



IN REPLY REFER TO:

## United States Department of the Interior

NATIONAL PARK SERVICE  
Glacier National Park  
West Glacier, Montana 59936

L76-GLAC-01-025  
FES 03-024

Dear Friends:

Enclosed is the Going-to-the-Sun Road Rehabilitation Plan/Final Environmental Impact Statement for Glacier National Park. This plan identifies the National Park Service's preferred alternative to rehabilitate the road and summarizes public comment on the Draft Environmental Impact Statement. It also contains our responses to substantive public comments that were raised during the review period.

We have made several changes to the preferred alternative and impact assessment following receipt of public comments, completion of the 2002 visitor survey and information that recently became available. The basic components including schedule and traffic management remain the same. Principal modifications are to visitor use facilities for the preferred alternative. The Baring Creek Cabin Trailhead Parking Area was eliminated from consideration because of the potential impacts to grizzly bear and other wildlife in this area. Use of Logan Pit as an oversized vehicle turnaround and parking area following rehabilitation was eliminated because of the potential effect on harlequin ducks and streamside resources. Minor improvements to a few existing pullouts along the road were added. In addition transit service under the preferred alternative was expanded to provide 14 shuttle vehicles operating ½ hour intervals to improve the level of service.

Thirty days from the release of this Final Environmental Impact Statement, a Record of Decision will be issued on the preferred alternative as described in this plan. A copy of the Record of Decision will be sent to you. This Final Environmental Impact Statement is also available on the web at [www.nps.gov/glac/plans.htm](http://www.nps.gov/glac/plans.htm). If you have any questions or concerns please write to Superintendent, Glacier National Park, P.O. Box 128, West Glacier, Montana, 59936 Attn: GTSR FEIS or email to [glac\\_public\\_comments@nps.gov](mailto:glac_public_comments@nps.gov)

Thank you for your ongoing participation in this critical effort to preserve one of Glacier National Park's national historic landmarks.

Sincerely,

/signed/ Jerry O'Neal

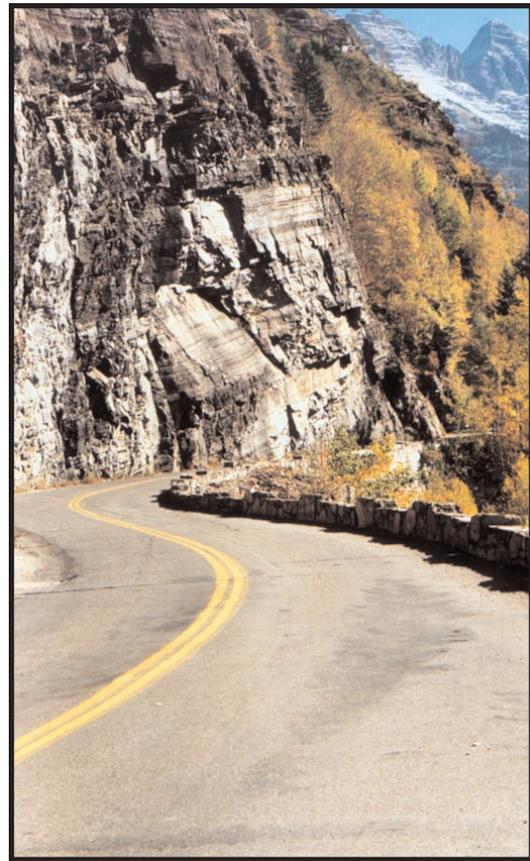
Authenticated by Donna Owen 5/13/03

Michael O. Holm  
Superintendent

Enclosure (1)  
L76-GLAC-01-025  
FES 03-024



# Going-to-the-Sun Road Rehabilitation Plan/Final Environmental Impact Statement



Glacier National Park

Waterton-Glacier International Peace Park  
The World's First International Peace Park

A World Heritage Site

April 2003

**Going-to-the-Sun Road  
Rehabilitation Plan/Final Environmental Impact Statement**

**Glacier National Park**

**U.S. Department of the Interior  
National Park Service**

**Federal Highway Administration  
Cooperating Agency**

**April 2003**

# **Going-to-the-Sun Road Rehabilitation Plan/Final Environmental Impact Statement**

## **Glacier National Park**

---

---

### **Waterton-Glacier International Peace Park The World's First International Peace Park A World Heritage Site**

**April 2003**

---

---

*Prepared by the U.S. Department of the Interior, National Park Service  
in cooperation with the  
Federal Highway Administration, Western Federal Lands Highway Division*

**Abstract:** Glacier National Park is considering the rehabilitation of the 50-mile (80-kilometer) Going-to-the-Sun Road, a National Historic Landmark. Road rehabilitation is needed to correct structural deficiencies in the deteriorating roadway, improve safety, preserve historic and cultural resources, provide a safe and pleasant driving experience, and to upgrade visitor use facilities adjacent to the Road such as parking and pullouts, and roadside trails. To fully consider the options for improvements, four alternatives including a No Action Alternative were evaluated. The National Park Service's Preferred Alternative is to rehabilitate the Going-to-the-Sun Road over a 7- to 8-year period beginning in 2004. Rehabilitation includes repairs to historic retaining walls, guardwalls, tunnels, and other structural features contributing to the historic character of the Road. The National Park Service also proposes to implement mitigation measures such as transit service during construction, additional exhibits and interpretive information, and other visitor use improvements and programs to aid visitors and businesses during rehabilitation. Under the Preferred Alternative, the Road and access to Logan Pass would remain open during the visitor season. The National Park Service concluded that the Preferred Alternative provides the best overall balance in addressing needed Road rehabilitation, protecting and preserving historic, scenic, and natural resources, while allowing continued visitor access and minimizing impacts on regional businesses.

Other alternatives considered for rehabilitation of the Going-to-the-Sun Road included: the No Action Alternative—rehabilitation of the Road over a 50-year period based on current levels of funding; Priority Rehabilitation over 20 years; or an Accelerated Completion Alternative, which would take 6 to 8 years to complete. The consequences of these actions on socioeconomic, cultural, and natural resources were initially discussed in a Draft Environmental Impact Statement released for a 60-day comment period in September 2002. Following public hearings and receipt of comments, the National Park Service has made minor revisions to the proposed action and conducted additional analysis of potential environmental and economic impacts. The Final Environmental Impact Statement includes those revisions and responses to substantive comments received on the Draft EIS.

The Final Environmental Impact Statement will be available 30 days prior to issuance of a Record of Decision by the National Park Service.

## LIST OF ABBREVIATIONS AND ACRONYMS

BMP	Best Management Practice
CAC	Citizens Advisory Committee
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
EIS	Environmental Impact Statement
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FWS	U.S. Fish and Wildlife Service
GMP	General Management Plan
GNP	Glacier National Park
HAER	Historic American Engineering Record
IMPROVE	Interagency Monitoring of Protected Visual Environments
MP	Mile Post
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
Park	Glacier National Park
Road	Going-to-the-Sun Road
ROD	Record of Decision
SHPO	State Historic Preservation Office
TMDL	Total Maximum Daily Load

**SUMMARY**

**GOING-TO-THE-SUN ROAD**  
**REHABILITATION PLAN/FINAL ENVIRONMENTAL IMPACT STATEMENT**  
**GLACIER NATIONAL PARK**

---

**WATERTON-GLACIER INTERNATIONAL PEACE PARK**  
**THE WORLD'S FIRST INTERNATIONAL PEACE PARK**  
**A WORLD HERITAGE SITE**

**APRIL 2003**

---

### **Introduction**

In 1999, the National Park Service concluded that the Going-to-the-Sun Road would be rehabilitated to preserve a National Historic Landmark and premier visitor experience in Glacier National Park. The focus of this Rehabilitation Plan/Environmental Impact Statement is how best to conduct the Road rehabilitation while minimizing impacts on the cultural, natural, and socio-economic resources. Studies and investigations have been conducted over the past 18 years on the condition of the Road. Engineering, socio-economic, visitor use, cultural resource, and other studies completed in 2001 and 2002 have further established the need to



**Capturing a scenic view in the 1930s**

rehabilitate the Road. From February 2000 to December 2001, a Citizens Advisory Committee was established to help guide these studies and advise the National Park Service on how best to accomplish rehabilitation. Public input and recommendations from the Citizens Advisory Committee have contributed greatly to the development of rehabilitation alternatives and mitigation measures to reduce impacts on the resources and region. The Federal Highway Administration has been involved throughout this process as a cooperating agency in the development and evaluation of alternatives.

