Recreational Use of Selected Viewpoints on the Going-to-the-Sun Road, 2006

Glacier National Park

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Purpose

The reconstruction of the Going to the Sun Road (GTTSR) in Glacier National Park (GNP) gives rise to important questions about impacts on visitor behavior, use levels and patterns of use within the Park both during and following the construction activity. The Record of Decision (ROD) for the Reconstruction Environmental Impact Statement indicates that maintaining visitor access and a high-quality visitor experience are key issues. As now scheduled, the construction will take place over a seven to eight year period but the road will not be completely closed. The ROD indicates that visitors should not experience time delays of greater than 30 minutes when traveling over the GTTSR during the core summer months.

The overall goal of the reconstruction process is to repair the road with minimal disruptions to visitors in the short run while leading to reduced impacts on park values. This goal will be achieved through changes in road design, improved parking, restoration practices, development of an Intelligent Transportation System (ITS) involving a shuttle bus and information displays, as well as other actions. The effectiveness of these actions in achieving these goals, however, remains to be understood. Visitors to GNP are highly attached to the GTTSR, with about 80% of Park visitors traveling at least some part of the road. And while the road tends to be a destination experience itself, it also provides access to several trails and overlooks particularly for sub alpine areas, such as Logan Pass, the Highline Trail and the trails leading from Siyeh Bend. The effects of the proposed construction activity on visitor behavior and levels and patterns of use are unknown, both during and following the activity.

Description

This research project is designed to achieve two primary objectives: (1) provide baseline information that will allow park managers to mitigate impacts to visitor experiences, park values and key biophysical attributes; and (2) establish an understanding of how the implementation of an intelligent transportation system influences visitor behavior and experiences, and levels and patterns of use. The research integrates contemporary technology with traditional social science research methodologies to provide information necessary for the ITS envisioned by the supervisory reconstruction team. Such integration will allow GNP managers to model and eventually monitor in real time visitor patterns and levels of use. In addition, the research proposed will identify the key input and output variables useful in developing a monitoring and mitigation framework.

The project is divided into three phases. Phase one of this project was completed in the summer of 2005. In that phase, visitors were observed and interviewed at 13 viewpoints on the Going to the Sun Road. Based on about 7000 observations and 850 interviews, managers now have a very clear picture of how and why each viewpoint is used. This knowledge can be used to consider how a shuttle system might influence the visitor flows on the road and what viewpoints might be best used as stops for the bus. The second phase of research (reported here) was conducted in 2006 to complete baseline data of existing use on the road. Observations were made at the high-use destination areas that were not included in the 2005 sampling procedure (Avalanche Creek, Logan Pass,

McDonald Lake Lodge) as well as the lesser used area of Sun Point. In addition, the 2006 research was designed to provide insight on potential shuttle use through interviews with visitors regarding their support for and likelihood of using a shuttle system on the GTSR.

The third phase of the research, scheduled for summer 2007, is designed to evaluate visitor satisfaction with the shuttle system, answer questions about ITS and how visitors got information about the shuttle, ascertain why some visitors did not take the shuttle, and do a preliminary determination about use changes at selected locations. The knowledge gained in the first two phases will be used extensively in developing the evaluation procedures for the third phase.

Research Methods

Observations and interviews were conducted over 40 days between June 18 and August 21, 2006 (encompassing the heart of the season on GTTSR). There were 4 destination sites along the GTTSR selected for this phase of the research project. Locations chosen were: Lake McDonald Lodge (the main parking area between the lodge and the road), Avalanche Lake Trailhead parking lot (the parking area adjacent to the road and the picnic area), Logan Pass (a randomly selected sample of the parking area) and Sun Point (in which the entire area was observed) (Figure 1). The selection of these destinations was intended to complete the baseline of data from the 2005 study in which mostly pull-out sites were sampled. Destination areas were sampled during the primary daylight hours of operation (between 8 a.m. and 8 p.m.) in six-hour sampling periods, with two such periods per day (8 am to 2 pm and 2 pm to 8 am). Because of the complexity of the area, a four-person crew was used for collecting observation and interview data.

The sampling procedure used a systematic random sampling process in which time period (morning or afternoon) as well as location were randomly selected. Once a sampling regime was obtained (Appendix A), adjustments were made (using a random process) to the schedule to balance the ratio of morning and afternoon shifts as well as weekend and weekday shifts for each location. Each area was sampled 10 times over the course of the summer with half being used for observation and half being used for interviews. During the sample days identified for observation, the research crew gathered data on vehicles, visitors, and types of activities in which visitors engaged. All vehicles in the designated parking area during the observation period were observed. On the remaining days of the schedule, the research crew conducted short (two-minute) interviews (Appendix B) which covered visitor characteristics, reasons for stopping at selected destination areas, hiker characteristics, and willingness to use a shuttle in GNP. Interview data was collected through one-on-one interviews of the first four groups of visitors encountered each hour from each of the study areas. (This sampling schedule was adjusted to the first 5 groups encountered at Sun Point to compensate for low use in the early morning and late evening hours.) One person from each group was selected to complete the interview. The sampled person was an adult (18 years of age or older), and was systematically chosen by asking visitors for their birth date and sampling the person whose birth date was closest to the date of the interview.

A total of 434 interviews were conducted (Table 1). Sixty-four people refused to participate in the survey. This resulted in an 87 percent response rate.

Table 1: Interviews conducted at each sampling location

Location	Number of Interviews
Lake McDonald Lodge	108
Avalanche	110
Logan Pass	107
Sun Point	109
Total	434

Analysis of this report excludes from consideration respondents who refused to or failed to answer a question. Therefore, results will be given with respect to visitors who did answer each question. While the total number of interviews allows a confident analysis of general trends in the park, the within site numbers are smaller and should be viewed with greater caution.

