BEARTOOTH HIGHWAY
Environmental Assessment
Montana Forest Highway 59

Milepost 0.0 to 8.4

Prepared by:

U.S. Department of Transportation
Federal Highway Administration
Western Federal Lands Highway Division

August 1997 (Amended, May 1998)

Memorandum

U.S. Department
of Transportation

Federal Highway Administration

WESTERN FEDERAL LANDS HIGHWAY DIVISION
610 EAST FIFTH STREET
VANCOUVER, WA 98661-3801

Subject: INFORMATION: Montana Forest Highway 59
Beartooth Highway, US Highway 212, MP 0.0 to 8.4
Reevaluation of the Environmental Assessment/FONSI

Date: March 12, 2003

From: Edwin (Ted) M. Wood, Jr.
Design Operations Engineer

Reply to
Reference

To: Ronald W. Carmichael
Division Engineer
THROUGH: Ricardo Suarez
Director of Project Development

The following is a reevaluation of the Environmental Assessment (EA), amended in May 1998, and the May 1998 Finding of No Significant Impact (FONSI) for a proposed road improvement project on the Montana Forest Highway 59, also known as the Beartooth Highway. This memo describes the methods and results of the NEPA reevaluation performed by the Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA).

BACKGROUND

U.S. Highway 212, also known as the Beartooth Highway (Highway) begins at the Northeast Entrance to Yellowstone National Park (YNP) and extends easterly 103 kilometers (64.0 miles) from Montana into Wyoming and back into Montana ending at Red Lodge, Montana. A project has been proposed to upgrade a segment of the highway in Montana (identified as Segment 1 in the EA) from the YNP Northeast boundary at MP 0.0 to the Wyoming state line at MP 8.4. The easternmost 0.5-mile portion of the Northeast Entrance Road between the YNP Visitor Entrance Station east to the park boundary is also being reconstructed with the upgrading of Segment 1 of the Beartooth Highway. An EA for the reconstruction of Segment 1 of the Highway was distributed for public comment in August 1997, and resulted in an amended EA in May 1998. A FONSI was prepared and approved by WFLHD in May 1998. Since that time, design and ROW activities have been conducted to advance this project.

An environmental re-evaluation was prepared on June 6, 2002, to address changes in the proposed project design and in resource issues in the highway corridor. This re-evaluation did not find any changes in the project need, selected alternative, affected environment, impacts or mitigation that would invalidate the existing NEPA approvals.

In an entirely separate action, Central Federal Lands Highway Division (CFLHD) of FHWA began to develop a project to upgrade Segment 4 of the Beartooth Highway, within Park County, Wyoming. Segment 4 begins at MP 24.5 and ends at MP 43.1 on the Wyoming/Montana state line, and is currently maintained by YNP through an agreement with the Forest Service.

Segment 1 project activities predate the Segment 4 studies by five (5) years and the Segment 1 project will serve the transportation needs along this western portion of the route whether or not any other segments of the highway are improved. The Montana project segment has it's own logical termini (which involve jurisdictional boundaries), major changes in the conditions of the existing highway, independent utility, and separate construction funding as compared to Segment 4 in Wyoming.

FINDINGS

The WFLHD reevaluation of the amended EA/FONSI was conducted in cooperation with partner agencies (USDA Forest Service, MDT and Park County, Montana) and included input from other affected publics. The reevaluation addressed changes in the proposed project and highway corridor as described in the following categories:

- Need
- Selected Alternative
- Affected Environment
- Impacts
- Mitigation

Need for Project:

There is no change in the need for the project that warrants a review under this reevaluation. The June 6, 2002 reevaluation referenced a reduction in current and future traffic volumes for Segment 1. This was an indication that traffic growth had slowed in this part of the highway. As a result of this finding, the design SADT was adjusted to be consistent with recent traffic counts and growth rates being used by MDT and YNP.

The June 6, 2002 reevaluation concluded that the overall need for the highway improvements and the road uses described in the 1998 amended EA have not substantially changed along Segment 1 of the Beartooth Highway.

Selected Alternative:

There is no change in the selected alternative that warrants a review under this reevaluation. The proposed road improvements have moderately changed from those described as the selected alternative in the FONSI and the preferred alternative in the 1998 amended EA. The 1998 EA set roadway design standards for the project based on AASHTO guidelines and MDT standards. Based on the ADT and design speeds, full AASHTO standards required a 36-ft. roadway width. The selected alternative contained a design exception of a 32-ft. roadway width.
This narrower width was considered a good balance between environmental impacts, ROW costs and construction.

The June 6, 2002 reevaluation addressed the decision to lower roadway width to 28 ft. on the western half of the segment, due to the reduction of the future SADT numbers and changes in traffic volume projections. This 28-ft. roadway width meets the minimum recommended MDT highway standards for a rural arterial functional classification on this portion of the Beartooth Highway. Additionally, route continuity is maintained by matching the reconstructed segments in Wyoming and YNP.

Affected Environment:

Some minor changes to the affected environment have occurred since the 1998 amended EA and 2002 re-evaluation.

Cultural Resources – As input to the 1998 EA, WFLHD conducted a cultural resource inventory and Section 106 consultation on the project. The cultural resource inventory completed for the project did not consider the potential National Register eligibility of the Highway as a historic property. There were two properties located during the inventory – a mining prospect site and the Cooke City Cemetery – that were considered but determined not to be eligible. The Montana State Historic Preservation Office (MTSHPO) concurred with the 1997 recommendation of No Effect on the properties discovered during the inventory.

CFLHD conducted a cultural resource inventory on Segment 4 of the Beartooth Highway in Wyoming. As a result of this inventory, CFLHD determined that the road and four bridges located within Segment 4 were eligible for listing on the National Register of Historic Places under Criteria A and C. During CFLHD consultation with the Wyoming State Historic Preservation Office (WYSHPO) in 2002, questions of potential effects to Segment 1 in Montana were raised. WFLHD contracted the Gallatin National Forest to perform an evaluation of the historic importance of the Highway, which resulted in the recommendation of Segment 1 as eligible for listing on the National Register as a Historical Road, under Criteria A. The principle recommendation for Criteria A was premised upon "...a unique history (Park Approach Act) and while Segment 1, mile marker 0.0 to 8.4 at the Wyoming border does not retain the physical integrity that is recognized in portions of the road in Wyoming, 48PA2310, it does retain intrinsic values of isolation and remoteness, scenery and associative history." The reconstruction of Segment 1 was proposed to have "an effect" based upon "integrity of historical association and historical events along the highway corridor." (Allen 2002:4). As a mitigation of the effect, and effects to Segment 4, FHWA is to formally nominate the entire Highway to the National Register, as well as restore the Cooke City Cemetery perimeter fence.

Impacts:

There are minor changes in impacts to the project corridor with the newly nominated status of the Beartooth Highway since the 1998 amended EA. The discovery of the eligibility of Segment 4 for National Register status and subsequent Section 106 consultation on Segment 1 has resulted in additional mitigation obligations. The project does not create any substantial secondary impacts in the area. There are no changes in land use or proposed access as a result of the project. There are no planned changes in the use or character of the road over the long term. It will remain a moderate scale, double-lane paved highway and extensive efforts will be made to retain its scenic values when improvements are made.

4(f) Impacts – The Section 4(f) requirements have been met for this project. In consultation with the Advisory Council on Historic Preservation (ACHP), the MT SHPO has concurred with the recommendation with "no adverse effect". Supporting documentation can be found in the Programmatic 4(f) Determination document, dated March 14, 2003.

Mitigation:

The mitigation measures outlined in the amended EA to minimize project impacts are still applicable and valid. Additional mitigation has been proposed as a result of the Highway's eligibility for nomination to the National Historic Register. The WFLHD and CFLHD proposed measures (conference call February 3, 2003) to address and mitigate potential effects and arrive at a conditioned determination of "no adverse effect" for the entire route.

Representatives from the Advisory Council on Historic Preservation, the WYSHPO, the MTSHPO, WFLHD, CFLHD and Headquarters agreed on the following mitigation measures:

1) WFLHD shall provide resources to restore the perimeter fence by "in kind preservation and maintenance" of the Cooke City Cemetery by the end of the project's construction.
2) WFLHD and CFLHD shall, utilizing the services of a professional consultant acceptable to the WYSHPO and the MTSHPO, research and cause to be prepared, a formal nomination package for the Beartooth Highway in Montana and Wyoming, for listing to the National Register under Criteria A.
3) This nomination package will be prepared by December 31, 2004, assuming that a preferred build alternative for Segment 4 has been identified. If a preferred build alternative for Segment 4 has not been identified, CFLHD will reinitiate consultation with the WYSHPO, and will notify MTSHPO, WYSHPO, and WFLHD of the need to reinitiate consultation within 30 days of December 31, 2003.
4) CFLHD will coordinate the submission of the nomination package with the Federal Preservation Officer of the appropriate land management or road maintenance agency (NPS, USDA Forest Service, and/or State Department of Transportation) to the Keeper of the National Register.

These new mitigation measures will not conflict with other committed mitigation for the Beartooth Highway, as outlined in the 1998 amended EA.

CONCLUSION

This re-evaluation of the Montana Beartooth Highway Project and its 1998 EA/FONSI environmental compliance documents identified and examined all changes in the project need, selected alternative, affected environment, impacts and mitigation that affected the existing NEPA and related environmental approvals. None of these changes were found to be substantial or invalidated the existing NEPA approvals.

The nomination of the Highway to the National Register of Historic Places will document the historic importance of this Highway and make this information available to the public. At this point in time, the proposed upgrading of Segment 1 of the Beartooth Highway is still satisfactorily addressed in the 1998 EA/FONSI as described in this reevaluation, and a supplemental or new NEPA document is not deemed necessary.

RECOMMENDED BY:

Edwin (Ted) M. Wood, Jr., Design Operations Engineer

CONCURRENCE BY:

Phillip Ditzler, Project Development Engineer

Ricardo Suarez, Project Delivery Engineer

APPROVED BY:

Ronald Carmichael, Division Engineer

BUCKLE UP AMERICA

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March 14, 2003

PROGRAMMATIC 4(f) DETERMINATION

Beartooth Highway
Montana Forest Highway 59, Mile Post 0.0 to 8.4

INTRODUCTION

The Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA) in cooperation with Forest Service (FS) is planning to upgrade the Beartooth Highway (Highway) in Montana from the Yellowstone National Park (YNP) Northeast boundary to the Wyoming state line. The road will be widened and resurfaced, but generally will stay within the existing corridor. Where possible, ditches will be restored and drainage will be improved throughout the route. Signs, pavement striping, and guardrail will be upgraded to meet current standards.

U.S. Highway 212, also known as the Beartooth Highway (Highway) begins at the Northeast Entrance to Yellowstone National Park (YNP) and extends easterly 103 kilometers (64.0 miles) from Montana into Wyoming and back into Montana ending at Red Lodge, Montana. A project has been proposed to upgrade a portion of the highway in Montana (identified as Segment 1 and Segment 2, as defined in the Environmental Assessment) from the YNP Northeast boundary at MP 0.0 to the Wyoming state line at MP 8.4. The easternmost 0.5-mile portion of the Northeast Entrance Road between the YNP Visitor Entrance Station east to the park boundary is also being reconstructed with the upgrading of Segment 1 of the Beartooth Highway.

SECTION 4(f)

Section 4(f) of the U.S. Department of Transportation Act, codified as 23 U.S.C. Section 138 and implemented at 23 CFR Section 771.135, requires that the FHWA may not grant approval for a project if the project uses land of any significant historic site unless (1) there is no prudent and feasible alternative to the use of such land, and (2) any such program or project includes all possible planning to minimize harm to these resources.

FHWA has prepared a programmatic "Final Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with minor involvements with Historic Sites". The Beartooth Highway Project meets the eligibility criteria established in that document as described in the "programmatic" 4(f) determination.

APPLICABILITY

The project meets the programmatic eligibility criteria because: (1) the project is designed to improve the operational characteristics, safety, and/or physical condition of existing highway facilities on essentially the same alignment; (2) the historic site involved is located adjacent to the existing highway; (3) the project does not require the removal or alteration of historic buildings, structures or objects on the historic sites; (4) the project does not require the disturbance or removal or archaeological resources that are important to preserve in place rather to recover for archaeological research; (5) the impact on the Section 4(f) site resulting from the use of the land is considered minor, having a "no adverse effect" determination (MT SHPO and ACHP concurred on this determination) on the qualities which qualified the site for listing or eligibility on the National Register of Historic Places; (6) the MT SHPO agreed, in writing, with the assessment of the impacts of the proposed project on and the proposed mitigation for the historic sites; (7) this project will be cleared with an Environmental Assessment (EA), not an Environmental Impact Statement (EIS).

PURPOSE AND NEED

The FS has designated the Beartooth Highway as a National Forest Scenic Byway. The scenic quality of the Beartooth Highway is unparalleled, and is one of the chief resources of this portion of the National Forest System. The Highway is one of the most scenic drives at a high, continuous elevation in the United States. In addition to the numerous undeveloped roadside turnouts, there are many developed recreation sites along the Highway.

The road provides the only access for the protection, administration, and utilization of the southwest corner of the Gallatin National Forest, and it also serve as an entry way to YNP. The Highway is used primarily for recreational travel between the northeast entrance of YNP and Red Lodge, MT. Use of most of the road is seasonal in nature, as the road is open only from Memorial Day to mid-October, depending on weather conditions. However, the first 6.4 kilometers (4.0 miles) is open year-round to provide residential and commercial access between Cooke City and Gardiner via YNP, and between the communities of Cooke City and Silver Gate. Additionally, the Highway provides access to a relatively narrow corridor of National Forest System lands with private in-holdings bounded by designated wilderness areas on either side. The route is the only access into these areas.

Additional details can be obtained from the Project Checklist dated August 1996.

PROPOSED ACTION – PREFERRED ALTERNATIVE

The project will widen and resurface the Beartooth Highway from MP 0.0 to MP 8.4. Ditches will be restored, but not widened; drainage throughout the route will be improved where possible; signs, pavement striping, and guardrail will be upgraded to meet current standards; sight distance at some approach roads will be improved; improvements will be made to the adjacent roadside interpretive facilities; and a new entrance road to Soda Butte Campground will be constructed at MP 4.75. The road will not be widened through the communities of Cooke City and Silver Gate, but an overlay of the existing pavement will be provided.

An Environmental Assessment has been prepared for the project. The disturbed areas have been evaluated for impacts to biological and cultural resources. Impacts have been identified, and mitigation has been proposed and will be implemented for those impacts.

SECTION 4(f) PROPERTY

Section 4(f) of the U.S. Department of Transportation Act, codified as 23 U.S.C. Section 138 and implemented at 23 CFR Section 771.135, requires that the FHWA may not grant approval for a project if the project uses land of any significant historic site unless (1) there is no prudent and feasible alternative to the use of such land, and (2) any such program or project includes all possible planning to minimize harm to these resources. The Federal Highway Administration has issued a programmatic Section 4(f) evaluation for situations when (1) the proposed project is designed to improve operational characteristics, safety, and/or physical condition of the existing highway facilities on essentially the same alignment; (2) the historic site involved is located adjacent to the existing highway; (3) the project does not require the alteration of the historic structures or objects on the site; (4) the project does not require the disturbance or removal of resources that are important to preserve in place; (5) the impact on the Section 4(f) site is minor, defined as having either no effect or no adverse effect; (6) SHPO agrees in writing with the assessment of impacts; and (7) no EIS is prepared. 52 FR 31118 (August 19, 1987).

In the present situation, each of the above criteria is met, with the possible exception of (2), which is discussed below. The project is designed to improve the operational characteristics and safety of the road on essentially the same alignment. The project does not involve the alteration or removal of historic structures. The historic nature of the highway is not in the structures, but in the values of isolation and remoteness, scenery and associative history. The present road structures are not historic along Segment 1. The project does not involve the disturbance or removal of resources that are important to preserve in place. The in place important resources are the isolation, remoteness, scenery and history, which resources will not be affected by this project. The impact is minor in that there will be no adverse effect on the 4(f) property. SHPO has concurred in writing as to the "no adverse effect" determination pursuant to a letter dated February 20, 2003. Finally, the project was evaluated under an Environmental Assessment, not an Environmental Impact Statement.

The only question is whether the project meets the criteria of having the historic site be adjacent to the existing highway. In this case, it is the highway itself that is historic. However, form must not prevail over substance. The reason for finding the highway historic is not based on present physical location, as that has changed over time, nor on historic structures on the ground. Rather, the historic designation, as explained above, is based on the isolation and remoteness, scenery and associative history of the corridor. These are all matters akin to adjacency. This quality of adjacency of the historic values brings this project squarely within the framework for the above-cited programmatic Section 4(f) evaluation. Accordingly, the project will be evaluated in that context.

The three alternatives set forth in the programmatic Section 4(f) evaluation are not feasible to meet the needs of this project.

ALTERNATIVES AND FINDINGS

Do Nothing Alternative: The No Action (or Do Nothing) Alternative does not constitute any improvements, and only provides for continued maintenance. The short-term costs for this alternative would include routine maintenance costs needed to keep the road open. Eventually, deteriorating conditions would force closure of the road and result in substantial long-term expenditures to reopen the road. The do nothing alternative would not correct existing safety hazards, would leave the narrow road and sharp curves in place, and would lead to continuing accidents and injuries along this road. Such problems are not acceptable to the agency. Safety is of primary importance. The do nothing alternative does not address the safety problems of the present road. Nor does it address the deteriorating conditions that are making life for the communities along this road extraordinarily more difficult. This is the only road that serves these communities.

Given its special and unusual status as a Park Entrance Road, there is a need to make the road both passable and safe for the public. The do nothing alternative does nothing to address these problems.

Improvements Without Using the Adjacent Section 4(f) Lands and **Alternatives on New Location:** Because of the qualities for which this road is slated for designation, the only means by which improvements could be made without impacting the adjacent Section 4(f) lands would be to move the improvements out of the historic road corridor. Accordingly, these two alternatives will be considered together. It is not feasible or prudent to avoid the Section 4(f) lands. Because of the qualities under which this road is slated for designation, a shift in alignment or a change in design will do nothing to avoid the use of the Section 4(f) lands. Any work in this corridor will have some effect on the qualities for which the road is designated. Thus, the only way to avoid the adjacent section 4(f) lands would be to move the road outside of the corridor. Such action would have a substantial adverse impact on those communities who rely on this corridor for transportation, as it would leave them without adequate access to their communities and would likely result in a substantial negative impacts on their tourist-based economies. Further, moving the road outside of the corridor would incur substantial environmental impacts, as it would require the building of a new road through rugged terrain and areas of likely impact on endangered species. Moving the road outside of the corridor would not meet the identified transportation needs of the local communities. Because of the above stated impacts, such a move would have an extraordinary impact on the community and the environment.

MEASURES TO MINIMIZE HARM

As stated in the Amended Environmental Assessment and the June 6, 2002 re-evaluation, the project has been designed to minimize impacts to the surrounding environment. Such minimization also serves to minimize any harm to the qualities for which the road is proposed for designation. The finding of the agency and the concurrence of SHPO in a no adverse impact provide support to a conclusion that all possible planning has been utilized to minimize harm. Eliminating all adverse impacts meets the above requirement.

COORDINATION

This matter has been coordinated with MTSHPO, WYSHPO, the USDA Forest Service, and with the National Park Service. The public involvement in this project has been extensive, as demonstrated in the prior environmental documents.

Accordingly, the Section 4(f) requirements have been met for this project.

DETERMINATION

The programmatic 4(f) evaluation and approval for projects with minor involvements with Historic Sites applies to this project in that:

1. The project meets the programmatic eligibility criteria of the Final Nationwide Section 4(f) Evaluation and Approval for Federally-Aided Highway Projects with Minor Involvements with Historic Sites – 52 F.R. Page 31118, August 19, 1987;

2. All of the alternatives set out in the Findings section of the Nationwide Evaluation have been fully evaluated;

3. The findings in the Nationwide Evaluation are clearly applicable to this project and there are no feasible and prudent alternatives that avoid the use of 4(f) land;

4. The project complies with and incorporates the Measures to Minimize Harm section of the Nationwide Evaluation;

5. The MT SHPO concurs with the assessment of impacts of the project, and mitigation measures;

6. All measures to minimize harm will be incorporated in the project construction plan and specifications;

7. Project records and this 4(f) document clearly show that the 4(f) impacts created by this project are in compliance with the guidelines established by the Nationwide Programmatic 4(f) Evaluation.

CONCLUSION

Based upon the above considerations, the project is covered by the Nationwide 4(f) Evaluation. There is no feasible and prudent alternative to the use of the Beartooth Highway Corridor. The proposed action includes all possible planning to minimize harm to 4(f) land resulting from such project use.

