

# 2010

## *Chaco Culture National Historical Park: 2009 Visitor Survey*



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## Introduction

The Chaco Culture National Historical Park preserves the structures and artifacts of an important hub of ceremony, trade, and administration for the prehistoric Chacoan people. The Park is unique for its well-preserved multi-storied public buildings, ceremonial buildings, and distinctive architecture. The site was initially preserved as the Chaco Canyon National Monument in 1907. On December 19, 1980, Chaco Canyon National Monument was re-designated Chaco Culture National Historical Park.

Recent proposals to provide paved access to the Chaco Culture National Historical Park have the potential to result in several changes to the current system of visitor use and management. If the Park were to receive visitor flows similar to more accessible sites like Mesa Verde National Park, visitor experiences may change and demands on management may increase.

To provide a continued understanding of the existing visitor experience and address the potential for increased demand, Chaco Culture National Historical Park management is completing an amendment to its general management plan (GMP) to more specifically address visitor management issues. This project informs the plan by providing information about the type of visitors that currently visit the Park as well as visitors' perceptions of current and potential management actions. Park visitors were sampled during the months of August-October 2008. Two survey instruments were used. Both survey instruments shared a core set of questions, but one elaborated on the visitor experience, while the other focused on visitors' opinions of management alternatives. The results of this study provide one of many sources of information (e.g. public and stakeholder comments, staff recommendations, other research) that management will use in evaluating alternatives for managing increased visitation.

Social science research in support of park planning and management is mandated in the *NPS Management Policies 2006* (Section 8.11.1, "Social Science Studies"). The National Park Service pursues a policy that facilitates social science studies in support of its mission to protect resources and enhance the enjoyment of present and future generations (National Park Service Act of 1916, 38 Stat 535, 16 USC 1, et seq.). National Park Service policy mandates that social science research will be used to provide an understanding of park visitors, the non-visiting public, gateway communities and regions, and human interactions with park resources. Such studies are needed to provide a scientific basis for park planning, development, operations, management, education, and interpretive activities.

## Primary Research Objectives

This study had two primary purposes. First, it examined peak and shoulder season visitors' perspectives of the Park as it is currently managed. In addition, it investigated how visitors would prefer Chaco Culture National Historical Park to be managed under a scenario of increased visitor demand. The specific objectives included:

- a. *Documentation of the current users and use patterns.* This element of the study provided park managers with documentation of the current visitor characteristics and use patterns within and outside of the Park.
- b. *Description of the desired visitor experience.* This element of the study assesses visitor expectations, motives for the visit and evaluations of existing conditions including the importance of certain dimensions of the visitor experience such as access, personal freedom, desired services, etc.



- c. *Visitor perceptions of Park values.* The Park is protected for its universal values. This element of the study evaluated visitor perceptions of the Park's purpose. These value orientations were used to compare visitor perceptions of the Park's purpose to those stated in the area's protection and managerial policies.
- d. *Visitor perceptions of management actions given existing and increased demand scenarios.* This component of the study assessed visitor opinion on a range of management policies that are currently in place and actions that could be implemented if visitation increased significantly.

## Previous Visitor Studies at Chaco Culture National Historical Park

Three types of visitor research have been undertaken at Chaco Culture National Historical Park. The first is an annual Visitor Survey Card that has been implemented since 1998 as part of the NPS response to the Government Performance and Results Act. These surveys cards look at general visitor satisfaction levels. Over the past ten years, the average satisfaction rate has been 95.8%. While visitors have generally been quite satisfied with the outdoor recreation setting at Chaco Culture National Historical Park (upper 80<sup>th</sup> percentiles), they have been more satisfied with the opportunities to learn about nature, culture and history (mid 90<sup>th</sup> percentiles).

