

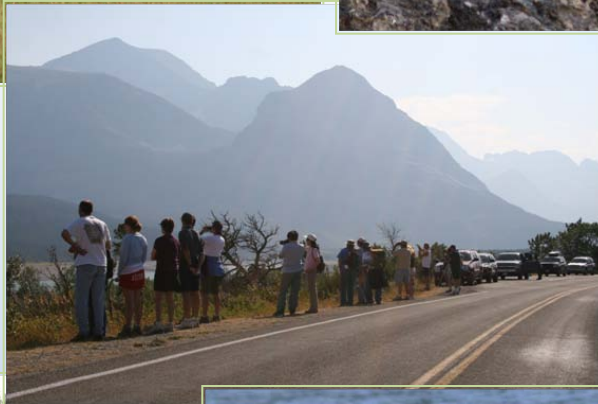
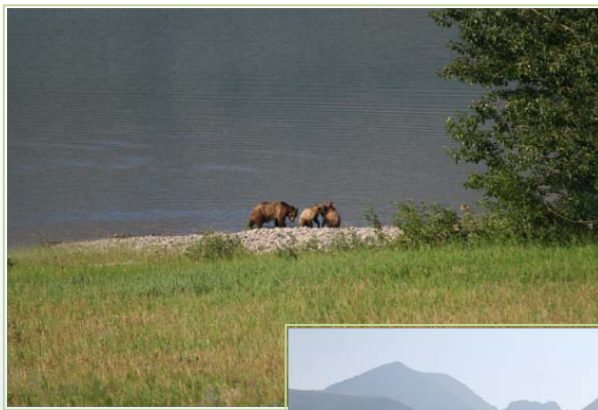
National Park Service
U.S. Department of the Interior



Glacier National Park
Waterton-Glacier International Peace Park
Montana

Many Glacier Wildlife Viewing Plan Environmental Assessment

September 2010



Photos by Betty Kijewski

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Environmental Assessment

Wildlife Viewing Plan along the Many Glacier Road

Glacier National Park • Montana

SUMMARY

The Many Glacier Road, which provides access to the Many Glacier Valley, bisects the travel corridors of grizzly and black bears, Rocky Mountain bighorn sheep, and other wildlife. An oftentimes congested roadway, frequent “animal” jams that block traffic and stress or displace animals, inadequate parking availability, and the potential for wildlife to become overly familiar with people have resulted in the need to look at ways to better protect wildlife and improve the visitor experience. Based on natural wildlife travel patterns combined with recognition of the optimal places for visitors to see animals, the park is proposing a plan that protects wildlife travel corridors and provides visitors with the exceptional wildlife viewing opportunities that make Many Glacier one of the most popular and memorable destinations in the park.

This Environmental Assessment (EA) evaluates two alternatives, including a no action alternative. Under the no action alternative, the park would not implement an overall plan to address wildlife and visitor issues along the Many Glacier Road and would continue to respond to each incident or issue individually. The action alternative seeks to enhance the wildlife viewing experience for visitors, provide better protection for wildlife, improve parking availability, reduce impacts to vegetation, and improve traffic and pedestrian safety. This alternative would include the enlargement and/or improvement of heavily used pullouts in popular wildlife viewing areas; the formalization of some undesignated pullouts to designated pullouts; the removal of pullouts that are too close to wildlife crossings; and the development of a new pullout. A designated wildlife viewing area would be constructed at the Swiftcurrent Motor Inn parking lot, and orientation to the Iceberg Lake/Ptarmigan Trail would be improved. A short trail would be constructed to the meadow at Apikuni Flat, a foot and bicycle path would be formalized between the Many Glacier Hotel T intersection and the Swiftcurrent parking lot, additional educational and interpretive resources would be provided, and the speed limit from the entrance station to the Hotel T intersection would be reduced from 45 mph to 35 mph.

Resource specialists evaluated the following impact topics: wildlife, threatened and endangered species and species of concern (including grizzly bears, Canada lynx, gray wolves, golden eagles, wolverine, fisher, Rocky Mountain bighorn sheep, and vascular plants), visual resources, visitor use and experience, historic structures, vegetation, soils, and health and human safety. This EA has been prepared in compliance with the National Environmental Policy Act (NEPA) to analyze the environmental impacts and assist the National Park Service (NPS) in selecting the best alternative. It 1) analyzes a reasonable range of alternatives to meet the purpose and need of the proposal, 2) evaluates potential issues and impacts to resources and values, and 3) identifies mitigation measures to lessen the degree or extent of these impacts. No major effects are anticipated as a result of this project. Public scoping was conducted to assist with the development of this document.

The no action alternative would have minor to moderate adverse, short and long-term, site-specific and local impacts to wildlife, including grizzly bears and bighorn sheep, due to displacement, excessive human habituation, and an increased risk of food conditioning. The determination for grizzly bears under Section 7 would be “may affect, not likely to adversely affect”. Impacts to Canada lynx would be no effect; under Section 7, “no effect”. Impacts to gray wolves would be negligible to moderate, adverse, long-term, local and regional; under Section 7, “may affect, not likely to adversely affect”. There would be no impacts to golden eagles, wolverine, or fisher. Impacts to moonwort (*Botrychium*) from continued trampling would be minor, adverse, long-term, and site-specific. There would be no effect on visual resources or

historic structures. Impacts to visitor use and experience would be negligible to moderate, adverse, long-term, site-specific and local from a continued lack of defined viewing areas and the consequences of food conditioned or habituated wildlife. Impacts to vegetation and soils would be minor, adverse, long-term and site-specific from loss of vegetation, unabated compaction, and encroachment of exotic species. There would be minor to moderate, adverse, long-term, and site-specific and local impacts to human health and safety from traffic hazards, risks to pedestrians, and the potential for wildlife to become overly familiar with people.

Disturbances during construction for the preferred alternative would have adverse, short-term and site-specific impacts to wildlife, threatened and endangered species, and species of concern. Impacts would be negligible to moderate for wildlife, grizzly bears, Canada lynx, gray wolves, wolverine, and fisher, and minor to moderate for golden eagles and bighorn sheep. The preferred alternative would have short and long-term beneficial impacts to wildlife, threatened and endangered species, and species of concern due to reduced risk of displacement, disturbance, collisions with motor vehicles, excessive habituation, food conditioning, and conflict with people. Beneficial impacts would be minor to moderate, site-specific and local for wildlife, grizzly bears and bighorn sheep, and negligible to minor and site-specific for Canada lynx, gray wolves, wolverine, and fisher. Under Section 7, the determination for grizzly bears, Canada lynx, and gray wolves would be “may affect, not likely to adversely affect.” Surveys for sensitive plants would be conducted prior to construction and populations of sensitive plants would be avoided. Impacts to vascular plants, especially moonwort, would be negligible to minor, adverse, long-term, and site-specific, but possibly beneficial if recolonization occurs in disturbed areas.

There would be negligible to moderate, adverse, long-term and site-specific impacts to visual resources from changes that are apparent but compatible with the overall appearance of each site. Impacts to visitor use and experience would be moderate, beneficial long-term, and site-specific and local due to enhanced wildlife viewing and educational opportunities, improved parking availability, and improved orientation to the Iceberg/Ptarmigan Trailhead. Minor adverse, site-specific, and long-term impacts to visitor use would occur from the loss of the pullout at Sheep Curve and some parking spaces at the Swiftcurrent Motor Inn parking lot median. There would be minor adverse, long-term, and both site-specific and local impacts to historic structures from alterations to pullouts along the Many Glacier Road and the construction of a viewing area at the Swiftcurrent Motor Inn parking lot. Impacts to vegetation and soils would be minor, adverse, short and long-term and site-specific from the removal of vegetation from undisturbed sites, but redirecting visitor use onto surfaced areas could have minor beneficial, long-term impacts. There would be minor to moderate beneficial, long-term and site-specific and local impacts to human health and safety from improved traffic and pedestrian safety and a reduced potential for animal/human conflicts.

How to Comment

Comments on this environmental assessment can be provided directly through the Park’s planning website (<http://parkplanning.nps.gov/parkHome.cfm?parkId=61>) by selecting this project. Or write to: Superintendent, Glacier National Park, Attn: *Wildlife Viewing EA*, PO Box 128, West Glacier, Montana 59936. This environmental assessment will be on public review for 30 days. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review and we try to accommodate such requests, we cannot guarantee that we will be able to do so. We will always make submissions from organizations or businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses, available for public inspection in their entirety.

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PURPOSE and NEED

Introduction

Glacier National Park (GNP, Glacier, or the park) is located on the Canadian border in northwestern Montana. The park is in the northern Rockies and contains the rugged mountains of the Continental Divide. Together with Canada's Waterton Lakes National Park, it forms the Waterton-Glacier International Peace Park, the world's first international peace park. The parks are listed together as a World Heritage Site and separately as International Biosphere Reserves. Outstanding natural and cultural resources are found in both parks.

Glacier National Park's primary mission is the preservation of natural and cultural resources, ensuring that current and future generations have the opportunity to experience, enjoy, and understand the legacy of Waterton-Glacier International Peace Park.

The purpose of GNP is to:

- preserve and protect natural and cultural resources unimpaired for future generations (1916 Organic Act);
- provide opportunities to experience, understand, appreciate, and enjoy Glacier National Park consistent with the preservation of resources in a state of nature (1910 legislation establishing Glacier National Park); and
- celebrate the on-going peace, friendship, and goodwill among nations, recognizing the need for cooperation in a world of shared resources (1932 International Peace Park legislation).

The significance of GNP is explained relative to its natural and cultural heritage:

- Glacier's scenery dramatically illustrates an exceptionally long geological history and the many geological processes associated with mountain building and glaciation;
- Glacier offers relatively-accessible, spectacular scenery and an increasingly rare primitive wilderness experience;
- Glacier is at the core of the "Crown of the Continent" ecosystem, one of the most ecologically intact areas remaining in the temperate regions of the world;
- Glacier's cultural resources chronicle the history of human activities (prehistoric people, Native Americans, early explorers, railroad development, and modern use and visitation) and show that people have long placed high value on the area's natural features; and
- Waterton-Glacier is the world's first international peace park.



Many Glacier Road - NPS Photo

The Many Glacier Valley draws visitors from around the world and offers a variety of attractions, including a majestic landscape, four historic districts, a national historic landmark hotel, and extraordinary opportunities to view wildlife. Recreational opportunities include hiking and climbing, lodging and dining, boating, horseback riding, fishing, sightseeing, and wildlife viewing. The valley is accessible by a single road, the Many Glacier Road, and traffic is steady during the height of the visitor season in June, July, and August. Over



the last ten years, an average of more than 200,000 people per year visited Many Glacier by automobiles, recreational vehicles, large commercial tour buses, historic Red Buses, delivery trucks, bicycles, motorcycles, and park vehicles.

Wildlife viewing is one of the more popular activities in the Many Glacier Valley. Visitors use many of the pullouts along the road to watch wildlife, sometimes at a distance and sometimes at very close range. It is common to see dozens of people with binoculars, spotting scopes, and cameras congregating at a pullout. When pullouts become full, traffic often piles up in road lanes or along the road shoulder, outside formal parking areas and off the pavement. Bears are an especially popular species and usually attract the largest number of people, creating the classic “bear jams”. Other large mammals, like bighorn sheep and moose, have a similar effect.

The proposed plan is intended to provide high quality wildlife viewing opportunities for visitors travelling the Many Glacier Road while also protecting wildlife species that use the valley’s naturally occurring travel corridors.

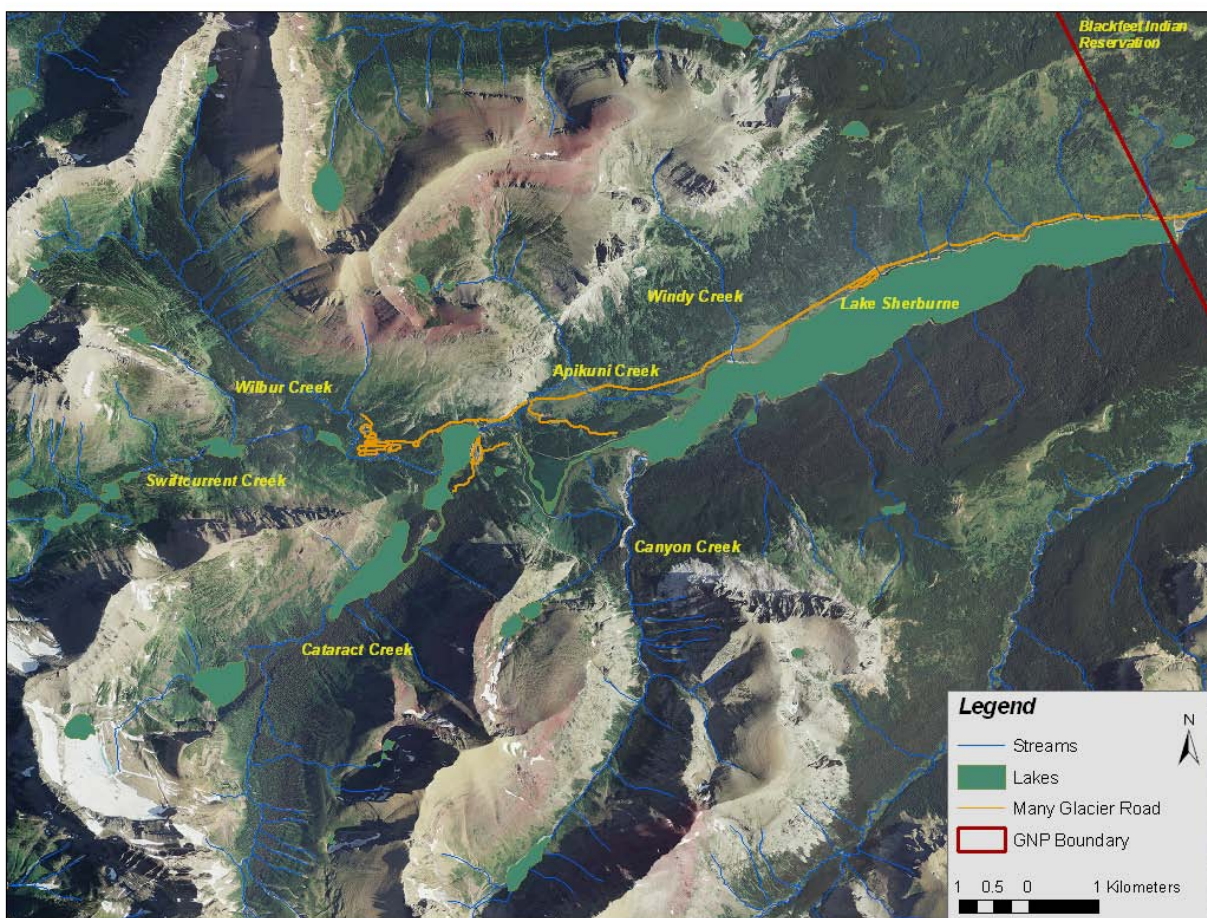


Figure 1. Many Glacier Valley, Glacier National Park, Montana.

This environmental assessment was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, regulations of the Council on Environmental Quality (CEQ) (40 CFR § 1508.9), and the National Park Service Director’s Order (DO)-12 (*Conservation Planning, Environmental Impact Analysis, and Decision-Making*).

National Park Service’s *Management Policies* 2006 require analysis of potential effects to determine whether or not actions would impair park resources (NPS 2006). The fundamental



purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, actions that would adversely affect park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact to any park resource or value may, but does not necessarily, constitute impairment, but an impact would be more likely to constitute impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated. An impairment analysis for the preferred alternative can be found in Appendix A.

Background

Nestled between rugged mountains and featured by glaciers, pristine waters, and a dynamic landscape, the Many Glacier Valley is one of the most valuable places in the park for wildlife. The valley contains outstanding, diverse, and highly productive habitat year round, from subalpine climax forests and riparian woodlands to shrublands, fescue grasslands, and herbaceous wetlands. Each of these habitat types supports numerous species of wildlife. Three major drainages converge here, forming a crossroads between ancient travel corridors used by bighorn sheep, mountain goats, grizzly bears and other species as they make seasonal movements across the landscape.

The Many Glacier Road, which provides visitor access to the area's developed sites, bisects the heart of the valley. During the busy summer months, traffic flows steadily along the road as



*Wildlife jam near Windy Creek
Photo by Betty Kijewski*

visitors make their way to accommodations and recreational sites. Several species of wildlife also use the road corridor and are often seen by motorists in close proximity – it is not unusual for visitors to see whitetail deer, bighorn sheep, mountain goats, moose, and black and grizzly bears along the roadside.

Seeing a wild animal up close can be a thrilling experience. But hazardous conditions arise for both people and wildlife when visitors park their vehicles in the roadway, block traffic, leave their cars, and



approach wild animals too closely. Such occurrences are known to happen on a daily or even hourly basis during the peak visitor season. Animals in these situations become overly habituated to vehicles and people and the chances of vehicle-animal collisions, dangerous human-animal interactions, or an animal obtaining a food reward are increased. Additionally, these animal “jams” create dangerous conditions for pedestrians on the road with traffic.

Some tolerance of human activity among bears and other animals that share roads and developed areas with people is inevitable and perhaps even desirable. Wildlife that are accustomed to the presence of people may still use valuable habitat near developments, and the opportunity to view wildlife fosters a conservation ethic among visitors. Wildlife and people have indeed learned to share the developed areas of the Many Glacier Valley to a certain extent. The park considers both wildlife and people through management activities, including area closures during periods of wildlife sensitivity and efforts to discourage wildlife from frequenting developed sites. But animals that use the Many Glacier Road corridor are currently at risk of becoming overly familiar with people. Animals that are overly familiar with people tend to venture too close to people and developed areas too often. This behavior increases an animal’s chances of obtaining human food from unattended sources at campgrounds and picnic areas, in backpacks left alongside trails, in vehicles with open windows, or from visitors who may intentionally attempt to feed wildlife. Habituated and food conditioned animals may pass these behaviors on to their offspring, thus perpetuating the problem and the risks over multiple generations.



*Black bear crossing the Many Glacier Road
Photo by Betty Kijewski*

Congregations of people at places on the road where wildlife naturally cross can also displace animals, including those species that are naturally elusive or unfamiliar with the presence of people. Displacement can stress animals, cause them to avoid important sources of food, water, and shelter, and can alter wildlife movement patterns.

The National Park Service (NPS) is mandated with protecting wildlife and providing for visitor use and enjoyment of the park. At Many Glacier, this combined mission can be challenging as visitors and wild animals compete for limited space within the road corridor.

Research and observations on how animals travel within the valley combined with high levels of visitor traffic, large bear jams, and traffic safety concerns have resulted in the need to examine how the park can better protect wildlife while continuing to provide visitors with extraordinary wildlife viewing opportunities.

Actions were taken during the summer of 2008 to protect wildlife road crossings and improve the wildlife viewing experience for visitors. To protect a heavily used animal crossing, the Sheep Curve pullout was closed to parking. Signs were placed along the road to identify wildlife travel routes, and wildlife viewing stations were set up by park rangers and volunteers who roved the road with spotting scopes. Interpretive rangers continued to provide a nightly evening scoping session at the Swiftcurrent Motor Inn parking lot island, which is a traditionally popular wildlife viewing site. Wayside interpretive exhibits were established and information on the Watchable Wildlife Program was made available at the Many Glacier Hotel and area restaurants. In 2009, over 29,000 visitors participated in the Watchable Wildlife Program.

The island in the Swiftcurrent Motor Inn parking lot is an enormously popular place for viewing wildlife. Surrounded by open slopes of diverse habitat types that are well-used by several wildlife species, the area offers some of the park’s best wildlife viewing opportunities. Visitors gather at the island daily during the summer months to search the slopes, and many people set up spotting scopes and tripods. Nearly 7000 visitors took part in the Watchable



Wildlife Program's evening scoping sessions at the parking lot island in 2009.

The Watchable Wildlife Program was a preliminary attempt to optimize wildlife viewing for visitors and minimize impacts to wildlife. Enhanced interpretive programs have been well received, but the program has not adequately addressed concerns related to wildlife security, traffic congestion, hazardous road conditions for pedestrians, and limited parking availability. The closure of the pullout at Sheep Curve and other restrictions on parking has also resulted in some public concern and opposition. The park hopes to create an improved plan that would enhance outstanding wildlife viewing opportunities for visitors, reduce the potential for wildlife to become overly habituated, and protect wildlife travel routes. This Environmental Assessment (EA) has been developed to explore alternatives and comprehensively assess the impacts to visitors, wildlife, and park resources.

Purpose and Need

The purpose of the plan is to enhance and maintain outstanding wildlife viewing opportunities while protecting wildlife species that use the road corridor in the Many Glacier Valley of Glacier National Park.

The objectives of the plan would be to:

- Provide park visitors with quality wildlife viewing opportunities along the Many Glacier Road corridor.
- Reduce the potential for habituation of wildlife.
- Protect wildlife road crossings and travel routes along the Many Glacier Road corridor.
- Provide park visitors with educational information on wildlife natural history, management, and preservation.
- Provide visitors with improved parking availability along the road.
- Reduce vegetation damage through better delineation of parking and viewing areas; restore disturbed sites.



Grizzly bear in the Many Glacier Valley
Photo by Betty Kijewski

Relationship to Other Plans and Policies

Current plans and policies that pertain to this proposal include the *Glacier National Park General Management Plan* (GMP) (NPS 1999), which provides overall guidance and direction for the park including the Many Glacier Geographic Area, and provides guidance on how this area will be managed; the *Final Commercial Service Plan* (NPS 2004), which provides guidance on the development of commercial services within the park, including the Many Glacier area; and the *Bear Management Plan* (NPS 2010), which provides guidelines for management of bears in the park.

Appropriate Use

Section 1.5 of *Management Policies* (2006) directs that the National Park Service must ensure that park uses which are allowed would not cause impairment of, or unacceptable impacts on, park resources and values. A new form of park use may be allowed within a park only after a determination has been made in the professional judgment of the park manager that it will not result in unacceptable impacts.

Section 8.1.2 of *Management Policies* (2006), *Process for Determining Appropriate Uses*, provides evaluation factors for determining appropriate uses. All proposals for park uses are evaluated for:

- consistency with applicable laws, executive orders, regulations, and policies;
- consistency with existing plans for public use and resource management;



- actual and potential effects on park resources and values;
- total costs to the Service; and
- whether the public interest will be served.

Park managers must continually monitor all park uses to prevent unanticipated and unacceptable impacts. If unanticipated and unacceptable impacts emerge, the park manager must engage in a thoughtful, deliberate process to further manage or constrain the use, or discontinue it.

From Section 8.2 of *Management Policies*: “To provide for enjoyment of the parks, the National park Service will encourage visitor use activities that

- are appropriate to the purpose for which the park was established; and
- are inspirational, educational, or healthful, and otherwise appropriate to the park environment; and
- will foster an understanding of and appreciation for park resources and values, or will promote enjoyment through a direct association with, interaction with, or relation to park resources; and
- can be sustained without causing unacceptable impacts to park resources and values.”

Park managers reviewed several alternatives for a wildlife viewing plan along the Many Glacier Road. A well-conceived plan would offer guidance to future park managers on providing visitors with wildlife viewing opportunities while maintaining wildlife security and protecting wildlife travel corridors. The proposed plan is consistent with the five evaluation factors above including the park’s general management plan and other related park plans. With this in mind, the NPS finds that implementing the plan is an acceptable use at Glacier National Park.

Scoping and Public Involvement

Scoping is an early and open process to determine the breadth of environmental issues and alternatives to be addressed in an EA. Glacier National Park conducted both internal scoping with Glacier National Park staff and external scoping with the public and interested and affected groups and agencies. The scoping process identified potential issues, alternatives, the effects of cumulative actions, and what resources would be affected.



*Wildlife Viewing at Windy Flats
Photo by Betty Kijewski*

Public scoping began on October 26, 2009 and the comment period closed on November 30, 2009. A press release was distributed to numerous media outlets on October 27, 2009, and brochures were mailed to individuals and organizations on the park’s EA mailing list, including members of congress and various federal, state, and local agencies. Glacier National Park notified the U.S. Fish and Wildlife Service (USFWS) of the proposed project in accordance with Section 7 of the Endangered Species Act, and the Montana State Historic Preservation Office (SHPO), the Confederated Salish and Kootenai Tribes and the Blackfeet Business Council in keeping with 36 CFR800.8.

Forty-five letters were received during the scoping period. Of these, 40 were from individuals and 5 were from organizations and special interest groups. Well over half of the comments were generally supportive; some commenters expressed support for certain elements of the proposal and concern about others, and some commenters opposed any action.

One of the most frequently raised concerns was that there are not enough pullouts along the Many Glacier Road. Several commenters recommended additional and/or enlarged pullouts in order to increase wildlife viewing opportunities, better delineate parking areas, reduce traffic



congestion and safety hazards, reduce the number of pedestrians on the road, reduce the number of bear jams, and minimize natural resource damage off the road shoulder. Several commenters cited inadequate space for vehicles to safely pull all the way off the road, and one commenter suggested widening the road shoulders along meadows and other open areas.

Several commenters raised concerns over closing pullouts, citing too much restriction on visitor activities, limitations on viewing opportunities, lack of parking, and ineffectiveness of pullout closures due to people parking in the road whether a pullout is available or not. Two comments cited concerns that visitors' right to enjoy park resources has been or could be compromised.

Three commenters requested no additional development or pullouts, and three suggested closing pullouts to protect wildlife corridors and crossings and to reduce risks to pedestrians. One commenter recommended that new pullouts not be placed near crossings or critical wildlife habitat such as nesting areas. Three commenters suggested designated no stopping areas along the road.

A concern was raised about hazardous rock fall, wildlife habituation, and observations of visitors feeding animals at Sheep Curve. There were four recommendations to re-open Sheep Curve, one suggestion that the area become a no stopping zone that is also closed to foot traffic, and another suggestion that Sheep Curve be intermittently open depending on periods of wildlife use. One commenter suggested developing a pullout east of Windy Creek.

Excessive speed along the Many Glacier Road was another frequently cited concern, and several recommendations were made to reduce the speed limit in order to improve safety for both visitors and wildlife. All of the above concerns are addressed in the *Purpose and Need*, *Preferred Alternative*, *Alternatives Considered but Dismissed*, and *Identification of the Environmentally Preferred Alternative* sections of this EA.

Several concerns were raised about unsafe proximity between people and wildlife in the road corridor and the displacement of animals due to visitor crowds at wildlife crossings. Two commenters expressed concern about disturbance to wildlife from heavy equipment and construction traffic during proposed improvements to pullouts. Others questioned how much habitat could be taken up under the proposed actions. Several commenters raised concern about the Many Glacier Road being in disrepair. These concerns are addressed in *Purpose and Need*, *Preferred Alternative*, *Affected Environment and Environmental Consequences*, and *Mitigation Measures*.

Education and interpretation was also frequently addressed among the comments, with several commenters recommending enhanced educational outreach and additional interpretive information. One commenter suggested a Grizzly Education Center and educational material that would counter one-sided portrayals of grizzly bears as dangerous. Another suggestion was made to educate visitors on how to behave in a bear jam, and another recommended interpretive information that would convey the relationship between wildlife corridors and climate change. One commenter recommended against additional brochures that could end up as litter. Another commenter suggested that educational materials discuss the benefits to both visitors and wildlife of controlled, designated viewing areas. One commenter recommended clarifying messages on roadside signs, and a recommendation was made to make all new exhibits or platforms accessible. Several commenters recommended making more spotting scopes available to the public, and one suggested scopes with higher quality optics. These issues are addressed in the *Preferred Alternative* section and in the discussion on alternatives that were considered but dismissed.

Several commenters raised concerns that park rangers do not interact positively with the public and prevent visitors from watching wildlife when breaking up bear jams. Those comments have been forwarded to the appropriate park staff. Four commenters questioned the park's practice



of using aversive conditioning techniques for roadside bears. One commenter suggested that rangers are doing too little to disperse bear jams, three commenters recommended a stronger ranger presence to enforce speed limits and closures and better control parking in undesignated areas. One suggestion was made for larger speed limit signs that emphasize prosecution for excessive speed. Three commenters raised questions about whether animals undergo stress or displacement at bear jams. One comment raised the question of whether a link exists between human habituation among bears and food conditioning. One commenter recommended transferring supervision of bear rangers to the wildlife biologist. These issues and recommendations are addressed in *Affected Environment and Environmental Consequences, Mitigation Measures, Purpose and Need, and Alternatives Considered and Dismissed*. Aversive conditioning of grizzly bears is not being evaluated by the proposed plan, but is discussed in GNP's *Bear Management Plan*.

