moderate, while impacts associated with Alternatives B and C, as well as the off-Forest segments, would be considered minor. Table 3-11 (page 3-76) summarizes these impacts. Some beneficial impacts would be realized by trail users through the decommissioning of existing road segments, but these benefits would not be visible from the highway corridor.

### **Unavoidable Adverse Impacts**

Unavoidable adverse impacts would primarily be associated with Alternative A. Impacts associated with the other alternatives would be temporary and/or minimal. Under the North and South Options of Alternative A, construction of the proposed trail and associated facilities along the existing highway corridor would result in adverse visual impacts that would be largely noticeable, particularly in Segments 1 and 2, regardless of the mitigation used. With mitigation, these effects would be somewhat diminished, yet adverse impacts would remain. Such impacts would be unavoidable. These include altering the natural character of the existing upland and riparian environments through clearing vegetation, disturbing soils, and using non-native materials. These impacts would result in modifying the existing visual character in this portion of the project area. There would be no unavoidable adverse impacts associated with road decommissioning.

## **RECREATION RESOURCES**

### **Existing Conditions**

Recreation opportunities along the Teton Pass Highway corridor between Victor, Idaho, and Wilson, Wyoming, abound and include various motorized and non-motorized activities such as hiking, horseback riding, mountain biking, road biking, camping, fishing, backcountry skiing, driving ATVs, and snowmobiling. Trailheads, campgrounds, trails, and roads have been developed along the corridor to support these recreation activities. The Caribou-Targhee and Bridger-Teton Forests manage recreation along the corridor using direction outlined in the Caribou-Targhee Forest (Forest Service 1997a) and the Bridger-Teton Forest RMP (Forest Service 1990). These plans identify the goals and objectives that guide future recreation management of the corridor.

There are existing recreational paved pathways in Victor, Idaho, and Wilson, Wyoming, as described in the Background Section of Chapter 1 (page 1-1). These communities plan to connect their existing pathway systems to the adjacent Caribou-Targhee and Bridger-Teton Forests, respectively. The existing "Driggs-Victor pathway" in Victor, Idaho, starts in North Victor and ends in Driggs, Idaho. The common recreation users of this path are road bicyclists, mountain bicyclists, pedestrians, in-line skaters, and skateboarders, with Nordic (i.e., cross-country) skiers, snowshoers, and snowmobilers using the trail during winter months. Current trailhead access is located at Victor City Park and Pioneer Park in Victor. An informal trailhead is also located at Teton Creek near Driggs, Idaho, at the north end of the Driggs-Victor pathway (Young 2000b).

There are several existing and planned 10-foot-wide paved pathways in and around Wilson, Wyoming, as described in the Background Section of Chapter 1 (page 1-1). The old pass road on the Bridger-Teton Forest is approximately 20 feet wide, paved, and heavily used by a wide variety of non-motorized users. The off-Forest segment proposed in this EA would eventually connect to the existing Wilson Centennial Trail, a 1.2-mile-long trail in Wilson. The common recreation users of these paths are and would be road bicyclists, mountain bikers, pedestrians, in-line skaters, and skateboarders, with Nordic skiers and snowshoers using the trail during the winter months. The trails are closed to motorized uses year round. The existing Wilson Centennial Trail serves approximately 300 to 500 users per day in the summer months. Current trailhead parking in the Wilson area is located at Stilson Ranch, the Wilson Elementary School, and along Trail Creek Road. In the future, the proposed off-Forest segment would provide a trail connection that would facilitate the Teton Pass Trail to become part of a regional trail system that provides an important link between Idaho and Wyoming (Young 2000b).

### **Recreation Opportunity Spectrum (ROS)**

Recreation opportunities on Forest Service lands are classified by the ROS, a land management and planning system that categorizes land areas by their landscape setting and the probable or desired recreation experiences that they provide. The following descriptions include the ROS classifications existing along and near the project area, as identified in the Caribou-Targhee Forest RFP (Forest Service 1997a) and the Bridger-Teton Forest RMP (Forest Service 1990). These ROS classifications are also depicted on Figure 3-3 (page 3-82).

#### ***Rural:***

General user affiliation opportunities exist, and facilities are convenient. Natural environment is culturally modified yet attractive. Universal access is easy and meets Americans with Disabilities Act accessibility guidelines standards. Interpretation exists through more-complex wayside exhibits.

#### ***Roaded Natural Appearing:***

Opportunities to use developed sites with some chance for privacy exist through a mostly natural appearing environment (as viewed from sensitive roads and trails) with interpretation through simple wayside exhibits. Universal access is a moderate challenge.

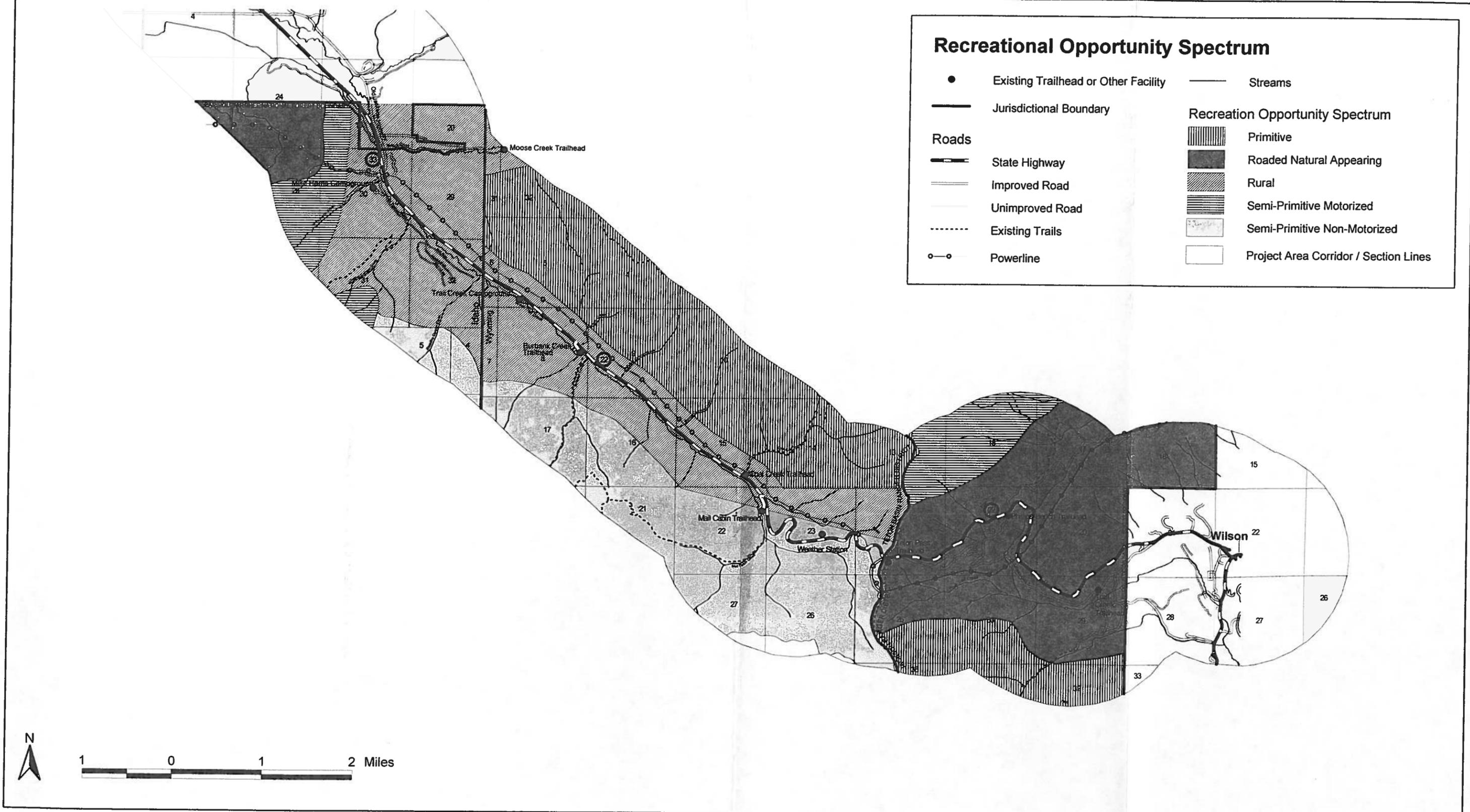


Figure 3-3. Recreation Opportunity Spectrum.

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## **Recreation Facilities**

Facilities along the trail corridor include developed campgrounds and trailheads that provide parking access to various Forest Service trails in the area. More detail on the facilities and their locations is provided in Table 3-12 and in Figure 3-3.

## **Motorized Recreation**

Motorized recreation opportunities within the project area include: highway driving for sight-seeing; ATV, four-wheel drive, and motorcycle use on designated roads and trails; and snowmobile use in designated areas.

Tourists and sightseers commonly travel on the Teton Pass Highway between Victor, Idaho, and Wilson, Wyoming, as part of a scenic regional tour that includes visiting the area's national parks and scenic attractions. They often stop at Teton Pass to take in the view and read the interpretive signs.

All motorized recreation uses on Forest Service roads and trails in the trail corridor are regulated by the Targhee Forest *Motorized Road and Trail Travel Plan* (Forest Service 1999a), and the Bridger-Teton Forest RMP (Forest Service 1990). These plans designate: (1) specific roads and trails that are either open or closed to different sizes of motorized vehicles, (2) seasonal closures, and (3) areas open to snowmobiles.

**Table 3-12. Existing Recreation Facilities in the Project Area.**

LOCATION	AVAILABLE SPACE	FACILITIES/USERS
City of Victor, Idaho		
Victor City Park (serves as a trailhead)	undetermined	Parking for bicyclists, pedestrians, in-line skaters, skateboarders, Nordic skiers, snowmobilers
Pioneer Park (serves as a trailhead)	undetermined	Parking for bicyclists, pedestrians, in-line skaters, skateboarders, Nordic skiers, snowmobilers
Caribou-Targhee Forest		
Mike Harris Trailhead	10 vehicles	Parking for hikers, equestrian riders, snowmobilers, skiers
Mike Harris Campground	12 campsites	Camping (tent and trailer), restrooms, water, angler river access
Moose Creek Trailhead	20 vehicles	Pit toilet; parking for hikers and equestrian riders
Burbank Creek Trailhead	10 vehicles	Parking for hikers, equestrian riders, snowmobiles, skiers
Trail Creek Campground	11 campsites	Camping (tent and trailer), restrooms, water, angler river access
Coal Creek Trailhead	15 vehicles	Restroom; gravel parking for hikers, equestrian riders, skiers
Mail Cabin Trailhead	5 vehicles	Parking for bicyclists, hikers, equestrian riders, snowmobilers, skiers
Caribou-Targhee and Bridger-Teton Forests		
Teton Pass Trailhead	100 vehicles	Scattered interpretive signs; parking for hikers, equestrian riders, bicyclists, skiers (average vehicle numbers: summer = 8 cars, winter = 35-50 cars)
Bridger-Teton Forest		
Phillips Bench Trailhead	10 vehicles	Unimproved parking for hikers, equestrian riders, bicyclists, snowmobilers, skiers
Trail Creek Trailhead	15 vehicles	Interpretive signage; parking on the shoulder of the old pass road for hikers, equestrian riders, bicyclists
Wilson, Wyoming		
Wilson Elementary School (serves as a trailhead)	10	Parking for bicyclists, pedestrians, in-line skaters, skateboarders, Nordic skiers, universal access
Stilson Ranch Trailhead	700 vehicles	Parking for bicyclists, pedestrians, in-line skaters, skateboarders, Nordic skiers, universal access

Snowmobile use is currently permitted on the Caribou-Targhee Forest outside of Designated Wilderness and winter range and on the Bridger-Teton National Forest north of WY-22 (south of WY-22 is closed year-round to motorized vehicles on the Bridger-Teton National Forest)..

There are no roads or trails designated for ATV use along any of the proposed trail corridors. Caribou-Targhee Forest system trail #031, beginning at the Mike Harris Trailhead, is the only trail in the vicinity of the project area is open to ATV use. The area north of the highway on the Bridger-Teton Forest is open to ATVs on designated roads and is open to motorcycles on designated trails. The two-track roads/trails in the project area that would be decommissioned currently receive unauthorized use by ATVs, four-wheel drive vehicles, and motorbikes.

**Non-Motorized Recreation**

There are many non-motorized recreation opportunities in the project area, including hiking, horseback riding, mountain biking, road biking, bicycle touring, backcountry skiing, backcountry snowboarding, fishing, and hunting.

Hiking currently occurs on the BPA road, the old timber and two-track roads, the old pass road (on the Bridger-Teton Forest), and the historic wagon route. Hikers have trailhead access to several backcountry trails that provide hiking opportunities into remote areas. Hikers use the Teton Crest Trail northward from Phillips Bench Trailhead to access the Jackson Mountain Resort Tram on the top of Rendezvous Mountain and Grand Teton National Park.

Horseback riding generally occurs in the same areas as for hiking. Parking for vehicles with horse trailers is limited at some trailheads.

Mountain biking is popular throughout the project area. Bicyclists use the BPA road, the old pass road, and many of the backcountry trails that originate along the highway corridor. The Black Canyon and Phillips Canyon Trails are very popular mountain biking areas. The Bridger-Teton Forest permits guided mountain biking trips into the Phillips Ridge area. Mountain biking is not allowed in the Jedediah Smith Wilderness, but trespassing into the area occurs.

Road biking occurs along the highway corridor and is increasing in popularity. The Teton Pass Highway is a popular route for bicycle touring groups. There have been up to 200 bicycles per day observed riding on the highway. Some road bicyclists commute through the corridor between Wilson/Jackson, Wyoming, and Victor/Driggs, Idaho. Road bicyclists also heavily use the old pass road that they access from WY-22. Long-distance bicycle touring is also popular over Teton Pass.

Backcountry skiers and snowboarders use the project area to access high-country skiing terrain in the Teton Pass area. Winter use in this area is heavy with winter parking averaging 50 cars per day at the Teton Pass parking lot. Other trailheads along the highway corridor are also used as backcountry access points in the winter. More moderate Nordic skiing use occurs on the old pass road. Two ski outfitters hold permits for guiding backcountry skiing and for heliskiing.

Fishing occurs adjacent to the highway in West Trail Creek. Hunting occurs on the edges of the project area and increases in frequency with distance from the highway. Hunting in the Jedediah Smith Wilderness generally occurs on foot and horseback, while in other motorized areas hunters also use ATVs.

#### **Direct and Indirect Impacts**

The Forests anticipate a 5 to 7 percent annual increase of recreation use levels on the Forests. This expected annual increase is used as a baseline with which anticipated impacts of the project are compared. Impacts are summarized in Table 3-13.

**Table 3-13a. Impacts to Recreation Resources, Forest Alternatives.**

INDICATOR	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Changes in Recreation Use Levels	Moderate increase beyond expected 5 to 7 percent annual increase	Moderate increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase	No increase beyond expected 5 to 7 percent annual increase	No increase beyond expected 5 to 7 percent annual increase
Changes in Parking Demands at Trailheads	X Moderate increase in demand beyond expected 5 to 7 percent annual increase X Additional parking for 45 vehicles and 13 horse trailers would be provided 13.16 miles (mountain bikers and road bicyclists)	X Moderate increase in demand beyond expected 5 to 7 percent annual increase X Additional parking for 45 vehicles and 13 horse trailers would be provided 12.80 miles (mountain bikers and road bicyclists)	X Minor increase in demand beyond expected 5 to 7 percent annual increase X Additional parking for 35 vehicles and 13 horse trailers would be provided 4.13 miles (mountain bikers and road bicyclists)	X No increase in demand beyond expected 5 to 7 percent annual increase X Additional parking for 50 vehicles and 16 horse trailers would be provided 4.13 miles (mountain bikers and road bicyclists)	X No increase in demand beyond expected 5 to 7 percent annual increase X Existing parking would not accommodate increase 4.13 miles (mountain bikers and road bicyclists)
Linear Distance of Off-highway Trails Accommodating Current Highway Corridor Users (i.e., Bicyclists)	5.79 miles	5.43 miles	0	1.95 miles	0
Linear Distance of Trails Providing Universal Access	5.79 miles	5.43 miles	0	1.95 miles	0
Recreational Trail Uses by Specific User Groups	Pedestrians Equestrians Mountain bikers Road bicyclists Fishing access	Pedestrians Equestrians Mountain bikers Road bicyclists Fishing access	Pedestrians Equestrians Mountain bikers Road bicyclists Nordic skiers	Pedestrians Equestrians Mountain bikers Road bicyclists Nordic skiers	No new trails would be constructed
Linear Distance of Separated Native-surface Trails Adjacent to Paved Pathways	8.71 miles	8.41 miles	3.07 miles	3.07 miles	0

**Table 3-13a. Impacts to Recreation Resources, Forest Alternatives (cont.).**

INDICATOR	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Segments of Trail That Are Longer Than 500 Feet with Grades Greater Than 15 Percent for Their Entire Length	0	0	1.02 miles	1.02 miles	0
Capabilities and Resources of Jurisdictional Authorities to Enforce Non-motorized Winter Use (Caribou-Targhee Forest or Others)	Adequate	Adequate	Adequate	Adequate	Adequate
Changes in Trail and Facility Maintenance Requirements (trail width and surface type)	X 13.16 miles (10 foot paved) X 8.71 miles (24 inches native) X 2 new trailheads X 3 improved trailheads	X 12.80 miles (10 foot paved) X 8.41 miles (24 inches native) X 2 new trailheads X 3 improved trailheads	X 8.70 miles (BPA road) X 5.93 miles (24 inches native) X 1 new trailhead X 3 improved trailheads	X 4.13 miles (BPA road) X 1.95 miles (48 inches hardened) X 0.36 mile (36 inches hardened) X 9.63 miles (24 inches native) X 1 new trailhead X 4 improved trailheads	No increase beyond expected 5 to 7 percent annual increase

**Table 3-13b. Impacts to Recreation Resources, Off-Forest Segments.**

INDICATOR	VICTOR CITY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
Changes in Recreation Use Levels	Heavy increase	Moderate increase	Moderate increase	Moderate increase
Changes in Parking Demands at Trailheads	Moderate increase in demand	Heavy increase in demand	Moderate increase in demand; Some demand may also be reduced because fewer vehicles may be used to access trailheads	Moderate increase in demand
Linear Distance of Off-highway Trails That Accommodate Current Highway Corridor Users (i.e., Bicyclists)	1.33 miles (mountain bikers and road bicyclists)	2.74 miles (mountain bikers and road bicyclists using the re-paved Old Jackson Highway in lieu of ID-33)	1.10 miles (mountain bikers and road bicyclists)	1.10 miles (mountain bikers)
Linear Distance of Trails That Provide Universal Access	1.33 miles	0	1.10 miles	0
Recreational Trail Uses by Specific User Groups	Pedestrians In-line skaters Skateboarders Mountain bikers Road bicyclists Nordic skiers	Pedestrians In-line skaters Skateboarders Mountain bikers Road bicyclists Nordic skiers	Pedestrians in-line skaters Skateboarders Equestrians Mountain bikers Road bicyclists Nordic skiers	Pedestrians Equestrians Mountain bikers Nordic skiers
Linear Distance of Separated Native-surface Trails Adjacent to Paved Pathways	0	0	2.20 miles (1.10 miles on both the north and south side of WY-22)	0
Segments of Trail That Are Longer Than 500 Feet with Grades Greater Than 15 Percent for Their Entire Length	0	0	0	0
Capabilities and Resources of Jurisdictional Authorities to Enforce Non-motorized Winter Use (Caribou-Targhee Forest or Others)	Not applicable	Not applicable	Not applicable	Not applicable
Changes in Trail and Facility Maintenance Requirements (trail width and surface type)	X 1.33 miles (10 foot paved)	X 2.74 miles (on-road shared use; maintenance would change from gravel road to paved road)	X 1.10 miles (10 foot paved) X 1.10 miles (18 inches native)	No change

### **Alternative A: High-Standard Trail**

Decommissioning would directly affect the unauthorized motorized users currently using these areas. Removing this unauthorized motorized use from these areas would benefit current and future non-motorized recreation users. All roads to be decommissioned would be barricaded to prevent motorized vehicular passage while accommodating non-motorized users. Impacts to mountain bikers would include a safety risk if bikers were not aware of the barrier and ran into it while traveling at high speed. In addition, some bicyclists could find it difficult if they were required to lift their bicycles over the barrier. Persons with visual impairment may not see the barrier, potentially causing them to trip over it. It also could be difficult for some pedestrians to maneuver past the barrier.

### ***Changes in Recreation Use Levels in the Trail Corridor***

The high-standard trail would moderately increase recreation use levels, beyond the expected 5 to 7 percent annual increase, along the entire length of the trail corridor because it would provide a trail with many recreation opportunities that currently do not exist within the proposed trail corridor. These new opportunities would potentially attract new users that currently do not recreate on the Forests. For example, the paved path would provide a new opportunity for road bicyclists in the area that currently do not use the road because of safety concerns. Families with small children that bicycle would also be attracted to the new paved trail and could become new recreation users of the Forests. Walking on a paved path could also attract area residents that do not currently hike on the area's trails.

Increased road biking, mountain biking, hiking/walking, and horseback riding would be expected. With this increased use, user conflicts and safety problems would increase.

### ***Changes in Parking Demands at Trailheads along the Corridor***

The moderate increase in recreational use levels described above would initiate a moderate increase in parking demands along the trail corridor. Parking for a total of an additional 45 cars and 13 horse trailers would likely be sufficient to meet current and future user demands during designated trail-use seasons except Trail Creek Trailhead (Bridger-Teton Forest). Trail Creek Trailhead is currently undersized, and the proposed improvements would likely not be sufficient to accommodate future users.

### ***Linear Distance of Off-Highway Trails Accommodating Current Highway Corridor Users***

Segments 1 through 5 would accommodate road bicyclists that are currently riding along the highway corridor. The entire paved trail length using the North Option is approximately 13.16 miles, and the entire paved trail length using the South Option is approximately 12.80 miles.