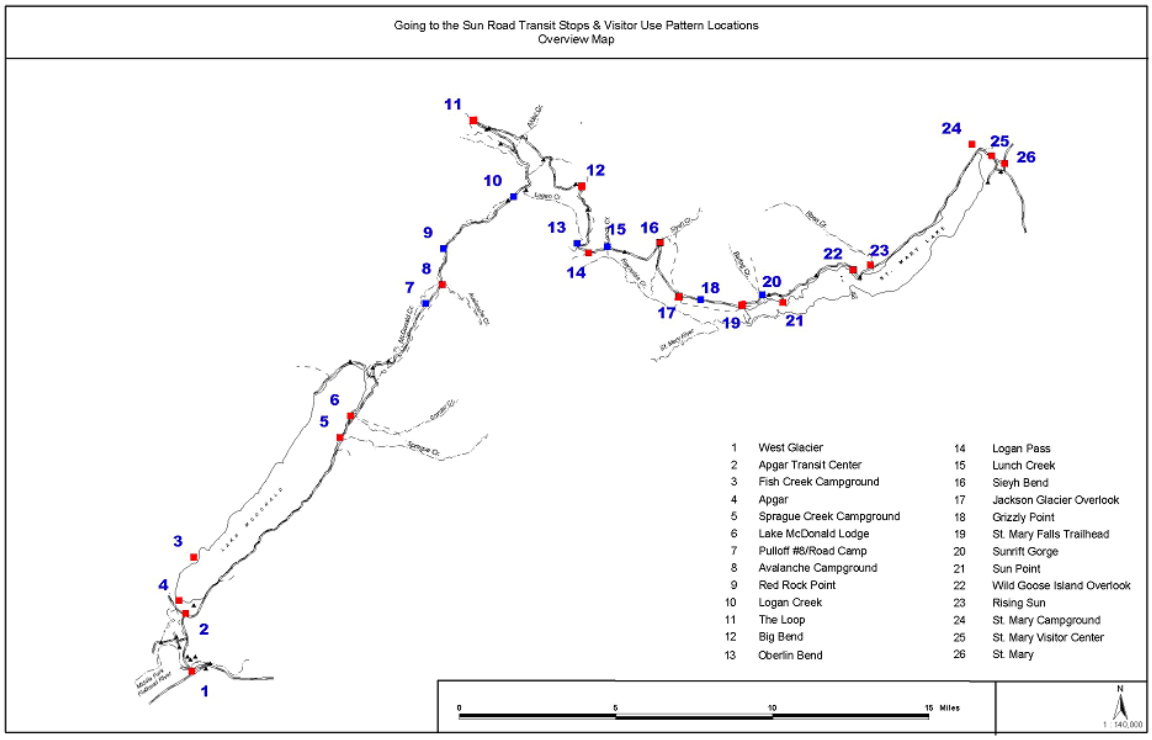

Figure 1 Location of viewpoints and pullouts along the Going to the Sun Road. The study results reported here include both locations included in the 2006 visitor study and those included in the 2005 visitor study (specific locations discussed in text)

Summary of Findings

The findings stated here are aggregated from the four areas selected for this phase of the study. Therefore, they may not necessarily be representative of all areas of the park. This section is meant as a general overview of the 2006 study findings. Data for each individual area will be discussed in a later section of this report.

Visitor Profile

Fifteen percent of visitors interviewed at the selected areas resided in Montana. In addition, 92 percent of visitors were United States residents, five percent were from Canadian provinces and three percent were from countries other than the United States or Canada. More than 8 out of ten (81%) of visitors interviewed were in groups that included family members and 40 percent were in groups of two.

Almost two-thirds of visitors (62%) surveyed indicated that they were spending one or more nights inside the park with the average length of stay (excluding those who stayed longer than two weeks) being 2.5 nights. The percentage of visitors indicating that they would be lodging within the park is higher than that found in the 2005 study.

Reasons for Stopping

Why did visitors stop at the locations sampled? Overall, 71 percent of visitors surveyed indicated that they had previously planned to stop at the area where they were contacted. Similar to results from the 2005 study, visitors who planned to hike from the selected areas were more likely to have planned their stop than those who did not plan to hike. Unlike the 2005 study, however, the likelihood of a planned stop was not associated with location of residence or nights spent inside the park.

Also unlike the 2005 study, the reasons visitors had for stopping were much more diverse. Over one-third (40%) of the visitors surveyed indicated that they stopped in order to take a hike. The second most popular reason for stopping was to look at the view (26%). In the 2005 study, the two most popular reasons for stopping were "view from the viewpoint" (64%) and "to take a picture" (48%).

Hikers

Visitors were asked a series of questions regarding hiking at the selected viewpoints. In addition to being able to indicate hiking as one of the reasons for stopping at the selected area, participants were also asked if they planned to take a hike from the location where they were interviewed. Visitors who said they were planning to take a hike from the area were also asked for the estimated time they planned to spend hiking, if they had planned a destination for their hike, and if they had left a car in another location.

Although only 40 percent of the visitors surveyed indicated hiking as a reason for stopping, 60 percent of those surveyed indicated that they would originate a hike from the location where they were interviewed. This implies that many visitors who choose to hike may not consider it their primary purpose for stopping. The mean time that visitors planed to hike was 4.6 hours; however the median time was 2.0. This difference is a

reflection of the full-day and overnight hikers that were interviewed. Less than 10 percent of hikers left a car in another location and only 2.5 percent planned to hike overnight. Of those who were planning to spend one or more nights in the back country, one-third (32%) planned to stay in a chalet while two-thirds (65%) planned to stay in a back country campground and the remaining three percent planned to stay in both a chalet and a backcountry campground.

Shuttle Bus System

Following the format of the 2005 study, visitors were asked about their willingness to ride a shuttle bus over the Going to the Sun road. Seventy-one percent indicated their willingness to ride a free shuttle. This percentage was exactly the same for those who were asked about their willingness to ride a shuttle with a cost of five dollars per person.

Section 1: General Findings

State of Origin

Visitors were asked to provide their state or province of residence (Table 2). In addition, observational data was compiled by recording the state or province on license plates (Table 3). (Rental cars were recorded separately)

Table 2 State or province of origin of interview respondents

Rank	State	Percentage of Respondents
1	Montana	17
2	California	8
3	Washington	8
4	Minnesota	5
5	Florida	3
6	Idaho	3
7	California	3
8	Michigan	3
9	Alberta	3
10	Texas	3
	All others	44

Table 3 State or province of residence of observed vehicles

Rank	State	Percentage of Observations
1	Montana	26
2	Washington	8
3	California	7
4	Idaho	5
5	Oregon	4
6	Minnesota	3
7	Alberta	3
8	Illinois	2
9	Utah	2
10	Florida	2
	All Others	38

*13% of vehicles observed were rentals

Group Type

Visitors were asked to categorize their group into one of the following categories: alone, friends, family, or family and friends. Eight-one percent of visitors surveyed indicated their group included family members (Figure 2).

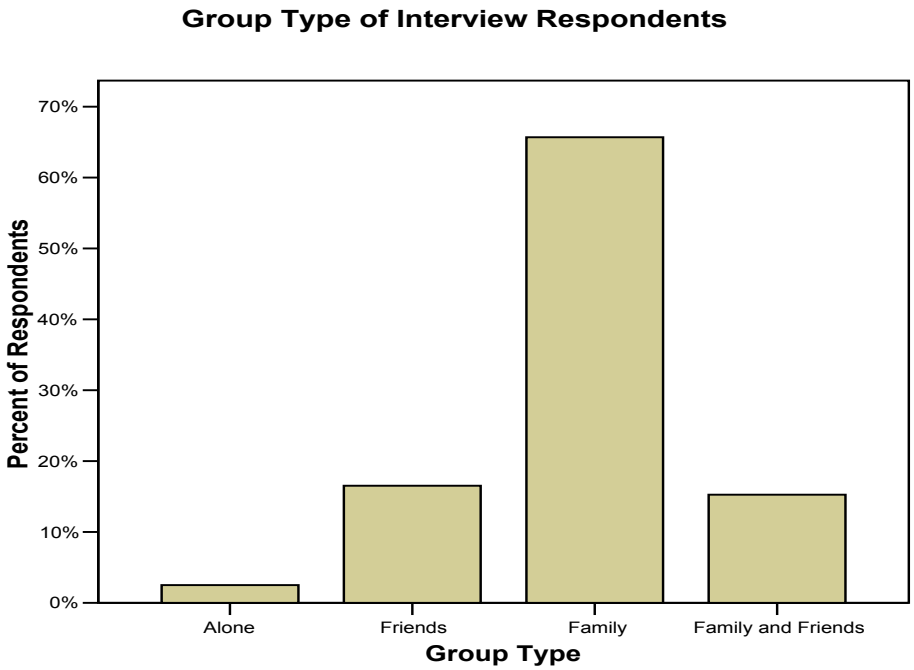

Figure 2 Group type of interview respondents

In addition, respondents were asked if they were part of an organized tour or group during their visit to the park. Less than 4% of visitors indicate that they were part

of an organized group or tour (0.5% were part of an organized tour and 2.8% were part of an organized group).