The second type of research is a detailed visitor study completed in 1992 and 1993 (Lee and Stephens, 1995). That study assessed visitors at Chaco Culture National Historical Park, Mesa Verde National Park, and Wupatki National Monument. Similar to the Visitor Survey Card data reported above, the opportunity "to learn and see how people lived back then" was the most important reason for visiting (Lee and Stephens, 1995, p. 23). Mobility and access within the Park were highly important, while potential features such as gift shops, picnic areas or restaurants, etc. that would offer more amenities were rated low in importance. Finally, road access affected 36% of the visitors in a positive way, 15% in a negative way and had no effect on 49% of the visitors. The results of Lee and Stephens (1995) indicate the visitors to Chaco Culture National Historical Park preferred the rustic setting and social freedom provided much more than visitors to Mesa Verde, who were less interested in those experience attributes. The authors concluded that a regional approach to the management of cultural sites in the four corners region was necessary to protect the range of desired experiences that the visitor population demanded.

The third study of Chaco Culture National Historical Park is a case study of the Park prepared for the Getty Conservation Institute in 2003 by De la Torre, et al. The purpose of this study was to assess the degree to which the Park's heritage values evolved, and were articulated, and protected in the current management regime. This study concluded that Chaco Culture National Historical Park has successfully protected the values of the area, in large part due to the policy to keep the Park somewhat isolated but accessible. De la Torre et al. pointed out that the undeveloped nature of Chaco Culture National Historical Park allows broad access, compared to sites like Mesa Verde, which provide more developed but limited access to manage a higher level of visitation. Although many of the characteristics that make the visitor experience unique at Chaco Culture National Historical Park were identified in the case study, it was noted that no official plan for the Park outlines these characteristics in detail. Therefore, this study aims to aid the general management plan amendment by providing a better understanding of these characteristics so they can be documented and evaluated in light of proposed changes to visitor access opportunities.

This study focuses on how perceptions of Park values are related to visitor support of Park management policies designed to maintain desired social settings as visitation increases. While several studies of other parks have addressed the role of perceived park values in affecting visitors' support for management alternatives, none have directly examined the role of perceived values in cultural parks. By investigating how visitors value Chaco Culture National Historical Park as a social, cultural, and natural setting, the information gained through this survey will allow park managers to more precisely understand visitors' experiences in the Park and the visitor population as a whole. Specifically, question 10 in the management alternatives survey is designed to build understanding on what visitors perceive the primary purpose of Chaco Culture National Historical Park to be. This type of understanding has been instrumental in evaluating management trade-offs (Borrie et al., 2002) and comparing the perceptions of the purpose of various parks (Tanner et al., 2008). In the Borrie et al. (2002) study, visitor value orientations clearly differentiated support for alternative ways of managing snowmobile access to Yellowstone National Park. In that same study, few differences in support for management were found when assessing the experiential motivations of the visitors. Tanner et al. (2008) demonstrated that the value orientations of the visitors can differ with the type of park. They compared Yellowstone and Zion National Parks with the Birds of Prey conservation area and the Missouri River National Monument. In that analysis they found that visitors identified differences in the purposes of each area.

In addition, Chaco Culture National Historical Park managers are specifically interested in visitors' degree of acceptance of a group size limitation in certain areas of the Park, such as prehistoric ruins. This will become an important issue if paved access leads to greater visitation. For the purposes of the survey, a size needed to be identified that would constitute a large group. This is a subjective judgment and is intended to only provide a basis for understanding the visitor's perceptions rather than a specific policy implementation. At the time of survey development, current group sizes distributions were unknown. Previous research found that 68% of National Park Service wilderness areas employ some form of group size limitation and that these limitations are widely supported by visitors (Monz et al., 2000). Across 201 wilderness areas examined by Monz et al., the median group size limitation was 12 and the mode was 10 people per party. The Monz study remains the most current peer reviewed analysis of group size limits. While Chaco Culture National Historic Park is not a wilderness area, it is specifically managed to provide opportunities for solitude, an intimate relationship among visitors and the prehistoric cultural sites, and minimal ecological impact. Thus, remaining consistent with the prevailing trend in wilderness group size restrictions was logical. We used a group size of 12 in this survey as the basis for inquiry about support for group size limitations.



*The ability to intimately explore the sites of Chaco is a key visitor benefit.*

## About the Study (Methods)

### Survey Development

The two survey instruments used in this study were developed through an iterative process that included conference calls with Park staff and planners, discussions of draft instruments and pre-testing (see Appendices B and C). The entire package of methods and questions were extensively reviewed by the National Park Service social science office including the Visiting Chief Social Scientist. After this Park Service review, the surveys were reviewed by the Office of Management and Budget before being cleared for distribution.