Several commenters raised concerns about viewing platforms, citing barriers to wildlife, and obstruction of views. A commenter recommended constructing viewing platforms in areas of previous impact and to use park wildlife sighting data to determine the most optimal viewing areas. One concern was raised that a viewing platform at Swiftcurrent Motor Inn parking lot would reduce the number of parking spaces. These issues are addressed in the *Preferred Alternative* and *Mitigation Measures* sections of this EA.

There were several other suggestions for alternative or additional actions. One commenter recommended reopening the lower part of the old Altyn Mountain trail to reduce traffic congestion and allow pedestrians to view wildlife, and another suggested redesigning the trailhead to Swiftcurrent Pass, Iceberg Lake, and Ptarmigan Tunnel. Two commenters suggested cutting down roadside trees for improved visibility, and two others recommended constructing side roads designated for wildlife viewing. Two commenters suggested a shuttle service or bus system, and three suggestions were made for a viewing site at the picnic area. One commenter suggested erecting a wildlife viewing blind, another suggested that the culvert used by animals to cross the road near Sheep Curve be moved east for more separation and screening from the nearby pullout. Two commenters suggested constructing underpasses and overpasses for wildlife to cross the road. One commenter suggested removing the Many Glacier Hotel, and another recommended closing Mt. Henkel and Mt. Altyn by July 1. One commenter suggested no idling zones in the interest of soundscape preservation and air quality. All of these suggestions are addressed in the section on *Alternatives Considered and Dismissed*.

Impact Topics Retained for Further Analysis

Impact topics for this project have been identified on the basis of federal laws, regulations, and orders; 2006 *Management Policies*; input from the Montana State Historic Preservation Officer; and NPS knowledge of natural and cultural resources in the Many Glacier Valley. Issues and concerns affecting the proposed action were identified by the public, other federal and state agencies, and the National Park Service. Impact topics are identified by determining what resources could be affected by the alternatives. Impact topics that are carried forward for further analysis in this environmental assessment are listed below along with the reasons why the impact topic is further analyzed.

The NPS defines “measurable” impacts as moderate or greater effects. It equates “no measurable effects” as minor or less effects. “No measurable effect” is used by the NPS in determining if a categorical exclusion applies or if impact topics may be dismissed from further evaluation in an EA or environmental impact statement (EIS). The use of “no measurable effects” in this EA pertains to whether the NPS dismisses an impact topic from further detailed evaluation in the EA. The reason the NPS uses “no measurable effects” to determine whether impact topics are dismissed from further evaluation is to concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail in accordance with CEQ regulations at 1500.1(b).



Wildlife Species

The NPS is charged with maintaining native wildlife as an integral component of natural ecosystems. The proposed actions would affect wildlife species in the Many Glacier Valley.

Threatened and Endangered Species and Species of Concern

The NPS protects and attempts to recover all native species that are listed under the Endangered Species Act of 1973. Both the *Management Policies* (2006) and Director's Order 77 *Natural Resources Management Guidelines* require the NPS to examine and minimize the impacts of projects on federal candidate species as well as federally listed threatened, endangered, and candidate, and state listed rare, declining, and sensitive species. In accordance with Section 7 of the Endangered Species Act, Glacier National Park is required to consult with the U.S. Fish and Wildlife Service (USFWS).

Federally Listed Species

Grizzly Bear (*Ursus arctos horribilis*). Federally listed as Threatened. The project area is heavily used by grizzly bears and the proposed plan may affect grizzly bear behavior, habitat use, and travel patterns. Impacts to grizzly bears are therefore analyzed.

Canada Lynx (*Lynx canadensis*). Federally listed as Threatened. Lynx have been recorded in the Many Glacier Valley for over forty years. Preliminary lynx habitat modeling indicates that lynx habitat values along the Many Glacier Road corridor are low. But little is known about lynx habitat use in the park and the criteria used for the model are general in nature. Because the proposed actions could affect how lynx use the area, impacts to lynx are evaluated.

Gray Wolf (*Canis lupus*). Federally listed as Endangered. Gray wolves pass through the Many Glacier Valley as part of their wide-ranging nature and because their distribution is linked to their prey base. Wolves have been recorded in the Many Glacier Road corridor and the proposed actions could affect wolf behavior and use of the area. Impacts to gray wolves are therefore analyzed.

Species of Concern

Golden Eagle (*Aquila chrysaetos*). Golden eagles use the Many Glacier Valley for nesting and foraging and have regularly used a nest site within the Many Glacier Road corridor. Golden eagles are protected by the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act of 1918. Golden eagles could be impacted by the proposed project; therefore, impacts to golden eagles are analyzed.

Rocky Mountain Bighorn Sheep (*Ovis canadensis*). The Many Glacier Valley is occupied year-round by bighorn sheep and sheep are frequently observed in the project area. The proposed plan could affect bighorn sheep behavior and movement patterns; impacts to sheep are therefore analyzed.

Wolverine (*Gulo gulo*). Wolverines are wide-ranging carnivores that might use the Many Glacier Road corridor on a temporary and sporadic basis. Increased human activity in the project area could temporarily displace wolverines, thus wolverines area included in the impacts analysis.

Fisher (*Martes pennanti*). Fishers are also likely to make temporary and sporadic use of the Many Glacier Road corridor, though little is known about the distribution and movements of this elusive carnivore. Fishers have been recorded near the project area and could be impacted by the proposed actions; therefore, impacts to fishers are analyzed.



Vascular Plants. There are 18 vascular plant species of concern that grow in the Many Glacier Valley. But only members of the genus *Botrychium*, including slender moonwort, western moonwort, and peculiar moonwort, are known to grow along the Many Glacier Road. *Botrychium* could be affected by the proposed plan; impacts are therefore analyzed.

Visual Resources

The Many Glacier Road offers spectacular scenic views and exceptional wildlife viewing. Because the proposed plan could affect these resources, the topic is retained for further analysis.

Visitor Use and Experience

The Many Glacier Road offers a unique visitor experience, providing access to recreational opportunities, lodging in internationally renowned historic buildings, and an otherwise rare chance to see wild animals in their natural environment. Visitor use and experience would be affected by the proposed plan and is included for further analysis.

Historic Structures

Within the area of potential effect (APE) of the proposed project are a number of properties listed in the National Register of Historic Places. They include the Many Glacier Hotel Historic District; the Sherburne Ranger Station Historic District, including the Road Camp Mess House; the Swiftcurrent Autocamp Historic District; and possibly the Swiftcurrent (Many Glacier) Ranger Station Historic District and the Many Glacier Barn and Bunkhouse. The park recently amended the Many Glacier Hotel Historic District, expanding the boundary to include the Many Glacier Road from Babb to the Many Glacier Hotel. The Montana State Historic Preservation Officer concurred with the park's determination that the road meets the criteria for listing in the National Register. Impacts to historic structures might occur because of actions proposed for this project; therefore, this topic is analyzed.

Vegetation

The NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of plants (NPS 2006). The Many Glacier Road corridor contains vegetation types ranging from subalpine fir climax forests to fescue grasslands and lakeside riparian areas that include Engelmann spruce-willow communities, willow-alder communities, and herbaceous wetlands. The Swiftcurrent developed area is dominated by dense stands of seral lodgepole pine interspersed with black cottonwood, quaking aspen, subalpine fir, Engelmann spruce, and Douglas fir. State-listed noxious weeds, including spotted knapweed, oxeye daisy, Canada thistle, and sulfur cinquefoil are also present. Because the proposed plan would affect vegetation in the project area, the topic is retained for analysis.

Soils

The NPS preserves the soil resources of parks and protects those resources by preventing unnatural erosion, physical removal, or contamination (NPS 2006). Clay-rich conifer forest soil is predominate along the Many Glacier Road, and the Swiftcurrent developed area is primarily characterized by rocky and sandy alluvial forest soils (Dutton 1989). Soils would likely be affected by the proposal; impacts to soils are therefore analyzed.

Human Health and Safety

The NPS *Management Policies* (2006) states the safety and health of all people are core service values. Public health is addressed in Director's Order 83 *Public Health and Vector-borne and Zoonotic Disease* and employee health is addressed in Director's Order 50 B *Occupational Health and Safety Program*. These policies call for risk recognition and early prevention for a safe work and recreational environment, and the NPS is committed to eliminating and reducing health and safety risks when they are identified. The preferred alternative is expected to improve



human safety, and the topic is retained for analysis.

Impact Topics Dismissed from Further Analysis

This section provides a limited evaluation and explanation as to why the following impact topics are not evaluated in more detail. Impact topics are dismissed from further evaluation if:

- they do not exist in the analysis area, or
- they would not be affected by the proposal or the likelihood of impacts are not reasonably expected, or
- through the application of mitigation measures, there would be minor or less effects (i.e. no measurable effects) from the proposal, and there is little controversy on the subject or reasons to otherwise include the topic.

Due to there being no effect or no measurable effects, there would either be no contribution towards cumulative effects or the contribution would be low. For each issue or topic presented below, if the resource is found in the analysis area or the issue is applicable to the proposal, then a limited analysis of direct and indirect, cumulative effects is presented.

For purposes of this section, an impact of negligible intensity is one that is at the lowest levels of detection, barely perceptible, and not measureable. An impact of minor intensity is one that is measureable or perceptible, but is slight, localized, and would result in a limited alteration or a limited area. The rationale for dismissing the specific topics is stated for each resource.

Threatened and Endangered Species and Species of Concern

While present in Flathead County, there are no known locations of the threatened Spalding's catchfly (*Silene spaldingii*) or the threatened water howellia (*Howellia aquatilis*) within GNP; consequently, there would be no effect to Spalding's catchfly or water howellia from the proposed project. However, if locations of listed plant species become known within the vicinity of the project area, the plants would be avoided.

Bull Trout (*Salvelinus confluentus*). Bull trout are listed as threatened under the Endangered Species Act and are also a state listed Species of Special Concern. The Swiftcurrent drainage in the Many Glacier Valley has recently been designated as Proposed Critical Habitat (USFWS 2010). The proposed wildlife viewing plan would not require excavation or any other activity that would cause sedimentation of waterways, and there would be no impacts to bull trout. Therefore, bull trout are not analyzed.

Species of Concern. The alternatives are not expected to have any impact on the following species of concern:

Bald Eagle (*Haliaeetus leucocephalus*). There is a bald eagle nesting territory south of Lake Sherburne, over 1000 meters from the Many Glacier Road. Often observed near the lake, bald eagles forage at the inlets of Swiftcurrent Creek and other, smaller tributaries. The *Montana Bald Eagle Management Plan* recommends restrictions on human activity within 0.5 miles (800 meters) of bald eagle nests during the nesting cycle (Montana Bald Eagle Working Group 1994). No impacts to bald eagles are anticipated from either alternative due to the ample distance between the project area and the nesting eagles' primary use area. Impacts to bald eagles have therefore been dismissed from further analysis.

Harlequin Duck (*Histrionicus histrionicus*). Harlequin ducks have been observed in several locations in the Many Glacier Valley, including Kennedy Creek, Boulder Creek, Wilbur Creek, Cataract Creek, Slide Lake, and Swiftcurrent Creek below Sherburne Dam. Breeding pairs have been documented at Hidden Falls on Cataract Creek and on Swiftcurrent Creek below the Sherburne Dam; the most recently recorded pair was in 1995 (GNP



files). Harlequin ducks are occasionally observed on lakes at the inlets of small tributaries, but they primarily prefer fast flowing streams where they forage for aquatic invertebrates along rocky creek bottoms. With the exception of Swiftcurrent Falls, the Many Glacier Road and the project area do not parallel any fast flowing water and the streams in Many Glacier have not been documented as high-use harlequin breeding or brood rearing areas. Therefore, impacts to harlequin ducks are not analyzed.

Westslope Cutthroat Trout (*Oncorhynchus clarki lewisi*). Westslope cutthroat trout inhabit the waterways of the Many Glacier Valley. Implementation of the preferred alternative would not involve excavation or any other activity that would cause sedimentation of waterways, and there would be no impacts to westslope cutthroat trout. Impacts to the species are therefore not analyzed.

Common Loon (*Gavia immer*). Common loons have been observed in the Many Glacier Valley on Lake Sherburne and Swiftcurrent Lake. GNP has assigned both lakes a Priority 3 rating, which is given to lakes that have been occupied by a pair during the nesting season within the last ten years, but where nesting and reproduction are not known to have occurred (GNP files). A possible pair with two chicks was reported on Swiftcurrent Lake in 2009, but the report was unconfirmed. Lake Sherburne and Swiftcurrent Lake are not “critical” loon habitat as identified by the state, and neither lake is a known migratory staging area (MFWP 2009). Impacts to common loons are thus dismissed from further analysis for this project.

Additionally, the following wildlife species of concern inhabit the Many Glacier Valley: peregrine falcon, northern goshawk, pileated woodpecker, olive-sided flycatcher, trumpeter swan, white-tailed ptarmigan, brown creeper, Clark’s nutcracker, Barrow’s goldeneye, ruffed grouse, calliope hummingbird, three-toed woodpecker, Hammond’s flycatcher, winter wren, veery thrush, lazuli bunting, Brewer’s sparrow, Columbia spotted frog, boreal toad, and long-toed salamander. Neither alternative is expected to cause impacts to these species and they are not further analyzed.

Vascular Plants and Moss. Dense-leaf draba, northern eyebright, three-flowered rush, little false asphodel, cushion townsendia, Banff loose-flowered bluegrass, one-flowered cinquefoil, stalked-pod crazyweed, alpine glacier poppy, autumn willow, tufted club-rush, simple kobresia, and timberline buttercup all occur in the Many Glacier Valley, but all are alpine or wetland species and do not occur along the Many Glacier Road. There is a large population of Hudson’s Bay bulrush about mid-way up the Grinnell Glacier Trail, but the plant does not grow along the Many Glacier Road. Impacts to these vascular plant species of concern are therefore dismissed.

There are two moss species of concern within the Many Glacier Valley: *Bryum pallens* and *Sphagnum girgensohnii*. Neither has been documented within the project area, and neither is likely to grow along the Many Glacier Road. These species have therefore been dismissed from further analysis.

Air Quality

The Clean Air Act provides for special protection of air quality and air resources in all National Park Service units. Section 118 of the Clean Air Act requires parks to meet all federal, state, and local air pollution standards. Glacier is classified as a mandatory Class I area under the Clean Air Act, where emissions of particulate matter and sulfur dioxide are to be restricted. Air quality is considered good in Glacier National Park. There are no metropolitan areas within 125 miles of the park, and no regional smog typical of highly populated areas with a high amount of vehicle traffic. Air quality would not be measurably affected by any of the alternatives. Impacts



to air quality are therefore not analyzed.

Water Resources

NPS policies require protection of water quality in accordance with the Clean Water Act. The purpose of the Clean Water Act is to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” The US Army Corps of Engineers (COE) has been charged with evaluating federal actions that result in potential degradation of waters of the United States and issuing permits for actions consistent with the Clean Water Act. The US Environmental Protection Agency (EPA) also has responsibility for oversight and review of permits and actions, which affect waters of the United States. No excavation or other activity would occur under the proposed project that would result in sedimentation of waterways. Therefore, effects on water resources are not analyzed.

Floodplains

Executive Order 11988 Floodplain Management requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The NPS is guided by the 2006 *Management Policies* and Director’s Order 77-2 *Floodplain Management* which provides guidance on how to implement Executive Order 11988. The service will strive to preserve floodplain values and minimize hazardous floodplain conditions. According to Director’s Order 77-2, the impacts of proposed actions within the 100-year floodplain must be addressed in a separate Statement of Findings (SOF). There would be no impacts to floodplains in the project area; therefore a SOF was not prepared and this impact topic is dismissed.

Wetlands

The definition of wetlands under the Clean Water Act is “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas.” Executive Order 11990 Protection of Wetlands requires federal agencies to avoid, where possible, adversely impacting wetlands. Further, Section 404 of the Clean Water Act authorizes the USACE to prohibit or regulate the discharge of dredged material, fill material, or excavation within US waters. NPS policies for wetlands as stated in 2006 *Management Policies* and Director’s Orders 77-1 *Wetlands Protection* strive to prevent the loss or degradation of wetlands and to preserve and enhance the natural and beneficial values of wetlands. In accordance with DO 77-1, the potential adverse impacts of proposed actions must be addressed in a separate SOF. There are no wetlands in the project area that would be affected from actions proposed; therefore this impact topic was eliminated from further study.

Socioeconomic Resources

The proposed project could result in a slight reconfiguration of the parking spaces at the Swiftcurrent Motor Inn, but would not otherwise appreciably impact park concession operations. Visitor numbers would not change, and local businesses would not be impacted as a result of this plan. Socioeconomic resources would not be changed by the proposal. The topic is therefore dismissed from further analysis.

Cultural Landscapes

No cultural landscapes have been designated in the Many Glacier Hotel or the Swiftcurrent Auto Camp historic districts. Project impacts on the design, setting, and feeling of the districts are evaluated under *Historic Structures*.

Archeological Resources

The proposed actions are not expected to impact archeological resources. The expanded pullouts are within areas previously disturbed by road construction activities. Archeological surveys would be conducted prior to new ground disturbance. If archeological resources are



identified, consultation would occur in accordance with federal legislation and regulations and National Park Service policy. Archeological resources are therefore dismissed.

Ethnographic Resources

Ethnographic resources are defined by the NPS as "the cultural and natural features of a park that are of traditional significance to traditionally associated peoples" (NPS 2006). The proposed actions are not expected to impact ethnographic resources. Neither the Blackfeet nor the Confederated Salish and Kootenai Tribes raised concerns about the proposed project during scoping for this project, and ethnographic resources have been dismissed from further study. However, Glacier National Park recognizes that the tribes hold a body of knowledge that may result in the identification of ethnographic resources in the area in the future.

Museum Collections

According to the NPS *Management Policies* (2006) Director's Order 24 *Museum Collections*, the NPS requires consideration of impacts on museum collections (historic artifacts, natural specimens, and archival and manuscript materials). NPS policy defines museum collections management including policy, guidance, standards, and requirements for preservation, protection, documentation, access, and use. Museum collections would not be affected by this project.

Prime and Unique Farmlands

The Farmland Protection Policy Act of 1981, as amended, requires federal agencies to consider adverse effects to prime and unique farmlands that would result in the conversion of these lands to non-agriculture uses. There are no prime and unique farmlands located within Glacier National Park (NPS 1999).

Environmental Justice

Executive Order 12898 – General Actions to Address Environmental Justice in Minority Populations and Low-income Populations requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. Disproportionate health or environmental effects on minorities or low-income populations or communities as defined in the *Environmental Protection Agency's Environmental Justice Guidance* (1998) would not occur from actions proposed in the preferred alternative. Therefore, environmental justice was dismissed from further analysis.

Recommended Wilderness

Glacier National Park completed a wilderness suitability study and environmental impact statement in 1973 to comply with the 1964 Wilderness Act. That document recommended that over 90% of the park be designated as wilderness. President Nixon forwarded the recommendation to Congress on June 13, 1974. A bill was subsequently introduced to designate the selected lands as wilderness. The bill has not been enacted, but since that time, the lands have been defined as recommended wilderness and managed as designated wilderness by the NPS. NPS policy requires the management of proposed or recommended wilderness as designated wilderness until the land is either formally designated or rejected. Amendments to the original proposal made in 1984 and 1994 increased the amount of recommended wilderness to 95 % of the park's total area. Wilderness in GNP is defined as lands that are essentially undeveloped or are natural in character and lie at least 200 feet from established roadways or development zones. The proposed activities for this project would have no effect on recommended wilderness as actions would not intrude on the proposed wilderness boundary; therefore this topic was dismissed from further analysis.

Climate Change

The Intergovernmental Panel on Climate Change (IPCC) predicts "impacts of climate change



will vary regionally but, aggregated and discounted to the present, they are very likely to impose net annual costs which will increase over time as global temperatures increase” (IPCC 2007). The proposed project is of a small scale, would not change visitor use patterns, is not likely to result in increased or reduced greenhouse gas emissions, and therefore is not expected to measurably impact the global climate. Climate change has therefore been dismissed from further analysis.

ALTERNATIVES CONSIDERED

An interdisciplinary team of GNP staff met on several occasions to consider wildlife viewing issues and objectives at Many Glacier and to develop alternatives. Two action alternatives and a no action alternative were originally identified. Of these, only one action alternative and the no action alternative were retained for further evaluation. Other alternatives are discussed under *Alternatives Considered and Dismissed*.

Alternative A: No Action Alternative

The no action alternative describes the conditions that would continue to exist at Many Glacier if no plan was implemented. The no action alternative provides a baseline for evaluating the changes and related environmental impacts that would occur under the action alternative.

Under this alternative, GNP would maintain existing designated pullouts (areas for visitors to pull over, park, and get out of their vehicles) and re-open the Sheep Curve pullout. The park would continue to provide limited interpretive and educational information on wildlife viewing for visitors; interpretive and educational outreach under the existing Watchable Wildlife Program initiated in 2008 would continue. Existing speed limits would remain in place.

The Many Glacier Road is slated for rehabilitation, anticipated to begin in 2013 as part of the Park Roads/Federal Highway Program administered by the Federal Highway Administration (FHWA). The no action alternative for the Wildlife Viewing Plan would not preclude upcoming changes to the Many Glacier Road that could occur during rehabilitation. Under the Park Roads/FHWA Project, widened road shoulders that have developed over time from off-road vehicle parking could be removed or curbed, and the park would continue to enforce no-parking in undesignated areas.

Alternative B: Preferred Alternative

Alternative B, the preferred alternative, would enhance the wildlife viewing experience for visitors, provide better protection for wildlife, improve parking availability, reduce impacts to vegetation, and improve traffic and pedestrian safety. This alternative would include the enlargement and/or improvement of heavily used pullouts in popular wildlife viewing areas; the conversion of some undesignated pullouts to designated pullouts; the removal of pullouts that are too close to wildlife crossing areas; and the development of a new pullout. New retaining walls may be constructed at some pullouts, and all pullouts would be accessible for people with disabilities. Alternative B would also include the construction of a defined wildlife observation area at the Swiftcurrent Motor Inn parking lot, and a gathering area in association with a pullout west of the Hotel T intersection. A short trail would be constructed to the meadow at Apikuni Flat, a foot and bicycle path along the road shoulder between the Hotel T intersection and Swiftcurrent parking lot would be formalized, and orientation to the Iceberg Lake/Ptarmigan Trailhead would be redesigned so it is easier to locate. Plants and other native materials would be used during site development in order to retain features that are compatible with natural and historic settings. Alternative B would complement the existing Watchable Wildlife Program by expanding educational and informational resources and opportunities and would add at least three new interpretive exhibits. Construction for the proposed plan would occur between the third weekend of April and the third weekend of November (when the road is open to public



vehicles); construction would not occur outside this timeframe in order to minimize impacts to wildlife.

Alternative B takes into consideration not only popular locations that provide optimal wildlife viewing, but also travel routes used by wildlife. This alternative provides opportunities to park and enjoy exceptional wildlife viewing while not impacting wildlife. A pullout is an open invitation to park a vehicle, and the locations of pullouts can do much to convey where parking and congregating is appropriate. Pullouts that abut known wildlife crossings carry the message that watching wildlife at close quarters is safe and acceptable. Similarly, pullouts that are a reasonable distance from areas where wildlife frequently cross the road offer viewing opportunities that do not compromise the well being of wildlife.

Pullouts. Under Alternative B, 4 existing designated pullouts along the Many Glacier Road would be enlarged and/or otherwise improved, including paving or striping to delineate parking spaces, and 4 undesignated pullouts that have developed over time from off-road parking would be formalized into new designated pullouts (Figure2; Table 1).

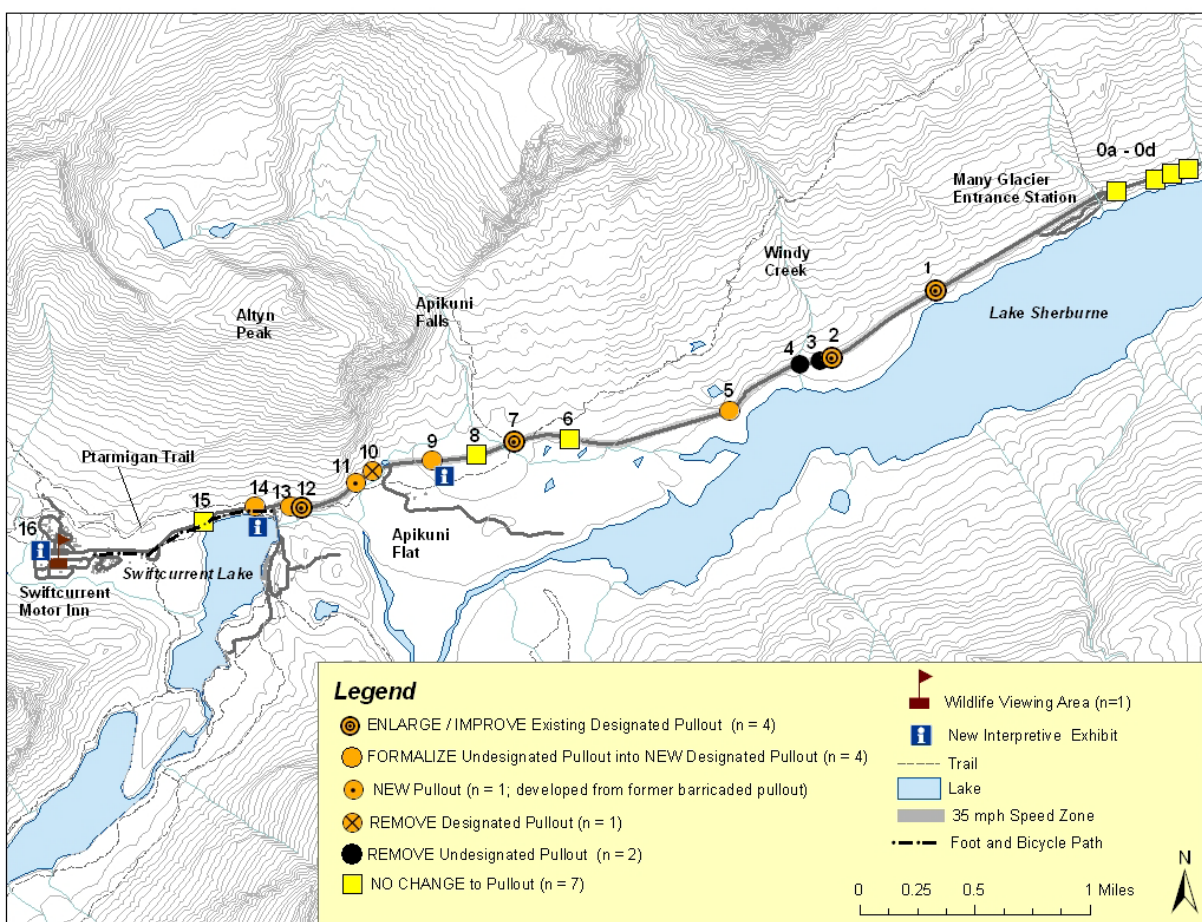


Figure 2. Proposed changes along the Many Glacier Road Corridor, including a wildlife viewing area at Swiftcurrent Motor Inn parking lot.

One designated and two undesignated pullouts would be removed (Figure2; Table 1). The pullouts at Sites 3 and 4 have developed over time from off-road vehicle parking and would be removed because they are too close to a heavily used wildlife crossing at Windy Creek. The enlargement of the pullout at Site 2 would accommodate some of the lost parking and would enable visitors to observe wildlife in the Windy Creek corridor at an appropriate distance. The



pullout at Sheep Curve (Site 10) would be removed because it is located at a well-used and important animal crossing, putting visitors and wildlife too close to each other. The pullout is also on a curve with limited visibility, where drivers may not be able to see vehicles pulling onto the road or pedestrians congregating at the pullout and immediate roadway.

A new pullout would be developed approximately 0.1 mile west of Sheep Curve at Site 11 (Figure 2; Table 1). Site 11 is a former gravel pullout that has been blocked off to parking for some time. Under the preferred alternative, this pullout would be re-opened and developed into a new designated pullout. Development of the pullout may require some additional slope stabilization and would involve the removal of vegetation that has grown back at the site.