Group Size

The mean party size as indicated by interview respondents was 3.9 with a median of 3.0. Forty percent of those interviewed indicated that they were in a group of 2 people. The second most common group size was 4 (Figure 3).

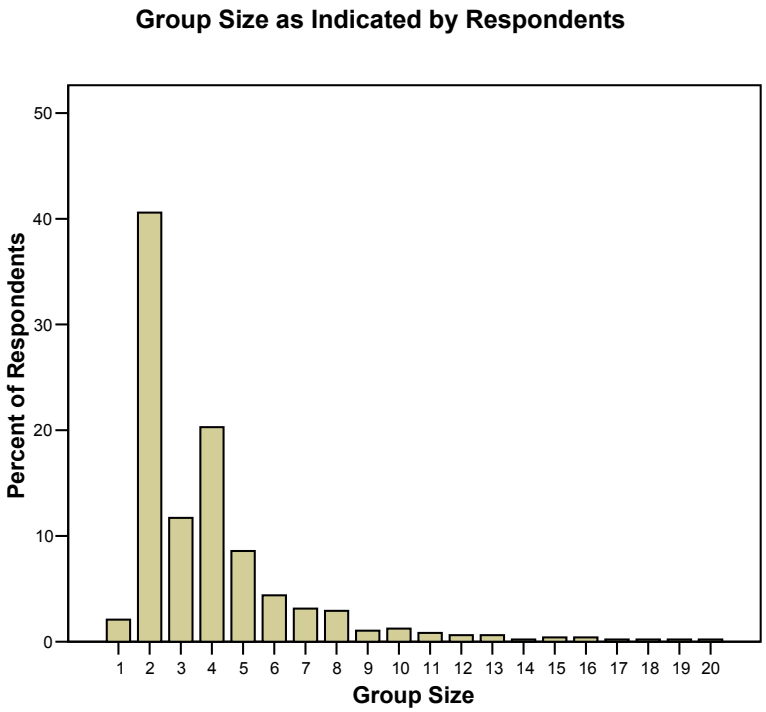

Figure 3 Group size as indicated by respondents

Nights Spent In Glacier National Park

Visitors were asked to indicate how many nights they would be spending inside Glacier National Park. Sixty-two percent of respondents indicated that they were planning to spend one or more nights inside of Glacier National Park (Figure 4). The mean length of stay exported (excluding visitors who were staying two weeks or longer) was 2.5 and the median was 2. Additionally, four respondents (or less than 1%) who responded to this question indicated a length of stay longer than three weeks.

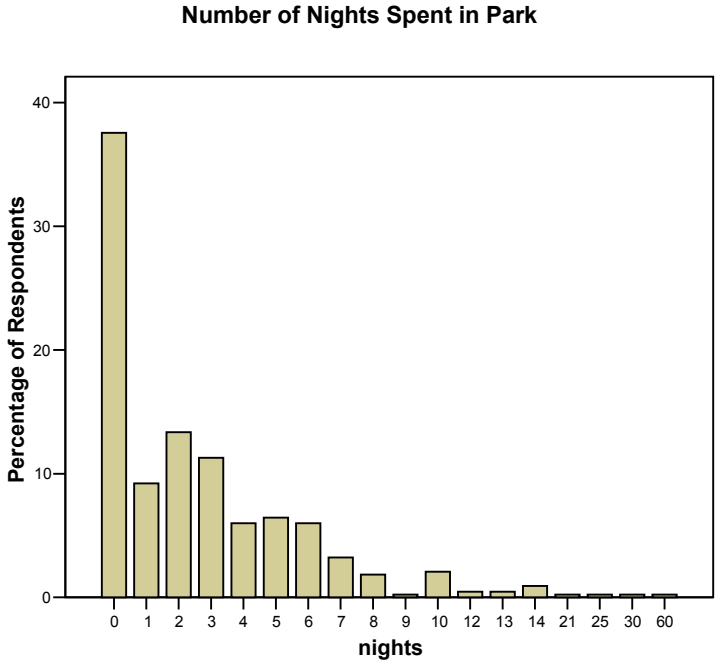

Figure 4 Number of nights spent in the park by respondents

Is Use of Viewpoints Spontaneous or Planned?

Visitors were asked if their decision to stop at the study location was planned or spur of the moment. Unlike the 2005 study when 37% of respondents indicated that they had planned to stop at the location where they were interviewed, a majority of respondents indicated that their decision to stop was a planned one. In fact, 71 percent of visitors indicated that the stop was planned as opposed to only 29 percent who indicated a spur of the moment decision. This may be due, in part, to the choice of high-use, destination areas in this year's study.

Visitors hiking from the location where they were interviewed were more likely to have planned their stop. Other variables did not show a significant relationship with whether a stop was planned.

Reasons Visitors Stop at Selected Areas

Visitors were asked to indicate their reasons for stopping at the sampled areas. Although visitors had many reasons for stopping, the highest percentage of visitors (43%) indicated that they stopped because their hike started there (Table 4). The second most popular reason for stopping (26%) was to look at the view. Again, this is a change from the 2005 data. This is not surprising, however, since the areas selected for the 2006 study contain popular trailheads.

Table 4 Reasons for stopping at study area as indicated by interview respondents

Reason for Stopping[a]	N	Percent of Respondents[b]
Starting a hike here	174	40.1%
Look at this particular view	112	25.8%
Needed the facilities here	39	9.0%
Photograph this particular view	30	6.9%
Wanted to have a picnic here	26	6.0%
Boat ride/tour[cd]	15	3.5%
Dining[cd]	15	3.5%
See lodge[cd]	14	3.2%
To see the interpretive exhibit	13	3.0%
Jammer tour[d]	13	3.0%
First spot available	12	2.8%
Horseback riding[cd]	11	2.5%
This was my destination[d]	10	2.3%
Recommended by others[d]	10	2.2%
Needed a break from driving	7	1.6%
Fishing[d]	6	1.4%
Been here before[d]	6	1.4%
Wildlife nearby	5	1.2

a Items cited by less than one percent of respondents are not included
b Cumulative percent may be great than 100% due to respondents ability to cite multiple reasons for stopping
c Reason only cited at Lake McDonald Lodge
dReasons given under the category of "other"

Length of Stay at Selected Areas

Average length of stay varied across location with an overall average of 71 minutes. Length of stay is covered in greater detail in the sections on the individual locations.

