

## Chapter 4. Summary of Environmental Commitments

**T**HIS chapter summarizes the environmental commitments that would be a part of each build alternative, unless otherwise discussed. These commitments would be incorporated during final design or project implementation.

### 4.1 WETLAND RESOURCES

Proposed mitigation for impacts on wetlands is described in a *Conceptual Wetland Mitigation Plan*, and would involve both on- and off-site mitigation (ERO Resources Corp. 2002a). In developing the plan, opportunities were considered in the following order:

- On-site wetland restoration
- On-site wetland creation
- Off-site wetland creation
- Off-site wetland preservation and restoration

On-site mitigation opportunities would consist of wetland restoration, with some wetland creation.

On-site wetland mitigation is possible at 10 sites located in the Top of the World Store area, at the Little Bear Lake fen, at Long Lake, and at an abandoned gravel pit in the Frozen Lake area.

On-site wetland restoration would involve establishing wetlands in areas where the existing roadway would be removed from areas that were historically wetlands. High priority on-site wetland creation generally would involve excavating small subalpine upland areas to match the elevation of an adjacent existing wetland or stream. High priority wetland creation sites would be those areas that have been disturbed previously or those areas where impacts on existing plant communities would be minimal.

Several areas considered for on-site wetland mitigation would help meet the wetland mitigation requirements under the build alternatives. These sites, however, would involve excavation and wetland creation in undisturbed high-quality subalpine or montane meadow communities. Creation of wetlands in these areas is considered a low priority

because the gain in wetland resources would come at the loss of existing subalpine and montane communities.

Off-site wetland mitigation was considered only after all on-site mitigation opportunities had been examined. One potential option for off-site wetland creation would be the same under all build alternatives. About 2 ha (5 ac.) of wetlands would be created at the Pilot Creek gravel pit by excavating to ground water or diverting surface water from Pilot Creek, and lining the wetland mitigation area to retain water on site. Because the site would require continued maintenance of the diversion, it is considered a low priority site.

Another option for off-site wetland mitigation would be the same in all build alternatives. The option would involve preservation of high quality wetlands, and possible restoration of filled and degraded wetlands. The FHWA identified an opportunity for an in-lieu fee arrangement on a stream that flows into YNP. The site was selected because it contains wetlands dominated by extensive stands of willows, and is located in an area where the land has been subdivided for development. The site contains willow assemblages consisting of palustrine scrub/shrub and persistent emergent wetlands that are uncommon in the YNP area. These willow assemblages provide valuable habitat for species such as moose, which rely on willow assemblages for winter browsing. The scrub/shrub wetlands are dominated by numerous willow species, which are uncommon in YNP and surrounding areas. Wolf willow, a GNF Forest Service sensitive species, occurs on this site. Because of the extensive willow communities, the site provides valuable wildlife habitat. The site is a high priority site for preservation because the land has been subdivided for development, has extensive willow communities present, provides valuable wildlife habitat, and

is in close proximity to YNP. The site also provides an opportunity for wetland restoration. Roads constructed through the site have filled wetlands. The roads could be removed and restored as wetlands.

## 4.2 CULTURAL RESOURCES

Before the Record of Decision for this project is issued, the FHWA, the SNF, the NPS and the Wyoming SHPO, along with the participation of interested Native American tribes, will develop and implement a Memorandum of Agreement for mitigation of adverse effects to historic resources. The FHWA will develop a mitigation plan in cooperation with the Wyoming SHPO, the SNF, and interested Native American tribes.

Mitigation of effects on segment 4 would include the documentation of the five sections of the original alignment selected for realignment. This documentation would include photographs showing the original location, footprint, and setting of the sections. Mitigation also would include interpretation of the history and construction of the road, by installing interpretive kiosks at pullouts along the road, and providing other interpretive materials for visitors. Information about the bridges would be included in the interpretive materials.

