Expedited Approval for NPS- Sponsored Public Surveys

1.	**Project Title** | **Submission Date:**	Visitor Attitudes Toward Management of the Denali Park Road: A Stated Choice Analysis	1/23/2009

2.   **Abstract:**   This study is designed to assist Denali National Park in making informed visitor use management decisions for the Denali Park Road – the primary way that visitors access the park. The study includes an onsite visitor survey with two questionnaire versions. The onsite survey will be administered to park road visitors to help determine their preferences regarding management of the park road. Additional information on visitor characteristics and visitors' experiences will be gathered in the survey instrument. The onsite survey will be administered on 30 randomly selected days starting in mid-August, 2009. Study findings will assist park staff in formulating indicators and standards of quality as part of the park's VERP planning process.

(not to exceed 150 words)

3. **Principal Investigator Contact Information**

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4. **Park or Program Liaison Contact Information**

    First Name: Phillips   **Last Name:** Laura

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Project Information

5. **Park(s) For Which Research is to be Conducted:**

   Denali National Park

6. **Survey Dates:**   8/17/2009 (mm/dd/yyyy)   to   10/15/2009 (mm/dd/yyyy)

7. **Type of Information Collection Instrument (Check ALL that Apply)**

   ❑ Mail- Back Questionnaire   **X** On- Site Questionnaire   ❑ Face- to- Face Interview   ❑ Telephone Survey   ❑ Focus Groups

   ❑ Other (explain)

8. **Survey Justification:** (Use as much space as needed; if necessary include additional explanation on a separate page.)

Legal Justification: The National Park Service Act of 1916, 38 Stat 535, 16 USC 1, et seq., requires that the National Park Service (NPS) preserve the national parks for the use and enjoyment of present and future generations. At the field level, this means resource preservation, public education, facility maintenance and operation, and physical developments that are necessary for public use, health, and safety. Allocation of funding is to be roughly in proportion to the seasonally adjusted volume of use (P. L. 88-578, Sect. 6) and in consideration of visitor characteristics and activities for determining carrying capacity (92 Stat. 3467; P. L. 95-625, Sect. 604 11/10/78). Other federal rules (National Environmental Policy Act, 1969 and NPS guidelines) require visitor use data in impact assessment of development on users and resources as part of each park's general management plan.

Management Justification: Denali National Park has experienced increases in visitation over the past decade. Increasing use of the park may negatively affect the quality of the visitor experience through crowding and traffic congestion on the park road. Since 1972, traffic on the Denali Park Road has been limited mostly to buses. The park's General Management Plan requires managing the road with a limit on the number of buses using the road during the primary visitation season. The information collected in this study will help determine visitor preferences for social conditions, resource conditions, and potential management actions on the road. The stated-choice scenarios (see questionnaires and attached matrices) were developed with the help of park managers. They describe potential management alternatives that may be considered in planning for the park's road. The study will improve managers' understanding of visitor experiences on the Denali Road and the potential impact of the alternative actions on these experiences. This information will substantially enhance current park planning and management efforts.

The proposed survey is a continuation of a multi-year, multi-disciplinary research project being conducted by the park that addresses visitor use, the visitor experience, and management of the Denali Park Road. The proposed survey integrates and builds on findings from developmental work in 2006 and 2007. Earlier studies identified visitor-based indicators and standards of quality for trips on the Road. The proposed research utilizes stated choice modeling and associated statistical procedures to identify the relative importance of indicator variables that have emerged from previous research and that have been suggested in the Denali Park Road planning process. Stated choice modeling is a survey procedure that asks respondents to make choices between different levels of specific site attributes. It is used extensively in business, marketing, and related fields and has been applied successfully to park management. A total of 18 combinations of site attributes will be used for each survey, with each respondent responding to 9 of the combinations. Two versions of the questionnaire will be developed, and approximately equal numbers of respondents will complete each version. The combinations were chosen using an orthogonal design to maximize information value with a minimum of burden on respondents. Spreadsheets showing all 18 combinations of attribute scenarios are attached to this supporting statement.

The stated choice modeling approach is especially important in the NPS context because

at times there are trade-offs between protecting park resources and providing high-quality visitor experiences. Findings from this study will allow park managers to focus the current planning process on indicators of quality that are most important in meeting park management objectives.

A similar study was conducted in the wilderness portion of Denali National Park and Preserve (Lawson & Manning, 2003a). That survey used similar methods, and received an 81.2% response rate, but did not address conditions on the park road, as in the proposed study.

Another survey (a replication and extension of Womble, 1979) was also completed with visitors in the wilderness portion of the park (Bacon, 2001). The primary purpose of that survey was to determine if encounter norms for wilderness visitors had changed since the study conducted in 1978. This study also did not address conditions on the park road.