### **Purpose and Need for Road Rehabilitation**

Completed in 1932, the Road is a National Historic Landmark defined by outstanding historic structural features and access to some of the most spectacular scenic landscapes in the United States. Today, the Road is in immediate need of repair to protect those characteristics for which the Road was designated a Historic Landmark and to maintain a world-class visitor experience. The Road is an



**Original construction of the Going-to-the-Sun Road**

integral component of the regional economy. Numerous tourist-related businesses are supported by visitors drawn from throughout the United States, Canada, and the world to visit Waterton-Glacier International Peace Park and enjoy the natural, cultural and scenic resources present along the Road.

Construction of the Going-to-the-Sun Road was a monumental undertaking. The Road was first opened to public travel over Logan Pass in the fall of 1932. During its first year of full operation in 1933, about 40,000 vehicles traveled the Road. Currently about 475,000 vehicles annually travel the

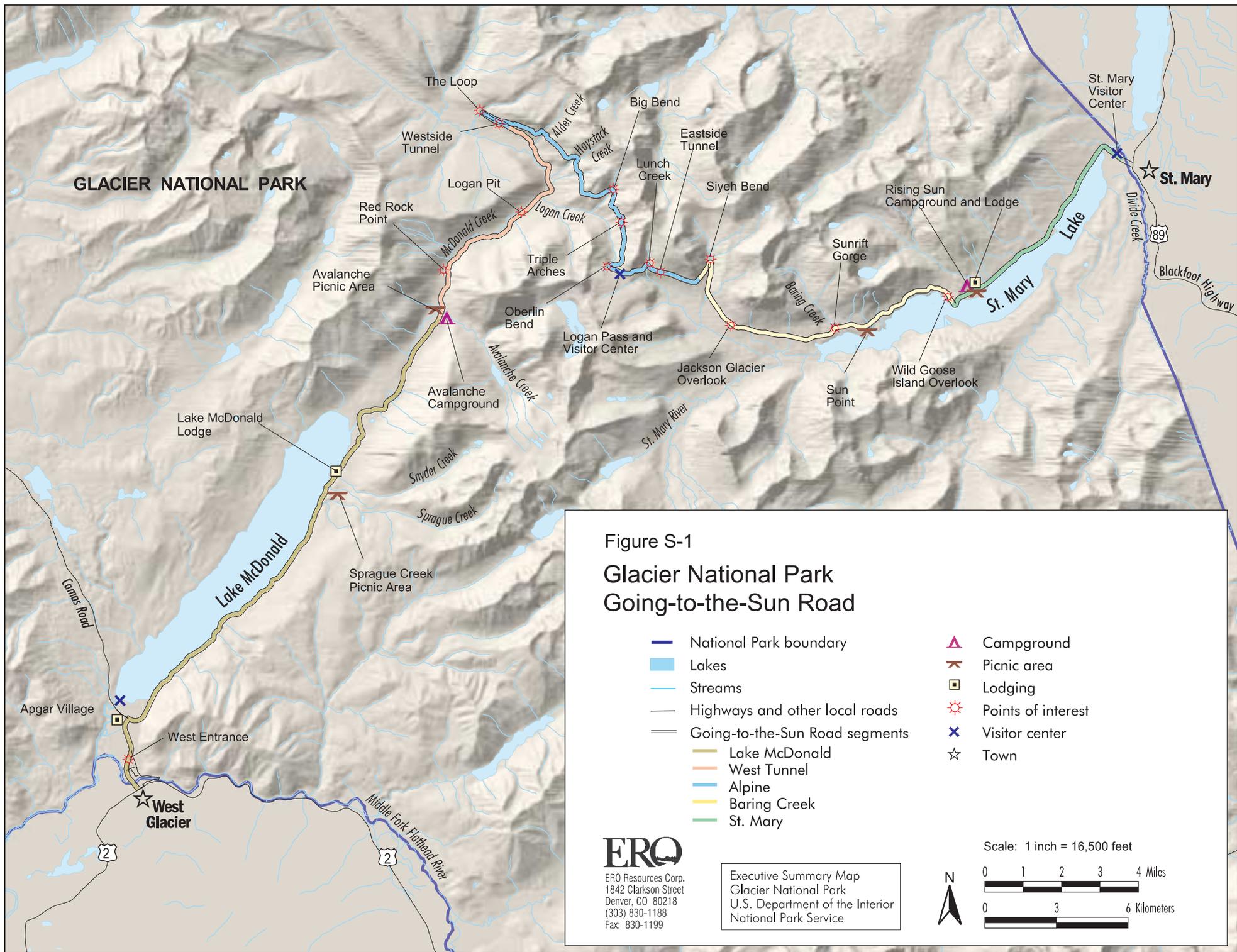
Road from June to October and 1.7 million visitors enjoy the Park each year.

Since the Road's original construction, traffic volume, avalanches, harsh weather conditions, and inadequate maintenance from a lack of funding and trained staff have all contributed to deterioration of the structural and historic features of the Road. Studies since 1984 by the Federal Highway Administration and a recently completed *Engineering Study* by Washington Infrastructure Services have evaluated in detail the condition of the Road and priorities for repair. These condition assessments indicate that the Road and its structures will continue to deteriorate unless corrective action is taken. If corrective actions are not taken, historic structures will be lost and adjacent environmental resources may be adversely affected. The risk of a catastrophic Road failure increases the longer repairs are delayed.

Rehabilitation is to be completed in a manner that accomplishes the following objectives:

- Preserving its historic character, fabric, width, and significance
- Rehabilitating the Road to a quality condition in a cost-effective manner
- Minimizing effects on natural, cultural, and scenic resources
- Maintaining a world-class visitor experience
- Providing for visitor and employee safety
- Minimizing impacts to the local and regional economies

The entire 50-mile (80-kilometer) Going-to-the-Sun Road needs to be rehabilitated. In order to evaluate the Road's condition and develop feasible alternatives, the *Engineering Study* divided the Road into five segments, each with special characteristics and different rehabilitation requirements. Rehabilitation priorities by Road segment are shown in Figure S-1 and listed in Table S-1.



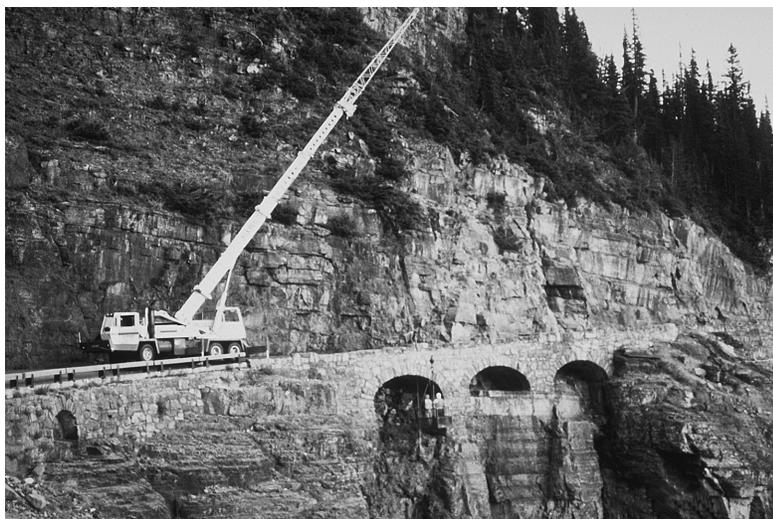
**Table S-1. Rehabilitation priority by Road segment and milepost (MP).**

Rehabilitation Work	Lake McDonald MP 0.0-16.2	West Tunnel MP 16.2-23.4	Alpine MP 23.4-34.2	Baring Creek MP 34.2-43.2	St. Mary MP 43.2-49.7
Drainage	5	2	1	4	3
Slope stability	5	3	1	2	4
Retaining walls, arches, and tunnels	4	2	1	3	5
Guardwalls	4	2	1	3	5
Roadway pavement	4	2	1	3	5

Note: 1 = highest priority; 5 = lowest priority.