RECOMMENDED BY:

Edwin (Ted) M. Wood, Jr., Design Operations Engineer

CONCURRENCE BY:

Phillip Ditzler, Project Development Engineer

Ricardo Suarez, Project Delivery Engineer

APPROVED BY:

Ronald Carmichael, Division Engineer

Memorandum

U.S. Department
of Transportation

**Federal Highway
Administration**

WESTERN FEDERAL LANDS HIGHWAY DIVISION
610 EAST FIFTH STREET
VANCOUVER, WA 98661-3801

INFORMATION: Montana Forest Highway 59
Beartooth Highway, US Highway 212, M.P. 0.0 to 8.4
Reevaluation of the Environmental Assessment/FONSI

Date: June 6, 2002

FROM: Ronald L. Burnett
Design Operations Engineer

Refer to: HFL-17
#23913M_RLB

TO: Ronald H. Carmichael
Division Engineer

THROUGH: Philip Ditzler
Project Development Engineer
Ric Suarez
Project Delivery Engineer

The following is a reevaluation of the Environmental Assessment (EA), amended in May 1998, and the May 1998 Finding of No Significant Impact (FONSI) for a road improvement project on Montana Forest Highway 59, also known as the Beartooth Highway. This memo describes the methods and results of the reevaluation performed by the Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA).

BACKGROUND

The Beartooth Highway begins at the Northeast Entrance to Yellowstone National Park (YNP) and extends easterly 103 kilometers (64.0 miles) from Montana into Wyoming and back into Montana ending at Red Lodge, Montana. The proposed project is to upgrade a segment of the highway in Montana (known as Segment 1) from the YNP Northeast boundary at MP 0.0 to the Wyoming state line at MP 8.4. An EA for the reconstruction of Segment 1 of the Beartooth Highway was distributed for public comment in August 1997, and resulted in an amended EA in May 1998. A FONSI was prepared and approved by WFLHD in May of 1998.

As originally proposed, the project involved reconstructing, widening, and paving the existing 6.1 meter (20 foot) road to obtain a 9.6-meter (32.0-foot) roadway width, which includes two 3.6-meter (12.0-foot) lanes with 1.2-meter (4.0-foot) shoulders on each side. Approximately 0.5 mile of FH-59 is within the limits of Cooke City and already has a 50 foot paved width to accommodate roadside angle parking and pedestrians. This width would remain through town and the pavement would just be rehabilitated. The design speed in Segment 1 was proposed at 70 km/hr (43 mph). Road improvements would follow the existing alignment except in one section east of Cooke City from MP 4.6 to MP 5.9 and another section east of Colter Pass from MP 7.1 to MP 8.2 near the Wyoming/Montana border.

In these areas, the road alignment would be shifted to flatten curves, minimize speed changes and improve safety. Segment 1 is a State Highway under the jurisdiction of the Montana Department of Transportation (MDT) and is maintained by the National Park Service (NPS).

Project development activities have advanced to a point where the design is over 90% complete. The project was pre-advertised in the summer of 2001 and formal advertisement for construction was to have started in November of 2001. Applications for water-related permits based on the 9.6-meter (32.0- foot) roadway design have been submitted but are on hold pending the completion of the reevaluation. Right-of-Way (ROW) acquisition efforts by MDT are also on hold. As of April 2002, acquisition had been completed on 18 of 48 needed parcels. Basic agreement has been reached on another 18 parcels, but condemnation may be required on the remaining 12 parcels. Acquisition was based on the 9.6-meter (32.0- foot) roadway design.

What was good public support for the road improvement project during the EA process changed as MDT began the ROW acquisition process in early 2001. Private property owners adjacent to the Beartooth Highway between Silvergate and Cooke City (M.P. 1.0 to M.P. 3.4) became very concerned about the impacts the proposed road improvement project would have on their property. The wildfires of 1988 had burned down to the back side of most of the residences on the north side of the highway. From the landowners' perspective, the trees and vegetation from their residences to the highway were the only vegetative buffer left to maintain the rural scenic character of the highway from Silvergate to Cooke City. During the ROW acquisition process and the related field staking, the impacts to the vegetative buffer became more apparent. The road construction would cause the removal of some trees and vegetation, which was seen by the landowners as a reduction of the visual and noise screen that shielded their homes from the highway. There was also concern that the widened and improved roadway would encourage speeding in what the landowners considered a residential area. The Beartooth Alliance and several private landowners, previously very supportive of the project, began writing to FHWA, MDT, WFLHD, and Congressmen expressing their concerns. A petition to have the project re-designed to minimize impacts was circulated around Cooke City and gathered several hundred signatures. Local newspapers were alerted to the controversy and several articles and letters to the editor were published. The Alliance promised to challenge the project in every way it could unless the design was changed between Silvergate and Cooke City

In the fall of 2001, WFLHD and its partner agencies (FS and Montana DOT) re-examined the proposed road design in Segment 1 and its related traffic, safety and environmental issues. After coordinating with members of the affected public, the selected alternative was then adjusted by narrowing the roadway width to 8.4 meters (28 feet) from M.P. 0.0 to 3.4.

In an entirely separate action, Central Federal Lands Highway Division (CFLHD) of FHWA began conducting initial environmental studies for a proposed project to upgrade Segment 4 of the Beartooth Highway, within Park County, Wyoming. A Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register on September 3, 1998. Segment 4 begins at MP 24.5 and ends at MP 43.1 on the Wyoming/Montana state line. The Draft Environmental Impact Statement (DEIS) is scheduled to be circulated for public review in June 2002. Jurisdiction of the Beartooth Highway in Segment 4 is not currently established. Segment 4 is maintained by YNP through an agreement with the Forest Service. The proposed road improvement project is funded in part under TEA 21's High Priority Projects (HPP). Although the HPP identified $20 million in funding, the cost of the entire Segment 4 project may be over $50 million and additional funding will be required to complete the entire segment. An important issue to recognize is that the road improvement project in Segment 1 is distinct and separate from the Segment 4 project, although both upgrade portions of the same highway route.

Not only do the Segment 1 project activities predate the Segment 4 study by five years, the Montana segment has its own logical termini, independent utility and separate funding. The logical termini involve jurisdictional boundaries and major changes in the condition of the existing highway. The west termini is at the connection to the Park Road system in YNP and the east termini is at the Montana-Wyoming boundary where it ties into the upgraded highway in Wyoming. These termini are also chosen because the finances for this project are tied to Montana Forest Highways and this segment is the total contiguous route of the highway that is both outside of the YNP and within the State of Montana (the highway reenters Montana 56 miles away after traversing through portions of Wyoming). The project has independent utility; that is, the project will serve the transportation needs along this portion of the route whether or not any other segments of the highway are improved. The need for the project is to improve physical deficiencies and safety along this corridor. WFLHD is aware of no reasonable alternatives that would be foreclosed by the selection of this segment of highway for study and improvement. Finally, along with the independent utility of this project, the project also will not result in the irretrievable commitment of federal funds for any closely related project. While YNP has a long term plan to upgrade the NE Entrance Road in 2018, the decision whether to do so or not will rest totally independent of what is done to this segment of the road. Further, the project will have no effect on whether or not Segment 4 is upgraded.

YNP completed a roadway rehabilitation project on the 29-mile NE Entrance Road in 1999. The project was completed as an interim road improvement to preserve the existing 6.0-meter (20-foot) pavement structure. YNP plans future projects in 2018 to reconstruct and widen the NE Entrance Road to 9.0 meters (30-foot), which is the standard width for major YNP roads.

The easternmost 0.5-mile portion of the Northeast Entrance Road between the YNP Visitor Entrance Station east to the park boundary is being reconstructed with the upgrading of Segment 1 of the Beartooth Highway. This combination of improvements has been a part of the Beartooth project for many years.

FINDINGS

The WFLHD reevaluation of the amended EA/FONSI was conducted in cooperation with partner agencies (USDA Forest Service, MDT and Park County, Montana) and included input from other affected publics. The reevaluation addressed changes in the proposed project and highway corridor as described in the following categories:

- Project Need
- Selected Alternative
- Affected Environment
- Impacts
- Mitigation

The results of the reevaluation will be published in several local newspapers and sent to other affected agencies and local interested parties.

Project Need:

The overall need for the highway improvements has not changed since the 1998 amended EA. However, there has been a reduction in current and future traffic volumes within Segment 1.

Traffic:

- Traffic Background
  The amended EA utilized traffic information from the early to mid 1990s. A 1994 traffic count of 490 was inflated at 3.4% annually to 1999 (579 ADT) and then inflated at 3.4% to 2019 (1130 ADT). The resultant ADT utilizing this method was then doubled to establish a Seasonal ADT (SADT) of 2260. The SADT was used for roadway design purposes because the Beartooth Highway is open from May to November and the SADT is more representative of the traffic load during that period. A portion of Segment 1 [from YNP Boundary through Cooke City (MP 0.0 – MP 4.0)] is open year around, but traffic volumes are much lower through the winter months.

  A review of subsequent traffic count data from the MDT and YNP in or near Segment 1 for the past seven years indicates a lower ADT and SADT than originally projected. This trend indicates that traffic growth has slowed in this part of the Beartooth Highway.

The lower growth rate has resulted in a substantially lower SADT volume projected into the design year 2020. An SADT of 1180 has now been determined to be the design SADT on Segment 1. This projection is consistent with traffic counting and growth rates now being used by YNP and MDT.

Major physical and operational deficiencies in the existing facility:
The physical and operational deficiencies in the existing highway remain the same as those identified in the EA/FONSI.

Safety Records
The traffic accident history in Segment 1 since the 1998 EA indicates a lower accident rate than before the EA, which was 2.7 accidents per million vehicle miles.

- *Section 1 (MP 0.0 – MP 3.6)*: The accident rate for this section is 0.45 for the period 1998 – 2001, less than half of the statewide average of 1.59.

- *Section 2 (MP 3.6 – 4.1) through the town of Cooke City:* There are no accidents documented in this section.

- *Section 3 (MP 4.1 – 8.4)*: The accident rate for this section is 1.71 for the period 1998 – 2001, which is higher than the statewide average. As documented in the EA/FONSI, the safety records for this section show many injury accidents related to road deficiencies and a cluster of accidents between MP 5.0 and 5.5 where the alignment is the worst, and another cluster between MP 7.8 and 8.1.

Road Uses
Road uses as described in the 1998 EA have not changed along Segment 1 of the Beartooth Highway.

Selected Alternative:

The proposed road improvements have moderately changed from those described as the selected alternative in the FONSI and the preferred alternative in the 1998 amended EA. The area of change only involved roadway width.

- In Section 1, the paved roadway width is now proposed to be 8.4-meters (28-foot), consisting of 2 - 3.3-meter (11-foot) lanes and 2 - 0.9-meter (3-foot) paved shoulders. This reflects a 4-foot reduction in width from the 9.6-meter (32.0- foot) roadway originally contained in the EA/FONSI. The slightly narrower highway is still a substantial improvement from the existing 6.1 meter (20 foot) highway, and it better minimizes roadside visual impacts while still satisfactorily addressing the physical and operational needs of the highway. Options to maintain the original roadway width approved in the EA were studied for this 3.6-mile section of the road. Consideration was given to use of retaining walls, steepened slopes and/or modifying the alignment to avoid and minimize the impacts to private property. These options were determined to be infeasible due to the high number of private approaches requiring access on both the north and south side of the highway. In almost all cases, use of retaining walls and/or shifting of the alignment would result in greatly steepened driveway approaches and an unsafe condition for access to and from private property along this section of the route.

- In Sections 2 and 3, the paved roadway width remains the same as the selected action in the EA, which is a 9.0- meter (30-foot) road width plus 10 feet of parking on either side through Cooke City in Section 2, and a 9.6-meter (32-foot) road width in Section 3, from Cooke City to the Wyoming state line.

Application of reduced road width:
The 1998 EA indicated roadway design standards for the Beartooth project are to be based on AASHTO guidelines and be consistent with MDT standards. Based on the ADT of 2260 and a design speed of 70 km/hr (43 mph) cited in the EA, full AASHTO standards would require an 11-meter (36-foot) roadway width. The selected alternative in the EA/FONSI contains a 32-foot roadway width, which is a design exception to the full AASHTO standards. This narrower width was considered to be the best balance among the needed highway improvements, cost of ROW and construction, and environmental impacts.

Reducing the future SADT to 1180 resulted in the full AASHTO roadway width requirements being lowered to 34 feet. The 28-foot roadway width continues to be a design exception to full AASHTO standards, but it reflects a different balance among highway safety needs, ROW issues and environmental impacts. The 28-foot roadway width does meet the minimum recommended MDT highway standards for a rural arterial functional classification on this portion of the Beartooth Highway. Route continuity is maintained by closely matching the road widths in reconstructed segments in Wyoming and proposed future reconstruction within YNP.

The 28-foot width is within a 4-foot range (28 to 32 feet) that has been used on recently upgraded and planned improvements to highways in the area. These include the Northeast Entrance Road in YNP (30 feet); the past Beartooth Highway improvements from M.P. 8.3 to 24.5 (30 – 32 feet); planned upgrading from M.P. 24.5 to 43.1 (28 – 32 feet) and the recently completed Chief Joseph Highway in Wyoming (28 – 32 feet). These roadway widths are fairly consistent, even though they reflect situations where localized road conditions, traffic issues and environmental constraints require some adjustments.

Affected Environment:

Some minor changes to the affected environment have occurred since the amended EA. The Beartooth Highway was designated as a National Forest Scenic Byway in 1989. Subsequent to the EA/FONSI, the entire highway received the nomination and designation as an All American Highway in 2000. The Forest Service, civic groups, and the Wyoming Division of FHWA

prepared the original proposal. After the initial nomination and designation, the MDT and MT Division of FHWA retracted the designation from Montana portions of the highway. In January 2002, after completion of a corridor management plan, and adjustment of the proposed All American Highway termini within the state of Montana, the MDT submitted an All American Highway nomination through the MT Division of FHWA. The Montana portions of the All American Highway are proposed to run from Colter Pass to the Montana State line (M.P. 6.5 to M.P. 8.4) and from the Wyoming state line to south of Red Lodge, MT (MP 45.0 to MP 61). The nomination for the Montana portion is expected to be approved in June of 2002. The 1.9-mile portion of the proposed All American Highway is within Segment 1 of the Beartooth Highway.

Environmental Justice
Moderately affluent people populate the project area, and many are retired. Since much of the commercial business is associated with tourism and recreation, there is a high portion of the summer seasonal population who work in service-related jobs. The demographics of the project area are similar to other rural areas within the state of Montana. There are no known minority or economically disadvantaged groups in the area.

Impacts:

The only changes in impacts to the project corridor are directly related to the landowner concerns along the section of highway from M.P. 0.0 to M.P. 3.4 that includes Silvergate to Cooke City. Since many landowners felt the original EA did not fully describe the impacts from roadside clearing and grading, design efforts were made to better quantify these effects. These effects proved to be more common and substantial than originally determined at the time of the 1998 EA. Now, since the proposal has been revised to construct only a 28-foot wide highway, the project's "footprint" of disturbance has been reduced. Originally, additional right of way strips from 48 private parcels were needed for widening the highway to a 32-foot width in the 3.4-mile section. Now, ROW strips will be needed from only 31 of those parcels. This also represents a 20% reduction in total ROW area needed for the project. The construction disturbance will be confined to mostly within existing road ROW. This does not eliminate the clearing and grading in this highway section, but it is more contained.

Secondary Impacts
This project does not create any substantial secondary impacts in the area. There are no changes in land use or proposed access as a result of the project. There are no planned changes in the use or character of the road over the long term. This project is not expected to alter the normal growth of traffic or change the users of the road. It is expected to better accommodate bicycle and pedestrian traffic. It will remain a moderate scale double-lane paved highway and extensive efforts will be made to retain its scenic values when improvements are made.

Cumulative Impacts

- Other Proposed Actions
  In the 1998 EA, the possible upgrading of the Beartooth route in Wyoming (Segment 4) was briefly described. In addition to the proposed improvements on the Beartooth Highway in Wyoming, activities closer to Segment 1 include the Forest Service's on-going mine reclamation work at several sites within the New World Mine complex, which are accessed off of the Beartooth Highway near Colter Pass. The Forest Service is also planning some minor rehabilitation work in campgrounds along the route. YNP plans to install interpretive signs at some existing pull-offs. YNP also plans to reconstruct and widen the NE Entrance Road to 9-meters (30-feet) in two phases, with

Phase 1 beginning in 2018. The cumulative impacts of these ongoing and pending or proposed actions do not, when added to the direct impacts of the project, significantly change the direct impacts of the project.

- Water Resources
  Soda Butte Creek runs parallel to the Beartooth Highway for approximately 4 miles (6.4-km) from Cooke City to the Park Entrance. It then parallels the NE Entrance road for approximately 14 miles. The creek is a 303(d) listed stream with impaired water quality. As described in the EA, there will be some short-term increases in sediment yield and turbidity from the construction of Segment 1. Also, the runoff will be increased due to a wider road surface and new cut and fill slopes that take a few years to fully revegetate. The Forest Service campground work is expected to have negligible impacts to the stream. The mine reclamation work would have a long-term positive impact on the water quality in Soda Butte Creek when it is completed. There will be short-term increases in sediment yield and turbidity due to the YNP widening projects in 2018. Those projects are scattered in time and location so that impacts would not tend to have the linkage necessary to be considered truly cumulative. The short and long term impacts will not tend to overlap or mutually feed off of each other. In any event, the total cumulative impacts would be considered negligible.

- Economic
  While improved highways normally have a positive effect on the local economy, highway construction activity and delays can be discouraging to local traffic, especially tourists. Even though the road improvements in Segment 1 may take up to four seasons to construct (starting in 2003) because of the high elevation, rugged terrain and harsh climate, short-term impacts to the local economy should not be substantial. There is a chance that the construction of Segment 4 of the Beartooth Highway could commence as early as 2004 and it could take up to five or six years to complete, depending on funding availability. Even though these projects are over 16 miles apart, having active construction projects in both segments could cause increased delays and disruption to through traffic. These delays might cause minor economic impacts to local businesses in the Cooke City and Silvergate area if some tourists choose to avoid the highway and tourist services during construction. Those impacts will be offset by short-term positive impacts due to the influx of construction workers into the project area, who will need food, lodging, fuel, and recreational facilities.

In conclusion, there are no substantial changes in impacts and related environmental effects due to the revision of the selected alternative. In fact, the reduction in the roadway width in Section 1 will lessen the overall impacts in the project corridor.

Mitigation:
The mitigation measures outlined in the 1998 EA to minimize project impacts are still applicable and valid. Additional mitigation proposed as a result of the change in the selected course of action represents a refinement of the measures identified in the EA/FONSI.

Minimizing Construction Impacts
Construction impacts (traffic delays and disruption caused by construction activities) will be minimized by coordinating all construction along the route and providing highway users with early, detailed information of construction schedules and delays. The traffic control plan will include posting messages at both ends of the highway and at the beginning of the Chief Joseph Highway to alert motorists of the location and duration of any potential delays. Also, the use of

AM radio messages can even more clearly describe the construction project and potential delays and disruption. Careful design of traffic control plans and limiting closure periods can also serve to encourage highway users to continue driving the highway during construction.

Economic
The minor impacts to economic interests in Cooke City and Silvergate will be mitigated in large part by the presence of construction workers who will need food, lodging, fuel, and recreational outlets for the four seasons during the construction of Segment 1.

CONCLUSION

This reevaluation of the 1998 EA/FONSI for upgrading Segment 1 of the Beartooth Highway did not find any changes in the project need, selected alternative, affected environment, impacts and mitigation that invalidate the existing NEPA approvals or that warrant a new or supplemental environmental assessment or other NEPA document. The modification to the proposed road improvements in Section 1 by reducing the roadway to an 8.5-meter (28-foot) road width consisting of 2 – 3.3-meter (11-foot) lanes and 2 – 0.9-meter (3-foot) paved shoulders better serves the public interest and creates a better balance between the need for a safe and efficient transportation system and the social, economic, and environmental impacts of the proposed improvement. As of March 2002, the upgrading of Segment 1 of the Beartooth Highway and the related impacts and mitigation are still satisfactorily addressed in the 1998 EA/FONSI as further described in this reevaluation. The selected alternative still meets the purpose and need of the project.

RECOMMENDED BY:

Ronald L. Burnett, Design Operations Engineer

CONCURRENCE BY:

Philip Ditzler, Project Development Engineer

Ricardo Suarez, Project Delivery Engineer

APPROVED BY:

for Ronald Carmichael, Division Engineer

ENVIRONMENTAL ASSESSMENT

Beartooth Highway
Montana Forest Highway 59

Gallatin National Forest
Park County, Montana

Submitted

Pursuant to Public Law 91-190
National Environmental Policy Act

Prepared By

U. S. Department of Transportation
Federal Highway Administration
Western Federal Lands Highway Division

In cooperation with

USDA Forest Service
Montana Department of Transportation
Park County

8/14/97
Date Approved

Carol A. Lowby
Division Engineer
Western Federal Lands Highway Division

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PLEASE NOTE: Text amendments made in May 1998 are shaded in this document

FINDING OF NO SIGNIFICANT IMPACT
FOR
PROPOSED IMPROVEMENTS
TO
MONTANA FOREST HIGHWAY 59
BEARTOOTH HIGHWAY
Milepost 0.0 to 8.4
IN
PARK COUNTY, MONTANA

The Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration has determined that the selected course of action for upgrading a portion of the Beartooth Highway from Mileposts 0.0 to 8.4 will have no significant impact on the human environment.