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9. **Survey Methodology: (Use as much space as needed; if necessary include additional explanation on a separate page.)**

(a) Respondent universe:
The respondent universe for the visitor survey will be all recreational visitors (18 years of age and older) using the Denali Road during the peak period of the 2009 visitor use season.

(b) Sampling plan/procedures:
The population of interest is composed of passengers riding buses on the Denali Park Road. Surveys will be conducted with the two primary bus passenger groups: 1) NPS Visitor Transportation System (VTS) bus users, and 2) commercial bus users (composed of lodge and tour bus riders). The vast majority of summer visitors who tour the 89-mile long Denali Park Road do so by bus. According to NPS statistics, 304,676 passengers traveled the Denali Park Road by bus from May through September, 2008. During the same months, only 1,430 personal vehicles were permitted on the road. Lodges outside the park, as well as commercial tour companies, provide buses for day trips. In addition, the NPS operates the VTS buses, which carry both general day-users and overnight campers. The main difference between the two systems is that the NPS buses give visitors the option of being dropped off and picked up along the road for activities such as hiking, camping, and photography. Some VTS buses are designated as "camper buses" and transport visitors and their equipment to campgrounds in the interior of the park.

All VTS buses depart from and return to the park's Wilderness Access Center (WAC), which is located near the park's main entrance. Visitors riding the VTS buses will be intercepted and surveyed after they disembark at the WAC on their return trips. In addition, a sample of camper bus passengers will be intercepted at Wonder Lake Campground at mile 85, near the end of the park's road.

Lodge and commercial bus users will be intercepted and surveyed at either the lodges just outside the park's main entrance (if permission is granted by owners/managers) or at the Alaska State Railroad train depot inside the entrance. (Many commercial bus passengers travel to and from the park by train and transfer to buses for their trip on the Denali Park Road.) Park assistance will be used to obtain permission from owners of commercial establishments before conducting the survey.

(c) Instrument administration:
All surveys will be self-administered. However, a trained survey technician will randomly select respondent respondents from intercepted groups and will be available to assist respondents if needed. The survey technician will administer the surveys at the locations noted above. A systematic sampling protocol (e.g., asking every 5th visitor group getting off a bus) will be used to select survey respondents, and each respondent will be asked a screening question to prevent multiple responses from the same groups. Respondents within groups will be selected using the most-recent birthday method. The sampling period is designed to include the park's peak use period. Sampling will be conducted on 30 randomly selected days. The survey technician will station

himself/herself at one of the intercept locations between the hours of 8 a.m. and 5 p.m. as determined by bus schedules. Survey technicians will work in shifts, and the full survey time period will be covered each day. The survey technician will contact a total of 850 visitors to ask them to participate in the study, and 680 are expected to respond. If any visitors decline to participate, they will be thanked for their consideration and the next visitor group will be approached. The survey technicians will use the following script to guide their introduction:

Hi, my name is _____. I'm from the University of Vermont. We're helping the National Park Service gather information to guide management of the Denali Park Road. Would you be willing to fill out a questionnaire about your experience on the park road? The survey will take about 15 minutes to complete. Participation is voluntary and your responses will be anonymous.

If No: OK. Thank you for your time so far. Have a good day.

If Yes: Thank you. Who in your group has had the most recent birthday?

A series of short breaks for the survey technicians will be designed into the sampling schedule.

(d) Expected response rate/confidence levels:
Instrument A:
A response rate of 80% is expected. This rate is based on previous studies conducted at national parks, including a study in 2003 which attained an 80.1% response rate, and a study of the Denali Park Road in 2007 which attained a 78% response rate. A total of 850 visitors will be contacted during the study period and we expect approximately 680 to respond. It is expected that approximately half of the respondents will be from each visitor group (i.e., VTS passengers and commercial bus passengers). The number of refusals will be recorded and reported (see Attachment – Denali Front-End Form). Based on a sample size of 340 for each visitor group, there will be 95% confidence that study findings will be accurate to within +/-5.3 percentage points for each group.

(e) Strategies for dealing with potential non- response bias:

Although a response rate of 80% is anticipated, the number of refusals will be recorded, reported, and screened for non-response bias. Data from the visitor survey will be analyzed for non-response bias by comparing respondent characteristics (respondents sex, group size and type, time of visit) to non-respondent characteristics gathered on the survey log sheet. Results of the non-response analysis will be reported.