The pullouts at Apikuni Flat (Site 9) and west of the Many Glacier Hotel T intersection overlooking Swiftcurrent Lake (Site 14) are two of the best places along the road to view wildlife. Site 9 currently consists of two informal, undesignated gravel pullouts on both sides of the road. These pullouts overlook Apikuni Flat, where unobstructed views give visitors the opportunity to observe a number of different animal species that may use the meadow. Under the preferred alternative, the pullouts at Site 9 would be enlarged and formalized, with parking available on both sides of the road, and a short trail to the meadow would be constructed. A wildlife interpretive exhibit would also be installed at the site.

Just west of the Many Glacier Hotel T intersection, Site 14 is a very popular place for viewing wildlife and provides ample views of the slopes above the road. Two undesignated gravel pullouts are currently on either side of the road with a crosswalk between them, but poor sightlines put pedestrians at risk from oncoming traffic. The road would be realigned to the north to eliminate the pullout on the north side of the road, thereby reducing pedestrian traffic across the road and improving safety. The pullout on the south side of the road would be formalized into a single, larger pullout with space for seven to ten vehicles. A central gathering/viewing area would be developed in association with the pullout (Figure 3), where people could get out of their vehicles to observe the scenery and wildlife and set up tripods without having to move onto the roadway. An observation terrace on the lake side of the road could be constructed at this site in the future.

The enlargement, development, and removal of pullouts would occur as funding allows and may be incorporated into road rehabilitation as part of the Park Roads/Federal Highway Program administered by the FHWA, anticipated to begin in 2014. During road rehabilitation, pullouts and widened road shoulders that are not addressed in the Wildlife Viewing Plan would be either formalized and/or paved, retained as gravel pullouts, or curbed to prevent an increase in size and further impacts to vegetation. Any above ground power lines would also be buried during road rehabilitation.

Visitor Education. Alternative B would include an expansion of the interpretive and educational program. Informational material about wildlife viewing would be available at the Many Glacier Entrance Station, and wildlife interpretive exhibits would be installed at several pullouts. Exhibits would include information on wildlife behavior, ecology, and natural histories; wildlife management issues and appropriate wildlife viewing behavior; wildlife travel patterns and the importance of wildlife corridors beyond the boundaries of protected areas; and the relationship between climate change and wildlife distribution. A roving interpretive van and Park Rangers would travel the road to provide onsite interpretation, help facilitate viewing, and provide spotting scopes. The number of spotting scopes would depend upon available funding.

Visitor Travel. The preferred alternative would reduce the speed limit from 45 mph to 35 mph between the entrance station and the Many Glacier Hotel T intersection (approximately) to improve traffic and pedestrian safety and reduce the risk of collisions between vehicles and wildlife (Figure 2). The 25 mph speed zone west of the Many Glacier Hotel T intersection and



the 15 mph speed zone west of the campground would remain, and current levels of law enforcement would continue under Alternative B.

Also under Alternative B, a foot and bicycle path would be formalized along the widened road shoulder between the Many Glacier Hotel T intersection and the Swiftcurrent parking lot.



Figure 3. Conceptual illustration of a proposed gathering/viewing area at Site 14 overlooking Swiftcurrent Lake, west of the Many Glacier Hotel T intersection.

Wildlife Viewing Area at Swiftcurrent Motor Inn Parking Lot

Under the preferred alternative, a designated wildlife observation area would also be developed at the Swiftcurrent Motor Inn parking lot island. A viewing area would provide a readily identifiable place for visitors to gather, set up spotting scopes, and view wildlife without being disturbed by traffic or crowded by parked vehicles. The parking lot island at Swiftcurrent Motor Inn was selected as the site for the viewing area for several reasons:

- Open vistas and the surrounding slopes provide some of the best wildlife viewing opportunities in the road corridor.
- The site is a traditionally popular viewing location.
- The parking lot is not located within or too near wildlife travel routes and the potential for animal/human conflicts is relatively low.
- Wildlife are accustomed to high numbers of people in the parking lot and a viewing area would not result in new impacts to wildlife.
- The parking lot is away from high-volume traffic along the Many Glacier Road and is one of the least hazardous locations for potentially large numbers of pedestrians to congregate.
- The Swiftcurrent developed area already serves a substantial number of people who stay in the campground, cabins, and motel or visit the camp-store and nearby trailheads. The need for people to drive elsewhere and find another parking spot would be minimized, the proximity to cabins and the campground would allow people to use the viewing area without bringing their cars, and the number of visitors who have access to interpretive information and are provided with an opportunity to see wildlife would be maximized.
- The site has the most space for visitor parking.



- Restrooms are available nearby.
- The parking lot island is an already disturbed site.

Currently, the center island at the Swiftcurrent Motor Inn parking lot contains thirty-six head-in parking spaces, including some parallel parking alongside the trees in the median (Figure 4). There are several parallel parking spaces for RVs at the south edge of the parking lot. The existing median is approximately 3 feet wide and is delineated by log curbing.

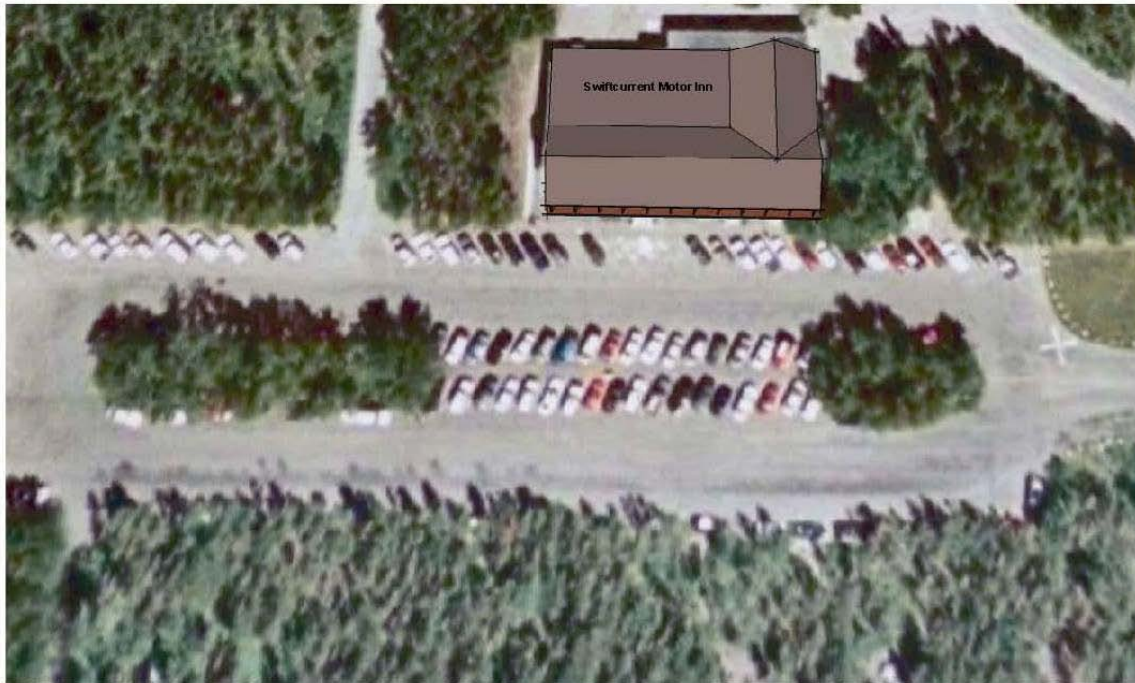


Figure 4. Existing configuration of the median island in the Swiftcurrent Motor Inn parking lot.

Two design options, including an at grade terrace and an elevated platform, have been developed for the wildlife observation area. The design criteria include:

- establish a defined viewing area;
- minimize the loss of parking spaces;
- provide access for people with disabilities;
- retain compatibility with the Swiftcurrent Historic District and NPS rustic design characteristics; and
- keep installation and maintenance costs low.

Design I (Figure 5) would be an at grade terrace along the length of the median with a central, widthwise walkway and a crosswalk to the Swiftcurrent Motor Inn entrance. Six to eight parking spaces would be lost from the median; lost parking would be recovered at the south side of the lot and at the Iceberg Lake/Ptarmigan Trailhead, and parking for motorcycles would be designated. Interpretive features, including a possible kiosk, would provide information on wildlife, the history of the site, and area orientation. The terrace would be a minimum of 8 feet wide and would be raised a few inches off the ground to allow for water drainage. The preliminary cost estimate for Design I is \$79,505.00.

Design II would include two platforms raised above grade along the median centerline (Figure 6). Both platforms would have stair steps at the outside ends and accessible ramps originating from the center of the median, and there would be a crosswalk to the Swiftcurrent Motor Inn.



Eight to ten parking spaces would be lost from the median; lost parking would be recovered at the south side of the lot and at the Iceberg Lake/Ptarmigan Trailhead, and parking for motorcycles would be designated. Interpretive features would be installed, including a possible kiosk that would provide information on wildlife, the history of the site, and area orientation. The preliminary cost estimate for Design II is \$399,102.00.

The wildlife observation area at the Swiftcurrent Motor Inn parking lot is a Glacier National Park Fund project.



Figure 5. Design I, an at grade wildlife observation terrace at Swiftcurrent Motor Inn parking lot.





Figure 6. Design II, two elevated viewing platforms at the Swiftcurrent Motor Inn parking lot.

Table 1. Alternative A (No Action) and Alternative B (Preferred) for the Many Glacier Wildlife Viewing Plan.

| Site Number and Location (mileages are approximate) | Site Description | Alternative A No Action | Alternative B Preferred |
|--|---|----------------------------|---|
| Site 0a – 0b 0.1 miles east of entrance station on lake side of road. | Four paved pullouts just east of the Many Glacier entrance station. There is an existing wayside exhibit at the 3 rd pullout east of the entrance. | No action. | The existing interpretive exhibit would be improved to include information on viewing wildlife. Additional exhibit(s) may be installed. |
| Site 1 East of Windy Flats, 0.8 miles west of entrance station on lake side of road. | A paved designated pullout within 100 feet of Lake Sherburne. A neighboring wildlife corridor offers good opportunities to see animals; trees provide cover for wildlife crossing the road. | No action. | The existing pullout would be enlarged to accommodate more parking. |
| Site 2 Windy Flats, 1.3 miles west of entrance station on lake side of road. | A paved designated pullout located at the west end of Windy Flats, with excellent wildlife viewing opportunities. | No action. | The existing pullout would be lengthened in both directions to accommodate more parking. |



Table 1 *continued*. Alternative A (No Action) and Alternative B (Preferred) for the Many Glacier Wildlife Viewing Plan.

| Site Number and Location (mileages are approximate) | Site Description | Alternative A No Action | Alternative B Preferred |
|---|---|----------------------------|--|
| Site 3 1.4 miles west of entrance station on lake side of road. | An informal widened road shoulder that has developed into an undesignated pullout from off-road parking. This site abuts a well established wildlife crossing area. | No action. | The undesignated pullout would be removed because it places visitors and wildlife in close proximity. The enlargement of Site 2 would recover some of the lost parking. |
| Site 4 Windy Creek bridge, 1.5 miles west of entrance station on lake side of road. | Informal gravel pullouts and widened shoulders on both sides of the road, east and west of the bridge that have developed over time from off-road parking. Windy Creek is an important wildlife crossing area. | No action. | These undesignated pullouts on either side of the bridge would be removed because they place visitors and wildlife in close proximity. The site would be restored with native vegetation. |
| Site 5 1.8 miles west of entrance station on lake side of road. | An undesignated gravel pullout that has developed over time and is used mostly by fishermen to access Lake Sherburne. | No action. | This informal pullout would be paved and formalized into a new designated pullout with delineated parking spaces. |
| Site 6 2.6 miles west of the entrance station on the lake side of the road. | A paved designated pullout along a straightaway that is not located within any known wildlife crossing areas. | No action. | No change is proposed for this pullout. |
| Site 7 2.8 miles west of entrance station across road from lake. | A designated paved pullout and parking area at the Poia Lake and Apikuni Mtn. Trailhead. A lack of marked parking spaces causes parking concerns. | No action. | This pullout would be enlarged and striping would be added to delineate parking. |
| Site 8 3.0 miles west of entrance station across road from lake. | An informal widened road shoulder that has developed over time from off-road parking. | No action. | No change is proposed for this site under this plan. |
| Site 9 3.2 miles west of entrance station on both sides of the road. | A widened road shoulder and undesignated gravel pullout that has developed over time from off-road parking. A neighboring wildlife corridor offers good opportunities to see wildlife. | No action. | This undesignated parking area would be formalized and enlarged into two new designated pullouts on both sides of the road. A short trail to Apikuni Flat would be constructed and a wildlife interpretive exhibit would be installed. |
| Site 10 Sheep Curve, 3.5 miles west of entrance station on lake side of road. | A paved, formal pullout currently blocked off with barrier rock. The pullout is at an important wildlife crossing and places visitors and wildlife too close to each other. The pullout is also on a curve and presents a potential traffic and pedestrian safety hazard. | No action. | The pullout at Sheep Curve would be removed because of its location at a wildlife crossing and due to traffic safety concerns. Sheep Curve would be restored with native vegetation. |



Table 1 *continued*. Alternative A (No Action) and Alternative B (Preferred) for the Many Glacier Wildlife Viewing Plan.

| Site Number and Location (mileages are approximate) | Site Description | Alternative A No Action | Alternative B Preferred |
|---|--|----------------------------|--|
| Site 11 3.6 miles west of the entrance station on the lake side of the road. | An old gravel pullout that was likely part of the historic road design but has been blocked off for several years. The site is approx. 0.1 mile west of Sheep Curve and provides good views of the lake and areas used by wildlife. | No action. | This former pullout would be re-developed and formalized into a new designated pullout. |
| Site 12 3.8 miles west of entrance station on the lake side of road. | A designated paved pullout that offers scenic views and good opportunities to see wildlife. | No action. | This pullout would be slightly enlarged because of favorable wildlife viewing opportunities. |
| Site 13 3.9 miles west of entrance station on the lake side of the road. | A small undesignated gravel pullout east of the Hotel T-intersection. | No action. | This pullout would be paved and formalized into a new designated pullout. |
| Site 14 4.0 miles west of entrance station on both sides of the road, just west of the Many Glacier Hotel T intersection. | Two widened shoulders on both sides of the road that have developed into undesignated pullouts from off-road parking. Poor sightlines present a hazard to pedestrians crossing the road. Site 14 is an excellent wildlife viewing area with good views of slopes above the road and a neighboring wildlife corridor. | No action. | The informal pullout on the north side of the road would be removed through realignment of the road to the north. The pullout on the south side of the road would be enlarged and paved, with space for 7 to 10 vehicles. The new designated pullout would include a central gathering area for wildlife viewing, and an interpretive wildlife viewing exhibit would be installed. |
| Site 15 4.3 miles west of entrance station on lake side of road. | A paved designated pullout between two neighboring wildlife corridors with an existing wildlife interpretive exhibit. | No action. | No change is proposed for this pullout. |
| Site 16 Swiftcurrent Motor Inn Parking Lot | The Many Glacier Road dead-ends at the Swiftcurrent Motor Inn Parking lot. Excellent views of surrounding mountain slopes offer very good wildlife viewing opportunities. | No action. | An accessible, designated wildlife observation area at the parking lot median would be developed, accompanied by an interpretive exhibit. Orientation to the Iceberg Lake Trailhead would be improved. Parking spaces lost from the median would be recovered at the trailhead and along the south edge of the parking lot. |

Mitigation Measures

The following mitigation measures were developed to minimize the degree and/or severity of adverse effects and would be implemented during construction of the action alternative, as needed:

Wildlife, Threatened, Endangered Species, and Species of Concern

- Construction would not occur between the third weekend of November and the third weekend of April when the Many Glacier Road is closed to public vehicles for wildlife security.



- Construction personnel would be orientated on appropriate behavior in the presence of wildlife and on proper storage of food, garbage and other attractants.
- If construction, enlargement, or removal of pullouts occurred at night, work zones would be no longer than 1300 feet and would be separated by 2600 feet to allow room for grizzly bears, lynx, and other wildlife to cross the road without substantially altering their travel routes.
- Construction activity (including that necessary to remove, enlarge, or develop new pullouts) that would be within 800 meters of an active golden eagle nest would only occur between one hour after sunrise and one hour before sunset during the nesting period. Noise above that of normal traffic sounds would be avoided during the nesting period.
- During construction, hauling trucks would be required to observe a 25 mph speed limit.
- Surveys for rare plants, such as *Botrychium* and pink corydalis, would be conducted prior to project implementation in areas where ground disturbance or paving would occur. Proposed actions would avoid rare plant populations.

Visual Resources

- Developments would be designed to blend with the environment.
- Appropriate colors and vegetative screening would be incorporated into the design.

Historic Structures

- The design of pullouts and the wildlife observation areas would be in conformance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Vegetation

- Glacier National Park's Best Management Practices would be implemented to minimize the extent of impacts.
 - Disturbance to vegetation would be avoided as much as possible and contained to as small a footprint as possible while meeting project objectives.
- Natural design features would be used to minimize visual impacts and to aid in creating suitable site conditions for revegetation.
- A restoration analysis would be completed to decide if revegetation is necessary throughout the life of the project. If it is determined to be necessary, the following mitigation measures would apply:
 - Soil amendments, mulches, and organic matter would be applied and other measures would be taken as appropriate to facilitate revegetation.
 - Native species from genetic stocks originating in the park would be utilized for revegetation seeding and planting efforts. Plant species density, abundance, and diversity would be restored as nearly as possible to prior conditions for non-woody species.
- Vegetation cover would be monitored and evaluated and contingency and maintenance plans would be developed if vegetation cover is not similar to original ground cover.
- A vegetation management plan would be prepared for the entire project.
- Aggressive noxious weed control measures would be conducted and noxious weed populations would be controlled in the vicinity of the project area to minimize transport of invasive weeds to other locations.
- Gravel and topsoil sources would be inspected and the use of material currently supporting invasive exotic plants would be avoided.
- Construction vehicles would be inspected and cleaned prior to entering the park to prevent the import of noxious weeds from tires and mud on the vehicles.
- Periodic inspections and spot controls would be used to prevent noxious weed



establishment. If noxious weeds invade an area, an integrated noxious weed management process would be implemented to selectively combine management techniques to control the particular noxious weed species.

Soils

- Glacier National Park's Best Management Practices would be implemented to minimize the extent of impacts.
 - Disturbance to the ground would be avoided as much as possible and contained to as small a footprint as possible while meeting project objectives.
- Soils would be salvaged and appropriate storage and replacement practices would be implemented.
- Erosion control measures that provide for soil stability and prevent movement of soils into waterways would be implemented.
- Disturbed ground surface soils would be scarified to decompact the soil.
- Soils would be replanted with native vegetation to prevent erosion.

Alternatives and Suggestions Considered and Dismissed

This section contains several suggestions from public scoping, as well as one alternative, which were considered but dismissed.

Both permanently and intermittently reopening the Sheep Curve pullout was suggested. Sheep Curve places visitors in very close proximity to a wildlife road crossing, compromising the safety of visitors and the security of wildlife. Reopening Sheep Curve is considered under the no action alternative. A new pullout west of Sheep's Curve is proposed under the Preferred Alternative. Intermittently opening Sheep Curve was dismissed because it would be difficult to implement consistently, and because it would confer small benefits that would not outweigh costs. Another suggestion was made to close Sheep Curve to foot traffic. This was dismissed due to the impracticality of closing any section of the road to people who may be hiking or walking the Many Glacier Road.

A suggestion was made to eliminate the use of educational brochures because they end up as litter. This suggestion was dismissed from further consideration due to the overall benefit that the information in the brochures provides to visitors. However, multiple forms of interpretive media will be used.

Cutting down roadside trees for improved visibility was suggested. This was considered but dismissed in this planning effort, but will be addressed when the rehabilitation project for the Many Glacier Road has begun.

Constructing side roads along the Many Glacier Road for wildlife viewing and constructing a wildlife viewing blind were suggested. These suggestions were dismissed because they would impact natural resources beyond the visitor service zone and would adversely affect the historic character of the Many Glacier Road.

A suggestion was made to remove the Many Glacier Hotel. This is beyond the scope of this plan; it was considered during the *General Management Plan* process and rejected because the hotel is a National Historic Landmark.

No stopping areas along the road were suggested. This was tried previously on a temporary basis, but was found to be difficult if not impossible to enforce, was not a reasonable expectation, and detracted from the visitor experience.

A suggestion for a Grizzly Education Center was dismissed because it is beyond the scope of this project and is not economically feasible at this time. This suggestion will be retained for future consideration.



Larger speed limit signs that emphasize prosecution for excessive speed were suggested. This is beyond the scope of this project, but will be considered as part of a future road rehabilitation project.

A suggestion was made to transfer the supervision of bear rangers to the wildlife biologist. This was considered but dismissed because it is outside the scope of this project; the suggestion was forwarded to Park Management.

Reopening the old Altyn Mtn. trail was suggested. This was considered and dismissed because the trail was abandoned several decades ago and is no longer discernable, and because it is within a highly sensitive area for wildlife.

A suggestion was made for a viewing platform at the picnic area. This was considered and dismissed because the picnic area offers unobstructed wildlife viewing opportunities and a platform is not necessary. This could be considered at a later date if the area is found to warrant a designated observation area.

A suggestion was made to construct underpasses and overpasses for wildlife to use to cross the road. These structures are beyond the scope of this project and would likely adversely affect the historic character of the road. However, underpasses in the form of larger culverts will be considered during the design process for the upcoming rehabilitation of the Many Glacier Road.

Closing Mt. Henkel and Mt. Altyn by July 1 was suggested. This was considered but dismissed because resource closures are triggered by specific conditions, and there is currently a closure in place early and late in the season when there is a concentration of wildlife in the area. Temporary closures can always be put in place as part of normal operations when conditions warrant.

Close the Many Glacier Road to Private Vehicles. This alternative would close the road to private vehicles and provide entry into the Many Glacier Valley by shuttle, the Red Buses, or another tour service. It would provide the most complete protection for wildlife that cross the Many Glacier Road because it would greatly reduce the potential for animals to be displaced or stressed by people leaving their vehicles and approaching wildlife too closely. It would also considerably reduce the risk to visitors of dangerous encounters with wildlife and vehicle collisions with wildlife. This alternative was dismissed because human caused impacts to wildlife and the level of animal/human conflict has not reached a point that necessitates this type of response. Despite the impacts to wildlife use of the area, Many Glacier still provides ample space and protection for wildlife. The park also prefers to employ education and other means such as those described under the preferred alternative. The opportunity to view wildlife is one of the reasons why visitors from around the world come to Glacier National Park. It is a highly valued activity, repeatedly noted by visitors on comment forms and surveys. While offering shuttle service into the valley would not prevent wildlife viewing opportunities for shuttle users, eliminating private vehicle use could be perceived as a way to keep visitors out of the park and impose unnecessary restrictions.

Elevated Wildlife Viewing Platforms at Apikuni Flat and the Swiftcurrent Nature Trail. These were considered but dismissed because they would not be in keeping with the natural and historic setting of the road corridor and because an elevated structure would not necessarily improve the wildlife viewing experience in these areas. Other reasons for dismissing a platform along the Swiftcurrent Nature Trail include the addition of too much parking at the site and the potential for crowding on a trail that is also used by the horse concessioner.

Dismissed Designs for the Viewing Area at Swiftcurrent Motor Inn Parking Lot. The preferred alternative proposes to construct a designated wildlife viewing area at Swiftcurrent Motor Inn parking lot, and has retained two design options for evaluation. Five other design options were



also considered but dismissed. For all five of these options, the platform height would be approximately three feet. Under options A and B, a 14 x 14 x foot platform near or on the median centerline would be accessible by steps on one side and an accessible ramp for people with disabilities on the other. A walkway would provide pedestrians with an access corridor to the Swiftcurrent Motor Inn and enable pedestrians to bypass parked cars. Options A and B would retain seventeen and twenty-one parking spaces, respectively, of the 36 spaces now at the median. Option C would have a similar configuration within the median, but would have a larger deck (14 x 20 feet) to accommodate more visitors. Eighteen parking spaces would remain around the island with Option C. Option D would have a design similar to that of Design II (Figure 6), but with roofs over the viewing platforms.

Options A – D were dismissed because they were not in keeping with the historic architectural characteristic of the Swiftcurrent Historic District and would result in the loss of too many parking spaces around the median. While they would allow viewers to see above some of the parked vehicles, these designs would limit pedestrian circulation and could block views from the Swiftcurrent Motor Inn porch. The staging areas for the ramps could also lead to crowding, and an elevated structure may present a safety hazard to some visitors. The installation and maintenance of these designs would also be more costly.



Figure 7. Wildlife Viewing Platform Option A, considered but dismissed from the proposed plan.





Figure 8. Wildlife Viewing Platform Option B, considered but dismissed from the proposed plan.



Figure 9. Wildlife Viewing Platform Option C, considered but dismissed from the proposed plan.





Figure 10. Wildlife Viewing Platform Option D, considered but dismissed from the proposed plan.

Alternative Summaries

Table 2 summarizes the major components of Alternatives A and B and compares the ability of these alternatives to meet the project objectives (as identified in the *Purpose and Need*). As shown, the no action alternative only partially achieves one of the project objectives while the preferred alternative achieves all the project objectives.

Table 2. Summary comparison between Alternatives A (No Action) and B (Preferred).

| Objectives | Alternative A – No Action | Alternative B – Preferred |
|---|---|---|
| Provide visitors with quality wildlife viewing opportunities. | Partially. Three pullouts at wildlife crossings would remain available, enabling visitors to see animals. But the potential for wildlife to become displaced or too familiar with people, poorly defined pullouts with inadequate space for parking, and hazardous conditions for pedestrians would continue and diminish the overall wildlife viewing experience. Formal and informal wildlife viewing opportunities would not be developed. | Yes. Popular pullouts in prime wildlife viewing areas would be enlarged, providing more space for more visitors to observe wildlife. Formal viewing areas at the Swiftcurrent parking lot and west of the Hotel T would enable visitors to readily find some of the best places to see wildlife. Expanded educational and interpretive resources throughout the road corridor would enhance the overall viewing experience. Wildlife would be better safeguarded, thus protecting the very resource on which long-term, quality wildlife viewing depends. |



Table 2 *continued*. Summary comparison between Alternatives A (No Action) and B (Preferred).

| Objectives | Alternative A – No Action | Alternative B – Preferred |
|--|--|---|
| Reduce the potential for wildlife within the Many Glacier Road corridor to become habituated. | No. The potential for wildlife to become habituated to people would remain at the current level or would increase due to close proximity between visitors and animals at pullouts that abut wildlife crossing areas. | Yes. Pullouts that enable visitors to view wildlife from an appropriate distance would be developed and those that put people and animals too close to each other would be removed or shifted. This would limit the tendency for people to approach animals too closely and would reduce the potential for wildlife to become overly familiar with people. |
| Protect wildlife road crossings and travel routes along the Many Glacier Road corridor. | No. Pullouts at naturally occurring wildlife crossings would remain available for people to park and congregate. Wildlife attempting to cross the road in these places would continue to be stressed or displaced by potentially large crowds of people. | Yes. Pullouts that are too close to areas where wildlife naturally cross the road would be removed or shifted, thus reducing the potential for congregating visitors to crowd or displace an animal. Wildlife travel corridors would be better protected. |
| Provide improved educational resources on wildlife natural histories, management, and preservation. | No. Educational resources would remain limited, including on-site interpretation and opportunities to interact with roving park rangers. | Yes. Additional or improved interpretive displays at pullouts and viewing areas, roving interpretive rangers, and other educational resources would give visitors opportunities to learn about wildlife ecology and management, as well as ways to enjoy wildlife viewing that does not impact wildlife. |
| Provide improved parking availability along the road. | No. Pullouts would not be enlarged to accommodate more parking, and parking areas would not be formalized or better delineated. Informal pullouts that are too narrow to safely pull all the way off the road would remain as is. | Yes. Several pullouts would be enlarged to provide more parking and more room for visitors to safely park all the way off the road. Striping and formalization of pullouts would more clearly define parking areas. |
| Reduce vegetation damage through better delineation of parking and viewing areas; restore disturbed sites. | No. Indiscriminate trampling and compaction would continue from poor delineation of parking and visitor gathering areas along the road and at the Swiftcurrent parking lot median. | Yes. Several undesignated parking areas that have developed over time from off-road parking would be formalized and better defined. Two undesignated pullouts and one formal pullout would be removed and restored with native vegetation. A better defined viewing area at the Swiftcurrent parking lot would reduce indiscriminate trampling at the median. |



Table 3 summarizes the anticipated environmental impacts for Alternatives A and B. Only those impact topics that have been carried forward for further analysis are included in this table. The Affected Environment/Environmental Consequences section provides a more detailed explanation of these impacts.