### ***Linear Distance of Trails Providing Universal Access***

The North Option, would provide approximately 5.79 miles of universally accessible trail. The South Option, there would be approximately 5.43 miles of universally accessible trail.

### ***Recreational Trail Uses by Specific User Group***

Summer recreational opportunities for all non-motorized trail users would be provided. This would include hiking/walking, horseback riding, road biking, mountain biking, and fishing access. The trail would also provide access to other trails that originate in the corridor and could be used for loop hikes and access to hunting areas.

### ***Linear Distance of Separated Native-Surface Trails Adjacent to Paved Pathways***

The approximate separated native-surface trail length using the North Option (including the historic wagon route) is approximately 8.71 miles. The approximate separated native-surface trail length using the South Option (including the historic wagon route) is approximately 8.41 miles. This separated native-surface trail would increase safety by reducing bicyclist and horseback rider conflicts.

The two underpasses (at the Mail Cabin Road area and at the Weather Station) under the North Option and the three underpasses (at the Trail Creek Campground area, at the Mail Cabin Road area, at the Weather Station) under the South Option would also provide a separated highway crossing for trail users, which would increase user safety. The design of the skewed underpass proposed at the Mail Cabin Road area could pose a safety hazard; its interior would be shady because of its length and the sun's inability to penetrate the interior. This could create an icy surface that would be dangerous for trail users. In addition, there would be a blind downhill exit from the long underpass on the south side of the highway that could also present a safety problem, particularly for bikes traveling at high speeds.

### ***Segments of Trail That are Longer Than 500 Feet with Grades Greater Than 15 Percent***

There are no trail segments that are greater than 15 percent slope for a distance longer than 500 feet. Short, steep sections (up to 40 percent slope) exist in areas such as road cut and fill slopes and along Segment 4 between the Weather Station and Teton Pass.

### ***Enforcement Capabilities for Non-Motorized Winter Use of the Teton Pass Corridor***

Because snowmobile use in the area is currently minimal, and snowmobiling opportunities throughout the local region are plentiful, an amendment of the Targhee Forest RFP to change winter access for the Teton Pass corridor area from motorized to non-motorized would not have a substantial impact upon winter motorized recreation resources. However, enforcement of this amendment would still be required. Enforcement would be facilitated by easy access to the corridor from the highway. The Forest Service and law enforcement in Teton County, Idaho, and Teton County, Wyoming, also maintain a cooperative agreement, so the Forest Service could work effectively with the Sheriff's office in both counties. In addition, Caribou-Targhee Forest hired a law enforcement officer solely for Targhee Forest enforcement. No changes to the Bridger-Teton Forest RMP are proposed, so there would be no change in enforcement capabilities.

### ***Changes in Trail and Facility Maintenance Requirements***

Increases in the Forests' trail and facility maintenance requirements would include maintenance of 13.16 miles (North Option) or 12.80 miles (South Option) of paved pathway, and 8.71 miles (North Option) or 8.41 miles (South Option) of 24-inch-wide native-surface trail. Ongoing maintenance requirements of the paved path include annual spring clearing of debris, fallen trees, and vegetation; annual (or as needed) pavement repair such as filling in of cracks and holes; and pavement sealing approximately every 5 years, depending on the condition of the paved surface. Ongoing maintenance requirements of the 24-inch-wide native-surface trail include clearing the trail of debris and fallen trees, maintaining erosion control features, and cutting back overgrown trailside vegetation. Maintenance of the 24-inch-wide native-surface trail would be conducted when necessary and would occur routinely every 3 years. Both options would also include two new and three improved trailheads that would require ongoing maintenance.

### ***Alternative B: Varying Opportunity Trail***

Decommissioning would directly affect the unauthorized motorized users currently using these areas and benefit current and future non-motorized recreation users. Impacts to trail users from barriers are the same as those described under Alternative A.

### ***Changes in Recreation Use Levels in the Trail Corridor***

The highest recreation use would occur on the trail within 4 miles of Victor, Idaho, and within 4 miles of Wilson, Wyoming. The varying opportunity trail would slightly increase recreation use levels beyond the annual increase expected because the new trails constructed to connect gaps in the existing BPA road would attract additional recreation users. Generally this new continuous trail would only slightly increase recreation use levels. The types of users on the trail would be more limited than under Alternative A because of terrain constraints along the new trails and BPA road.

### ***Changes in Parking Demands at Trailheads along the Corridor***

Minor increases in recreational use levels beyond the expected annual increase would initiate an increase in parking demands along the trail corridor. Alternative B parking includes plans for a total of an additional 35 cars and 13 horse trailers, which would likely be sufficient to meet current and future user demands during designated trail-use seasons except Trail Creek Trailhead (Bridger-Teton Forest). Trail Creek Trailhead improvements would likely not be sufficient to accommodate future users.

### ***Linear Distance of Off-Highway Trails Accommodating Current Highway Corridor Users***

None of the trails would accommodate current highway corridor users.

### ***Linear Distance of Trails Providing Universal Access***

Alternative B would not provide universally accessible trails on Forest lands.

### ***Recreational Trail Uses by Specific User Group***

Trail Segments 1 through 4 would provide recreational opportunities for hikers/walkers, horseback riders, and intermediate mountain bikers. Segment 5, would continue to accommodate current users including hikers/walkers, horseback riders, mountain bikers, and road bicyclists. The repaired historic wagon route in this segment would also accommodate hikers/walkers and horseback riders.

### ***Linear Distance of Separated Native-Surface Trails Adjacent to Paved Pathways***

The 3.07-mile-long historic wagon route would be partially reconstructed. This would provide a separated native-surface trail opportunity for hikers and equestrians who prefer to avoid bicyclists using the old pass road.

### ***Segments of Trail That are Longer Than 500 Feet with Grades Greater Than 15 Percent***

Within Segment 1 there are four trail sections totaling 1.02 miles that are steeper than 15 percent slope for a distance longer than 500 feet. New trail switchbacks would be constructed within these steep areas to reduce grade severity.

### ***Capabilities and Resources of Jurisdictional Authorities to Enforce Non-Motorized Use of the Teton Pass Corridor (Caribou-Targhee Forest) during Winter***

The impacts of the proposed amendment to the Caribou-Targhee Forest RFP would be the same as those listed under Alternative A.

### ***Changes in Trail and Facility Maintenance Requirements***

Increases in the Forests' trail and facility maintenance requirements would include maintenance of 8.70 miles of the BPA road and 5.93 miles of 24-inch-wide native-surface trail. This maintenance would be conducted as needed and

would routinely occur every 3 years. Alternative B also includes one new and three improved trailheads that would require ongoing maintenance.

### **Alternative C: Recreation Enhancements**

Decommissioning would directly affect the unauthorized motorized users currently using these areas, and benefit current and future non-motorized recreation users. Impacts to trail users from the barriers would be the same as those described under Alternative A.

### ***Changes in Recreation Use Levels in the Trail Corridor***

The recreation enhancements would not increase recreation use beyond the expected annual increase. The additional trail construction, trail improvements, and facility improvements would accommodate current and expected users but would likely not invite additional recreation users. Recreation use could increase slightly on Forest lands surrounding the trail corridor, but this increase is included in the expected 5 to 7 percent annual increase.

### ***Changes in Parking Demands at Trailheads along the Corridor***

Parking facility improvements are anticipated to meet current and future recreational use increases.

### ***Linear Distance of Off-Highway Trails Accommodating Current Highway Corridor Users***

None of the trail would accommodate current highway corridor users (i.e., road bicyclists).

### ***Linear Distance of Trails Providing Universal Access***

Segment 1 would provide approximately 9,400 feet of universally accessible trail along the south side of West Trail Creek. Segment 3 would include approximately 900 feet of universally accessible trail at the Coal Creek Trailhead. Thus, a total of approximately 1.95 miles of accessible trail would be provided.

### ***Recreational Trail Uses by Specific User Group***

Trail Segments 1 through 3 would provide improved recreational opportunities for hikers/walkers, horseback riders, and intermediate mountain bikers. Segment 5 would include improvements to roads and trails for intermediate mountain biking as well as additional parking for horse trailers.

### ***Linear Distance of Separated Native-Surface Trails Adjacent to Paved Pathways***

The 3.07-mile-long historic wagon route would be partially reconstructed, providing a separated native-surface trail opportunity for hikers and equestrians who prefer to avoid mountain bikers using the old pass road.

### ***Segments of Trail That are Longer Than 500 Feet with Grades Greater Than 15 Percent***

Within Segment 1 there are four segments totaling 1.02 miles that are steeper than 15 percent slope for a distance greater than 500 feet. New trail switchbacks would be constructed around these steep areas to reduce grade severity.

### ***Capabilities and Resources of Jurisdictional Authorities to Enforce Non-Motorized Use of the Teton Pass Corridor (Caribou-Targhee Forest) during Winter***

The impacts would be the same as those listed under Alternative A.

### ***Changes in Trail and Facility Maintenance Requirements***

Increases the Forests' trail and facility maintenance requirements would include maintenance of 4.13 miles of the BPA road, 1.95 miles of 48-inch-wide hardened trail, 0.36 mile of 36-inch-wide hardened trail, and 9.63 miles of 24-inch-wide native-surface trail. This maintenance would be conducted as needed and would routinely occur every 3 years. Alternative C would also include one new and four improved trailheads that would require ongoing maintenance.

### ***Alternative D: No Action***

Without decommissioning activities, unauthorized motorized use would likely continue to occur on Mail Cabin Trail, the old timber road, and the right, middle, and left fork two-track roads.

### ***Changes in Recreation Use Levels in the Trail Corridor***

Recreational use levels would not increase beyond the expected annual increase.

### ***Changes in Parking Demands at Trailheads along the Corridor***

The expected annual increase in recreation users would not be accommodated by the current parking facilities at trailheads. This would lead to increasing parking problems at corridor trailheads.

### ***Linear Distance of Off-Highway Trails Accommodating Current Highway Corridor Users***

Current highway corridor users would continue to ride on the highway shoulders. With heavy traffic and small road shoulders, these riding conditions are relatively unsafe.

### ***Linear Distance of Trails Providing Universal Access***

There are currently no universally accessible trails within the project area, and none would be constructed.

### ***Recreational Trail Uses by Specific User Group***

No new trails would be constructed.

### ***Linear Distance of Separated Native-Surface Trails Adjacent to Paved Pathways***

No new trails would be constructed.

### ***Segments of Trail That are Longer Than 500 Feet with Grades Greater Than 15 Percent***

No new trails would be constructed.

### ***Capabilities and Resources of Jurisdictional Authorities to Enforce Non-Motorized Use of the Teton Pass Corridor (Caribou-Targhee Forest) during Winter***

There would be no A areas in winter-motorized use, so no enforcement workload charges..

### ***Changes in Trail and Facility Maintenance Requirements***

Since no new trails or trailheads would be constructed, there would be no additional trail and facility maintenance requirements beyond what is currently expected.

### **Off-Forest Segments**

The off-Forest segments would provide improved access to Caribou-Targhee and Bridger-Teton Forest lands for the communities of Victor, Idaho, and Wilson, Wyoming. This access would primarily be for road and mountain bikers because of the on-road shared use segments that would be necessary to connect both Victor, Idaho, and Wilson, Wyoming, to the Forests.

The Teton County, Wyoming, North Plus South Option provides safer trail access for residents traveling to Wilson, Wyoming, from the north side of WY-22 than does the South Only Option. There are numerous residences, many with children, on the north side of WY-22. A pathway on the north side would enable these residents to travel to Wilson, Wyoming, along a trail without having to cross WY-22 in a 55-mile-per-hour zone. Trail users could then cross WY-22 in Wilson, where the speed limit is 25 miles-per-hour and therefore safer.

### ***Changes in Recreation Use Levels in the Trail Corridor***

In the City of Victor, Idaho, off-Forest segment, there are currently no trails or recreation pathways and little existing recreation use. Therefore, construction of the 10-foot-wide paved pathway would increase recreation use levels in this corridor. In the Teton County, Idaho, off-Forest segment, the existing Old Jackson Highway provides access to the Caribou-Targhee Forest for recreation users. Therefore, repaving this road to provide on-road shared use would result in a moderate increase in recreation use levels in the corridor.

In the Teton County, Wyoming, off-Forest segment, there is an existing 24-inch-wide native-surface trail from Trail Creek Road to Wilson that provides recreation opportunities. The South Only Option would improve this existing trail and increase recreation use levels moderately because there is existing recreation use on the proposed trail alignment, and the proposed trail provides opportunities for a limited number of recreation user groups. Construction of the North Plus South Option would result in a moderate increase in recreation use levels in this corridor because it would provide more trails and recreation opportunities for several user groups. However, it would also reduce some highway vehicle traffic that is now accessing Forest trailheads.

### ***Changes in Parking Demands at Trailheads along the Corridor***

Two trailheads for the City of Victor and Teton County, Idaho, off-Forest segments would provide access to the proposed pathways. These existing trailheads at Victor City Park and Pioneer Park currently provide parking for a minimal numbers of recreationists using the existing Driggs-Victor pathway. With construction of the proposed segment, changes in parking demands at these park trailheads would increase moderately.

The primary trailhead providing access to the Teton County, Wyoming, off-Forest segment would be the Stilson Ranch parking area that is currently being constructed to accommodate 700 vehicles. This trailhead will eventually provide access to multiple recreational trails. Parking demands at this trailhead would increase moderately under the North Plus South because it provides recreation opportunities to a greater number of recreation user groups than the South Only Option, and therefore would demand more parking. There is also existing trailhead parking in

Wilson at the Wilson Elementary School. In addition, the Town of Wilson also functions as an informal trailhead, providing staging areas for trail activities on Teton Pass.

### ***Linear Distance of Off-Highway Trails Accommodating Current Highway Corridor Users***

The City of Victor, Idaho, off-Forest segment would provide 1.33 miles of separated 10-foot-wide paved path that would accommodate current highway corridor users. The Teton County, Idaho, segment would provide 2.74 miles of on-road shared use on the Old Jackson Highway, which is currently gravel with some pieces of dilapidated pavement and would be re-paved under the proposed pathway construction. This would provide an alternative route for bicyclists who currently ride on Teton Pass Highway.

The Teton County, Wyoming, North Plus South Option would provide 1.10 miles of 10-foot-wide paved pathway

that would accommodate current highway corridor users. The Teton County, Wyoming, South Only Option would provide 1.10 miles of 24-inch-wide native-surface trail that would accommodate mountain bikers and pedestrians currently using WY-22 to access the Bridger-Teton Forest. The on-road shared use along the Trail Creek Road does not change from existing conditions and therefore does not provide new or different access to the Bridger-Teton Forest.

#### ***Linear Distance of Trails Providing Universal Access***

The City of Victor, Idaho, segment would provide 1.33 miles of 10-foot-wide paved path that would provide universal access. Similarly, the Teton County, Wyoming, North Plus South Option would provide 1.10 miles of 10-foot-wide paved path that would provide universal access. Neither the Teton County, Idaho, nor the Teton County, Wyoming, South Only Option would provide universal access.

#### ***Recreational Trail Uses by Specific User Group***

The City of Victor, Idaho, segment would be used by pedestrians, road and mountain bicyclists, in-line skaters, skateboarders, equestrians, and Nordic skiers. The Teton County, Idaho, segment and Teton County, Wyoming, North Plus South Option would also provide trails for these same users. The Teton County, Wyoming, South Only Option would provide a trail for pedestrians, mountain bikers, equestrians, and Nordic skiers. It would not accommodate road bicyclists because it would not be paved.

#### ***Linear Distance of Separated Native-Surface Trails Adjacent to Paved Pathways***

The City of Victor, Teton County, Idaho, and Teton County, Wyoming, South Only Option trail segments would not provide any separated native-surface trails. The Teton County, Wyoming, North Plus South Option would provide 2.20 miles of separated native-surface trail.

#### ***Segments of Trail That are Longer Than 500 Feet with Grades Greater Than 15 Percent for Their Entire Length***

None of the off-Forest segments would have segments that are longer than 500 feet with grades greater than 15 percent.

#### ***Changes in Trail and Facility Maintenance Requirements***

The City of Victor, Idaho, would have an additional 1.33 miles of 10-foot-wide paved path to maintain. Teton County, Idaho, would have to continue to maintain the 2.74 miles of paved, on-road shared-use path that is the Old Jackson Highway. Maintenance requirements for the Teton County, Wyoming, North Plus South Option, include 1.10 miles of 10-foot-wide paved path and 1.10 miles of 18- or 24-inch-wide native-surface trail. The Teton County, Wyoming, South Only Option would not include any changes in trail maintenance.

#### **Summary of Impacts**

Alternative A would result in the most recreation use level increases in the Teton Pass corridor, and Alternatives C and D would result in the least increase. Alternative A would also provide off-highway trails that accommodate road bicyclists currently using the highway, as well as a separated native-surface trail for other trail users. The North Option of Alternative A would provide the most universally accessible trails, the South Option would provide slightly fewer trails, and Alternative C would provide less than half the trail length provided under Alternative A. Alternative B would not provide any universally accessible trails.

Decommissioning would positively affect the implementation of the Targhee Forest RFP. Decommissioning would

negatively impact current unauthorized motorized users and would benefit current and future non-motorized recreation users.

The off-Forest segments would provide recreational trail users access to the Forests from the communities of Victor, Idaho, and Wilson, Wyoming, and beyond.

The Teton County, Wyoming, off-Forest segment options provide different levels of recreation opportunities and safe trail access to Wilson, Wyoming. The North Plus South Option provides more recreation opportunities for a larger number of recreation user groups. It also provides safer trail access to Wilson for trail users that live on the north side of WY-22.

### **Unavoidable Adverse Impacts**

Impacts from the proposed amendment to the Targhee Forest RFP would result in unavoidable adverse impacts to current motorized recreation uses along the corridor. Because snowmobile use in the area is minimal and snowmobiling opportunities throughout the local region are plentiful, this amendment would not have a substantial impact upon motorized recreation resources.

Unavoidable adverse impacts of road decommissioning activities included in Alternatives A, B, and C include permanently closing the road to motorized traffic.

## **WILDERNESS, WILDERNESS STUDY, AND ROADLESS AREAS**

### **Existing Conditions**

The Caribou-Targhee and Bridger-Teton Forests contain several types of specially designated lands that include Wilderness, Wilderness Study Areas, Recommended Wilderness Areas, and Roadless Areas. The specially designated lands in and around the project area are described in more detail below and are depicted on Figure 3-4.

### **Designated Wilderness**

The Jedediah Smith Wilderness lies north of the Teton Pass Highway on the Caribou-Targhee Forest. The wilderness boundary is approximately 0.25 mile northwest of and parallel to WY 22. This scenic area system is used in the summer months for hiking, backpacking, and horseback riding. The wilderness segment adjacent to the

highway and accessible from Coal Creek Trailhead is designated in the Targhee Forest RFP as Opportunity Class III (prescription area 1.1.8), which is managed for recreation use and provides low-to-moderate opportunities for solitude from July through September (Forest Service 1997a). The trails in prescription area 1.1.8 are primitive yet may offer creek crossings and other features for user convenience. The Coal Creek Trailhead also provides access to Opportunity Class I and II areas (prescription areas 1.1.6 and 1.1.7, respectively). Prescription area 1.1.7 offers unmaintained trails and moderate-to-high opportunities for solitude from July through September. Prescription area 1.1.6 is located parallel to and approximately 500 feet from the BPA corridor. Prescription area 1.1.6 does not contain trails but may contain some user-created routes and provides the greatest opportunity for experiencing solitude and pristine conditions. The entire Jedediah Smith Wilderness is closed to all motorized and mechanized uses. Currently there exists some mountain biking trespass into the Jedediah Smith Wilderness on the Coal Creek and Moose Creek Trails.

## **Wilderness Study Area**

The Caribou-Targhee and Bridger-Teton Forests manage the Palisades Wilderness Study Area that lies approximately 0.5 to 1.0 mile south of the Teton Pass Highway in Wyoming. This area was designated a Wilderness Study Area by Congress in 1984. Mountain biking and snowmobiling are allowed recreational uses, but other activities that would prevent the area from becoming a Congressionally Designated Wilderness Area are not permitted. Management prescriptions from the Targhee Forest RFP and the Bridger-Teton Forest RMP are to protect and perpetuate the area's wilderness character.

## **Recommended Wilderness Area**

The Palisades Recommended Wilderness Area is part of the Caribou-Targhee Forest in Idaho. A small segment of the area, near the state line, lies approximately 1 mile south of ID-33. The Caribou-Targhee Forest has recommended that this area be designated Wilderness by Congress. Until the issue is settled, the Targhee Forest RFP includes goals to protect and ensure wilderness characteristics. Mountain biking, snowmobiling, and heli-skiing are allowed recreational uses.

## **Roadless Areas**

There are three roadless areas in the vicinity of the trail corridor. The West Slope Teton Roadless Area, on the Caribou-Targhee Forest, lies west of the Jedediah Smith Wilderness. The Palisades Roadless Area, on the Caribou-Targhee Forest, lies west of the Palisades Recommended Wilderness. The Phillips Ridge Roadless Area, on the Bridger-Teton Forest, lies east of the Jedediah Smith Wilderness.

## **Direct and Indirect Impacts**

The Caribou-Targhee and Bridger-Teton Forests anticipate a 5 to 7 percent annual increase of recreation use levels. This expected annual increase is used as a baseline with which anticipated impacts of the project are compared. Impacts are summarized in Table 3-14.