(f) Description of any pre- testing and peer review of the methods and/or instrument (recommended):
Instrument A:
The questions included in the questionnaire have been designed and reviewed by the principal investigator, research staff and graduate students, scientists from other universities with expertise in survey research, and Denali National Park staff. The substance and format of the questions contained in the survey instrument are similar to questions administered at a number of other national park areas, and findings from such questions have been published in several peer-reviewed academic journals.

| 10. | Total Number of Initial Contacts \| Expected Respondents: | 850 | 680 | 11. | Estimated Time to Complete Initial Contact \| Instrument (mins.): | 0.5 | 15 | 12. | Total Burden Hours: | 177 |

13.   **Reporting Plan:** A technical study report will summarize results and management recommendations. Journal manuscripts and academic papers will also be prepared. Visitors' responses to the questionnaire will be analyzed using stated choice analysis. Each visitor group will be analyzed separately. Stated choice analysis is based on a model of discrete choice behavior referred to as random utility theory (Hanemann, 1984; McFadden, 1974). Within the random utility framework, an individual's indirect utility function is expressed as:

$$U_i = V_i + e_i$$

Where U_i is the individual's utility (i.e., an index of satisfaction) associated with choosing management alternative i, V_i is the observable component of utility estimated in this study, and e_i is the random component of utility, which may reflect unobserved attributes of the alternatives, random choice behavior, or measurement error (Dennis, 1998).

Copies of all reports and papers will be archived with the National Park Service Social Science Program for inclusion in the Social Science Studies Collection.

References Cited:

Bacon, J., Manning, R., Johnson, D., & Vande Kamp, M. (2001). Norm stability: A longitudinal analysis of crowding and related norms in the wilderness of Denali National Park and Preserve. *The George Wright Forum, 18(3)*: 62-71.

Dennis, D. (1998). Analyzing public inputs to multiple objective decisions on national forests using conjoint analysis. *Forest Science, 44*, 421-429.

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Lawson, S. & Manning, R. (2003a). Integrating multiple wilderness values into a decision-making model for Denali National Park and Preserve. *Journal of Natural Conservation, 11*, 355-362.

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McFadden, D. (1974). Conditional logit analysis of qualitative choice behavior. In P. Zarembka (Ed.), *Frontiers in econometrics* (105-142). New York: Academic Press.

Womble, P. (1979). *Survey of backcountry users in Mount McKinley National Park, Alaska: A report for management*. Seattle: National Park Service Cooperative Park Studies Unit, University of Washington.

SURVEY VERSION 1--VTS BUS FRACTIONAL FACTORIAL ORTHOGONAL DESIGN

Choice set 1 — **scenario A** — **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	Most visitors would be able to get on a bus on the day and time they prefer	Many visitors would have to get on a bus earlier or later in the day than they prefer
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

Choice set 2 — **scenario A** — **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	Many visitors would have to get on a bus earlier or later in the day than they prefer	Many visitors would have to wait a day to get on a bus
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 3 — **scenario A** — **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	Many visitors would have to wait a day to get on a bus	Most visitors would be able to get on a bus on the day and time they prefer
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choice set 4 — **scenario A** — **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	Many visitors would have to get on a bus earlier or later in the day than they prefer	Many visitors would have to wait a day to get on a bus
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choice set 5 — **scenario A** — **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	Many visitors would have to wait a day to get on a bus	Most visitors would be able to get on a bus on the day and time they prefer
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

Choice set 6 — **scenario A** — **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	Most visitors would be able to get on a bus on the day and time they prefer	Many visitors would have to get on a bus earlier or later in the day than they prefer
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas.

Choice set 7 — **scenario A** — **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)

Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	Many visitors would have to get on a bus earlier or later in the day than they prefer	Many visitors would have to wait a day to get on a bus
Trip length	Bus trips would average 4 hours (reach the Teklanika area)	Bus trips would average about 6 hours (reach Toklat area).

Choice set 8   **scenario A**   **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	Many visitors would have to wait a day to get on a bus	Most visitors would be able to get on a bus on the day and time they prefer
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choices set 9   **scenario A**   **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	Most visitors would be able to get on a bus on the day and time they prefer	Many visitors would have to get on a bus earlier or later in the day than they prefer
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

SURVEY VERSION 2--VTS BUS FRACTIONAL FACTORIAL ORTHOGONAL DESIGN

Choice set 1   **scenario A**   **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	Most visitors would be able to get on a bus on the day and time they prefer	Many visitors would have to get on a bus earlier or later in the day than they prefer
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 2   **scenario A**   **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	Many visitors would have to get on a bus earlier or later in the day than they prefer	Many visitors would have to wait a day to get on a bus
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choice set 3   **scenario A**   **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	Many visitors would have to wait a day to get on a bus	Most visitors would be able to get on a bus on the day and time they prefer
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

Choice set 4   **scenario A**   **scenario B**

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	Many visitors would have to wait a day to get on a bus	Most visitors would be able to get on a bus on the day and time they prefer

| Trip length | Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas). | Bus trips would average 4 hours (reach the Teklanika area). |

Choice set 5 | **scenario A** | **scenario B**

Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	Most visitors would be able to get on a bus on the day and time they prefer	Many visitors would have to get on a bus earlier or later in the day than they prefer
Trip length	Bus trips would average 4 hours (reach the Teklanika area)	Bus trips would average about 6 hours (reach Toklat area).