In order to estimate burden on visitors and get feedback on questions, drafts of the survey instruments were pre-tested on nine visitors at Chaco Culture National Historical Park. The majority of questions in the Visitor Experience instrument were used in a survey at Chaco Culture National Historical Park by Lee and Stephens (1995). Whenever possible the same wording was used to enable a comparison of results to this previous study. A similar sampling frame and approach were also employed. Additionally, the wording in Question 19 (See Appendix B) of the visitor survey is identical to that used in the Lee and Stephens 1995 survey, even though that wording is slightly different from the type of wording often used in questions about perceptions of visitor numbers.

To establish the number of visitors for the increased demand scenarios in the management options survey, a research assistant monitored the visitor use numbers at the Pueblo Bonito complex for one week. For seven hour shifts, the arrival and departure times of each visitor were logged. These data were used to establish the number of people in the complex at different times throughout the day by subtracting those leaving from those entering (see Appendix D). From that distribution of actual visitation we developed visitation estimates for increased demand scenarios based on the probability of

visitor numbers at different times throughout the day if visitor use were to double. That estimate was based on linear assumptions about use distributions under increased demands adjusted slightly by the author's professional judgment. In this process, the authors recognized that park demand is dynamic and subject to influence by many factors. However, as Gramann 2003 points out, while they have little faith in linear increases in demand, little progress has been made in assessing visitor demand estimation in the past 50 years. That focus group agreed upon is the need for continuous research such as that demonstrated in this report to have a better understanding of use patterns. In the absence of a detailed regional analysis that went far beyond the scope of this project, the linear assumption provides a baseline for understanding visitor opinions in a hypothetical context.

## Sampling Plan/Procedures

### Survey Instruments:

Two surveys were administered in this study: a Management Alternatives Survey and a Visitor Experience Survey. Respondents were asked to complete only one of the surveys. The surveys were administered based upon a pre-designed systematic schedule starting with the first available group during the sampling period. The sampling script the surveyors used is included in Appendix A.

The on-site visitor surveys were implemented in the parking lot adjacent to the Pueblo Bonito and Chetro Ketl, the most frequently used sites in the Park (receiving 96% of the Park visitors). Study areas were sampled during the primary daylight hours of operation—approximately 8:00 AM until 8:00 PM during the summer and 8:00 AM and 5:00 PM in the fall in six-hour sampling periods. An open tent was set up to provide shade to respondents, and cold water was offered to visitors. Sampling was conducted by two people in the summer and one person in the fall who administered questionnaires. Information was collected through two survey instruments to reduce the burden on individual respondents. Each group was randomly assigned one of the two questionnaires used in the study. Completed surveys were collected from each visitor before he/she left the survey site.

During the two sampling periods (summer and fall) there were a total of 12 weeks, or 60 days, of potential sampling. The crew was limited to a five-day workweek. After time was subtracted for training and data management, the team was able to sample for a total of 48 sampling periods (resulting in 24 sampling periods per season). The sampling procedure used a systematic random sampling process in which the initial study period was randomly selected. Following the initial day of sampling, sampling periods (AM/PM) and study areas were rotated systematically to ensure each study area was sampled equally over the study period. Contacts occurred based upon a pre-designed systematic schedule starting with the first available group during the sample time. The member of the group with the closest birthday to the sampling day was asked to complete the questionnaire.

### Response rate:

Responses and refusals were logged by the interviewers, along with observations regarding group size and language spoken. A total of 685 visitors were asked to complete the visitor experience survey of which 514 agreed to complete the survey. Similarly 620 visitors were asked to complete the management survey of which 465 agreed. This resulted in a 75% response rate. There were slightly more respondents to the visitor experience survey because this survey was administered for one extra



week in the summer sampling period during surveyors monitored Park use levels and timing before adding the scenario probabilities to the management survey.

Analysis of survey logs indicates that visitors were slightly less willing to complete the survey in the hotter summer months. There were no distinguishable seasonal differences in the survey results. Data collector observations suggest that visitors who spoke a language other than English were slightly less willing to complete the survey. This finding is anecdotal, however and was not empirically tested.