The most critical repair needs are located on the 11-mile alpine section of the Road where the terrain is steep, the pavement is narrow, and there is little to no shoulder. Part of the difficulty in implementing needed repairs is that the majority of rehabilitation can only be conducted 4 to 6 months out of the year in the late spring, summer, and early fall. This construction season also coincides with the time that most visitors come to the Park. One of the challenges is to maintain visitor access, while implementing rehabilitation work. Also of great concern is the potential impact during rehabilitation to local and regional businesses and communities that rely on summer tourism. Thus, the rehabilitation alternatives considered the need to balance implementing needed repairs while preserving the Road's National Historic Landmark status and maintaining visitor use during construction.

Serious safety concerns have surfaced due to the condition of the Road. Deterioration has resulted in drainage problems, cracked and uneven road surfaces, missing or low guardwalls, and damaged retaining walls.



**Repair work on Triple Arches**

Pedestrian crossings and traffic circulation at pullouts, overlooks, and parking areas are often deficient, which puts motorists, bicyclists, and pedestrians at risk. Many of the pullouts and parking areas adjacent to the Road have likewise deteriorated or were not designed for today's larger vehicles. Overuse at some pullouts has resulted in erosion, vegetation trampling, soil compaction, and development of informal social trails. A lack of interpretive exhibits, orientation information, and signs often leads to visitor confusion and congestion at popular sites.

## **Public Involvement After Release of the Rehabilitation Plan and Draft EIS**

The Rehabilitation Plan/Draft EIS was released in September 2002 for a 60-day public review and comment period. During that period, the National Park Service hosted five public hearings/open houses in October 2002 to receive comments and answer questions about the proposed project. The hearings/open houses were held in Missoula, Great Falls, Kalispell, and Browning, Montana and Lethbridge, Alberta, Canada.

The NPS received over 250 written comments from government agencies, organizations, businesses, and individuals in addition to testimony given at the public hearings. Approximately 175 of the written comments were form letters with similar concerns about transit service. Several commenters expressed concern about the need to complete rehabilitation work as quickly as possible and suggested completely closing one side of Logan Pass and then the other to facilitate construction. Some were concerned that additional provisions should be made for biking along the Road. Others suggested that traffic on the Road should be limited to transit vehicles or perhaps a rail system. The Park also received comments emphasizing the need to expand transit operations in the Park and to the Park. Others suggested additional mitigation measures that could be used to offset impacts to visitors and businesses during construction. Several of the suggested modifications to the alternatives were previously analyzed and/or considered and were dismissed in the General Management Plan. The NPS concludes that the range of alternatives considered in the Draft EIS is adequate.

Appendix D to the Final EIS includes a summary of substantive comments on the Draft EIS and National Park Service responses to those comments.

## **Changes in the Proposed Action Since Release of the Draft EIS**

The NPS has made several minor adjustments to the Preferred Alternative and impact assessment following receipt of public comments, completion of the 2002 visitor survey, and additional information recently available. The basic components, including schedule and traffic management for each of the four alternatives, remain essentially the same. Principal modifications are to visitor use facilities for the Preferred Alternative. The Baring Creek Cabin Trailhead Parking area was eliminated from consideration because of the potential impact to grizzly bear and other wildlife in this area. Use of Logan Pit as an oversized vehicle turnaround and parking area following rehabilitation was eliminated because of the potential effect on harlequin ducks and streamside resources, although this site would still be used for construction staging. Minor improvements to existing pullouts at Gunsight Pass Stock Trail, Triple Divide, and the Big Drift were added to the proposed action. Transit service for the Preferred Alternative was expanded to provide 14 shuttle vehicles operating at one-half hour intervals to improve the level of transit service. In addition, transit parking at the West Side Discovery Center near Apgar would be expanded to accommodate 110 to 120 vehicles.

Results of the 2002 visitor survey were used to refine previously available information on how visitors are likely to respond to traffic delays and restrictions during Road rehabilitation. The new visitor survey also provided additional information

---

***“Viewed as an engineering feat alone it is a remarkable example of American road building, but when we add to this the gorgeous panorama that unrolls before the beholder as he passes up and up until he feels that he may almost literally pick cotton out of the clouds that surround him...”***

Senator Burton K. Wheeler of Montana at the dedication of the Going-to-the-Sun Highway, July 15, 1933

---



**West tunnel in the 1930s**

on visitor expenditures, party size, and residency. This information was used to update the estimated economic impacts to the local and regional economy for each of the alternatives. Construction costs and economic impacts were updated to 2002 dollars.

### **Alternatives Considered**

In 1999, federal legislation was passed to reallocate \$1 million of transportation funds to conduct an *Engineering Study* and a *Socio-economic Study* that included visitor use and business surveys. Establishment of a Citizens Advisory Com-

mittee also was authorized by the legislation. In addition, a *Transportation and Visitor Use Study* for the Park and cultural resource inventories of the Road were conducted to assist in the development of alternatives.

The development of alternatives was a multi-disciplined effort spanning several years and involving input from the public, a Citizens Advisory Committee, the Federal Highway Administration, the National Park Service, and private consultants. The National Park Service began seeking public input on the proposed project in June 2000 with a notice in the *Federal Register* and a newsletter sent to interested citizens. In December 2000, the National Park Service and Citizens Advisory Committee conducted a series of five open houses in Kalispell, Missoula, Great Falls, and Browning, Montana and one in Lethbridge, Alberta, Canada to discuss the issues and obtain public comments and concerns.

The Citizens Advisory Committee, which began its meetings on Road rehabilitation in February 2000, was composed of: a diverse group of local business leaders from the east and west sides of the Park; state and local government officials; representatives from the Blackfoot Tribe and the Confederated Salish and Kootenai Tribes; tourism representatives from Montana and Canada; and local and national experts on the environment, economics, historic preservation, and highway engineering. Following almost 2 years of discussion, including numerous beneficial comments from the public, and review of studies and reports, the Citizen's Advisory Committee submitted recommendations to the National Park Service including rehabilitation alternatives to consider in an Environmental Impact Statement. Following receipt of the Citizen's Advisory Committee's "Final Advice," the National Park Service initiated a final refinement of alternatives for consideration in the Environmental Impact Statement. The Preferred Alternative and other alternatives that were considered are briefly described below and compared in Table S-2.

### **Preferred Alternative (Shared Use)**

The Preferred Alternative selected by the National Park Service is referred to as the Shared Use with Extended Rehabilitation Season Alternative (Shared Use). The Shared Use Alternative was the Citizen's Advisory Committee's recommended alternative. Rehabilitation of the Road under this alternative would be completed over 7 to 8 years. The cost to implement proposed Road rehabilitation and visitor use improvements and mitigation for the Preferred Alternative is estimated

to range from \$140 million to \$170 million. This alternative seeks to implement road repairs while maintaining visitor use and access to the Going-to-the-Sun Road similar to current conditions. The National Park Service concluded that the Shared Use Alternative meets the project objectives and provides the best overall balance in addressing needed Road rehabilitation, protecting and preserving historic, scenic, and natural resources, while allowing continued visitor access and minimizing impacts to local businesses.



**Guardrail damage, June 2002**

Under this alternative, roadwork would be conducted from spring to fall with the most extensive work conducted during the shoulder seasons prior to Independence Day (July 4) and after September 15. During the shoulder season, when visitation is typically lower, traffic would be suspended within discrete work zones, while Logan Pass and the remainder of the Road remain open (at least 40 miles; 65 kilometers). Between Independence Day and September 15, a maximum cumulative traffic delay of 30 minutes over the length of the Road would occur during peak visitor hours, similar to the traffic delays used for the last 3 years for roadwork. Longer delays would be used during the early morning, evening, and at night (Table S-2).