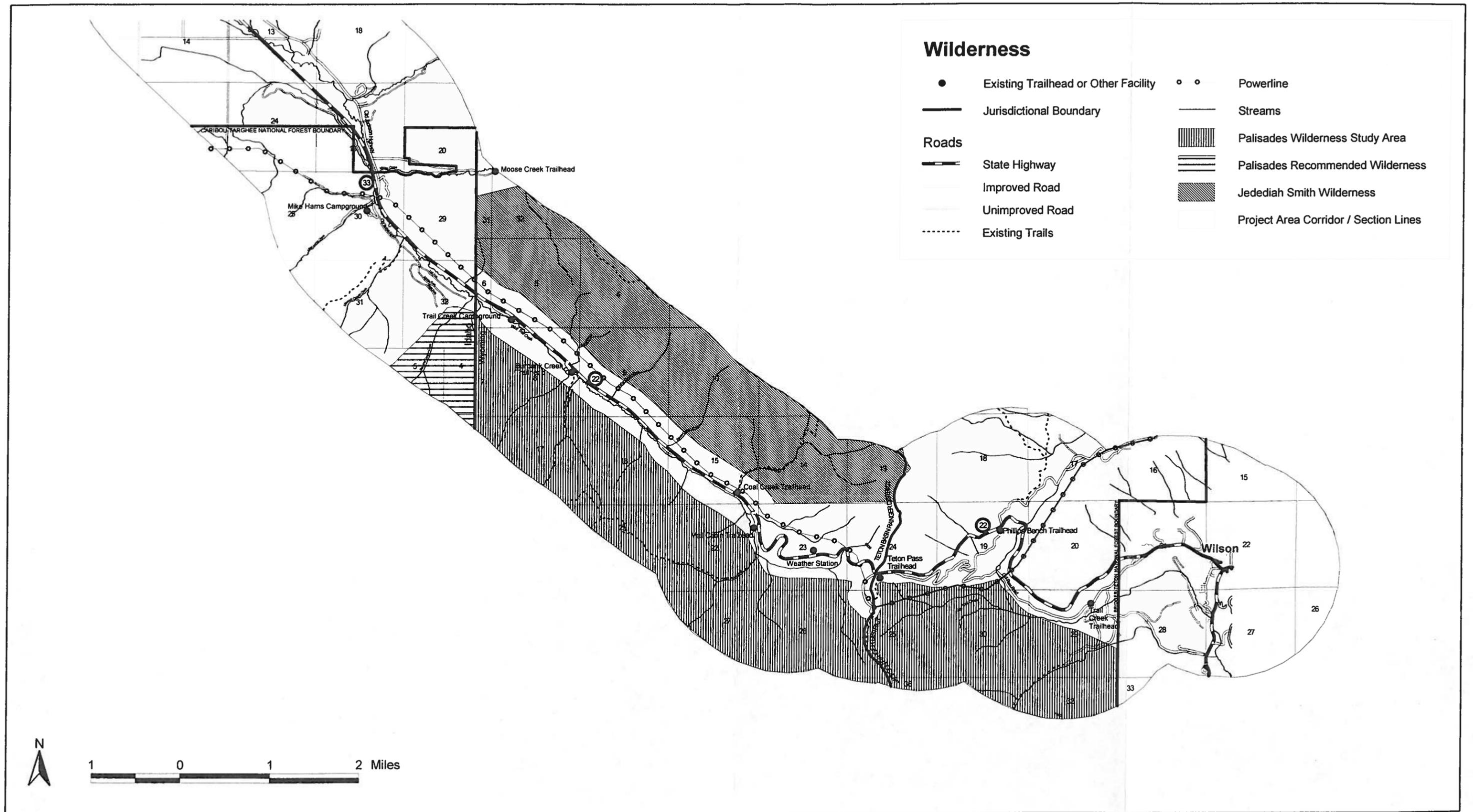


Figure 3-4. Wilderness Areas.

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**Table 3-14a. Impacts to Wilderness, Wilderness Study, and Roadless Areas; Forest Alternatives.**

INDICATOR	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Changes in Recreation Use Levels on the Coal Creek and Moose Creek Trails	Coal Creek: Moderate increase beyond expected 5 to 7 percent annual increase  Moose Creek: Moderate increase beyond expected 5 to 7 percent annual increase	Coal Creek: Moderate increase beyond expected 5 to 7 percent annual increase  Moose Creek: Moderate increase beyond expected 5 to 7 percent annual increase	Coal Creek: Moderate increase beyond expected 5 to 7 percent annual increase  Moose Creek: Moderate increase beyond expected 5 to 7 percent annual increase	Coal Creek: Minor increase beyond expected 5 to 7 percent annual increase  Moose Creek: Minor increase beyond expected 5 to 7 percent annual increase	No increase beyond expected 5 to 7 percent annual increase
Changes in Illegal Bicycle Use on the South End of the Jedediah Smith Wilderness Area	Heavy increase beyond expected 5 to 7 percent annual increase	Moderate increase beyond expected 5 to 7 percent annual increase	Heavy increase beyond expected 5 to 7 percent annual increase	Minor increase beyond expected 5 to 7 percent annual increase	No increase beyond expected 5 to 7 percent annual increase

**Alternative A: High-Standard Trail**

The high-standard trail proposed would have no direct impacts to Wilderness, Recommended Wilderness, or Roadless Areas. Approximately 1 mile of the upper segment of the historic wagon route lies within the Palisades Wilderness Study Area. Reconstruction of this portion of the route would directly affect the Wilderness Study Area through reconstruction activities and increased visitation resulting from the improved trail. These impacts would not conflict with the Forest Service's stated goals for managing the area to protect and perpetuate its wilderness character.

Portions of the Mail Cabin Trail segment that would be decommissioned currently are located within the Palisades Wilderness Study Area. Decommissioning portions of the Mail Cabin Trail would beneficially impact the Palisades Wilderness Study Area and its non-motorized recreational users by reducing motorized trespass into the area.

***Changes in Recreation Use Levels on the Coal Creek and Moose Creek Trails***

With construction of a high-standard trail over Teton Pass and associated publicity, recreation use levels on the first mile of the Coal Creek Trail would increase moderately beyond expected annual increase. Replacing the restroom and improving the Coal Creek parking lot would attract more users to the Coal Creek Trail and likely result in increased use in the south end of the Wilderness. The high-standard paved surface would not attract users seeking a high-quality primitive recreation experience and would not change use levels in the Wilderness.

***Changes in Illegal Bicycle Use on the South End of the Jedediah Smith Wilderness***

Surveying and posting the Wilderness boundary where it lies within 0.25 mile of the proposed trail, and regulatory signing would be an improvement over the current program to reduce illegal bicycle and snowmobile in the south

end of the Wilderness.

In the South Option, illegal bicycle use on the south end of the Jedediah Smith Wilderness would increase slightly as recreation use in the area increases. Under the North Option, the construction of a paved-surface trail connecting and improving the existing BPA road segments would create a new 5-mile-long trail attractive to bicycles parallel to the Wilderness boundary. The new trail within 0.25 mile from the boundary would create boundary management need that does not currently exist.

#### ***Alternative B: Varying Opportunity Trail***

The varying opportunity trail would have no direct impacts to Wilderness, Recommended Wilderness, or Roadless Areas. Reconstruction of the upper segment of the historic wagon route would directly impact the Wilderness Study Area through maintenance and repair activities and increased visitation resulting from the improved trail. These impacts would not conflict with the Forest Service's stated goals for managing the area to protect and perpetuate its wilderness character.

The trail alignment would place a majority of the trail in the vicinity of the existing BPA corridor for Segments 1 through 4. On average, this corridor is within approximately 1,000 feet of the Jedediah Smith Wilderness boundary, with some segments falling within less than 500 feet of the boundary.

Impacts of road decommissioning activities would be the same as those listed under Alternative A.

#### ***Changes in Recreation Use Levels on the Coal Creek and Moose Creek Trails***

The effects to recreation use levels in the south end of the Wilderness would be the same as in Alternative A. The native-surface trail would attract more recreation users who would normally hike the Coal Creek Trail. The proximity of the route to the highway and power line would make the BPA road unattractive to people seeking a more primitive experience but may attract some trail runners and dog walkers that frequently use the Coal Creek Trail.

#### ***Changes in Illegal Bicycle Use on the South End of the Jedediah Smith Wilderness***

Effects on illegal bicycle use on the south end of the Jedediah Smith Wilderness would be similar to that described under Alternative A.

#### ***Alternative C: Recreation Enhancements***

Direct impacts to the Palisades Recommended Wilderness Area and the Palisades Wilderness Study Area would result from upgrading the existing non-system Crest Trail to Forest Service system trail standards to Teton Pass, and upgrading the Mail Cabin Trail to connect to the Crest Trail. This would also impact visitors during construction/upgrading of the trails. Reconstruction of approximately 1 mile of the upper segment of the historic wagon route, would directly impact the Wilderness Study Area through maintenance and repair activities and increased visitation resulting from the improved trail. These impacts would not conflict with the Forest Service's stated goals for managing the area to protect and perpetuate its wilderness character.

Upgrading the Crest Trail, Mail Cabin Trail, and Mosquito Pass Trail in the Palisades Wilderness Study Area and Recommended Wilderness Area would increase hiking and equestrian use south of WY-22 and would provide a

legal mountain biking opportunity on Teton Pass. With the exception of bikes, the improved trails would provide high-quality recreation opportunities in a remote setting comparable to those currently provided in the Jedediah Smith Wilderness.

Impacts of road decommissioning activities would be the same as those listed under Alternative A.

### ***Changes in Recreation Use Levels on the Coal Creek and Moose Creek Trails***

With reconstruction and improvements of the Crest Trail on the south side of WY-22 and associated publicity, recreation use levels on the first miles of the Coal Creek Trail would increase slightly. Replacing the restroom and improving the Coal Creek parking lot would attract more users to the Coal Creek Trail and likely result in increased use in the south end of the Wilderness.

The primitive trails away from the power line and highway would most closely mimic a wilderness opportunity and help to absorb recreational use from the Wilderness. The improved Crest Trail would provide a legal alternative for a Teton Pass mountain bike ride that does not currently exist for the average rider. Most equestrians and hikers would continue to recreate in the Wilderness to avoid bikes but the improvement of comparable trails would help to absorb the predicted increased use.

The construction of a new trailhead and highway crossing at West Trail Creek would increase bicycles and jogging strollers on the Moose Creek Road but would not lead to increased recreation use on the Moose Creek Trail.

### ***Changes in Illegal Bicycle Use on the South End of the Jedediah Smith Wilderness***

Illegal bicycle use on the south end of the Jedediah Smith Wilderness would increase slightly as recreation use in the area increases. However, the improved regulatory signing would reduce illegal bicycle and snowmobile in the south end of the Wilderness

### ***Alternative D: No Action***

Without decommissioning activities, motorized trespass along the portion of the Mail Cabin Trail in the Palisades Wilderness Study Area would continue.

### ***Changes in Recreation Use Levels on the Coal Creek and Moose Creek Trails***

Since no new trails or trailheads would be constructed, there would be no changes in recreational use on the Coal Creek and Moose Creek Trails beyond what is currently expected.

### ***Changes in Illegal Bicycle Use on the South End of the Jedediah Smith Wilderness***

Since no new trails or trailheads would be constructed, there would be no changes in illegal bicycle use projected.

### **Summary of Impacts**

Of the three action alternatives, Alternative C would have the least amount of impacts to Wilderness, Wilderness Study Area, and Recommended Wilderness. Alternative A, South Option, would have less impacts than North Option. Decommissioning the Mail Cabin Trail to motorized use would benefit the Palisades Wilderness Study Area and its non-motorized recreation users by reducing motorized trespass into the area.

The off-Forest segments would have no impacts to Wilderness, Wilderness Study Area, Recommended Wilderness, or Roadless Areas.

### **Unavoidable Adverse Impacts**

There would be no unavoidable adverse impacts.

# TRANSPORTATION SYSTEM

## Existing Conditions

The first wagon was driven over Teton Pass in 1886, and the route continued to be used until 1913. At that time, the Forest Service began to survey and construct a new road over Teton Pass using horse-drawn equipment. This road became known as the Old Pass Road and was used more or less unchanged until 1961 when the current highway (ID-33/WY-22) was constructed.

This existing transportation system between Victor, Idaho, and Wilson, Wyoming, consists of ID-33 for approximately 6 miles and WY-22 for the remaining 12 miles. This highway typically consists of two lanes, is rural, and is undivided. In Idaho its total paved width is 24 to 28 feet, and in Wyoming it is 27 feet. Throughout the project area, each travel lane of ID-33/WY-22 is 12 feet wide. Near Victor, Idaho, each shoulder is 6 feet wide and paved (Becker 2000). In Idaho toward the Idaho-Wyoming border, each paved shoulder is narrower than 6 feet. In Wyoming each shoulder is about 4 feet wide and paved near Wilson, and 1.5 feet wide and paved near Teton Pass (Bercich 2000).

Data from 1998 show that average (24-hour) daily traffic (ADT) volumes for ID-33 between the southeastern edges of Victor, Wyoming, to the Idaho-Wyoming State Line were 3,100 vehicles (Becker 2000). The ADT volumes along WY-22 from the Idaho-Wyoming State Line to the Bridger-Teton Forest boundary were 3,050 vehicles, 90 of which were trucks (e.g., freight trucks) (Griego 2000).

Within the project area there were seven accidents along ID-33 for the 3-year period of July 1996 to July 1999, two of which caused injuries and none of which were fatal. Four of these accidents were caused by drivers' efforts to avoid hitting wild animals, which is an above-average rate for this type of road (Becker 2000). The remaining three accidents were caused by driver errors. Overall, within the same 3-year period of 1996 to 1999, the accident severity for ID-33 (factor of 14) is low compared with that expected for this type of road (factor of 19.3) (Becker 2000). Similarly, the accident rate per million vehicle miles was 1.04, and the expected rate for this type of road is 1.48 (Becker 2000).

Within the project area in Wyoming there were 349 accidents along WY-22 between 1996 and 1999, 108 of which caused injuries and 3 of which were fatal (Stout 2000). Overall during this 4-year period, the accident rate per million vehicle miles ranged between 2.15 and 2.59 along this segment of WY-22. This rate is higher than the statewide accident rate, which ranged between 1.78 and 1.99 (Stout 2000).

## Direct and Indirect Impacts

### *Alternative A: High-Standard Trail*

Segments 1 through 4 would accommodate road bicyclists that are currently riding along the highway corridor and reduce conflicts between road bicyclists and highway drivers. The approximate trail length using the North Option is 13.16 miles, and the approximate trail length using the South Option is 12.80 miles. Some traffic volume increases would be expected, as more recreation users could potentially be traveling on Forest Service lands to reach access points to the new trail, although some recreation users could access Forest Service lands from Victor, Idaho,

or Wilson, Wyoming, without driving to the Forests. In addition, the South Option would require an at-grade crossing of ID-33/WY-22 near Mike Harris Campground, which could potentially create conflicts between vehicles using the highway and trail users. This at-grade crossing will be completed with standard striping and signing to warn highway and trail users of potential conflicts. In addition, the available sight distance in this area would provide an opportunity for drivers and trail users to see in both directions at the crossing.

Impacts to the existing transportation system are not anticipated as a result of road decommissioning activities.

### ***Alternative B: Varying Opportunity Trail***

None of the proposed trails would accommodate current highway corridor users. Some increases in traffic volumes along the highway would be expected, as more recreation users could potentially be traveling on Forest Service lands to reach access points to the new trail. In addition, this alternative would require an at-grade crossing of ID-33/WY-22 near the Teton Pass Trailhead, which could potentially create conflicts between vehicles using the highway and trail users. This at-grade crossing will be completed with standard striping and signing to warn highway and trail users of potential conflicts.

Impacts to the existing transportation system are not anticipated as a result of road decommissioning activities.

### ***Alternative C: Recreation Enhancements***

None of the proposed trails would accommodate current highway corridor users. Some increases in traffic volumes along the highway would be expected as more recreation users could potentially be traveling on Forest Service lands to reach access points to enhanced recreation facilities. In addition, Alternative C would require an at-grade crossing of ID-33/WY-22 approximately 0.50 mile northwest of Trail Creek Campground which could potentially create conflicts between vehicles using the highway and trail users. This at-grade crossing will be completed with standard striping and signing to warn highway and trail users of potential conflicts.

Impacts to the existing transportation system are not anticipated as a result of road decommissioning activities.

### ***Alternative D: No Action***

Highway traffic volumes would not increase beyond the general use increases that are expected. Road bicyclists would remain on the highway.

### ***Off-Forest Segments***

The City of Victor, Idaho, Teton County, Idaho, and the North Plus South Option of the Teton County, Wyoming, segments would accommodate road bicyclists that are currently riding along the highway corridor, which would reduce conflicts between road bicyclists and highway drivers. The off-highway trail length provided for road bicyclists would be 1.33 miles in the City of Victor, 2.74 miles in Teton County, Idaho, and 1.10 miles (North Plus South Option) in Teton County, Wyoming. Highway traffic volumes would not increase beyond the expected general use increases. In fact, minor decreases in traffic volumes could potentially occur since recreation users could access Forest Service lands from Victor, Idaho, or Wilson, Wyoming, without driving to the Forests. These decreases would likely be minor. The City of Victor, Idaho, segment would require two at-grade crossings of ID-33 in Victor, which could potentially create conflicts between vehicles using the highway and trail users. These at-grade crossings would be completed with standard striping and signing to warn highway and trail users of potential conflicts. The available sight distance in these areas would provide an opportunity for drivers and trail users to see in both directions at the crossings.

### **Summary of Impacts**

All three Forest action alternatives would likely have similar impacts to traffic volumes along ID-33/WY-22. The anticipated increases in traffic volumes would not likely present a safety hazard. Under Alternative D and the off-Forest segments, traffic volumes are not anticipated to increase beyond the expected general use increases. Alternative A's high-standard trail that would accommodate road bicyclists would likely reduce road bicyclist/vehicle conflicts along the existing highway since road bicyclists would have an alternative route to the highway over Teton Pass. Similar accommodation of road bicyclists would be realized under the City of Victor, Idaho, Teton County, Idaho, and the North Plus South Option of the Teton County, Wyoming, off-Forest segments.

### **Unavoidable Adverse Impacts**

No unavoidable adverse impacts are anticipated.

# CUMULATIVE EFFECTS

## Introduction

For the purposes of this EA, the temporal boundary of analysis is from approximately 1970 to 2010. This boundary encompasses a range within which data are reasonably available and forecasts are reasonably foreseeable. The geographic boundaries of analysis vary depending on the specific resource and potential effects, and are described under each specific resource component.

## Past, Present, and Reasonably Foreseeable Future Activities Considered

Specific projects with the potential to cumulatively affect the resources evaluated for the project are identified in Table 3-15. How the proposed Forest alternatives (including the No Action Alternative) and off-Forest segments would incrementally contribute to potential impacts for a resource is included in the cumulative effects discussion for each resource.

**Table 3-15. Past, Present, and Reasonably Foreseeable Future Activities Considered.**

CUMULATIVE ACTION	PAST	PRESENT	FUTURE
Dispersed Recreation Use on Surrounding Forest Service Lands	X	X	X
Teton Valley Local and Regional Real Estate Developments	X	X	X
Firewood and Forest Products Harvesting	X	X	X
Outfitter Use of Forest Service Lands	X	X	X
Sheep Grazing Permits	X	X	X
BPA Transmission Line and Access Road System	X	X	X
ID-33/WY-22 Highway Corridor	X	X	X
Teton Front Vegetation Management Project			X
Travel Plan		X	X

## Dispersed Recreation Use on Surrounding Forest Service Lands (Past, Present, and Future)

As Forest visitor numbers increase and the local population grows, the backcountry has become more-intensively used. In particular, mountain biking, hiking, horseback riding, backcountry skiing, backcountry snowboarding, snowmobiling, and ATV use have grown in popularity. Currently, recreation is moderate-to-high throughout the Forests and the Bridger-Teton National Forests. With the increasing area population, it is foreseeable that all of the above-listed activities will continue to grow.

### **Teton Valley Local and Regional Real Estate Development (Past, Present, and Future)**

Both Teton County, Idaho, and Teton County, Wyoming, are growing and developing at record levels. Housing, roads, and other forms of development are occurring at rapid rates.

### **Firewood and Forest Products Harvesting (Past, Present, and Future)**

Fuel wood, posts and poles, house logs, and miscellaneous forest products have been harvested throughout the Forests and the Bridger-Teton National Forests. More than two-thirds of the homes in the area use firewood for heat. Miscellaneous forest products such as character wood, willow, huckleberries, and mushrooms are harvested yearly. There are local furniture manufacturers who use character wood gathered from Forest Service lands. Christmas tree harvesting also occurs throughout the Forests. The Forests also received numerous requests for house logs and for posts and poles. Demand for these products is expected to continue in the general vicinity of the project area.

### **Outfitter Use of Forest Service Lands (Past, Present, and Future)**

Outfitter and guide services enable visitors to access the backcountry and, provide fully supported hunting, hiking and camping opportunities. In addition, two backcountry and heli-skiing ski outfitters hold permits for guiding backcountry skiing in the project area.

### **Sheep Grazing Permits (Past, Present, and Future)**

Various sheep grazing allotments exist in the vicinity of the project area.

### **Bonneville Power Administration (BPA) Transmission Line and Access Road System (Past, Present, and Future)**

The BPA transmission line runs approximately 36 miles from west of Swan Valley, Idaho, to north of Wilson, Wyoming. Of this distance, approximately 13.6 miles of the transmission line pass through the Teton Pass corridor. In total, approximately 8.6 miles of access roads are associated with the transmission line in the Teton Pass corridor.

### **ID-33/WY-22 Highway Corridor (Past, Present, and Future)**

The existing transportation system (ID-33/WY-22), runs throughout the length of the Teton Pass corridor. It is about 18 miles long between Victor, Idaho, and Wilson, Wyoming. This highway typically consists of two lanes, is rural, and is undivided. Traffic volumes have been steadily increasing with employee trips to and from Jackson Hole, Wyoming, and Teton Valley, Idaho. In addition, vacationing and recreational trips through the Teton Pass corridor continue to increase. No highway improvement projects are planned on ID-33 near the project area before 2004 (Becker 2000), and none are planned on WY-22 prior to 2002 (Bercich 2000). It is unlikely that portions of the highway will be improved prior to 2010.