Table 3. Environmental Impact Summary by Alternative.

| Impact Topic | Alternative A – No Action | Alternative B – Preferred |
|--|--|--|
| Wildlife | Minor to moderate, adverse, short and long-term, site-specific and local impacts would occur due to frequent close-range encounters between animals and people that result in wildlife displacement or excessive human habituation. | Adverse, short-term and site-specific impacts would be expected from disturbances during the construction period for Alternative B. Impacts would be negligible to minor if work occurred during June-August, and minor to moderate if work occurred during the spring and fall shoulder seasons. Minor to moderate, beneficial, short and long-term, site-specific and local impacts would occur due to reduced risk of displacement, disturbance, excessive habituation, and food conditioning. |
| Threatened, Endangered and Species of Concern | | |
| Grizzly Bear | Minor to moderate, adverse, short and long-term, site-specific and local impacts would occur due to displacement, excessive human habituation, and an increased risk of food conditioning and conflict with people. Under Section 7, “may affect, not likely to adversely affect.” | Short-term, adverse ,and site-specific impacts to grizzly bears would occur from disturbances during the construction period for Alternative B. Impacts would be negligible to minor if work occurred in June- August, and minor to moderate if work occurred during the spring and fall shoulder seasons. Minor to moderate, beneficial, short and long-term, site-specific and local impacts would occur because of a reduced risk of excessive human habituation, food conditioning, conflict with people, disturbance, and displacement. Under Section 7, the determination would be “may affect, not likely to adversely affect.” |
| Canada Lynx | No effect. Under Section 7, “no effect”. | Short-term, adverse ,and site specific impacts would occur from disturbances during construction for Alternative B. Impacts would be negligible to minor if work occurred in June-August, and minor to moderate if work occurred during the spring and fall shoulder seasons. Negligible to minor, beneficial, long-term, and site-specific impacts could occur due to a lower speed limit and reduced risk of collisions with vehicles. Under Section 7, the determination would be “may affect, not likely to adversely affect”. |



Table 3 *continued*. Environmental Impact Summary by Alternative.

| Impact Topic | Alternative A – No Action | Alternative B – Preferred |
|-------------------------------------|---|---|
| Gray Wolf | Negligible to moderate, adverse, long-term, local and regional impacts could occur if wolves become overly familiar with people. Under Section 7, “may affect, not likely to adversely affect”. | Adverse, short-term and site-specific impacts would be expected from disturbances during the construction period for Alternative B. Impacts would be negligible to minor if work occurred during June-August, and minor to moderate if work occurred during the spring and fall shoulder seasons. Negligible to minor, beneficial, long-term and site-specific impacts could occur due to a lower speed limit, reduced risk of collisions with vehicles, and reduced risk of habituation. Under Section 7, the determination would be “may affect, not likely to adversely affect”. |
| Golden Eagle | No effect. | Adverse, site-specific and short-term impacts would be expected during the construction period for Alternative B due to the potential for nest disturbance. Impacts would be minor if one nest is affected and minor to moderate if more than one nest is affected or if construction occurs during the early spring nesting stage. |
| Wolverine | No effect. | Short-term, adverse, and site specific impacts would occur from disturbances during construction for Alternative B. Impacts would be negligible to minor if work occurred in June-August, and minor to moderate if work occurred during the spring and fall shoulder seasons. Negligible to minor, beneficial, long-term, and site-specific impacts could occur from a lower speed limit and reduced risk of collisions with vehicles. |
| Fisher | No effect. | Short-term, adverse and site specific impacts would occur from disturbances during construction for Alternative B. Impacts would be negligible to minor if work occurred in June-August, and minor to moderate if work occurred during the spring and fall shoulder seasons. Negligible to minor, beneficial, long-term and site-specific impacts could occur due to a lower speed limit and reduced risk of collisions with vehicles. |
| Rocky Mountain Bighorn Sheep | Minor to moderate, adverse, short and long-term, site-specific and local impacts would occur due to displacement, excessive human habituation, and an increased risk of food conditioning. | Minor to moderate, adverse, short-term and site-specific impacts to Rocky Mountain bighorn sheep would be expected during the construction period for Alternative B. Minor to moderate, beneficial, short and long-term, site-specific and local impacts would occur because of a reduced risk of excessive human habituation, food conditioning, disturbance, and displacement. |



Table 3 *continued*. Environmental Impact Summary by Alternative.

| Impact Topic | Alternative A – No Action | Alternative B – Preferred |
|-----------------------------------|---|---|
| Vascular Plants | Minor, adverse, long-term and site specific impacts to moonwort (<i>Botrychium</i>) and any unidentified plant species of concern would occur from continued trampling. | Negligible to minor, adverse, long-term, site-specific impacts to moonwort (<i>Botrychium</i>) and other plant species of concern would occur if individual plants are permanently lost. Possible beneficial impacts would occur if disturbed areas are recolonized. |
| Visual Resources | No effect. | Negligible to moderate, adverse, long-term and site-specific impacts would be expected from a limited number of apparent changes that would be compatible with the overall appearance of each site. |
| Visitor Use and Experience | Negligible to moderate, adverse, long-term and site-specific and local impacts would continue due to inadequate parking, a lack of defined viewing areas, and the consequences of food conditioned or overly habituated wildlife. | Moderate, beneficial, long-term and site-specific and local impacts would be expected from enhanced wildlife viewing and educational opportunities, improved parking availability, improved orientation to the Iceberg Lake/Ptarmigan Trailhead, and the formalization of a foot/bicycle path between the Hotel T and the Swiftcurrent parking lot. Minor, adverse, site-specific, and long-term impacts would occur from the loss of the Sheep Curve pullout and six to ten parking spaces at the Swiftcurrent parking lot median. |
| Historic Structures | No effect. | Minor, adverse, long-term, site-specific and local impacts would occur from alterations to pullouts along the Many Glacier Road and the construction of the viewing area (either Design I or II) at Swiftcurrent Motor Inn parking lot. |
| Vegetation | Minor, adverse, long-term, and site-specific impacts would occur from continued trampling, loss of vegetation, and encroachment of exotic species. | Minor, adverse, short and long-term, and site-specific impacts would occur from the removal of vegetation from undisturbed sites. Redirecting visitor use onto surfaced areas would have minor, beneficial, long-term, and site-specific impacts. |
| Soils | Minor, adverse, long-term, and site-specific impacts would occur from unabated soil compaction. | Minor, adverse, short and long-term, and site-specific impacts would occur from soil loss over a small area. The concentration of visitor use onto surfaced areas would have minor, beneficial, site-specific, and long-term impacts. |
| Human Health and Safety | Minor to moderate, adverse, long-term, site-specific and local impacts would be expected due to traffic hazards, risks to pedestrians, and the potential for wildlife to become food conditioned and overly habituated. | Minor to moderate, beneficial, long-term, site-specific and local impacts would occur from improved traffic and pedestrian safety, along with reduced potential for wildlife to become food conditioned and overly familiar with people. |



Environmentally Preferred Alternative

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act of 1969 (NEPA), which guides the Council on Environmental Quality (CEQ). The CEQ provides direction that “[t]he environmentally preferable alternative is the alternative that would promote the national environmental policy as expressed in NEPA’s §101.” Section 101 of the National Environmental Policy Act states that “... it is the continuing responsibility of the Federal Government to ...

- 1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- 2) assure for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings;
- 3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;
- 4) preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment which supports diversity and variety of individual choice;
- 5) achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life’s amenities; and
- 6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”

Alternative A, no action, would not fulfill any of the criteria because undirected human use of the Many Glacier Road corridor would continue to impact park wildlife resources that, over time, could become forever negatively impacted. Large congregations of people at important, naturally occurring animal crossings along the Many Glacier Road would continue to displace wildlife; this continual displacement of animals could permanently change the way wildlife have historically used the Many Glacier geographic area. Increasing levels of human habituation among Many Glacier’s wildlife could result in generations of animals that are at a high risk of conflict with people or obtaining human food rewards. Soil erosion and disturbance to roadside vegetation would continue unchecked. Risks to human safety would continue due to an unchanged speed limit, poor visibility at certain pullouts, traffic congestion, high numbers of pedestrians on the roadway, and the lack of clearly defined areas for visitors to pull all the way off the road and park their vehicles. These impacts would only accumulate over the years from continued human use of the Many Glacier Valley, and the quality of the visitor experience would be degraded for future generations.

Alternative B is the environmentally preferred alternative because it best addresses five of the six criteria. Alternative B would best address criteria 1-4, as well as criterion 6. Criterion 5 is not directly applicable to this project. Alternative B best meets the NPS trustee role as a steward of GNP’s natural resources. Successful implementation of this project would reduce disruption of naturally occurring wildlife travel patterns, enabling numerous species of wildlife to continue to use the Many Glacier landscape in a way that most closely resembles historic patterns. The plan would also minimize disturbance to native plant communities and soils. Protecting this area through implementation of Alternative B seeks to maintain the maximum productivity and diversity of the natural system, as well as its role in ecosystem processes. The reduction of hazards to human safety and the development of prime wildlife viewing opportunities under Alternative B provide for a safe and enjoyable visitor experience. Traditional recreational experiences and values would be preserved through successful implementation of the plan as viewing wildlife in their natural environment unimpeded by human activity is one of the primary values of the project.



Because Alternative B meets the purpose and need for the project, the project objectives, and is the environmentally preferred alternative, Alternative B is recommended as the preferred alternative.

AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES

This section examines all potential impacts by considering the direct, indirect, and cumulative effects of the proposed action on the environment, along with connected and cumulative actions. Actions are analyzed for their direct and indirect effects. Direct effects are impacts that are caused by the alternatives at the same time and in the same place as the action. Indirect effects are impacts caused by the alternatives that occur later in time or are farther in distance from the action. For example, construction grading may result in the direct removal of vegetation and soil from a site and result indirectly in increased erosion at the site later when it rains, and to water quality off-site.

Potential impacts are described in terms of context, duration, and intensity (Table 4).

- **Type:** impacts are either *beneficial* or *adverse*. A resource may be affected both beneficially and adversely (e.g., one wildlife species may benefit while another is harmed), however an overall impact for the resource as a whole is determined.
- **Spatial Context:** impacts are 1) *site-specific* at the location of the action, 2) *local* on a drainage or district-wide level, 3) *widespread* throughout the park, or 4) *regional* outside of the park.
- **Duration:** impacts are short-term or long-term. The definitions for these periods depend upon the impact topic and are described in Table 4.
- **Intensity:** the impacts are *negligible*, *minor*, *moderate*, or *major*. Definitions of intensity vary by impact topic and are provided in Table 4.

The NPS equates “major” effects as “significant” effects. The identification of “major” effects would trigger the need for an EIS. Where the intensity of an impact could be described quantitatively, the numerical data is presented; however, most impact analyses are qualitative and use best professional judgment in making the assessment.

Effects to historic properties listed in or eligible for listing in the *National Register of Historic Places* also have been described in accordance with *Section 106* of the National Historic Preservation Act of 1966, as amended, and its implementing regulations, *36 CFR 800*.

Cumulative Impact Scenario

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 et seq.), require assessment of cumulative impacts in the decision making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and preferred alternatives.

Cumulative impacts were determined by combining the impacts of the alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects in the Many Glacier Valley and, if



applicable, the surrounding area. The following are past, present and reasonably foreseeable future actions that have and could occur in the vicinity of the project area:

Past Actions

- Rehabilitation of Many Glacier Hotel exterior
- Replacement of a bunkhouse at the Many Glacier horse concession
- Rehabilitation of the Many Glacier waste water treatment plant
- Rehabilitation of Sherburne Ranger/Entrance Station
- Rehabilitation projects at Many Glacier Ranger Station, housing area, and Swiftcurrent Motor Inn and concession housing

On-going Actions

- Road maintenance, including ditch clearing, and seasonal snow plowing along the Many Glacier Road
- Projects identified under the GNP *Commercial Services Plan*, including upgrades to facilities and utilities in compliance with safety, accessibility, and building codes; upgrades to concession employee housing and parking at the Upper Dormitory; and improvements to water and wastewater utility infrastructure.

Future Actions

- Rehabilitation of the Many Glacier Road
- Rehabilitation of the Swiftcurrent Bridge
- Projects identified under the GNP *Commercial Services Plan*, including:
 - upgrades to facilities and utilities in compliance with safety, accessibility, and building codes
 - upgrades to existing trails, walkways, and parking areas
 - rehabilitation and restoration of the interior of the Many Glacier Hotel, including relocation of retail services, concession employee housing and recreation facilities
 - improvements to approach roads and pedestrian access around the Many Glacier Hotel
 - modifications to housing, including construction of new guest and concession employee housing; conversion of employee housing to guest accommodations; and conversion of guest to employee housing
 - modifications to concession employee parking areas and recreation facilities
 - shuttle service for concession employees
 - construction of an information/orientation pull-off along the Many Glacier Road
 - modifications to tour boats and docks for improved access for people with disabilities



Table 4. Impact thresholds for intensity and duration

| Impact Topic | Negligible | Minor | Moderate | Major | Duration |
|---|--|---|--|---|--|
| Wildlife | Effects would be at or below the level of detection and the changes would be so slight that they would not be of any measurable or perceptible consequence to wildlife species' population. | Effects on wildlife species would be detectable, although the effects would be localized and would be small and of little consequence to the species' population. | Effects on wildlife species would be readily detectable and widespread, with consequences at the population level. | Effects on wildlife would be obvious and would have substantial consequences to species populations in the region. | Short-term: After implementation, would recover in less than 1 year. Long-term: After implementation, would take more than 1 year to recover or effects would be permanent. |
| Threatened, Endangered, and Species of Concern | The alternative would affect an individual of a listed species or its critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. Negligible effect would equate with a "no effect" determination in U.S. Fish and Wildlife Service terms. | An individual(s) of a listed species or its critical habitat would be affected, but the change would be small. Minor effect would equate with a "may affect, not likely to adversely affect" determination for the species in U.S. Fish and Wildlife Service terms and would require informal consultation. | An individual or population of a listed species, or its critical habitat would be noticeably affected. The effect could have some long-term consequence to individuals, populations, or habitat. Moderate effect would equate with a "may affect" determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of "likely..." or "not likely to adversely affect" the species and would require either informal or formal consultation. | An individual or population of a listed species, or its critical habitat, would be noticeably affected with a vital consequence to the individual, population, or habitat. Major effect would equate with a "may affect, likely to adversely affect" or "not likely to adversely affect" determination in U.S. Fish and Wildlife Service terms and would require formal consultation. | Short-term: After implementation, would recover in less than 1 year. Long-term: After implementation, would take more than 1 year to recover or effects would be permanent. |



| Impact Topic | Negligible | Minor | Moderate | Major | Duration |
|-----------------------------------|---|---|---|--|---|
| Visual Resources | Effects would not result in any perceptible changes to existing viewsheds. | Effects would result in slightly detectable changes to a viewshed or in a small area or would introduce a compatible human-made feature to an existing developed area. | Effects would be readily apparent and would change the character of visual resources in an area. | Effects would be highly noticeable or would change the character of visual resources by adding human-made features into a mostly undeveloped area or by removing most human-made features from a developed area. | Short-term: Would be temporary and removable. Long-term: Would be continual or permanent. |
| Visitor Use and Experience | Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative. | Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight. | Changes in visitor use and/or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative. | Changes in visitor use and/or experience would be readily apparent and have important consequences. The visitor would be aware of the effects associated with the alternative. | Short-term: Occurs only during project implementation or one month. Long-term: Occurs for more than one month or is permanent. |
| Historic Structures | Treatment is at the lowest levels of detection – barely perceptible and not measurable. For purposes of Section 106, the finding of effect would be no adverse effect. | Treatment would affect the character defining features of a National Register of Historic Places eligible or listed property, but is in accordance with the Secretary of the Interior's Standards. For purposes of Section 106, the finding of effect would be no adverse effect. | Treatment would alter a character defining feature(s), diminishing the integrity of the resource to the extent that it is no longer eligible for listing in the National Register of Historic Places. For purposes of Section 106, the finding of effect would be adverse effect. | Treatment would alter a character defining feature(s) of a National Historic Landmark, diminishing the integrity of the resource to the extent that its designation is threatened. For purposes of Section 106, the finding of effect would be adverse effect. | Short-term: Effects extend only through the period of construction Long-term: Effects extend beyond the period of construction |



| Impact Topic | Negligible | Minor | Moderate | Major | Duration |
|--------------------------------|---|--|---|--|--|
| Vegetation | Vegetation would not be affected or the changes would be so slight that they would not be of any measurable or perceptible consequence to the species' population. | Some individual native plants would be affected over a relatively small area, but the effects would be localized, and would be of little consequence to the species' population. | Some individual native plants would be affected over a relatively wide area or multiple sites and would be readily noticeable. A sizeable segment of a species' population could be affected. | A considerable effect on native plant populations would occur over a relatively large area. | Short-term: After implementation, would recover in less than 3 years. Long-term: After implementation, would take more than 3 years to recover or effects would be permanent. |
| Soils | Soil productivity or soil fertility would not be affected or the effect would be below or at the lower end of detection. Any effects to soil productivity or soil fertility would be slight and not measurable. | The effects to soil productivity or soil fertility would be detectable, but small. The area affected would be local. | The effect to soil productivity or soil fertility would be readily apparent. Effects would result in a change in soils over a relatively wide area or multiple locations. | The effect on soil productivity or soil fertility would be readily apparent and would substantially change the character of soils over a large area. | Short-term: After implementation, would recover in less than 3 years. Long-term: After implementation, would take more than 3 years to recover or effects would be permanent. |
| Human Health and Safety | Health and safety would not be affected, or the effects would not be noticeable. | The effect would be detectable, but would not have an appreciable effect on health and safety. | The effects would be readily apparent, and would result in a substantial change in health and safety in a manner noticeable to staff and the public. | The effects would be readily apparent, would result in a substantial change in health and safety in a manner noticeable to staff and the public, and be markedly different from existing operations. | Short-term - Effects last for the duration of the project. Long-term - Effects last longer than the duration of the project. |



Wildlife

AFFECTED ENVIRONMENT

Stretching along Lake Sherburne from the park's east-side grasslands to the confluence of Swiftcurrent, Wilbur and Cataract Creeks, the Many Glacier Valley provides connectivity between several primary wildlife travel corridors. The area is made up of diverse and productive habitat types that support numerous wildlife species year-round. Avalanche chutes and shrub-fields contain essential grizzly and black bear forage in spring, summer, and fall. Riparian woodlands, sedge meadows, and wetlands provide denning, nesting, and foraging habitat for fisher, marten, mink, beaver, small mammals, bats, songbirds, raptors, and amphibians. Nesting bald eagles forage at the valley's numerous lakes, and golden eagles and prairie falcons nest along the cliff bands. The steep talus fields, high elevation ridges, and cirque basins of the alpine zone are home to wolverines, mountain goats, and bighorn sheep. Moose, whitetail deer, and mule deer inhabit the valley year-round, and isolated, forested mountain ridges provide secure habitat for large herds of elk throughout the spring, summer, and fall. Most of the park's large carnivores including grizzly and black bears, mountain lions, Canada lynx, wolverines, and gray wolves are found here, partly because of the healthy ungulate populations.



*Moose family at Swiftcurrent Creek
Photo by Betty Kijewski*

The Many Glacier Valley floor is narrow and contains several large lakes. The Sherburne Dam, constructed in 1919, flooded several small lakes, reaches of Swiftcurrent Creek, and highly productive riparian/wetland areas. Today, the immediate shoreline surrounding Lake Sherburne supports little vegetation because of fluctuating water levels and is marginally important wildlife habitat. But lakeside meadows, including Apikuni Flats, provide late fall, winter, and spring habitat for elk and there is a bald eagle nesting territory with two known nest sites on the slopes above Lake Sherburne. North-south movement of many species of wildlife occurs within the limited forested habitat between the lakes, including the Swiftcurrent developed area. The Many Glacier/Swiftcurrent drainage historically had no fish, but kokanee salmon and cutthroat trout were introduced beginning around 1912.

Many wildlife species utilize valuable habitat within the Many Glacier Road corridor and developed areas. The project area is within ungulate winter range and contains mixed coniferous forests interspersed with large stands of birch, aspen and black cottonwood. Large expanses of open grassy meadows and shrublands are intermixed with these deciduous and coniferous stands. Wetlands and riparian areas as well as steep cliff terrain are also present. Wildlife documented within the project corridor include all of the park's ungulate species, including moose, elk, mule deer, whitetail deer, bighorn sheep, and mountain goats; large and medium sized predators such as grizzly and black bears, gray wolves, mountain lions, lynx, coyotes, red fox, and wolverine; small and mid-sized mustelids including, pine marten, mink, and long-tailed weasel; small and medium sized mammals such as beaver and snowshoe hare; raptors, including bald eagles, golden eagles, Cooper's hawk, northern goshawk, rough-legged hawk, red-tailed hawk, and northern harrier; shorebirds, wading birds, and waterfowl including killdeer, mallards, hooded mergansers, and the great blue heron; corvids and grouse, including ravens, crows, gray jays, ruffed grouse, spruce grouse, and blue grouse; and numerous songbirds including black-eyed juncos, American robins, western wood peewee, white-crowned sparrow, clay-colored sparrow, western bluebird, mountain bluebird, golden-crowned kinglet, and Townsend's solitaire, among others.

Because the Many Glacier Road bisects year-round wildlife habitat and primary wildlife travel



corridors, wild animals must regularly cross the road. Several crossings have developed over time according to how wildlife naturally use the landscape. Topography formed by drainages and cliffs funnels animals into some crossings, while the availability of forage, water, and shelter compels animals to use other areas. Wildlife also take advantage of structural developments along the road, such as culverts and bridges, for safe road crossings.

Some elusive species of wildlife tend to avoid Many Glacier's developed areas during the high visitor use period, which is generally between Memorial Day and Labor Day. During the late fall, winter, and early spring, the remoteness of the Many Glacier Valley and relative lack of human activity encourage shy species like lynx, marten, fisher, and wolverine to use all available habitats, including those found within the developed areas. Park managers discourage some wildlife species, including black bears, grizzly bears, and mountain lions from frequenting human developed areas. Wild animals that frequent campgrounds, picnic areas, roads and other developments are at risk of becoming too familiar with people. Over-familiarity with humans can increase an animal's chances of obtaining human food or coming into conflict with people. Human habituated and human food conditioned animals pass this behavior on to their offspring, thus perpetuating the risk to both wildlife and people.

IMPACT ANALYSIS

METHODOLOGY

The methodology used to analyze the potential impacts on wildlife is an analysis of expected changes to wildlife under the different alternatives. GNP wildlife databases and current research and monitoring data were used to determine wildlife use of the project area. Disturbance to wildlife and changes in behavior and movement patterns are assessed. The following levels of impacts are defined:

- Negligible:* Effects would be at or below the level of detection and the changes would be so slight that they would not be of any measurable or perceptible consequence to wildlife species' populations.
- Minor:* Effects on wildlife species would be detectable, although the effects would be localized and would be small and of little consequence to the species' population.
- Moderate:* Effects on wildlife species would be readily detectable and widespread, with consequences at the population level.
- Major:* Effects on wildlife would be obvious and would have substantial consequences to species populations in the region.
- Short-term:* After implementation, would recover in less than 1 year.
- Long-term:* After implementation, would take more than 1 year to recover or effects would be permanent.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

Current levels of disturbance to wildlife along the Many Glacier Road corridor would persist under the no action alternative as large numbers of people would continue to congregate in three pullouts that are adjacent or in very close proximity to areas where animals naturally cross the road. Animals that attempt to avoid people would continue to be repeatedly displaced from travel routes and important sources of food, water, and shelter. Continued frequent exposure to people, oftentimes at close range, would put wildlife at risk of developing undesirably high levels of human habituation, thus increasing their chances of conflict with people or acquiring unnatural sources of food. Undesirable levels of human habituation would extend to multiple generations of wildlife as offspring adopt maternal or group behaviors. Perpetual displacement



from habitat and travel corridors could permanently alter the way wildlife use the landscape. Impacts to wildlife from the no action alternative would therefore be adverse, minor to moderate, and short and long-term.

Cumulative Impacts of Alternative A

Long-term adverse impacts to wildlife from existing human activity under the no action alternative would add to disturbances and habitat loss associated with past, ongoing and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including facility improvements identified under the GNP *Commercial Services Plan*.

Additionally, wildlife that use the road corridor during late spring or early fall could be displaced by seasonal snow removal operations. The Many Glacier Road is closed to public vehicle access from the third weekend of November until the third weekend of April to maintain wildlife security. Opening the road in the spring can require snow plowing, depending on road conditions. While plowing operations are scheduled to have the least possible impact to wildlife, plowing may displace animals that frequent the road corridor in the spring and fall.

Impacts to wildlife from the no action alternative could be compounded by future rehabilitation of the Many Glacier Road, which is currently anticipated to begin within five years, subject to funding, under the Park Roads/Federal Highway Program. Road rehabilitation would bring heavy equipment, construction traffic, and an increase in human activity to the project area. Schedules have not been established, and while the work would likely require at least two summer seasons, it could take longer and occur during shoulder seasons (third weekend of April to late May; early September to the third weekend of November). If road rehabilitation took place during the high visitor use period in the summer, which is generally between Memorial Day and Labor Day, the temporary increase in human activity would add to the number of vehicles and people already encountered by wildlife. Vehicles in traffic control lines could be backed up into wildlife crossing areas, increasing the chances for habituation and food conditioning. Road construction that occurs during the shoulder season could increase adverse impacts to wildlife because wildlife that use the road corridor and developed areas during low visitor use periods could be displaced.

Conclusion

Impacts to wildlife under the no action alternative would be minor to moderate, adverse, short and long-term due to frequent close-range encounters between animals and people that displace wildlife and result in excessive habituation. These impacts would be site-specific to the Many Glacier Road corridor but would also extend locally throughout the Many Glacier Valley as continued displacement would alter the way wildlife use the greater landscape. Cumulatively, impacts from the no action alternative combined with past, ongoing, and future projects would be adverse, minor to moderate, site-specific and local, and short and long-term from disturbances associated with facility upgrades, ongoing seasonal snow-removal operations, and road rehabilitation.

IMPACT ANALYSIS OF ALTERNATIVE B – PREFERRED

Under Alternative B, wildlife would be at a reduced risk of developing undesirable levels of human habituation, obtaining human sources of food, and coming into conflict with people because wildlife viewing would be encouraged in places where animals can travel and forage at an appropriate distance from people. While some displacement of wildlife that seek to avoid human activity would remain inevitable, the potential for displacement would be reduced. Wildlife attempting to cross the road would not be so frequently forced into close range with people, since pullouts that currently abut crossing areas that are heavily used by wildlife would be removed. Animal “jams” might still occur at these sites if an animal is on or near the road



when visitors drive by. But the absence of places to park combined with current law enforcement procedures would substantially minimize the frequency of parking and congregating in undesignated areas. The proposed actions under this alternative would confer short and long-term benefits to wildlife by: 1) minimizing the risk of food conditioning and excessive human habituation, 2) reducing the potential for habituated behavior to be passed on to multiple generations of animals, 3) reducing displacement of wildlife, and 4) protecting naturally occurring travel corridors bisected by the Many Glacier Road, thus working toward preservation of historic wildlife use patterns.

A formalized viewing area at the Swiftcurrent Motor Inn parking lot would not cause new disturbances to wildlife, since people have already been congregating there for several years. Other developments, including a gathering/viewing area at the pullout west of the Hotel T intersection, a formalized foot/bicycle path along the road shoulder between Swiftcurrent parking lot and the Hotel T, and a short trail to the meadow at Apikuni Flat would not greatly increase human activity nor substantially disturb wildlife habitat. Reducing the speed limit from 45 mph to 35 mph could put wildlife at a lower risk of vehicle collisions.

Wildlife would benefit indirectly from the improved educational and interpretive resources proposed under this alternative. The potential for animals to be approached, crowded, or fed would be reduced, because more visitors would be informed about wildlife ecology and management and would better understand the dangers that over familiarity with people can pose to wildlife.