Two sites are proposed as interpretive sites for the road construction. One site at the top of the West Summit switchbacks would provide an overview of the switchbacks leading up to the west summit (see Appendix E). A second site at the Bar Drift would provide an overview of the switchbacks leading up to the east summit. Interpretive historical information may be combined with information on other aspects of the area, such as geology, wildlife, and natural history. The details of the interpretation would be developed by the FHWA in

consultation with the Wyoming SHPO, the SNF and interested tribes.

The FHWA would conduct additional research into the construction of the bridges and culvert headwalls. The additional research would attempt to resolve the contradictions regarding who constructed the bridges and culvert headwalls. Some sources state that the Civilian Conservation Corps constructed these resources; other sources state that they were constructed by a contractor using stone masons under the direction of a person from Oregon. A reasonable effort would be made to determine if any additional historic documentation exists pertaining to Civilian Conservation Corps participation in general, and to the construction of the bridges and culvert headwalls in particular.

Mitigation of effects to the four historic bridges and culvert headwalls would include detailed photo-documentation and drawings of the existing bridge features before they are dismantled. Documentation would be to Historic American Building Survey/Historic American Engineering Record standards. If Alternative 2 is selected, documentation would still be completed on the Little Bear Creek bridge #2, even though the bridge would not be dismantled. The SNF would not assume responsibility for maintenance of the bridge; long-term maintenance would be uncertain.

On the dismantled bridges and culvert headwalls, the original stone masonry would be salvaged. The FHWA would use the salvaged stone masonry or similar stone masonry to provide an aesthetic facing for the three culvert headwalls and new bridge abutments, except for the Beartooth Ravine bridge. It may be necessary to split the existing stone masonry in half to provide sufficient masonry for the new abutments. Bridge design would replicate the original bridges as closely as possible, given safety and construction requirements. The

abutments for the Beartooth Ravine bridge would be covered with form-liner or cultured stone, and the bridge would have railings similar to the other bridges.

As additional mitigation of effects to the bridges, the FHWA and the SNF would develop an interpretive site at the Lake Creek bridge. The site would provide information about the Lake Creek bridge as well as the other four bridges along the proposed project. A conceptual design for the site is shown in Appendix E. If the bridge has not been modified significantly, it would be recorded, researched, and if appropriate, the bridge would be recommended as eligible for listing on the NRHP. The interpretation would be consistent with the Beartooth All-American Road Corridor Management Plan. The responsibility for maintenance of the Lake Creek site would be uncertain.

If previously unknown cultural resources are inadvertently discovered during construction, work would stop in the immediate vicinity until the resource can be evaluated in accordance with the NHPA by the FHWA. If it is determined that such resources are eligible for inclusion on the NRHP, the FHWA would conduct such mitigation measures that would be developed through consultation with the SHPO, the SNF, and interested Native American tribes.

### 4.3 WILDLIFE RESOURCES

Mitigation and conservation measures would be incorporated into the selected alternative to minimize potential impacts on wildlife and threatened, endangered, and sensitive species. These measures would be developed and implemented in cooperation with the FHWA, USFS, Wyoming Game and Fish Department, and USFWS during final project design. Mitigation measures applicable to minimizing wildlife habitat

impacts and wildlife/vehicle collisions for all species are described below. Proposed additional mitigation for threatened and endangered species also is described. Final project requirements for mitigation will be developed during formal Section 7 consultation with the USFWS. Consultation currently is underway due to potential adverse effects to the grizzly bear. The FHWA is preparing a Biological Assessment for submission to the USFWS and a Biological Evaluation for submission to the SNF. The FHWA anticipates the USFWS will issue a Biological Opinion on the proposed project before the Final EIS is issued.

#### ***Wildlife Habitat***

- Limits of construction would be minimized during final design and actual construction.
- All disturbed areas would be revegetated with native species.
- The clear zone in forested areas would be minimized and landscaping or selected plantings would be installed in sensitive areas.
- Snags and cavity nest trees would be avoided to the extent possible.
- Abandoned road sections and material sources would be regraded and revegetated with native species to create habitat similar to adjacent undisturbed land.
- BMPs would be used to prevent the introduction of chemical and petroleum products into the environment.