At the same time Road rehabilitation is occurring, the National Park Service proposes to include improvements and upgrades to visitor use facilities located adjacent to the Road within the visitor service zone. Visitor use improvements for this alternative include: improved vehicle parking and pedestrian circulation at existing pullouts; selective vegetation clearing to restore scenic vistas; rehabilitation of existing toilets and the addition of new toilets; construction of five new short turnouts for slow-moving vehicles; construction of a few new short roadside trails and rehabilitation of social trails; designation of transit stops at popular locations along the Road; and improved information, orientation and interpretive information for visitors.

To ensure that the Road remains in excellent condition following this rehabilitation effort, the Park is seeking funding for operations and maintenance of the Road. In the past, the annual operating budget for Road maintenance has not been adequate to keep up with necessary Road repairs. Sufficient annual funding is needed to protect the investment in proposed Road rehabilitation and visitor use improvements.

Due to the potential impacts to visitors, businesses and tourism from the Going-to-the-Sun Road rehabilitation, the National Park Service is proposing several visitor development strategies to offset impacts. The Park would work with public, commercial, private, non-profit, and tribal organizations to create proactive public information, special events and gatherings, and marketing programs before and during Road repairs. The existing transit fleet would be expanded to 14 vehicles with shuttle service throughout the length of the Road operating at 30-minute intervals. This service would provide visitors with an alternative method of traveling the Road and an opportunity to stop at about 17 popular destinations. A West Side Discovery Center near Apgar is included in the General Management Plan. This facility would provide a quality visitor center and museum, and would

SUMMARY  
GOING-TO-THE-SUN ROAD REHABILITATION PLAN/FINAL ENVIRONMENTAL IMPACT STATEMENT

**Table S-2. Comparison of alternative features.**

Action	Alternative 1 Repair as Needed (No Action)	Alternative 2 Priority Rehabilitation	Alternative 3 Shared Use (Preferred)	Alternative 4 Accelerated Completion
<b>SCHEDULE</b>				
Road rehabilitation duration	50 years	20 years	7 to 8 years	6 to 8 years
<b>FUNDING (cost updated to millions of year 2002 dollars)</b>				
Road rehabilitation cost	\$102 - \$122	\$94 - \$111	\$84 - \$112	\$75 - \$87
Visitor use improvement cost	0	\$1.6	\$10.4	\$10.4
Total transit system cost over rehabilitation period <sup>†</sup>	0	\$9.1	\$9.4	\$8.3
Visitor development mitigation	0	0	\$17.7	\$17.7
<b>TOTAL COST</b>				
• 2002 dollars	\$102 - \$122	\$104.7 - \$121.7	\$121.5 - \$149.5	\$111.4 - \$123.4
• Inflation adjusted (4%/year) <sup>‡</sup>	\$328 - \$394	\$157 - \$186	\$140 - \$170	\$126 - \$144
Yearly funding required	\$1 - \$2	\$5	\$10 - \$18	\$9 - \$16
Annual road operation and maintenance cost following rehabilitation	\$0.56	\$1.5 - \$1.9	\$1.5 - \$1.9	\$1.5 - \$1.9
<b>TRAFFIC MANAGEMENT ON THE GOING-TO-THE-SUN ROAD DURING REHABILITATION</b>				
Up to 30-minute delays, everyday, all season	Yes	Yes	Yes	Yes
Up to 1-hour delays	No	No	Mornings <sup>1</sup> and evenings <sup>2</sup> (Monday through Thursday)	No
Up to 2-hour delays	No	Nights <sup>3</sup> (Monday through Thursday)	No	No
Variable scheduled traffic delays for night construction with advance notice	Nights <sup>3</sup> (all week)	Nights <sup>3</sup> (Monday through Thursday) after third Monday in September	Nights <sup>3</sup> (Monday through Thursday)	No
Traffic suspensions on road segments under rehabilitation	No <sup>4</sup>	No	Prior to Independence Day and after mid-September	Monday through Thursday, all season
Access to Logan Pass	Yes	Yes	Yes	Yes

<sup>1</sup> Mornings = 8 A.M. to 10 A.M.

<sup>2</sup> Evenings = 3 P.M. to 8 P.M.

<sup>3</sup> Nights = 8 P.M. to 8 A.M.

<sup>4</sup> Traffic delays or suspensions may be necessary in the event of road failure.

<sup>†</sup> Includes start-up cost and annual operating costs.

<sup>‡</sup> Inflation-adjusted cost reflects the estimated actual cost over the period of construction.

SUMMARY  
 GOING-TO-THE-SUN ROAD REHABILITATION PLAN/FINAL ENVIRONMENTAL IMPACT STATEMENT

Action	Alternative 1 Repair as Needed (No Action)	Alternative 2 Priority Rehabilitation	Alternative 3 Shared Use (Preferred)	Alternative 4 Accelerated Completion
<b>TRANSIT SERVICE DURING REHABILITATION</b>				
Schedule	Existing operation, 2½ to 5 hour intervals	Existing operation, 2½ to 5 hour intervals plus destination transit	30-minute intervals	30-minute intervals
Vehicles — vans or buses	3 (2 active; 1 backup)	5 (4 active; 1 backup)	14 (12 active; 2 backup)	14 (12 active; 2 backup)
New transit staging areas	No, existing parking areas would be used	No, existing parking areas would be used	Staging area parking at Apgar (110 to 120 spaces) and St. Mary (25 to 30 spaces)	Staging area parking at Apgar (110 to 120 spaces) and St. Mary (25 to 30 spaces)
Shoulder season service	No	No	Yes	Yes
<b>OPERATIONS AND MAINTENANCE</b>				
Increased annual funding for operations and maintenance	No	Yes	Yes	Yes
<b>VISITOR USE IMPROVEMENTS</b>				
<b>Parking and Pullouts</b>				
Move, add, or reconfigure parking and pullouts to improve safety and traffic flow	No	No	Yes	Yes
Remove or formalize social pullouts	Yes	Yes	Yes	Yes
Add slow-moving vehicle turnouts	No	Yes	Yes	Yes
<b>Vegetation Management</b>				
Vista and roadside vegetation clearing	Yes	Yes	Yes	Yes
<b>Trail Improvements</b>				
Rehabilitate existing roadside trails and add new short trail segments	No	No	Yes	Yes
<b>Toilets</b>				
Rehabilitate existing vault toilets	No	Yes	Yes	Yes
Replace portable toilets with vault toilets and add new toilets	No	Yes	Yes	Yes

Action	Alternative 1 Repair as Needed (No Action)	Alternative 2 Priority Rehabilitation	Alternative 3 Shared Use (Preferred)	Alternative 4 Accelerated Completion
<b>Visitor Orientation, Information, and Interpretation</b>				
Install orientation and information facilities	No	No	Yes	Yes
Provide interpretive wayside exhibits along the Road	No	No	Yes	Yes
Develop Intelligent Transportation System, update roadside signage, and provide communication material to visitors	No	No	Yes	Yes
Activate public information program to aid visitors and local businesses	Yes	Yes	Yes	Yes
Implement visitor use mitigation measures	No	No	Yes	Yes

replace an existing small visitor contact station in Apgar Village. A portion of the Discovery Center would focus on transit staging, as well as information and orientation for visitors, and is included in the Rehabilitation Plan. Rehabilitation of the St. Mary Visitor Center is proposed to provide transit staging and improve the quality of exhibits and interpretive information. Both of these improvements are included as mitigation to improve transit and provide a high quality visitor experience. To improve the quality of communications and timeliness of information to Park visitors, the National Park Service proposes to implement an Intelligent Transportation System, which includes a computerized network linking information sources and providing real-time information to visitors on road conditions, traffic delays, weather, transit schedules, and interpretive information. It would also help in accomplishing maintenance activities such as snowplowing and opening the Road each spring.

**Priority Rehabilitation Alternative**

The Priority Rehabilitation Alternative allows for planning and design ahead of time, rather than in response to roadway failure or emergencies. Road rehabilitation would be implemented over 20 years, but this would still allow deterioration of historic, natural, and scenic resources. This alternative would address current structural deficiencies in the Road with only a few improvements to visitor use facilities and no visitor development mitigation funding. The estimated cost is \$157 million to \$186 million.