## Modeling

While the bulk of this report focuses on reporting descriptive results from the survey, the responses from the management survey were used to estimate a model examining the factors that were connected with an individual's response to the preferred management alternative. The preferred alternative was hypothesized to depend upon the characteristics of each management alternative, information about the individual and their trip and the visitor's Park experience. The model was estimated using the maximum likelihood method with a multinomial logit model due to the categorical nature of the response variable which was an indication of the preferred alternative. The multinomial logit estimated the probability of choosing each alternative based upon the three categories of factors listed above. The model predicts the preferred management option for each individual and can be used to determine which factors affect the choice of management options for the sample as a whole.

## Limitations

During the summer sampling period, the campground at Chaco Culture National Historical Park was closed for construction. Thus, the number of overnight visitors is atypical for that period. Analysis was conducted to test for seasonal differences in the data with no influence found in any of the following analysis.

## Survey Results

Where possible, survey questions were asked in the same way asked by Lee et al. 1995. While the authors were unable to do comparative statistical analysis (due to incomplete data and differences in sampling) it is informative to examine the distributions of responses at the two time periods. When comparing visitors and their use patterns, what is most striking is the similarity in responses across the two time periods. In the variables of interest, there is little difference.

### Who are the Chaco Culture National Historical Park visitors and how do they get to and use the Park?

Ninety-five percent of the visitors surveyed were from the U.S (Table 1). The remaining 5% were from ten other countries with Canada being the most common. Twenty-one percent of the visitors were single with no children. Another 26% were married but did not have children (Table 2). Approximately forty percent had children. Ten percent recorded “other” as their marital status. The visitors were well educated with over 50% having completed some college graduate work and over 40% having a Masters degree or above (Table 3). The mean income category for the visitors’ annual household income was \$75,000-\$99,000 (Table 4).

*Table 1. Chaco Culture National Historic Park, 2009  
Visitors’ country of origin*

Countries	N	Percent
US	465	95
Canada	9	2
Germany	3	<1
United Kingdom	3	<1
Australia	2	<1
Croatia	1	<1
India	1	<1
Italy	1	<1
Mexico	1	<1
Sweden	1	<1
Switzerland	1	<1
Total	488	100

*Table 2. Chaco Culture National Historic Park, 2009 and 1995  
Visitor's marital status*

Family Status (q29)	2009 N	2009 Percent	1995 Percent
Married, children	189	39	42
Married, no children	125	26	17
Single, no children	104	21	33
Other	50	10	1
Single, children	16	3	7
Total	484	100	100

*Table 3. Chaco Culture National Historic Park, 2009 and 1995  
Visitor's level of education*

Education Categories (q30)	2009 N	2009 Percent	1995 Percent
9-11 <sup>th</sup> grade	1	<1	<1
12 <sup>th</sup>	22	4	4
13-15 yrs	82	17	20
16 yrs	116	24	24
Some graduate	62	13	12
MA or above	203	42	38
Total	486	100	100

Visitors to Chaco Culture National Historical Park are primarily composed of “friends” groups (19%) or “family and friends” (65%). Thirty percent of the respondents were repeat visitors. A small percentage, (5-8 %) were with an educational group or guided tour (Table 5). Eighty-four percent of the visitors were white followed by Hispanic or Latino (4.5%) and Native American (4.1%) (Table 6). The 2009 sample had fewer visitors that were single, with no children than found in the 1995 study. Group size varied considerably by the type of group. While the overall average group size was 4 people, it was 1.1 for visitors who indicated they were alone, 4.3 for those who were with “friends”, 2.8 for those who indicated they were with “friends and family” and 15.7 for those who were with some “other” form of organized group.