The selected action, described as the Preferred Alternative in the August 1997 Environmental Assessment (EA), as amended in May 1998, consists of the following actions:

- The proposed improvements consist of upgrading the Beartooth Highway from the Yellowstone National Park boundary at Milepost 0.0 to the Wyoming State Line at Milepost 8.4. The project also includes the short road segment between the Northeast Entrance Station inside Yellowstone National Park to the Park boundary at Milepost 0.0. The Beartooth Highway is designated as Montana Forest Highway 59, US Highway 212, and the Beartooth National Scenic Byway. The proposed project would widen and pave the Beartooth Highway along the existing alignment except in areas of sharp curvature where the alignment would be improved, particularly from Milepost 4.0 to Milepost 8.4. Construction items include clearing, grading, slide and subgrade stabilization, revegetation, drainage improvements, placement of crushed aggregate base and asphalt pavement, signs, striping, guardrail, and other safety-related features necessary to meet design standards. A new kiosk would be installed between the Park boundary and Silver Gate, the entrance to Soda Butte Campground would be improved, and adjacent roadside facilities would be enhanced.

- The project is scheduled to be advertised in May 2000, with construction activities expected to commence in the summer of that same year. It is likely that two or more successive construction seasons will be required to complete the proposed improvements.

This Finding of No Significant Impact (FONSI) is based on the August 1997 EA, amended May 1998, which documents the evaluation of the social, economic, and environmental effects of the proposed action and alternatives. All comments received as a

result of the early coordination process, comments from public meetings held yearly during 1995-1997, and public review of the EA have been considered and are included in the EA. One major issue (the potential use of the area by grizzly bears) was resolved by developing a mitigation plan through consultation with the U.S. Fish and Wildlife Service. Mitigation measures included (1) roadside and campground signing to alert users to the presence of grizzlies; (2) addition of metal food storage containers at three campgrounds; (3) improved bear-proof features at the Cooke City dump; and (4) contract provisions for handling food, garbage and procedures for grizzly bear sightings or incidents. No other major issues were involved with this project.

WETLANDS FINDING:

In accordance with Executive Order 11990, Protection of Wetlands, the proposed highway improvement and its wetlands impacts have been closely evaluated. Wetlands are scattered along both sides of the road throughout its length. Wetland impacts will not exceed 1.0 hectares (2.6 acres). Several alternatives for upgrading this road were considered but rejected due to their greater impact to wetlands and other environmental resources as compared to the preferred alternative. Wetland encroachment cannot be further avoided because of the close proximity of wetlands to the existing road alignment and occurrence of wetlands on both sides of the road at some locations.

Special precautions will be taken where needed to ensure that road fill slopes and other activities that disturb soils and could affect wetlands through erosion and sedimentation will be successfully stabilized and revegetated. Impacts to wetlands have been mitigated through purchase of 2.17 hectares (5.38 acres) of existing high-quality, privately-owned wetlands located just east of Silver Gate, in an area locally known as Duffy's Meadow. The WFLHD has coordinated with the U.S. Corps of Engineers, U.S. Forest Service, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, Montana Department of Fish, Wildlife, and Parks, and the Montana Water Quality Bureau during development of the wetland mitigation plan. Park County and Worldlife (a non-profit conservation organization dedicated to preserving habitat) have been instrumental in the purchase of and long-term maintenance agreement for Duffy's Meadow.

Based upon the above considerations, WFLHD has determined that there is no practical alternative to the proposed construction in wetlands. Also, the proposed action includes all practicable measures to minimize harm to wetlands that may result from such use.

The EA and related documentation adequately and accurately address the need, environmental issues, impacts of the proposed action, and appropriate mitigation

measures. The EA documents full compliance with the National Environmental Policy Act and other applicable environmental laws, Executive Orders, and implementing regulations. The EA provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The WFLHD takes full responsibility for the accuracy and content of the EA.

RECOMMENDED BY:

Walter L. Langlitz — 5/29/98
Walter L. Langlitz — Date
Design Operations Engineer

ASSIGNED BY:

David K. Hurkmans — 5/29/98
for Thomas J. Hildreth — Date
Operations Engineer

APPROVED BY:

James T. Gatto — 5/29/98
for Carol H. Jacoby — Date
Division Engineer

List of Acronyms

3R	Resurfacing, Restoration, and Rehabilitation
AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway & Transportation Officials
BA	Biological Assessment
BE	Biological Evaluation
BMU	Bear Management Unit
CFR	Code of Federal Regulations
COE	Corps of Engineers
DFWP	Department of Fish, Wildlife, and Parks
EA	Environmental Assessment
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FH	Forest Highway
FS	Forest Service
GNF	Gallatin National Forest
km/h	kilometers per hour
LOS	Level of service
mph	miles per hour
MP	milepost
MPDES	Montana Pollutant Discharge Elimination System
MDEQ	Montana Department of Environmental Quality
MDT	Montana Department of Transportation
MT	Montana
NEPA	National Environmental Policy Act
NF	National Forest
NPS	National Park Service
PR&P	Park Roads and Parkway
SADT	Seasonal Average Daily Traffic
SEE	Social, Economic, and Environmental
SPA	Stream Preservation Act
US	United States
WFLHD	Western Federal Lands Highway Division
WYDOT	Wyoming Department of Transportation
YNP	Yellowstone National Park

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Chapter One: Description of the Proposed Project

The Federal Highway Administration (FHWA), Western Federal Lands Highway Division (WFLHD), in cooperation with the Forest Service (FS), National Park Service (NPS), Park County, and the Montana Department of Transportation (MDT), is planning a project which would improve a segment of the Beartooth Highway in Montana. The WFLHD is the lead agency responsible for decisions regarding project development and environmental clearance.

The Beartooth Highway begins at the Yellowstone National Park (YNP) boundary at Milepost (MP) 0.0 and extends easterly to Red Lodge. The proposed project addressed in this Environmental Assessment (EA) is to upgrade Segment 1 of the route from theYNP boundary at MP 0.0 to the Wyoming State Line at MP 8.4. The project would also include the segment of the YNP Northeast Entrance Road from the Northeast Entrance Station to the YNP boundary. The Beartooth Highway is designated as Montana Forest Highway 59, State Primary Route 28, US Highway 212, and also as the Beartooth National Scenic Byway, but will be referred to throughout this document as the Beartooth Highway.

In compliance with the National Environmental Policy Act (NEPA), this EA has been prepared to provide a full and fair discussion of the reasonable range of alternatives which address the purpose and need for the proposed project, to identify the environmental impacts associated with the alternatives, and to inform decision-makers, affected agencies and the public.

Scope and Nature of the Proposed Work

The proposed project would widen and pave the Beartooth Highway along the existing alignment within the project area except where extremely sharp curves are to be flattened. The major construction items for this project include clearing and grading, slide and subgrade stabilization, revegetation, drainage improvements, placement of crushed aggregate base and asphalt pavement, signs, striping, guardrail, and other safety-related features necessary to meet current design criteria. The proposed project would include a new kiosk between YNP and Silver Gate, (see location on Figure 1), an improved entrance road to Soda Butte Campground and improvements to adjacent roadside interpretive facilities. Alternatives and design details are described in Chapter Three.

Funding

The proposed improvements to the segment of the Beartooth Highway between MP 0.0 and MP 8.4 would be funded under the Forest Highway Program. The Forest Highway (FH) Program provides funds for public highways which serve a significant amount of Forest-related traffic. These funds are allocated from the Federal Highway Trust Fund and provide up to 100% funding

for engineering and construction (except for right-of-way acquisition and utility relocations). The FH Program is administered by FHWA in accordance with regulations developed jointly by FHWA and the FS. Projects funded under the FH Program have been jointly selected by the FHWA, FS, and MDT. Park County's interest are represented by MDT.

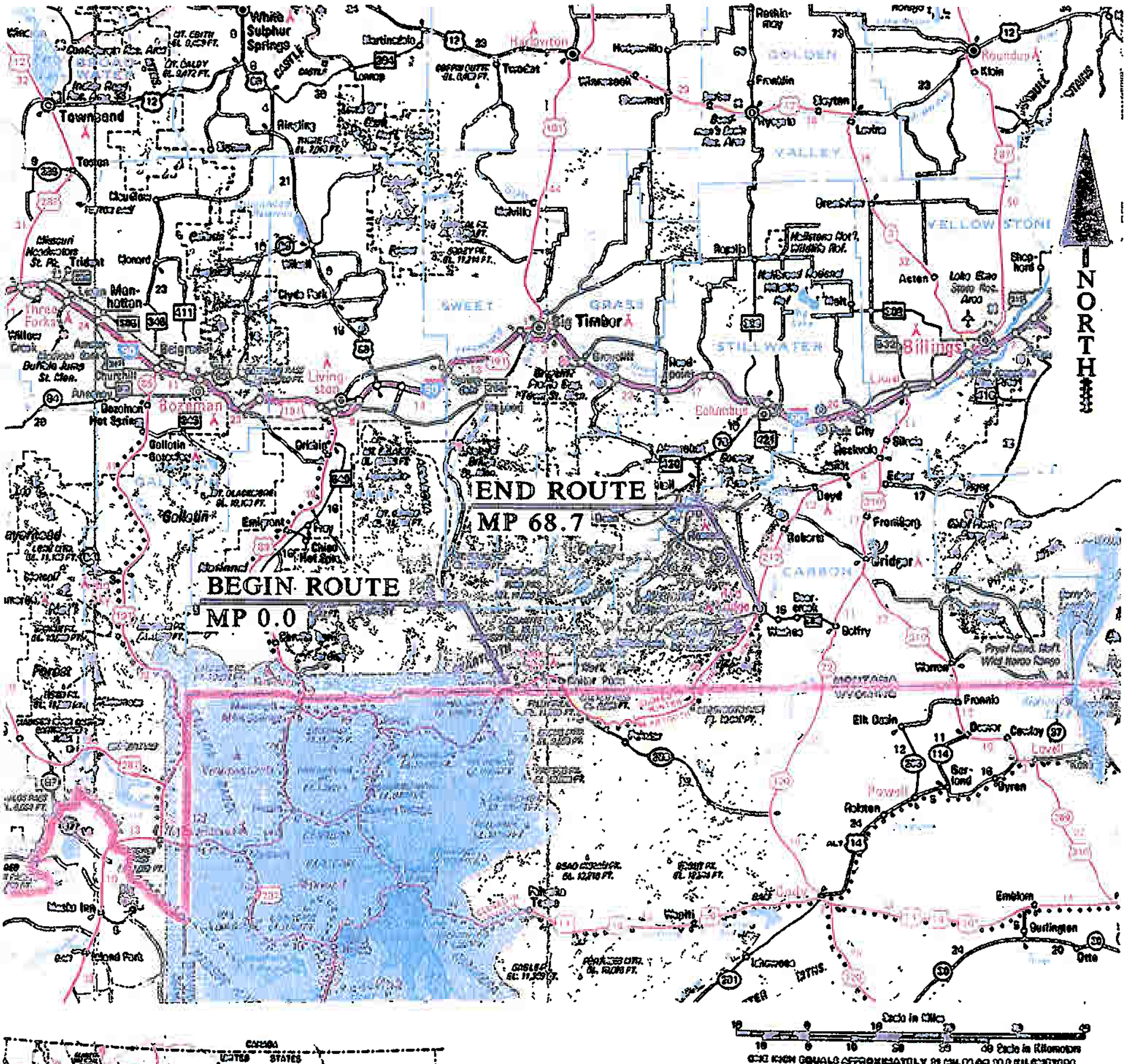
The segment of the project inside the YNP from the Northeast Entrance Station to the YNP boundary at MP 0.0 may be funded under the Park Roads and Parkway (PR&P) program which also receives allocations from the Federal Highway Trust Fund. Projects funded under the PR&P program provide access to lands administered by the NPS.

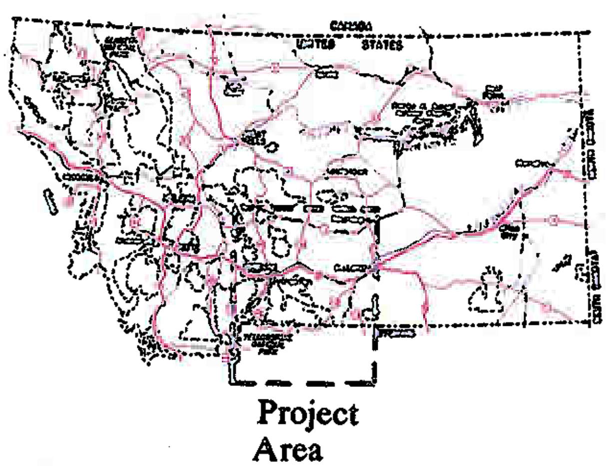
The proposed project is scheduled for at least two construction contracts, beginning in Fiscal Year 2000, depending on available funding. The MDT would bear the cost of acquiring additional right-of-way, if needed.

Jurisdiction

The existing right-of-way through privately-owned lands is publicly owned. Further research is necessary to determine exact ownership. A 152.4-meter (500-foot) corridor was reserved under Executive Order 5949 (see Appendix) for the Beartooth Highway through National Forest lands east of Cooke City. In addition, a 30.5-meter (100-foot) easement (see Appendix) was granted from the FS to the State of Montana in 1986 for portions of the road that cross National Forest lands. Maintenance of the route is currently performed by NPS.

Photograph 1. Colter Pass



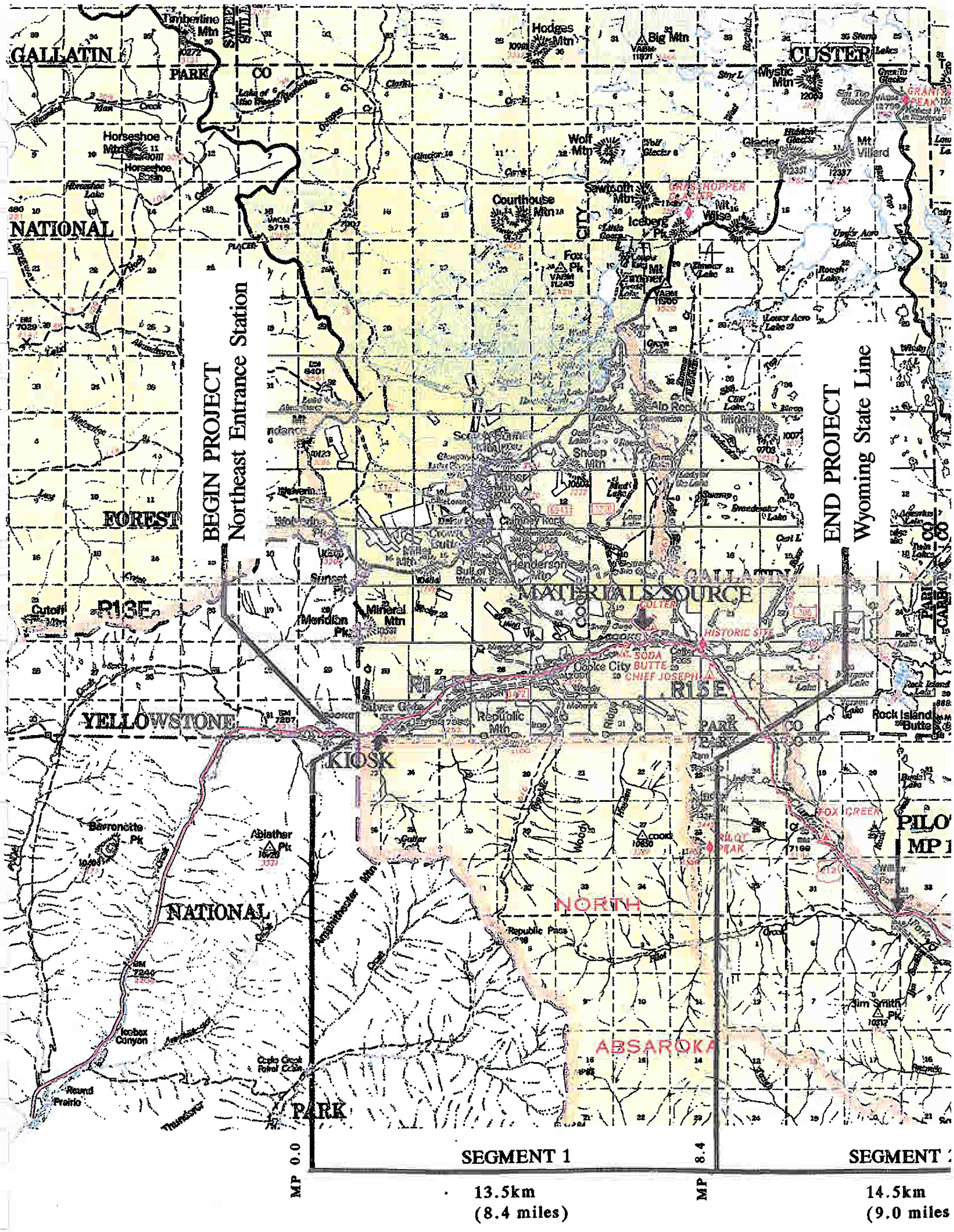


Key Map of Montana

Beartooth Highway

Regional Map

FIGURE 1



GALLATIN
NATIONAL
FOREST
PARK
CO
CUSTER
BEGIN PROJECT
Northeast Entrance Station
END PROJECT
Wyoming State Line
MATERIALS SOURCE
Cooke City
Silver Gate
KIOSK
YELLOWSTONE
NATIONAL
PARK
NORTH
ABSAROKA
R13E
R14E
R15E
Timberline Mtn
Hodges Mtn
Big Mtn
Horseshoe Mtn
Horseshoe Basin
Horseshoe Lake
Wolf Mtn
Courthouse Mtn
Sawtooth Mtn
Iceberg Pk
Mt Wise
Glacier Pk
Mt Villard
Mystic Mtn
GRANITE PEAK
GRASSHOPPER GLACIER
Fox Pk
Alp Rock
Sheep Mtn
Middle Mtn
Miller Mtn
Crown Butte
Henderson Mtn
Chimney Rock
Sunset Pk
Meridian Pk
Mineral Mtn
Republic Mtn
Cutoff Mtn
COLTER
HISTORIC SITE
SODA BUTTE
CHIEF JOSEPH
Colter Pass
Rock Island Butte
Barronette Pk
Abiathar Pk
Republic Pass
PILOT PEAK
FOX CREEK
Jim Smith Pk
Icebox Canyon
Round Prairie
Cache Creek Patrol Cabin
MP 0.0
SEGMENT 1
MP 8.4
SEGMENT 2
13.5km
(8.4 miles)
14.5km
(9.0 miles

BEARTOOTH HIGHWAY

Scale in miles
0 1 2 3 4

Scale in kilometers
0 1 2 3 4

NORTH

END PROJECT
Wyoming State Line

PILOT CREEK TRAIL HEAD
MP 12.6

CHIEF JOSEPH SCENIC BYWAY
MP 17.4

TOP OF THE WORLD STORE
MP 28.3

SEGMENT 2	MP 17.4	SEGMENT 3	MP 24.5	SEGMENT 4	MP 43.1	BK	MP 45.0	AH	SEGMENT 5	MP 60.0	SEGMENT 6	MP 64.2	SEGMENT 7	MP 68.7
14.5km (9.0 miles)		11.4km (7.1 miles)		29.9km (18.6 miles)					24.1km (15.0 miles)		6.8km (4.2 miles)		7.2km (4.5 miles)	

Chapter Two: Purpose and Need

The Forest Service, the Federal Highway Administration, the State, and often a county, typically join forces to design and construct a road that has been approved for upgrading under the Forest Highway Program. This coordinated effort allows agencies to undertake public road improvements that are important to the administration of the National Forest and which impact the local road network that provides access into the Forest. The decision to improve a Forest Highway route, or a selected portion of a route, is based on many factors, including traffic volume, level and type of use the road receives, the physical conditions and deficiencies on the existing road, and how well the facility is serving the needs of the National Forest. Forest Highway routes are selected based on an evaluation of the following six criteria.