### **Teton Front Vegetation Management Project (Future)**

The Forest Service is currently undertaking a study of vegetation management options on the west slope of the Teton Mountains, outside the Jeddiah Smith Wilderness, to increase seral plant diversity in existing plant communities. Options being considered include reintroduction of fire, mechanical treatments, and removal of wood products through public harvesting on approximately 6,000 acres located predominately in lower elevations. One of the nine project units is located within the West Trail Creek watershed and is considered under this cumulative effects analysis. The project unit located in West Trail Creek watershed is roughly 200 acres in size and is located

on the north edge of the BPA road (north of ID-33) between about 0.30 mile east of Moose Creek, Idaho, and the Idaho-Wyoming boundary

## **Cumulative Effects of Proposed Project Alternatives**

### **Geology and Soils**

The cumulative effects analysis area for geology and soils is limited to the West Trail Creek. The primary cumulative actions affecting geology and soils include:

< The BPA transmission line and access road system; and

< The ID-33/WY-22 highway corridor.

In total, the BPA access road system has created a long-term disturbance of approximately 12 acres of soil in the Teton Pass corridor. Including an estimation of cut and fill slopes associated with the road, it disturbs approximately 38 acres of soil. In total, ID-33/WY-22 has created a long-term disturbance of approximately 62 acres of soil in the Teton Pass corridor. Including an estimation of cut and fill slopes associated with the road, it disturbs approximately 185 acres of soil.

#### ***Alternative A: High-Standard Trail***

Cumulative impacts resulting from the loss of approximately 9 acres of productive soil would incrementally add to the overall loss of available soils within the West Trail Creek watershed. Additional cumulative impacts could result from disturbed cut and fill slopes where revegetation success is unlikely. Approximately 0.5 percent of the West Trail Creek watershed would be cumulatively affected (under either option). Since most cut and fill slopes along these roads in the project area have or will revegetate, except in very steep areas, they are not included. These impacts are considered minor based on the relative size of the watershed.

Construction of the new trail is anticipated to increase recreational use of the Forest, but this increase in use would be limited to the new trail corridor. Alternative A would not cumulatively add to adverse impacts associated with soil compaction. The Targhee Forest *Motorized Road and Trail Travel Plan* (Forest Service 1999a) will have a beneficial cumulative impact on soils by managing road travel, decommissioning (i.e., closing) various roads to unauthorized motorized use, and increasing the overall area of vegetation-producing soil. Road decommissioning activities would revegetate approximately 1.4 acres (North Option) or 1.0 acres (South Option) of land. The soil erosion rate of the areas where roads are decommissioned will also decrease, creating a minor beneficial impact.

Overall, Alternative A – would have a minor cumulative impact on soils and geologic resources.

#### ***Alternative B: Varying Opportunity Trail***

Cumulative impacts resulting from the loss of approximately 0.69 acre of productive soil would incrementally add to the overall loss of available soils within the West Trail Creek watershed. Additional cumulative impacts could result from disturbed cut and fill slopes where revegetation success is unlikely. These impacts are considered minor based on the relative size of the watershed. Effects of dispersed recreation will be the same as those described under Alternative A. Road decommissioning activities would revegetate approximately 1.4 acres of land. Overall, Alternative B – would have a minor cumulative impact on soils and geologic resources.

#### ***Alternative C: Recreation Enhancements***

Cumulative impacts resulting from the loss of approximately 1.28 acres of productive soil would incrementally add to the overall loss of available soils within the West Trail Creek watershed. Additional cumulative impacts could

result from disturbed cut and fill slopes where revegetation success is unlikely. These adverse impacts are considered minor based on the relative size of the watershed. Effects of dispersed recreation will be the same as those described under Alternative A. Road decommissioning activities that would revegetate approximately 1.0 acre of land. Overall, Alternative C – there would be minor cumulative impact on soils and geologic resources.

#### **Alternative D: No Action**

Since various roads would not be decommissioned under this alternative, and the overall area of vegetation-producing soil would subsequently not increase, Alternative D would maintain the current trends associated with existing soil erosion rates of the roads where unauthorized motorized use occurs.

#### **Off-Forest Segments**

Cumulative impacts resulting from the loss of approximately 0.76 acre (City of Victor, Idaho, segment), 1.70 acres (Teton County, Wyoming, North Plus South Option), or 0.10 acre (Teton County, Wyoming, South Only Option) of productive soil would incrementally add to the overall loss of available soils. In combination with the permanent disturbance of 12 acres by BPA access roads and 62 acres by ID-33/WY-22, between 0.36 percent (combining the City of Victor, Idaho, segment and the Teton County, Wyoming, South Only Option) and 0.37 percent (combining the City of Victor, Idaho, segment and the Teton County, Wyoming, North Plus South Option) of the watersheds would be cumulatively affected. These adverse impacts are considered minor based on the relative size of the West and East Trail Creek watersheds.

Adverse cumulative impacts of the off-Forest segments – would be minor. Construction of the off-Forest segments would also maintain the current trend of increasing the amount of impervious soil cover in and near the urbanized areas around Victor, Idaho, and Wilson, Wyoming.

#### **Water and Aquatic Resources**

The cumulative effects analysis area for water and aquatic resources is limited to the West Trail Creek watershed. The primary cumulative actions affecting water and aquatic resources include:

- < Dispersed recreation on surrounding Forest Service lands;
- < Teton Valley local and regional real estate developments;
- < Sheep grazing permits;
- < The BPA transmission line and access road system;
- < The ID-33/WY-22 highway corridor; and
- < The Teton Front Vegetation Management Project.
- < Travel Plan

Many of the activities listed above have resulted in the conversion of land cover from undisturbed, vegetated soil to unvegetated dirt, gravel, or paved surfaces. This type of change in land cover results in reduced infiltration rates and increased surface runoff generation. These hydrologic changes have the potential to cause increased erosion and sediment delivery to streams. In total, the BPA access road system has created a long-term disturbance of approximately 12 acres of soil. Including an estimation of cut and fill slopes associated with the road, it disturbs approximately 38 acres of soil. In total, ID-33/WY-22 has created a long-term disturbance of approximately 62 acres of soil. Including an estimation of cut and fill slopes associated with the road, it disturbs approximately 185 acres of soil. An additional but undetermined amount of land within the West and East Trail Creek watersheds has

been converted to unvegetated or impervious surface as a result of construction of Forest Service system roads, trails, and facilities, and Teton Valley real estate developments. In the future, the Teton Front Vegetation Project could temporarily reduce vegetation cover and increase the potential for soil erosion if fire or mechanical treatments are used in the 200-acre unit located within the West Trail Creek watershed.

The effects of Forest sheep grazing and dispersed recreational use on water resources have not been quantified, but these activities have the potential to cause soil compaction and increased surface runoff rates.

Stream resources within the project area are directly affected by the presence of ID-33/WY-22. Between Victor, Idaho, and Teton Pass, the highway crosses eight tributaries to West Trail Creek and crosses West Trail Creek twice. Between Teton Pass and Wilson, Wyoming, WY-22 crosses three tributaries to East Trail Creek. Additional stream crossings are associated with the BPA access road system and Forest Service system roads and trails. Watershed condition inventories conducted by the Forest Service in 1989 noted that trail crossings of streams were often causing degraded channel conditions such as over-widened, unstable banks and fine sediment deposits (Forest Service 1989a). These inventories also noted problems with a culvert on Mike Harris Creek that creates a barrier to migrating fish.

Additional impacts to water resources are associated with the highway's location within or immediately adjacent to the West Trail Creek AIZ for a distance of nearly 8 miles. The proximity of ID-33/WY-22 constricts the floodplain of West Trail Creek in many areas, and slumping/sliding of highway fill material into the stream are additional causes of channel instability.

#### **Alternative A: High-Standard Trail**

Under this alternative, 9.13 acres (North Option) or 8.62 acres (South Option) of land in the West Trail Creek watershed would be permanently converted from a natural vegetated condition to a paved or other low-permeability trail surface. The impacts from this change in land cover would be slightly offset because road-decommissioning activities under this alternative would revegetate approximately 1.4 acres (North Option) or 1.0 acres (South Option) of land. Combined with the permanent disturbance of BPA access roads and ID-33/WY-22, approximately 0.5 percent of the West Trail Creek watershed would be cumulatively affected under either option. This estimate does not include impervious or low-permeability surfaces associated with Forest Service trails, roads, and facilities, or residential and commercial developments. However, the combined area percentage of impervious and low-permeability surfaces within the watershed would total less than 5 percent. In addition, new trails will include permanent storm water BMPs that would limit runoff concentration and promote infiltration. Therefore, the adverse cumulative impacts to water resources associated with conversion of land cover are anticipated to be moderate but not substantial.

Construction of the new trail is anticipated to increase Forest recreational use, limited to the new trail corridor. Therefore, Alternative A would not cumulatively add to adverse water resource impacts associated with soil compaction and vegetation trampling caused by dispersed recreation use or sheep grazing on the Forest. Road decommissioning activities under this alternative would improve the condition of several areas that have been negatively impacted by heavy recreation use, resulting in a beneficial cumulative impact.

Between six (North Option) and nine (South Option) new stream crossings would be built under Alternative A, cumulatively adding to the total number of trail and road crossings. However, the new crossings would be designed in such a way that they will not create barriers to fish migration or cause stream instability. Therefore, adverse cumulative impacts are not anticipated to be substantial.

Trail construction would affect the West Trail Creek AIZ. The new trail would cumulatively add to existing AIZ disturbance and water resource impacts associated with the proximity of ID-33/WY-22. Because the new trail will be designed to minimize removal of streamside vegetation and will be built within existing highway fill material where possible. These adverse cumulative impacts will be moderate rather than substantial.

Overall, there would be a minor adverse cumulative impact to water and aquatic resources in the West Trail Creek watershed. Alternative A is not anticipated to result in adverse cumulative impacts in the East Trail Creek watershed because no new trail construction would occur there.

#### ***Alternative B: Varying Opportunity Trail***

Under this alternative, 0.69 acre of land in the West Trail Creek watershed would be permanently converted from a natural vegetated condition to low-permeability trail surface. The impacts from this change in land cover would be offset by proposed road decommissioning activities, which would revegetate approximately 1.4 acres of land. The net gain of 0.71 acre of vegetated area represents 0.004 percent of the West Trail Creek watershed. Therefore, beneficial cumulative impacts are anticipated to be minor.

Construction of the new trail is anticipated to increase Forest recreational use, limited to the new trail corridor and would not cumulatively add to adverse water resource impacts associated with soil compaction and vegetation trampling caused by dispersed recreational use of or sheep grazing on the Forest. Road decommissioning activities under this alternative would improve the condition of several areas that have been negatively impacted by heavy recreation use, resulting in a beneficial cumulative impact.

Three new stream crossings would be built, cumulatively adding to the total number of trail and road crossings. However, the new crossings would be designed in such a way that they will not create barriers to fish migration or cause stream instability, and the total stream channel length affected would be a very small percentage of the total length of streams in the watershed. Therefore, adverse cumulative impacts are anticipated to be minor.

Trail construction would affect 2,700 linear feet of AIZ cumulatively add to existing AIZ disturbance and water resource impacts associated with existing Forest Service trails and ID-33/WY-22. However, the new trail would only be 24 inches wide and will be designed with temporary and permanent storm water BMPs. Therefore, it is anticipated that adverse cumulative impacts will be minor.

Overall, there would be minor adverse cumulative impacts to water and aquatic resources in some areas, and minor beneficial cumulative impacts in other areas of the watershed. These impacts effectively "cancel out," resulting in no net cumulative impacts. Alternative B is not anticipated to result in adverse cumulative impacts in the East Trail Creek watershed because no new trail construction would occur in this drainage.

#### ***Alternative C: Recreation Enhancements***

Under this alternative, 1.28 acres of land would be permanently converted from a natural vegetated condition to hardened, low-permeability trail surface. The impacts from this change in land cover would be partially offset because road-decommissioning activities under this alternative would revegetate approximately 1.0 acre of land. In combination with the permanent disturbance of BPA access roads and ID-33/WY-22, approximately 0.46 percent of the West Trail Creek watershed would be cumulatively affected by this alternative. This estimate does not include impervious or low-permeability surfaces associated with Forest Service trails, roads, and facilities, or residential and commercial developments. However, the combined areal percentage of impervious and low-permeability surfaces within the watershed would most likely total less than 5 percent. In addition, new trails constructed under Alternative C would include permanent storm water BMPs (page 2-17) that will limit runoff concentration and promote infiltration. Therefore, the adverse cumulative impacts to water resources associated with conversion of land cover are anticipated to be minor.

Construction of the new trail under Alternative C is anticipated to slightly increase Forest recreational use, but this increase in use would be limited to the new trail corridor. Therefore, Alternative C would not cumulatively add to adverse water resource impacts associated with soil compaction and vegetation trampling caused by dispersed recreation use of or sheep grazing on the Forest. Road decommissioning activities under this alternative would improve the condition of several areas that have been negatively impacted by heavy recreation use, resulting in a beneficial cumulative impact.

Three new stream crossings would be built, cumulatively adding to the total number of trail and road crossings in the West Trail Creek watershed. However, the new crossings will be designed in such a way that they do not create barriers to fish migration or cause stream instability (page 2-17), and the total stream channel length affected would be a very small percentage of the total length of streams in the watershed. Therefore, adverse cumulative impacts are anticipated to be minor.

Trail construction would affect 4,200 linear feet of AIZ within the West Trail Creek watershed. The new trail would cumulatively add to existing AIZ disturbance and water resource impacts associated with ID-33/WY-22 and existing Forest Service roads and trails in the area. However, for the most part, the new trail would be located on a bench above the riparian zone of West Trail Creek, so effects to stream-side vegetation would be minimal. In addition, the new trail will include temporary and permanent storm water BMPs (page 2-17), so it is anticipated that adverse cumulative impacts will be minor.

Overall, there would be a minor adverse cumulative impact to water and aquatic resources in the West Trail Creek watershed.

#### **Alternative D: No Action**

Implementation of Alternative D would not involve any new trail construction and, therefore, would result in the maintenance of current trends in water and aquatic resources. Because road-decommissioning activities would not occur under this alternative, the beneficial cumulative impacts to water and aquatic resources associated with decommissioning these areas would not be realized.

#### **Off-Forest Segments**

Construction of the City of Victor, Idaho, off-Forest segment would result in the permanent conversion of 0.76 acre of land from a natural vegetated condition to an impermeable paved surface. The Teton County, Idaho, segment would not convert any land in this manner. Construction of the Teton County, Wyoming, off-Forest segment would result in the permanent conversion of 0.10 acre (South Only Option) or 1.70 acres (North Plus South Option) of land from a natural vegetated condition to a paved or low-permeability hardened surface. In combination with the existing permanent disturbance of BPA access roads and ID-33/WY-22, between 0.36 percent (combining the City of Victor, Idaho, segment and the Teton County, Wyoming, South Only Option) and 0.37 percent (combining the City of Victor, Idaho, segment and the Teton County, Wyoming, North Plus South Option) of the West and East Trail Creek watersheds would be cumulatively affected.

These estimates do not include impervious or low-permeability surfaces associated with local real estate developments or Forest Service trails, roads, and facilities. However, the combined areal percentage of impervious and low-permeability surfaces within the watersheds would most likely total less than 5 percent. In addition, the new off-Forest segments will be constructed with permanent storm water BMPs (page 2-28) that will limit runoff concentration and promote infiltration. Therefore, the adverse cumulative impacts to water resources are anticipated to be minor. Adverse cumulative impacts would be less under the Teton County, Wyoming, South Only Option than under the North Plus South Option, although cumulative impacts would be minor under either option.

It is anticipated that construction of the off-Forest segments would increase Forest recreational use, but this increase in use would be limited to the new trail corridor. Therefore, the off-Forest segments would not cumulatively add to adverse water resource impacts associated with soil compaction and vegetation trampling caused by dispersed recreation use of or sheep grazing on the Forest.

#### **Vegetation**

The cumulative effects analysis area for vegetation is limited to the West Trail Creek and East Trail Creek watersheds. The primary cumulative actions affecting vegetation resources include:

- < Dispersed recreation on surrounding Forest Service lands;

- < Teton Valley local and regional real estate developments;
- < Firewood and forest products harvesting;
- < The BPA transmission line and access road system;
- < The ID-33/WY-22 highway corridor; and
- < The Teton Front Vegetation Management Project.

Real estate development, construction of the BPA transmission line and access road system, and improvements to the ID-33/WY-22 corridor have in the past, or will in the future, remove an undetermined amount of vegetation, contribute to the spread and establishment of noxious weeds in the project area, and impact habitat for special status species. In addition, recreation use and firewood and forest products harvesting have altered the vegetation throughout the project area, resulting in mature forests with little understory and/or downed wood and areas of localized degradation from off-trail use. Again, the amount of change has not been quantified.

***Alternative A: High-Standard Trail***

Impacts related to the permanent vegetation loss have been relatively minor, given the availability of similar habitat in the surrounding area. The additional loss of between 34.1 acres (North Option) and 34.3 acres (South Option) of vegetation under Alternative A would not contribute substantially to the cumulative loss of project area vegetation.

Up to 1.2 acres of riparian vegetation would be removed under the South Option of Alternative A. Any removal of riparian vegetation is considered an important loss because of the limited amount in the project area and high value to other resources (e.g., water quality, wildlife). This action would have a moderate adverse impact on vegetation. Indirect impacts of off-trail use in the project area are currently minor. Most recreationists stay on the existing trail system. Thus, cumulative impacts of off-trail use under Alternative A would be minimal. Additional ground disturbance under Alternative A (25.2 acres under the North Option and 24.1 acres under the South Option) would contribute to existing levels of noxious weeds in the project area. This would result in a moderate adverse impact from noxious weeds when combined with other actions.

The beneficial effects to vegetation related to preventing unauthorized motorized use on Mail Cabin Trail, the old timber road, and right, middle, and left fork two-track roads would contribute to the trend of improving the overall health of vegetation within the general area.

Alternative A would not contribute substantially to the cumulative impacts to Ute ladies'-tresses and Payson's bladderpod. Known areas of occurrence would not be impacted. In addition, the amount of potential habitat that would be removed would be relatively minor (1.2 acres of Ute ladies'-tresses habitat under the South Option and 1.6 acres of Payson's bladderpod habitat under either the North or South Option). Alternative A would have no impact on rare species when combined with other actions.

***Alternative B: Varying Opportunity Trail***

Cumulative impacts of Alternative B to vegetation would be similar to, but less than, those described for Alternative A. Approximately 2.1 acres of vegetation would be removed by new trail construction under Alternative B. When combined with other actions, the loss of vegetation would be considered a minor adverse impact. Riparian vegetation would not be impacted. Alternative B would disturb a smaller area (approximately 2 acres) than Alternative A, resulting in a lower potential for noxious weed spread and establishment (i.e., a minor adverse impact). Impacts to rare plants would not occur. Beneficial cumulative effects would be the same as those described for Alternative A.

### ***Alternative C: Recreation Enhancements***

Cumulative impacts of Alternative C to vegetation would be similar to, but less than, those described for Alternative A. Approximately 5.5 acres of vegetation, including 0.3 acre of riparian vegetation, would be removed by new trail construction under Alternative C. Alternative C would disturb a smaller area (approximately 3 acres) than Alternative A, resulting in a lower potential for noxious weed spread and establishment. Impacts to rare plants would be limited to the removal of 0.3 acre of potential Ute ladies'-tresses habitat, which would not be impacted following the implementation of measures described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of Chapter 2 [page 2-17]). Beneficial cumulative effects would be the same as those described for Alternative A.

### ***Alternative D: No Action***

Under Alternative D, current impacts to vegetation would continue.

### ***Off-Forest Segments***

The off-Forest segments would add a slight loss of general vegetation and increase the potential for spread of noxious weeds. However, the use of BMPs (as described in the Features Common to All Off-Forest Segments Analyzed in Detail Section of Chapter 2 [page 2-28]) would substantially reduce the impacts. In general, trail construction would result in the removal of approximately 1.1 acres on the City of Victor, Idaho, portion of the project area, 2.9 acres on the Teton County, Wyoming, portion (North Plus South Option), and 0.3 acre on the Teton County, Wyoming, portion (South Only Option).

Other actions that have contributed to a loss of vegetation include real estate development, construction of the BPA transmission line and access road system, and improvements to the ID-33/WY-22 corridor. Combined with these actions, construction of the off-Forest segments would result in a minor adverse impact to vegetation and noxious weeds.

### **Wildlife, Including Threatened and Endangered Species**

The cumulative effects analysis area for wildlife is limited to the West Trail Creek and East Trail Creek watersheds and, for some wide-ranging species such as gray wolf and grizzly bear, extend into the Greater Yellowstone ecosystem. The primary cumulative actions affecting wildlife resources include:

- < Dispersed recreation on surrounding Forest Service lands;
- < Teton Valley local and regional real estate developments;
- < Firewood and forest products harvesting;
- < Sheep grazing permits;
- < The ID-33/WY-22 highway corridor; and
- < The Teton Front Vegetation Management Project.
- < Travel Plan

### ***Alternative A: High-Standard Trail***

To some degree, Alternative A would degrade the quality and amount of habitat within the West Trail Creek drainage and cause some habitat loss, habitat fragmentation, and species disturbance. However, even when combined with impacts of past, existing, and planned projects, the effects of Alternative A would be considered moderate and would not result in the loss in viability of any one species.

Most past and existing impacts to wildlife, fisheries, and threatened, endangered, and Forest Service sensitive species have resulted from construction of the BPA transmission line and access road system and improvements to the ID-33/WY-22 corridor. The amount of impact cannot be quantified (see Table 3-9 for wildlife impacts under Alternative A). However, these actions have removed and fragmented habitat, displaced some wildlife species from areas of high human use, and restricted movement (primarily across the highway). In general, habitat is intact in the project area. Other influences in the project area include firewood and forest products harvesting and sheep grazing, which have altered habitat throughout the project area by removing important habitat components such as downed wood and understory vegetation. Dispersed recreation and outfitter use have also contributed to the levels of disturbance throughout the project area, although to a minor degree. The implementation of the Teton Front Vegetation Management Project would benefit wildlife by adding to the overall diversity of habitat conditions in the project area. In summary, the South Option would cause more cumulative impacts than would the North Option, although neither option would cause substantial cumulative effects within the West and East Trail Creek watersheds. Overall, cumulative impacts under either option would be considered moderate.

The beneficial effects to fisheries, wildlife, and threatened, endangered, and Forest Service sensitive species related to decommissioning would contribute toward improving conditions within the general area.