Under Alternative B, wildlife would be exposed to an increase in human activity with the small-scale construction necessary to implement the plan; the level of impacts would depend on the time of year that the work occurs. Work occurring during the high visitor use period, generally between Memorial Day and Labor Day, would have negligible to minor and adverse impacts on wildlife that use the project area during the summer, since these animals would likely already be accustomed to the presence of people. Wildlife that rely on low-visitor use periods to forage and travel through the road corridor and developed areas would likely undergo minor to moderate adverse impacts if construction occurred during the shoulder seasons. The spring shoulder season would be from road-opening on the third weekend of April to the end of May; the fall shoulder season would be from the first weekend of September until road-closing on the third weekend of November.

Cumulative Impacts of Alternative B

Disturbances and adverse impacts to wildlife from past, ongoing and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including those identified under the GNP *Commercial Services Plan*, would be temporarily compounded by construction activity necessary to implement the proposed plan. The level of accumulated impacts would depend on the time of year that work occurs; impacts would be greater if work is underway during the shoulder season due to disturbances to species that use the project area during low visitor use periods.

Additionally, as described for the no action alternative, wildlife that use the Many Glacier Road corridor during late spring or early fall could be displaced by seasonal snow removal operations. While plowing operations are scheduled to have the least possible impact to wildlife, plowing may displace animals that frequent the road corridor in the spring and fall. Construction activities for Alternative B that occur during the shoulder season could increase the adverse impacts to wildlife that use the road corridor during low visitor use periods.

As described for the no action alternative, anticipated rehabilitation of the Many Glacier Road under the Park Roads/Federal Highway Program would expose wildlife to large scale



construction activity, including heavy equipment, construction traffic, and an increased human presence. This exposure would be in addition to the small-scale construction for Alternative B, although much of the proposed work for the preferred alternative would occur as part of the FHWA project. If road rehabilitation took place during the high visitor use period (generally between Memorial Day and Labor Day), traffic control lines could back vehicles up into wildlife crossing areas and increase the chances for habituation and food conditioning. If road rehabilitation occurred in the shoulder season, wildlife species that are accustomed to using the road corridor and developed areas during low visitor use periods could be displaced.

Conclusion

Adverse, site-specific, and short-term impacts to wildlife from the small-scale construction for Alternative B would be negligible to minor if work occurred during the high visitor use period (late May to early September) and minor to moderate if work occurred during the spring and fall shoulder seasons (the third weekend of April to late May; early September to the third weekend of November). Animals could be temporarily disturbed or displaced by heavy equipment and an increase in human activity. The risk of habituation and food conditioning would also temporarily increase during construction. Cumulatively, temporary disturbances from construction for Alternative B combined with snow plowing, road rehabilitation, and facility improvements under past, ongoing, and future projects would have impacts to wildlife that are adverse, negligible to moderate (depending on the time of year that work occurs), site-specific and local, and short and long-term.

Once implemented, however, Alternative B would put wildlife at a reduced risk of displacement and disturbance over the long term and movement patterns that have persisted across the landscape for decades would receive better protection. Animals would be less prone to developing undesired levels of human habituation, they would be at a reduced risk of food conditioning and conflict with people, and they would be less likely to pass habituated behavior on to their offspring. Alternative B would therefore have minor to moderate, beneficial, short and long-term impacts to wildlife; impacts would be both site-specific to the road corridor and local to the Many Glacier Valley. The long-term benefits to wildlife under Alternative B would outweigh the temporary, cumulative, and adverse impacts of construction.

Threatened, Endangered and Species of Concern

AFFECTED ENVIRONMENT

Grizzly bears, Canada lynx, and Northern Rocky Mountain gray wolves all inhabit the Many Glacier Valley; grizzly bears and Canada lynx are federally listed as threatened species and gray wolves are federally listed as endangered (Table 5). Species of concern are those species that are rare, endemic, disjunct, vulnerable to extirpation, in need of further research, or likely to become threatened or endangered if limiting factors are not reversed. Likewise, a species may be of concern because of characteristics that make them particularly sensitive to human activities or natural events. Species of concern may also include big game, upland game birds, waterfowl, carnivores, predators, and furbearers whose populations are protected in the park but subject to hunting and trapping outside of the park. The Many Glacier Valley is occupied by golden eagles, wolverines, and fishers, which are listed as Species of Concern with the Montana Natural Heritage Program. Additionally, the valley is inhabited by Rocky Mountain bighorn sheep, which is considered a species of concern by GNP.



Grizzly bear, NPS Photo



Table 5. Federally listed species in the Many Glacier Valley that have been considered for further analysis.

| Species | Status |
|---|------------|
| Grizzly bear (<i>Ursus arctos horribilis</i>) | Threatened |
| Canada lynx (<i>Lynx canadensis</i>) | Threatened |
| Gray wolf (<i>Canis lupus</i>) | Endangered |

Grizzly Bear. GNP is part of the Northern Continental Divide Ecosystem (NCDE) Grizzly Bear Recovery Zone. The park comprises 51% of the Greater Glacier Area (GGA), which occupies the northern third of the NCDE from the Canadian border to GNP's southern boundary and from the Whitefish Mountains west of the park eastward to the Blackfeet Reservation (Kendal et al. 2008). Genetic analysis of hair samples collected during 1998-2000 resulted in a population estimate of 241 grizzly bears in the GGA (Kendall et al. 2008). No population estimate has been developed exclusively for GNP. From 1989 to 2009, there were 14,132 grizzly bear sightings reported in GNP. Of those, 5,378 came from the Many Glacier district, more than any other district in the park. However, reported observations are dependent upon where people go within the park and are not necessarily an indicator of relative grizzly bear presence and habitat use.

Grizzly bear habitat is found throughout the park from the lowest valley bottoms to the summits of the highest peaks. Grizzly bears require large areas of undeveloped habitat, including a mixture of forests, moist meadows, grasslands, and riparian habitats, and a substantial amount of solitude from human interactions (USFWS 1993). They have home ranges of 130 to 1,300 square kilometers (USFWS 1993). Grizzly bear seasonal movements and habitat use are tied to the availability of different food sources. In spring, grizzly bears feed on winter-killed ungulates and early greening herbaceous vegetation at lower elevations (Martinka 1972). During the summer, some bears move to higher elevations in search of glacier lilies and other roots, berries, and army cutworm moths. In the fall, bears will continue to forage for berries, roots, insects, and carrion and will broaden their search for food considerably in order to build up enough fat reserves for the winter denning period.

Grizzly bears make extensive use of the Many Glacier and Swiftcurrent Valleys throughout the year. From August through October, grizzly and black bears typically forage on the southerly slopes of Mt. Altyn and other sites, feeding on the berries of serviceberry and kinnikinnik and other plants. Grizzly bears have also been observed moving through the project area en route to seasonally important habitats in more remote areas. Important grizzly bear travel corridors have been identified by park biologists within the project area including near the Many Glacier Hotel and the Swiftcurrent Motor Inn. Five grizzly bear dens have been documented in the Many Glacier geographic area, all at least 3.0 km from the Many Glacier Hotel (D. Carney, personal communication and NPS files). The mean elevation for documented grizzly bear dens (n=73) east of the Continental Divide in GNP is 6,782 feet (D. Carney, personal communication). Grizzly bears east of the Continental Divide in the park typically enter their dens in late November and emerge in late March or early April (GNP files).

In accordance with the USFWS *Grizzly Bear Recovery Plan* (1993), GNP lands were apportioned into two grizzly bear management "situations". Over 1 million acres of the park (proposed wilderness) are established as Management Situation 1. In these backcountry areas,



management decisions favor the needs of the grizzly bear when grizzly habitat and other land-use values compete, and grizzly-human conflicts are resolved in favor of grizzlies unless a bear is determined to be a nuisance. The remainder of the park, which is developed front-country, is established as Management Situation 3. Grizzly habitat maintenance and improvement are not the highest management considerations for these areas, grizzly bear presence is actively discouraged, and a grizzly involved in a non-defensive bear-human conflict is usually controlled. The project location is within Management Situation 3; however, there are Management Situation 1 areas immediately adjacent to the project area.

Some grizzly bears in the Many Glacier Valley have become habituated to the area's high level of human activity during the summer months. These bears continue to use open habitats along the road and within sight of visitor facilities. Grizzly bear/human interaction is a management concern that can threaten the safety of visitors as well as bears. Some tolerance for human activity among bears that share the landscape with people is inevitable and perhaps even desirable. Habituated bears may take advantage of high value forage in developed areas, may enjoy refuge from dominant bears that occupy undeveloped areas, and are more likely to be observed by the public, thus fostering a bear conservation ethic (Herrero et al. 2005). But habituated bears may also not utilize the best available habitat and have been observed travelling farther and more often than non-habituated bears (Gibeau et al. 2005). This can compromise a bear's energetic reserves and is especially risky for reproducing females (Gibeau et al. 2005). Habituated bears are also at greater risk of being fed by people or finding unattended human sources of food, of being struck by vehicles, and of human-caused mortality outside of protected areas (Herrero et al. 2005). Bears that are not habituated to humans may be more sensitive to human disturbance and may concentrate their activity at night or avoid developed areas. These bears may be displaced from foraging areas and travel routes in their attempts to avoid human activity. Bears that do not display outward signs of stress in the presence of people, such as moving away, huffing, or jaw-popping, may still be undergoing energetically costly internal physiological responses (Herrero et al. 2005).

People are more likely to approach a habituated bear than a non-habituated bear, risking injury to themselves and management action against the bear (Herrero et al. 2005). Habituated bears often linger in the presence of human activity, and the temptation to approach them can be strong for people who are unfamiliar with bears and appropriate behavior in the presence of wildlife. While there is some evidence that habituated bears may respond less aggressively during encounters with people (Herrero et al. 2005), a study by Stephen Herrero showed that twelve human fatalities caused by grizzly bears in GNP, Yellowstone National Park, and Banff National Park from 1967 to 1986 involved habituated and/or food conditioned bears (Gibeau et al. 2005 and Herrero 1989). Habituated bears are usually hazed from developed areas; those that become food-conditioned or exhibit aggressiveness toward people are at risk of mortality from control actions within the park or when they display such behavior outside the park.

Canada Lynx. Lynx habitat generally is described as climax boreal forest with a dense undercover of thickets and windfalls (Ruediger et al. 2000). Lynx often prefer advanced successional stages of forests for denning and dense conifer stands for foraging. Lynx generally forage in young conifer forests where their primary prey, snowshoe hare, is abundant. Other prey includes squirrels, grouse, martens, and voles. Lynx may also forage in dense, multi-storied mature conifer forests, especially during winter. Travel corridors are thought to be an important factor in lynx habitat because of the species' large and variable home ranges, which are generally 8-738 km² (Ruediger et al. 2000). Lynx are most susceptible to disturbance during the denning period and while newborns are developing (May–August) (Claar et al. 1999).

Historically, lynx were considered “more or less common” throughout the park (Bailey and



Bailey 1918). Documented sightings declined during the 1970s and 1980s and have increased in recent years (NPS files); however, sightings may not be particularly sensitive to population changes and should be interpreted with caution. Systematic lynx surveys involving snow tracking in 1994 and hair-snare/DNA sampling in 1999 and 2000 detected lynx in several drainages throughout the park, including the Many Glacier Valley; no population estimates or trends were attempted during these studies.

Preliminary lynx habitat modeling for the park defined moist conifer forests above 4,000 feet elevation as most likely to support lynx. Little is known about lynx habitat use in the park and these criteria are general in nature. Habitat modeling indicates the presence of non-contiguous, high value lynx habitat at higher elevations north of Lake Sherburne and contiguous high value habitat south of the lake on adjacent north aspect slopes. With the exception of the Swiftcurrent area, the model suggests that lynx habitat values along the Many Glacier Road corridor are predominantly low.

Lynx and lynx sign have been recorded in the Many Glacier Valley for over 40 years. The park's wildlife observation database contains many records of Canada lynx from Many Glacier, including several observations of family groups. The lynx hair-snare survey in 2000 detected at least one individual female in one of the upper drainages (GNP files). During the wolverine population study in the Many Glacier Valley in the winters of 2004-2007, lynx were captured and released from wolverine live-traps approximately 35 times, representing an unknown number of individuals. Over the last ten years, lynx and lynx tracks have been observed in or near the project area during winter and early spring (December – April) (GNP files).

Lynx are not likely to frequent the Many Glacier Road or developed areas during summer and early fall due to high levels of human activity. Lynx appear to use the project area primarily during winter and early spring, when the Many Glacier Road is closed to public vehicles.

Gray Wolf. GNP's predominately natural landscape contains some of the most secure and productive wolf habitat in the Northwest Montana Recovery Zone. Despite fluctuating wolf numbers since 1986, Glacier's established wolf population has been a source for natural recolonization in northwest Montana and southern Canada (Boyd-Heger 1997).

Gray wolves are wide-ranging and their distribution is tied primarily to that of their principal prey – deer, elk, and moose. Important components of wolf habitat are: 1) a sufficient, year-round prey base of ungulates and alternate prey; 2) suitable and somewhat secluded denning and rendezvous sites; and 3) sufficient space with minimal exposure to humans (USFWS 1987). Low elevation river bottoms that are relatively free from human influence provide important winter range for ungulates and wolves. Wolves are especially sensitive to disturbance from humans at den and rendezvous sites. Pups are born in late March to early May and may remain near the den through much of the summer (USFWS 1987). Human activity near den sites can lead to pack displacement or physiological stress, perhaps resulting in reproductive failure or pup mortality (Mech et al. 1991). Rendezvous sites are resting and gathering areas occupied by wolf packs during summer and early fall after the natal den is abandoned.

Wolf sightings have been recorded in the Many Glacier Valley, but no den or rendezvous sites have been documented in the area. The two wolf packs closest to the Many Glacier Valley include the Chief Mountain Pack, which dens in Canada north of the Belly River drainage, and the Livermore Pack, whose home range is on the Blackfeet Reservation. Individuals from these packs probably hunt or travel in the Many Glacier area, especially during fall, spring, and winter.



Species of Concern

Golden Eagle. Golden eagles nest on cliffs (and possibly trees) throughout the park, and hunt open grasslands, meadows, slopes, and ridges for small mammals and other prey. Several nests have been identified in the park, but the current status and trend of GNP's golden eagle population remain unknown. There are at least eight known nest sites in the three primary drainages that converge to form the Many Glacier Valley. These include historic nests that have not been recently active as well as alternate nests. There is one nest site within the project area.

The golden eagle nesting period begins in early spring and continues until late summer, with young usually fledging by mid-August. After fledging, juvenile golden eagles are still dependent upon the adults for food and will remain near the nest site; juvenile golden eagles have been documented within 5.0 kilometers of the natal nest for eight to ten weeks (Toole et al. 1999). The one known golden eagle nest in the project area was last active in 2007 and fledged one juvenile (GNP files). The nest was inactive in 2008 and 2009, possibly because the nesting pair used an alternate site, but the nest could be active again in the future.

Nesting golden eagles are prone to disturbance from human activity. If adult eagles are displaced from a nest, the chick(s) is vulnerable to predation or starvation (Fyfe and Olendorff 1976). The *Montana Bald Eagle Management Plan* recommends restrictions on human activity within 0.5 miles (800 meters) of active bald eagle nests (Montana Bald Eagle Working Group 1994); GNP observes the same recommendations for golden eagles.

Wolverine (*Gulo gulo*). The wolverine is a rarely seen resident of coniferous forests and alpine meadows on both sides of the Continental Divide. Wolverines are innately enigmatic and make use of large areas for dispersal, making detection difficult. They utilize a range of habitats including alpine areas, mature forests, ecotonal areas, and riparian areas. During a study in GNP from 2002-2005, 27 wolverines were radio-instrumented and over 30,000 locations were recorded, providing a better understanding of wolverine population status, trends, and movement patterns in the park (Copeland and Yates 2008). The study documented home ranges, mortality, denning characteristics, dispersal and habitat use, and estimates the wolverine population in GNP at between 40-45 animals (Copeland and Yates 2008).

Two adult and three sub-adult wolverine mortalities were documented during the study and five out of seven kits died before the age of one year, indicating low survival to adulthood among juveniles (Copeland and Yates 2008). Causes of death included predation, shooting, falling off a cliff, avalanche, legal trapping outside GNP, and a truck collision on the Going-to-the-Sun Road (Copeland and Yates 2008; GNP files).

The park is considered to have very high quality wolverine habitat due to extensive alpine areas, rugged topography, remoteness, and diverse ungulate populations. Wolverines move to lower elevations during the winter where they search for carrion in ungulate winter ranges. Den sites are typically located under deep snow, usually on high elevation talus slopes in sparsely forested areas with boulders, rock caves, and downed woody debris (Copeland and Yates 2008).

Male wolverines can cover over 150 kilometers per week with short movements between denning and foraging areas intermixed with longer movements of 10 kilometers or more; two adults are known to have dispersed out of the park (Copeland and Yates 2008). Average home ranges for wolverines in GNP are 521 square kilometers for males and 139 square kilometers for females (Copeland and Yates 2008).

Numerous wolverine sightings and track observations have come from the Many Glacier Valley (GNP files). Three radio-instrumented wolverines used the area as part of their home range and two others made forays into Many Glacier from the Belly River drainage (Copeland and Yates



2008). There have been several sightings and observations of tracks in the project area over the last ten years; two occurred in May, but the rest were in winter or early spring (January – April) when human use is at its lowest.

Fisher. After probable extirpation, fishers were transplanted into Montana from British Columbia in 1959-60 and from Minnesota and Wisconsin between 1988 and 1991 (Roy 1991 and Heinemeyer 1993). Fishers inhabit young, mature, and old-growth forest stands with a well-developed canopy and also frequent drainage bottoms and riparian areas (Jones 1991 and Powell and Zielinski 1994). Structural elements such as snags, deadfall, variable tree sizes and shapes, understory vegetation, and branches near the forest floor appear to optimize fisher habitat (Buskirk and Powell 1994). A diverse and multi-storied environment provides fishers with denning and resting areas and also increases their ability to catch prey (Buskirk and Powell 1994). Fishers are opportunistic carnivores that prey upon small and mid-size mammals and birds, berries, and carrion (Powell and Zielinski 1994).

In Montana, fishers range across the northwest section of the state, from the British Columbia border to the southern end of the Bitterroot Mountains, and eastward as far as Helena and the Blackfeet Reservation (Montana Field Guide 2010). In GNP, fishers have been documented on both sides of the Continental Divide, including the Many Glacier Valley (NPS files). Fisher tracks have been observed on the Swiftcurrent Nature Trail and the Many Glacier Road, but not within the last ten years; only two sets of tracks and one sighting were documented near the project area between 2000 and 2009 (NPS files). Fishers tend to avoid areas of high human density and disturbance (Powell and Zielinski 1994).

Rocky Mountain Bighorn Sheep. Bighorn sheep make extensive use of the Many Glacier Valley year-round. The valley's steep rocky terrain, windswept alpine ridges and sub-alpine mountainsides, and lower elevation open mixed grass-shrublands provide lambing and rutting grounds, winter range, and year-round forage. At the convergence of three primary drainages, the Many Glacier Valley is a nexus of movement corridors that have been used by bighorn sheep for thousands of years. As evidenced by over 20,000 GPS locations from 20 rams and 17 ewes between 2002 and 2005, the area is heavily used by sheep during their seasonal movements (Keating 2005).

Two distinct ewe groups and one ram group use the Many Glacier Valley (Keating and Cherry 2009). The Sheep Curve ewe group utilizes three separate lambing areas and range along a narrow north-south band of terrain between Mt. Allen and Yellow Mtn.; the Iceberg-Ptarmigan ewe group ranges farther west and north, dividing their time between Mt. Henkel, the Ptarmigan Wall, and the north slopes of Apikuni Mtn. (K. Keating, personal communication 2010). Lambing begins in mid-May; in June, ewe groups reaggregate into larger social groups and seek higher elevation habitat before returning to lower elevations in the summer and fall (K. Keating personal communication 2010). The ram group covers the ranges of both ewe groups, ranging between the upper reaches of the Swiftcurrent and Cataract drainages and Seward and Yellow Mtn. (Keating and Cherry 2009 and K. Keating personal communication 2010).

The Many Glacier Road bisects the range of the Sheep Curve ewe group and passes through a primary sheep travel corridor at the Many Glacier Hotel T intersection. The area around Sheep Curve and eastward across most of Apikuni Flat contains important forage for the Sheep Curve ewe group, and there is evidence that the limestone ridge east of the Many Glacier Hotel (Hotel Ridge) is part of an ancient movement corridor that sheep have used since shortly after the glaciers receded (K. Keating personal communication 2010). The Many Glacier Road also bisects an important ram crossing west of the picnic area, where rams cross in the spring as they leave the Altyn winter range for the south aspects of Grinnell Point (K. Keating personal



communication 2010).

During lambing season from late April to June, GNP initiates an area closure east of Ptarmigan Falls between the Mt. Altyn-Henkel ridgeline and the Iceberg-Ptarmigan Trail and Many Glacier Road. Bighorn sheep are often seen within the project area and sheep “jams” are common near the Hotel T intersection. Bighorn sheep are easily habituated to people and vehicles and their risk of human food conditioning and collisions with vehicles is high.

Vascular Plants. Of the 18 vascular plant species of concern that grow in the Many Glacier Valley, only western moonwort, slender moonwort, and peculiar moonwort (genus *Botrychium*) have been found along the Many Glacier Road shoulder. In Montana, there have been 41 recorded observations of western moonwort, 48 observations of peculiar moonwort, and 15 observations of slender moonwort, also known as linearleaf moonwort (Montana Field Guide 2010). Populations of *Botrychium* have been documented in at least three areas along the Many Glacier Road: along a segment approximately one kilometer east of the entrance station, along the west end of Apikuni Flat, and along the Swiftcurrent Nature Trail near Swiftcurrent Falls. *Botrychium* is only visible above ground for a short period of time (mainly June-July). Individual plants are also very small and their growth tends to be scattered. *Botrychium* is therefore difficult to detect, and all populations along the Many Glacier Road or in the Swiftcurrent developed area may not yet be documented. *Botrychium* can be sensitive to trampling and disturbance. While grapeferns in the *Botrychium* genus have been successfully transplanted, there is little information available on transplanting moonworts, so expected results from attempts to transplant individuals are uncertain. However, seed banks may be activated by ground disturbance and produce new plants.

Pink corydalis (*Corydalis sempervirens*) typically grows in recently burned or disturbed areas. There is one historical record near the Many Glacier Hotel and the Many Glacier Road. Until recently, no observations had been made of the plant since 1948. Pink corydalis was not found along the Many Glacier Road or within the developed area during a survey in 2001, but the species was recently discovered along a social trail near Redrock Lake and populations could exist along the road.

IMPACT ANALYSIS

METHODOLOGY

The Endangered Species Act of 1973 requires examination of impacts on all federally-listed threatened, endangered, and candidate species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, the 2006 *Management Policies* (NPS 2006) and Director’s Order 77 *Natural Resources Management Guidelines* require the National Park Service to examine the impacts on federally-listed species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species.

Further protection under the Migratory Bird Treaty Act makes it unlawful to pursue, hunt, kill, capture, possess, buy, sell, purchase, or barter any migratory bird, including the feathers or other parts, nests, eggs, or migratory bird products. In addition, this act serves to protect environmental conditions for migratory birds from pollution or other ecosystem degradations.

This section is intended to augment the impact analysis for natural systems and processes by analyzing specific impacts of the proposed management alternatives upon federally listed threatened, endangered, and other sensitive species (species of concern). The predicted intensity of adverse impacts is articulated according to the following criteria:



- Negligible:* The alternative would affect an individual of a listed species or its critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population. Negligible effect would equate with a “no effect” determination in U.S. Fish and Wildlife Service terms.
- Minor:* An individual(s) of a listed species or its critical habitat would be affected, but the change would be small. Minor effect would equate with a “may affect, not likely to adversely affect” determination for the species in U.S. Fish and Wildlife Service terms and would require informal consultation.
- Moderate:* An individual or population of a listed species, or its critical habitat would be noticeably affected. The effect could have some long-term consequence to individuals, populations, or habitat. Moderate effect would equate with a “may affect” determination in U.S. Fish and Wildlife Service terms and would be accompanied by a statement of “likely...” or “not likely to adversely affect” the species and would require either informal or formal consultation.
- Major:* An individual or population of a listed species, or its critical habitat, would be noticeably affected with a vital consequence to the individual, population, or habitat. Major effect would equate with a “may affect, likely to adversely affect” or “not likely to adversely affect” determination in U.S. Fish and Wildlife Service terms and would require formal consultation.
- Short-term:* After implementation, would recover in less than 1 year.
- Long-term:* After implementation, would take more than 1 year to recover or effects would be permanent.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

Grizzly Bear. Under the no action alternative, grizzly bears would continue to be exposed to potentially large numbers of people congregating in three pullouts that abut or are very near areas where bears naturally cross the road. This continued frequent exposure to people, oftentimes at close range, would put grizzlies at risk of developing undesired levels of human habituation. Non-habituated bears that attempt to avoid human activity may in so doing also avoid important sources of food, water, shelter, and travel routes. Excessive human habituation and the close proximity of people would keep grizzlies at a high risk of human food conditioning. Female grizzlies that are overly familiar with people would fail to teach their cubs to maintain safe distances from people. Adverse impacts to grizzly bears would be minor to moderate and both short and long-term.

Canada Lynx. Canada lynx would not be affected by the no action alternative, as they do not generally frequent the project area during the high visitor use period.

Gray Wolf. Currently, gray wolves are not likely to be displaced by human activity along the project corridor as there are no nearby dens or rendezvous sites. Gray wolves could, however, become increasingly human habituated under Alternative A, which would put them at an increased risk of vehicle collisions and illegal take outside the park. If wolves establish dens or rendezvous sites near the Many Glacier road or developed areas in the future, they could be at risk of displacement and at a higher risk of habituation. Impacts from the no action alternative could therefore be negligible to moderate, adverse, local and regional, and long-term depending on the level of wolf use of the area.

Golden Eagle. Golden eagles nest at an elevation and distance from the Many Glacier Road



that does not make them susceptible to disturbance from visitors. Golden eagles would therefore not be impacted by the no action alternative.

Wolverine. Wolverines would not be impacted by the no action alternative since they do not tend to frequent the project area when visitor use is highest.

Fisher. Fishers have not been frequently documented within the project area and would not be impacted by the no action alternative.

Rocky Mountain Bighorn Sheep. Bighorn sheep would continue to encounter potentially large numbers of people congregating at Sheep Curve, where sheep frequently cross the Many Glacier Road. Sheep would continue to be at a high risk of acquiring unnatural sources of food. Sheep would continue to be vulnerable to motor vehicle collisions, and ewe groups would pass human habituated behavior on to their offspring. The no action alternative would therefore have adverse, minor to moderate, local, and short and long-term impacts on bighorn sheep.

Vascular Plants. Any currently unidentified populations of moonwort and pink corydalis along the Many Glacier Road would be adversely affected by continued trampling and compaction from visitors pulling off the road and parking in undesignated areas. Some plants could be killed by the disturbance, resulting in a reduced population size. The no action alternative would therefore result in long-term, minor, and adverse impacts to vascular plant species of concern.

Cumulative Impacts of Alternative A

Grizzly Bears. Long-term adverse impacts to grizzly bears from existing human activity under the no action alternative would add to disturbances from past, ongoing and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including facility improvements identified under the *GNP Commercial Services Plan*. The no action alternative combined with the increase in human activity for these projects could raise the potential for grizzlies to be displaced or become human habituated and food conditioned.

Grizzly bears would not likely be further impacted by ongoing seasonal snow plowing in the early spring (after the third weekend of April) and early fall (before the third weekend of November). Plowing is short-term, of relatively low-intensity, and is restricted to the road and developed areas. Plowing would likely occur during periods of low visitor use, and ample undisturbed area would remain available for grizzlies to forage, rest, and travel.

Grizzlies would be at an increased risk of displacement, human habituation and food conditioning under Alternative A combined with rehabilitation of the Many Glacier Road under the Park Roads/Federal Highway Program. Rehabilitation is scheduled to take place within five years, subject to funding, and would bring heavy equipment, construction traffic, and construction personnel to the project area. Work schedules have not been established, and while the work would likely require at least two summer seasons, it could also take longer and occur during the shoulder seasons (third weekend of April to late May; early September to the third weekend of November). If road rehabilitation took place during the high visitor use period in June, July and August, the temporary increase in human activity would add to the number of vehicles and people already encountered by grizzly bears, vehicles in traffic control lines could be backed up into bear crossing areas, and the chances for habituation and food conditioning would increase. Impacts to grizzly bears would be greater if road construction occurred during the shoulder season, when bears are accustomed to low levels of human activity.