Forest Highway Criteria

1. *The route is wholly or partially within, or adjacent to, and serves the National Forest System.*

   Segment 1 of the Beartooth Highway begins and ends on the Gallatin National Forest within the state of Montana. The remainder of the route (Segments 2 through 7, which are outside the project limits) passes through the Shoshone National Forest in Wyoming and back into Montana on the Custer National Forest to Piney Dell. From Piney Dell the road continues north on private lands to the town of Red Lodge, making it the final and only segment of the Beartooth Highway that does not cross National Forest lands.

   In the project area, the Beartooth Highway route provides access to a relatively narrow corridor of National Forest System lands with private in-holdings bounded by designated wilderness areas on either side. The route is the only access into these areas.

2. *The road is necessary for the protection, administration, and utilization of the National Forest.*

   The road provides the only access for the protection, administration, and utilization of the southeast corner of the Gallatin National Forest, and it also serves as an entry way to Yellowstone National Park. The Beartooth Highway is used primarily for recreational travel between the northeast entrance of Yellowstone National Park and Red Lodge and Cody, Wyoming. Use of most of the road is seasonal in nature, as the road is open only from Memorial Day to the first snowfall in November. Since the route is the only access to the Cooke City area in the winter, the first 6.4 kilometers (4.0 miles) is open year-round to provide residential and commercial access between Cooke City and Gardiner via Yellowstone National Park and between the communities of Cooke City and Silver Gate.

The Forest Service has designated the Beartooth Highway as a National Forest Scenic Byway, and the road experiences a high level of seasonal use. In addition to the numerous undeveloped roadside turnouts, there are many developed recreation sites along the Beartooth, including: (1) access to Yellowstone National Park; (2) Soda Butte, Colter, and Chief Joseph Campgrounds; (3) Broadwater (horse) Trailhead; (4) a wildlife viewing area; and (5) the Clarks Fork Picnic Area and Trailhead.

3. *The road is necessary for the use and development of National Forest System resources.*

The scenic quality of the Beartooth Highway corridor is unparalleled, and is one of the chief resources of this portion of the National Forest System. The Beartooth Highway is one of the most scenic drives at a high, continuous elevation in the United States. The highway was designated as a NF Scenic Byway in 1989 and is now considered to be one of the crown jewels in the NF Scenic Byways System.

The Forest Service initiated the National Forest Scenic Byways Program in 1988. Scenic byways have been established as a national program to showcase outstanding scenic beauty and well-managed, changing landscapes. The program recognizes that "driving for pleasure to view scenic landscapes" has become one of the most popular forms of recreation in the country. The NF Scenic Byways link the American people to outdoor recreation opportunities on National Forests.

The goals of the National Forest Scenic Byways program are to:

- Showcase outstanding NF scenery
- Increase the public's understanding of the NF as a major provider of outdoor recreation
- Increase public awareness and understanding of all NF activities
- Meet the growing demand of driving for pleasure as a significant recreational use
- Increase the use of the NF by non-traditional users including urban minorities, the disadvantaged and the elderly
- Contribute to the Nation's overall Scenic Byways efforts

Completing the reconstruction of this section of Beartooth Highway supports the goals of the National Forest Scenic Byways program.

The road provides access to a large National Forest recreational complex, including the road itself, numerous campgrounds, horse trails, pullouts, and a wildlife viewing area. Additional Forest Service facilities and improvements planned in conjunction with this project that would further enhance the recreational opportunities of the area, include (1) constructing a pullout between the boundary of Yellowstone National Park and Silver

Gate that would have an accessible toilet, picnic tables and an interpretive-informational exhibit on the Beartooth Highway and surrounding areas; (2) constructing or using an existing pullout and installing an interpretive panel discussing the area's exemplary moose habitat; and (3) improving the existing access into Soda Butte Campground.

In addition to auto traffic, bicycle tour groups and recreational vehicles are becoming common during the summer months. Individual cyclists as well as organized tour groups are discovering the outstanding scenery along the Beartooth route.

Snowmobiling and cross-country skiing are popular activities in the Cooke City area. After heavy snows close the road to traffic, portions of the route from MP 4.0 to MP 55.0 are used as snowmobile trails. There is also a groomed trail from Cooke City to the Pilot Creek Trailhead at MP 12.55. From here, the trail forks to either the intersection of the Chief Joseph Scenic Byway and the Beartooth Highway at MP 17.4 or continues to the Top of the World Store at MP 28.3. The Top of the World Store area is for experts only, as severe weather conditions and avalanches are prevalent. In addition, a system of off-road snowmobile trails exists all the way from Cooke City to the junction with the Chief Joseph Scenic Byway.

A small amount of timber (approximately 50,000 board feet annually) is hauled from the National Forest via the Beartooth Highway.

4. *The road is under the jurisdiction of a cooperator and open to public travel.*

The National Park Service currently maintains the road. The road is open year-round to public and private users traveling through Yellowstone National Park and on to Cooke City. The remainder of the route from Cooke City to the Montana/Wyoming State Line is closed during the winter months or when snow is still on the ground, usually from November to May. Despite the possibility of providing a year-round route to Cody via the Chief Joseph Scenic Byway, there are no intentions to maintain an open road over Beartooth Pass to Red Lodge during the winter.

The Beartooth Highway forms a junction with the Chief Joseph Scenic Byway at MP 17.4 in Segment 3. Construction was completed on the Byway in 1995. Pressure may increase to provide year-round service between Cody and Cooke City.

Currently, the Wyoming Department of Transportation snowplows five days per week on the Chief Joseph Scenic Byway, and only on Thursdays on the Beartooth Highway from MP 17.4 to MP 12.5. Plowing allows access to private ranches that occur along this portion of the Beartooth, and also provides access to the Pilot Creek Trailhead at MP 12.55, which is used as a snowmobile trailhead parking area.

5. *The road provides a connection between National Forest System resources and one of the following:*

   a. *A safe and adequate public road*
   b. *Communities*
   c. *Shipping points*
   d. *Markets dependent on these resources*

   The road provides a connection between the National Forest and public roads on both ends, linking the communities of Silver Gate, Cooke City, Red Lodge, and Cody with Yellowstone National Park.

6. *The road serves one of the following:*

   a. *Local needs such as schools, mail delivery, commercial supply*
   b. *Access to private property within the National Forest System*
   c. *A preponderance of National Forest System generated traffic*
   d. *National Forest System generated traffic that has a significant impact on road design or construction*

   Segment 1 of the Beartooth Highway passes through the communities of Silver Gate and Cooke City. Local residents obtain mail delivery, commercial supplies, and gain access to their homes and ranches. Visitors travel to and from Yellowstone National Park or recreate at stopping points along the Beartooth itself. Although the majority of traffic is generated by summer tourists, the National Forest near Cooke City experiences significant winter use as well, from snowmobilers and other winter enthusiasts.

   Commercial trucking is not permitted through YNP except as necessary to supply the needs of Silver Gate and Cooke City. Some commercial tour bus traffic does occur and is expected to increase. The Chief Joseph Scenic Byway enhances a loop tour route from Cody up the Chief Joseph Scenic Byway and the Beartooth Highway to Cooke City, through the Park, and out the East Entrance Road back to Cody.

Speed limits for unmarked roads in Montana are 90 km/h (55 mph) during the nighttime and during the daytime hours drivers are required to act "reasonably and with prudence", depending on driving conditions. The proposed road improvements would not affect the speed zone through Cooke City and Silver Gate which is currently 40 km/h (25 mph). Speed limits are set by the state legislature. Speed zones are set by the Montana Transportation Commission.

In addition to the road uses described above in the route selection criteria, the traffic volumes and physical conditions of the existing road affect the level of safe and efficient travel for the public and help determine the priority for improvement of various segments of the route. Descriptions of traffic volumes, accident history, and the physical deficiencies of the existing road are discussed in the following sections.

Existing and Projected Traffic Volumes

Since the Beartooth Highway is closed for a substantial portion of the year (Beartooth Pass is currently closed 7 months of the year) both Average Annual Daily Traffic (AADT) and Seasonal Average Daily Traffic (SADT) volumes will be shown for the project area. The AADT is the total number of vehicles that use the road in a year divided by 365 days. The SADT is the average number of vehicles that use the route each day over the "season." For the Beartooth, the season is from May through September, corresponding to the time that the Beartooth Pass segment is open. The SADT is considerably higher than the AADT for the Beartooth Highway, and it is an important consideration in design. Traffic is counted in both directions. On the Beartooth Highway there is more traffic going into Yellowstone National Park than is leaving the Park. This "directional distribution" is about 45%-55%. Future traffic volumes are used for design purposes, usually 20 years into the future. Future traffic volumes are computed by applying an annual growth factor to current traffic volumes, and by making adjustments for changes in traffic patterns that can reasonably be foreseen. An annual growth rate of 3.4 per cent was used in the analysis to forecast future traffic volumes for the Beartooth Highway.

Future traffic patterns would change somewhat if the Chief Joseph Scenic Byway becomes a year-round route to Cooke City. Upgrading of the roadside recreational facilities along the Beartooth Highway and an increase in commercial tour buses using a loop tour route to Cody could also increase traffic volumes, but these increases would probably not be substantial.

Bicycle use of the route during the summer is steadily increasing. The route experiences 4 to 6 bicycle groups per week, averaging 15 to 30 bicyclists per group, as well as individual cyclists.

The current and projected traffic volumes for Segment 1 of the Beartooth Highway are shown in Table 1.

TABLE 1 - TRAFFIC VOLUMES (Segment 1, MP 0.0 to MP 8.4)

Year	AADT	SADT
1994	490 (B)	980 (B)
1999 (estimated)	579 (B)	1159 (B)
2019 (estimated)	1130 (B)	2260 (D)
Peak hour Volume 2019	124	249
Number of trucks 2019	80	161
Percent trucks 2019	7.1%	7.1%

Note: The capital letters in parentheses in the table denote the Level of Service (LOS) for the traffic volume. The Level of Service is a qualitative measure describing the operational conditions within a traffic stream and their perception by motorists and/or passengers. A LOS definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined with letter designations from A through F. LOS A represents the best operating conditions, and F represents the worst. LOS C is in the range of stable flow, but marks the beginning of operation where individual users become significantly affected by interactions with others in the traffic stream. The general level of comfort and convenience declines noticeably at this level. LOS D represents high density, but stable flow. Speed and freedom to maneuver are severely restricted, and the driver or passenger experiences a generally poor level of comfort and convenience. Small increases in traffic flow at this level will generally cause operational problems. LOS D is an appropriate design measure for a collector road in a rural area with mountainous terrain according to Table II-6 of AASHTO's "A Policy on Geometric Design of Highways and Streets, 1994."

Accident History

Selected accident statistics for the project area from 1983 to 1996 are listed below. Due to the remoteness of the area and lack of local law enforcement, it is certain that many minor accidents are not officially reported or recorded, particularly those accidents where the damage is minor and other vehicles are not involved or where there are no injuries.

Table 2 - Accident History

Total Number of Accidents: 51

Fatal Accidents: 1
Injury: 19
Non-injury: 31

Accident Type/Factor

Head-on/Rear-end: 5
Sideswipe/Turning: 6
Overturn: 17
Collision with Roadside Object: 18
Collision with Animal: 0

Snow/Ice: 8
Asleep/Inattention: 17
Unsafe Speed: 7
Alcohol related: 7

This data illustrates some interesting facts. Many accidents occur from a combination of factors. As might be expected, collisions with roadside objects account for a large percentage of the accidents due to a narrow pavement and ditch width. Also, collisions due to inattention account for a high percentage of the accidents. Unsafe speed and alcohol-related factors also seem to be significant. Although no accidents with bicyclists were recorded, the narrow width of the road without shoulders makes this activity dangerous, and it would only worsen as bicycle use increases along with increases in other traffic.

Assuming that the AADT over the 13.5-kilometer (8.4-mile) segment during the 13-year period is 400 vehicles per day, the accident rate is calculated at 2.7 accidents per million vehicle miles (number of accidents divided by vehicle miles multiplied by 1,000,000). This rate is considerably higher than the Montana statewide average of 1.44 for primary highways.

In Montana, the Severity Index is a number from 1.0 to 5.8 used to rate the severity of an accident and is calculated using accident statistics such as number of fatalities, injuries, and accidents involving property damage only. The higher the number, the more severe the accident in terms of injuries and/or fatalities. The Severity Index for the project area is 1.72 compared to the statewide average for similar roads in Montana of 1.53.

The project area has two sections where several accidents are grouped together. One section located between MPs 5.0 and 5.5 has the sharpest curves and most difficult alignment within the project area. Many accidents also occurred between MPs 7.8 and 8.1. This area was noted by the National Park Service as being dangerous because of the alignment and grade combination which caused accidents where vehicles ran off the road and overturned.

One fatal accident occurred at MP 0.9 on April 6, 1986. A speeding passenger car ran off the road and collided with a tree, killing one individual.

Existing Road Condition

Surface Conditions

The existing pavement has significant cracking and is in very poor condition from subsurface moisture, frost action, and high traffic use. Significant longitudinal and transverse pavement cracking is evident throughout the segment. Wetter areas between MP 0.0 and Cooke City exhibit alligator cracking and frost heave, particularly at several culvert locations. A slide area also occurs between Silver Gate and Cooke City which requires continual pavement patching.

Geometrics

The existing road has a substandard width and excessive curvature and superelevation (the way the road banks) in some areas which creates hazardous conditions. The road was originally constructed in the early 1930's to a 5.5-meter (18-foot) paved surface. The present paved width is approximately 6.4 to 6.7 meters (21 to 22 feet) with little or no gravel shoulder, except through the communities of Silver Gate and Cooke City where the pavement width is 9.1 meters (30 feet). Between MPs 0.0 and 4.0, the alignment and grade of the existing road is relatively good. Sharper curvature and steeper grades are present from MP 4.0 to MP 8.4, and the road operates at a speed of 55 to 65 kilometers per hour (km/h), or 35 to 40 miles per hour (mph). There are winding road warning signs advising speeds of 50 km/h (30 mph) for this area. Excessive curvature between MPs 4.0 and 8.4 combined with excessive superelevation make this segment dangerous during snowy and icy conditions. A major accident location exists at MP 7.91 where multiple accidents have occurred due to a combination of downgrade, curvature, and pavement roughness.

Guidance and Roadside Safety Features

The pavement is marked with a double solid yellow centerline. There are no white shoulder lines or delineators, and only a short length of guardrail at Sheep Creek (MP 2.31). The existing roadside clear zone is approximately 1.5 meters (5 feet) or less from the edge of the pavement. The standard clear zone for current conditions along this route is 3.0 to 3.6 meters (10 to 12 feet). Several residential fences and buildings near Silver Gate are very close to the edge of the road. Signing is also substandard. The road does not have a posted speed limit, except for 40 km/h (25 mph) through the two communities of Silver Gate and Cooke City.

Additional parking space is needed in Cooke City for both snowmobiles and vehicles, as most local businesses do not provide off-street parking. This is an acute problem in Cooke City and the private driveways between Silver Gate and Cooke City. There are unsafe roadside parking conditions during the winter months when snowplows push snow off the highway and block

residential driveways, forcing residents to park along the edge of the road. Inadequate parking spaces encourage tourists to park along the roadside during the summer months, creating dangerous roadside conditions due to the existing narrow road width.

Hydraulics/Drainage

Water floods the road up to 0.6 meters (2 feet) deep at MP 5.6 and MP 6.1 during spring runoff. There are numerous locations throughout Segment 1 where the road crosses steep drainages. Gravel and debris moves down the drainage channels and plugs the culverts. These locations, principally between MPs 0.0 and 5.0, are continual maintenance problems that require culvert cleaning and inlet and outlet channels each year. At Sheep Creek (MP 2.31), an old existing log bridge was replaced by a structural plate pipe culvert in 1982. Water has often washed out the pipe and damaged the road, indicating inadequate pipe size or improper location. Some of the smaller 460-millimeter (18-inch) diameter culverts in this segment were noted as having inadequate capacity during spring runoff. Rust was noted in most of the pipes. In at least two locations, water collects along an uphill approach road and then floods out on the main road, depositing gravel and other debris. Between MPs 2.41 and 2.57, a major slide area exists which involves the entire road. Inadequate subsurface drainage seems to be the principal cause. Wet cut slopes extend from this slide area all the way into Cooke City at MP 3.4, and subsurface moisture in the ditch line and subgrade is causing the pavement to fail.

Summary

Segment 1 of the Beartooth Highway is being proposed for upgrading because of its substandard physical conditions and resulting operational problems and safety deficiencies. Several safety and operational problems on the existing road are becoming intolerable under present and projected traffic levels. The major deficiencies include:

- The existing paved width is too narrow for current and future traffic volumes.
- The lack of paved shoulders makes bicycling dangerous.
- There is no room for snow storage during winter maintenance activities if year-round maintenance from Cody begins, particularly in the Colter Pass area.
- There are deficient winter and summer parking areas for residents and tourists along the route.

Chapter Three: Description of Alternatives

The existing roadway and two alternative construction alternatives were studied to correct the physical and operational problems of the Beartooth Highway along Segment 1. This chapter describes the alternatives which were considered for this project. Alternatives which were eliminated from further study are also identified.

Design Standards and Route Continuity

Forest Highway projects are normally designed to meet owner agency standards or at least the minimum standards contained in the American Association of State Highway and Transportation Officials (AASHTO) Policy on Geometric Design of Highways and Streets, updated in 1994. Exceptions to design standards may be considered on a case-by-case basis when excessive social, economic, or environmental consequences would result, and when the reduced standard with appropriate mitigation measures would not unduly compromise the operation and safety of the facility. The design standards recommended by AASHTO and MDT, as well as the standards of the adjacent roads sections are identified below:

AASHTO	The Beartooth Highway is officially classified as a rural minor arterial road. For mountainous terrain and a traffic volume of 2260 vehicles per day, minimum AASHTO design speed is 70 km/h (40 mph) with an 11-meter (36-foot) paved width.
MDT	MDT's Highway Standards Manual states that for Surface Transportation Primary Highways (or minor arterials) the standard road width should be 8.4, 9.6, 10.8, or 12.0 meters (28, 32, 36, or 40 feet). The appropriate width is selected based on traffic density and type of use. Rumble strips and bicycle lanes are only used on roads with an equal or greater than 9.6-meter (32-foot) width.
Connecting roads	The Northeast Entrance Road in YNP is currently being rehabilitated to a 6.0-meter (20-foot) width as an interim measure. Future plans are to reconstruct and widen this route to the NPS standard 9.0-meter (30-foot) width. Recent reconstruction of Segments 2 and 3 of the Beartooth Highway in Wyoming improved the width to 9.6 meters (32 feet) except for a short section of Segment 2 from MP 8.4 to MP 12.8 which has a 7.0-meter (30-foot) width.

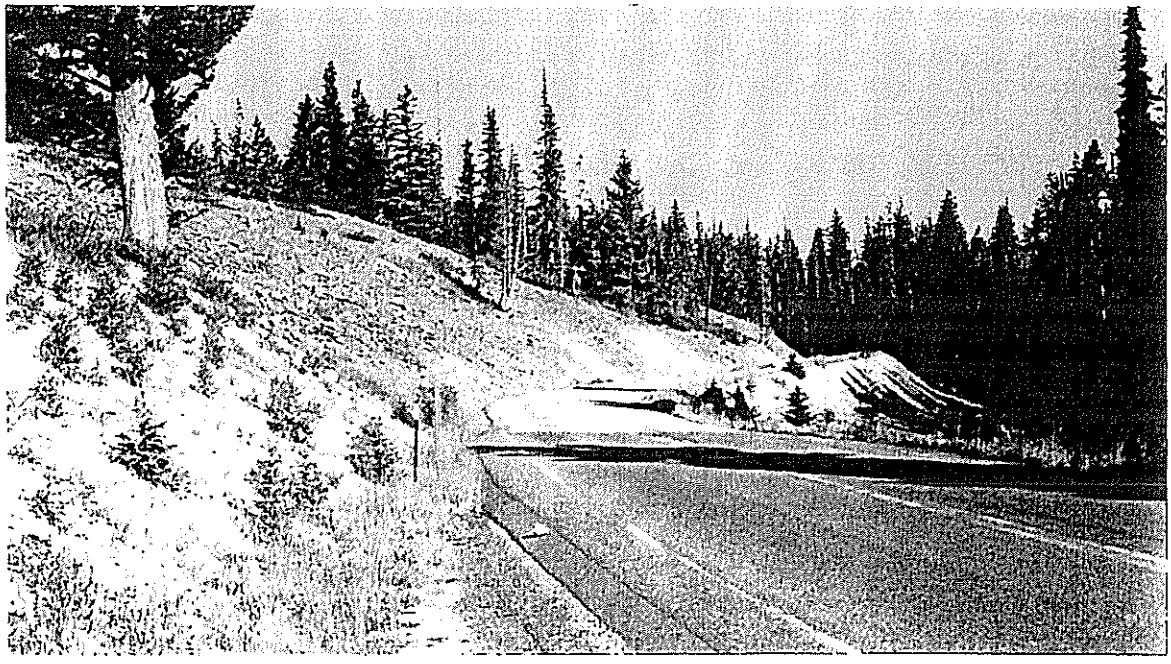
The width selected for the preferred Reconstruction Alternative is 9.6 meters (32 feet).