#### ***Alternative B: Varying Opportunity Trail***

Cumulative impacts under Alternative B would be similar to those described for Alternative A with the exception that Alternative B would result in fewer impacts (see Table 3-9 [page 3-48] for wildlife impacts under Alternative B). Cumulative impacts from road decommissioning activities would be the same as those described under Alternative A.

#### ***Alternative C: Recreation Enhancements***

Cumulative impacts under Alternative C would be similar in amount to cumulative impacts described for Alternative B (see Table 3-9 [page 3-48] for wildlife impacts under Alternative C). Cumulative effects of Alternative C, however, would affect different habitats and species than Alternative B. Cumulative impacts from road decommissioning activities would be the same as those described under Alternative A.

#### ***Alternative D: No Action***

Under Alternative D, current impacts to wildlife would continue.

#### ***Off-Forest Segments***

The off-Forest segments would cumulatively add to the loss of wildlife habitat, although to a minor degree. Other actions that have contributed to a loss of vegetation include real estate development, construction of the BPA transmission line and access road system, and improvements to the ID-33/WY-22 corridor.

### **Cultural Resources**

#### **Recreation Resources**

The cumulative effects analysis area for recreation resources includes the entire Caribou-Targhee and Bridger-Teton Forests. Cumulative effects for road biking extend beyond the Caribou-Targhee and Bridger-Teton Forests and into the Greater Yellowstone regional area. The primary cumulative actions affecting recreation resources include dispersed recreation on surrounding Forest Service lands. In addition, other cumulative actions considered relative to recreation resources include general recreation use increases, impacts to the Forests' recreation budgets, and regional bicycle touring.

#### ***Alternative A: High-Standard Trail***

Dispersed recreation use on surrounding Forest Service lands would increase at a slightly faster rate than the current trend. Removal of winter motorized recreation use in the trail corridor would beneficially impact non-motorized

winter recreation users.

There would be a general increase in the area's overall recreation visitation to the Caribou-Targhee and Bridger-Teton Forests. The moderate increase in visitation from construction of a high-standard trail would add to the Caribou-Targhee and Bridger-Teton Forests' already overextended trail and facility maintenance obligations and budgets. This increase could have both beneficial and adverse effects. It would provide a recreational trail that currently does not exist, there is the possibility that this trail would become an integral trail segment in a Greater Yellowstone regional bicycling tour loop. This would beneficially impact people's bicycle touring in the region. A reduction of overall unauthorized motorized use on roads and trails on the Targhee Forest and the likelihood of displacing motorized users to other areas on the Caribou-Targhee Forest would result in beneficial impacts. This could slightly increase off-road motorized use in other areas near the project area.

#### ***Alternative B: Varying Opportunity Trail***

Dispersed recreation use on surrounding Forest Service lands, would not increase at a faster rate than the current trend. Removal of winter motorized recreation use in the trail corridor, would benefit non-motorized winter recreation users. Construction of new trails under Alternative B, would benefit current and future recreationists.

Under Alternative B there would be a slight increase in the area's overall Forest recreation visitation. This slight increase in visitation from construction of a varying opportunity trail would add to the Caribou-Targhee and Bridger-Teton Forests' already overextended trail and facility maintenance obligations and budgets.

#### ***Alternative C: Recreation Enhancements***

Dispersed recreation use on surrounding Forest Service lands, would increase at a slightly faster rate than the current trend because of the additional dispersed recreation trails constructed and connected to existing trails under Alternative C. Removal of winter motorized recreation use in the trail corridor, would benefit non-motorized winter recreation users. Implementation of this alternative would slightly add to the Caribou-Targhee and Bridger-Teton Forests' already overextended trail and facility maintenance obligations and budgets.

#### ***Alternative D: No Action***

Dispersed recreation use on surrounding Forest Service lands would not increase faster than the current trend under Alternative D.

Other cumulative impacts resulting from Alternative D would include the likelihood that general recreation use in the corridor would continue to increase without the addition of any new trails or facilities. This could lead to the general degradation of trails needing repair as well as increased parking problems at trailheads along the corridor.

Cumulative impacts resulting from not decommissioning the old timber road, its associated two-track roads, and the Mail Cabin Trail would include allowing unauthorized motorized travel to continue on the Caribou-Targhee Forest.

#### ***Off-Forest Segments***

Dispersed recreation use on surrounding Forest Service lands would not increase faster than the current trend because recreationists coming from the off-Forest segments would likely stay in the trail corridor on the first 2 miles of trail.

The City of Victor, Idaho, segment would result in minor beneficial cumulative impacts since existing recreation use on existing roadways would be separated from those roadways. Under the Teton County, Idaho, segment, cumulative impacts would result in a maintenance of current trends since the proposed improvements would continue on-road shared use of the Old Jackson Highway. Cumulative impacts under the North Plus South Option of the Teton County, Wyoming, segment would be considered moderately beneficial since the segment would be paved and would provide a link between existing Forest Service trails and existing or planned Wilson, Wyoming, pathways. The South Only Option of the Teton County, Wyoming, segment, would result in minor beneficial cumulative impacts since it would connect Wilson, Wyoming, pathways to the Forest but would not provide a paved

pathway.

### **Wilderness, Wilderness Study, and Roadless Areas**

The cumulative effects analysis area for Wilderness resources includes the Targhee and Bridger-Teton Forests. The primary cumulative actions affecting recreation resources include dispersed recreation on surrounding Forest Service lands, and the BPA transmission line and access road system. In addition, road decommissioning contributes to cumulative effects, as discussed below.

#### ***Alternative A: High-Standard Trail***

Dispersed recreation use on surrounding Forest Service lands, would slightly increase, thus increasing Wilderness use. The BPA transmission line and access road system, which currently provide unconnected recreation trails for mountain bikers and hikers, would not change as a result of Alternative A, maintaining the current recreation trend and access to Wilderness. Decommissioning the Mail Cabin Trail to unauthorized motorized use would result in an overall reduction of motorized trespass into the Palisades Wilderness Study Area, which is a beneficial impact.

#### ***Alternative B: Varying Opportunity Trail***

Dispersed recreation use on surrounding Forest Service lands, would slightly increase, increasing Wilderness use. The BPA transmission line and access road system, would be connected with recreation trails as part of Alternative B, facilitating a slight increase in mountain bike trespass into Wilderness. Decommissioning the Mail Cabin Trail to unauthorized motorized use would result in an overall reduction of motorized trespass into the Palisades Wilderness Study Area, which is a beneficial impact.

#### ***Alternative C: Recreation Enhancements***

Dispersed recreation use on surrounding Forest Service lands, would slightly increase, leading to a slight increase in visitation to Wilderness. The BPA transmission line and access road system, would not change as a result of Alternative C, thus maintaining the current recreation trend and access to Wilderness. Decommissioning the Mail Cabin Trail to unauthorized motorized use would result in an overall reduction of motorized trespass into the Palisades Wilderness Study Area, which is a beneficial impact.

#### ***Alternative D: No Action***

Dispersed recreation use on surrounding Forest Service lands would not change as a result of Alternative D. The BPA transmission line and access road system, would not change as a result of Alternative D, thus maintaining the current recreation trend and access to Wilderness. Not decommissioning the Mail Cabin Trail to unauthorized motorized use would result in continued motorized trespass into the Palisades Wilderness Study Areas, which would result in a moderate adverse impact.

#### ***Off-Forest Segments***

Dispersed recreation use on surrounding Forest Service lands would increase at the same rate as the current trend because recreationists coming from the off-Forest segments would likely stay in the trail corridor on the first 2 miles of trail. The BPA transmission line and access road system would not change as a result of the off-Forest segments, thus maintaining the current recreation trend and access to the Wilderness.

### **Transportation System**

The cumulative effects analysis area for traffic is limited to ID-33/WY-22 between Driggs, Idaho, and Jackson Hole, Wyoming. The primary cumulative actions potentially affecting the transportation system include the Teton Valley local and regional real estate developments.

#### ***Alternatives A, B, C, and D***

Traffic volumes have been steadily increasing with employee trips between Jackson Hole, Wyoming, and Driggs,

Idaho. Adding to these increasing traffic volumes are housing, roads, and other forms of development spurred by increasing growth rates in Teton County, Idaho, and Teton County, Wyoming. In addition, vacationing and recreational trips through this corridor continue to increase. Alternative D would result in a maintenance of these current trends. Alternative A might cumulatively add to the increasing traffic volumes. However, any increase from recreational trail use in the Teton Pass corridor is anticipated to result in minor increases in ADT volumes. Any increase in traffic volumes is not anticipated to substantially affect roadway capacity or traffic mobility. Alternatives B and C would not cumulatively add to the increasing traffic volumes.

### ***Off-Forest Segments***

The off-Forest segments might cumulatively add to the increasing traffic volumes on ID-33/WY-22. However, any increase from recreational trail use in the Teton Pass corridor is anticipated to be less than 5 percent of current or future ADT volumes.

### **Summary of Cumulative Effects**

In general, the Forest alternatives (including the No Action Alternative) and off-Forest segments under consideration would not have any substantial adverse cumulative effects on any of the identified resources subject to potential cumulative effects, as summarized in Table 3-16 below.

**Table 3-16a. Summary of Cumulative Effects<sup>a</sup>, Forest Alternatives.**

CUMULATIVE ACTION	ALTERNATIVE A (USING NORTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE A (USING SOUTH OPTIONS IN SEGMENTS 1 & 2)	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Geology and Soils <sup>b</sup>	Minor Adverse Impact	Minor Adverse Impact	Minor Adverse Impact	Minor Adverse Impact	Maintains Current Trend
Water and Aquatic Resources	Moderate Adverse Impact	Moderate Adverse Impact	No Net Impacts <sup>c</sup>	Minor Adverse Impact	Maintains Current Trend
Vegetation	Moderate Adverse Impact	Moderate Adverse Impact	Minor Adverse Impact	Minor Adverse Impact	Maintains Current Trend
Wildlife	Moderate Adverse Impact	Moderate Adverse Impact	Minor Adverse Impact	Minor Adverse Impact	Maintains Current Trend
Cultural Resources	Minor Beneficial Impact	Minor Beneficial Impact	Minor Beneficial Impact	Minor Beneficial Impact	Maintains Current Trend
Visual Resources	Minor Adverse Impact	Minor Adverse Impact	Maintains Current Trend	Maintains Current Trend	No Impact
Recreation	Moderate Beneficial Impact	Moderate Beneficial Impact	Minor Beneficial Impact	Minor Beneficial Impact	Maintains Current Trend
Wilderness, Wilderness Study, and Roadless Areas	Moderate Adverse Impact	Moderate Adverse Impact	Moderate Adverse Impact	Minor Adverse Impact	Maintains Current Trend
Transportation System	Minor Adverse Impact	Minor Adverse Impact	Maintains Current Trend	Maintains Current Trend	Maintains Current Trend

Footnotes are provided following Table 3-16b.

**Table 3-16b. Summary of Cumulative Effects<sup>a</sup>, Off-Forest Segments.**

CUMULATIVE ACTION	VICTOR CITY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, IDAHO, OFF-FOREST SEGMENT	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (NORTH PLUS SOUTH OPTION)	TETON COUNTY, WYOMING, OFF-FOREST SEGMENT (SOUTH ONLY OPTION)
Geology and Soils <sup>b</sup>	Minor Adverse Impact / Maintains Current Trend	Minor Adverse Impact / Maintains Current Trend	Minor Adverse Impact / Maintains Current Trend	Minor Adverse Impact / Maintains Current Trend
Water and Aquatic Resources	Minor Adverse Impact	Minor Adverse Impact	Minor Adverse Impact	Minor Adverse Impact
Vegetation	Minor Adverse Impact	Minor Adverse Impact	Minor Adverse Impact	Minor Adverse Impact
Wildlife	Minor Adverse Impact	Minor Adverse Impact	Minor Adverse Impact	Minor Adverse Impact
Cultural Resources	Minor Beneficial Impact	Minor Beneficial Impact	Minor Beneficial Impact	Minor Beneficial Impact
Visual Resources	Maintains Current Trend	Maintains Current Trend	Maintains Current Trend	Maintains Current Trend
Recreation	Minor Beneficial Impact	Maintains Current Trend	Moderate Beneficial Impact	Minor Beneficial Impact
Wilderness, Wilderness Study, and Roadless Areas	No Impact	No Impact	No Impact	No Impact
Transportation System	Beneficial Impact	Beneficial Impact	Beneficial Impact	No Impact

<sup>a</sup> "Maintains current trend" indicates the action will contribute to existing resource trends along with other actions.

"Beneficial impact" indicates that a resource will benefit from the proposed project in conjunction with other past, present, and foreseeable future actions.

"Adverse impact" indicates that a resource will be adversely affected by the proposed project in conjunction with other past, present, and foreseeable future actions.

"No impact" indicates that nothing will change because of the proposed project in conjunction with other past, present, and foreseeable future actions.

<sup>b</sup> Impacts to soils and geology are classified on both a watershed scale and an activity area scale and are defined as follows:

Watershed Scale Impacts –

- < No impact: None of the watershed area would have detrimentally disturbed soils during or following construction.
- < Minor impact: Less than 1 percent of the total watershed area would have detrimentally disturbed soils during or following construction.
- < Moderate impact: Between 1 and 5 percent of the total watershed area would have detrimentally disturbed soils during or following construction..
- < Substantial impact: More than 5 percent of the total watershed area would have detrimentally disturbed soils during or following construction.

Activity Area Scale Impacts –

- < Negligible impact: Less than 15 percent of the activity area would have detrimentally disturbed soils.
- < Substantial impact: More than 15 percent of the activity area would have detrimentally disturbed soils.

<sup>c</sup> Alternative B would result in both minor adverse and minor beneficial cumulative impacts to soils, geologic resources, and water/aquatic resources, that effectively "cancel out" to no net impacts.

# FOREST ADMINISTRATION AND INFRASTRUCTURE

## Effects on Administration and Monitoring

Alternatives A, B, C, and D would comply with overall guidelines included in the Caribou-Targhee Forest RFP and the Bridger-Teton Forest RMP, with the exception of the proposed amendment to the Targhee Forest RFP that is discussed below.

A non-significant amendment to the Targhee Forest RFP is proposed to change the access for the Teton Pass corridor that is currently under prescription 2.1.2, Visual Quality Maintenance, to non-motorized only (page III-83 of the Targhee Forest RFP) (Forest Service 1997a). The standard for access in prescription 2.1.2 currently allows cross-country motorized use during snow seasons. Establishing the 2.1.2 prescription area along the Teton Pass corridor for non-motorized winter recreation would not be consistent with the standard for the prescription area, but it would be consistent with the Targhee Forest-wide objective to establish travel plan designations for non-motorized winter recreation activity areas, which is described on page III-25 of the Targhee Forest RFP (Forest Service 1997a). A decision to change the access to non-motorized during winter would result in an amendment to the Targhee Forest RFP.

Amending the Targhee Forest RFP would better meet overall recreational needs and reduce impacts to natural resources, as discussed for each resource in the Forest Resources Section of this chapter (page 3-1). Because snowmobile use in the area is currently minimal, and snowmobiling opportunities throughout the local region are plentiful, the proposed amendment to the Targhee Forest RFP would not have a substantial impact upon motorized recreation resources. However, enforcement of this amendment would still be required. Enforcement of non-motorized winter use of the Teton Pass corridor would be facilitated by easy access to the corridor from the highway. The Forest Service and law enforcement in Teton County, Idaho, and Teton County, Wyoming, also maintain a cooperative agreement. In addition, The Forest has hired a law enforcement officer solely for Targhee Forest enforcement.

## IRRETRIEVABLE AND IRREVERSIBLE COMMITMENT OF RESOURCES

Irretrievable impacts are those involving the use of natural or human resources that could not be regenerated or recovered once an alternative was implemented. Irretrievable impacts include losses of production, harvest, or use of renewable natural resources. For example, some or all of the timber production from an area is irretrievably lost during the time the area is used as a recreation site. If the use is changed, timber production can be resumed. The production loss is irretrievable but the loss is not irreversible. Irreversible impacts would occur where the implementation of an alternative would result in long-term or permanent changes to the forest ecosystem. Irreversible impacts include non-renewable resources, such as heritage resources, or to those factors that are renewable only over long periods, such as soil productivity. Irreversible commitments also include the loss of future options.

## **Alternatives A, B, and C: Action Alternatives**

### **Irretrievable Commitments**

There would be some irretrievable losses to soil hydrologic function and site productivity in areas of trails and trail reconstruction. This would include: 25.24 acres under the North Option of Alternative A; 24.11 acres under the South Option of Alternative A; 2.08 acres under Alternative B; 3.05 acres under Alternative C; 1.10 acres under the City of Victor, Idaho, Off-Forest Segment; 2.86 acres under the North Plus South Option of the Teton County, Wyoming, Off-Forest Segment; and 0.30 acre under the South Only Option of the Teton County, Wyoming, Off-Forest Segment (Table 3-1, page 3-5). Irretrievable effects to vegetation include 34.1 acres under the North Option of Alternative A, 34.3 acres under the South Option of Alternative A; 2.1 acres under Alternative B; 5.5 acres under Alternative C, 1.1 acres under the City of Victor, Idaho, Off-Forest Segment, 2.9 acres under the North Plus South Option of the Teton County, Wyoming, Off-Forest Segment, and 0.30 acre under the South Only Option of the Teton County, Wyoming, Off-Forest Segment (Table 3-7, page 3-41). Wildlife habitat would also be irretrievably lost. Table 3-9

There would also be an irretrievable loss of winter motorized recreation opportunities on roads and trails because of the proposed amendment to the Caribou-Targhee Forest RFP, which would change the Teton Pass corridor area to non-motorized during the winter.

### **Irreversible Commitments**

Potential for additional conflicts between recreation use and other land use activities would increase where proposed management would restrict motorized travel during the winter months. Also, temporary disturbance of wildlife and their habitat in localized areas may result from increased human activity or changed vegetation conditions.

There would be some irreversible soil losses where new trails would be constructed. This would include: 9.13 acres under the North Option of Alternative A; 8.62 acres under the South Option of Alternative A; 0.69 acre under Alternative B; 1.28 acres under Alternative C; 0.76 acre under the City of Victor, Idaho, Off-Forest Segment; 1.70 acres under the North Plus South Option of the Teton County, Wyoming, Off-Forest Segment; and 0.10 acre under the South Only Option of the Teton County, Wyoming, Off-Forest Segment (Table 3-1, page 3-5). Irreversible commitments could include minimal soil losses caused by erosion and sedimentation from new trails. Increased soil compaction could also occur on new trails.

Decommissioning some two-track Forest roads in the project area would eliminate any existing erosion and sediment transport from these roads to streams, thereby counteracting and eliminating the irreversible loss of soils that could occur as a result of new trail construction.

### **Alternative D: No Action**

No irreversible or irretrievable commitments of resources would occur under Alternative D.

## **SPECIFICALLY REQUIRED DISCLOSURES**

### **Effect of Alternatives on Social Groups**

There would be no overall differences between alternatives in terms of effects on minorities, Native Americans, women, or the civil liberties of any American citizen. Those persons who require universal access because of

disability would find their access to Forest Service affected directly and proportionally by the amount of universal accessible trails provided under each alternative. Alternative A would provide approximately 5.79 miles (North Option) or 5.43 miles (South Option); Alternative C would provide approximately 1.95 miles; the City of Victor, Idaho, off-Forest segment would provide about 1.33 miles; and the North Plus South Option of the Teton County, Wyoming, Off-Forest Segment would provide about 1.10 miles of new accessible trails. The Teton County, Idaho, off-Forest Segment, the South Only Option of the Teton County, Wyoming, Off-Forest Segment, and Forest Alternatives B and D would not provide any universally accessible trails. No other civil rights effects associated with age, race, creed, color, national origin or sex were identified. In conclusion, no disproportionate adverse effects to minority populations or low-income populations are expected to occur as result of implementing of any alternative.

Input from the Native American Indian tribe in the project area was solicited during the scoping process described in the Scoping and Issues Section of Chapter 1 (page 1-5). In addition, the Forest Service also meets with this tribe annually to discuss various projects.

### **Effect on Floodplains and Wetlands**

Emergent wetlands can be found along East and West Trail Creek and tributaries. Mitigation measures specified in Chapter 2 indicate that wetland delineations will be conducted for some segments of some action alternatives. The Authorizing Actions and Required Permits Section of Chapter 1 (page 1-23) identifies the requirement to adhere to Section 404 of the Clean Water Act for dredge and fill activities in wetlands. For Alternatives A, B, and C, effects to riparian/floodplain areas have been estimated in the Water and Aquatic Resources and Vegetation Sections of this chapter (pages 3-16 and 3-32, respectively). The riparian ecosystems contiguous to the streams located in the project area are protected through the Caribou-Targhee Forest RFP and Bridger-Teton Forest RMP standards and guidelines. There would be no effect to floodplains or wetlands under Alternative D or under the off-Forest segments.

### **Energy Requirements and Conservation Potential of Alternatives**

If implemented, Alternatives A, B, and C and the off-Forest segments would require the increased use of energy for the construction and transportation of materials. Of the three Forest action alternatives, Alternative A would require the most energy to construct and pave a 10-foot-wide pathway, as well as the energy required to construct a separated native-surface trail (where feasible) across the Teton Pass corridor from the Caribou-Targhee Forest boundary on the west to the Bridger-Teton Forest boundary on the east. Alternative A could, however, encourage non-motorized commuter traffic across the Teton Pass corridor and non-motorized trips to access the Forest, which would in turn reduce energy that would have been required by vehicular traffic. The energy expenditures associated with construction of any off-Forest paved segments would be similar in nature to those required for Alternative A. These paved off-Forest segments would further encourage non-motorized commuter traffic across the Teton Pass corridor. Alternatives B and C would require less energy than Alternative A, although some vehicular energy would be required to access construction areas. Alternative D would not require any increased energy expenditure. Overall, the energy required to implement the alternatives in terms of petroleum products would be insubstantial when viewed in light of production costs and the effect of the national and worldwide petroleum reserves.