Section 2: Profile of Hikers

Percentage of Visitors who Hike from Viewpoints

Forty-three percent of interview participants indicated "Starting a hike here" as one of their reasons for stopping at the study location. Additionally, Sixty percent of visitors who were interviewed indicated that they planned to hike from the study area.

Duration of Hikes from Viewpoints

Several participants (7% of respondents to this question) indicated that they would be taking extended and overnight trips into the back country. The average time estimated for day-hiking by interview participants was 2.3 hours, the median time was 2.00.

Percentage of Hikers who Leave Cars in another Location

Interview participants who indicated that they planned to hike were asked if they had left a car in another location. Over 90 percent of interview participants indicated that their car was located in the study area. Of the 7.8 percent of hikers who indicated that their car was in another location, 3.6 percent left their car at Jackson Glacier Overlook. Other locations where visitors left their cars included: Avalanche, Horse Trail between Lake McDonald Lodge and Avalanche, Avalanche Campground, Apgar, St. Mary Pullout, Lake McDonald Lodge, Rising Sun, Oberlin, Sunrise, and Siyeh Pass.

Visitors who spent the Night in the Backcountry

Only 2.5 percent of visitors planned to hike overnight into the back country. Of those who were planning to spend one or more nights in the back country, on-third (32%) planned to stay in a chalet while two-thirds (65%) planned to stay in a back country campground and the remaining three percent planned to stay in both a chalet and a back country campground.

Section 3: Transit System Data

Likelihood of Visitors to Use a Shuttle in Glacier National Park

Visitors were asked about their interest in a voluntary shuttle for travel on the Going to the Sun road. Just over 70 percent of visitors interviewed stated that they would be willing to take a voluntary shuttle bus over the Going to the Sun road had it been available.

Effects of Willingness to Pay on Likeliness to use a Shuttle

The survey instrument included two questions about willingness to ride a shuttle in Glacier National Park. Half of the visitors who participated in the interviews were asked, "Would you be willing to take a free round-trip shuttle bus over the Going to the Sun road?" The other half of respondents were asked, "Would you be willing to take a round-trip shuttle bus over the Going to the Sun road if the expense was $5 per person?" 70.5% of respondents in each group replied, "Yes, likely" (Table 5).

Table 5 Interview respondents' willingness to ride shuttle

Response	Free Shuttle	Five Dollar Shuttle
Yes, Likely	70.5	70.5
No, Unlikely	25.4	23.2
Don't know	4.0	6.3

The Affects of Other Variables on Likeliness to use a Shuttle

No significant relationships were found between willingness to take the shuttle and the following visitor characteristics: state of residence, viewpoint, reason for stopping, party size, planned vs. unplanned stops or group type. For some of these variables (reason for stopping and party size, for example) there were many cases where too few responses fell within a given category to provide for accurate testing. Of those items that did provide adequate data for comparison, no significant relationships were found.

Section 4: Viewpoint-specific Data and Comparisons

Lake McDonald Lodge

The Lake McDonald Lodge area is a complex site. It is comprised of several different parking lots (Figure 5). Facilities there include the lodge, cabins, two restaurants, employee housing, and a general store. Because of this, Lake McDonald Lodge attracts a very distinct set of visitors. For example, many people at Lake McDonald Lodge were meeting their group there, taking a horseback ride, or taking a Jammer or Boat tour. This means that, unlike other areas included in the study, many people at Lake McDonald Lodge are on a schedule.

Figure 5 Lake McDonald Lodge study area

Parking Data

Only the main loop of the parking area at Lake McDonald Lodge was observed (Figure 6). The portion of the lot that is located closest to the Going to the Sun Road was a popular spot for people taking day hikes from Lake McDonald Lodge. Vehicles parked here were often in the lot for most of or the entire time that the lot was observed. Not surprisingly, the portion of the lot closest to the lodge was often used by people either staying or working in the lodge. Forty-five percent of observations exceeded the observation time. In other words, 45 percent of observations were of vehicles already in the lot when observation began, remaining in the lot when observation ended, or both. Eleven percent of observations were of vehicles that stayed in the lot during the entire six-hour observation period.

The average length of stops at Lake McDonald Lodge was 99 minutes; the median was 64 minutes (Table 6). Table 7 gives percentiles for amount of time spent in the lot at Lake McDonald Lodge. For example, 25 percent of vehicles were in the lot less than 28 minutes, 50 percent were in the lot less than 64 minutes and 75% were in the lot for less than 147 minutes (or conversely, 25% were in the lot for more than two hours). This high proportion is not surprising since a large percentage of visitors to Lake McDonald Lodge are either staying in the lodge or taking a tour or hike. The parking area was recorded as full during 12% of observations.

Table 6 Lake McDonald Lodge parking data

Median Duration of Stops (mins.)	64
Mean Duration of Stops (mins.)*	99
Percent of Observations Exceeding Observation Period	45%
Percent of Observations During Which Lot Was Full**	12%

* Understates mean because some use exceeded the observation period

** Not equivalent to the amount of real time the lot was full

Table 7 Lake McDonald Lodge Percentiles of Time in Lot

Percentile	Time (min)
25%	28
50%	64
75%	147

Visitor Data

The mean group size at Lake McDonald Lodge was 4.11 (Table 8). Fifty-nine percent of those interviewed at Lake McDonald Lodge indicated that it was a planned stop and 73 percent said they would use a shuttle.

Table 8 Lake McDonald Lodge visitor data

Mean Group Size(people)	4.11
Percent of Visitors Who Planned to Stop	59%
Percent of Visitors Likely to Use Shuttle	73%

Reasons for Stopping

The most popular reason for stopping at Lake McDonald Lodge was to take a hike (Table 9). This was closely followed by responses that fell into the other category which included seeing the lodge, dining, taking a boat ride/tour, and lodging.

Table 9 Reasons cited by respondents for stopping at Lake McDonald Lodge

Reason for Stopping[a]	N	Percent of Respondents[b]
Starting a hike here	22	20.4%
Boat ride/tour[c]	15	13.9%
Dining[cd]	15	13.9%
See lodge[c]	14	13.0%
Look at this particular view	11	10.2%
Horseback riding[c]	11	10.2%
Jammer tour[c]	9	8.3%
Needed the facilities here	6	5.6%
Lodging[c]	4	3.7%
First spot available	3	2.8%
Photograph this particular view	3	2.8%
Wanted to have a picnic here	3	2.8%
Visiting and employee[c]	3	2.8%
Get supplies[c]	3	2.8%
Traffic was moving too slowly	2	1.9%
Meeting party here[c]	2	1.9%
This was my destination[c]	2	1.9%

a Items cited by less than one percent of respondents are not included
b Cumulative percent may be great than 100% due to respondents ability to cite multiple reasons for stopping
c Reasons given under the category of "other"

Activities Observed

Lake McDonald Lodge is a complex area containing the lodge, a general store, two restaurants, boat tours, Jammer tours, and a trailhead used for both hiking and horseback riding. Because of the complexity of the site, it was difficult to accurately record, through observation, what activities visitors engaged in.