Project Objectives

Based on the existing road deficiencies and the projected use of the route, the following objectives were identified for improvement:

1. Rehabilitate the deteriorating pavement.
2. Increase the width of the pavement to improve safety and reasonably provide for bicycle use and traffic demands.
3. Improve the horizontal alignment from MP 4.0 to MP 8.4 to correct hazardous accident locations.
4. Stabilize the landslide at MP 2.5 and correct other drainage problems throughout the project.
5. Provide a highway facility that will accommodate winter use and winter maintenance activities.

Although inadequate parking was identified as a problem in the project area, it is beyond the scope of the project to create additional parking for general uses.



Photograph 3. Sharp curvature at Milepost 8.4

Alternatives

Two alternatives are identified in this section that would satisfy the project objectives in varying degrees. These alternatives were identified and developed in an interagency process with input and analysis by biological, cultural, botanical, and other specialists. The No Action, Resurfacing/ Restoration/ and Rehabilitation, and Full Reconstruction Alternatives are described below. Each alternative is discussed in relation to how project objectives are met. Alternatives in a new corridor were not considered because the existing road corridor is suitable and is the only reasonable route to provide access to the YNP Northeast Entrance Station and the communities of Silver Gate, Cooke City, and Colter Pass.

Alternative 1.....No Action

Under this alternative, the road would be left in its present condition. Routine maintenance would continue and there would be no change in transportation and access. The road would still be subject to closure from high water levels during spring runoff.

The short-term costs for this alternative would include routine maintenance costs needed to keep the road open but no construction funds would be needed. Eventually, deteriorating conditions would force closure of the road and result in substantial long-term expenditures to reopen the road. This alternative does not meet the needs of existing or projected traffic and does not address the road's current deficiencies. This alternative does not satisfy any of the project objectives.

Alternative 2.....Resurfacing, Restoration, and Rehabilitation (3R)

Under this alternative the road would be rehabilitated and repaved, but the road would not be widened beyond the existing 6.7 meters (22 feet). Ditches would be cleaned and restored, but not widened; drainage throughout the route would be improved where possible; landslide areas would be stabilized; superelevation would be corrected; and existing roadside turnouts would be paved as needed. A new entrance road to Soda Butte Campground would be constructed at MP 4.7. Improvements to the adjacent roadside interpretive facilities and other companion projects would be coordinated with the FS planning currently in progress for the route.

This alternative would have minimal environmental impacts and no right-of-way needs. The quality of the road surface would be improved as a result of this alternative. Signs, pavement striping, and guardrail would be upgraded to meet current standards. Sight distance at some approach roads would be improved.

The primary disadvantage of this alternative is that no improvement in road or ditch width would occur. The existing 6.7-meter (22-foot) width is well below the standard for the level of use the road receives. The alignment would not be improved, and all of the sharper curves would remain, which currently pose safety hazards. In addition, no snow storage area would be provided. The construction costs for this alternative would be approximately $1,680,000 (13.5 kilometers at $125,000 per kilometer). This alternative satisfies the first objective and partially satisfies objectives 4 and 5 identified on Page 16. It does not address objectives 2 and 3.

Alternative 3.....Reconstruction (Preferred)

The road would be widened to 9.6 meters (32 feet) except through the communities of Cooke City and Silver Gate where an overlay of the existing 9.0-meter (30-foot) wide pavement would be provided. This reconstruction would include the portion of the road from the Northeast Entrance Station to the Park boundary where the road width changes to 9.6 meters (32 feet). The change in width to the narrower Northeast Entrance Road would occur at the entrance station. In general, drainage problems would be completely addressed; roadside turnouts would be upgraded, enlarged, and paved as needed; signs, pavement striping, and guardrail would be upgraded to meet current standards; sight distance at approach roads would be improved; and left turn lanes would be constructed where needed. Additional improvements and companion projects would be coordinated with Forest Service plans currently in progress for the route.

The basic alignment of the road would not change, and in most locations the new road would cover the existing road, except to move away from roadside environmental or cultural features. Notable exceptions occur between MP 5.0 and 5.5 where the revised alignment would deviate from the existing by as much as 80 meters (262 feet), leaving some of the old road corridor visible from the new road. Sharp, hazardous, horizontal curves would be flattened where needed, particularly between MPs 5.0 and 5.5 and 8.0 to 8.4, where several accidents have occurred. The design speed of the new road would be 70 km/h (40 mph) which matches the design speed of the recent construction on Segments 2 and 3 in Wyoming. This design speed is in agreement with the recommendations in the 1994 AASHTO standards for Rural Arterial Roads in mountainous terrain. From the Northeast Entrance Station to Cooke City at MP 4.0, there are no curves that need to be flattened to meet this 70 km/p (40 mph) standard. The estimated construction cost for this alternative is $9,440,000 or $745,000 per kilometer.

The traveler's safety and operational conditions in the project area would be greatly improved. The width and alignment of the road would be substantially improved as a result of this alternative, and signs, pavement striping, and guardrail would be upgraded to meet current standards. Although the roads would not be widened through Cooke City and Silver Gate, the lower speed zones in these two communities would maintain an adequate level of safety. Sight distance at some approach roads would be improved, and the road grade would be raised to prevent closures from spring flooding. Maintenance requirements would substantially decrease.

The reconstruction alternative represents a substantial increase in the scale of the road compared to the existing road and would generate some moderate environmental impacts. Some minor right-of-way acquisition through private property would be required. This alternative satisfies all five of the project objectives identified on page 16.

Alternatives Considered but Dropped from Further Analysis

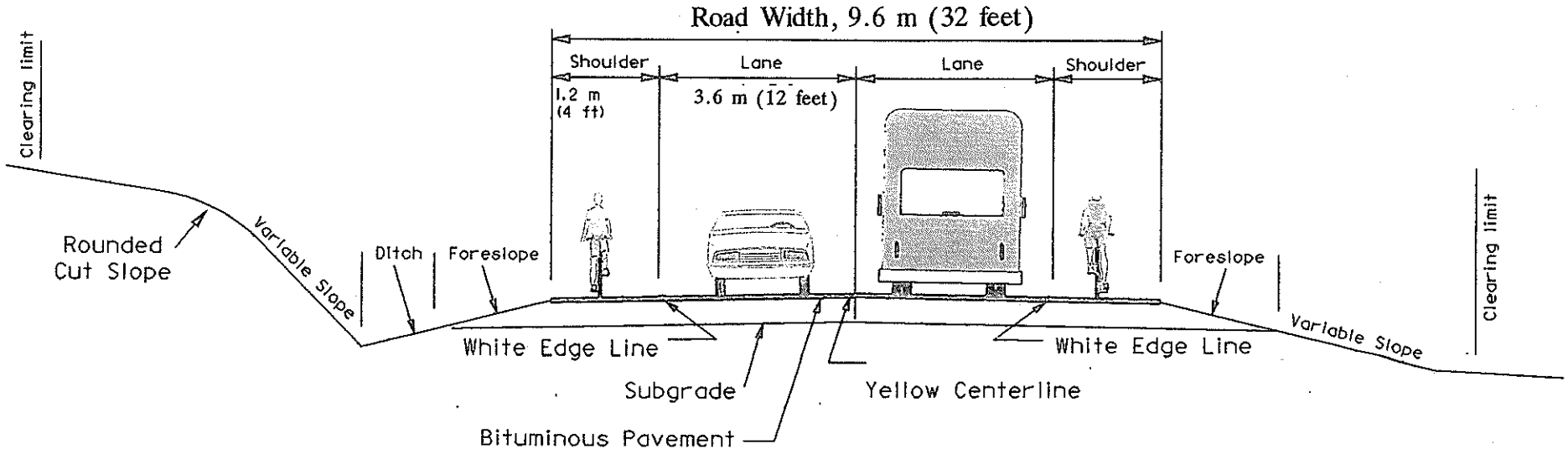
Based on owner agency standards, traffic use, and route continuity considerations, the 9.6-meter (32-foot) width was selected for the Reconstruction Alternative (Alternative 3). Widths of 28 feet and 30 feet were not analyzed here because of similarity of impacts described for the 9.6-meter (32-foot) width. The 3R Alternative (Alternative 2) and the Reconstruction Alternative (Alternative 3) are considered adequate to discuss the range of impacts. The following alternatives were considered but eliminated from further analysis for the following reasons:

1. An alternative which would have widened and paved the roadway to 8.5 meters (28 feet) was eliminated from further analysis because it would not provide an adequate width to safely accommodate the mix of existing or projected traffic.

2. An alternative which would have widened and paved the roadway to 9.0 meters (30 feet) was dropped because the width is not one of the standard widths recommended in the Montana Department of Transportation's Highway standards manual and was not desired by MDT.

3. An alternative which would have widened and paved parts of the roadway to 9.0 meters (30 feet) from MP 0.0 to MP 4.0 and widened and paved the roadway between MP 4.0 and MP 8.4 to 9.6 meters (32 feet) was dropped from further analysis for the same reasons given under 1 and 2 and because of safety concerns regarding inconsistent road width.

4. An alternative which would have reconstructed the road to the full 11.0-meter (36-foot) width recommended by AASHTO or the 12.2-meter (40-foot) width recommended by MDT was dropped from further analysis based on roadway consistency with the National Park Service and Wyoming segments, potential impacts to the scenic nature of the route, and the added environmental impacts (especially to wetlands).



TYPICAL SECTION, RECONSTRUCTION ALTERNATIVE

9.6 m (32 feet)

BEARTOOTH HIGHWAY

TYPICAL ROADWAY CROSS SECTION

Figure 3

Chapter Four: Setting

The proposed project is located in the high plateau country of south-central Montana just north of the state boundary with Wyoming, and adjacent to the northeast corner of Yellowstone National Park. The natural and cultural resources of the region are directly influenced by the rugged terrain and extreme climate that are associated with the mountainous landscape.

Geomorphology

The project lies within the northern Rocky Mountain physiographic province in the rugged, mountains of the Beartooth Plateau at elevations from about 1,677 meters (5,500 feet) to over 2,745 meters (9,000 feet). The Plateau is bound on the eastern end by the Clarks Fork of the Yellowstone River. From Cooke City the road climbs to 2,438 meters (8,000 feet) as it crosses Colter Pass then drops down to the Clarks Fork. From the Clarks Fork, the road climbs again to Beartooth Pass at an elevation of 3,337 meters (10.947 feet). Several mountain peaks in the area are over 3,660 meters (12,000 feet). The terrain adjacent to the project varies from flat to gently rolling for the first part, becoming mountainous beyond MP 4.0.

About 1.6 million years ago, during the Pleistocene Epoch, only the highest mountain peaks escaped the thick layer of ice covering most of the Beartooth Plateau. Deep valleys were trenched by glacial movements and hanging valleys, cirques, and horns were formed. A few alpine glaciers still remain to the north of the project area. Retreating glaciers have contributed to the formation of deep, unconsolidated soils in the valley, but surface rock that is currently exposed is probably the result of landslide activity. Geologic formations in the project area include intrusive granite-like rocks and flat-lying bedded limestone. Economically important gold and copper deposits occur in the area.

Climate

The climate in the project area is very extreme with temperatures dropping to -71 degrees Celsius (-40 degrees Fahrenheit) in the higher elevations during December, January, February and March. The area averages less than 30 days of frost-free weather during the year. Annual precipitation averages about 168 centimeters (66 inches) mostly in the form of snow. Drifts over 23 meters (75 feet) deep may occur in the mountain passes. Spring floods often follow snow melt in April and May. Warm days with cool nights typify the months of June, July, and August. Temperatures become increasingly cooler after August as winter approaches.

Vegetation

The project area is part of the northward continuation of the Absaroka Range of Wyoming and occurs in subalpine and montane areas where subalpine fir and lodgepole pine are the dominant tree species and Engelmann spruce are common. Grouse whortleberry, huckleberry, and western meadowrue are typical herbaceous plants in the understory. Whitebark pine occurs at higher elevations. The timber line ranges between 2745 to 3050 meters (9,000 feet to 10,000 feet). Floodplain areas with low gradient, poorly drained slopes support willow and sedge. Several wetlands were identified in the project area and are described in a separate section.

In 1988, major forest fires that engulfed a sizable part of Yellowstone National Park also burned large areas of the forest near Cooke City. In some areas backfires were set along the Beartooth Highway and the road became the dividing line between the burned and unburned areas. The burned areas north of the highway are currently undergoing various stages of regeneration.

Water Resources

Soda Butte Creek parallels the road near Cooke City and beyond, and continues to flow westward to the Lamar River and eventually enters the upper Yellowstone River drainage system. Sheep, Miller, and Republic Creeks flow in from the north and south to join Soda Butte Creek. The channel of Soda Butte Creek is moderately entrenched with a moderate gradient and is riffle-dominated with frequently spaced pools formed by instream woody debris. An earthen dam constructed for milling purposes above the McLaren Tailings site was once used to impound about 61 meters (200 feet) of stream. The dam breached and the channel was rerouted around the tailings. Below Woody Creek, Soda Butte Creek meanders through a willow-shrub valley for about 6.4 kilometers (4.0 miles) before entering Yellowstone National Park.

Soda Butte Creek is designated by the State of Montana as a Class I stream with designated floodplain areas and fisheries concerns. Sampling for water quality parameters in the project area was conducted in 1986 by the Crown Butte Mining Corporation to support the analysis for a proposed mining development. The data indicated that water quality is consistent with state standards along upper Soda Butte Creek in the vicinity of the project. Existing water quality concerns below Woody Creek and Miller Creek include high metal and suspended sediment concentrations. Historical mining activities have left behind mill tailings which release toxic metals, particularly at the McLaren Tailings site. Most of the high sediment loads occur in Soda Butte Creek during snowmelt or heavy rain events. Historical mining, road construction, and past fires have contributed to elevated sediment loads in Miller Creek. The Woody Creek watershed is also a major source of sediment due to extremely erosive formations that naturally erode over time. Disturbances such as road building, past mining activities, and wildfires have increased sediment loads over natural levels. A comparison of the estimated baseline to the

existing condition can provide an indication of how close a stream is to natural sediment levels. According to Crown Butte's data, the estimated existing sediment yield in Soda Butte Creek is 70.8 metric tons (78 English tons)/year which is 31 percent above the estimated baseline. The estimated sediment yield of 19 metric tons (21 English tons)/year in Miller Creek is 32 percent above the baseline. These estimates are based on average values. Depending on precipitation and activities in different locations in the drainage, sediment yield can vary greatly.

Surveys in Soda Butte Creek and Miller Creek for invertebrates and algae indicated decreasing water quality as the water runs downstream. High counts of sensitive invertebrate species occur in Miller Creek and upper Soda Butte Creek. Downstream from the McLaren Tailings site, the abundance of sensitive invertebrate species decreased. The survey of algae in Miller Creek indicated low diversity, possibly due to the presence of heavy metals or other factors such as physical habitat limitations. Diversity of algae populations was good for some areas of Soda Butte Creek but the amount of soft-bodied algae indicated high levels of nutrients and sedimentation.

Analysis of fish in the project area indicates elevated concentrations of toxic metals. Fish from upper Soda Butte Creek had significant levels of lead, arsenic, selenium, copper, and aluminum. It is suspected that the McLaren Tailings site continues to deliver toxins to streams in the runoff area.

Flows in the upper drainage of Soda Butte Creek ranged from 0.04 to 0.83 cubic meters/second (1.5 to 29.4 cubic feet/second) according to monitoring at three stations by Crown Butte Mines from 1990 to 1995. Flows increase from 0.37 to 3.94 cubic meters/second (13.2 to 139.2 cubic feet/second) after Miller Creek joins. Soda Butte Creek loses some flow through the McLaren Tailings site. According to the Montana Department of Natural Resources and Conservation, 27 surface water right claims exist from the headwaters of Soda Butte Creek to about 3.2 kilometers (2 miles) downstream from Cooke City. Water uses include municipal, domestic, commercial, and recreational. The total appropriated flow exceeds the actual average flow recorded for September. Water rights have not been adjudicated by the Montana Water Court. The State of Montana holds a water rights compact with the United States for Yellowstone National Park. The NPS has a right to all flow in Soda Butte Creek where it enters the Park less an amount (specified by month in the compact) which is available for development upstream from the Park boundary. During periods of less than normal flow, the NPS has a right to maintain a critical level of flow at the point where Soda Butte Creek enters the Park. This right is subordinate only to domestic use of 132.5 liters (35 gallons) per minute or less, or to use of ground water which is not hydrologically connected to Soda Butte Creek surface flow.

Wetlands

A corridor along the project, approximately 30 meters (100 feet) wide on each side of the centerline was surveyed and delineated for wetlands [the survey included the area where the alignment deviates up to 80 meters (262 feet)]. Wetlands were not identified along the new alignment east of Cooke City where the new alignment deviates up to 80 meters (256 feet) from the existing road. The survey identified the presence of 32 wetland areas in the project corridor. Seventeen of the wetlands occur within the Soda Butte Creek drainage and 15 occur within the Clarks Fork of the Yellowstone River drainage. Many of these wetlands are part of larger wetland complexes in the two drainages. The wetlands were classified as Palustrine-Scrub-Shrub, Emergent, Palustrine-Forested, or as a combination of these types. While small pieces of Palustrine emergent wetland occur in every wetland in the project area, Palustrine scrub-shrub is the dominant wetland acreage. Palustrine forested/scrub-shrub wetland occur primarily along the perimeter of the wetlands associated with the Soda Butte Creek floodplain. Only three wetlands were identified not to contain a scrub-shrub component. The wetlands within the Soda Butte Creek floodplain provide a high value for storm and floodwater storage and for reducing the potential for flooding downstream in Silver Gate. Because of the capacity of these wetlands to hold water they are important for groundwater exchange. The wetlands in the project area also provide an important transition between terrestrial (upland) and aquatic habitat for a variety of wildlife species. In addition, the wetland systems in the Soda Butte floodplain and near Colter Pass provide a perennial water source for wildlife.

Air Quality

Yellowstone National Park is designated a Class I Prevention of Significant Deterioration air quality area under the Clean Air Act, as amended. The Republic Mt. Roadless Area located to the south of the west portion of the project has been recommended for designation as wilderness. Air quality within designated wilderness areas are also protected under the Clean Air Act. Existing air pollution sources in the project area include vehicle emissions from automobiles and snowmobiles that Park visitors and Forest recreationists generate, as well as some wood smoke from wood stoves. The prevailing wind direction in the project area is from the southwest. Some airflow from the project area may occur from down-valley air flows at night.

Fish and Wildlife

In compliance with the Endangered Species Act and the Fish & Wildlife Coordination Act, the Federal Highway Administration requested a species list from the U.S. Fish and Wildlife Service per letter dated August 18, 1995. There are four listed species that may be present in the project area: grizzly bear, bald eagle, peregrine falcon, and nonessential experimental populations of the gray wolf. Federal agencies, in the context of analyzing the potential impacts of the proposed

project in the New World Mine District, have collected extensive information on grizzly bear habitat use in the Cooke City area. No federally proposed or candidate species are expected to occur in the project area. Impacts to federally listed species are addressed in a Biological Assessment, and impacts to Forest-sensitive species are discussed in a Biological Evaluation.

Yellowstone National Park and the Gallatin, Shoshone, and Custer National Forests surround the Beartooth Highway and contain large tracts of forested habitat. Federally-listed carnivores such as the grizzly bear and gray wolf have extensive home ranges and utilize the habitat in and around the project area. Mountain goats are scattered throughout the area. Bighorn sheep, elk, deer, and moose are common residents of the project area along with other non-listed mammals such as coyote, fox, marten, and marmot. Numerous species of birds are also present.

Grizzly bear habitat is found in the mountains and valleys adjacent to the road corridor and bears use the area year-round. Suitable denning habitat is present which draws some bears to the area in the winter. The value of the area for bears is highest in the fall because of the presence of whitebark pine, a tree species with large, edible seeds in the cones. Bears seek out the cones as a food source after the cones ripen. Other vegetative food items are also available in the summer. Fewer food items are located there in the spring and so the area has less value to foraging bears during that season.

Ungulates are an important food source for grizzlies in the Yellowstone area. This is especially true in the spring when winter-kill (carrion) and new-born animals are available. However, comparatively few ungulates are found in the Cooke City area during that time because snow conditions limit their presence.

Grizzly bears require large areas of land of wilderness quality and are easily displaced by human activity. As a consequence, the value of the Cooke City area to bears has been reduced because of the number of people found there and the extensive road system that allows humans access across much of the landscape.