**Accelerated Completion Alternative**

The objective of the Accelerated Completion Alternative is to complete rehabilitation of the Road as quickly as possible by using isolated traffic suspensions Monday through Thursday (May through October) and maintain visitor access on the weekends from Friday to Sunday. This alternative would implement Road repairs over 6 to 8 years at a cost of \$126 million to \$144 million. The rapid

completion of rehabilitation would minimize further Road deterioration and damage to historic, cultural, and environmental resources. Although the Accelerated Completion Alternative would reduce the period of construction, it would require restrictions in visitor access during the week. This alternative includes the same visitor use improvements and visitor development mitigation funding as the Preferred Alternative.

### **Repair as Needed Alternative (No Action)**

The Repair as Needed Alternative or No Action Alternative represents baseline existing conditions. Under this alternative, rehabilitation work on the Road would continue as funding allows, but work would be limited to critical and emergency repairs. This alternative focuses only on rehabilitating the Road. No funds would be available for visitor use or mitigation of construction activities. Road rehabilitation is estimated to take about 50 years at current levels of funding and cost between \$328 million and \$394 million. During that time, it is expected that further deterioration of the Road would occur and significant historic resources would be lost. This alternative would not meet National Park Service goals and objectives to correct safety issues, protect resources, and maintain a world-class visitor experience.

### **Potential Environmental Effects**

For each of the four alternatives considered, an evaluation was made of the potential effects to socioeconomic, cultural, and natural resources from proposed Road rehabilitation. The analysis of impacts was based on a variety of factors including previous studies, surveys of Park visitors, economic modeling, impacts from similar projects, information provided by the public and the Citizen's Advisory Committee, and the professional knowledge and experience of the National Park Service, Federal Highway Administration, and various consulting firms. A summary of impacts for each resource is provided below.

#### **Cultural Resources**

The Going-to-the-Sun Road is one of the most spectacular and significant linear cultural resources in the United States. The Road provides access to exceptional scenery, but is equally famous for the careful craftsmanship and design features that were required to carve the Road into the steep mountainside. The Road's narrow alignment hugs lakeshores, mountain streams, and massive cliffs, and its design reflects a strong sensitivity to these dramatic natural features. The masonry features along the Road—including guardwalls, retaining walls, bridges, and culvert headwalls—are vital in defining the Road's historic, visual, and engineering character. Most of these structures were designed to harmonize with the natural setting by using native materials and by blending with the landform as much as possible.

The construction of the Going-to-the-Sun Road marked a dramatic shift in the patterns of visitor use in Glacier National Park. The completion of the Road through the heart of the Park encouraged the use of private automobiles as the means to see the Park. Since the entire Road opened to the public in 1932, driving the Road has been one of the primary ways that visitors see and experience the Park. The extraordinary qualities of the Road have made it one of the principle attractions for Glacier visitors, and it has become perhaps the most noted highway in the entire National Park system.

The historic significance of the Road has been recognized by its listing in the National Register of Historic Places in 1983; its designation as a National Historic Civil Engineering Landmark by the American Society of Civil Engineers in 1985; its documentation by the Historic American Engineering Record in 1990; and its designation as a National Historic Landmark in 1997. The



**Clearing the Road**  
Hungry Horse News Online, June 27, 2002

significance of the Road is exemplified by the National Historic Landmark designation, for which only two roads in the United States have been so designated. National Historic Landmarks are designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage of the United States.

The National Historic Landmark designation, the most recent of these recognitions, encompassed the 48.7-mile portion of the Road from the foot of Lake McDonald to St. Mary. The nomination describes and analyzes the Road's contributing resources within the parameters of five categories: spatial organization, circulation, topography, vegetation, and structures. The nomination lists fourteen principle structures as contributing to its significance. In addition to the Road itself, these include features such as bridges, tunnels, a horse trail underpass, and culverts. Retaining walls and guardwalls also are included in the National Historic Landmark designation. Currently there are about 2.4 miles of historic retaining walls, most of which are contributing to the significance of the Road. There were about 8 miles of guardwalls built between 1922 and 1937, of which almost 7 miles still maintain their historic integrity. A recent comprehensive inventory has recorded over 1,300 individual historic structural features along the Road. Preservation and rehabilitation of

these historic features is a key component of proposed rehabilitation.

The National Historic Preservation Act of 1996 requires Glacier National Park to minimize harm to the National Historic Landmark designated Road. The Secretary of Interior's *Standards for the Treatment of Historic Properties* provide direction for the Park in promoting responsible preservation practices during rehabilitation. Standards particularly relevant to Road rehabilitation include:

- The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
- Most properties change over time. Those changes that have acquired historic significance in their own right shall be retained and preserved.

---

***“The Going-to-the-Sun Road possesses extraordinary integrity to the period of its construction...[the Road] provides nearly the same experience for visitors that it did during the historic period.”***

National Historic Landmark Nomination

---

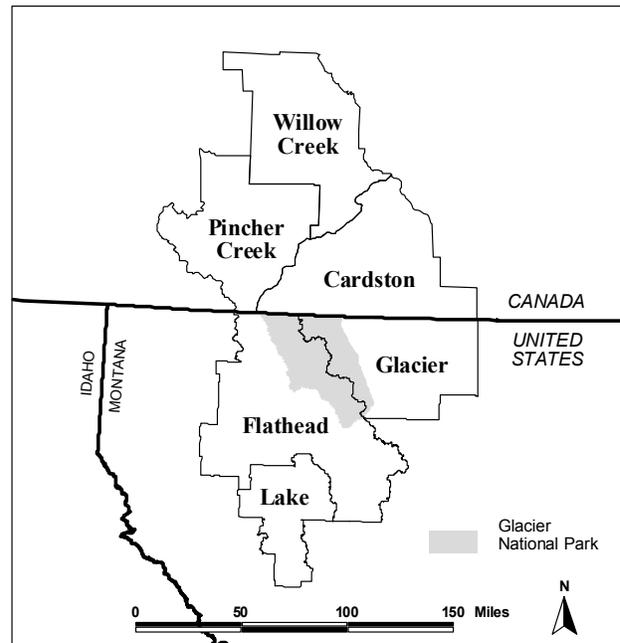
- Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
- Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities, and where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

The alternatives for Road rehabilitation considered the historic designations and the Secretary of the Interior's *Standards for the Treatment of Historic Properties* in the development of measures to protect and repair existing historic cultural resources. All of the alternatives would adhere to these standards. However, because of the different duration for rehabilitation, some alternatives provide better protection of cultural resources. The Repair as Needed Alternative would require 50 years to complete rehabilitation and during that time, it is likely that many of the existing historic features would continue to deteriorate or would be permanently lost. The preservation of historic resources would be somewhat better under the Priority Rehabilitation Alternative; however, further deterioration and damage to historic features such as guardwalls and retaining walls is expected to continue if rehabilitation is extended over 20 years. The Shared Use (Preferred) and Accelerated Completion Alternatives would complete rehabilitation work in less than 8 years and, thus, provide the best opportunity to preserve the historic features before further significant deterioration occurs.

## Socioeconomic Resources

### *Visitor Use and Expenditures*

Baseline projections of Park visitation without rehabilitation indicate an average annual growth rate of 0.6 percent from 2001 to 2006, then remaining constant to 2020. A change in the number of visitors to Glacier National Park during rehabilitation is expected. Responses from visitor use surveys conducted in 2000 and by request of the Citizen's Advisory Committee in 2002, indicate that a portion of Park visitors would shorten their visit or not come if the rehabilitation effort limits access or results in substantial delays. The number of visitors that indicate they would change their travel plans to the Park varies both by visitor type (day visitors versus those staying overnight) and the nature of the traffic interruption. Survey responses indicate visitors are likely to be more sensitive to traffic suspensions than to relatively short delays. The study area for the evaluation of socioeconomic impacts includes Flathead, Glacier, and Lake counties in Montana and the Willow Creek, Pincher Creek, and Cardston municipal sub-districts in Alberta, Canada.