Hiking at Lake McDonald Lodge

Visitors were asked a series of questions about hiking from Lake McDonald Lodge. Thirty-one percent of interview respondents planned to hike from the Lake McDonald Lodge parking area. Eleven percent of survey respondents indicated that they would be spending at least one night in the back country. The mean estimate for hiking time of day hikers was 3.3 hours and the median was 4 hours.

Of those visitors who planned to hike from Lake McDonald Lodge (n = 33), more than half indicated they had a planned destination for their hike. These destinations

included: Avalanche Lake (2 respondents), Snyder Lake (4 respondents), Sperry Chalet (8 respondents), Sperry Glacier (1 respondent), Gunsight Pass (6 respondents), Fish Lake (1 respondent), Snyder Creek (1 respondent) and Brown Lookout (1 respondent).

Location of Vehicle

Visitors who indicated that they planned to hike from Lake McDonald Lodge (n = 33) were also asked if they had left a car in another location. Ten percent of hikers from Lake McDonald Lodge indicated that they had left a car at another location. These visitors indicated that they left their cars at Jackson Glacier Overlook (two respondents, hiking to Gunsight Pass) and Avalanche (One respondent, hiking to Brown Lookout).

Lake McDonald Lodge Discussion

Distinctive surges in use were evident at Lake McDonald Lodge around mealtimes and shortly before the beginning of tours. The portion of the lot nearest the lodge tended to be used by people going into the lodge while the portion of the lot nearest the road tended to be used by people hiking or horseback riding.

During times when the lot at Lake McDonald Lodge was full a couple of issues were evident. First, motorcycles would often park in non-designated areas such as the grassy spots at the end of the lot. There was also an issue with RVs parking in the bus parking area. Many people in recreational vehicles would come to Lake McDonald Lodge to take a Jammer tour up the road and would leave their RV in the bus parking area for several hours.

Avalanche

Like Lake McDonald Lodge, Avalanche Lake Trailhead parking area is a high-use area. The areas that were studied during the 2006 project in the Avalanche area were the parking lot directly in front of the restroom facility and the picnic area (Figure 6). Avalanche differs from Lake McDonald Lodge, however, in that over half of visitors who stop in this area are taking a hike.

Figure 6 Avalanche study area

Parking Data

The mean duration of stops at Avalanche was 79 minutes (Table 10) with a median time of 58 minutes (Table 10). One-fourth (25%) of visitors who stopped at Avalanche stayed 20 minutes or less and 25 percent were there for just over two hours (133 minutes) (Table 11).

The parking area was at or above capacity during 34 percent of observation periods. The lot generally began to fill around 10:30 am and would remain mostly full

until around 4:00 pm. Although the entire lot was only full for a few hours a day, the lot adjacent to the street was at capacity or close to capacity the majority of the time.

Table 10 Avalanche parking data

Median Duration of Stops (mins.)	58
Mean Duration of Stops (mins.)*	79
Percent of Observations Exceeding Observation Period	50%
Percent of Observations During Which Lot Was Full**	34%

* Understates mean because some use exceeded the observation period
** Not equivalent to the amount of real time the lot was full

Table 11 Avalanche percentiles of time in lot

Percentile	Time (min)
25%	20
50%	58
75%	133

Visitor Data

The mean group size at Avalanche was 4.33 (Table 12). Seventy-four percent of visitors interviewed at Avalanche had planned to stop there and 69 percent indicated a willingness to ride the shuttle.

Table 12 Avalanche visitor data

Mean Group Size(people)	4.33
Percent of Visitors Who Planned to Stop	74%
Percent of Visitors Likely to Use Shuttle	69%

Reasons for Stopping

Visitors were asked to indicate why they chose to stop in the Avalanche area. The majority of people who stopped at Avalanche indicated that they did so to take a hike (Table 13). This was followed by people stopping to use the restroom facilities. The percentage of people stopping at Avalanche for reasons other than hiking could be reduced by the number of hikers who stayed parked in the lot for long periods of time.

Table 13 Reasons cited by respondents for stopping at Avalanche

Reason for Stopping[a]	N	Percent of Respondents[b]
Starting a hike here	72	65.5%
Needed the facilities here	20	18.2%
Look at this particular view	18	16.4%
Recommended by others[c]	9	8.2%
Photograph this particular view	4	3.6%
Wanted to have a picnic here	3	2.7%
Fishing[c]	3	2.7%
Needed a break from driving	3	2.7%
First open spot available	2	1.8%
See interpretive exhibit	2	1.8%
This was my destination[c]	2	1.8%
This is my favorite place[c]	2	1.8%
Ranger walk[c]	2	1.8%

a Items cited by less than one percent of respondents are not included
b Cumulative percent may be great than 100% due to respondents ability to cite multiple reasons for stopping
c Reasons given under the category of "other"

Activities Observed

Because of the complexity of the Avalanche area, visitors to the area could not be monitored at all times. Therefore, observation data for activities was limited. The top five activities observed at Avalanche were hiking, restroom stop, picnicking, looking at view, and quick stop (Table 14).

Table 14 Top five activities observed at Avalanche*

Observed Activity	Percent of Respondents
Hiking	65%
Restroom	27%
Picnic	14%
View	4%
Quick Stop	3%

*multiple activities were recorded for each group when possible

Hiking at Avalanche

Visitors were asked a series of questions about hiking from the Avalanche parking area. Seventy-six percent (n = 83) of interview respondents planned to hike from the Avalanche area. The mean estimate for hiking time was 2.6 hours and the median was 2.5 hours.

Ninety-five percent of visitors who planned to hike from the Avalanche area had a planned destination for their hike. These destinations included: Avalanche Lake (49 respondents), Trail of the Cedars (29 respondents), and a fishing spot (one respondent).

Location of Vehicle

Visitors who indicated that they planned to hike from Avalanche were also asked if they had left a car in another location. Five percent of hikers from Avalanche indicated that they had left a car at another location. These visitors indicated that they left their cars at the horse trail between Lake McDonald Lodge and Avalanche (one respondent), Avalanche Campground (one respondent), and Apgar (one respondent).

Avalanche Discussion

There were several issues observed in the Avalanche area that fall outside the scope of observing individual vehicles. First, parking in the picnic area can be a problem. Because parking spots are not designated, visitors often parked in ways that either reduced the capacity of the lot or interfered with traffic flow.

In addition, recreational vehicles (RVs) in the area presented some issues. For example, when RVs would park in the parking area adjacent to the street, it was difficult for other vehicles to pull out of the lot safely. When RVs were parked in the picnic area, they often interfered with traffic flow. Although there are places for RVs to park safely in the picnic area, many of these spots were usually taken by automobiles.

The Avalanche area is also a turn around location for RVs. This was, at times, problematic. When the parking area and picnic area were full, RVs would turn around on the road. This is a safety issue because the part of the road that RVs used to turn around was also the location of two crosswalks.

Tour busses also created issues at Avalanche. Many tours make a stop at Avalanche to walk the Trail of the Cedars. Often, these busses would park behind cars in the parking area adjacent to the street. This required a great deal of shuffling when visitors wanted to leave the area.

Logan Pass

Logan pass is a unique area along the Going to the Sun road (Figure 6). It is the starting point of several trails, a popular visitor center is located there, with ranger programs, and the opportunity to view wildlife from the road is high.