The Yellowstone grizzly bear population is affected by illegal shootings and management control actions in Yellowstone Park and surrounding areas. Studies report that known and probable deaths of grizzlies tend to be centered around specific areas called "population sinks." These areas include the gateway communities of West Yellowstone, Gardiner, and Cooke City. Unmanaged garbage is a contributing factor which lures bears into conflicts with people.

The management agencies have divided the area in the range of the grizzlies into management units. The project is located in the Lamar and Crandall/Sunlight Bear Management Units (BMU). Fall habitat values are highest in the Lamar BMU followed by summer and spring habitat values. Habitat effectiveness relates to the amount of food value an area provides to grizzly bears given any surrounding human activity. The existing habitat effectiveness of the

Lamar BMU is reduced by human activity along the road. Grizzly bears are extremely sensitive to human activities. The effectiveness of habitat for grizzly bears is also tied to the health of the ungulate prey base available. Ungulate meat was estimated to be one of two top protein sources in bear diets in the project area. Ungulate numbers in the project area are severely reduced in winter due to extreme snow depths. About 25 to 50 moose winter along Soda Butte Creek and adjacent forested slopes. Some bighorn sheep may winter in the steep hillsides above the project. Mule deer and most elk migrate out of the area in the winter.

The bison population in Yellowstone National Park has increased to the point where individuals attempt to migrate west and north out of the Park. Concerns regarding the spread of brucellosis, a disease carried by both bison and elk which can cause mortality in livestock, have prompted action to stop the migration of bison onto private lands. Some bison have been reported in the Cooke City vicinity as recently as 1996. The State Department of Livestock controls bison in Montana.

An experimental population of gray wolves has been reintroduced to Yellowstone National Park. Key components of wolf habitat include year-round prey base of ungulates and other species, suitable denning habitat, and sufficient space with minimal exposure to humans. The project area may be visited by gray wolves throughout the year, but wolves usually avoid areas of human activity. The following ungulates provide prey for gray wolves in decreasing importance: Elk, bison, mule deer, moose, pronghorn, and bighorn sheep.

Fish population surveys at the Northeast Entrance to Yellowstone National Park indicate healthy populations of cutthroat trout. Genetically pure cutthroat are listed as a sensitive species by the Forest Service and a species of special concern by the Montana Department of Fish and Wildlife and Parks. Limiting factors include a general lack of adult habitat, channel instability, and sedimentation. Metal concentrations from the McLaren tailings site east of Cooke City may also limit trout populations. High gradients and the culvert near the mouth of Miller Creek prevent upstream migration of fish in Miller Creek. The bull trout was proposed for federal listing on June 10, 1997. However, no bull trout exist in the project area.

Fish habitat varies in different sections of Soda Butte Creek. Spawning habitat is limited above the McLaren Tailings site. From the tailings to Woody Creek, moderate spawning habitat exists. Spawning habitat is abundant below Woody Creek but the quality is decreased by the heavy load of fine sediment that is delivered from Woody Creek. Sediment delivery and the incubation period for cutthroat trout eggs occur during the same time of year. According to monitoring conducted by the Forest Service, the percent of fine sediment [mean percent of particles about 6.3 mm (0.25 inches) in diameter] for Soda Butte Creek was 25.3 percent and the range was 4.9 to 46.1 percent. Fry habitat is found in woody debris accumulations and some backwater areas above the McLaren Tailings site in Soda Butte Creek. Low flows during late fall and winter along with limited debris accumulations make for limited fry habitat in areas adjacent to

meadows. Fry habitat improves in areas adjacent to forests. A few adult fish find pools to survive in above the McLaren Tailings site. Due to infrequent and shallow pools limited adult habitat exists from the tailings to Woody Creek. From Woody Creek down through the meadows, adult and juvenile habitat occurs at lateral scour pools formed on the outside banks of meanders and at infrequently spaced debris accumulations. Habitat for adult and juvenile cutthroat improves as the stream moves into the Park and Soda Butte Creek is one of the more popular fishing streams inside the Park boundaries.

Historic Resources

According to a cultural resource survey report performed by Northwest Archaeological Investigations, Inc. for WFLHD, the project vicinity was originally inhabited by the Absarokee tribe of the Crow nation. Groups of Cheyenne, Blackfeet, and Shoshone-Bannock also used the area.

The Beartooth area was discovered by members of the Lewis and Clark expedition in the summer of 1806. A year later, John Colter, (a former member of the Lewis and Clark party) became the first man to visit and describe what is now Yellowstone National Park. Prospectors discovered the riches of the area soon after, and the mining industry dominated the development of the area. Some early prospectors named Soda Butte Creek after a 12-meter (40-foot) high butte in YNP that had been formed by soda water from a spring. Gold prospectors in the late 1860's began to stake claims in the Cooke City area and a settlement began to grow along Soda Butte Creek. This small mining community continued to expand and was named "Shoefly" by local miners, but was later renamed "Cooke City" in 1879 in honor of Philadelphia businessman, Jay Cooke. Prior to 1882, Cooke City was within the boundaries of the Crow Indian Reservation, and financing for mineral excavation was difficult to obtain since mining claims were illegally staked on Indian land. Congress halved the size of the Crow reservation in 1882, and prospectors flooded the area. Rugged terrain, a short mining season, and a lack of readily-available transportation hindered large-scale mining efforts. Transportation improved over the years, but Cooke City's population fluctuated wildly, depending on the level of on-going mining and smelting operations. The peak population was recorded at 1,200 people in 1886. Cooke City is the oldest existing town in Park County.

The original "Beartooth Highway Route" as it was initially called, was officially opened on June 14, 1936. The road led directly into the Park and provided an entryway for traffic from the east. The resultant boom in tourism boosted the economy of the surrounding communities and continues to be the main source of income for businesses in Cooke City and Silver Gate. Between the Northeast Entrance to Yellowstone National Park and the Wyoming border east of Cooke City the route of the existing paved Beartooth Highway does not generally follow the dirt road that was used before 1936.

The cultural resource survey completed in March 1996 identified 21 cultural resources in the project corridor. However, only three historic sites occur within the project impact area. None of the three sites qualify for eligibility for listing on the National Register of Historic Places. The project runs through part of the New World Historic Mining District, which is proposed for listing on the National Register of Historic Places. One National Register site called the Savage and Elder's General Merchandise (also known as the Cooke City General Store) is located adjacent to the project. Both of these sites are outside the project impact area.

Land Ownership

The project lies almost entirely within the State of Montana in Park County on the Gallatin National Forest, except for the short segment near the Northeast Entrance Station which lies on National Park Service land. Although the road lies mostly within lands administered by the Forest Service, there is a significant level of private ownership through and between Silver Gate and Cooke City. The right-of-way varies in width from 24.4 meters (80 feet) in Cooke City to 30.5 meters (100 feet) elsewhere. A 152.5-meter (500-foot) corridor was reserved by Executive Order 5949 for the road through the National Forest lands east of Cooke City. In addition, a 30.5-meter (100-foot) easement was granted by the Forest Service to the State of Montana for portions of the road that cross National Forest lands.

Population

The current, collective population between the communities of Cooke City, Silver Gate, and Colter Pass during the winter, is estimated at 90 individuals. Summer populations rise to nearly 300 due to an influx of summer residents. The total population in Park County increased 29 percent from 11,261 in 1970 to 14,562 in 1990. Between 1970 and 1990, the population in Cooke City/Silver Gate increased 125 percent from 55 in 1970 to 124 in 1990. Seasonal residents dominate the population. The average age of year-round residents is 47 years while the average age of seasonal residents is 60 years. Park County populations are projected to increase about 16 percent from 1995 to 2005.

The Cooke City elementary school has 12 students. After completing eighth grade, students may choose to attend high school in Gardiner approximately 88 kilometers (55 miles) to the west. No school bus services are provided.

Services

The Montana Highway Patrol and the Park County Sheriff's Department provide law enforcement in the project area. A mutual aid agreement allows National Park Service rangers, Montana Highway Patrol officers, and county deputies from Montana and Wyoming to address needs in the area.

The Cooke City/Silver Gate Fire District has volunteer firefighters and three fire trucks. Cooke City/Silver Gate has no ambulance service. A search and rescue unit and the fire department provide disaster and emergency services. Area residents rely on the Park for ambulance services including a helicopter for transporting patients. Livingston and Gardiner both have ambulance service. There are no licensed health care providers in Cooke City/Silver Gate. The nearest year-round health care services are in Livingston, Montana and Mammoth, Wyoming over an hour's drive away making the Beartooth Highway an especially critical route to these services.

Mail service is provided to project area residents on a seasonal basis, and service is typically dependent on weather conditions.

Basic water services are available in the project area. Cooke City has a central water distribution system that receives its water supply from three springs east of town and stores the water in two steel tanks. The Cooke City Water District operates the system. The Silver Gate water system is operated by the Water Users Association and is supplied by springs. Water lines that are currently buried approximately 0.9 to 1.2 meters (3 to 4 feet) under the road routinely freeze in the winter. Cooke City and Silver Gate residents and businesses use septic tank systems for wastewater disposal. Successful operation of septic fields is complicated by a high water table and spring snowmelt. Solid waste collection and disposal for Cooke City/Silver Gate is provided by Park County and Yellowstone National Park. Waste is taken to the Livingston incinerator, and then the resultant ash is disposed of in the Livingston landfill.

A buried phone cable exists along the entire length of the project, at a depth of only 150 millimeters (6 inches) in some places. A low-voltage, above-ground power line follows the road for most of the route.

Park County employs a full-time planner to assist county commissioners. The Cooke City/Silver Gate Zoning District regulates most land use activities on private lands. Park County is working on a comprehensive plan.

The Cooke City/Silver Gate area receives many services from Yellowstone National Park. These services include year-round road maintenance and snow-plowing. The Park plows from the northeast gate along Beartooth Highway to the east end of Cooke City, provides the spring opening of Beartooth Highway from Cooke City to the Montana/Wyoming State Line, and

provides road maintenance and snow-plowing from Cooke City along the Beartooth Highway to the Montana/Wyoming State Line from early May to November 1. The Park also maintains communication with law enforcement and medical personnel regarding incidents along the Beartooth Highway and coordinates first response emergency services.

Visual Resources

Since the Beartooth Highway is designated a National Forest Scenic Byway, visual quality has a high value. The current Gallatin National Forest Plan directs that the scenic and visual qualities be retained. Visitor views are characterized by scenes that are enclosed by vegetation and steep rocky slopes of the mountains at lower elevations, and by sweeping panoramic views from the passes. Arbor Day Overlook east of Cooke City on the Beartooth Highway is a popular viewpoint. The elevation is about 2,438 meters (8,000 feet). The landscape has been altered in the recent past by extensive wildfires in 1988 and salvage logging. Several private residences are scattered along the Beartooth Highway.

Public concern for scenic quality in the study area is very high. The expectation is for high quality pristine scenery. The existing visual quality and proximity to Yellowstone National Park along with the North Absaroka Wilderness to the south and the Absaroka-Beartooth Wilderness to the north of the project contribute to a high level of viewer sensitivity to landscape changes. The Forest Service has classified visual management objectives in the project area primarily as "Retention" with a few stretches of "Partial Retention." In the Gallatin National Forest Plan the Visual Quality Objective of "Retention" is defined as "human activities are not evident to the casual forest visitor" and "Partial Retention" as "human activities may be evident but must remain subordinate to the characteristic landscape."

Recreation

Access to Yellowstone National Park continues to bring large numbers of Park visitors to the project area. In 1995, visitation to Yellowstone totaled over 3 million. At the current rate of increase and without any programs to control visitation to the Park, the total number of visitors to the Park are projected to exceed 5 million by 2019. A joint study between the FS and NPS is evaluating various approaches to controlling visitation to the Park. Of the five main Park entrances, the Northeast Entrance receives the least amount of visitors which is approximately 5 to 7 per cent of the total. The Northeast Entrance to the Park also has seen the greatest increase in use over the past few years, probably due to rerouting of Park visitors from the East Entrance, reconstruction of U.S. 14/16/20 west of Cody, Wyoming, and completion of the Chief Joseph Scenic Byway.

Although the major recreational traffic is associated with YNP, recreationists and tourists also

use the Beartooth Highway seeking access to Gallatin National Forest lands north of the proposed project. Snowmobiling is a popular activity along the Beartooth Highway and on NF roads in the winter, and recreationists use the highway in the summer to access other roads leading to hiking, berry-picking, camping, firewood cutting, hunting and other opportunities in the Forest. An off-road snowmobile route exists, but it crosses private lands, and permission has not yet been granted from the landowners to use the route for winter use. Existing trails are currently groomed by the Upper Yellowstone Snowmobile Club.

Yellowstone National Park has been assigned special international status in addition to being a park of national importance. The Park was designated a World Heritage Site in 1978 by the World Heritage Committee of the United Nations Educational, Scientific and Cultural Organization (UNESCO). The Park was also designated a Biosphere Reserve under the Man and Biosphere Program of UNESCO.

Socio-economic

Much of the economic growth in the region in the last 20 years has been in the service industries which support recreation and tourist activities. There has also been growth in the number of self-employed persons and entrepreneurial activities. Retail and service trade businesses account for over 96 per cent of the total employment in the project area. The average annual 1994 wage for workers in Park County was $15,706. The unemployment rate in 1995 was 4 percent. The highest paying jobs in the county are in the mining industry and the lowest paying are in the services and trade industry. Businesses in Cooke City and Silver Gate include motels, restaurants, retail, and service stations.

Noise

Noise associated with traffic on Beartooth Highway carries into the northeast corner of Yellowstone National Park, affecting visitors at the Park and at other campgrounds along the project route. In the summer, most of this noise is from highway vehicles along with some firewood cutting on private and forest lands. In the winter, heavy snowmobile traffic is the main source of noise. Residences and businesses in Cooke City and Silver Gate are subjected to traffic noise from the highway where it passes through these areas. Existing reduced speed zones in these cities help to lessen the noise impacts from traffic.

Wildlife may also be disturbed by traffic noise. Gray wolves and grizzly bears, two federally protected species which occur in the project area, are especially sensitive to human presence, including noise associated with human activities.

Chapter Five: Impacts

A multi-agency Social, Economic, and Environmental (SEE) Study Team analyzed potential impacts associated with the proposed project to improve the Beartooth Highway. The SEE Team members are listed in Chapter 6. The SEE Team identified impacts with assistance from technical consultants, resource agencies, interested parties, and the public. This chapter is organized by resource with a brief description of the impacts associated with the proposed project. The SEE Team determined that no significant impacts would occur to botanical, natural, visual, 4(f), or recreational resources. The SEE Team also determined that no significant socio-economic impacts or impacts to the floodplain would result from the proposed project. The rational for the impact determinations is discussed in the following sections.

Soils

The Reconstruction Alternative would require the movement of soil and rock from cut to fill areas causing a change in surface relief features. Widening, curve corrections, and shifting the road alignment would disrupt, displace, compact, and cover soils not currently associated with the traveled roadway. These changes would be minor except for the sharp curve realignment areas between MPs 5.0 and 5.5 and 8.0 to 8.4, where substantial modifications would occur as part of the Reconstruction Alternative. Construction activities, including vegetation clearing and grading, would increase the short-term and long-term potential for soil erosion and sedimentation. The potential for sediment delivery varies with the area disturbed, character of soils, the steepness of slope, and the proximity of the activity to a stream. Exposed areas of fresh cut and fill would be subject to wind and water erosion until revegetation has occurred. Temporary erosion control measures would be used to minimize siltation and deposition during the construction phase until permanent revegetation and erosion control can be established. The 3R Alternative would result in virtually no impact other than cleaning and restoring existing ditches. The No Action Alternative would result in no change in soil conditions.

Substantial efforts would be undertaken during construction to provide effective erosion and sediment control. A revegetation plan and an erosion and sedimentation control plan (Storm Water Pollution Prevention Plan) would be developed and effectively implemented using Best Management Practices to avoid or minimize the introduction of excess sediments to streams and wetlands. These plans would be developed in coordination with the FS and regulatory agencies, including the Corps of Engineers, Montana Department of Fish, Wildlife, and Parks, and the Montana Department of Environmental Quality (Permitting and Compliance Division), to ensure that appropriate specific, as well as general, measures are included that would provide effective short-term and long-term stabilization of cut and fill slopes and other areas disturbed by project construction.

The Storm Water Pollution Prevention Plan required by MPDES Regulations (ARM 16.20.1314) would include comprehensive temporary erosion and sedimentation control measures to avoid or minimize water quality degradation during construction. These Best Management Practices may include the use of lined channels, silt fences, slope blankets, settlement ponds, monitoring, or other commonly accepted erosion and sedimentation control practices. Geotechnical and hydrological investigations would be conducted in areas of known slope instability to provide additional information for a stable design. Cut and fill slopes would be rounded and blended into the existing terrain.

Mitigation Measures

- Cut and fill slopes would be designed to be flat enough to provide stability and to promote successful revegetation.
- Topsoil would be saved and reused on cut and fill slopes.
- Areas of disturbed soils would be revegetated and stabilized to reduce erosion and sedimentation of streams and wetlands. A revegetation plan would be developed and implemented to provide long-term revegetation and stabilization of cut and fill slopes.
- A Storm Water Pollution Prevention Plan would be developed and effectively implemented to reduce erosion and sedimentation of streams and wetlands during and after construction. Measures may include the use of rock-lined channels, silt fences, slope blankets, settlement ponds, temporary seeding, or other commonly accepted erosion and sediment control measures.

Air Quality

The project is in a state attainment area and conforms to the State Implementation Plan pursuant to 23 CFR 770 and 40 CFR 81.327 implementing the Clean Air Act. Construction of the project would result in short-term emissions from construction equipment, asphalt surfacing, and possible burning of clearing debris. No long-term emissions are expected. The Reconstruction Alternative would have greater impacts than the 3R Alternative. However, overall, this project would not result in any significant air quality impacts. The No Action Alternative would not change air quality.

Construction would have no permanent adverse impacts on air quality in the project area. It may, however, have short-term negative impacts. Smoke, for example, would be created if clearing debris is burned during construction. In addition, there would be some air emissions from construction equipment. The contractor would be required to take measures such as high

intensity burning, chipping, burying, or a combination of these and other reasonable methods to reduce air emissions. Any required burning would be in compliance with air quality permit requirements of the Air Quality Division of the Montana Department of Environmental Quality. Cleared trees and shrubs that can be used for firewood and are not otherwise reserved would be made available to the public, thereby reducing the amount of material burned at the project site.

Additionally, construction may cause a temporary increase in the amount of dust in the air. During construction, the contractor would use dust control measures such as watering to control dust and to accommodate traffic in construction areas. Dust may also temporarily reduce ambient air quality in the vicinity of materials sources, waste areas, and rock crushing activities.

Mitigation Measures

- Contractors would be required to take measures such as high intensity burning, chipping, burying, or a combination of these and other reasonable methods to reduce air emissions.
- Cleared trees and shrubs that can be used for firewood and are not otherwise reserved would be made available to the public.
- The contractor would use dust control measures such as water to control dust in the construction areas.

Water Resources

The potholes and cracks in the existing road's surface would be replaced with a wider, impermeable asphalt surface which would slightly increase the amount of surface water runoff. Water would be collected and discharged through culverts and would not change existing drainage patterns. The potential exists for short-term increases in sediment yield and turbidity from the road surface and cut and fill slopes where additional ground would be disturbed. Revegetation through the use of Best Management Practices (seeding, mulching, slash, matting, slash filters, etc.) would help alleviate the problem. The Reconstruction Alternative would have greater short-term affects than the 3R Alternative. Compliance with the Clean Water Act would be coordinated with the Corps of Engineers and other applicable resource agencies. Use of Best Management Practices would help meet state water quality standards and minimize impacts on resident fisheries. Paving, slope stabilization efforts, and revegetation of disturbed areas, as proposed, are expected to provide long-term reductions in the amount of silt that enters streams and wetlands in the project area, thereby providing a long-term water quality benefit. Short-term turbidity increases would occur at stream crossings temporarily during construction and until disturbed areas at stream crossings are stabilized with vegetation.

Construction activities would have no long-term adverse impact on ground water. Some limited areas may experience a slight change in ground water characteristics. For instance, cuts made during construction could change local ground water flow. However, this change would not adversely affect overall ground water quantities or quality. No effect is expected on the Cooke City water supply, located just east of Cooke City.

Temporary, minor effects on instream flows would occur during the replacement of culverts at stream crossings. During construction, flows would be diverted through short sections of pipe or lined channels to bypass work areas. Hydraulic design criteria used to determine culvert sizes, slope, and other design features would provide improvements over existing crossings. Culvert lengths would be longer, however, due to the wider improved road cross-section. No impacts to the floodplain are anticipated.

Because the area of soil disturbance would exceed five acres, a Montana Pollutant Discharge Elimination System (MPDES) storm water permit administered by the Montana Water Quality Bureau would be required. A Storm Water Pollution Prevention Plan (SWPPP) would be developed to meet the permit requirements. In addition to erosion and sedimentation control measures, the plan would contain measures to manage fuels and other potentially harmful materials used in construction.