Canada Lynx. Lynx are not likely to be affected by the no action alternative; therefore there would be no cumulative impacts to Canada lynx under Alternative A.



Gray Wolf. The risk to gray wolves of habituation under the no action alternative could increase from the cumulative effects of past, ongoing, and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including facility improvements identified under the *Commercial Services Plan* and future rehabilitation of the Many Glacier Road. Impacts would be more pronounced and could include displacement if wolves establish dens or rendezvous sites near the Many Glacier road or developed areas. Seasonal snow removal operations in combination with Alternative A would not likely increase impacts to wolves; plowing is a short-term, low-intensity activity that would be restricted to the road and developed areas.

Golden Eagles. The no action alternative is not likely to affect golden eagles, and there would be no cumulative impacts to the species under Alternative A.

Wolverine. Wolverines are not likely to be affected by the no action alternative; therefore there would be no cumulative impacts to wolverines under Alternative A.

Fisher. Fishers are also not likely to be affected by Alternative A, and no cumulative impacts would be expected.

Rocky Mountain Bighorn Sheep. Long-term adverse impacts to bighorn sheep from existing human activity under the no action alternative would add to disturbances associated with past, ongoing and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including facility improvements identified under the *Commercial Services Plan*. The increase in human activity associated with these projects combined with the no action alternative could raise the potential for sheep to be displaced or become human habituated and food conditioned.

Bighorn sheep would be at an increased risk of vehicle and human habituation and food conditioning under Alternative A combined with rehabilitation of the Many Glacier Road. Sheep would be attracted to minerals exposed by excavation along the roadbed and would be vulnerable to vehicle collisions. If the work occurred during the high visitor use period, vehicles in traffic control lines could be backed up into sheep crossing areas and increase the chances of sheep becoming habituated or receiving handouts of human food. Work in the shoulder seasons could displace sheep that are using the project area during periods of low visitor use and extend the period of time over which sheep are at risk of habituation.

The no action alternative combined with snow plowing between the third weekend of April and the third weekend of November is not likely to further impact sheep, since plowing is short-term, of low intensity, and restricted to the roadway and developed areas.

Vascular Plants. Any disturbances to moonwort under the no action alternative would increase with past, present, and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including those identified under the *Commercial Services Plan*, upcoming rehabilitation of the road, and routine road maintenance such as ditch clearing. The level of disturbance would depend on whether populations exist in areas that would be disturbed.

Conclusion

Impacts to grizzly bears under the no action alternative would be minor to moderate, adverse, and both short and long-term due to frequent close-range encounters with people that result in displacement, excessive human habituation, and an increased risk of food conditioning and conflict with people. These impacts would be site-specific and local, as they would extend throughout the Many Glacier Valley, as habituated or food conditioned bears pass this behavior on to their offspring or come into conflict with humans outside the road corridor. Under



Section 7 of the Endangered Species Act, the determination for grizzly bears would be “may affect, not likely to adversely affect”. There would be no new impacts to Canada lynx, wolverine and fisher under the no action alternative because these species generally do not frequent the road corridor during the high visitor use season. Under Section 7, the determination for Canada lynx would be “no effect”. Alternative A could have negligible to moderate adverse, long-term impacts to gray wolves on a regional scale if wolves were to become increasingly human habituated and thus more vulnerable to vehicle collisions and illegal take outside the park. Under Section 7, the determination for wolves would be “may affect, not likely to adversely affect”. Golden eagles would not be impacted by the no action alternative because the nest is not close enough to the road to be vulnerable to disturbance from visitors. Impacts to Rocky Mountain bighorn sheep under the no action alternative would be adverse, minor to moderate, site-specific and local, and short and long-term because of frequent, close-range exposure to people that would displace sheep or increase the risk of sheep becoming habituated and food conditioned.

Cumulatively, adverse impacts from existing human activity under the no action alternative combined with past, ongoing, and future actions would be site-specific and local, short and long-term and minor to moderate for grizzlies and bighorn sheep due to increased risk of habituation and displacement. Cumulative adverse impacts to wolves would be negligible to moderate, local and regional, and short and long-term due to increases in habituation that could raise the risk of mortality outside the park. There would be no cumulative impacts under Alternative A for golden eagles, Canada lynx, wolverine, or fisher.

Due to continued trampling, impacts to any unidentified populations of moonwort or other plant species of concern from the no action alternative combined with past, present, and future actions would be minor, adverse, long-term, and site-specific.

IMPACT ANALYSIS OF ALTERNATIVE B – PREFERRED

Grizzly Bear. Under Alternative B, grizzly bears would be at a reduced risk of developing undesirable levels of human habituation, obtaining human sources of food, and coming into conflict with people since bear viewing would be encouraged in places where grizzlies and people are at an appropriate distance from one another. Grizzly bears attempting to cross the road would not be so frequently forced into close range with people, since pullouts that currently abut or are near bear crossings would be removed. Bear “jams” might still occur at these sites if a grizzly is on or near the road when visitors drive by. But the absence of places to park combined with current law enforcement practices would substantially minimize the frequency of parking and congregating in undesignated areas. The proposed actions under this alternative would bring short and long-term benefits to grizzly bears by: 1) minimizing the risk of excessive human habituation and food conditioning, 2) reducing the potential for habituated behavior to be passed on from female grizzlies to their cubs, and 3) reducing displacement of non-habituated grizzly bears from travel corridors and foraging habitat that are bisected by the Many Glacier Road.

A formalized viewing area at Swiftcurrent Motor Inn parking lot would not cause new impacts to grizzly bears, since people have already been congregating there for several years. Other developments, including a gathering/viewing area at the pullout west of the Hotel T intersection, a formalized foot/bicycle path along the road shoulder between Swiftcurrent parking lot and the Hotel T, and a short trail to the meadow at Apikuni Flat would add incremental and insignificant disturbances to grizzly bear habitat.

The proposed speed limit reduction from 45 mph to 35 mph could benefit grizzlies by reducing their risk of injury or mortality from vehicle collisions. Additionally, under Alternative B, grizzly



bears would benefit indirectly from the proposed enhancement of educational and interpretive programs. There would be less potential for grizzlies to be approached, crowded, or obtain unnatural sources of food because more visitors would be informed about grizzly bear ecology and management and would better understand the risks to bears of excessive human habituation.

Adverse impacts to grizzly bears from the small-scale construction necessary to implement the proposed plan would be site-specific and short-term; impacts would be negligible to minor if work occurred during the high visitor use period (generally from Memorial Day to Labor Day) and minor to moderate if work happened during the shoulder season when some bears may be accustomed to lower levels of human activity. The spring shoulder season would be from the third weekend of April when the road opens to the public to the end of May; the fall shoulder season would be from the first weekend of September until the third weekend of November, when the road is closed.

Canada Lynx. Lynx are not at a high risk of human habituation since they do not frequently use the Many Glacier Road corridor and developed areas during the summer, when visitor use is high. Therefore, Alternative B is not likely to substantially benefit Canada lynx. Lynx could, however, benefit from the proposal's reduced speed limit from 45 mph to 35 mph. Vehicle collisions may present a risk to lynx, and a lower speed limit could decrease their chances of being struck by a vehicle, especially at night.

Developments including a viewing area at Swiftcurrent parking lot, a gathering/viewing area at the pullout west of the Hotel T intersection, a formalized foot/bicycle path along the road shoulder between Swiftcurrent parking lot and the Hotel T, and a short trail to the meadow at Apikuni Flat would not affect lynx habitat.

The relatively small-scale construction necessary to implement Alternative B could have adverse, site-specific, short-term, and negligible to moderate impacts to lynx depending on when the work occurred. Work during the high visitor use period would have negligible to minor impacts. Work during the shoulder seasons, when lynx are used to low levels of human activity, would have minor to moderate impacts.

Gray Wolf. The preferred alternative may not substantially benefit gray wolves, as there are currently no known dens or rendezvous sites in or near the project area. But if the level of wolf activity in Many Glacier increases, Alternative B could reduce the chances of wolves becoming overly familiar with people. Wolves could also benefit from the proposed speed limit reduction from 45 mph to 35 mph, as the risk of injury or mortality from vehicle collisions could be reduced.

A formalized viewing area at Swiftcurrent parking lot, a gathering/viewing area at the pullout west of the Hotel T intersection, a formalized foot/bicycle path along the road shoulder between Swiftcurrent parking lot and the Hotel T, and a short trail to the meadow at Apikuni Flat would not measurably affect wolves or their habitat.

The small-scale construction for the proposed plan could displace wolves if they are denning or rendezvousing in the project area, and could also slightly increase their risk of habituation. Impacts would be short-term and site-specific, and would be negligible to minor if work occurred during the visitor season and minor to moderate if work happened during the shoulder seasons when human activity is low. Work during the spring shoulder season could especially impact wolves if they are denning nearby.

Golden Eagle. The preferred alternative is not likely to directly benefit golden eagles, since upper elevation nest sites are typically not prone to disturbance from visitors congregating on



the road and in developed areas. Golden eagles could benefit indirectly from the proposal's enhanced educational programs, as people may be less inclined to approach nests given the opportunity.

A formalized viewing area at Swiftcurrent parking lot, a gathering/viewing area at the pullout west of the Hotel T intersection, a formalized foot/bicycle path along the road shoulder between Swiftcurrent parking lot and the Hotel T, and a short trail to the meadow at Apikuni Flat would not cause new impacts to golden eagles.

Golden eagles nesting in the road corridor would be adversely impacted by the small-scale construction necessary to implement Alternative B if the nest is active. These impacts would be minor, short-term and site-specific, but minor to moderate if additional nests within the road corridor are identified and more than one nest becomes affected, or if construction occurs during the spring shoulder season and the early nesting period.

Wolverine. Wolverines do not generally use the Many Glacier Road corridor and developed area during the summer and are not at a high risk of becoming overly familiar with people. Therefore, Alternative B would not likely measurably benefit wolverines. But wolverines could benefit from the proposal's reduced speed limit from 45 mph to 35 mph, as a lower speed limit may decrease the chances of a wolverine being struck by a vehicle.

A formalized wildlife viewing area at Swiftcurrent parking lot, a gathering/viewing area at the pullout west of the Hotel T intersection, a formalized foot/bicycle path along the road shoulder between Swiftcurrent parking lot and the Hotel T, and a short trail to the meadow at Apikuni Flat would not measurably affect wolverines or their habitat.

Wolverines could be displaced from travel routes and may be at risk of collisions with construction vehicles during construction for the proposal, depending on when the work occurred. Impacts would be adverse, short-term, and site-specific. They would be negligible to minor if work occurred during the high visitor use period, and minor to moderate if work took place in the shoulder seasons when wolverine may be accustomed to lower levels of human activity.

Fisher. Fisher use of the Many Glacier Valley is not well understood, but the species probably does not use the project area during the summer and is not likely to be at risk of habituation. The preferred alternative is therefore not likely to benefit fishers. The reduced speed limit from 45 mph to 35 mph could benefit fishers, however, as the chances of their being struck by a vehicle would be reduced.

Fishers would not be affected by a viewing area at Swiftcurrent parking lot, a gathering/viewing area at a pullout west of the Hotel T intersection, a formalized foot/bicycle path along the road shoulder between Swiftcurrent parking lot and the Hotel T, and a short trail to the meadow at Apikuni Flat.

Small-scale construction for Alternative B could temporarily displace fishers using areas near the road or developed areas, depending on when the work occurs. Negligible to minor adverse impacts would occur from work during the high visitor use period. Adverse impacts from work during the shoulder season would be minor to moderate since fisher that rely on low visitor use periods to travel and forage within the project area could be displaced.

Rocky Mountain Bighorn Sheep. The preferred alternative would benefit bighorn sheep by minimizing the occurrence of large congregations of people at Sheep Curve, where sheep frequently cross the Many Glacier Road as they travel between Mt. Altyn and Hotel Ridge. The removal of the Sheep Curve pullout would result in less congestion at the crossing, thus giving



sheep more room and reducing the potential for them to obtain human food or be displaced. Sheep would still be exposed to high levels of human activity in the area. But shifting the visitor parking and viewing area to the west, as proposed under the preferred alternative, would moderate the frequency with which sheep and people are within close range. The potential for excessive levels of human habituation among sheep would therefore also be reduced.

Sheep crossing the Many Glacier Road could be at a reduced risk of injury or mortality from vehicle collisions due to the preferred alternative's proposed speed limit reduction from 45 mph to 35 mph. As with bears and other wildlife, bighorn sheep would also benefit from the increased focus on education proposed under this alternative. Sheep would be less likely to be approached, crowded, or fed by people because more visitors would be informed about sheep ecology and travel routes; these visitors would also better understand how excessive habituation can alter the natural behavior of sheep and put them at greater risk of food conditioning and vehicle collisions. Sheep would not be further impacted by a formalized viewing area at Swiftcurrent Motor Inn parking lot, since the area has seen high levels of human activity for several years. Other developments, including a gathering/viewing area at the pullout west of the Hotel T intersection, a formalized foot/bicycle path along the road shoulder between Swiftcurrent parking lot and the Hotel T, and a short trail to the meadow at Apikuni Flat would add only incremental disturbances to sheep and their habitat.

Under Alternative B, bighorn sheep would be exposed to temporary small-scale construction to implement the plan. Sheep could be at an increased risk of vehicle and human habituation and food conditioning, they could be attracted to minerals exposed by excavation along the roadbed, and they could be vulnerable to vehicle collisions. Impacts would be minor to moderate, adverse, short-term, and site-specific.

Vascular Plants. Populations of moonwort have been identified along the road shoulder at Sites 1 and 6. There would be no change to Site 6, but the plan proposes to enlarge the pullout at Site 1. It is uncertain whether moonwort would transplant successfully, and any individual plants that exist at Site 1 would be permanently lost with the enlargement of the paved pullout. If the surrounding soil holds a viable seed-bank, however, moonwort could re-colonize the periphery of the pullout in response to soil disturbance. Similarly, ground disturbance resulting from other work under Alternative B could activate dormant moonwort seed banks. Moonwort could therefore grow in areas where it has not been documented. The preferred alternative could also bring long-term benefits to moonwort by minimizing indiscriminate parking along the road shoulder and reducing trampling and soil compaction. Prior to undertaking the proposed actions, the park would conduct surveys for moonwort, and any identified moonwort populations would be avoided. Impacts to moonwort under Alternative B would therefore be negligible to minor, adverse, possibly beneficial, and short and long-term.

Pink corydalis has not been identified in the project area, but if actions under the proposed plan destroyed unidentified, individual members of the species, impacts would be minor, adverse, site-specific, and long-term.

Cumulative Impacts of Alternative B

Grizzly Bears. Combined with past, ongoing and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including those identified under the *Commercial Services Plan*, construction for the proposed plan would temporarily add to the adverse impacts to grizzly bears. The level of accumulated impacts would depend on the time of year that work occurs; impacts would be greater if work is underway during the shoulder season because bears that use the project area when visitor use is low could be disturbed.

As described for the no action alternative, rehabilitation of the Many Glacier Road under the



Park Roads/Federal Highway Program would expose grizzly bears to large scale construction activity, including heavy equipment, construction traffic, and an increased human presence. This exposure would be in addition to the small-scale construction for Alternative B, although much of the proposed work for the preferred alternative would occur as part of the FHWA project. If road rehabilitation took place during the high visitor use period (generally between Memorial Day and Labor Day), traffic control lines could back vehicles up into bear crossing areas and increase the chances for habituation and food conditioning. If road rehabilitation occurred in the shoulder season, bears that are accustomed to using the road corridor and developed areas during low visitor use periods could be displaced.

Seasonal snow removal operations would not likely affect grizzly bears, as described under the no action alternative. Plowing is short-term, of relatively low-intensity, and is restricted to the road and developed areas. The cumulative effects to grizzlies of the preferred alternative combined with snow removal would be negligible, if any.

Canada Lynx. Depending on when the work occurred, construction for the proposed plan could cause short-term disturbances to lynx and add to the effects of past, ongoing, and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including those identified under the *Commercial Services Plan* and upcoming road rehabilitation. Cumulative impacts would be more pronounced if work occurred during the shoulder seasons, when lynx are accustomed to low levels of human activity. Seasonal snow removal is a low-intensity short-term activity that likely does not measurably affect lynx. Snowplowing could have a slightly increased effect on lynx if construction for the preferred plan occurred during the shoulder season.

Gray Wolf. If wolves are denning or rendezvousing in the project area, they could temporarily be at an increased risk of displacement or habituation from construction for the proposed plan combined with past, ongoing, and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including those identified under the *Commercial Services Plan* and upcoming road rehabilitation. Impacts would be more pronounced if work occurred during the shoulder seasons when human activity is low. Work during the spring shoulder season would especially affect wolves if they are denning nearby. Additional adverse impacts to wolves from the preferred alternative combined with snow removal operations would be incremental, if any.

Golden Eagles. The small-scale construction for Alternative B combined with past, ongoing, and upcoming actions in the project area, including those identified under the *Commercial Services Plan* and upcoming road rehabilitation, could add an incremental level of adverse impact to nesting golden eagles. Impacts would be greater if additional nests within the road corridor are identified and more than one nest becomes affected, or if construction occurs during the spring shoulder season and the early nesting period.

Wolverine. Depending on when work occurred, construction for the proposed plan could cause temporary disturbances to wolverine and incrementally add to the effects of past, ongoing, and upcoming projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including those identified under the *Commercial Services Plan* and upcoming road rehabilitation. Cumulative impacts would increase if work occurred during the shoulder seasons, when wolverines are used to low levels of human activity. Seasonal snow removal is a low-intensity short-term activity that likely does not affect wolverines. Snowplowing could have a slightly increased effect if construction for Alternative B occurred during the shoulder season.

Fisher. As with lynx and wolverine, construction for the proposed plan could cause disturbances to fisher and slightly compound the effects of past, ongoing, and future projects,



including those identified under the *Commercial Services Plan* and upcoming road rehabilitation. Cumulative impacts would be more pronounced if work occurred during the shoulder seasons, when human activity is typically low. Seasonal snow removal is a low-intensity short-term activity that likely does not affect fisher. Plowing could have an increased effect on fisher if construction for the preferred plan occurred during the shoulder season.

Rocky Mountain Bighorn Sheep. Combined with past, ongoing and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas, including those identified under the *Commercial Services Plan*, construction for the preferred alternative would temporarily add to the adverse impacts to bighorn sheep. The level of accumulated impacts would depend on the time of year that work occurs; impacts would be greater for work during the shoulder season when sheep are accustomed to low levels of human activity.

As described for the no action alternative, rehabilitation of the Many Glacier Road would expose bighorn sheep to large scale construction activity, including heavy equipment, construction traffic, and an increased human presence. This exposure would be in addition to the small-scale construction for Alternative B, although much of the proposed work for the preferred alternative would occur as part of the rehabilitation project. If road rehabilitation took place during the high visitor use period, traffic control lines could back vehicles up into sheep crossing areas and increase the chances of sheep becoming habituated or receiving handouts of human food. If road rehabilitation occurred in the shoulder season, sheep that are accustomed to using the road corridor and developed areas during low visitor use periods could be displaced.

Seasonal snow removal operations would not likely affect bighorn sheep. Plowing is short-term, of relatively low-intensity, and is restricted to the road and developed areas. The cumulative effects to sheep of the preferred alternative combined with snow removal would be non-existent to negligible.

Vascular Plants. Under the proposed plan, surveys for moonwort would be conducted prior to ground disturbance, and populations of moonwort would be avoided. There would therefore be no new disturbances to moonwort from the preferred alternative combined with past, ongoing, and future projects in the road corridor and the Many Glacier and Swiftcurrent developed areas.

Conclusion

Adverse, short-term, and site-specific impacts to grizzly bears could occur during the construction period necessary to implement Alternative B, although much of the proposed work for the preferred alternative may occur as part of the FHWA road rehabilitation project. Impacts would be negligible to minor if work was underway during the high visitor use period and minor to moderate for construction during the shoulder seasons. Grizzlies could be temporarily disturbed or displaced by heavy equipment and an increase in human activity near bear crossing areas, and the risk of habituation and food conditioning would temporarily increase.

Construction activity associated with the proposed plan could have adverse, site-specific, and short-term impacts to Canada lynx, wolverine, and fisher depending on when the work occurred. Impacts from work during the high visitor use period would be negligible to minor; impacts from disturbances during the shoulder seasons, when these species are accustomed to low levels of human activity, would be minor to moderate.

Impacts to wolves during the construction period for the proposed plan would depend on the level of wolf activity in the project area. If wolves have dens or rendezvous sites nearby, the risk



of disturbance and habituation would be higher. Impacts from construction would be adverse, short-term, site-specific, and negligible to minor if work occurred during the visitor season. Impacts would be adverse and minor to moderate if work happened during the shoulder seasons, when wolves would be exposed to a higher than usual level of human activity.

If the nest in the road corridor is active, adverse impacts to golden eagles from the small-scale construction for Alternative B would be minor, site-specific, and short-term. Impacts would be minor to moderate if more than one nest becomes affected or if construction occurred during the spring shoulder season when eagles are in the early nesting stages.

Impacts to Rocky Mountain bighorn sheep could occur during the construction period for Alternative B, as sheep could be attracted to minerals exposed by excavation and be at a temporarily increased risk of habituation, food conditioning, and vehicle collisions. Impacts would be adverse, minor to moderate, short-term, and site-specific.

Cumulatively, construction for Alternative B combined with past, ongoing, and future projects would adversely impact threatened and endangered species and species of concern. These impacts would be negligible to moderate and site-specific for grizzly bears and bighorn sheep from the increased potential for displacement and habituation; impacts to grizzlies would be both short and long-term, and impacts to sheep would be short-term. Cumulative adverse impacts to lynx, wolverine, and fisher would be negligible to moderate, short and long-term due to possible displacement; impacts would be site-specific and local for lynx and wolverine, and site-specific for fisher. Cumulative impacts to wolves would be adverse, negligible to moderate, site-specific and local, short and long-term from the potential for habituation and displacement, but would depend on the level of wolf activity in the area. The level of cumulative impacts to each species would depend on when construction for the proposed plan occurred; work during the shoulder season would cause the greater impact from disturbances due to human activity at a time when human presence is typically low.

Once implemented, impacts from Alternative B would be beneficial, minor to moderate, short and long-term, and both site-specific and local for grizzly bears and bighorn sheep. Grizzlies and sheep would be less prone to developing undesired levels of human habituation, they would be at a reduced risk of food conditioning and conflict with people, and they would be less likely to pass habituated behavior on to their offspring. Alternative B would also put grizzly bears and bighorn sheep at a reduced risk of disturbance and displacement from important foraging habitat and travel routes. The preferred alternative would have negligible to minor, beneficial, site-specific, and long-term impacts on Canada lynx, gray wolves, wolverines, and fishers. The proposed speed limit reduction from 45 mph to 35 mph could reduce the risk of injury and mortality from vehicle collisions for these species. The proposed plan's enhanced educational format could indirectly benefit all threatened and endangered species and wildlife species of concern, since education about wildlife could reduce the chances of visitors approaching wild animals. The long-term benefits to wildlife under Alternative B would outweigh the temporary, cumulative, and adverse impacts of construction. Under Section 7 of the Endangered Species Act, the determination for grizzly bears, Canada lynx, and gray wolves would be "may affect, not likely to adversely affect."

Because individual moonwort could be permanently lost, the park would conduct surveys for moonwort and other sensitive plant species prior to implementing the proposed actions. Any identified sensitive plant populations would be avoided. Adverse impacts to moonwort under Alternative B would therefore be negligible to minor and long-term. Short-term and beneficial impacts could occur if dormant seed banks colonize an area in response to disturbance.



Visual Resources

AFFECTED ENVIRONMENT

The Many Glacier Road serves the Many Glacier area and is the only route between the Highway 89 junction at Babb and the Many Glacier Hotel, Swiftcurrent Campground, and Swiftcurrent Ranger station. The road provides visitors with a scenic route through one of the most picturesque areas of the Northern Rockies. When driving the Many Glacier Road, visitors are met with a panorama of rugged mountain peaks along with more intimate views of Lake Sherburne, Swiftcurrent Creek, and Swiftcurrent Lake. Several pullouts along the road enable visitors to pull over, get out of their vehicles and take in the scenery, from nearby meadows and forests to distant snowfields or towering cliffs. Views from the Swiftcurrent developed area are limited by the surrounding vegetation, but vistas from the parking lot are more open and include broad views of neighboring mountain slopes. Portions of the Swiftcurrent Lake Trail are adjacent to the Many Glacier Road, often winding below a steep road shoulder where the road is not immediately visible to hikers. The Many Glacier Road, the Swiftcurrent and Many Glacier developed areas, and portions of the Swiftcurrent Lake Trail in the vicinity of the road are within the Many Glacier visitor service zone (NPS 1999).



Mt. Wilbur, NPS Photo

IMPACT ANALYSIS

METHODOLOGY

The analysis of visual resources was based primarily on the *Many Glacier Hotel Historic District (Additional Documentation and Boundary Increase 1) National Register of Historic Places Registration Form* completed in 2009. This study examined the cultural significance of the road including the visual landscape.

- Negligible:* Effects would not result in any perceptible changes to existing viewsheds.
- Minor:* Effects would result in slightly detectable changes to a viewshed or in a small area or would introduce a compatible human-made feature to an existing developed area.
- Moderate:* Effects would be readily apparent and would change the character of visual resources in an area.
- Major:* Effects would be highly noticeable or would change the character of visual resources by adding human-made features into a mostly undeveloped area or by removing most human-made features from a developed area.
- Short-term:* Would be temporary and removable.
- Long-term:* Would be continual or permanent.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

The viewshed and visual resources along the Many Glacier Road, at the Swiftcurrent Motor Inn, and along the Swiftcurrent Lake Trail would not be changed under the no action alternative. Therefore, there would be no additional impacts on visual resources.

Cumulative Impacts of Alternative A

There would be no cumulative impacts under Alternative A as no new actions are proposed.



Conclusion

There would be no new impacts to visual resources under the no action alternative.

IMPACT ANALYSIS OF ALTERNATIVE B – PREFERRED

The enlargement of four designated pullouts, the formalization of four undesignated pullouts, and the removal of two informal and one designated pullout would result in no change to the viewshed and distant visual resources that are visible from the road. There would be slight, localized visual changes along the road at twelve sites due to alterations to the size and location of pullouts. The proposed trail to the meadow at Apikuni Flat (Site 9) would be a newly visible feature. But the trail would be short, and its design would be in keeping with the overall appearance of the area. A larger pullout with a viewing and gathering area west of the Many Glacier Hotel T intersection (Site 14) would constitute a “readily apparent” change to the site, but its appearance would not differ greatly from that of other pullouts and would remain compatible with the essential visual character of the road. The road shoulder between the Many Glacier Hotel T intersection and the Swiftcurrent parking lot has already become widened from use by hikers and cyclists, and a formalized foot and bicycle path along this road segment would not dramatically alter the appearance of the roadway. The addition of interpretive exhibits at pullouts along the road would bring slight changes to the appearance of each site, but none that would be incompatible.

The visual appearance of the parking lot in front of the Swiftcurrent Motor Inn would change with the addition of a defined observation area at the island. However, the overall design of the parking lot would not change; therefore impacts to visual resources would be minor to moderate depending on the design options shown in Figures 5 and 6. Construction and development of either design would include native vegetation and other features that would be in keeping with NPS rustic design characteristics and the visual appearance of the Swiftcurrent Historic District. The elevated platform in Design II would be more visually intrusive than the at grade observation terrace in Design I, and may be less compatible with surrounding features.

Cumulative Impacts of Alternative B

Beneficial and adverse impacts to visual resources have resulted from actions under the *Commercial Services Plan*, including improvements to the cultural landscape and new housing and facility developments. The proposed actions, including the gathering/viewing area west of the Hotel T intersection, the short trail to the meadow at Apikuni Flat, and the wildlife viewing area at the Swiftcurrent parking lot, would add to the number of developed features in the area. Adverse impacts to visual resources would likely increase during anticipated rehabilitation of the Many Glacier Road, but actions under the preferred alternative would not substantially add to these effects. The cumulative adverse effect on visual resources would be minor, as the essential visual character of the project area would remain intact.