### **Effects of Alternatives on Prime Range, Forest, and Farmland**

All alternatives associated with this proposal are in accordance with Secretary of Agriculture Memorandum 1827 for prime farmland, range land, and forest land.

Chapter  
**4**

# CONSULTATION AND COORDINATION

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## CHAPTER 4 CONSULTATION AND COORDINATION

### AGENCY COORDINATION

Numerous entities provided consultation, coordination, and information during the preparation of this document. Representatives from local governments, State and Federal agencies, and private citizens provided input throughout the process. Some participated in the public workshops held in Victor, Idaho, and Wilson, Wyoming, as well.

The following agencies, elected officials, organizations, and interest groups were notified of the Teton Pass Trail Project EA during the scoping process, which was initiated in January 1999. Approximately 20 additional scoping letters were mailed to private citizens. Contacts with some jurisdictional agencies were established to ensure compliance with applicable laws and regulations. Agencies that submitted comment letters in response to the scoping notice are noted with an asterisk(\*).

#### **Federal Agencies**

Bureau of Land Management  
Grand Teton National Park  
U.S. Fish and Wildlife Service, Cheyenne, Wyoming  
U.S. Fish and Wildlife Service, Pocatello, Idaho  
Forest Supervisor, U.S. Forest Service, Bridger-Teton National Forest

#### **Native American Tribes**

Shoshone-Bannock Tribes, Fort Hall, Idaho

#### **State of Idaho Agencies**

Idaho Fish and Game Department \*  
Idaho Transportation Department, District 6

#### **State of Wyoming Agencies**

Office of Federal Land Policy, Wyoming State Clearinghouse Coordinator \*  
Wyoming Department of Transportation, District 3  
Wyoming Department of Transportation Headquarters, Cheyenne, Wyoming \*  
Wyoming Game and Fish Department Headquarters, Cheyenne, Wyoming \*  
Wyoming Game and Fish, Jackson, Wyoming  
Wyoming Game and Fish Department, Pinedale Regional Office  
Wyoming State Geologic Survey \*  
Wyoming Division of Cultural Resources, State Historic Preservation Office \*

### **Local Agencies**

Teton County, Idaho Commissioners  
Teton County, Idaho Economic Development Council  
Teton County, Wyoming Commissioners  
Teton County, Wyoming Historical Society  
Teton County, Wyoming National Resource District

### **Elected Officials**

Governor Jim Geringer (Wyoming)  
Mayor of Driggs, Idaho  
Mayor of Victor, Idaho  
Senator Craig Thomas, Rock Springs, Wyoming  
U.S. Representative Barbara Cubin, Rock Springs, Wyoming  
U.S. Representative Katie Lergerski, Rock Springs, Wyoming  
U.S. Senator Michael Enzi, Jackson, Wyoming  
Wyoming State Representative Clarence Law, Jackson, Wyoming

### **Organizations and Interest Groups**

Adventure Cycling Association \*  
Alliance for the Wild Rockies  
American Avalanche Institute  
Blue Ribbon Coalition  
Citizens for Teton Valley  
Friends of Pathways \*  
Fund for Animals  
Great American Ski School  
Greater Yellowstone Coalition \*  
Hole Hiking Experience  
Idaho Environmental Council \*  
Idaho Falls Alpine Club  
Jackson Hole Community Pathways  
Jackson Hole Conservation Alliance \*  
Jackson Hole Guide  
Jackson Hole Mountain Guides  
Jackson Hole News  
Jackson Hole Nordic Ski Club  
Jackson Hole Ski Club  
Jackson Peak Outfitting  
Jorgensen Engineering  
KJWY Channel 2 News Director, Jackson, Wyoming  
KMTN Radio, Jackson, Wyoming  
KSGT Radio News Director, Jackson, Wyoming  
KZ95 News Director, Jackson, Wyoming

National Elk Refuge  
National Outdoor Leadership School \*  
Native Ecosystems Council  
Northern Rockies Conservation Coop.  
People for the West, Upper Snake River Chapter  
Rexburg Standard Journal  
Rocking H Ranch  
Sierra Club, Wyoming Chapter  
Snow King Resort  
Teton Telecom Communications \*  
Teton Valley Independent  
Teton Valley News  
Teton Valley Trails and Pathways \*  
Trail Creek Ranch, Inc. \*  
United Cyclists  
Wilson Backcountry Sports  
Wyoming Native Plant Society  
Wyoming Outdoor Council \*  
Wyoming Public Radio  
Wyoming Wildlife Federation

## **LIST OF PREPARERS / INTERDISCIPLINARY TEAM**

The EA for the project was prepared by a third-party contractor working in cooperation with the Forest Service. Table 4-1 provides a list of personnel involved in the preparation of the EA, all of whom are employees of BIO-WEST, Inc.

**Table 4-1. Environmental Assessment Interdisciplinary Team.**

NAME	RESPONSIBILITY	QUALIFICATIONS
S. Blaise Chanson	Analysis and Permitting Division Manager, Project Coordinator	B.S. Wildlife Management 21 years experience
Angie Nelson	Environmental Analyst	B.A. Biology, English Minor 5 years experience
Chris Sands	Visual Resource Specialist	M.L.A. Landscape Architecture and Environmental Planning B.L.A. Landscape Architecture 16 years experience
Jill Schroeder	Recreation Specialist	M.L.A. Landscape Architecture and Environmental Planning B.S. Environmental Studies, Forest Management and Recreation Resource Management Emphasis 7 years experience
Melissa Stamp	Hydrologist	M.S. Watershed Science, Fluvial Geomorphology Emphasis B.A. Geography 5 years experience
Wes Thompson	Hydrogeologist	Registered Professional Geologist B.S. Composite Sciences, Geology Emphasis A.S. Geology 12 years experience
Becky Yeager	Wildlife Biologist and Vegetation Specialist	M.S. Biology B.S. Biology, Zoology Option, Chemistry Minor 11 years experience



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# ABBREVIATIONS

## ABBREVIATIONS

ADT	average (24-hour) daily traffic
AIZ	aquatic influence zone
ATV	all-terrain vehicle
BA	Biological Assessment
BMPs	Best Management Practices
BPA	Bonneville Power Administration
Bridger-Teton Forest	Bridger-Teton National Forest, Jackson Ranger District
Bridger-Teton Forest RMP	Bridger-Teton Land and Resource Management Plan
Caribou-Targhee Forest	Caribou-Targhee National Forest, Teton Basin Ranger District
Caribou-Targhee Forest RFP	Caribou-Targhee Forest Revised Forest Plan
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
DEQ	Department of Environmental Quality
DFCs	desired future conditions
EA	Environmental Assessment
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
Forest	National Forest (e.g., Caribou-Targhee or Bridger-Teton)
Forest Service	U.S. Department of Agriculture, Forest Service
Jackson District Ranger	District Ranger for the Jackson Ranger District
ID-33	Idaho State Route 33
IDT	Interdisciplinary Team
ITD	Idaho Transportation Department
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NTU	nephelometric turbidity units
project	Teton Pass Trail Project
project area	Teton Pass Trail Project Area
ROS	Recreation Opportunity Spectrum
ROW	right-of-way
SHPO	State Historic Preservation Office
SWPPP	Storm Water Pollution Prevention Plan
Teton Basin District Ranger	District Ranger for the Teton Basin Ranger District
USDA	U.S. Department of Agriculture
USDI	U.S. Department of the Interior
USFWS	U.S. Fish and Wildlife Service
VQO	Visual Quality Objective
WY-22	Wyoming State Highway Route 22
WY-390	Wyoming State Highway Route 390
WYDOT	Wyoming Department of Transportation



# BIOLOGICAL ASSESSMENT

# APPENDIX B

## BIOLOGICAL ASSESSMENT

### INTRODUCTION

Threatened and endangered species are provided protection under the ESA of 1973 (PL 93-205, as amended) from federally authorized or funded actions that may jeopardize species' continued existence. The USFWS is responsible for enforcing the provisions of the ESA. Using streamlined consultation procedures (Forest Service 1997a), the USFWS provided the Forest Service with a list of threatened, endangered, and candidate species known or suspected to occur on the National Forest, including the Teton Pass Trail Project Area. This Biological Assessment (BA) has been prepared in accordance with Section 7c of the ESA to disclose the effects of Alternative A on threatened, endangered, proposed, and candidate species. Alternative A is evaluated because, of all the alternatives analyzed in detail, Alternative A would have the most overall impacts and is considered the worst-case scenario.

This BA discusses the threatened, endangered, proposed, and candidate species found in the project area (Forest Service 1990, 1997c). Threatened, endangered, proposed, and candidate species identified as potentially occurring in the project area are summarized in Table B-1 and are based on survey results and/or presence of suitable habitat conditions. These species are discussed in more detail below.

### EXISTING CONDITIONS

#### Plants

##### Ute Ladies'-tresses

Ute ladies'-tresses orchids (*Spiranthes diluvialis*) were known to occur in wetland and riparian areas in three distinct geographic areas in Utah, Nevada, Wyoming, and Colorado (Stone 1993). In 1996, it was also discovered in Idaho (USFWS 1998). Plants in these areas have most often been found in old stream channels and on recently deposited material in the floodplain of adjacent rivers between 4,200 and 7,000 feet in elevation (UNHP 1994, BPA and Forest Service 1998). Groundwater and surface water contribute to the wetland character of these sites. The species appears to have an affinity for dynamic river systems and other areas that have recently been affected by ground-disturbing activities. Other important environmental parameters are sufficient exposure to sunlight, adequate dispersal of seed, and presence of suitable species of micorhizal fungus (Gecy 1994, Hettinger 1994).

**Table B-1. Threatened, Endangered, and Candidate Species That Potentially Occur in the Project Area.**

COMMON NAME (SCIENTIFIC NAME)	STATUS
<b>Plants</b>	
Ute Ladies'-tresses ( <i>Spiranthes diluvialis</i> )	T
<b>Wildlife</b>	
Whooping Crane ( <i>Grus americanus</i> )	E
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	T
Grizzly Bear ( <i>Ursus arctos</i> )	T
Canada Lynx ( <i>Lynx canadensis</i> )	T
Mountain Plover ( <i>Charadrius montanus</i> )	C
Western Boreal Toad ( <i>Bufo boreas</i> )	C
Gray Wolf ( <i>Canis lupus</i> )	E/N

- E = Listed by the USFWS as an endangered species.
- T = Listed by the USFWS as a threatened species.
- C = Listed by the USFWS as a candidate species.
- E/N = Listed by the USFWS as an experimental nonessential species.

The Ute ladies'-tresses species occurs on the Caribou-Targhee Forest along the South Fork of the Snake River (USFWS 1998). The species is not known to occur in the project area nor was it found during recent surveys of portions of the project area as part of the BPA transmission line project (BPA and Forest Service 1998). However, suitable habitat is present along the edges of riparian zones, stream banks, springs, and wetlands at elevations below 7,000 feet.

## Wildlife

### Gray Wolf

Gray wolves (*Canis lupus*), described as somewhat opportunistic, show little preference for special habitat. They can be found from the arctic tundra to the plains, as well as in coniferous and eastern deciduous forests (Banfield 1974).

Ungulates constitute the most important prey and include deer, elk, moose, and occasionally smaller mammals and birds. Habitat requirements include secluded denning and rendezvous sites, and sufficient space with minimal exposure to humans. Increased human encounters cause increased mortality of wolves (USFWS 1987). Wolves prefer to locate their dens on steep, south-facing slopes in well-drained soils near a reliable water source and with a good view of the surrounding area (USFWS 1987). Numerous den sites, typically within a 5-square-mile area, may be used each year. After pups leave the den in early summer, a nearby rendezvous site is used for resting and gathering. Rendezvous sites are characterized by grassy, open areas or meadows close to water and timber (Joslin 1967).

Wolves are gregarious animals, occurring in packs that range in size from 2 to more than 25 individuals. Packs usually consist of a breeding male and female, called the alpha pair, and their offspring from one or more generations (Mech 1970). Territory size ranges from 40 to greater than 1,000 square miles, depending on pack size and prey density (Forest Service 1989).

Gray wolves that occur within the general project area are classified as nonessential experimental wolves according to the USFWS. These individuals are considered to be part of the Yellowstone National Park reintroduction program and, therefore, are treated as if they are proposed for listing. Only one gray wolf has been reported to be roaming in or near the project area during the recent past (Alford 1996). Gray wolves were not detected during surveys for sensitive species and furbearers as part of the BPA transmission line project in 1998. In addition, there are no known active den sites in the general project area.

### **Whooping Crane**

In an attempt to preserve the endangered whooping crane (*Grus americanus*), a flock of the species (known as the Rocky Mountain population) was introduced to Gray's Lake National Wildlife Refuge in southeastern Idaho in 1975. During migration, whooping cranes feed at recently harvested grain fields and within wetland habitats (Reel et al. 1989, Spahr et al. 1991). Up to three individuals from this population still summer in the Teton Basin area. However, presence of whooping cranes within the project area is unlikely because of the absence of lower-elevation wet meadows of suitable foraging size.

### **Bald Eagle**

Bald eagles (*Haliaeetus leucocephalus*) nest in large, prominent trees in multi-storied forest stands, usually in large ponderosa pine, Douglas-fir, and cottonwood trees (DeGraff et al. 1991). The forest stands surrounding the nest (within 0.25 mile of a water body) often exhibit old growth qualities (Paige et al. 1990). A nesting pair may return to the same nest site for many years.

Fish and waterfowl are their primary prey, with rabbits and carrion consumed to a lesser extent (Paige et al. 1990). Foraging habitat consists of large, unobstructed open areas such as large openings in river corridors or lakes (Paige et al. 1990). Particularly in winter, open water is a critical habitat component because it allows access to fish and attracts waterfowl (Forest Service 1989, Paige et al. 1990). Winter habitat can also concentrate around big game winter ranges and consistent sources of carrion associated with road kills.

Winter perch and roost sites, as well as access to prey, are important habitat characteristics for bald eagles (Paige et al. 1990). Perching sites are located on large trees with open branches allowing easy access. Eagles have daily and yearly fidelity to the same tree for communal roosting. Bald eagles are intolerant of human disturbance, such as that caused by logging activities and road use, especially during the breeding season (USFWS 1986). Consequently, perches and nest sites are normally located away from human disturbances or are moved if disturbance materializes.

Nesting and wintering bald eagles occur in the Jackson Hole and Swan Valley areas near the project area. Nests have not been documented along West Trail Creek or its tributaries. Habitat for nesting and roosting is limited along these streams because of the lack of large cottonwoods. However, bald eagles may move through the project area in search of fish prey or carrion, especially during the winter (October through March).

### **Grizzly Bear**

Grizzly bears (*Ursus arctos*) require a variety of habitat types to provide a rich supply of forage, prey, and secure areas for feeding, breeding, bedding, and denning (Almack 1986). Foraging habitat includes open-canopy forests, avalanche chutes, shrubfields (such as berry and huckleberry), and low-elevation meadows.

Denning begins after the first heavy snowfall, continuing uninterrupted for four to five months (October 15 to April 15). Denning habitat is characterized by upper elevation, steep, open rocky slopes with high snow accumulation generally above 5,000 feet in elevation (Forest Service 1989, Wakkinen 1992). Dens are often located on the sides of avalanche chutes, in rock caves, fallen trees, and holes specifically excavated by the bears for hibernation.

Grizzly bear home ranges may be large (7 to 1,245 square miles) and vary by season. Their seasonal and daily movements, based on food availability, follow an elevation gradient. Following denning in the spring, grizzly bears move to habitat associated with low-elevation riparian and grass-covered sidehill parks. Spring use is between April 1 and June 15 (Servheen 1985).

The project area is within the historical range of the grizzly bear but outside of the Yellowstone Grizzly Bear Ecosystem identified by the USFWS. Thus, the Forest Service does not manage habitat within the project area for this species. However, grizzly bears may occasionally occur within the general vicinity.

### **Canada Lynx**

Canada lynx (*Lynx canadensis*) use young stands of trees for hunting and mature stands for denning. A mixture of forest openings, or rather a mosaic of habitats with mature stands of cover or corridors, is considered best for supporting the species (Koehler and Brittell 1990).

Canada lynx hunt alone, though they are occasionally seen in groups, traveling in wide circles over irregular routes. Although they can also feed on ducks, ptarmigans, mice, sparrows, flickers, meadow voles, and moose (Palmer 1954), Canada lynx preference for snowshoe hare is so strong that they will often go hungry and their young will starve, rather than switch to another food source (Turbak 1991). Canada lynx habitat nearly always corresponds with snowshoe hare habitat (Palmer 1954).

An abundance of downed wood and stumps may be one of the most-important qualities for denning sites for Canada lynx, since the wood provides cover for kittens. Ideally, den sites are located near a prey source and consist of 1 to 5 acres. The site should contain dispersed pockets of mature

stands connected by a travel corridor (Koehler and Brittell 1990). Limited human disturbance is also of primary importance.

A Conservation Strategy was recently developed to promote the conservation of the Canada lynx and its habitat on Federal lands managed by the Forest Service (Forest Service and USFWS 1999). Cooperating agencies include the Forest Service, USFWS, Bureau of Land Management, and National Park Service. The agreement was based on an abundance of information related to Canada lynx that was gathered and documented in several reports, including the *Canada Lynx Conservation Assessment and Strategy* (Ruediger et al. 1999) and the *Scientific Basis for Lynx Conservation in the Contiguous United States* (Ruggiero et al. 1999). These reports have defined "risk factors," or programs, practices, and activities that may influence lynx or lynx habitat, including those related to recreation.

The closest confirmed occurrence of Canada lynx to the project area consists of an observation of an individual and tracks approximately 7 miles west of Victor, Idaho, in January 1999 (Forest Service 2000). However, Canada lynx have not been documented in the project area. In addition, surveys that were conducted for furbearers in portions of the project area in the spring of 1998 as part of the BPA transmission project did not locate any Canada lynx (Maj and Whitfield 1998). Presence is unlikely throughout much of the project area because of the numerous existing roads and recreation facilities in the general area and high levels of human-related disturbance. Habitat becomes more suitable in areas that are farther away from the highway and campgrounds.

#### **Mountain Plover**

Despite the name of the bird, mountain plovers (*Charadrius montanus*) inhabit moderate elevations in areas often far from water. Mountain plovers prefer shortgrass prairie and arid shrubland communities for nesting. Nests are often constructed on the ground in moderately grazed areas with short vegetation. Consequently, prairie dog colonies are often selectively used. Nest material is typically composed of cow dung and grass. Primary prey includes insects such as beetles and grasshoppers (Ehrlich et al. 1988, Dobkin 1992).

Mountain plovers have not been reported to nest in the project area (BPA and Forest Service 1998). The grasslands within the project area are composed of a mixture of tall grasses and are unsuitable for the species. Thus, the potential for the species to occur in the project area is unlikely.

#### **Western Boreal Toad**

Western boreal toads (*Bufo boreas*) inhabit a variety of habitats including desert, mountain meadows, and woodlands. They bury themselves in loose soil or seek shelter in the burrows of gophers, ground squirrels, and small rodents. Western boreal toads breed in springs, ponds, streams, and lakes. Eggs are attached to vegetation in shallow, still water. Common prey include bees, grasshoppers, caddisflies, moths, various larvae, mosquitoes, and beetles (Behler and King 1985, Stebbins 1985).

Western boreal toads have been reported in the general area (BPA and Forest Service 1998). Based on the habitat requirements, the western boreal toad could occur within all habitats in the project area. Habitats that are considered more critical to the survival of the western boreal toad include springs and seeps used for breeding, egg laying, and larval development.

## **DIRECT AND INDIRECT IMPACTS OF ALTERNATIVE A**

### **Plants**

#### **Ute Ladies'-tresses**

Potential habitat for Ute ladies'-tresses would be permanently removed along West Trail Creek where the trail would cross the stream and in areas where it would traverse the riparian corridor. In total, up to approximately 1.2 acres of riparian habitat would be directly impacted by these actions using the South Option. Although the species is not known to occur in the area, localized surveys will be conducted prior to initiating construction to verify its absence in areas of direct impact in Segments 1 and 2 of Alternative A, South Option, as described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA (Chapter 2). If the species is found, the USFWS would be consulted for further guidance. Additional measures would likely include redesign of the trail section to avoid the population and development of a long-term plan to monitor the population's status.

### **Wildlife**

Because the project area does not contain suitable habitat for whooping crane or mountain plover, impacts would not occur to these species under Alternative A. In addition, presence of bald eagle in the project area is considered to be infrequent and temporary. Thus, a determination of "no effect" is considered for these species under Alternative A. Effects to the remaining threatened, endangered, and candidate species are discussed below.

#### **Gray Wolf, Grizzly Bear, Canada Lynx**

Gray wolf, grizzly bear, and Canada lynx are uncommon in the project area primarily because of the project area's distance from the core ranges of these species and their naturally low densities. If present, adverse effects would be minimal as the species maintain large home ranges and have relatively general habitat requirements. Habitat that would be affected by trail construction and subsequent use is located near existing trail systems, roads, and campgrounds and is of low value. Thus, these species would not be expected to be substantially impacted. In addition, the *Canada Lynx Conservation Assessment and Strategy* (Ruediger et al. 1999) implies that recreation development has little effect on lynx, especially given the quality of habitat that would be impacted under Alternative A.

Under Alternative A, South Option, gray wolf, grizzly bear, and Canada lynx would benefit from decommissioning efforts to prevent unauthorized motorized use. A small, and likely insubstantial, amount of habitat would be gained in areas where roads would be decommissioned and in areas

where unauthorized motorized vehicles traditionally travel off trails. This would primarily occur on a section of the left fork two-track road along West Trail Creek, on the middle fork two-track road, and on Mail Cabin Trail. More importantly, disturbance levels in the vicinity of West Trail Creek and Mail Cabin Creek would be reduced. The elimination of unauthorized motorized use would lower the potential for displacement, disruption of movement corridors, and reduced habitat quality in the surrounding habitat. Benefits would be greater under the North Option since the beginning of the old timber road would be barricaded rather than signed near Mike Harris Campground. A barricade would be more effective in preventing unauthorized motorized use. In addition, the old timber road; the left, middle, and right fork two-track roads; and the Mail Cabin Trail would be decommissioned, resulting in some regrowth of vegetation along the pathways and, as such, a greater habitat gain. Under the South Option, this would only occur on the middle and right fork two-track roads and on the Mail Cabin Trail.