**Economic study area**

Under the Repair as Needed Alternative (No Action), annual Park visitation is expected to be about 1.9 million by the year 2020 (Table S-3). If current visitation trends continue over the 50-year rehabilitation period for this alternative, average annual visitor expenditures in the economic study area are projected at nearly \$135 million (Table S-4). This includes projected annual visitor expenditures of almost \$117 million for Flathead, Glacier, and Lake counties in Montana and \$18 million for southwest Alberta. Baseline visitor expenditures are estimated to directly and indirectly support about 4,000 jobs in the three Montana counties, 250 jobs elsewhere in Montana and 500 jobs in southwest Alberta (Table S-4). Although the Repair as Needed Alternative represents the socioeconomic baseline for current Road maintenance and repair activity, it is possible that in the absence of timely rehabilitation, the Road will suffer one or more catastrophic failures during the 50-year period it would take to complete repairs. If a segment of the Road should fail, access to Logan Pass (and passage across the Park) could be cut off altogether from at least one direction for an indeterminate period. In such an event, impacts on visitation could be greater than the estimated effects under any of the other alternatives. The Repair as Needed Alternative represents the baseline condition for which the economic impact of other alternatives is compared in the following discussion.

Implementation of the Priority Rehabilitation Alternative, which would require 20 years to repair the Road, is projected to reduce annual visitation by about 4 percent or 72,000 visitors (Table S-3). This would result in an annual reduction in visitor expenditures of about \$6 million and a decrease of about 200 direct and indirect jobs (Table S-4).

**Table S-3. Average annual change in visitation during Road rehabilitation for each alternative.**

Alternative	Number of Visitors	Change in Visitors	Percentage Change in Number of Visitors
Repair as Needed (Baseline)	1,868,000	NA	NA
Priority Rehabilitation	1,796,000	-72,000	-3.8%
Shared Use (Preferred)	1,749,000	-119,000	-6.4%
Accelerated Completion	1,660,000	-208,000	-11.0%

Under the Shared Use Alternative (Preferred), visitation during rehabilitation is estimated to decrease over 6 percent or 119,000 visitors annually, during the 7- to 8-year construction period (Table S-3). Direct visitor spending is estimated to decrease by about \$9 million annually for the Shared Use Alternative and the number of direct and indirect jobs would decrease by 330 (Table S-4). This is a decrease of about 6 percent in annual visitor expenditures compared to the baseline. Implementation of visitor use improvements and mitigation measures under this alternative are expected to minimize the impact to visitation during rehabilitation.

The Accelerated Completion Alternative would complete rehabilitation in 6 to 8 years, but would result in the largest decrease in visitors because of traffic suspensions during weekdays. An 11 percent reduction in visitors, or about 208,000 fewer annual visitors, would visit the Park under this alternative (Table S-3). Direct visitor expenditures would decrease about \$16 million and direct and secondary jobs would decrease by 590 annually (Table S-4). Visitor use improvements and mitigation measures were also included in this alternative.

**Table S-4. Average annual changes in direct visitor expenditures and employment for each alternative.**

Alternative	Direct Visitor Expenditures (\$ millions)	Change in Direct Visitor Expenditures (\$ millions)	Visitation-Related Employment	Change in Employment
Repair as Needed (Baseline)	\$135	NA	4,750	0
Priority Rehabilitation	\$129	-\$6	4,550	-200
Shared Use (Preferred)	\$124	-\$9	4,420	-330
Accelerated Completion	\$119	-\$16	4,160	-590

***Construction Expenditures***

All alternatives would result in construction-related expenditures and associated jobs; however, the Repair as Needed Alternative provides the baseline for comparing the incremental increase with other alternatives. Construction expenditures include materials, equipment, labor, and engineering services. For simplicity, visitor development and transit expenditures are not included as part of construction expenditures, but it is anticipated that expenditures for these mitigation measures could provide an additional source of local spending and employment, partially offsetting a reduction in visitor-related expenditures. It is assumed that about one-half of the new jobs would be hired locally and the remaining would be filled by non-local workers. Annual expenditures vary with the intensity of construction as shown in Table S-5. For all alternatives, about 65 percent of the construction expenditures within the Montana study area would be in Flathead County, 33 percent in Glacier County, and about 2 percent in Lake County. Other areas in the State of Montana also would benefit from direct and secondary economic effects from construction spending for all of the alternatives.

**Table S-5. Construction expenditures and jobs.**

Alternative	Annual Construction Expenditures (millions)	Jobs Created
Repair as Needed (Baseline) (2004 – 2053)	\$1 to 2	30
Priority Rehabilitation (2004 – 2023)	\$5	40
Shared Use (Preferred) (2004 – 2011)	\$10 to \$18	70 to 150
Accelerated Completion (2004 – 2010)	\$9 to \$16	60 to 150

***Net Economic Effects***

Net direct and indirect impacts on the study area economy are calculated by combining the anticipated reduction in tourism-related spending with the expected increases in construction spending (Table S-6). The net annual effect on study area economic output is smallest under the Priority Rehabilitation Alternative, averaging about \$6.2 million per year. The net impact for the Shared Use Alternative (Preferred) is slightly greater at \$6.6 million per year, and the greatest impact is with the Accelerated Completion Alternative with a decrease in economic output of about \$16.6 million per year.

**Table S-6. Summary and comparison of average annual direct and indirect effects of Road rehabilitation alternatives on study area economic output (2002 dollars).**

<b>Economic Sector</b>	<b>Repair as Needed (Baseline)</b>	<b>Priority Rehabilitation</b>	<b>Shared Use (Preferred)</b>	<b>Accelerated Completion</b>
Tourism-related economic output	\$181,000,000	\$172,500,000	\$167,500,000	\$157,600,000
Change from the baseline	NA	- \$8,500,000	- \$13,500,000	- \$23,400,000
Construction-related economic output	\$2,100,000	\$4,400,000	\$9,000,000	\$8,900,000
Change from the baseline	NA	+ \$2,300,000	+ \$6,900,000	+ \$6,800,000
<b>Net Annual Total Impact</b>	<b>\$183,100,000</b>	<b>- \$6,200,000</b>	<b>- \$6,600,000</b>	<b>- \$16,600,000</b>

It is important to recognize that the effects on visitation and construction do not exactly offset one another. Economic stimulus to the local construction sector does not necessarily reduce the impact on local tourism-related business. In addition, these values represent the annual effects, which would extend over the different rehabilitation periods for each alternative. For example, the \$6.2 million annual decrease in economic output for the Priority Rehabilitation Alternative would extend over 20 years, whereas the \$6.6 million decrease in economic output for the Shared Use Alternative would extend over 8 years. Annual economic effects are estimated to be greatest under the Accelerated Completion Alternative. This is due primarily to traffic suspensions four days of the week and the estimated reduction in visitors compared to the other alternatives.

Future adverse impacts on visitation and the economy are possible if segments of the Road fail. The timing and magnitude of these impacts cannot be projected, but the Repair as Needed and Priority Rehabilitation Alternatives have the greatest potential for adverse impacts because of the extended period for rehabilitation. For all alternatives, Road rehabilitation would continue throughout the Lewis & Clark Bicentennial Commemoration in 2005 and 2006. Potential increases in Park visitation during this period may partially offset rehabilitation-related impacts on visitation.

From a broader perspective, it is estimated that the annual tourism-related economy in the study area is about \$250 million to \$300 million, while total economic output across all sectors is about \$5 billion. Consequently, the estimated impact from changes in visitation range from about a 2 percent reduction in tourism-related economic activity in the study area for the Priority Rehabilitation Alternative to about 3 percent for the Shared Use Alternative (Preferred), to about a 5 percent reduction for the Accelerated Completion Alternative. Relative to the size of the local economy, all of the alternatives would have a modest effect on the economy as a whole.