Conclusion

Impacts on visual resources from the expansion, formalization, and removal of pullouts along the Many Glacier Road would be minor, adverse, long-term and site-specific because of the limited number of changes and because changes would only occur along the road corridor within the visitor service zone. Impacts on visual resources from the construction of a short trail to the meadow at Apikuni Flat (Site 9) would be moderate, adverse, long-term and site-specific as this would introduce a development into an otherwise undeveloped site.

Impacts on visual resources from a viewing and gathering area in association with an enlarged pullout west of the Hotel T intersection (Site 14) would be minor, adverse, long-term and site-specific because this action would be a readily apparent change to the current appearance of the site. A formalized foot and bicycle path along the road shoulder between the Hotel T



intersection and the Swiftcurrent parking lot would have negligible to minor, adverse, long-term, and site-specific impacts to visual resources, since an informal trail already exists and any formalization would only slightly change the appearance of the roadway.

Impacts on visual resources from the addition of a designated observation area at Swiftcurrent Motor Inn parking lot would be minor, adverse, long-term, and site-specific as the area is already developed and the feature would be a visible change but would also blend in. Because Design II would be more visually intrusive than Design I, adverse impacts from Design II would be minor to moderate. All proposed developments would be within the visitor service zone. Cumulatively, this alternative would add a minor level of adverse impact to visual resources because it would increase the number of developed features from past, ongoing and future projects, but would not alter the overall visual environment of the project area. Overall cumulative impacts would be adverse and beneficial, negligible to moderate, long-term and site-specific.

Visitor Use and Experience

AFFECTED ENVIRONMENT

The Many Glacier Road connects Montana Highway 89 with the Many Glacier Valley, one of the most scenic and popular areas on the east side of the park. People from the U.S. and Canada visit throughout the year; the road is open to vehicle access from early May to late November and to foot, ski, or snowshoe travel in wintertime. Many Glacier offers many recreational activities including wildlife viewing, day and overnight hiking, lodging and dining at historic hotels, fishing, horseback riding, boating, camping, picnicking, and sightseeing. In 2009, the Many Glacier Valley received over 250,000 visitors.



Watching wildlife at Windy Flats
Photo by Betty Kijewski

Wildlife viewing is becoming more popular throughout the nation. In 2006, the U.S. Fish and Wildlife Service reported that nearly one third of the U.S. population enjoyed observing and photographing wildlife (Leonard 2008). The Many Glacier Valley's popularity among visitors is largely attributable to the area's extraordinary wildlife viewing opportunities. Visitors may see large mammals such as grizzly and black bears, deer, elk, moose, foxes, coyotes, and wolves; several species of small and mid-size mammals; and numerous bird species including hawks, eagles, owls, shorebirds, waterfowl, and wading birds. Visitors are encouraged through educational materials and contact with park rangers to enjoy wildlife from a distance and are given

suggestions on how to view animals without disturbing them. Suggestions such as "fade into the woodwork", "let animals be themselves", "think like an animal", and "use binoculars" are provided and followed most of the time. However, animal "jams" caused by visitors stopping on the road and leaving their cars to see and photograph wildlife up close are very common and occur daily.

IMPACT ANALYSIS

METHODOLOGY

Potential impacts to visitor use and experience of the Many Glacier Road corridor and Swiftcurrent parking lot were evaluated based on staff knowledge of visitor travel patterns and use levels. In the cumulative impacts analysis for this topic, past, ongoing, and future actions



related to visitor use and experience of the road corridor and the Swiftcurrent developed area are considered. Past, ongoing, and future actions at the Many Glacier Hotel are not included because they were determined to be outside the area of effect for cumulative impacts and do not affect visitor use and experience of the road and the Swiftcurrent parking lot.

- Negligible:* Visitors would not be affected, or the changes in visitor use and/or experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.
- Minor:* Changes in visitor use and/or experience detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.
- Moderate:* Changes in visitor use and/or experience would be readily apparent. The visitor would be aware of the effects associated with the alternative.
- Major:* Changes in visitor use and/or experience would be readily apparent and have important consequences. The visitor would be aware of the effects associated with the alternative.
- Short-term:* Occurs only during project implementation or one month.
- Long-term:* Occurs for more than one month or is permanent.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

Visitor use and experience would remain as is under the no action alternative. Visitors would continue to stop at designated and undesignated pullouts along the Many Glacier Road to view wildlife. Because many of these pullouts are narrow, informal, and lack adequate parking delineation, visitors would continue to be frequently forced onto the roadway when getting in and out of their vehicles and parking would remain limited. The persistence of undesignated pullouts at wildlife crossings would potentially place visitors in harm's way and affect wildlife behavior. Over time, wildlife would become increasingly habituated to people in the Many Glacier Valley and along the road corridor, resulting in more risk to visitors from animals that are curious or feel threatened by people who are in close proximity. Animals that become food conditioned as a result of over-habituation would pose an even greater risk to visitors. Habituated or food conditioned animals that become a problem could be removed. Management removals are publicized and can be distressing for members of the public. Numerous wildlife management removals could also eventually diminish visitors' chances of seeing wildlife, thus diminishing the long-term quality of the visitor experience. Under the no action alternative, the lack of a defined, identifiable viewing area at the Swiftcurrent Motor Inn parking lot would continue to leave a number of visitors searching out places within the parking lot for unobstructed views of surrounding mountain slopes. Visitors who wish to set up spotting scopes and watch for wildlife would continue to compete for space with vehicles parked at the median or would be endangered by traffic elsewhere in the parking lot.

Cumulative Impacts Alternative A

Benefits and adverse impacts to visitor use and experience have occurred or are anticipated from past, ongoing, and future actions within the road corridor and at the Swiftcurrent developed area. An extended operating season that has increased opportunities for visitors to experience and enjoy the Many Glacier Valley, preservation of historic features, and safety improvements are among several beneficial actions under the *Commercial Services Plan*.



Improvements to the Many Glacier Road during future road rehabilitation are also anticipated to benefit visitor use and experience. Increased noise, traffic, and other resource impacts as a result of the extended operating season, along with construction activity for past, ongoing, and future actions, have or could adversely affect visitor use and experience in the project area. Construction activity during road rehabilitation could likewise have some temporary adverse impacts to the visitor experience. The no action alternative would contribute long-term adverse effects, including limited parking, risks to human safety from habituated or food conditioned wildlife, degradation of the wildlife resource, and the lack of identifiable viewing areas, to existing and anticipated impacts.

Conclusion

Impacts to the visitor experience under the no action alternative would be negligible to moderate, adverse, long-term, and site-specific and local due to insufficient space to pull over and view wildlife, inadequately designated parking areas, and because of the potential for wildlife to become increasingly habituated or food conditioned. Visitors who wish to sightsee or view wildlife at the Swiftcurrent Motor Inn parking lot would continue to compete for space with traffic and parked vehicles, resulting in minor adverse, long-term and site-specific impacts to the visitor experience. Cumulatively, overall impacts to visitor use and experience would be beneficial, minor to moderate, and long-term from an extended operating season and facility improvements under past, ongoing, and future actions; and negligible to moderate, adverse, site-specific, local, and short and long-term from construction activity and resource impacts under other projects and the no action alternative combined.

Impact Analysis of Alternative B – Preferred

Under the preferred alternative, enlarging some designated pullouts and formalizing some undesignated pullouts would provide more space for visitors to park and view wildlife. Parking would be better delineated, and larger pullouts would enable visitors to get in and out of their vehicles without being forced onto the roadway and be at risk from oncoming traffic.

The removal of one designated pullout and two undesignated pullouts would change where visitors pull over, and some visitors would be affected by not being able to stop at Sheep Curve, which has become a traditional stopping area. But the development of one new pullout west of Sheep Curve would provide a similar experience that is safer for both visitors and wildlife. The benefit to wildlife of removing pullouts from important animal crossing areas would extend to visitor experience over the long term. The potential for animals to become overly habituated and food conditioned would be reduced and wildlife travel patterns would be less prone to disruption, thus better protecting the very resource that so many visitors travel to Many Glacier to enjoy.

The trail to the meadow at Apikuni Flat would offer visitors an opportunity to enjoy a short walk, observe wildlife and scenery away from the roadway, and would lead to an improved vantage point of the meadow. The gathering and viewing area in association with a formalized pullout west of the Hotel T intersection would provide another place where visitors may get out of their vehicles and sightsee or watch wildlife without being too close to the roadway and at risk from oncoming traffic. The formalized foot and bicycle path along the road shoulder between the Hotel T intersection and the Swiftcurrent parking lot would give hikers and cyclists a designated area along a busy section of road, and the reduced speed limit from 45 mph to 35 mph between the entrance station and the Hotel T intersection (approximately) would improve pedestrian and traffic safety. The preferred alternative's proposal to improve orientation to the Iceberg Lake/Ptarmigan Trailhead would also benefit visitor use and experience by making the trailhead easier to find.



A designated observation area at the Swiftcurrent Motor Inn parking lot would facilitate visitor use of the area by providing a defined, identifiable place where visitors can watch for wildlife and set up spotting scopes without having to compete for space with parked vehicles or be at risk from traffic in the parking lot. Design I, the at grade option, would present fewer limits on pedestrian circulation than the elevated platform in Design II. Design I would also be more accessible for the elderly and people with disabilities, since there would be no need for ramps. The entrances to the ramps in Design II could be prone to excessive crowding. Design II, however, could provide a better viewing advantage than Design I because the elevated platform would offer a vantage point above some parked vehicles. Both designs would include improved interpretive resources, but Design I may have more room for additional features than Design II. The elevated platform in Design II may present an increased safety hazard to some visitors, but both designs would include a crosswalk to the motor inn entrance, thus improving safety for pedestrians.

Both Designs I and II would reduce the number of parking spaces at the median, and thus the amount of primary parking near the motor inn. More parking at the median would be retained with the at grade terrace in Design I than with the elevated platform in Design II; six to eight spaces around the median would be lost with Design I and eight to ten spaces would be lost with Design II. With either design, the addition of parking spaces elsewhere in the parking lot and at the Iceberg Lake/Ptarmigan Trailhead would replace some or all of the lost parking.

Installation of the elevated platform in Design II would be more costly than the at grade terrace in Design I. Preliminary cost estimates for Designs I and II are \$79,055.00 and \$399,102.00, respectively. Design I would also be the most sustainable in terms of longer term maintenance costs and labor.

The proposed addition and improvement of interpretive exhibits, a roving interpretive van and Park Ranger with spotting scopes, and other informational materials designed to enhance education and wildlife viewing would benefit the visitor experience throughout the road corridor. Viewing and interpretive opportunities would be especially enhanced at Apikuni Flat (Site 9), west of the Hotel T intersection (Site 14), and at the viewing area at the Swiftcurrent Motor Inn parking lot.

Cumulative Impacts of Alternative B

Benefits and adverse impacts to visitor use and experience have occurred or are anticipated from past, ongoing, and future actions within the road corridor and at the Swiftcurrent developed area. An extended operating season that has increased opportunities for visitors to experience and enjoy the Many Glacier Valley, preservation of historic features, and safety improvements are among several beneficial actions taken under the *Commercial Services Plan*. Improvements to the Many Glacier road during future road rehabilitation are also anticipated to benefit visitor use and experience. Increased noise, traffic, and other resource impacts as a result of the extended operating season, along with construction activity for past, ongoing, and future actions, have or could adversely affect visitor use and experience in the project area. Construction activity during road rehabilitation could likewise have some temporary adverse impacts to the visitor experience. Small-scale construction for Alternative B would temporarily and incrementally contribute to these impacts; the removal of the pullout at Sheep Curve and the reduced number of parking spaces at the Swiftcurrent parking lot median would add longer-term adverse impacts. But Alternative B's improved wildlife viewing opportunities, parking availability, and educational resources would have an overall cumulative benefit to visitor use and experience.



Conclusion

Impacts to visitor use and experience from the preferred alternative would be moderate, beneficial, long-term, and both site-specific and local due to enhanced wildlife viewing opportunities, improved parking availability, additional educational resources, and improved safety. Better orientation to the Iceberg Lake/Ptarmigan Trailhead would also contribute to these long-term, beneficial impacts.

Impacts from the removal of the pullout at Sheep Curve would be minor, adverse, site-specific, and long-term because a traditional and popular pullout would no longer be available. But these impacts would be offset by the development of a new designated pullout to the west.

Impacts to visitor use and experience from a designated wildlife viewing area at the Swiftcurrent parking lot would be moderate and beneficial, and also minor and adverse. Visitors would have an identifiable place to congregate without competing for space with parked vehicles, but some parking spaces near the motor inn would be lost. These impacts would be long-term and site-specific. Both the at grade terrace in Design I and the elevated platform in Design II would have moderate, beneficial, long-term and site-specific impacts on visitor use and experience. But the benefits of Design II may be slightly less pronounced than those for Design I, since Design II would put more limits on pedestrian circulation and would result in a greater number of lost parking spaces from around the median.

Cumulatively, overall impacts to visitor use and experience would be beneficial, minor to moderate, long-term, and site-specific and local from an extended operating season and facility improvements under other projects combined with an improved wildlife viewing experience under the preferred alternative. Negligible to moderate, adverse, site-specific, and short and long-term cumulative impacts would occur from construction activity and resource impacts under other projects and the preferred alternative combined.

Cultural Resources

AFFECTED ENVIRONMENT

Glacier National Park is steward of a wide array of significant cultural resources. The National Historic Preservation Act (NHPA) defines five historic property types: districts, sites, buildings, structures, and objects. The National Environmental Protection Act uses the term cultural resources and defines them as archeological resources, cultural landscapes, structures, ethnographic resources, and museum objects. As of 2010, 368 archeological sites, 371 historic buildings and structures, and one cultural landscape have been documented within the park. Most of the buildings and structures are listed in the National Register of Historic Places. Six buildings and the one documented cultural landscape, the Going-to-the-Sun Road, also are designated National Historic Landmarks. The park has prepared an ethnographic overview documenting the importance of the landscape and features to the Blackfeet, Salish, and Kootenai tribes (Reeves and Peacock 2001).

The National Historic Preservation Act of 1966, as amended (NHPA), and its implementing regulations (36 CFR § 800) require federal agencies, such as the NPS, to identify potentially significant cultural resources within the area of potential effect (APE) of an agency's proposed undertaking and to consider the effects of the undertaking on cultural resources before taking any action. The APE includes the geographic area within which an undertaking might directly or indirectly cause alterations in the character or use of a cultural resource.

The NHPA and its implementing regulations require that the NPS consult with the State Historic Preservation Office (SHPO), Tribal Historic Preservation Offices (THPO), and other interested parties to identify cultural resources within the APE, assess the undertaking's effects,



and seek ways to avoid, minimize, or mitigate any adverse effects on cultural resources.

HISTORIC STRUCTURES

There are several National Register listed and eligible properties within the Many Glacier Valley, including the Many Glacier Hotel Historic District (24GL0864); the Sherburne Ranger Station Historic District (24GL0146); the Swiftcurrent (Many Glacier) Ranger Station Historic District (24GL0154); and the Swiftcurrent Auto Camp Historic District (24GL0884). The park recently completed an amendment to the Many Glacier Hotel Historic District, which added the Many Glacier Road from Babb to the Hotel. The Montana State Historic Preservation Officer has concurred in the eligibility of the road.



Grizzly bear family at the Many Glacier Hotel - Photo by Betty Kijewski

Of the National Register listed and eligible properties within the Many Glacier Valley, only the Many Glacier Hotel and the Swiftcurrent Auto Camp historic districts are within the Area of Potential Effect of the Wildlife Viewing Plan.

Many Glacier Hotel Historic District. The Many Glacier Hotel Historic District was listed in the National Register of Historic Places in 1976; the Secretary of the Interior designated the hotel a National Historic Landmark in 1987; the nomination was amended in 1996 and again in 2010 (Rothfuss 1975, Harrison 1986, Huber 1995a, and Jenks and Hampton 2009). The district includes the Many Glacier Hotel and 14 other buildings, structures, and landscape features. The Many Glacier area was developed from the vision of the Great Northern Railway and its concept of linking grand hotels and backcountry chalets by hiking and riding trails. Most of the buildings are characterized by the railway's vision of Swiss-style architecture, emphasizing its promotional descriptions of Glacier National Park as the "Alps of America." Contributing to the historic significance of the Many Glacier Hotel Historic District is the Many Glacier Road. Under direction of the Bureau of Public Roads, the Many Glacier Road was constructed along its current alignment in 1928-31. Structures associated with construction of the road include the Emanon (Windy Creek), Appekuny (Apikuni), and Swiftcurrent bridges and 80 culverts with concrete and stone headwalls. In 1958, the road was widened, paved, and turnouts were added.

Swiftcurrent Auto Camp Historic District. Located two miles west of the Many Glacier Hotel, the Swiftcurrent Auto Camp Historic District was listed in the National Register of Historic Places in 1996 (Huber 1995b). The auto camp was constructed in the 1930s and is representative of a NPS policy shift toward less formal accommodations from its earlier emphasis on grand hotels. The district is characterized by its rustic architectural characteristics. The camp store, the primary public building and the "gateway" to the complex, displays pioneer construction techniques, including exposed log framing, board and batten siding, and a stone foundation. The 26 cabins, arranged in circular, tipi configurations, continue the rustic theme, although on a more economical and utilitarian scale: lapped siding and shingles covered the exterior walls and the gable roofs.

IMPACT ANALYSIS

METHODOLOGY

In this environmental assessment (EA), impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality (CEQ) that implement the National Environmental Policy Act (NEPA). These impact analyses are not intended, however, to comply with the requirements of Section



106 of the National Historic Preservation Act (NHPA). The Advisory Council on Historic Preservation's regulations implementing Section 106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), require a level of documentation for findings of effect sufficient to understand its basis, i.e. design development drawings for building modifications, which are not available at this time. The park is coordinating compliance with Section 106 and the steps taken to meet the requirements of this EA. This coordination includes public participation, State Historic Preservation Office and Tribal Historic Preservation office consultation, and the identification of historic properties requirements. Findings of effect, however, would be made independently of the NEPA process. A preliminary Section 106 finding of effect is included in the impact analysis sections under the preferred alternative for cultural resource topics.

The preliminary finding of effect was made in accordance with the Advisor Council on Historic Preservation's regulations. Effects to historic properties were identified and evaluated by (1) determining the area of potential effect(s); (2) identifying cultural resources present in the area of potential effects that were either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effect to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either adverse effect or no adverse effect must also be made for affected National Register eligible cultural resources. An adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register (e.g. diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance or be cumulative (36 CFR Part 800.5, Assessment of Adverse Effects). A determination of no adverse effect means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

CEQ regulations and the National Park Service's Conservation Planning, Environmental Impact Analysis and Decision-making (Director's Order 12) also call for a discussion of the appropriateness of mitigation, as well as an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g. reducing the intensity of an impact from major to moderate or minor. Any resultant reduction in intensity of impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest the level of effect as defined by Section 106 is similarly reduced. Although adverse effects under Section 106 may be mitigated, the effect remains adverse.

- Negligible:* Impact is at the lowest levels of detection – barely perceptible and not measurable. For purposes of Section 106, the determination of effect would be no adverse effect.
- Minor:* Treatment would affect the character defining features of a National Register of Historic Places eligible or listed resource, but is in accordance with the Secretary of the Interior's Standards. For purposes of Section 106, the finding of effect would be no adverse effect.
- Moderate:* Treatment would alter a character defining feature(s) diminishing the integrity of the National Register of Historic Places eligible or listed resource to the extent that it is no longer eligible for listing in the National Register. For purposes of Section 106, the finding of effect would be adverse effect.



- Major:* The impact would alter a character defining feature(s) of the National Register of Historic Places eligible or listed resource, diminishing the integrity of the resource to the extent that its designation is threatened. For purposes of Section 106, the determination of effect would be adverse effect.
- Short-term:* Effects extended only through the period of bank stabilization efforts.
- Long-term:* Effects extended beyond the period of bank stabilization efforts.

IMPACTS OF ALTERNATIVE A – NO ACTION

Since there would be no action, Alternative A would cause no effects to historic structures.

Section 106: For purposes of Section 106, Alternative A does not have the potential to cause effects on historic properties, so does not meet the definition of an undertaking. The park would have no obligations under section 106.

Cumulative Impacts of the No Action Alternative

Alternative A would not contribute to impacts from past, ongoing, and future actions as no new activities that affect historic structures would occur.

Conclusion

There would be no impacts to historic structures under the no action alternative. Alternative A would also not contribute to the impacts of past, present, or future actions.

IMPACT ANALYSIS OF ALTERNATIVE B - PREFERRED

Under Alternative B, the proposed plan would primarily impact the Many Glacier Road. The impacts to the road would be changes to the historic parking areas, now called pullouts. The 1958 construction plans for rehabilitation of the Many Glacier Road called for 19 designated pullouts. Seventeen of these pullouts appear to survive today, along with numerous unplanned pullouts that have developed from off-road vehicle parking. The construction plans called for a standard width of 20 feet, but left the actual location and length of the pullouts up to a field decision.

The proposed plan calls for enlarging four and eliminating one of the historic pullouts and formalizing four new pullouts where graveled, undesignated pullouts now exist. The formalized pullouts would be within the boundaries of the Many Glacier Hotel Historic District, so the impacts would be direct as well as visual. Final designs for the enlarged and formalized pullouts would be developed to replicate the historic width and shape of the pullouts. The preferred alternative would have minor, long-term, and adverse impacts on the Many Glacier Hotel Historic District.

The short trail to the meadow at Apikuni Flat (Site 9) and the viewing area at the Swiftcurrent Motor Inn parking lot would be constructed outside the boundaries of the Many Glacier Hotel Historic District and the Swiftcurrent Auto Camp Historic District. The trail and the viewing area would have a visual impact on the districts. In both cases, the developments would be designed to be compatible with their surroundings and not intrusive. The preferred alternative, including pullout modifications and either Design I or II for the wildlife viewing area, would have minor, adverse, long-term, and site-specific and local impacts on the Many Glacier Hotel Historic District.

Section 106: For the purpose of Section 106, the preliminary finding of effect would be no adverse effect.



Cumulative Impacts of Alternative B – Preferred

Rehabilitation of the Many Glacier Hotel and actions taken under the *Commercial Services Plan* has had or would have detectable adverse and beneficial impacts on historic structures. Past, concurrent, and foreseeable projects that would likely increase the impact of this action would primarily be proposed, subject to funding, Many Glacier Road rehabilitation under the Park Roads/Federal Highway Program. Rehabilitation combined with Alternative B would result in some changes to the historic characteristics of the road, a contributing resource to the Many Glacier Hotel Historic District. The proposed rehabilitation work would be designed to meet the Secretary of the Interior’s “Standards for the Treatment of Historic Properties.”

Conclusion

The proposed plan would have minor, adverse, long-term, and both site-specific and local impacts to the Many Glacier Road and the Swiftcurrent Historic District from alterations to pullouts and the construction of viewing areas. Cumulatively, the minor adverse impact of the proposed actions would add an incremental degree of impact to the overall negligible to minor, adverse and beneficial, long-term and site-specific effects on historic structures.

Vegetation/Exotic Plant Species

AFFECTED ENVIRONMENT

A long history of glaciation has created a diverse community of vegetation in the Many Glacier Valley. Along the valley floor, subalpine fir habitat types, or climax forests, generally dominate the lower montane forest. The present overstory is a mix of subalpine fir, Engelmann spruce, lodgepole pine, and occasional Douglas fir. Wetter pockets of aspen and black cottonwood are found throughout the area as well as moist Engelmann spruce forests in ground depressions. Common understory species include huckleberry, dwarf huckleberry, alder, false huckleberry, beargrass, queencup beadlelily, thimbleberry, and cow parsnip. In wetter areas, Solomon’s-seal, asters, false hellebore, and bluejoint reedgrass are more common.

Fescue grasslands are interspersed throughout the montane forest and along the north-facing slopes at mid-elevations. Dominant species include rough fescue, Idaho fescue, wheatgrass, needlegrass, lupine, cinquefoil, shrubby cinquefoil, and kinnikinnick. Several shrublands occur along mid-elevation slopes as well, and are dominated by serviceberry, beargrass, and thimbleberry. Riparian areas are also scattered throughout the montane zone, and include Engelmann spruce-willow communities, willow-alder communities, and herbaceous wetlands consisting of sedges, bulrush, cattails, and bluejoint reedgrass.

The majority of the Swiftcurrent developed area is densely wooded with seral lodgepole pine interspersed with black cottonwood, quaking aspen, subalpine fir, Engelmann spruce, and Douglas fir. The understory is predominantly beargrass with scattered snowberry, false huckleberry, serviceberry, buffaloberry, willow, Utah honeysuckle, chokecherry, queencup beadlelily, and arnica. Much of the understory near structures in this area has been converted to lawn or is dominated by exotic species.

Within the Many Glacier area, there are 670 acres of invasive plant infestations (NPS files). State-listed noxious weeds include spotted knapweed, oxeye daisy, Canada thistle, houndstongue, leafy spurge, Dalmatian toadflax, yellow toadflax, sulfur cinquefoil, tall buttercup, and common tansy. Only 56 acres, or <8%, are within the backcountry. Invasive plant areas are primarily along the Many Glacier Road and near the Many Glacier Hotel, Swiftcurrent Motor Inn concession area, and campground. Some fescue grasslands in the vicinity of Windy Creek, Apikuni Falls trailhead, and Apikuni Flat have been previously



disturbed from human and horse use and contain relatively high amounts of exotic species such as timothy, Kentucky bluegrass, spotted knapweed, and leafy spurge.

IMPACT ANALYSIS

METHODOLOGY

The methodology used to analyze the potential impacts on vegetation is an analysis of expected changes to the vegetation under both alternatives. Changes in surface disturbance and vegetation productivity are assessed. The affected environment for vegetation is limited to the road shoulder environment, pullout developments and modifications, the vegetated island in the Swiftcurrent Motor Inn parking lot and areas immediately adjacent to these features.

- Negligible:* Vegetation would not be affected or the changes would be so slight that they would not be of any measurable or perceptible consequence to the species' population.
- Minor:* Some individual native plants would be affected over a relatively small area, but the effects would be localized, and would be of little consequence to the species' population.
- Moderate:* Some individual native plants would be affected over a relatively wide area or multiple sites and would be readily noticeable. A sizeable segment of a species' population could be affected.
- Major:* A considerable effect on native plant populations would occur over a relatively large area.
- Short-term:* After implementation, would recover in less than 3 years.
- Long-term:* After implementation, would take more than 3 years to recover or effects would be permanent.

IMPACTS OF ALTERNATIVE A – NO ACTION

Few new impacts to vegetation would result from the no action alternative, with no impacts to mature trees and shrubs. Impacts would be limited to grasses, forbs, sedges, and some young shrubs, and would be slightly adverse along the road shoulders and in the Swiftcurrent parking lot island due to continued trampling and compaction from visitors pulling off the road, parking in undesignated areas, and congregating in the island. Exotic plants would continue to proliferate in these perpetually disturbed vegetation communities. Given the limited growing season and the unpredictability of disturbance, native vegetation would not be expected to grow back the following season, or ever, in disturbed areas along the road. The no action alternative would therefore result in long-term, minor, and adverse impacts to vegetation.

Cumulative Impacts of Alternative A

Vegetation along the Many Glacier Road corridor and in the vicinity of the Swiftcurrent Motor Inn parking lot has been disturbed and revegetated as a result of visitor use, previous construction, and routine road maintenance such as mowing and ditch clearing. Past, ongoing and upcoming facility upgrades and rehabilitation projects in the Many Glacier and Swiftcurrent developed areas, including those identified under the *Commercial Services Plan*, have had or would have minor, long-term beneficial impacts to vegetation from restoration and trampling reduction, and minor, long-term adverse impacts due to ground disturbance and vegetation removal. Additional impacts would be expected during anticipated rehabilitation of the Many Glacier Road. The no action alternative would add minor long-term disturbances to the cumulative adverse impacts to vegetation from continued trampling and compaction.



Conclusion

Under the no action alternative, continued trampling and compaction from visitors pulling off the road, parking in undesignated areas, and congregating in the island would cause long-term, minor, and adverse impacts to vegetation. Impacts would be site-specific along the Many Glacier Road shoulders and at the island in the Swiftcurrent Motor Inn parking lot.