The off-Forest portions of the project area do not contain suitable habitat for gray wolf, grizzly bear, and Canada lynx because of their lower elevations. In addition, the location of the proposed trail near existing disturbances (e.g., roadways) likely precludes use by individuals. However, the species could occur occasionally during transition between habitats.

#### **Western Boreal Toad**

Under the South Option, up to approximately 1.2 acres of riparian habitat would be removed by the placement of two stream crossings along West Trail Creek (one in Segment 1 [Caribou-Targhee Forest boundary west of Moose Creek to Trail Creek Campground] and one in Segment 2 [Trail Creek Campground to Coal Creek area]) and the encroachment of the new trail into the riparian corridor (Segment 1). Although western boreal toad has not been documented in the area, the riparian vegetation provides suitable habitat for this species. The dense cover created by the vegetation is important in maintaining adequate shelter, temperature ranges, humidity levels, and prey densities for this species and other amphibian populations. Because riparian habitat is limited within the general area, any loss would adversely affect western boreal toad, if present.

The stream crossings would result in fragmentation of the riparian corridor. Fragmentation of habitat would potentially restrict the amphibians' ability to access adjacent areas. As described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA (Chapter 2), surveys will be conducted during the appropriate season prior to the initiation of construction to determine presence/absence of the species and to determine appropriate mitigation measures to offset impacts.

Under Alternative A, North and South Options, western boreal toad would benefit from decommissioning efforts. Benefits would be similar to those described for gray wolf, grizzly bear, and Canada lynx. In particular, a small amount of riparian habitat associated with West Trail Creek would be gained in areas where roads would be decommissioned and in areas where unauthorized motorized vehicles traditionally travel off trails.

Because wetland and riparian areas are not known to occur along the proposed alignment of the off-Forest segments (Melville 2000, Young 2000b), western boreal toad would not be affected by trail construction in this portion of the project area.

**Summary of Determination of Effects**

The determination of effects of trail construction on threatened, endangered, and candidate species are summarized in Table B-2.

**Table B-2. Determination of Effects under Alternative A for Threatened, Endangered, and Candidate Species that Potentially Occur in the Project Area.**

SPECIES	DETERMINATION OF EFFECTS*
Plants	
Ute Ladies'-tresses ( <i>Spiranthes diluvialis</i> )	MA-NLAA
Wildlife	
Whooping Crane ( <i>Grus americanus</i> )	NE
Bald Eagle ( <i>Haliaeetus leucocephalus</i> )	NE
Grizzly Bear ( <i>Ursus arctos</i> )	NE
Canada Lynx ( <i>Lynx canadensis</i> )	MA-NLAA
Mountain Plover ( <i>Charadrius montanus</i> )	NE
Western Boreal Toad ( <i>Bufo boreas</i> )	MA-NLAA
Gray Wolf ( <i>Canis lupus</i> )	NLJCE

\* NE = No Effect  
 MA-NLAA = May affect but not likely to adversely affect.  
 NLJCE = Not likely to jeopardize continued existence.

**MANAGEMENT ACTIVITIES, BEST MANAGEMENT PRACTICES (BMPs), MITIGATION MEASURES, AND MONITORING ACTIVITIES**

To minimize or avoid impacts to threatened, endangered, and candidate species, management activities, BMPs, mitigation measures, and monitoring activities will be implemented. These activities and measures are included in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA (Chapter 2).

Approved by: \_\_\_\_\_  
U.S. Forest Service Biologist

\_\_\_\_\_  
Date

\_\_\_\_\_  
U.S. Forest Service Botanist

\_\_\_\_\_  
Date





# **BIOLOGICAL EVALUATION**

# APPENDIX C

## BIOLOGICAL EVALUATION

### INTRODUCTION

This appendix discusses the Forest Service sensitive species found in the Teton Pass Trail Project Area and documents the analyses and effects as they relate to these species. The conclusions of the effects on sensitive species are summarized in Form 2 (R-1/4/6-2670-95) located in the project file at the Teton Basin Ranger District of the Targhee Forest in Driggs, Idaho. The information presented in the Teton Pass Trail EA and Form 2 serves as the Biological Evaluation for the Teton Pass Trail Project (Forest Service 1995).

Forest Service sensitive species identified as potentially occurring in the project area are summarized in Table C-1. The species included in Table C-1 are known or suspected to occur within or near the project area, based on survey results and/or presence of suitable habitat conditions. The species are discussed in more detail below.

### EXISTING CONDITIONS

#### Plants

##### Payson's Bladderpod

Payson's bladderpod (*Lesquerella paysonii*) typically occurs on rocky, sparsely vegetated slopes containing calcareous substrates (Forest Service 1997c). During recent surveys of portions of the project area, the species was identified south of the highway on Teton Pass (BPA and Forest Service 1998).

#### Wildlife

##### Boreal Owl

The major habitat requirements of the boreal owl (*Aegolius funereus*) appear to be met by mature and old growth forests ranging from pure deciduous or pure coniferous to mixed compositions (Johnsgard 1988) at elevations between 5,000 and 8,000 feet. Many of these old growth and mature stands open onto rolling mountain meadows (Forest Service 1989). Boreal owls prefer multi-storied spruce/fir forests (Holt and Hillis 1987) but use different forest types for nesting, foraging, and roosting. For this reason, home ranges may be large (Hayward 1989), covering as much as 2,200 acres with some pair overlap.

**Table C-1. Forest Service Sensitive Species That Potentially Occur in the Project Area.**

COMMON NAME (SCIENTIFIC NAME)
Plants
Payson's Bladderpod ( <i>Lesquerella paysonii</i> )
Wildlife
Boreal Owl ( <i>Aegolius funereus</i> )
Common Loon ( <i>Gavia immer</i> )
Fisher ( <i>Martes pennanti</i> )
Flammulated Owl ( <i>Otus flammeolus</i> )
Great Gray Owl ( <i>Strix nebulosa</i> )
Harlequin Duck ( <i>Histrionicus histrionicus</i> )
Northern Goshawk ( <i>Accipiter gentilis</i> )
Peregrine Falcon ( <i>Falco peregrinus</i> )
Spotted Bat ( <i>Euderma maculatum</i> )
Spotted Frog ( <i>Rana pretiosa</i> )
Three-toed Woodpecker ( <i>Picoides tridactylus</i> ) and Other Cavity-Nesting Species
Townsend's Big-eared Bat ( <i>Plecotus townsendi</i> )
Trumpeter Swan ( <i>Cygnus buccinator</i> )
Wolverine ( <i>Gulo gulo</i> )
Fish
Yellowstone Cutthroat Trout ( <i>Oncorhynchus clarki bouvieri</i> )*

\* The U.S. Department of the Interior, Fish and Wildlife Service (USFWS) was petitioned to list the Yellowstone cutthroat trout in August 1998. In September 1998, the USFWS sent a letter to the petitioner explaining that their Montana office would process the petition following their 12-month review. The status review is ongoing. The Yellowstone cutthroat trout retains its status as a sensitive species on the Forest Service Regional Forester's sensitive species list.

Boreal owls do not migrate and may stay in their nesting area year round (Hayward 1989). They nest in cavities of trees excavated by large woodpeckers and snags. However, some avoid roosting in these same cavities, possibly because of pine marten predation. Recent studies of nesting boreal owls have shown the species to be relatively tolerant of disturbances (Hayward 1994).

These owls are primarily nocturnal, preying on small mammals, particularly red-backed voles as well as pocket gophers, shrews, mice, birds, and insects (Forest Service 1989).

During recent owl surveys throughout portions of the project area, boreal owls were detected near Teton Pass and the access road to Phillips Ridge (Maj and Whitfield 1998a, 1998b). However,

nesting was not confirmed. Suitable habitat exists in high elevation areas that contain mature Douglas-fir and mixed forests with numerous large, standing, dead trees. According to the assessment completed as part of the BPA transmission project, this type of habitat occurs on Teton Pass and along Phillips Ridge above 7,000 feet in elevation (Maj and Whitfield 1998b).

### **Common Loon**

Common loons (*Gavia immer*) require large (greater than 9 acres) wooded lakes at elevations below 5,000 feet for nesting and brood-rearing (Reel et al. 1989). The lakes must be large enough to provide runways for flight and deep enough to sustain sizable fish populations for prey (Spahr et al. 1991). The species also has specific nest site and nursery area requirements. Because of their sensitivity towards human activity, nests are built on secluded shoreline areas that also protect nests from wave action. The nursery areas are located in shallow water with emergent vegetation within a protected cove or bay. Loons frequently use islands that have the same characteristics as nest and nursery sites. They are particularly sensitive to high levels of human activity, fluctuating water levels, turbid water, and unprotected coves (Rodrick and Milner 1991).

Common loons have been reported on reservoirs and lakes on the Caribou-Targhee Forest during spring and fall migration and during the nesting season (Forest Service 1997c). Presence in the project area is unlikely because of the absence of large lakes or reservoirs.

### **Fisher**

Large areas of 245 acres or more of unfragmented mature forest, often interconnected with other large unfragmented areas, are a necessary component of suitable habitat for the fisher (*Martes pennanti*). Fishers prefer moist lowland forests or mature and old growth forests with dense understories greater than 60 percent (Banfield 1974), particularly in the summer (Jones 1991). They use riparian habitats in both summer and winter, using stream courses for travel (Jones 1991). Ridgelines and lake shores are also used for foraging and as movement corridors. They travel into subclimax deciduous groves and old burns, though they generally avoid open areas (Banfield 1974).

The fisher is primarily a solitary predator, seen in pairs only during breeding season when they den in snags, downed woody material, hollow trees, and high cavities of large trees (Allen 1982, Jones 1991).

Availability of cover dictates resting and hunting habitat, with mature and old growth forest used more for resting and young forests used more for hunting (Jones 1991). Fishers prey on small mammals such as snowshoe hare, squirrel, shrew, and mice as well as porcupines, birds, eggs, reptiles, amphibians, fish, insects, carrion, fruits, nuts, and berries (Banfield 1974).

Fisher are known to occur on the Caribou-Targhee Forest. However, the species has not been positively sighted in the project area. Potential fisher tracks were observed on two separate occasions north of the highway from State Line Canyon (between Mike Harris Creek and Hungry Creek) during recent furbearer surveys (Maj and Whitfield 1998b). These tracks could not be

differentiated between the smaller marten and the fisher. According to the assessment that was completed for the BPA transmission project, suitable habitat for fisher occurs in association with the stretch of riparian vegetation between Mike Harris Creek and Hungry Creek.

### **Flammulated Owl**

Flammulated owls (*Otus flammeolus*) are generally found in the drier yellow-pine belts, multi-storied Douglas-fir, ponderosa pine, and mixed forests with some mature trees present and with understories often dominated by ninebark (Atkinson and Atkinson 1990). Observations within the region indicate the species prefers mixed pine and fir forests and aspen (Whitfield and Maj 1998). High forb diversity and relatively open (20 to 80 percent) canopies (Marcot and Hill 1980) for unobstructed flight also characterize their habitat (Atkinson and Atkinson 1990).

Distinctly nocturnal and migratory, flammulated owls avoid cut-over areas partially because of their nesting needs. These owls are secondary nesters that depend on naturally occurring or other excavated holes for breeding (Reynolds et al. 1982, Atkinson and Atkinson 1990). Territory size ranges from 25 to 124 acres (Reynolds and Linkhart 1987, Washington Department of Wildlife 1991a).

Arthropods are the primary prey of the flammulated owl with some consumption of beetles, moths, caterpillars, and arachnids in the summer. Because of their prey preference, forest edges, dense grass, and shrub understories are important components of foraging habitat (Bull et al. 1990).

Flammulated owls have been reported on the Caribou-Targhee Forest at various locations. One such observation was within the project area in the draw north of Moose Creek, 0.5 mile northeast of the Mike Harris Campground area. However, flammulated owls were not detected during recent surveys of portions of the project area as part of the BPA transmission project (Maj and Whitfield 1998a). Suitable nesting habitat for flammulated owls generally occurs on the drier, south- and southeast-facing slopes between the Mike Harris Campground area and Coal Creek that contain mature Douglas-fir and aspen forests. This specific type of habitat is relatively rare and occurs only in small patches in the project area. Foraging habitat occurs throughout the project area in open-canopied forests and forest edges.

### **Great Gray Owl**

The Caribou-Targhee and Bridger-Teton Forests are on the southern edge of the range distribution of the great gray owl (*Strix nebulosa*). In the region, great gray owls have been reported to nest in lodgepole pine/Douglas-fir/aspen forests where they prey on pocket gophers (*Thomomys talpoides*). Typical nesting habitat includes mature or over-mature forest stands with openings nearby for foraging (Franklin 1987, Habeck 1994, Whitfield et al. 1996).

Great gray owls do not build nests. Instead, they occupy existing raptor (usually goshawk) or raven nests, or depressions in large snags (Nero 1980, Franklin 1988, Whitfield and Gaffney 1998). For this reason, great gray owls are typically found in association with habitats that support goshawks and other stick-nest builders.

Great gray owls occur throughout the Caribou-Targhee and Bridger-Teton Forests. Although surveys were conducted throughout portions of the project area as part of the BPA transmission project, none were detected (Maj and Whitfield 1998a). Suitable habitat for great gray owls exists east of the Mike Harris Campground area in areas that contain mature lodgepole pine/Douglas-fir/aspen forests with large-diameter snags mixed with open areas for hunting.

### **Harlequin Duck**

The harlequin duck (*Histrionicus histrionicus*), a sea duck, winters along the Atlantic and Pacific coasts and nests along swift mountain streams. They have been found along streams characterized by coarse rock, cobble beds, braided stream channels with gravel bars, and dense stream-side shrub borders. Harlequin ducks require clear, clean streams without human disturbance for breeding habitat. Female ducks have strong fidelity to their breeding sites (Forest Service 1989). Early brooding sites (hatchling to age at which offspring can swim in the strong mountain stream current) can be described as off-stream calm water, such as ponds and old stream channels, with heavy riparian vegetation (Wallen and Groves 1988, Forest Service 1989).

Harlequins forage upon aquatic invertebrates and small fish in fast current by diving underwater and scouring stream bed substrate. They use mid-stream loafing sites such as rocks, logs, and gravel bars to roost and preen (Forest Service 1989).

Undisturbed nesting habitat is a critical component of the stream characteristics sought by harlequin ducks (Wallen and Groves 1988). Wallen (1987) has suggested use of harlequins as an indicator species for wilderness and pristine ecosystems.

Harlequin ducks are present on the Caribou-Targhee Forest during their nesting and brood-rearing season (Forest Service 1997c). Presence of breeding harlequin ducks in the project area is unlikely because of the high level of disturbance associated with the adjacent highway. None were detected during surveys conducted in 1998 (Maj and Whitfield 1998a).

### **Northern Goshawk**

Northern goshawks (*Accipiter gentilis*) use forested lands opportunistically, nesting in fringed or broken forest areas as well as large, continuous, pristine forest areas (Reynolds 1983, Reynolds et al. 1987), though their favored nesting habitat consists of old growth, coniferous, deciduous, or mixed forest areas with tall, multi-layered canopies. These areas typically contain good closure but open understory for flight and foraging. High foliage density generally characterizes the vegetative structure of the nesting habitat (Reynolds 1983). Recent studies indicate that northern goshawks on the Caribou-Targhee Forest establish territories in mature forests where mature forest cover averages more than 60 percent. In addition, most nests on the Caribou-Targhee Forest are associated with mature Douglas-fir forests and, occasionally, with aspen and lodgepole pine stands (Patla 1991, 1997).

Nesting territories may include two to five nesting trees within 0.6 mile of each other (Hayward et al. 1990). Nests are often located in trees on gentle to moderate slopes with northerly aspects

adjacent to quiet springs or streams. Nests are constructed on the largest tree in the stand (Reynolds 1983). The minimum size for nesting trees in the northern Rocky Mountains is ten inches diameter at breast height (Hayward et al. 1990).

In addition to nesting in woodlands of large mature trees, northern goshawks forage in areas near edges or breaks in canopy, which are presumably used as flight corridors (Hayward et al. 1990). Possibly because of prey availability, northern goshawks prefer habitat edges where trees and brush meet, open areas that are either cleared or burned, or areas along drainages or water courses (Palmer 1988). On the Caribou-Targhee Forest, a positive relationship was found among the amount of sagebrush/shrub cover, northern goshawk productivity, and territory occupancy (Patla 1997). Northern goshawks prey on birds such as quail, flickers, jays, American robin, and mammals such as snowshoe hare, tree squirrel, and ground squirrel (Reynolds 1983).

Northern goshawks were not detected during surveys conducted as part of the BPA transmission project, nor have they been reported in the project area in the past. However, suitable habitat exists east of the Mike Harris Campground area and along Phillips Ridge to Fish Creek Road in areas that contain a combination of moderately sloped topography, a mixture of aspen and mature Douglas-fir/lodgepole pine, and adjacent sagebrush/grass fields.

#### **Peregrine Falcon**

Peregrine falcon (*Falco peregrinus*) nesting habitat consists of cliffs, generally between 100 to 300 feet high, which often dominate the surrounding landscape and rarely occur above 8,500 feet in elevation (USFWS 1984). Peregrine falcons need a combination of steep vertical surfaces to prevent predation and ledges and cracks for scrapes and roost sites (Kilpatrick 1987). Rock outcrops and talus slopes overlooking large open lakes, meadows, or valley bottoms are also used, to a lesser degree, for nest sites. Nesting cliffs are typically located within close proximity to abundant and accessible avian prey, usually within 10 miles of a forage area. Peregrine falcons also have a strong fidelity to nest sites (USFWS 1984).

Foraging areas generally include forests, grasslands, marshes, and open water bodies where the species' primary prey are available. The majority of their prey consists of small- to medium-sized songbirds, shorebirds, and waterfowl. Peregrine falcons may range long distances in search of prey but may also use the same areas for long periods of time. Their winter habitat is selected on the basis of large concentrations of prey birds (Forest Service 1989).

Active peregrine falcon nests within the general area have been reported in Swan Valley, Idaho; near Palisades Reservoir, Idaho; near Heise, Idaho; and near the town of Alpine, Wyoming (Forest Service 1996). In addition to nesting sites, these areas contain typical foraging habitat with high prey densities. The project area is outside of the presumed 10-mile foraging range of all nesting pairs. In addition, the project area does not contain similar foraging habitat. Consequently, presence of peregrine falcons in the project area is likely limited to transient individuals outside of the breeding season.

### **Spotted Bat**

Spotted bats (*Euderma maculatum*) inhabit solitary roosting sites, usually cracks and crevices, located on steep cliff faces (Leonard and Fenton 1983, Woodsworth et al. 1981). The width of these cracks and crevices range from 0.8 inch to 2.2 inches, with limestone and sandstone faces providing the most crucial roosting locations. The assortment of habitats where spotted bats are found include open pasture and hayfields, ponderosa pine, desert scrub, and pinyon-juniper (Spahr et al. 1991).

Spotted bats forage at night in montane evergreen forests, primarily consisting of ponderosa pine, with the majority of foraging activity in adjacent open areas. Spotted bats maintain sole foraging areas by keeping a 164-foot distance between each other (Woodsworth et al. 1981). Although migration information is scarce, it is thought that spotted bats migrate south for the winter (Spahr et al. 1991).

Spotted bats have not been reported in the project area (BPA and Forest Service 1998). However, habitat is suitable for roosting in the project area's mature forests that contain large snags and in the caves near Teton Pass. Riparian and wetland vegetation adjacent to West Trail Creek and other streams in the project area likely support sufficient insect prey densities for foraging spotted bats.

### **Spotted Frog**

Spotted frogs (*Rana pretiosa*) are typically found in cool, clear, spring-fed water with a variety of emergent, floating, and submergent vegetation. They can occur anywhere from sea level to 10,000 feet in elevation (Dumas 1966, Morris and Tanner 1969, Ross et al. 1993). Spotted frogs located on the Caribou-Targhee Forest are commonly associated with ponds that are located within 164 feet of permanent streams and almost always remained in or near the water source (Bartelt and Peterson 1993).

Portions of the project area were recently surveyed for spotted frog, but none were found (Clark and Cain 1996, Maj and Whitfield 1998a). However, suitable spotted frog habitat exists in isolated locations within the project area, such as in backwater areas of streams, beaver ponds, and seeps containing aquatic plants and adjacent riparian vegetation.

### **Three-toed Woodpecker and Other Cavity Nesting Species**

Three-toed woodpeckers (*Picoides tridactylus*) are year-round inhabitants of northern coniferous and mixed forests (Short 1982, Ryser 1985). Forests of white pine, yellow pine, alpine fir, larch, Engelmann spruce, and lodgepole pine comprise the habitats where three-toed woodpeckers are found (Short 1982).

Nests are built in trees from 3 to 49 feet off the ground, usually 3 to 16 feet apart. Dead or occasionally live spruce, pine, balsam, cedar, larch, and aspen are used as nesting trees. Foraging occurs in a variety of live and dead tree species. Depending on location, forage trees range from old-growth mature trees and lodgepole pines to spruce and other conifers (Short 1982, Spahr et al. 1991). Areas with dead and dying trees resulting from forest fires, insect outbreaks, and

windstorms provide excellent foraging opportunities for three-toed woodpeckers. In such areas, densities of three-toed woodpeckers may range from 1 to 2 individuals per 100 acres, to 30 to 45 individuals per acre (Short 1982).

Three-toed woodpeckers were not detected during recent surveys of portions of the project area as part of the BPA transmission project. Although the forest stands within the project area are relatively mature, they do not contain a large amount of fire- and/or insect-damaged trees. Thus, the area is not considered highly suitable for three-toed woodpeckers. Other cavity-nesting species observed in the area include Williamson's sapsucker (*Sphyrapicus thyroideus*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*Picoides villosus*), and northern flicker (*Colaptes auratus*) (Maj and Whitfield 1998a, 1998b). These species are less dependent on specific habitat components and will use most mature forests with abundant snags and dead and down material. Such habitat is abundant throughout the project area.