Mitigation Measures

- A SWPPP would be developed and used during the construction phase to comply with permit conditions of the MPDES construction permit. The plan would include comprehensive erosion and sedimentation control measures to avoid or minimize water quality degradation. The plan would include such measures as lined channels, silt fences, slope blankets, settlement ponds, temporary seeding, or other commonly accepted erosion and sedimentation control measures.

- Temporary barriers to retain excavated material, rock, or vegetation would be used as needed to prevent deposition in streams or wetlands. If material inadvertently enters a stream or wetland, it would be removed in accordance with appropriate procedures coordinated with permitting agencies.

- New culverts would be designed to accommodate anticipated flood flows with no substantial changes in flood elevations.

- The SWPPP would include monitoring to identify when turbidity levels exceed background levels.

Wetlands

Pursuant to Executive Order 11990, Protection of Wetlands, probable impacts on wetlands were evaluated with the U.S. COE and Montana Department of Water Resources. Wetland areas have been delineated by a wetlands consultant in accordance with the COE's 1987 manual. Wetland impacts were avoided or minimized by shifting the road alignment and steepening embankments. As a result, wetland impacts will not exceed 1.0 hectares (2.6 acres) with implementation of the Reconstruction Alternative. There would be negligible wetland impacts with the 3R Alternative and no wetland impacts under the No Action Alternative.

Wetland mitigation opportunities were reviewed on the ground with the US COE to determine the location of onsite mitigation areas. Several potential wetland creation or enhancement mitigation sites were analyzed and then dropped due to topographic limitations, lack of existing wetland soils or wetland vegetation, and cost. The WFLHD purchased 2.17 hectares (5.38 acres) of existing wetlands from private landowners with the assistance of Worldlife, a non-profit organization dedicated to conserving habitat. Land ownership and maintenance responsibilities were transferred from FHWA to Park County. Park County will carry out the terms of the conservation deed, which include no development of any kind on the site and permitted scientific access for research purposes. A 404 permit for impacts to wetlands will be obtained from the COE prior to construction.

Mitigation Measures

- Due to the lack of suitable mitigation sites, 2.17 hectares (5.38 acres) of privately-owned, high-quality wetlands just east of Silver Gate in Duffy's Meadow were purchased and transferred to Park County, where they will be protected from development and maintained in perpetuity.

- Road fill slopes and other disturbed soils that could affect wetlands through erosion and sedimentation would be stabilized and revegetated.

Plants

The project corridor was surveyed in August of 1995 and again in June and September of 1996 for listed and/or Forest-sensitive plant species. A copy of the Sensitive Plant Report is available in the project files and may be requested by writing to Kristi Swisher at the address on the front cover of this document. No federally listed species were found during the surveys, but wetland disturbances on either side of the highway may impact two Forest-sensitive plant species, *Castilleja gracillima* and *Salix wolfii* var. *wolfii*. The *Salix wolfii* var. *wolfii* is apparently secure globally, although the species may be quite rare in parts of its range, especially in the periphery.

The *Castilleja gracillima* may be secure globally and rare in parts of its range, but may also be very rare throughout its range or abundant in only a restricted area. A combination of one or both plant species was found in the wetlands just east of Silvergate, south of the highway near the Interdenominational Church, south of the highway east of Sheep Creek and west of the historical marker, and in a wetland on both sides of the highway east of Colter Campground.

The minimization of impacts to wetlands would also minimize impacts to sensitive plants in the project area under the Reconstruction Alternative. Fewer or no impacts would occur under the 3R Alternative and No Action Alternative. Drainage patterns are likely to remain unchanged and would not affect availability of water for plants outside of the disturbance zone. The project will not cause a trend toward federal listing for either plant species. Contract specifications will require the use of native plants and certified weed-free sources (seed mixes, mulches, matting, etc.) to minimize the introduction of noxious or non-native plants.

Fish and Wildlife

Impacts to listed species and their habitats, as well as Forest-sensitive species, have been analyzed in an October 1997 Biological Assessment developed by the Forest Service (to receive a copy of the BA, submit a written request to Kristi Swisher at the address on the front cover of this document). Informal consultation with the U.S. Fish and Wildlife Service has been initiated under a "may affect, not likely to adversely affect" determination for the grizzly bear. The project would have "no effect" on the bald eagle, peregrine falcon, and the nonessential experimental gray wolf populations.

Signing is needed at each end of the improved section of highway carrying information that the road passes through grizzly bear habitat and that special restrictions apply for storing of attractants. Similar signs should be placed at the entrances to the Colter and Chief Joseph Campgrounds accessed from the Beartooth Highway that currently do not have this type of information. Two major trailheads are located along this stretch of road - the Clarks Fork trailheads, one for foot and one for horse traffic. Signs at these trailheads would warn campers to store attractants properly while camping.

It is possible that with the wider road surface this project would create, there would be an increase in bicycle touring groups. This is already a popular activity in the area because of the ability to link together roads in Yellowstone National Park with the Beartooth Highway and the Chief Joseph Scenic Byway. There are not enough metal food storage containers for visitors traveling by motorcycle or bicycle along the route. In addition, the Cooke City solid waste transfer site is currently too small to accommodate the present levels of solid waste the local residents are generating. The volume of garbage has doubled in the past 5 years (Miller personal communication). Therefore, this site is not suitable for disposing waste associated with the proposed project. The site is located on the Gallatin National Forest, but Park County is

responsible for the site and manages it under a special use permit from the Forest. Garbage is hauled under contract by Yellowstone National Park. The capacity of the site needs to be expanded to deal with the extra garbage that may be created by an increased level of traffic in the area due to improved access along the Beartooth Highway. Increased levels of garbage that are not properly disposed of may attract grizzly bears to the area.

Several roads have been created in recent years by firewood cutters that originate from the Beartooth Highway and access National Forest land. They are the result of repeated driving along the same route to reach firewood and are not an approved part of the Forest road system. Although these roads are a very minor part of the network in the Cooke City Basin, closing them would help limit human access and possibly reduce bear/human encounters.

Mitigation for the Grizzly Bear

- Roadside signing regarding grizzly bears would be installed at each end of the proposed project and at the entrances to the Colter and Chief Joseph Campgrounds.
- Additional metal food storage containers would be installed in the three existing campgrounds.
- Interpretive exhibits would be installed at the Clarks Fork trailheads outlining concerns related to traveling and camping in a backcountry setting where grizzly bears are present.
- The Cooke City solid waste transfer site would be redesigned to include all of the necessary design features to make the site unavailable to bears.
- Feeding bears would be prohibited by contractors and their personnel.
- All construction garbage and refuse would be made unavailable to bears. Activities associated with the reconstruction of the highway would conform to the most recent Gallatin National Forest Food Storage Order.
- Grizzly bear sightings and/or incidents experienced by contracting personnel would be reported to the District Ranger's office in Gardiner as soon as possible. (Phone: 406/848-7375)
- Construction activities would be modified anytime there is the identified potential of compromising the safety of a grizzly bear.

Mitigation for the Grizzly Bear Continued:

- Seeding mixes for reseeding road shoulders and other disturbed sites would not include vegetation that is known to attract bears, i.e., would not include most *Trifolium* (clover) species.

- Roads immediately adjacent to the Beartooth Highway designated by the FS and created by firewood cutting activities would be obliterated when the project is reconstructed.

Noise Pollution

Short-term noise levels are expected to increase during construction of the Reconstruction or 3R Alternatives. In the long-term, noise levels are expected to increase due to increased traffic. Steadily increasing traffic levels in the project area are anticipated as a result of increasing visitation to the YNP, regardless of whether or not the road is improved.

Four species listed under the ESA which are sensitive to noise disturbance may be present in the project area: grizzly bear, bald eagle, peregrine falcon, and nonessential experimental populations of the gray wolf. Of the four listed species, two in particular, the bald eagle and the peregrine falcon, are most likely to be sensitive to abrupt changes in noise levels. Noise levels as a result of the project will have no impact on the grizzly bear and gray wolf.

In addition to noise impacts on wildlife, human residents may be affected in the short-term by noise levels from equipment during construction. However, traffic and associated noise levels are projected to increase regardless of the alternative selected.

Mitigation Measures

- Contractors would be required to use mufflers on construction equipment in accordance with applicable state and local laws.

- No construction would be performed within 300 meters (1,000 feet) of an occupied dwelling or campground on Sundays, legal holidays, or between the hours of 10:00 pm and 6:00 am on other days without the approval of the Contracting Officer. In addition, hauling of waste materials and construction materials through Cooke City and Silver Gate would be timed to avoid very early or late evening hours.

Mitigation for Noise Pollution Continued:

- No blasting would be performed within 900 meters (3,000 feet) of an occupied dwelling unit or campground on Sundays, legal holidays or between the hours of 8:00 pm and 8:00 am on other days without the approval of the Contracting Officer.

- Construction activities would be suspended on the project on weekends between Memorial Day and Labor Day.

Land Use and Right-of-Way

No change in the present or planned land use, reduction in acreage of any agricultural products, or reduction in acreage of any prime and unique farmland is expected to occur with any of the proposed alternatives. The project conforms with guidance established under the Gallatin National Forest's Land Management Plan and the Park County Comprehensive Plan. In most cases where the road passes near private property, the project would remain within the existing right-of-way. However, due to the proximity of private properties to the existing road and encroachments into the right-of-way, construction easements or land acquisition would be required under the proposed Reconstruction Alternative at a few isolated locations. One barn structure is sitting on the right-of-way line and would be removed. No right-of-way acquisition would be required for the 3R or No Action alternatives. Property acquisitions would be done in accordance with applicable provisions of the Uniform Relocation and Real Property Act of 1970 (P.L. 91-646) and the Uniform Relocation Act amendment of 1987 (P.L. 100-17).

Mitigation Measures

- Final design of the project will adjust cut and fill slopes to minimize the need for additional right-of-way where possible, but still provide stable slopes that will successfully revegetate to minimize erosion.

Natural Resources/Energy

Construction of the project under the Reconstruction Alternative or 3R Alternative would require the use of crushed aggregate and liquid asphalt for surfacing, as well as an irretrievable commitment of fossil fuel for construction equipment operation. The use of these resources would be minor and would yield immediate and long-term benefits to road users. The road improvements are not expected to cause an increase in logging operations.

The short-term increased use of natural resources and fossil fuels would be offset by a long-term reduction in maintenance efforts. Less fuel would be required to maintain the road following improvement. More uniform driving conditions associated with the improved road would yield a minor reduction in fuel use compared to the existing road.

Material Sources

The most feasible material source is located approximately 2.4 kilometers (1.5 miles) northeast of Cooke City and west of Colter Campground on FS lands. These lands were burned during the fires of 1988. This undeveloped site would measure approximately 150 x 300 meters (500 x 1000 feet) after clearing. Geotechnical investigations were conducted during the summer of 1997 and the quality of existing aggregates is acceptable. Reclamation actions may include reshaping to surrounding contours and revegetating disturbed soils, depending on whether the pit will stay active. A special use permit from the Forest Service would be required to develop this site. The pit at Pilot Creek may also become an optional material source.

There are other material sources at Lilly Lake, Lulu Pass, Muddy Creek, and along the southern portion of the Chief Joseph Scenic Byway, but the potential at these sites is either insignificant, involves too much visual impact, or their location is too remote to make their use cost-effective. Non-commercial materials source development would require a Mined Land Reclamation permit from the Montana Department of State Lands.

The development of material source sites would result in additional ground disturbance and create the potential for higher short-term erosion impacts and impacts to cultural, visual, and biological resources.

Mitigation Measures

- Berms, sediment fences, and other measures would be implemented to prevent offsite erosion at material source sites.
- A site-specific reclamation and revegetation plan would be prepared for material source sites.
- Borrow and aggregate material sources would be investigated for the presence of noxious weeds or other non-native vegetation.

Visual Resources

There would be some short-term negative visual impacts during construction under the 3R and Reconstruction Alternatives. In the long-term, visual quality impacts would be minimized due to revegetation efforts.

The recreational "theme" of the road and the road's significance as a National Forest Scenic Byway would be kept in mind during design, as would the Gallatin National Forest's visual management direction for this area as "Retention and Partial Retention." Views may change in the new alignment section but the view from the rest of the project should remain the same as present. Design will be coordinated with the FS to maintain consistency with visual management objectives. Although roadside trees and vegetation would be removed to accommodate widening, disturbed areas would be replanted with native plant species. Removal of trees and other vegetation would be kept to the minimum necessary to provide a safe attractive roadside and a functional clear zone. Existing trees may serve to buffer adjacent homes from headlights.

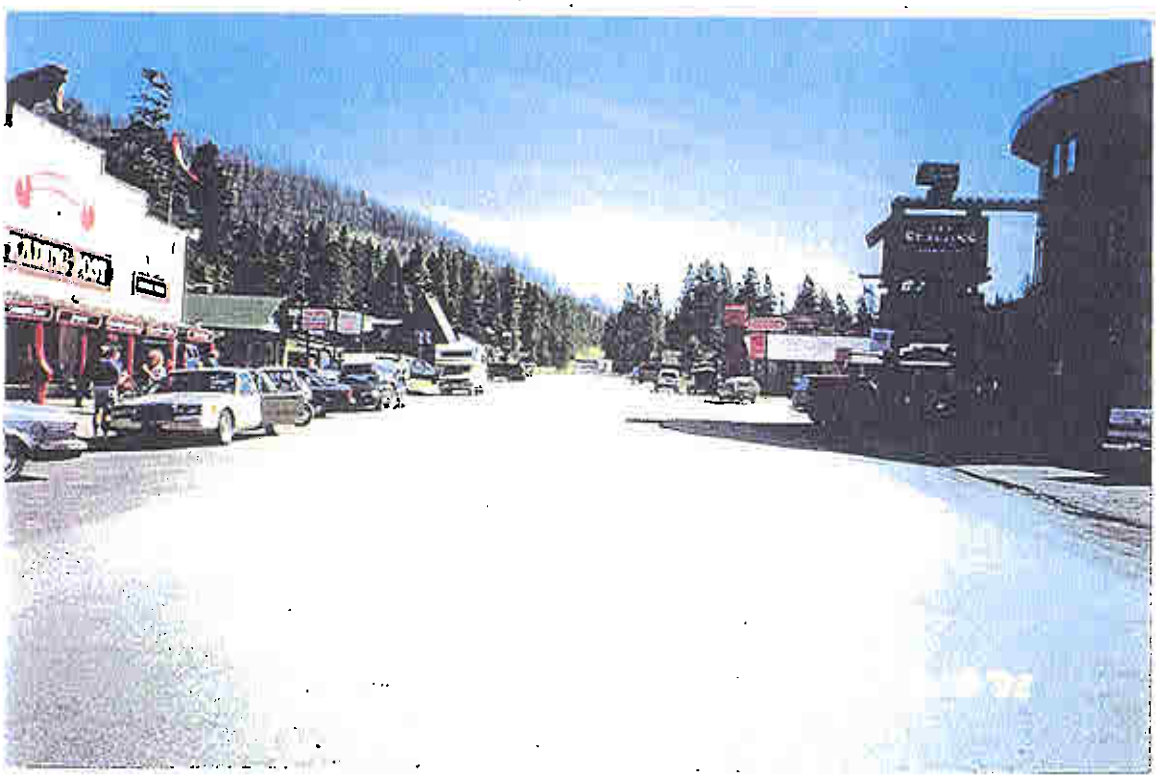
There may be an opportunity for a new roadside overlook at MP 5.0, east of Cooke City as a result of road realignments. In addition, a roadside turnout is proposed just east of Silver Gate near Duffy's Meadow for moose viewing. Planning for both sites would be coordinated with the FS, MDT, and Park County.

Mitigation Measures

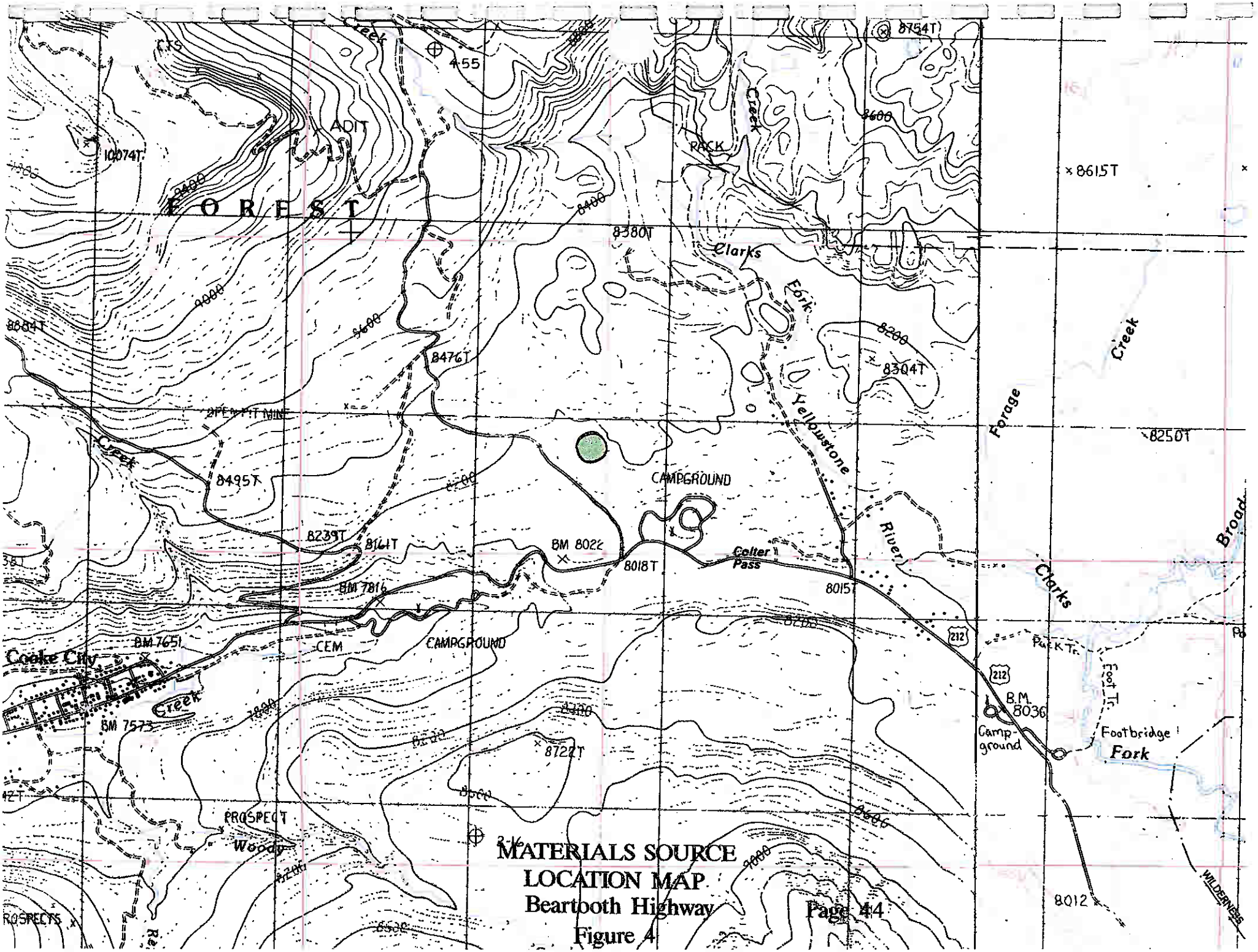
- Design details would be coordinated with the FS during the design process.
- Slopes would be generally designed flat enough to promote revegetation and to prevent erosion, yet as steep as possible to minimize clearing limits.
- Cut and fill slopes would be rounded and regraded to a natural appearing form and would be revegetated with native herbaceous and woody plant species (except for those plants attractive to grizzly bears). Large woody debris would be placed in cleared areas to create microclimates to promote survival of plantings as well as for erosion control and to provide a more natural appearance.
- New roadside turnouts would be developed as part of the proposed project.

Recreation

In the long-term, the 3R and Reconstruction Alternatives would improve access to the Gallatin National Forest lands and enhance Forest recreational opportunities along the project, especially to and from Yellowstone National Park and to recreational sites along the Beartooth Highway itself. Companion projects proposed by the Forest Service include (1) a new parking area and interpretive kiosk near the YNP boundary; (2) a vehicle pullout in the Sheep Creek area; and (3) improvements to the entrance at Soda Butte Campground. These companion projects are compatible with the recreational goals set forth in the Forest Plan.



Photograph 4. Cooke City



MATERIALS SOURCE
LOCATION MAP
Beartooth Highway

Figure 4

A short-term increase in noise levels under the 3R and Reconstruction Alternatives may negatively impact the experience for recreationists during construction of the proposed project. In addition, construction could result in temporary traffic delays which would interfere with access to recreational resources. Mitigation for construction related impacts is covered in the Transportation/Access/Construction section.