Cumulatively, impacts to vegetation from the no action alternative combined with past, present, and future actions would be minor, adverse, site-specific and long-term due to continued trampling, loss of vegetation, and encroachment of exotic species in disturbed plant communities.

IMPACT ANALYSIS OF ALTERNATIVE B - PREFERRED

Actions from the preferred alternative would not affect mature vegetation such as trees and shrubs. Impacts to roadside grasses, sedges, and young shrubs would be minor and adverse since the removal, enlargement, or development of pullouts would cause disturbance to plants. Removed pullouts would be reclaimed with native vegetation; adverse impacts to these sites would therefore be short-term, since areas of temporary disturbance would likely recover through restoration as demonstrated in past projects of this nature. Vegetation removed from some areas could be used in the reclamation process, depending on the presence of noxious weeds. Improved delineations of pullouts and parking areas would minimize off-road vehicle parking and could have beneficial, long-term effects on vegetation.

A designated viewing area at the Swiftcurrent parking lot, using either Design I or II, and a gathering area at a pullout west of the Many Glacier Hotel T intersection would cause some vegetative disturbance and would permanently alter the vegetative environment at each site. But the long-term result could ultimately be beneficial as visitor use would be concentrated onto surfaced areas rather than on native soils and plants. The construction of a short trail to the meadow at Apikuni Flat would result in a permanent loss of plants over a small, localized area. Vegetation along the road shoulder between the Hotel T intersection and the Swiftcurrent parking lot has already been disturbed by hikers and bicyclists, and a formalized foot and bicycle path along this section of road would not result in much additional disturbance. The installation of interpretive exhibits at pullouts could cause vegetative disturbance; the amount of disturbance would depend on whether the exhibit is placed on or off the pavement and whether or not post-holes are dug. However, this disturbance would be limited to roadsides and would not impact vegetation beyond areas of existing disturbance. Up to one or two acres could be affected by the proposed actions, including new disturbance and reclamation.

Cumulative Impacts of Alternative B

As described for the no action alternative, vegetation along the road corridor and at Swiftcurrent parking lot has been previously disturbed from visitor use, routine road maintenance, and actions including those identified under the *Commercial Services Plan*; additional impacts would be anticipated during upcoming road rehabilitation. Disturbances from the proposed plan would result in minor additions to existing and anticipated adverse impacts, and improved delineation of parking and congregating areas could increase the cumulative benefits to vegetation.

Conclusion

Alternative B would require removal of vegetation from previously undisturbed sites and would cause a minor but permanent loss of vegetation at some locations. This alternative would also restore vegetation and would concentrate visitor use on surfaced areas, potentially minimizing long-term impacts to some vegetated areas. Impacts to vegetation under this alternative would therefore be minor, adverse and beneficial, short and long-term, and site-specific to the Many



Glacier Road shoulders, Apikuni Flat, and the island at Swiftcurrent parking lot. Cumulatively, adverse and beneficial impacts to vegetation from past, present and future actions would increase slightly under the preferred alternative, with overall impacts to vegetation that would be minor, adverse and beneficial, short and long-term, and site-specific.

Soil

AFFECTED ENVIRONMENT

The Many Glacier Valley exhibits a diversity of soil types due to the glaciation processes that formed the landscape. Limestone rock outcrops and shallow limestone soils dominate along the Continental Divide; quartzite and argillite rock outcrops, rock outcrops and shallow soils, mixed rock outcrops and ice-patterned soils, and mixed glacial and colluvial soils dominate high to mid-elevations away from the Continental Divide. The valley floor is dominated by mixed conifer and aspen forest soils with small pockets of deep, rocky colluvial and landslide soils along with clay-rich grassland soils.

The soil along the Many Glacier Road is mostly clay-rich conifer forest soil which is common on lateral moraines and landslides on the eastern side of the park. This type of soil is deep, well-drained and formed in clay loam and silty clay loam glacial drift of landslide deposits (Dutton 2001). The surface soils contain volcanic ash-rich wind deposits while subsoil is gravely or very gravely clay loam or silty clay loam with rock content increasing with depth (Dutton 2001). This soil type can be found adjacent to the road along Lake Sherburne until Apikuni and Cracker Flats, where rocky sand and alluvial soils for grasslands and forests begin. Soils along streams and near the confluences of streams include grassland soils on glacial outwash terraces or forest soils on alluvial fans and stream terraces (Dutton 2001).

The Swiftcurrent developed area is dominated by rocky and sandy alluvial forest soils (Dutton 1989). The site occupies an alluvial terrace of Swiftcurrent Creek, and these alluvial forest soils have a surface layer of loam or sandy loam with sandy textures below. The soil is rocky throughout and rock content increases with depth. These soils are well suited for many development activities, including foundations, roads, and trails due to their sandy texture and high rock content. They are rated moderate to high for productivity and high for roads and trails. They are rated high for weed invasion potential due to their sandy texture. Erosion potential is rated moderate, but these soils are protected from erosion by a layer of partially decomposed plant litter. Waste disposal is rated moderate due to porous subsoil, which may not provide adequate treatment and may allow wastes to move rapidly to surface or groundwater.

IMPACT ANALYSIS

METHODOLOGY

The affected environment for soils is limited to the Many Glacier and Swiftcurrent developed areas and the area immediately adjacent to Many Glacier Road.

- Negligible:* Soil productivity or soil fertility would not be affected or the effect would be below or at the lower end of detection. Any effects to soil productivity or soil fertility would be slight and not measurable.
- Minor:* The effects to soil productivity or soil fertility would be detectable, but small. The area affected would be local.
- Moderate:* The effect to soil productivity or soil fertility would be readily apparent. Effects would result in a change in soils over a relatively wide area or multiple locations.



Major: The effect on soil productivity or soil fertility would be readily apparent and would substantially change the character of soils over a large area.

Short-term: After implementation, would recover in less than 3 years.

Long-term: After implementation, would take more than 3 years to recover or effects would be permanent.

IMPACTS OF ALTERNATIVE A – NO ACTION

New impacts would not be anticipated under the no action alternative, but existing impacts would continue unabated. Soil compaction would be ongoing as visitors continue to park indiscriminately along road shoulders and congregate in the island at Swiftcurrent parking lot, as well as in adjacent areas. Impacts to soils from the no action alternative would therefore be adverse, minor, and long-term.

Cumulative Impacts of Alternative A

Soils in the Many Glacier Road corridor have a long history of disturbance, beginning with the construction of the Many Glacier Road and developed areas. Current maintenance activities including mowing, plowing, road shoulder stabilization, and sign maintenance are expected to continue. Ditch clearing to remove accumulated gravel and debris and maintain adequate drainage occurs regularly, oftentimes requiring the use of a backhoe or other heavy equipment. Disturbances from ongoing and upcoming facility upgrades and rehabilitation projects in the Many Glacier and Swiftcurrent developed areas, including those identified under the *Commercial Services Plan*, have had or would have minor adverse impacts to soils. Additional impacts would be anticipated during upcoming rehabilitation of the Many Glacier Road. Under the no action alternative, soil compaction from heavy visitor use at unpaved pullouts and at the Swiftcurrent parking lot island would be ongoing, adding to the cumulative adverse impacts to soils.

Conclusion

Soil compaction that is already occurring along the Many Glacier Road and in the Swiftcurrent developed area due to heavy visitor use would continue unabated under the no action alternative, causing adverse, minor, long-term and site-specific impacts. Cumulatively, this level of impact would persist from continued compaction under Alternative A combined with past, present and future actions.

IMPACT ANALYSIS OF ALTERNATIVE B - PREFERRED

The enlargement and formalization of pullouts under the preferred alternative would require excavation of previously undisturbed soils and would additionally disturb already impacted areas. Soil excavation and disturbance would also be expected during construction of the trail to the meadow at Apikuni Flat, the viewing/gathering area west of the Hotel T intersection, and the foot and bicycle path between the Hotel T intersection and the Swiftcurrent developed area. Construction of the viewing area at Swiftcurrent parking lot would also cause disturbance to soils; similar levels of disturbance would be expected from both the at grade terrace in Design I and the elevated platform in Design II. Soils surrounding proposed construction sites could be compacted and topsoil could be degraded or disturbed. The installation of interpretive exhibits could cause soil disturbance if the exhibits are placed off the pavement or post-holes are dug. Up to one or two acres along the road would likely be affected by the proposed actions, including disturbed and reclaimed areas. Soils would benefit from vegetation restoration at reclaimed pullouts. Where feasible, native soils would be salvaged prior to construction and replaced as part of the restoration process. The preferred alternative could reduce compaction



and benefit soils by redirecting visitor use away from the road shoulders and onto designated parking and wildlife viewing areas.

Cumulative Impacts of Alternative B

As described for the no action alternative, soils in the Many Glacier Road corridor have a history of disturbance that has resulted in minor adverse impacts to soils, and additional impacts would be anticipated during future road rehabilitation. Minor additions to existing and anticipated adverse impacts to soils would occur from excavation and disturbance under Alternative B. Cumulative benefits to soils could also increase slightly from the proposed plan's improved delineation of parking and congregating areas.

Conclusion

Alternative B would cause a permanent loss of soil function and productivity at small and localized areas, but visitor use would be better directed to surfaced areas and away from soils. Impacts to soils would therefore be minor, adverse and beneficial, short and long-term, and site-specific. Up to one or two acres could be affected by the proposed actions, including disturbed and revegetated areas. Cumulatively, adverse and beneficial impacts to soils from past, present and future actions would increase slightly under the preferred alternative, with overall impacts to soils that would be minor, adverse and beneficial, short and long-term, and site-specific.

Human Health and Safety

AFFECTED ENVIRONMENT

Visitors from around the world drive the Many Glacier Road each year to access the Many Glacier Valley and enjoy numerous attractions and recreational opportunities. The road provides unique chances for visitors to observe wildlife, and wildlife viewing is one of the more popular activities. Dozens of people may congregate at a pullout or on the roadside to view wildlife, sometimes at a distance and sometimes at very close range. Some of these pullouts are not designated, but have developed over time from visitors pulling off the side of the road. These undesignated pullouts often do not have enough room for visitors to safely pull all the way off the road, and vehicles are often parked partially within traffic lanes. Some of the designated pullouts lack adequate parking to accommodate the number of visitors who may wish to park there, and parking spaces are not always well delineated.



*Wildlife jam at Windy Flats
Photo by Betty Kijewski*

Some of the pullouts along the Many Glacier Road abut or are very near areas where wildlife naturally and frequently cross the road. Wildlife road crossings may occur where topography funnels animal movements; where food, water, or shelter is nearby; or where there are historic wildlife travel routes. Oftentimes, if a bear, moose, sheep, or other animal is on the road, visitors will stop to watch and large numbers of vehicles and pedestrians may concentrate in the road lanes or on the road shoulder. These wildlife “jams” are known to occur on a daily or even hourly basis in the summer, when the visitor season is at its peak. Traffic congestion and hazardous road

conditions arise when visitors stop their vehicles in the road and block traffic. Wildlife jams put drivers at risk of motor vehicle collisions, and pedestrians are endangered by moving vehicles. Drivers may be distracted, increasing the chances of a collision with a person or animal.

When wildlife are within close range, some visitors may be tempted to approach animals too closely, risking their own safety as well as that of the animal. Some animals may feel threatened



when approached by people, and can become aggressive when protecting themselves or their young. Some wildlife species may become overly familiar with humans if they are continuously exposed to people at close range. Bears are especially susceptible to developing over familiarity with people, and are thus at a greater risk of obtaining human food rewards. A food conditioned bear presents a risk to human safety if it seeks food from campgrounds, picnic areas, and developed sites.

The Many Glacier Road is currently posted with a 45 mph speed limit between the entrance station and the Many Glacier Hotel T intersection. Some pullouts are located on curves with poor visibility up or down the road. These low-visibility areas combined with the 45 mph speed limit present a hazard to motorists and pedestrians.

IMPACT ANALYSIS

METHODOLOGY

The methodology used to analyze the potential impacts to human health and safety is an assessment of expected changes to health and safety under both alternatives. In the cumulative impacts analysis for this topic, past, ongoing, and future actions related to health and safety along the road corridor and at the Swiftcurrent developed area are considered. Past, ongoing, and future actions at the Many Glacier Hotel are not included because they were determined to be outside the area of effect for cumulative impacts and do not affect human health and safety along the road or at the Swiftcurrent parking lot. The following levels of impacts were defined:

Negligible: Effects would not result in any perceptible changes to existing human health and safety.

Minor: Effects would result in slightly detectable changes to human health and safety.

Moderate: Effects would be readily apparent and would bring about changes to health and safety that would be noticeable to staff and the public.

Major: Effects would be highly noticeable or would substantially change human health and safety from existing levels.

Short-term: Would last for the duration of the project.

Long-term: Would last longer than the duration of the project.

IMPACT ANALYSIS OF ALTERNATIVE A – NO ACTION

Existing adverse impacts to human health and safety would continue under Alternative A. No action would be taken to improve the ability of visitors to pull completely and more safely off the road in areas where narrow, undesignated pullouts have developed. Pullouts at areas where wildlife naturally and frequently cross the road would remain, and conditions that could lead to dangerous encounters with animals would be unchanged. Large numbers of vehicles and pedestrians would continue to concentrate on and along the road, causing hazardous conditions for motorists and pedestrians. The potential for bears and other wildlife to become overly familiar with people or obtain human food would not be addressed. The existing 45 mph speed limit would remain, presenting risks to pedestrians on the road and to motorists entering and exiting pullouts on curves with low visibility.

Cumulative Impacts of Alternative A

Risks to human health and safety under the no action alternative could increase slightly when combined with the temporary, negligible to minor hazards of construction for past, ongoing, and future facility upgrades and restorations, including actions identified by the *Commercial Services Plan* and the anticipated rehabilitation of the Many Glacier Road. Hauling trucks and



other construction traffic could present negligible to minor risks, especially to pedestrians, and unsafe traffic conditions under the no action alternative could exacerbate these risks.

Conclusion

The no action alternative would have minor to moderate, adverse and long-term impacts to human health and safety. The potential for motor vehicle collisions, injury to pedestrians, and dangerous encounters with wildlife would go unabated. These impacts would primarily be site-specific to the Many Glacier Road. They could also become local if animals that become food conditioned or overly familiar with humans present risks to campers and hikers elsewhere in the drainage. Cumulatively, the temporary negligible to minor hazards of construction for past, ongoing, and future actions combined with risks from unsafe parking and traffic conditions, continued close contact with wildlife, and a 45 mph speed limit under the no action alternative would be negligible to moderate, site-specific and local, and short and long-term.

IMPACT ANALYSIS OF ALTERNATIVE B – PREFERRED

The preferred alternative would minimize hazards posed by traffic congestion, pedestrians on a busy roadway, excessive speed, and poor visibility at pullouts. The enlargement of several designated pullouts and the formalization of some undesignated, narrow pullouts would enable visitors to safely pull a vehicle all the way off the roadway and park without blocking traffic. These enlarged pullouts would also improve pedestrian safety, since people would be less frequently forced onto the roadway when leaving or entering their vehicles. Formalization of the pullout at Site 14 west of the Hotel T intersection would reduce pedestrian traffic across the road by eliminating the pullout on the north side of the road, thereby improving pedestrian safety. Traffic hazards to pedestrians and bicyclists would be reduced by the formalization of a foot and bicycle path along the road shoulder between the Hotel T intersection and the Swiftcurrent developed area. Reducing the speed limit from 45 mph to 35 mph between the entrance station and the Hotel T intersection (approximately) would improve safety at pullouts with poor visibility and reduce risks to pedestrians.

Pullouts that abut or are very near naturally occurring wildlife crossings would be removed. While this action would not entirely prevent undesignated parking or wildlife jams, the absence of pullouts at crossing areas would reduce the potential for large numbers of vehicles and pedestrians to concentrate near wildlife. This would lessen the chances of people approaching wildlife too closely, thus minimizing the likelihood of dangerous encounters with wildlife. The potential for bears and other animals to become overly familiar with humans or receive human food rewards would also be reduced, thereby minimizing risks posed by over-habituated and food conditioned animals.

Visitor safety would benefit from a designated viewing area at the Swiftcurrent Motor Inn parking lot, since it would give visitors an identifiable place to watch wildlife and set up spotting scopes without being at risk from traffic in the parking lot. The elevated structure in Design II may present a negligible hazard to some visitors.

Cumulative Impacts of Alternative B

Construction activity during numerous facility upgrades and restorations, including actions identified by the *Commercial Services Plan* and the upcoming rehabilitation of the Many Glacier Road, could cause temporary, negligible to minor risks to human health and safety. Hauling trucks and other construction traffic along the road could present a hazard to pedestrians. There have also been long-term, moderate benefits to human health and safety under the *Commercial Service Plan*, namely from the improvement of walkways at the Swiftcurrent developed area. Cumulatively, the preferred alternative would add a short-term and incremental risk to human health and safety during the construction period, but would also add



to existing long-term benefits.

Conclusion

Overall impacts to human health and safety under Alternative B would be beneficial, minor to moderate and long-term because the potential for motor vehicle collisions, injury to pedestrians or bicyclists, and dangerous encounters with wildlife would be minimized. These impacts would primarily be site-specific to the Many Glacier Road. But they would also be local since the potential for animals to become habituated or food conditioned, and thus pose a threat to people elsewhere in the drainage, would be reduced. Cumulatively, overall benefits from the preferred alternative combined with those from past, ongoing, and future actions would be long-term, moderate, site-specific, and local. Cumulative but temporary hazards presented by construction activity for the preferred alternative and other projects would be negligible to minor, short-term, site-specific and local.



COMPLIANCE REQUIREMENTS

National Environmental Policy Act (NEPA) and Regulations of the Council on Environmental Quality – The National Environmental Policy Act applies to major federal actions that may significantly affect the quality of the human environment. This generally includes major construction activities that involve the use of federal lands or facilities, federal funding, or federal authorizations. This EA meets the requirements of the NEPA and regulations of the Council on Environmental Quality in evaluating potential effects associated with activities on federal lands. If no significant effects are identified a finding of no significant impacts (FONSI) would be prepared. If significant effects are identified a notice of intent (NOI) would be filed for preparation of an environmental impact statement (EIS).

Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) – Section 7 of the Endangered Species Act is designed to ensure that any action authorized, funded, or carried out by a federal agency likely would not jeopardize the continued existence of any endangered or threatened plant or animal species. If a federal action may affect threatened or endangered species, then consultation with the U.S. Fish and Wildlife Service is required. In accordance with Section 7, the NPS determined that the proposed action “**may affect, but not likely to adversely affect**” **grizzly bears, Canada lynx, and gray wolves**. The NPS determined “No Effect” to bull trout. A biological assessment will be submitted to the USFWS along with a copy of this EA for their review and concurrence.

Clean Water Act (CWA) and Montana Stream Protection Act – The U.S. Army Corps of Engineers (COE) is responsible for authorizing the placement of fill into waters of the U.S. and filling of wetlands under Section 404 of the Clean Water Act. No wetlands would be filled from project implementation. The Montana Stream Protection Act and the State’s responsibility under the Clean Water Act are responsible for dredging and removal of materials from streams. Necessary permits from the COE, Montana Department of Fish, Wildlife and Parks and the Department of Environmental Quality would be obtained.

Executive Order 11990, Protection of Wetlands – This order requires federal agencies to avoid, where possible, impacts to wetlands. The NPS is guided by the 2006 *Management Policies* and Director’s Order 77-1: *Wetland Protection*. No wetlands would be affected by this project.

Executive Order 11988, Floodplain Management – Executive Order 11988 *Floodplain Management* requires all federal agencies to avoid construction within the 100-year floodplain unless no other practicable alternative exists. The NPS is guided by the 2006 *Management Policies* and Director’s Order 77-2: *Floodplain Management*. The service will strive to preserve floodplain values and minimize hazardous floodplain conditions. Because there would be no impacts to floodplains in the project area, this topic was dismissed; therefore a SOF was not prepared.

National Historic Preservation Act of 1966, as amended (16 U.S.C. 470, et. seq.)— Section 106 of the National Historic Preservation Act of 1966 (as amended) requires all federal agencies to consider effects from any federal action on cultural resources eligible for or listed on the National Register of Historic Places (NHRP), prior to initiating such actions. For Section 106 purposes, the preliminary finding for the undertaking will have no adverse effect upon historic properties.



CONSULTATION/COORDINATION

PREPARERS

Shawn Garrow, Engineer/Equipment Operations Leader (retired)-park operations

Bill Hayden, Supervisory Park Ranger- plan actions development and visitor experience

Joyce Lapp, Horticulturalist – Vegetation and soil sections.

Lon Johnson, Cultural Resource Specialist – Cultural and Historic Resource sections, SHPO consultation

Gary Moses, Supervisory Park Ranger-park operations and visitor experience

Dave Page, Park Ranger-park operations, visitor experience

Mary Riddle, Team Captain – project description, alternatives, and document compilation; editing, formatting, supervision, and quality review; coordinates internal and regional reviews and agency consultation

Amy Secrest/Karen Stockmann (resigned), Compliance Biological Science Technicians – assisted with preparation of the Plan/EA, particularly the wildlife section, T&E species section, and Biological Assessment; assisted with editing, formatting, and compilation

Pat Thomas, Landscape Architect, plan design

Mark Wagner, Hudson Bay District Interpreter, co-Team Captain – project description/plan concept design/visitor experience

John Waller, Wildlife Biologist – wildlife and T&E sections, Biological Assessment.

AGENCIES/ TRIBES/ ORGANIZATIONS/ INDIVIDUALS CONTACTED (EA RECIPIENTS)

Federal and International

Advisory Council on Historic Preservation

Max Baucus, United States Senate

Jon Tester, United States Senate

Dennis Rehberg, United States House of Representatives

Flathead National Forest (Kalispell, Hungry Horse)

U.S. Army Corps of Engineers

U.S. Environmental Protection Agency

U.S. Fish and Wildlife Service (Helena and Creston)

U.S. Geological Survey, Biological Resources Division

U.S. Department of the Interior, Office of the Solicitor

Waterton Lakes National Park, Canada

Premier of the Province of Alberta, Honorable Ed Stelmach

Western Federal Lands Highway Administration



State

Environmental Quality Council, Director, Helena
Montana Department of Environmental Quality, Board of Environmental Review
Montana Department of Environmental Quality Permitting & Compliance, Helena
Montana Department of Environmental Quality, Water Protection Bureau
Montana Department of Environmental Quality, Air Quality Division
Montana Department of Natural Resources and Conservation
Montana Fish, Wildlife, and Parks, Region One Supervisor, Kalispell
Montana State Historic Preservation Office
Brian Schweitzer, Governor of Montana
Stillwater State Forest

Tribes

Willie A. Sharp, Jr., Chair, Blackfeet Tribal Business Council w/copies to Tribal Council
and the Blackfeet Tribal Historic Preservation Office
E.T. Moran, Chair, Confederated Salish and Kootenai Tribes of the Flathead
Reservation w/copies to Tribal Council and Confederated Salish and Kootenai Tribal
Historic Preservation Department

County and City

Chair, Flathead County Board of Commissioners
Glacier County Commissioners
Mayors and City Councils of Browning, Kalispell, Columbia Falls, and Whitefish, MT
Public Libraries: Bigfork, Columbia Falls, Kalispell, Whitefish, MT

Private

Friends of the Wild Swan
Glacier National Park Fund
Glacier Natural History Association
Glacier Park Inc.
Glacier Park Foundation
Glacier Raft Company
Glacier Waterton NP Visitor Association
Great Northern Whitewater Resort
Montana Preservation Alliance
Montana Raft Company
Montana Wilderness Association
National Parks Conservation Association
National Trust for Historic Preservation, Mountain/Plains Office
Wilderness Watch
Wild River Adventures

Individuals

A complete list is available upon request

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APPENDIX A – IMPAIRMENT

National Park Service's *Management Policies* 2006 require analysis of potential effects to determine whether or not actions would impair park resources (NPS 2006). The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, begins with a mandate to conserve park resources and values. National Park Service managers must always seek ways to avoid, or to minimize to the greatest degree practicable, actions that would adversely affect park resources and values.

However, the laws do give the National Park Service the management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that the National Park Service must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of these resources or values. An impact to any park resource or value may, but does not necessarily, constitute impairment, but an impact would be more likely to constitute impairment when there is a major or severe adverse effect upon a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- key to the natural or cultural integrity of the park; or
- identified as a goal in the park's general management plan or other relevant NPS planning documents.

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to pursue or restore the integrity of park resources or values and it cannot be further mitigated.

The park resources and values that are subject to the no-impairment standard include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.



Impairment findings are not necessary for visitor use and experience, socioeconomic, public health and safety, environmental justice, land use, and park operations, because impairment findings relate back to park resources and values, and these impact areas are not generally considered park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values.

Impairment may result from National Park Service activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. The NPS's threshold for considering whether there could be impairment is based on whether an action would have **major (or significant)** effects. The following analysis evaluates whether or not the applicable resources carried forward in this document would be impaired by the preferred alternative.

- **Wildlife.** Glacier National Park was established to protect natural and cultural resources and the park's wildlife contribute to GNP's significance as one of the most ecologically intact areas in the temperate regions of the world. This project would cause temporary disturbance to wildlife during the construction of viewing areas, a short trail to the meadow at Apikuni Flat, and the development or removal of pullouts along the Many Glacier Road. Using the above criteria, wildlife are necessary to fulfill the purposes for which the park was established; are key to the natural integrity of the park and opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although wildlife is a significant resource at the park, the preferred alternative would only result in negligible to moderate, short-term, site-specific adverse impacts to wildlife; therefore, there would be no impairment to wildlife.
- **Threatened and Endangered and Species of Concern.** Glacier National Park was established to protect natural and cultural resources. The park's threatened and endangered species and species of concern contribute to GNP's significance as one of the most ecologically intact areas in the temperate regions of the world. This project would temporarily disturb threatened and endangered species and species of concern during the construction of viewing areas, a short trail to the meadow at Apikuni Flat, and the development or removal of pullouts along the road. Using the above criteria, threatened and endangered species and species of concern conservation are key to the natural integrity of the park and the larger region and opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although threatened and endangered species and species of concern are a significant resource at the park, the preferred alternative would only result in negligible to moderate, short-term, site-specific adverse impacts to threatened and endangered species and species of concern; therefore, there would be no impairment to threatened and endangered species and species of concern.
- **Visual Resources.** Glacier National Park was established to provide opportunities to experience, understand, appreciate, and enjoy the park, and much of GNP's significance is attributable to the park's visual resources, including spectacular scenery, unimpaired viewsheds, and the natural, cultural and historic landscape. This project involves alterations to the appearance of the Swiftcurrent Motor Inn parking lot and pullouts along the Many Glacier Road, and would include a small but noticeable trail to the meadow at Apikuni Flat. Using the above criteria, visual resources are necessary to fulfill the purposes for which the park was established; are key to the natural and cultural integrity of the park and opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although visual resources are a significant



resource at the park, the preferred alternative would only result in negligible to moderate, long-term, site-specific adverse impacts to visual resources; therefore, there would be no impairment to visual resources.

- **Historic Structures.** Glacier National Park was established to protect natural and cultural resources, and the park's historic structures chronicle the long, diverse, and significant history of human activities. This project involves the alteration of pullouts along the Many Glacier Road, which is a national register property, contributes to the historic significance of the Many Glacier Hotel Historic District, and the development of a viewing area outside the boundaries of the Many Glacier Hotel Historic District and the Swiftcurrent Auto Camp Historic District. Using the above criteria, historic structures are necessary to fulfill the purposes for which the park was established; are key to the natural integrity of the park and opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although historic structures are a significant resource at the park, the preferred alternative would only result in minor, long-term, site-specific and local adverse impacts to historic structures; therefore, there would be no impairment to historic structures.
- **Vegetation and Soils.** Glacier National Park was established to protect natural and cultural resources, and the park's vegetation and soils contributes to GNP's significance as one of the most ecologically intact areas in the temperate regions of the world and to GNP's long and significant geologic history. This project involves the disturbance of vegetation and soils at pullouts along the Many Glacier Road, at Apikuni Flat, and at the Swiftcurrent Motor Inn parking lot median. Using the above criteria, vegetation and soils are necessary to fulfill the purposes for which the park was established; are key to the natural integrity of the park and opportunity for enjoyment of the park; and are identified as being significant in park planning documents. Although vegetation and soils are significant resources at the park, the preferred alternative would only result in minor, long-term, site-specific adverse impacts to vegetation and soils; therefore, there would be no impairment to vegetation and soils.





As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historical places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