#### ***Wildlife/Vehicle Collisions***

- Wildlife crossing signs and interpretive signs would be used to inform the public about the presence of wildlife.
- Interpretive exhibits would be provided at several major parking areas to inform the public of the presence of wildlife, effects of human activity on wildlife, and the potential for wildlife/vehicle collisions.
- Highly palatable non-native plant species would not be planted adjacent to the road to minimize attracting wildlife.

#### ***Grizzly Bear***

- Signs would be placed along the highway corridor informing motorists that they are passing through high quality grizzly bear habitat and that occurrence of a grizzly bear in the area is likely (USFWS 1996).
- Riparian and other vegetation and cover would remain intact as much as possible in areas of stream crossings and other natural travel corridors (USFWS 1996).
- Clearing of whitebark pine and areas of high habitat value would be minimized as much as possible during final design.
- All project-related construction employees would be given orientation regarding food storage, disposal of garbage and other attractants, and approaching or harassing wildlife. Construction personnel would be trained in how to behave in the presence of bears.
- No long-term food storage or storage in open containers would be allowed.
- Garbage removal and solid waste would be removed frequently. Containers would be bear-proof and confine odors.
- A workcamp management plan would be implemented to prevent bear/human conflicts during construction, and would include plans for proper sanitation of human foods, garbage, and other bear attractants. An on-site manager would be present at all times.
- Project employees would be prevented from carrying firearms or bringing dogs to the project area.
- Grizzly bear sightings would be reported to the Wyoming Game and Fish Department.
- Should a habituated bear frequent the area, construction activities may be suspended while management actions are implemented.

#### 4.4. Vegetation, Timber and Old Growth Forest

- Timing of construction sequences may be scheduled to restrict actions so that dispersed work (in remote areas where surprise encounters with grizzly bears would be more likely) from March 15 to June 30 would be minimized to the extent practicable (USFWS 1996).

#### *Lynx*

- Lynx crossing areas would receive special revegetation efforts to increase cover outside of the clear zone.

### 4.4 VEGETATION, TIMBER AND OLD GROWTH FOREST

The FHWA would implement a Landscaping and Revegetation Plan to mitigate effects on vegetation. Mitigation to reduce impacts on vegetation resources and ensure revegetation of disturbed areas would include the following measures:

- Collecting native seed before construction for use in revegetation
- Establishing well defined construction limits to minimize vegetation disturbance
- Using BMPs to prevent wind and water erosion
- Using salvaged topsoil and its associated seed and plant parts
- Implementing landscaping design features to minimize visual impacts and to aid in creating suitable site conditions for revegetation
- Applying native seed and shrub and tree plantings according to site-specific conditions and vegetation communities
- Applying soil amendments, mulches, organic matter, and other measures to facilitate revegetation

- Monitoring vegetation cover and implementing contingency and maintenance plans if vegetation cover is not 70 percent of the original vegetation cover. Monitoring would include inspection of the revegetated areas at least once every quarter whenever the road is open.

Specific additional measures to prevent the introduction and spread of noxious weeds during construction would include:

- Implementing a weed management plan in accordance with the Wyoming Weed and Pest Control Act and other directives to prevent weed infestation and spread. A weed management plan would be incorporated into the Landscaping and Revegetation Plan.
- Minimizing the area of disturbance and the length of time that disturbed soils are exposed
- Minimizing weed seed in imported soil materials
- Requiring that construction vehicles are washed prior to entering the project area and inspecting them to prevent importing weeds on vehicle tires and mud
- Limiting the use of fertilizers that may favor weeds over native species
- Using periodic inspections and spot controls to prevent weed establishment. If weeds invade an area, an integrated weed management process to selectively combine management techniques (biological, chemical, mechanical, and cultural) to control the particular weed species following USFS guidelines would be used.

### 4.5 VISUAL RESOURCES

For all build alternatives, views from some locations during the construction period would be altered by the presence of construction vehicles,

equipment, personnel, and emerging new road facilities. This impact would be considered adverse by some viewers and would be an unavoidable consequence of project construction. The following mitigation measures would reduce impacts on visual resources during construction:

- Institute dust control procedures throughout the construction process.
- Locate staging areas and equipment and material storage facilities at sites with minimum external visibility or sites completely obscured from the project road's visibility, where possible.