### **Townsend's Big-eared Bat**

Townsend's big-eared bats (*Plecotus townsendi*) occur throughout North America from central New Mexico to British Columbia (Banfield 1974). The species inhabits a wide variety of environments such as arid western desert scrub, pinon/juniper forests, pine, and deciduous and mixed coniferous forests up to 10,000 feet in elevation (Barbour and Davis 1969, Forest Service 1989). In addition, they inhabit cultivated valleys bordered by open deciduous and coniferous forests. Although the Townsend's big-eared bat does not migrate great distances, it moves readily between different roosts within its habitat (Barbour and Davis 1969).

Townsend's big-eared bats hibernate and roost in caves. They occasionally occupy tree cavities or structures such as abandoned mines and buildings (Banfield 1974, Forest Service 1989). The bats may also be associated with cliffs and rock ledges (Barbour and Davis 1969). Since Townsend's big-eared bats are social, their roosting sites contain hundreds of closely packed clusters of bats. Moths are the primary food source (Banfield 1974).

Preferred dwellings are characterized by beams or wide open ceilings and walls. Variable humidity, drafts, light conditions, and temperatures seem to be tolerated. Temperatures of dwellings vary between 37.0 degrees and 62.0 degrees Fahrenheit, though temperatures as low as 28.5 degrees Fahrenheit have been recorded near torpid bats. When temperatures drop to about 32.0 degrees Fahrenheit, the bats probably awaken and move to more-suitable locations within their roost (Banfield 1974). A heavily vegetated entrance may be important to temperature regulation (Washington Department of Wildlife 1991b). A current threat to Townsend's big-eared bat is spelunking. The species is extremely sensitive to human disturbance and readily abandons nurseries when disturbed (Perkins and Levesque 1987).

Townsend's big-eared bats have not been reported in the project area (BPA and Forest Service 1998). However, habitat is suitable for roosting in the project area's mature forests that contain large snags and in the caves near Teton Pass. Riparian and wetland vegetation adjacent to West

Trail Creek and other streams in the project area likely support high densities of insect prey for foraging Townsend's big-eared bats.

### **Trumpeter Swan**

During the winter, trumpeter swans (*Cygnus buccinator*) prefer ice-free waters with slow currents, abundant aquatic plants, and low levels of human disturbance. These variables are generally found in association with geothermal waters, springs, and dam outflows. Nesting habitat occurs on marshes, ponds, and lakes of varying sizes (Forest Service 1997c).

Trumpeter swans that inhabit the Caribou-Targhee Forest are part of the Rocky Mountain Population that includes both nonmigratory residents and migratory flocks from Canada. About 80 percent of this population winters in southeastern Idaho along the Henry's Fork of the Snake River and in southeastern Montana along the Madison River. The remaining 20 percent winters in western Wyoming (Forest Service 1997c). Resident trumpeter swans are known to nest in portions of Swan Valley, the Teton Basin, and the Jackson Hole area. Suitable nesting and wintering habitat does not exist in the project area. Thus, the potential for trumpeter swans to be present in the project area is low.

### **Wolverine**

Wolverine (*Gulo gulo*) require a vast expanse of area with little human disturbance and a high diversity of prey. Such habitat is of great importance in maintaining viable populations of wolverine (Hornocker and Hash 1981). Typically, wolverine move to cool, higher elevations in the summer and lower elevations in the winter. Intermediate timber stands on southerly and easterly slopes, especially along ecotonal areas such as marshes, riparian zones, lakes, cliffs, slides, basins, meadows, and transition zones between primary cover types and elevation gradients, are preferred by wolverine (Hash 1988).

Because of their solitary scavenging lifestyle, wolverines travel over vast home ranges of approximately 155 square miles looking for food. The wolverine will eat anything it can kill or find; carrion is of particular importance (Whitaker 1980, Bauer 1988) but other sources of food include mammals, birds, herpetofauna, and vegetation (Palmer 1954, Walker 1968, Banfield 1974, Whitaker 1980, Hornocker and Hash 1981, Clark and Stromberg 1987, Bauer 1988). Biomass and turnover of large herbivore populations often dictate areas where wolverine are found.

Wolverines were not detected during recent surveys for furbearers in portions of the project area as part of the BPA transmission project. During the surveys, biologists searched for tracks and installed remote cameras in areas with a high potential for occurrence (Maj and Whitfield 1998a, 1998b). The only potential observation of a wolverine was a questionable track on Phillips Ridge. Past records of wolverine within the general area include several sightings of individuals at Teton Pass and Trail Creek Campground, and the collection of hair samples and tracks in Moose Creek. In particular, one individual was documented crossing the highway at the Trail Creek Campground during winter 1999-2000 based on the identification of a set of tracks (Patla 2000). The individual

appeared to be moving through the area. Habitat for wolverine is suitable throughout the project area although the high levels of recreational use may preclude their presence in some areas.

## **Fish**

### **Yellowstone Cutthroat Trout**

The USFWS was petitioned to list the Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*) in August 1998. In September 1998, the USFWS sent a letter to the petitioner explaining that their Montana office would process the petition following their 12-month review. The status review is ongoing. The Yellowstone cutthroat trout retains its status as a sensitive species on the Forest Service Regional Forester's sensitive species list.

The Yellowstone cutthroat trout has been documented in West Trail Creek, which runs through the project area (Forest Service 1998). The lower reaches of West Trail Creek provide spawning and rearing habitat for this species. Habitat is less suitable upstream because of the steeper gradients. Presence of Yellowstone cutthroat trout in tributaries to West Trail Creek on the northeast side of the highway is unlikely because of existing culverts, which could impede fish passage (BPA and Forest Service 1998).

## **DIRECT AND INDIRECT IMPACTS OF ALTERNATIVE A**

### **Plants**

#### **Payson's Bladderpod**

Potential habitat for Payson's bladderpod would potentially be impacted by the construction of new trails, expansion of existing trails, and improvement of trailheads, primarily in the Teton Pass area. An estimated 1.6 acres of grass/forb vegetation type would be removed under Alternative A in Segment 4. This vegetation type occurs in the preferred habitat of Payson's bladderpod.

The new section of trail in Segment 4 would be constructed in the general area of a known population of Payson's bladderpod (BPA and Forest Service 1998). Although the proposed location of the trail does not overlap the location of the population, localized surveys of all grass/forb habitats would need to be conducted in Segments 4 and 5 prior to impact to prevent unmapped plants from being destroyed. If individual plants are located within the area of proposed impact, appropriate mitigation measures will be developed. Likely measures would include redesign of the trail section to avoid the population and development of a long-term plan to monitor the status of the population.

### **Wildlife**

Because the project area does not contain suitable habitat for common loon, harlequin duck, peregrine falcon, three-toed woodpecker, and trumpeter swan, impacts would not occur to these

species under Alternative A. Thus, a determination of "no effect" is considered for these species under Alternative A. Effects to the remaining Forest Service sensitive species are discussed below.

### **Boreal Owl**

Under Alternative A, approximately 8.3 acres of Douglas-fir forest above 7,000 feet in elevation would be permanently removed by trail construction in the general area of the species' previous detection. This type of habitat is well-distributed within the area; thus, the loss of habitat would not be expected to substantially affect boreal owls. Because boreal owls are somewhat tolerant to disturbances during the nesting season (Hayward 1994), and surveys would be conducted for species' presence prior to initiating construction (as described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA [Chapter 2]), loss of birds and/or reduced reproductive success are not anticipated. In addition, if nesting boreal owls are detected during pre-construction surveys, trees within the established nest stand buffer would not be removed (in compliance with Caribou-Targhee Forest RFP standards) (Forest Service 1997a).

The trail placement in Segment 4 of Alternative A would cause the long-term fragmentation of suitable boreal owl habitat in a currently undisturbed area. Fragmentation would potentially divide habitat into smaller, non-functional units. Fragmentation may cause stress and displacement of boreal owls.

Under Alternative A, South Option, boreal owl would benefit from decommissioning efforts to prevent unauthorized motorized use. A small, and likely minor, amount of habitat would be gained in areas where roads would be decommissioned and in areas where unauthorized motorized vehicles traditionally travel off trails. This would occur primarily on a section of the left fork two-track road along West Trail Creek, on the middle fork two-track road, and on Mail Cabin Trail. More importantly, disturbance levels in the vicinity of West Trail Creek and Mail Cabin Creek would be reduced. The elimination of unauthorized motorized use would lower the potential for displacement, disruption of movement corridors, and reduced habitat quality in the surrounding habitat. Benefits would be greater under the North Option since the beginning of the old timber road would be barricaded rather than signed near Mike Harris Campground. A barricade would be more effective in preventing unauthorized motorized use. In addition, the old timber road; the left, middle, and right fork two-track roads; and the Mail Cabin Trail would be decommissioned, resulting in some regrowth of vegetation along the pathways and, as such, a greater habitat gain. Under the South Option, this would only occur on the middle and right fork two-track roads and on the Mail Cabin Trail.

### **Fisher**

Suitable habitat for fisher occurs in association with the stretch of riparian vegetation between Mike Harris Creek and Hungry Creek. Within this area, up to approximately 1.2 acres of riparian vegetation would be permanently removed in Segment 1, South Option. Impacts would occur at the West Trail Creek crossings, the Moose Creek crossing, and in areas where the trail would traverse the riparian corridor. Although the amount of loss would be relatively minor, any loss of

riparian habitat would adversely effect fisher by removing important habitat components such as protective shelter from adverse weather conditions and predators and prey habitat.

The effects of fragmentation of the riparian corridor to fisher would be relatively minor. The West Trail Creek crossing would likely not impede movement as the species would be expected to cross the trail. In addition, the area of impact where the trail would traverse the riparian corridor is located along the edge of the corridor and in areas where the floodplain is relatively wide. The remaining habitat would likely still be functional for fisher.

The placement of the trail adjacent to and within the riparian corridor, including approximately 12,000 feet of trail in Segment 1 (South Option) and 12,500 feet of trail in Segment 2 (South Option), would create disturbance to fisher during construction and subsequent use of the trail. The increase in disturbance would potentially cause displacement, increased stress, and/or reduced reproductive success. Adverse effects would be minimized by conducting surveys for the species prior to initiating construction and, if present, implementing appropriate mitigation measures (as described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA [Chapter 2]). Although portions of the trail in the North and South Options of Segment 2 would lie adjacent to the West Trail Creek riparian corridor, the trail would be placed near the existing highway under the North Option. Trail use in these sections would not cause additional disturbance over what already exists from current road use.

Under Alternative A, North and South Options, fisher would benefit from decommissioning efforts. Benefits related to a small gain in habitat and reduced disturbance in some areas would be similar to those described for boreal owl.

**Flammulated Owl**

Suitable nesting habitat for flammulated owls generally occurs between the Mike Harris Campground area and Coal Creek on the south- and southeast-facing slopes that contain mature Douglas-fir and aspen forests. This type of habitat would not be removed by trail construction. In addition, the trail would not be placed near suitable nesting habitat. Thus, impacts related to disturbances during construction and subsequent use of the trail would not occur. Compared with nesting habitat, foraging habitat occurs throughout the project area. Foraging habitat is not considered as critical a habitat component for flammulated owls as is nesting habitat. Thus, impacts associated with the loss of or disturbance to foraging habitat would be considered minor.

**Great Gray Owl**

Suitable habitat for great gray owl consists of mature lodgepole pine/Douglas-fir/aspen forests mixed with open areas for hunting. Approximately 9.8 acres of lodgepole pine, Douglas-fir, and aspen forests, intermixed with grass/forb vegetation, would be directly impacted by trail construction under the North and South Options. This type of habitat is well-distributed within the general area; thus, the loss of habitat would not be expected to greatly affect great gray owls. Other direct impacts could potentially include the loss of nests during construction of the trail. This could lead to the loss of individuals birds, if present, and reduced reproductive success. Adverse effects

would be minimized by conducting surveys for species' presence prior to initiating construction and, if present, implementing appropriate mitigation measures (as described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA [Chapter 2]).

The trail placement in Segment 4 would cause the long-term fragmentation of suitable habitat for great gray owl in a currently undisturbed area. Fragmentation would potentially divide habitat into smaller, non-functional units. Other indirect impacts would include disturbance to great gray owls during trail construction and subsequent use. Fragmentation and increased disturbance may cause stress, displacement, and reduced reproductive success of nesting pairs and their offspring.

Habitat is unsuitable for great gray owl along new sections of trail that would be located near the highway (North Option) because of the associated levels of existing disturbance. Similarly, habitat is also considered of low value in areas where the proposed trail would use existing roadways (old pass road and BPA road); current human use likely deters adjacent occupancy by great gray owl. Thus, the species would not be impacted in these areas.

Under Alternative A, North and South Options, great gray owl would benefit from decommissioning efforts. Benefits related to a small gain in habitat and reduced disturbance in some areas would be similar to those described for boreal owl.

#### **Northern Goshawk**

Suitable habitat for northern goshawk consists of mixture of aspen and mature Douglas-fir/lodgepole pine, and adjacent open areas. Under Alternative A, North and South Options, approximately 9.8 acres of suitable northern goshawk habitat, Douglas-fir, lodgepole pine, and aspen forests intermixed with grass/forb vegetation would be directly impacted by trail construction. This type of habitat is well-distributed within the general area; thus, the loss of habitat would not be expected to greatly affect northern goshawks. Other direct impacts would potentially include the loss of nests during trail construction. This could lead to the loss of individuals birds and reduced reproductive success. Adverse effects would be minimized by conducting surveys for species' presence prior to initiating construction and, if present, implementing appropriate mitigation measures (as described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA [Chapter 2]).

The trail placement in Segment 4 of Alternative A would cause the long-term fragmentation of suitable habitat in a currently undisturbed area. Fragmentation would potentially divide habitat into smaller, non-functional units. Other indirect impacts of Alternative A would include disturbance to northern goshawks during trail construction and subsequent use. Fragmentation and increased disturbance may cause stress, displacement, and reduced reproductive success of nesting pairs and their offspring.

Habitat is unsuitable for northern goshawks along new segments of trail that would be located near the highway (North Option) because of the associated levels of existing disturbance. Similarly, habitat is also considered of low value in areas where the proposed trail would use existing

roadways (old pass road and BPA road); current human use likely deters adjacent occupancy by northern goshawks. Thus, the species would not be impacted in these areas.

Under Alternative A, North and South Options, northern goshawk would benefit from decommissioning efforts. Benefits related to a small gain in habitat and reduced disturbance in some areas would be similar to those described for boreal owl.

#### **Spotted Bat and Townsend's Big-eared Bat**

Up to approximately 1.2 acres of riparian habitat would be removed under the South Option by the placement of two stream crossings along West Trail Creek and the encroachment of the new trail into the riparian corridor. The riparian habitat provides a prey base for foraging bats, such as spotted bats and Townsend's big-eared bats. Although a minor amount would be removed, any loss of riparian habitat would be detrimental to these species, if present.

The effects of the fragmentation of riparian habitat would be minimal on spotted bats and Townsend's big-eared bat. These species are wide ranging and would not be affected by a disruption in the vegetation.

#### **Spotted Frog**

Under the South Option, up to approximately 1.2 acres of riparian habitat would be removed by the placement of two stream crossings along West Trail Creek (one in Segment 1 [Caribou-Targhee Forest boundary west of Moose Creek to Trail Creek Campground] and one in Segment 2 [Trail Creek Campground to Coal Creek area]). Although spotted frogs have not been documented in the area, the riparian vegetation provides suitable habitat for this species. The dense cover created by the vegetation is important in maintaining adequate shelter, temperature ranges, humidity levels, and prey densities for spotted frog and other amphibian populations. Because riparian habitat is limited within the general area, any loss would adversely affect spotted frog, if present.

The stream crossings would result in fragmentation of the riparian corridor. Fragmentation of habitat would potentially restrict the amphibians' ability to access adjacent areas. As described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA (Chapter 2), surveys will be conducted during the appropriate season prior to the initiation of construction to determine presence/absence of the species and to determine appropriate mitigation measures to offset impacts.

Under Alternative A, North and South Options, spotted frog would benefit from decommissioning efforts. Benefits would be similar to those described for boreal owl. In particular, a small amount of riparian habitat associated with West Trail Creek would be gained in areas where the roads would be decommissioned and in areas where motorized vehicles traditionally travel off the trails.

#### **Cavity Nesters**

Under Alternative A, 17.5 acres (South Option) or 22.6 acres (North Option) of forested habitat would be removed by trail construction. The types of habitats that would be affected include aspen,

lodgepole pine, spruce, Douglas-fir, and mixed forest. Cavity nesters would be adversely impacted by the loss and fragmentation of potential nesting habitat. In addition, disturbance associated with trail construction and subsequent use may cause displacement, increased stress, and/or reduced reproductive success. However, overall impacts are expected to be minimal given the abundance of similar habitats in the surrounding area and their general tolerance to disturbances during the nesting season (Hamann et al. 1999).

Under Alternative A, North and South Options, cavity nesters would benefit from decommissioning efforts. Benefits related to a small gain in habitat and reduced disturbance in some areas would be similar to those described for boreal owl.

### **Wolverine**

Wolverine are uncommon in the project area primarily because of the project area's distance from the core ranges of the species and their naturally low densities. If present, adverse effects would be minimal as the species maintains large home ranges and has relatively general habitat requirements. Habitat that would be affected by trail construction and subsequent use is located near existing trail systems, roads, and campgrounds and is of low value. Thus, wolverine would not be expected to be substantially impacted under Alternative A.

Under Alternative A, North and South Options, wolverine would benefit from decommissioning efforts. Benefits related to a small gain in habitat and reduced disturbance in some areas would be similar to those described for boreal owl.

## **Fish**

### **Yellowstone Cutthroat Trout**

Impacts to Yellowstone cutthroat trout would be minimized by the use of the management activities, BMPs, mitigation measures, and monitoring activities described in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA (Chapter 2). Despite these measures, some loss of stream-side vegetation would occur in Segment 2 (North Option and South Option) where the trail would be located between the highway and West Trail Creek. Vegetated buffers adjacent to streams help slow runoff, filter sediment and pollutants, strengthen streambanks, maintain cool in-stream water temperatures, provide a source for in-stream large woody debris, and reduce bank erosion (Platts 1991, EPA 1995). The removal of stream-side vegetation could result in increased delivery of sediment and pollutants, decreased bank stability, degradation of aquatic habitat, and increased water temperature. Studies have found that water temperatures can be increased by 6 to 15 degrees Celsius by the removal of streambank canopy vegetation (EPA 1995). In addition, erosion from unprotected soils can result in soil losses of as much as 100 tons per hectare per year (Novotny and Olem 1994). Fine sediments that reach streams could accumulate on the streambed and degrade spawning gravels and pool habitat. Research specific to cutthroat trout has found that embryo survival rates drop to 50 percent when fine sediment levels reach 20 percent. Some juvenile salmonids have been found to be adversely affected by high turbidity levels in the range of 25 to 50 NTU (Bjornn and Reiser 1991).

Construction of the trail within the steep highway fill slope in portions of Segment 2 could also result in a temporary increase in sediment delivery to West Trail Creek. However, impacts cannot be quantified without more site-specific information on existing stream conditions and proposed trail locations. Impacts would be slightly greater under the South Option than under the North Option of Alternative A.

Under Alternative A, South Option and North Option, Yellowstone cutthroat trout would benefit from decommissioning activities because of improved stream conditions in West Trail Creek and Mail Cabin Creek. In general, the delivery of sediment would be reduced by decreasing the erosion potential of the trail surfaces, restricting motorized use, and restoring natural vegetative conditions along the streams. Fisheries benefits would be slightly greater under the North Option compared with the South Option.

### **Summary of Determination of Effects**

The determination of effects of Alternative A on Forest Service sensitive species are summarized in Table C-2.

## **MANAGEMENT ACTIVITIES, BEST MANAGEMENT PRACTICES (BMPs), MITIGATION MEASURES, AND MONITORING ACTIVITIES**

To minimize or avoid impacts to threatened, endangered, and candidate species, management activities, BMPs, mitigation measures, and monitoring activities will be implemented. These activities and measures are included in the Features Common to All Forest Action Alternatives Analyzed in Detail Section of the EA (Chapter 2).

**Table C-2. Determination of Effects under Alternative A for Forest Service Sensitive Species That Potentially Occur in the Project Area.**

SPECIES	DETERMINATION OF EFFECTS*
<b>Plants</b>	
Payson's Bladderpod ( <i>Lesquerella paysonii</i> )	MIIH
<b>Wildlife</b>	
Boreal Owl ( <i>Aegolius funereus</i> )	MIIH
Common Loon ( <i>Gavia immer</i> )	NI
Fisher ( <i>Martes pennanti</i> )	MIIH
Flammulated Owl ( <i>Otus flammeolus</i> )	NI
Great Gray Owl ( <i>Strix nebulosa</i> )	MIIH
Harlequin Duck ( <i>Histrionicus histrionicus</i> )	NI
Northern Goshawk ( <i>Accipiter gentilis</i> )	MIIH
Peregrine Falcon ( <i>Falco peregrinus</i> )	NI
Spotted Bat ( <i>Euderma maculatum</i> )	MIIH
Spotted Frog ( <i>Rana pretiosa</i> )	MIIH
Three-toed Woodpecker ( <i>Picoides tridactylus</i> ) / Cavity-Nesting Species	MIIH
Townsend's Big-eared Bat ( <i>Plecotus townsendi</i> )	MIIH
Trumpeter Swan ( <i>Cygnus buccinator</i> )	NI
Wolverine ( <i>Gulo gulo</i> )	MIIH
<b>Fish</b>	
Yellowstone Cutthroat Trout ( <i>Oncorhynchus clarki bouvieri</i> )	NI

\* NI = No Impact

MIIH = May impact Individuals or habitat but would not likely contribute to a trend towards Federal listing or loss of viability to the population or species.

Approved by: \_\_\_\_\_  
U.S. Forest Service Biologist Date

\_\_\_\_\_  
U.S. Forest Service Botanist Date

\_\_\_\_\_  
U.S. Forest Service Fisheries Biologist Date