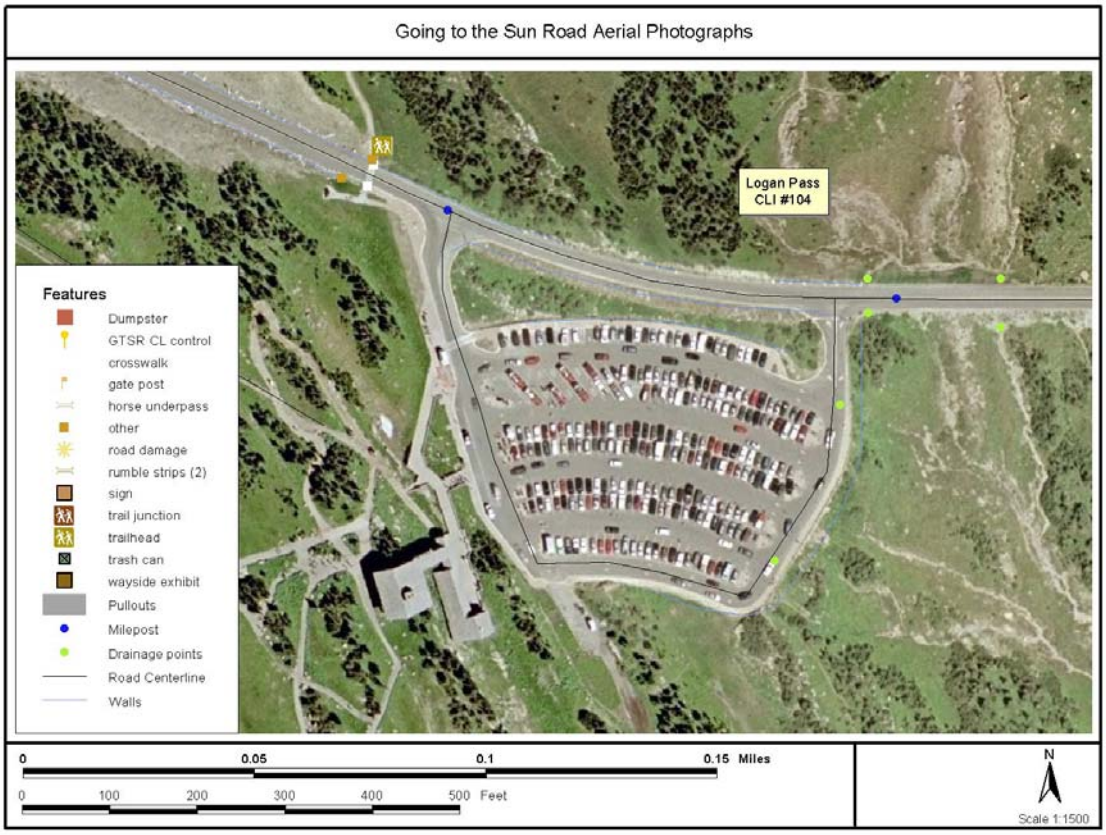

Figure 7 Logan Pass study area

Parking Data

The mean duration of stops at Logan Pass was 34 minutes (Table 15) with a median of 62 minutes and 25% of people there for longer than 86 minutes (Table 16). Thirty-six percent of observations exceeded the observation period and the lot was full during 13% of observations. Fill time at Logan Pass was generally around 11:00 AM and remained full until after 2:00 PM. Although the lot is only full for an average of three hours, it is near capacity with spots only staying open for a few minutes for a short period of time surrounding the time the lot is full.

Table 15 Logan Pass parking data

Median Duration of Stops (mins.)	34
Mean Duration of Stops (mins.)*	62
Percent of Observations Exceeding Observation Period	36%
Percent of Observations During Which Lot Was Full**	13%

* Understates mean because some use exceeded the observation period

**Not equivalent to the amount of real time the lot was full

Table 16 Logan Pass percentiles of time in lot

Percentile	Time (min)
25%	17
50%	34
75%	86

Visitor Data

The mean group size of people at Logan Pass is 4.27 (Table 17). Eight-five percent of visitors interviewed had planned to stop at Logan Pass and 73 percent indicated a willingness to take a shuttle.

Table 17 Logan Pass visitor data

Mean Group Size (people)	4.27
Percent of Visitors Who Planned to Stop	85%
Percent of Visitors Likely to Use Shuttle	73%

Reasons for Stopping

The top two reasons people indicated for stopping at Logan Pass were to look at the view and because their hike started there (Table 18). These were followed by "other" which was comprised of: this was my destination, meeting party here, and photography.

Table 18 Reasons cited by respondents for stopping at Logan Pass

Reason for Stopping[a]	N	Percent of Respondents[b]
Look at this particular view	44	41.1%
Starting a hike here	39	36.4%
Needed the facilities here	12	11.2%
Photograph this particular view	12	11.2%
To see the interpretive exhibit	11	10.3%
This was my destination[c]	5	4.7%
First spot available	4	3.7%
Needed a break from driving	4	3.7%
Wildlife nearby	3	2.8%
Been here before[c]	3	2.8%
Kids needed a break	2	1.9%
Jammer tour[c]	2	1.9%
Fishing [c]	2	1.9%
Group wanted to stop [c]	2	1.9%

a Items cited by less than one percent of respondents are not included
b Cumulative percent may be great than 100% due to respondents ability to cite multiple reasons for stopping
c Reasons given under the category of "other"

Activities Observed

Logan Pass is a complex area. Because most visitors initially go to the Visitor Center upon stopping, it was impossible to accurately capture observational data on visitor activity.

Hiking at Logan Pass

Visitors were asked a series of questions about hiking from Logan Pass. Sixty-one percent of interview respondents planned to hike from Logan Pass. The mean estimate for hiking time was 3 hours and the median was 2 hours.

Eighty-one percent of visitors who planned to hike from Logan Pass had a planned destination for their hike. These destinations included: Hidden Lake (38%), Hidden Lake Overlook (18%), Granite Chalet (5%), Highline Trail (10%), Garden Wall (2%), Swift Current (2%), St. Mary Falls (2%), Mt. Oberlin (5%), and Bear Hat Mountain(2%).

Location of Vehicle

Visitors who indicated that they planned to hike from Logan Pass were also asked if they had left a car in another location. Ten percent of hikers from Logan Pass indicated that they had left a car at another location. These visitors indicated that they left their cars at Jackson Glacier Overlook (one respondent), Avalanche (One respondent), Saint Mary Pullout (one respondent), Lake McDonald Lodge (one respondent), Rising Sun (two respondents), Oberlin (one respondent).

Logan Pass Discussion

The parking area is often full at Logan Pass and the outcome of this is visitors parking at other viewpoints and walking up the road to Logan Pass.

This is also an area where wildlife interactions are common. When wildlife comes into the parking area, it is common to see visitors following the animals around taking pictures. Another common visitor/wildlife interaction occurs with ground squirrels. While conducting interviews in this area, it was common to see visitors feeding the ground squirrels.

Most visitors come to Logan Pass during times that the visitor's center is open. Some visitors, however, arrive before the visitor's center opens and after it closes. Those arriving early are often hikers. During the hours after the visitor center is closed, many visitors are taking pictures and observing wildlife.