Choice set 6 | **scenario A** | **scenario B**

Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	Many visitors would have to get on a bus earlier or later in the day than they prefer	Many visitors would have to wait a day to get on a bus
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 7 | **scenario A** | **scenario B**

Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	Many visitors would have to wait a day to get on a bus	Most visitors would be able to get on a bus on the day and time they prefer
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 8 | **scenario A** | **scenario B**

Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	Most visitors would be able to get on a bus on the day and time they prefer	Many visitors would have to get on a bus earlier or later in the day than they prefer
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choices set 9 | **scenario A** | **scenario B**

Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	Many visitors would have to get on a bus earlier or later in the day than they prefer	Many visitors would have to wait a day to get on a bus
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

SURVEY VERSION 1--COMMERCIAL TOUR BUS FRACTIONAL FACTORIAL ORTHOGONAL DESIGN

Choice set 1   scenario A   scenario B

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a month in advance	You would need to make a reservation for a bus trip about 6 months in advance
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

Choice set 2

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about 6 months in advance	You would need to make a reservation for a bus trip about a year in advance.
Trip length	Bus trips would average about 6 hours (reach toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 3

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a year in advance.	You would need to make a reservation for a bus trip about a month in advance
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choice set 4

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about 6 months in advance	You would need to make a reservation for a bus trip about a year in advance.
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choice set 5

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a year in advance.	You would need to make a reservation for a bus trip about a month in advance
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

Choice set 6

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a month in advance	You would need to make a reservation for a bus trip about 6 months in advance
Trip length	Bus trips would average about 6 hours (reach toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 7   scenario A   scenario B

Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about 6 months in advance	You would need to make a reservation for a bus trip about a year in advance.
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

Choice set 8   **scenario A**   **scenario B**

Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a year in advance.	You would need to make a reservation for a bus trip about a month in advance
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choices set 9   **scenario A**   **scenario B**

Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a month in advance	You would need to make a reservation for a bus trip about 6 months in advance
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

SURVEY VERSION 2--COMMERCIAL TOUR BUS FRACTIONAL FACTORIAL ORTHOGONAL DESIGN

Choice set 1   **scenario A**   **scenario B**

Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a month in advance	You would need to make a reservation for a bus trip about 6 months in advance
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 2   **scenario A**   **scenario B**

Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about 6 months in advance	You would need to make a reservation for a bus trip about a year in advance.
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choice set 3   **scenario A**   **scenario B**

Percentage chance of seeing a grizzly bear	25%	50%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a year in advance.	You would need to make a reservation for a bus trip about a month in advance
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

Choice set 4   **scenario A**   **scenario B**

Percentage chance of seeing a grizzly bear	50%	75%

Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a year in advance.	You would need to make a reservation for a bus trip about a month in advance
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choice set 5 — scenario A — scenario B

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a month in advance	You would need to make a reservation for a bus trip about 6 months in advance
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).

Choice set 6 — scenario A — scenario B

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	50%	75%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about 6 months in advance	You would need to make a reservation for a bus trip about a year in advance.
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 7 — scenario A — scenario B

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at informal wildlife stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at rest stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a year in advance.	You would need to make a reservation for a bus trip about a month in advance
Trip length	Bus trips would average about 6 hours (reach Toklat area).	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).

Choice set 8 — scenario A — scenario B

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 3 (2 buses)	Photo 5 (6 buses)
Number of vehicles seen at informal wildlife stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at rest stops	Photo 5 (6 buses)	Photo 1 (0 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about a month in advance	You would need to make a reservation for a bus trip about 6 months in advance
Trip length	Bus trips would average 8 hours or more (travel most or all of the road, including the Eielson, Wonder Lake/Kantishna areas).	Bus trips would average 4 hours (reach the Teklanika area).

Choices set 9 — scenario A — scenario B

	scenario A	scenario B
Percentage chance of seeing a grizzly bear	75%	25%
Number of vehicles seen along the road at one time	Photo 5 (6 buses)	Photo 1 (0 buses)
Number of vehicles seen at informal wildlife stops	Photo 1 (0 buses)	Photo 3 (2 buses)
Number of vehicles seen at rest stops	Photo 3 (2 buses)	Photo 5 (6 buses)
Accessibility of buses	You would need to make a reservation for a bus trip about 6 months in advance	You would need to make a reservation for a bus trip about a year in advance.
Trip length	Bus trips would average 4 hours (reach the Teklanika area).	Bus trips would average about 6 hours (reach Toklat area).