A FHWA representative would be on-site during construction of key locations to coordinate implementation of the Landscaping and Revegetation Plan.

For all build alternatives, the road would alter views of some locations in the project area. The following mitigation measures would minimize the contrasts between the road and its surroundings.

#### **Apply to Soil Cuts:**

- Smoothly transition the top of cut faces into undisturbed ground by rounding, to diminish visible edges. Vary the size and shape of the rounding to match the adjacent landform and preserve selected trees and/or rocks.
- Preserve existing rock outcrops outside of clear zone and within construction limits to vary cut face slope, composition, color and texture. Undulate or roughen cut face to match adjacent rock outcrops and landforms.
- Preserve selected existing individual trees, shrubs and/or rocks outside clear zone and within construction limits for the same reasons as stated above.
- For placement of surface stones, use only stones salvaged from the ground surface prior to construction.

- Revegetate by seeding and/or planting with native plants.
- Selectively place natural appearing, uncut felled trees, tree stumps and rocks onto cut face surfaces. Place these materials in patterns and at densities similar to the undisturbed adjacent forest. Felled trees with rock supports and staking may be located to enhance erosion control (not applicable in all areas).
- Place dry-stacked rock against cut slopes in select locations to avoid laying back slopes and to minimize erosion.

#### **Apply to Rock Cuts:**

- Manipulate blasting patterns to create rock surfaces, terraces, and ridges similar to undisturbed rock faces and outcrops.
- Shape cut faces to blend with adjacent undisturbed rock faces.
- Create soil pockets within the terraces and ridges of cut faces to accommodate and promote revegetation. Locate, size, and shape soil pockets to replicate the planting areas of undisturbed rock faces.

#### **Apply to Fills:**

- Construct new fill slopes using terraces, native stones and native plants. The size, shape, and location of terraces should be similar to the adjacent undisturbed landforms. The density and placement of stones and plants also should be similar to the density and placement of adjacent undisturbed stones and plants.
- Connect new fills to adjacent undisturbed slopes by developing similar landforms and drainage patterns.
- Revegetate by seeding and/or planting with native species.
- Compose terracing, surface stone placement, and revegetation similar to adjacent undisturbed ground surfaces and land forms.

**Apply to Retaining Walls:**

- Treat exposed and visible concrete retaining wall faces and tops with form liners or stone facing to be similar to the historical bridge abutments, historical roadway retaining walls, and/or the undisturbed boulder field surfaces. This treatment may not be applicable in all talus locations.
- Treat mechanically stabilized earth wall face and tops with pre-cast concrete panels or dry-laid stone. Pre-cast panels should replicate the historical bridge abutments, historical roadway retaining walls, and/or the undisturbed boulder field surfaces.

**Apply to Roadway Facilities:**

- Use rock excavated within the project construction limits for shoulder edge aggregates.
- Use asphalt-coated culvert pipe end sections to diminish their visibility in the most visible locations.
- Use CorTen steel for guardrails to minimize reflectivity and eliminate the silver color of galvanized steel guardrails.
- Use wood or CorTen steel guardrail posts to minimize reflectivity and provide a color that blends with the surrounding plant colors.
- Select guardrail designs that minimize the width of the metal exposed to view and allow snow to be ejected from the road through the rail.

## 4.6 RECREATION AND SOCIOECONOMICS

The FHWA would consider limiting nighttime construction adjacent to the campgrounds and Top of the World Store, when they are open. The decision would be made in cooperation with the

SNF based on the type of construction required by the selected alternative. Traffic would be stopped on either side of the Top of the World Store to provide continued access to the store.