During times when the parking lot is full, many motorists circle the lot looking for a spot. Often these visitors will drop off members of their group and circle the lot or stop along the perimeter of the lot while waiting for their party.

While the motorcycle spots in the front of the parking lot are often in use, the ones located at the back of the lot are empty for the majority of the day. Also, several of the road construction crew members parked their personal vehicles in the Logan Pass lot, leaving their cars there for the entire day.

Sun Point

Sun Point was a much less complex area than the others included in this study (Figure 6). As a result, there is more richness in the observation data. For example, it was quite easy for observers to capture the activities in which visitors participated.

Figure 8 Sun Point study area

Parking Data

The median duration of stops at Sun Point was 25 minutes with a mean of 42 minutes (Table 19) and 25 percent of visitors were there for longer than 58 minutes (Table 20). Twenty-seven percent of observations exceeded the observation period and the lot was never full during the observation period.

Table 19 Sun Point parking data

Median Duration of Stops (mins.)	25
Mean Duration of Stops (mins.)*	42
Percent of Observations Exceeding Observation Period	27%
Percent of Observations During Which Lot Was Full**	0%

* Understates mean because some use exceeded the observation period

** Not equivalent to the amount of real time the lot was full

Table 20 Sun Point percentiles of time in lot

Percentile	Time (min)
25%	9
50%	25
75%	58

Visitor Data

The mean group size at Sun Point was 3.28 (Table 21). Forty-nine percent of those interviewed indicated that they had planned to stop at Sun Point. In addition, 67 percent of those surveyed indicated a willingness to use a shuttle in Glacier National Park.

Table 21 Sun Point visitor data

Mean Group Size(people)	3.28
Percent of Visitors Who Planned to Stop	49%
Percent of Visitors Likely to Use Shuttle	67%

Reasons for Stopping

The top two reasons for stopping at Sun Point were "Hike Start Here" and to look at the view (Table 22). This was followed by picnicking, other (comprised of repeat visit, stopped by accident, stopping at all viewpoints) and photography.

Table 22 Reasons cited by respondents for stopping at Sun Point*

Reason for Stopping[a]	N	Percent of Respondents[b]
Starting a hike here	41	37.6%
Look at this particular view	39	35.8%
Wanted to have a picnic here	20	18.3%
Photograph this particular view	11	10.1%
First spot available	3	2.8%
Someone in group needed to stretch	2	1.8%
Been here before[c]	2	1.8%
Stopped by accident	2	1.8%
Looking at all points[c]	2	1.8%

a Items cited by less than one percent of respondents are not included
b Cumulative percent may be great than 100% due to respondents ability to cite multiple reasons for stopping
c Reasons given under the category of "other"

Activities Observed

Unlike the other areas observed in this study, it was possible to accurately observe visitor activities at Sun Point. The top two activities that were observed at Sun Point were hiking and picnicking (Table 23). This was followed by: look at view, quick stop, and use the bathroom.

Also of interest at Sun Point was which trailhead visitors used when hiking. The trails were numbered from east to west with the marked trailhead designated as trail one (Figure 6). Sixty percent of hikers used the marked trailhead and 36 percent used trail 4 (the most westerly trailhead). Less than 1 percent of hikers used the two middle trailheads (Table 24).

Table 23 Top five observations of activity at Sun Point

Observed Activity	Percent of Respondents
Hiking	64%
Picnicking	18%
Look at View	9%
Quick Stop	7%
Bathroom	6%

Table 24 Percent of hikers per trailhead at Sun Point

Trail	Percent of Hikers
Trail 1	63%
Trail 2	<1%
Trail 3	<1%
Trail 4	36%

Hiking at Sun Point

Visitors were asked a series of questions about hiking from Sun Point. Seventy-two percent of interview respondents planned to hike from Sun Point. The mean estimate for hiking time was 1.25 hours and the median was 1 hours.

Seventy-three percent of visitors who planned to hike from Sun Point had a planned destination for their hike. These destinations included: Baring Falls (21%), Sun Point (21%), the Nature Trail (16%), St. Mary Falls (3%), Sunrift Gorge (3%), Virginia Falls (3%), Siyeh Pass (3%), St. Mary Lake (3%), Jackson Glacier Overlook (1%), and the coordinates on their geo-cache (1%).

Location of Vehicle

Visitors who indicated that they planned to hike from Sun Point were also asked if they had left a car in another location. Only one of the hikers from Sun Point indicated that they had left a car at another location. This visitor indicated that the car had been left at the Siyeh bend parking area.

Sun Point Discussion

Most visitors to Sun Point do not appear to know what is there. Many visitors would pull into the Sun Point lot, circle the lot and leave. Also, many visitors would stop and ask the research crew about the sight.

It was also observed that appropriate signage on the trails was lacking. Many visitors would head out on the trail and then come back to ask a member of the research team how to get to their preferred destination. There were also many comments made about the need for a more informative trail guide. Many visitors indicated a desire for a map of the trails leading from Sun Point in the brochure.

There is also a demand for more picnic tables in the Sun Point area. Many visitors were observed waiting for a picnic table.

Since Sun Point is the beginning of many hikes that could end in another location, it presents opportunities for visitors using the shuttle. For example, the lot is under-utilized and therefore could reasonably accept more visitor traffic. These visitors could then hike to one of the many falls and catch the shuttle at the end of their hike.

Section 5: Integrated Findings 2005-2006

The purpose of this study was to complete the baseline data from the 2005 visitor study. Combining the information gathered through this phase of the study with that gathered in 2005 provides a greater understanding of how visitors are using park facilities along GTTSR.

Visitor Characteristics

Visitors who participated in the 2006 survey averaged longer stays inside the park (2.5 nights) than those who participated in the 2005 survey (1.5 nights) (Table 25). The 2006 survey participants were also more likely (71%) to have planned to stop at the location where they were interviewed than participants of the 2005 survey (37%).

Table 25 Visitor characteristics 2005-2006

Characteristic	2006	2005
Nights in Park	2.5*	1.5
Planned to Stop	71%	37%
Mean Hiking Time (hours)	4.7**	4.0
Left Car Elsewhere	5.6%	6%
Plan Overnight Hike	2.5%	1.7%

*Excluding visitors who indicated a stay of more than two weeks
**Including over-night hikers

Length of Stay

Mean length of stay at viewpoints was generally longer at the locations observed in the 2006 study than in the 2005 study (Table 26). This is not surprising, however, since the 2006 study included Lake McDonald Lodge as one of the sampling locations.

Table 26 Length of stay observed at viewpoints 2005-2006

Viewpoint	Mean (min)	Median (min)
2006		
Lake McDonald Lodge	64	99
Avalanche	58	79
Logan Pass	34	62
Sun Point	25	42
2005		
Road Camp	5.51	4
Red Rock	11.71	10
Lower Loop	5.56	8
Upper Loop	6.45	7
Big Bend	6.37	5
Oberlin Bend	12.22	12
Lunch Creek	9.85	8
Siyeh Bend	5.80	17
Upper Jackson	4.51	4
Lower Jackson	6.77	16
St. Mary Falls	21.79	43
Sunrift Gorge	13.53	13
Wild Goose Island	5.84	5

Percent Hiking by Viewpoint

The majority of visitors interviewed in the 2006 study indicated that they planned to hike from the location where they were interviewed (Table 27). While some of the sites in the 2005 study (such as St. Mary's Falls and Siyeh Bend) had a high proportion of hikers, the majority of sites in the 2005 study had a low percentage of respondents who planned to hike.