## Natural Resources

Glacier National Park supports some of the most biologically rich and scenic resources in the western United States. In fact, because of the Park's biological diversity and significance, it has been designated as a Biosphere Reserve and a World Heritage Site. Natural resources are managed in accordance with National Park Service policy to maintain the components and processes of the natural ecosystems, including the natural abundance, diversity, and ecological integrity of the plant and animal species native to those ecosystems.

Potential impacts to natural resources from rehabilitation of the Road are similar for the four alternatives because each of the alternatives would maintain the existing road width and alignment and use the same construction techniques. However, the delay in implementing Road rehabilitation under the Repair as Needed and Priority Rehabilitation alternatives would allow existing damage to soil, vegetation, and water resources from erosion and poor drainage to continue. No new long-term ground disturbances are anticipated for the Repair as Needed Alternative. The Priority Rehabilitation Alternative would impact about 0.2 acres (0.08 hectares) from construction of five short slow-moving vehicle turnouts. For the Shared

Use (Preferred) and Accelerated Completion Alternatives, ground-disturbing activities would occur from implementation of additional visitor use improvements, including pullout upgrades, slow-moving vehicle turnouts, short trails, and a new transit parking area located near Apgar. These new visitor use improvements would result in a long-term disturbance of about 7.4 acres (3.0 hectares) of land. All visitor use improvements would occur within the existing visitor service zone adjacent to the Road.

Rehabilitation of the Road would be conducted primarily within the existing roadway prism, which includes the existing pavement and adjacent fill and cut slopes created by original Road construction. As a result, substantial areas of new disturbance are not anticipated. Construction-related disturbance within the Road corridor includes disturbance to soils and native vegetation. Minimal removal of trees would occur at visitor use areas and along the Going-to-the-Sun Road for vistas, safety, and other identified project objectives including comfort stations, parking, utilities, fiber optics, and trails. Wetlands would be avoided to the extent possible and where temporary impacts occur, wetlands would be restored to maintain their original functions and value. Most of the soil and vegetation disturbances would be temporary and, for all alternatives, extensive reclamation and revegetation measures would be implemented following rehabilitation of each Road segment.

The Going-to-the-Sun Road parallels several important water resources including Lake McDonald, St. Mary Lake, McDonald Creek and other streams that support fish and aquatic life. Ground-disturbing activities also have the potential to impact water and aquatic resources from erosion and sediment transport. Direct disturbances to water features are expected to be limited to bridge, culvert, and drainage repairs. While these activities may result in short-term disturbances to water resources, proposed drainage improvements are expected to result in a long-term beneficial effect to water and



**Weeping wall in the 1950s**



**McDonald Creek**

aquatic resources. Implementation of erosion and sediment control measures during rehabilitation would be used to protect water resources, as well as soil and vegetation for all alternatives. Provisions for fish passage in drainages also would be incorporated into rehabilitation.

Glacier National Park supports over 300 species of wildlife, many of which are found near the Going-to-the-Sun Road. Proposed rehabilitation for all alternatives and visitor use improvements for the Shared Use and Accelerated Completion Alternatives would result in a minor loss of wildlife habitat, but construction-related noise, lighting, and human activity may displace some wildlife activity near work zones. Proposed

rehabilitation could create additional habitat fragmentation and may reduce the connectivity for wildlife movement. Road improvements would not affect design speeds or posted speed limits, so the potential for wildlife/vehicle collisions would not change.

The Park provides habitat for five federally listed threatened and endangered species—bald eagle, grizzly bear, gray wolf, lynx, and bull trout. Direct impact to habitat for these species is expected to be minor for all of the alternatives. Construction activities near bald eagle territories at Lake McDonald and St. Mary may disturb bald eagles; therefore, roadwork near Lake McDonald would be restricted from March 1 to May 15, and near St. Mary, restrictions would extend to June 15. Construction activity could adversely affect grizzly bear behavior, foraging, and movement near the Road, particularly where night construction occurs. Gray wolf use near the Road is limited, but construction disturbance could deter their activity near work zones. Although lynx are present in the Park, their distribution and abundance are not well known. Proposed roadwork would not create additional barriers to lynx movement, but temporary disturbance during construction may affect their activity near the Road. Bull trout are found on the east and west sides of the Continental Divide. The potential introduction of sediment into streams may temporarily affect bull trout, but impacts are expected to be minor. Under the Endangered Species Act, the NPS has determined that proposed Road rehabilitation may affect, but is not likely to adversely affect bald eagle, lynx, gray wolf, or bull trout and is likely to adversely affect grizzly bear. There would be no effect on federally listed plant species, since none are known to occur along the Going-to-the-Sun Road corridor. The NPS intends to implement a number of conservation measures to minimize impacts to threatened, endangered, and sensitive species and will consult annually with the U.S. Fish and Wildlife Service to ensure appropriate measures are being taken to reduce impacts including additional rare plant surveys.

There are 63 wildlife and aquatic species and 64 plant species of concern to the state present in Glacier National Park. Rocky Mountain bighorn sheep and mountain goats between The Loop and Siyeh Bend may be affected by construction-related disturbance, but these species have historically acclimated to traffic and human activity. Several golden eagle nests are present near the Road, but they also have been tolerant of other construction projects on the Road and measures to limit construction activity near active nest sites are incorporated into the Rehabilitation Plan. Harlequin duck breeding habitat is found on McDonald Creek and other drainages. Use of Logan Pit as a construction staging area could affect harlequin duck breeding and brood rearing, but a buffer area would be established to protect suitable habitat. Wolverine is a wide-ranging species that may be

susceptible to night construction and human activity. Westslope cutthroat trout may be temporarily affected by sedimentation near localized construction sites, but the conservation measures established for bull trout should minimize impacts to westslope cutthroat trout. For other species of concern, only negligible to minor effects are anticipated. Park biologists monitoring construction activities may introduce restrictions in construction activities, location, or timing to minimize impacts to species of concern as appropriate.

Potential impacts to air quality and visibility would be minor and temporary for all alternatives. Only a short-term increase in construction vehicle emissions and dust is anticipated. A temporary local increase in air pollutants would not result in exceedances of applicable air quality standards.

Road rehabilitation would result in the temporary introduction of disturbances to the visual quality of the Road from equipment, traffic, material storage, and construction activity. Over the long term, all of the alternatives would improve and restore the scenic quality and character of the Road as damaged historic features are rehabilitated, drainage deficiencies corrected, and eroding slopes revegetated. The Shared Use (Preferred) and Accelerated Completion Alternatives would best restore the scenic quality of the Road because improvements would be implemented before significant new deterioration would occur.

Each of the alternatives would introduce additional noise into the environment from construction equipment, machinery, and traffic. This would temporarily impact the natural quiet typically present in the Park and may affect the quality of the visitor experience and some wildlife. The significance of the impacts would be minimal because work would be conducted within the roadway where current traffic volumes are often high during the peak visitor season.



**Scenic pullout west of Logan Pass**



**Mountain goat**

night work would affect the night sky and possibly wildlife and visitor enjoyment near these work zones; however, night work would be limited primarily to low elevation sites and would be used selectively for specific rehabilitation tasks.

There would be no direct disturbance to proposed wilderness or Wild and Scenic Rivers in the Park. Noise from construction activities may carry into proposed wilderness areas, but this would be a short-term effect. No impact to the values for which the Middle Fork of the Flathead River was designated Wild and Scenic would occur for any of the alternatives.

## **Conclusion**

Year 2010 will mark the 100<sup>th</sup> anniversary of the establishment of Glacier National Park. The goal of the NPS is to have the majority of the rehabilitation on the Going-to-the-Sun Road and associated visitor use improvements and mitigation measures completed by the Park's Centennial celebration.

The National Park Service is committed to making the final decision for the preservation and rehabilitation of the Going-to-the-Sun Road through the continuation of the public process already begun and the previous efforts of the Advisory Committee and others who helped develop this Plan and EIS. We appreciate the thoughtful comments on the Draft EIS and have responded to those comments and concerns in this Final EIS. The NPS, in cooperation with FHWA, is pursuing funding to implement this Rehabilitation Plan as soon as possible after the Record of Decision is signed.