Cultural Resources

Potential impacts of the proposed project were analyzed, as required under the 1966 National Historic Preservation Act, in terms of significant cultural resources which occur in the project area. A report regarding an evaluation of cultural resources in the project area was completed in March 1996, including a field survey which was conducted in September 1995. The survey included a corridor approximately 30 meters (100 ± feet) either side of the existing pavement for the length of the project. Cultural sites, surface features or isolated artifacts were discovered at 21 locations during this survey. Although three of these sites (one of which was the Cooke City cemetery) were assigned Montana state trinomials, none of the 21 sites are eligible for the National Register. Despite being ineligible for the Register, recommendations were made to plant a row of trees between the highway and the cemetery and to widen or relocate the road away from the cemetery, due to the sensitive nature of this site. In addition to the survey, a literature and file review of both published and unpublished data was made at the Montana State Historic Preservation Office in Helena, the Archaeological Records Office at the University of Montana in Missoula, and the Regional Supervisor's Office for the Gallatin National Forest in Bozeman. None of the alternatives considered would impact sites included on or eligible for listing on the National Register of Historic Places.

If a cultural resource site is inadvertently discovered during construction, ground-disturbing activities would cease, and a cultural resource specialist would be called to the site to determine the site's significance. Measures would be taken to protect the site as recommended by the specialist.

Mitigation

- A row of trees would be planted between the highway and the cemetery and the road would be widened away from this site.

Hazardous Waste

In March 1996, the Montana Department of Transportation developed a hazardous waste report of the project area. The McLaren Mine Tailings, a state Superfund site, was identified as an area of concern and recommendations were made to completely avoid this area. Several existing and former gas stations are located in Silver Gate, Cooke City, and Colter Pass. If the alternatives remain as they are, the gas stations and the McLaren site would not be affected under either the 3R or Reconstruction Alternative. A slight risk of the release of hazardous fluids from equipment would exist during construction. Containment plans would be required as part of the SWPPP to assure proper response to any accidental spills.

Mitigation Measures

- Contractors would be required to store fuel and other hazardous materials at locations away from streams and wetlands to reduce potential effects from spills.
- Contractors would be required to prevent concrete wash water or other contaminants from entering any stream or wetland.

Socio-economic Impacts

Long-term economic health of the project area is linked to protecting world class recreational resources, scenic amenities in the Park and the National Forests, and the high quality of life in the surrounding area while providing improved access for residents and visitors. The 3R and Reconstruction alternatives would contribute to the long-term stability and improved economic conditions in the surrounding communities due to improved accessibility. Short-term benefits may be recognized by local motels and other lodging rentals as construction workers may seek short-term housing. In addition, there may be opportunities for short-term construction employment. On the other hand, short-term negative effects may exist for local businesses in Silver Gate and Cooke City as tourists may avoid the area while the road is being constructed. Mitigation measures for construction impacts to tourist traffic are discussed under the Transportation/Access/Construction section.

All public services would benefit from the proposed improvements in the long-term because the road would become safer and more efficient to use. In particular, increased efficiency in maintenance of the road with decreased maintenance costs would result. The social impacts of the construction alternatives are considered to be beneficial for economic growth and the recreational utilization of the area. The proposed project is consistent with Executive Order 12898 regarding environmental justice in minority and low income populations in that there would be no adverse impacts to either population in the project area.

Services

The lack of adequate parking in Cooke City will worsen as tourism increases regardless of which alternative is selected. However, addressing parking problems within Cooke City is beyond the scope of the proposed project.

If the road is plowed east of Cooke City, there would be a need for snowmobile underpasses to accommodate the off-road snowmobile trail system to avoid conflicts between the large numbers of snowmobilers and vehicles on the road.

One negative aspect of increased snowplowing which may occur after the road is improved is that it blocks residential driveways, forcing residents to park on the road. Parking and snowplowing difficulties in Cooke City would not change with implementation of the proposed project, but the wider proposed width of the road should make the problem more manageable between Silver Gate and Cooke City. The wider roadway would provide additional room for parking and snow storage along the road.

Mitigation Measures

- Construction of a snowmobile underpass has been proposed to accommodate snowmobiles crossing the route if the road is plowed after improvements.

Utilities

Power poles and underground telephone lines at some locations would need to be moved during the Reconstruction Alternative. Utilities would be relocated within the right-of-way for the new road. The WFLHD would coordinate with appropriate utility companies before construction to determine the timing and details of power and telephone line relocations. The proposed improvements would create no long-term changes in utilities, and therefore, no mitigation measures are needed.

Transportation/Access/Construction

The proposed improvements under the 3R and Reconstruction Alternative would result in a facility that would require less maintenance in the years to come. The chief transportation benefit of the proposed improvements would include greater safety and dependability for all users of the road with more predictable driving conditions.

Drivers would have better access to the scenic, recreational, and interpretive opportunities offered within the Beartooth Highway corridor. Increased use of existing and planned sites may occur as a result of the improvements.

Construction activities would result in temporary delays to motorists passing through the project. The length and locations of the delays would depend on the construction activities underway at a particular time.

The proposed road improvements would not affect the speed zone through Cooke City and Silver Gate which is currently 40 km/h (25 mph). Changing legal speed limits and speed zones is beyond the scope of the proposed project.

Providing an improved road with a wider paved shoulder may cause traffic speeds to increase slightly outside of the speed zones in Cooke City and Silver Gate and would also make the route more attractive to bicycle traffic. Increased bicycle traffic may increase the potential for conflicts with motorized vehicles. The increased accident potential due to slightly higher traffic speeds and increased bicycle traffic would be offset by the improved safety benefits from increased sight distance and increased pavement width which provide for increased maneuverability and reaction time to avoid hazards.

Mitigation Measures

- A traffic control plan would be developed to move traffic through the project as efficiently as possible and to coordinate with users of the road to minimize negative effects. The contractor would provide signing, flaggers, pilot cars, and other traffic control as needed during construction. At least one lane of traffic would be kept open through work areas during construction with delays to traffic not exceeding 30 minutes.

- The contractor would keep open access to all side roads and private roads during construction. Individual approaches may be temporarily closed for part of the day during construction but would be open and operable during non-working hours.

- The FHWA would coordinate with MDT, WYDOT, Gallatin National Forest, and the National Park to provide timely information to the public regarding road construction projects and road closures.

- No construction would occur on weekends or legal holidays.

- All construction delays and closures would be coordinated with other road work occurring in the Park and in the project area.

Mitigation for Transportation/Access/Construction Continued:

- Slow-moving vehicle pullouts would be provided where feasible between Cooke City and the Wyoming State Line along the steeper grades to facilitate traffic flow. These pullouts would provide an area for slower-moving vehicles to pull out of the main traffic stream and allow faster vehicles to pass. Traffic congestion should be minimized in steeper grade areas.

Permits Required for Action Alternatives

Both federal and state permits would be required to implement the proposed action as follows:

- A Section 404 Permit from the COE would be required for wetland encroachments. Approximately 2.0 hectares (5 acres) of high-quality wetlands just east of Silver Gate in Duffy's have been purchased and set aside for conservation purposes to meet mitigation requirements.

- A Special Use Permit from the Forest Service is required for use of material sources, borrow or waste material sites, or for allowing a contractor's construction campsite or staging area on Forest Service lands.

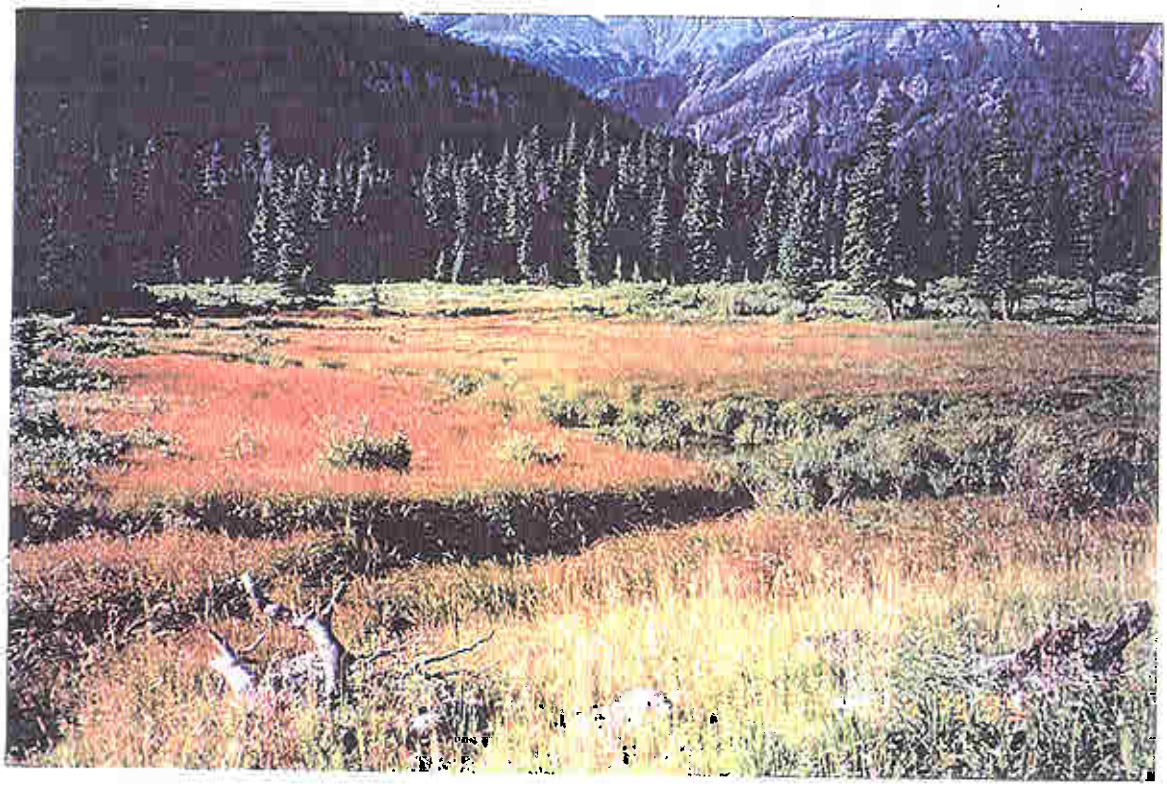
- The contractor will be responsible for obtaining a Montana Water Right Permit to obtain water for dust control and other construction activities. A temporary permit would be obtained from the Water Rights Bureau of the Montana Department of Environmental Quality.

- A Stream Protection Permit would be required from the Montana Department of Fish Wildlife, and Parks for culvert replacements.

- A Short-Term Exemption from Montana's Water Quality Standards (3A authorization) may be needed from the Water Quality Bureau at the Department of Environmental Quality if the project may cause unavoidable short-term violations of water quality standards for turbidity, total dissolved solids, or temperature.

- A Montana Pollutant Discharge Elimination System permit from the Montana Department of Environmental Quality would be required since the project would disturb more than 2.0 hectares (5 acres) or 0.4 hectares (1 acre) less than 30.5 meters (100 feet) from state waters.

All permit needs for activities affecting waters and lands regulated by the State of Montana would be determined through further coordination with the resource agencies having jurisdiction. The contractor would be responsible for obtaining a permit for burning construction materials, operation of a "hot asphalt plant," for withdrawing water from any stream, and for a Mined Land Reclamation Permit for materials obtained from non-commercial sources.



Photograph 5. Wetland mitigation site (Duffy's Meadow)

- Cut and fill slopes would be designed to be flat enough to provide stability and to promote successful revegetation.

- Topsoil would be saved and re-used on cut and fill slopes.

- Areas of disturbed soils would be revegetated and stabilized to reduce erosion and sedimentation of streams and wetlands. A revegetation plan would be developed and implemented to provide long-term revegetation and stabilization of cut and fill slopes.

- A Storm Water Pollution Prevention Plan would be developed and effectively implemented to reduce erosion and sedimentation of streams and wetlands during and after construction. Measures may include the use of rock-lined channels, silt fences, slope blankets, settlement ponds, temporary seeding, or other commonly accepted erosion and sediment control measures.

- Contractors would be required to take measures such as high intensity burning, chipping, burying, or a combination of these and other reasonable methods to reduce air emissions.

- Cleared trees and shrubs that can be used for firewood and are not otherwise reserved would be made available to the public.

- The contractor would use dust control measures such as water to control dust in the construction areas.

- A SWPPP would be developed and used during the construction phase to comply with permit conditions of the MPDES construction permit. The plan would include comprehensive erosion and sedimentation control measures to avoid or minimize water quality degradation. The plan would include such measures as lined channels, silt fences, slope blankets, settlement ponds, temporary seeding, or other commonly accepted erosion and sedimentation control measures.

- Temporary barriers to retain excavated material, rock, or vegetation would be used as needed to prevent deposition in streams or wetlands. If material inadvertently enters a stream or wetland, it would be removed in accordance with appropriate procedures coordinated with permitting agencies.

Summary of Mitigation Measures Continued:

- New culverts would be designed to accommodate anticipated flood flows with no substantial changes in flood elevations.

- The Storm Water Pollution Prevention Plan would include monitoring to identify when turbidity levels exceed background levels.

- Due to the lack of suitable mitigation sites, approximately 2.17 hectares (5.38 acres) of high-quality wetlands just east of Silver Gate in Duffy's Meadow were purchased and transferred to Park County for maintenance in perpetuity.

- Road fill slopes and other disturbed soils that could affect wetlands through erosion and sedimentation would be stabilized and revegetated.

- Roadside signing regarding grizzly bears would be installed at each end of the proposed project and at the entrances to the Colter and Chief Joseph Campgrounds.

- Additional metal food storage containers which would be installed at campsites in the three campgrounds present.

- Interpretive exhibits would be installed at the Clarks Fork trailheads outlining concerns related to traveling and camping in a backcountry setting where grizzly bears are present.

- The Cooke City solid waste transfer site would be redesigned through recommendations made by the Forest Service to include all of the necessary features to make the site unavailable to bears. Changes may include additional fencing and the purchase and installation of new garbage containers.

- Feeding bears would be prohibited by contractors and their personnel.

- All construction garbage and refuse would be made unavailable to bears. Activities associated with the reconstruction of the highway would conform to the most recent Gallatin National Forest Food Storage Order.

- Grizzly bear sightings and/or incidents experienced by contracting personnel would be reported to the District Ranger's office in Gardiner as soon as possible. (Phone: 406/848-7375)

Summary of Mitigation Measures Continued:

- Construction activities would be modified anytime there is the identified potential of compromising the safety of a grizzly bear.

- Seeding mixes for reseeding road shoulders and other disturbed sites would not include vegetation that is known to attract bears, i.e., would not include most *Trifolium* (clover) species.

- Roads immediately adjacent to the Beartooth Highway designated by the FS and created by firewood cutting activities would be obliterated when the project is reconstructed.

- Contractors would be required to use mufflers on construction equipment in accordance with applicable state and local laws.

- No construction would be performed within 300 meters (1,000 feet) of an occupied dwelling or campground on Sundays, legal holidays, or between the hours of 10:00 pm and 6:00 am on other days without the approval of the Contracting Officer. In addition, hauling of waste materials and construction materials through Cooke City and Silver Gate would be timed to avoid very early or late evening hours.

- No blasting would be performed within 900 meters (3,000 feet) of an occupied dwelling unit or campground on Sundays, legal holidays or between the hours of 8:00 pm and 8:00 am on other days without the approval of the Contracting Officer.

- Construction activities would be suspended on the project on weekends between Memorial Day and Labor Day.

- Final design of the project will adjust cut and fill slopes to minimize the need for additional right-of-way where possible, but still provide stable slopes that will successfully revegetate to minimize erosion.

- Berms, sediment fences, and other measures would be implemented to prevent offsite erosion at material source sites.

- A site-specific reclamation and revegetation plan would be prepared for material source sites.

Summary of Mitigation Measures Continued:

- Design details would be coordinated with the FS during the design process.
- Slopes would be generally designed flat enough to promote revegetation and to prevent erosion, yet as steep as possible to minimize clearing limits.
- Cut and fill slopes would be rounded and regraded to a natural appearing form and would be revegetated with native herbaceous and woody plant species (except for those plants attractive to grizzly bears). Large woody debris would be placed in cleared areas to create microclimates to promote survival of plantings as well as for erosion control and to provide a more natural appearance.
- New roadside turnouts would be developed as part of the proposed project.
- A row of trees would be planted between the highway and the cemetery and the road would be widened away from this site.
- Contractors would be required to store fuel and other hazardous materials at locations away from streams and wetlands to reduce potential effects from spills.
- Contractors would be required to prevent concrete wash water or other contaminants from entering any stream or wetland.
- Construction of a snowmobile underpass has been proposed to accommodate snowmobiles crossing the route if the road is plowed after improvements.
- A traffic control plan would be developed to move traffic through the project as efficiently as possible and to coordinate with users of the road to minimize negative effects. The contractor would provide signing, flaggers, pilot cars, and other traffic control as needed during construction. At least one lane of traffic would be kept open through work areas during construction with delays to traffic not exceeding 30 minutes.
- The contractor would keep open access to all side roads and private roads during construction. Individual approaches may be temporarily closed for part of the day during construction but would be open and operable during non-working hours.

Summary of Mitigation Measures Continued:

- The FHWA would coordinate with MDT, WYDOT, Gallatin National Forest, and the National Park to provide timely information to the public regarding road construction projects and road closures.

- No construction would occur on weekends or legal holidays.

- All construction delays and closures would be coordinated with other road work occurring in the Park and in the project area.

- Slow-moving vehicle pullouts would be provided where feasible between Cooke City and the Wyoming State Line along the steeper grades to facilitate traffic flow. These pullouts would provide an area for slower moving vehicles to pull out of the main traffic stream and allow faster vehicles to pass. Traffic congestion should be minimized in these steeper grade areas.

Photograph 6. Existing culvert at Milepost 4.1

Chapter Six: Coordination and Consultation

SEE Team

A Social, Environmental, and Economic Team was developed to address project concerns and issues. The Team consists of the following members:

Walter Langlitz, Design Operations Engineer (Chairman)
WFLHD, FHWA

Mr. Tim Hudson, Chief of Maintenance
Yellowstone National Park

Mr. Dale Paulson, Environmental Coordinator
Montana Division, Federal Highway Administration

Mr. Jeff Ebert, P.E., Supervisor, Project Analysis Section
Transportation Planning Division, Montana Department of Transportation

Mr. Frank Ehernberger, Forest Engineer
Gallatin National Forest

Coordinating Agencies and Interested Parties

The project has been coordinated with the U.S. Fish and Wildlife Service, YNP, MDT, FS, Park County, Montana State Historic Preservation Officer, MDEQ, MDFW&P, and the U.S. Army Corps of Engineers. Two non-profit conservation groups, the Mountain Wildflower Foundation and Worldlife, have greatly assisted with negotiation and purchase of Duffy's Meadow. Park County has been instrumental in performing maintenance as part of the required mitigation.

Sequence of Events

- A field trip was conducted to review the proposed project on June 30, 1992. An interagency steering committee was formed to find solutions to the various problems associated with the Beartooth Highway.

- A Road Inventory and Needs Study for the entire Beartooth Highway was initiated in September of 1993 and completed in October 1994 by WFLHD. A Project Identification Report for Segment 1 was also prepared.

Environmental Assessment Mailing List

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Mr. Ken Carver
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Montana Department of Transportation
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Mr. Loran Frazier, Engineering Services Engineer
Montana Department of Transportation
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Mr. Frank Ehernberger, Forest Engineer
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Bozeman, MT 59771

Ms. Jane Ruchman
Gallatin National Forest
Federal Building
P.O. Box 130
Bozeman, MT 59771

Sequence of Events Continued:

- A public meeting was held in the summer of 1994. The results were documented in a report in February 1995.
- A preliminary public meeting was held in Cooke City on July 27, 1995.
- A meeting of the interagency Social, Economic, and Environmental Team was held on July 26, 1996 to review the preliminary design for the project.
- A public meeting for the proposed project was held on August 28, 1996, in Cooke City.
- A field meeting was held on October 1 and 2, 1996 with the U.S. Army Corps of Engineers to review proposed wetland mitigation measures.
- The EA was released in August 1997.
- A public meeting was held in Cooke City, Montana on August 26, 1997.
- An amended EA and FONSI was released for public review in May of 1998.

List of References

USDA Forest Service and Montana Department of Environmental Quality, *Preliminary Draft Environmental Impact Statement for the New World Project*, December 1995.

David Evans and Associates, Inc., *Wetland Determination for Beartooth Highway*, March 26, 1996.

David Evans and Associates, Inc., *Beartooth Highway Cultural Resources Survey*, March 13, 1996.

U.S. Department of Transportation, Federal Highway Administration, *Project Checklist for Beartooth Highway*, August 1996.