To assist local business owners and the traveling public with the delays and closures, the FHWA would develop a traffic control plan in coordination with those communities that may be most affected by the reconstruction work, such as Red Lodge. The FHWA also would develop a public information program as part of traffic management during construction. The FHWA would use various forms of communication, such as ads, signs, newsletters, and brochures via radio, TV, and the Internet, to inform road users and local business owners about the construction schedule and progress. Specific partial day or nighttime road closure times would be announced well in advance to assist motorists with trip planning.

The FHWA would consider limiting nighttime construction adjacent to the campgrounds and Top of the World Store, when they are open. The decision would be made in cooperation with the SNF, based on the type of construction required by the selected alternative. Traffic would be stopped on either side of the Top of the World Store to provide continued access to the store.

## 4.7 WATER AND AQUATIC RESOURCES

The FHWA would use BMPs to minimize soil erosion and adverse effects on surface water quality. Construction requirements described in FHWA's Standard Specifications for Road and Bridge Construction (FP-96 manual) would be used to minimize erosion and sedimentation during and after construction (FHWA 1996). The WDEQ's BMPs designed to reduce or eliminate water quality degradation due to physical modifications

of surface water would be used for this project (WDEQ 1999).

The FHWA would apply for a Section 404 permit to place fill material into surface waters. Impacts at Long Lake would be mitigated as required by the 404 permit. The USFWS, SNF, Wyoming Game and Fish Department, and the public would be provided an opportunity to review and comment on the 404 permit application. The 404 permit would require a Water Quality (401) Certification from the WDEQ before a 404 permit can be issued. To obtain a 401 certification, all discharges into surface water must not result in an expected violation of any applicable water quality standard.

The FHWA would seek authorization from the WDEQ to discharge storm water associated with construction activities under the National Pollutant Discharge Elimination System (NPDES). The NPDES permit requires a Stormwater Pollution Prevention Plan for the construction activities to minimize impacts on surface waters. The plan would be monitored during and after construction until all disturbed areas would finally stabilized. All disturbed areas except exposed bedrock would be covered with topsoil and seeded at the end of each construction season.

Water withdrawals for construction purposes would require approval from the Wyoming State Engineer's Office.

## 4.8 AIR QUALITY

All construction activities would be conducted in compliance with WDEQ requirements for construction-related fugitive dust. Dust abatement measures, such as watering unpaved disturbed areas, would be implemented. Disturbed areas would be revegetated as soon as possible after construction of a given road segment is completed.

## 4.9 SOILS, GEOLOGY, AND PALEONTOLOGY

Mitigation measures to protect and preserve soil resources in the project area would be incorporated in the Landscaping and Revegetation Plan and are incorporated into FHWA's and WDEQ's BMPs. Components of these plans include the implementation of measures to minimize the loss of soil material before, during, and after construction. General erosion control measures would include minimizing the area of disturbance to defined construction limits and limiting the time bare soil is exposed. Suitable temporary sediment control measures such as silt fences, sediment logs, trenches, and sediment traps would be used to contain soils within the project area.

No earthwork operations would be allowed until after the removal of topsoil. Woody vegetation would be removed prior to topsoil salvage. Tree stumps would be shaken to remove topsoil within the roots. Topsoil salvage methods include windrowing topsoil at the limits of construction and pulling the soil back on slopes during reclamation. Selective topsoil redistribution to soil deficient areas would be used as needed, but topsoil would not be stockpiled over the winter. Soil amendments, mulches, and seeding would be selectively applied to match site conditions and revegetation goals. Long-term soil protection would come from prompt revegetation of disturbed areas following construction.

## 4.10 NOISE

The FHWA would consider limiting nighttime construction adjacent to the campgrounds and Top of the World Store, when they are open. The decision would be made in cooperation with the SNF, based on the type of construction required under the selected alternative. The FHWA would

describe expected construction noise in the public information program.

#### 4.11 HAZARDOUS MATERIALS

Any petroleum-contaminated soils encountered during construction would be removed and transported offsite to a solid waste landfill in accordance with the WDEQ's solid waste guideline on the management of petroleum-contaminated soils. Guardrails that contain creosote also were identified. Creosote-containing guardrails would be disposed of at an appropriate facility or reused for an intended purpose.