**Going-to-the-Sun Mountain**

## Contents

<b>Chapter 1 Purpose And Need .....</b>	<b>1</b>	Environmentally Preferred Alternative .....	78
Introduction.....	1	Summary .....	80
Background.....	2		
Purpose and Objectives.....	8		
Need for the Project .....	8		
Scoping and Public Involvement .....	25		
Public Hearings and Comments on the Draft EIS .....	26		
Issues Considered in this EIS.....	26		
Impact Topics.....	30		
Relationship to Other Planning Projects.....	31		
Decision Process .....	33		
<b>Chapter 2 Proposed Action and Alternatives.....</b>	<b>35</b>	<b>Chapter 3 Affected Environment .....</b>	<b>91</b>
Alternative Development Process .....	35	Socioeconomic Resources .....	92
Design Standards for Road Rehabilitation.....	36	Cultural Resources .....	116
Alternative 1— No Action (Repair as Needed).....	36	Natural Resources .....	121
Alternative 2—Priority Rehabilitation.....	41		
Alternative 3—Shared Use with Extended Rehabilitation Season (Preferred).....	43	<b>Chapter 4 Environmental Consequences</b>	<b>147</b>
Alternative 4—Accelerated Completion with Isolated Road Segment Traffic Suspensions (Accelerated Completion).....	57	Introduction.....	147
Actions Common to All Alternatives .....	59	Methods .....	148
Alternatives and Mitigation Excluded From Further Consideration .....	76	Cumulative Effects .....	148
		Impairment of Park Resources and Values.....	159
		Socioeconomic Resources .....	160
		Cultural Resources .....	183
		Natural Resources .....	187
		Sustainability and Long-Term Management.....	221
		<b>Chapter 5 Compliance with Federal and State Regulations.....</b>	<b>225</b>
		<b>Chapter 6 Consultation and Coordination.....</b>	<b>229</b>
		List of Preparers and Contributors .....	229
		Agencies, Organizations and Individuals To Whom This EIS Was Sent .....	232
		<b>Chapter 7 References.....</b>	<b>235</b>
		Glossary .....	241
		Index .....	243

## Figures

Figure 1. Vicinity Map.....	4
Figure 2. Going-to-the-Sun Road Corridor.....	11
Figure 3. Roadside Vegetation in 1939 (left); Roadside Vegetation Near the Same Location in 1987 (right).....	21
Figure 4. Existing Trailheads.....	22
Figure 5. Existing Toilets.....	23
Figure 6. Existing Interpretive Sites.....	24
Figure 7. Visitor Use Improvement Locations.....	47
Figure 8. Study Area for Socioeconomic Analysis.....	92
Figure 9. Visitors to Glacier National Park (1979-2000).....	93
Figure 10. Monthly Visitors to Glacier National Park (1995- 1999).....	94
Figure 11. Daily Distribution of Traffic in Glacier National Park (2001).....	94
Figure 12. Percent of Tourists Making Stops.....	97
Figure 13. Travel Routes To/From Glacier National Park, 2000.....	98
Figure 14. Montana Economic Study Area.....	102
Figure 15. Seasonality in Monthly Unemployment Rates in the Montana Study Area.....	106
Figure 16. Southwest Alberta Study Area for Socioeconomic Analysis.....	113
Figure 17. Generalized Deer, Elk, and Moose Winter Range.....	132
Figure 18. Harlequin Duck Habitat.....	133
Figure 19. Bald Eagle Territories.....	135

Figure 20. Grizzly Bear Autumn Habitat.....	136
Figure 21. Cultural Landscape Segments.....	143
Figure 22. Geographic Extent of Reasonably Foreseeable Activities.....	157

## Tables

Table 1. Contributing features specifically identified in prior historic significance documentation, Going-to-the- Sun Road.....	5
Table 2. Comparison of alternative features.....	38
Table 3. Visitor use improvements along the Going-to-the-Sun Road included in Alternatives 3 and 4.....	48
Table 4. Visitor development strategies recommended by the Citizens Advisory Committee.....	56
Table 5. Rehabilitation priority by Road segment and milepost (MP).....	60
Table 6. Types of rehabilitation work for each method of traffic management.....	67
Table 7. Comparison of alternatives and impacts.....	81
Table 8. Proportion of visitor groups participating in each activity.....	95
Table 9. Time spent in specific areas along the Road.....	96

Table 10. Days spent in the Glacier National Park area by Park visitors.....	96	Table 23. Organizations involved in economic development and tourism promotion in the Montana study area. ....	109
Table 11. Baseline GNP visitor expenditures by category and county (year 2002). ....	99	Table 24. Non-seasonal/reservation vacant units. ....	110
Table 12. Estimated direct and secondary output supported by GNP visitation (year 2002). ....	99	Table 25. Expenditures per capita.....	116
Table 13. Estimated direct and secondary employment supported by GNP visitation (year 2002). ....	100	Table 26. Significant historic resources in the Going-to-the-Sun Road corridor. ....	119
Table 14. National Park Service employees by division at Glacier National Park.....	101	Table 27. Federally listed threatened, endangered, and candidate species evaluated for potential occurrence near the Going-to-the-Sun Road. ....	137
Table 15. Montana portion of the study area land area and ownership. ....	101	Table 28. Going-to-the-Sun Road landscape segments (west to east). ....	143
Table 16. Total employment, 1980 to 1999, three-county study area, Montana.....	103	Table 29. Impact threshold definitions and duration. ....	149
Table 17. Bed tax revenue per capita and revenue growth in the Montana study area. ....	104	Table 30. Reasonably foreseeable future actions.....	156
Table 18. Per capita personal income, Montana and three-county study area. ....	105	Table 31. Alternative 1 (baseline) projections of GNP visitation.....	163
Table 19. Total personal income, Montana and three-county study area. ....	105	Table 32. Projected study area effects on Park visitation, annual expenditures, and tourism-related employment for Alternative 2.....	165
Table 20. Unemployment rates, Montana and three-county study area. ....	105	Table 33. Projected annual effects on visitor expenditures for Alternative 2 (millions of year 2002 dollars). ....	165
Table 21. Study area population, Montana and three-county study area. ....	107	Table 34. Projected study area effects on Park visitation, annual expenditures, and tourism-related employment for Alternative 3.....	166
Table 22. Historical and projected population growth rates for the Montana study area. ....	107		

Table 35. Projected annual effects on visitor expenditures for Alternative 3 (millions of year 2002 dollars). .....	167	Table 47. Summary of Average Annual Construction-Related Effects .....	177
Table 36. Projected study area effects on Park visitation, annual expenditures, and tourism-related employment for Alternative 4.....	168	Table 48. Potential for disproportionate impacts on low income areas and minority populations from each alternative.....	179
Table 37. Projected annual effects on visitor expenditures for Alternative 4 (million of year 2002 dollars). .....	168	Table 49. Summary and comparison of average annual direct and indirect effects of Road rehabilitation alternatives on study area economic output (2002 dollars). .....	182
Table 38. Summary of average annual visitation-related effects. ....	169	Table 50. Assessment of socioeconomic impacts associated with Road rehabilitation. ....	184
Table 39. Projected Alternative 1 (baseline) annual construction activity by category (2002 dollars). .....	170		
Table 40. Projected baseline annual effects on construction expenditures for Alternative 1 (2002 dollars). .....	170		
Table 41. Projected construction expenditure for Alternative 2 (2002 dollars). .....	171		
Table 42. Projected effects on construction expenditures for Alternative 2 (2002 dollars). .....	172		
Table 43. Projected construction expenditures for Alternative 3 (2002 dollars). .....	173		
Table 44. Projected effects on construction expenditures for Alternative 3 (2002 dollars). .....	174		
Table 45. Projected expenditures for Alternative 4 (2002 dollars). .....	175		
Table 46. Projected construction expenditures for Alternative 4 (2002 dollars). .....	176		

## Appendices

Appendix A: Going-to-the-Sun Road Deficiencies and Repairs
Appendix B: Socioeconomic Impact Methods for Analysis and Supporting Data
Appendix C: Sensitive Wildlife and Plant Species
Appendix D: Comments and Responses on the Draft Environmental Impact Statement