Table 27 Percent of interview participants hiking by viewpoint 2005-2006

Viewpoint	Percent Hiking
2006	
Lake McDonald Lodge	31%
Avalanche	67%
Logan Pass	61%
Sun Point	72%
2005	
Road Camp	0%
Red Rock	0%
Lower Loop	24%
Upper Loop	18%
Big Bend	2%
Oberlin Bend	3%
Lunch Creek	7%
Siyeh Bend	43%
Upper Jackson	6%
Lower Jackson	26%
St. Mary Falls	72%
Sunrift Gorge	16%
Wild Goose Island	1%

Stated Willingness to Ride Shuttle

The percentage of visitors who indicated a willingness to ride a free shuttle in the park was almost identical in 2006 and 2005 (Table 28). When asked about their willingness to ride a five dollar shuttle, however, 70.5 percent of respondents to the 2006 survey stated a willingness to ride while only 63 percent of respondents in the 2005 study did. This may be partially due to the manner in which the question was asked. In the 2006 study, half of the participants were asked about a free shuttle and the other half were asked about a shuttle costing five dollars. In contrast, the 2005 study design consisted of asking visitors first about the free shuttle and then about a shuttle costing five dollars.

Table 28 Willingness of survey participants to ride the shuttle

Interview Respondents Willingness to Ride Shuttle				
Response	**Free Shuttle**		**Five Dollar Shuttle**	
	2006	**2005**	**2006**	**2005**
Yes, Likely	70.5%	70.4%	70.5%	63.0%
No, Unlikely	25.4%	25.3%	23.2%	30.5%
Don’t know	4.0%	4.2	6.3%	6.5%

Appendices

Appendix A: Sampling Plan

Date	Day	Time	Place
6/18/2005	Sunday	PM	Lake McDonald Lodge
6/19/2005	Monday	AM	Avalanche
6/20/2005	Tuesday	AM	Lake McDonald Lodge
6/22/2005	Thursday	AM	Avalanche
6/25/2005	Sunday	PM	Sun Point
6/27/2005	Tuesday	AM	Sun Point
6/28/2005	Wednesday	PM	Logan Pass
6/29/2005	Thursday	AM	Logan Pass
7/4/2005	Tuesday	PM	Logan Pass
7/5/2005	Wednesday	AM	Avalanche
7/6/2005	Thursday	AM	Sun Point
7/7/2005	Friday	PM	Lake McDonald Lodge
7/8/2005	Saturday	AM	Logan Pass
7/11/2005	Tuesday	PM	Sun Point
7/12/2005	Wednesday	PM	Avalanche
7/13/2005	Thursday	AM	Lake McDonald Lodge
7/14/2005	Friday	PM	Avalanche
7/15/2005	Saturday	AM	Logan Pass
7/20/2005	Thursday	AM	Sun Point
7/21/2005	Friday	PM	Logan Pass
7/22/2005	Saturday	PM	Lake McDonald Lodge
7/23/2005	Sunday	PM	Avalanche
7/24/2005	Monday	AM	Sun Point
7/26/2005	Wednesday	PM	Sun Point
7/30/2005	Sunday	AM	Lake McDonald Lodge
7/31/2005	Monday	PM	Logan Pass
8/1/2005	Tuesday	PM	Avalanche
8/2/2005	Wednesday	AM	Avalanche
8/3/2005	Thursday	AM	Logan Pass
8/8/2005	Tuesday	PM	Sun Point
8/9/2005	Wednesday	AM	Lake McDonald Lodge
8/10/2005	Thursday	AM	Lake McDonald Lodge
8/11/2005	Friday	PM	Sun Point
8/12/2005	Saturday	PM	Avalanche
8/15/2005	Tuesday	PM	Lake McDonald Lodge
8/16/2005	Wednesday	PM	Logan Pass
8/17/2005	Thursday	AM	Avalanche
8/18/2005	Friday	AM	Sun Point
8/19/2005	Saturday	PM	Lake McDonald Lodge
8/20/2005	Sunday	AM	Logan Pass

Appendix B: Short Interview Form

Glacier National Park
High Use Area Visitor Survey
Short Interview
Summer 2006
OMB Approval #: 1024-0224 (NPS # 06-042)
Expiration Date: April 1, 2007

Area # ___
Date ____
Time ____

1. What is your state or province of residence? ___
   or if not from the U.S. or Canada, your country _____
2. How many nights will you be spending in Glacier National Park? ____
3. How many people are in your group (including yourself)? _____
4. Which of the following best describes your personal group?
   a. Alone
   b. Friends
   c. Family
   d. Family and friends

Is your personal group part of an (check all that apply):

a. Organized tour
b. Organized group (church group, school group, boy scouts, etc.)
c. Other

5. Which of the following best describe why you chose to stop at this viewpoint (please check all that apply): (NOTE: RESPONDENT WILL BE GIVEN A CARD WITH THESE LISTED)

- ☐ This was the first open spot available
- ☐ I saw wildlife near by
- ☐ Traffic was moving too slowly
- ☐ My kids needed a break
- ☐ I wanted to look at this particular view
- ☐ I am starting a hike here
- ☐ I needed a break from driving
- ☐ I or someone in the group needed a stretch
- ☐ My pet needed a break
- ☐ I wanted to see the interpretive exhibit
- ☐ I needed the facilities here (toilet, trash cans, etc.)
- ☐ I wanted to photograph this particular view
- ☐ We wanted to have a picnic here
- ☐ The presence of road construction
- ☐ Other (please specify)_____

6. When you stopped here was it:
    a. a spur of the moment decision, or
    b. a stop planned ahead of time?

7. Did/do you plan to take a hike from this pullout? ___Yes ___No **(If no, go to 7c?)**
    a. (If **YES**) Do you have a specific hiking destination? ___ Yes ___ No
    b. (If **YES**) Destination _____
    c. How long were (or do you plan) to be walking (estimated hours)? _____
    d. Did you leave a car in another location? ___Yes ___ No **(If no, go to 8)**
        1. (If **YES**) Where did you leave your car? _____

8. Are you taking an overnight trip in the backcountry? ___Yes ___ No **(If no, go to 9)**
    (If **YES**) Where are you staying? (Circle all that apply)
        a. A Chalet
        b. A campground

9. Would you be willing to take a free round-trip shuttle bus over the Going to the Sun Road?

___ Yes, likely
___ No, unlikely
___ Don't know

Or

9b. Would you be willing to take a round-trip shuttle bus over the Going to the Sun Road if the expense was $5 dollars per person?

___ Yes, likely
___ No, unlikely
___ Don't know

(Questions 9 and 9b will be randomly alternated through the sampling protocol.)