*Table 4. Chaco Culture National Historic Park, 2009 and 1995  
Visitor's group type*

What kind of personal group are you with?	2009 N	2009 Percent	1995 percent
Family and friends	303	61	63
Friends	94	19	20
Alone	61	12	8
Other	37	7	9
Total	495	100	100

*Table 5. Chaco Culture National Historic Park, 2009  
Group descriptions by season*

Group description variables	Overall	Summer	Fall
Group size - mean	4.08	3.23	4.56
Group size – standard deviation	8.50	2.82	10.42
Repeat visitor	29%	26%	31%
Specialized types of groups:			
Guided tour	8%	10%	7%
Educational group	5%	6%	5%
Other group	3%	2%	4%
N	493	180	326

*Table 6. Chaco Culture National Historic Park, 2009  
Visitor's Race and Hispanic categories*

Race/Ethnicity	N	Percent
White	430	88
Hispanic or Latino	22	5
American Indian or Alaska Native	20	4
Asian	11	2
Black or African American	4	<1
Native Hawaiian or other Pacific Islander	2	<1
Total	489	100



### How far in advance do visitors decide to visit Chaco Culture National Historical Park?

Visitors' decision to come to Chaco Cultural national Historical Park occurred over a range of time before the actual visit. (Figure 1). A small portion (7%) decided to come on the day of the visit. Another 17% decided to visit from 2-7 days in advance. A larger portion of visitors (28%) decided to visit the Park between 8-30 days prior to the visit. Fifty-two percent of the visitors who responded to this question decided to come to the Park between one month and a year or more before the visit.



Figure 1. How far in advance do visitors decide to make this visit to Chaco Culture National Historical Park?

### How did visitors learn about Chaco Culture National Historical Park

Seventy-six percent of the visitors surveyed received information about the Park prior to the visit. The National Park Service web site was the most frequently used source (54%) followed by word of mouth (35%), non-National Park Service websites (26%), and archeological or historic organizations (22%) (Table 7). In 2009, visitors were slightly more likely to live locally and to learn about the Park through Radio or TV than in 1995. The internet was the primary way of learning about Chaco in 2009, whereas word of mouth was the primary method in 1995.

*Table 7. Chaco Culture National Historic Park, 2009 and 1995  
Information used before the trip*

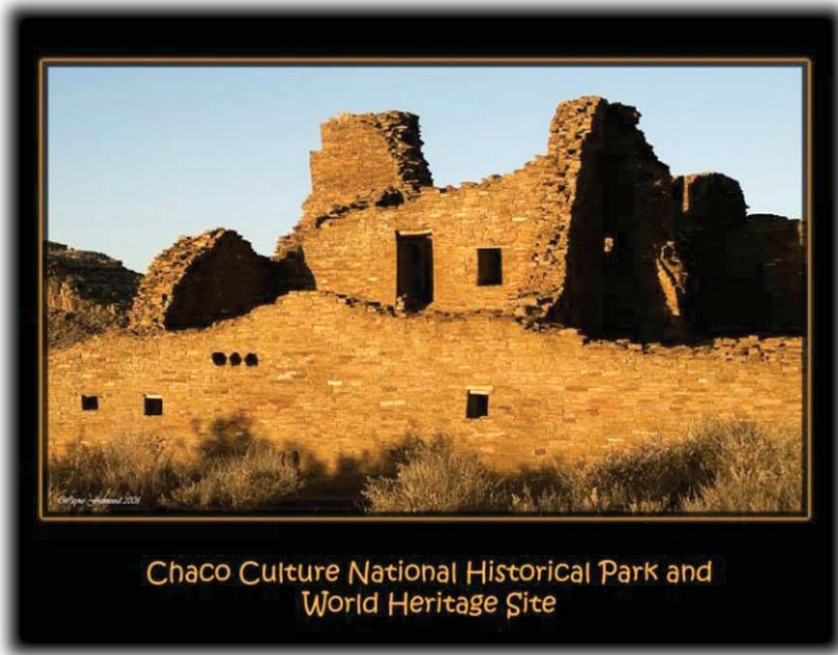
Information Sources	2009 N	2009 percent	1995 percent
Did you receive prior info?	503	76	77
NPS website	379	54	n/a
Word of mouth	379	35	44
Internet – non-NPS site	379	26	n/a
Other	379	24	38
Archeological or Historic Org	379	22	19
Live locally	379	12	<1
Radio or TV	379	11	2
State promotional pub	379	10	17
Travel agency	379	6	6
Environmental group pub.	379	5	2
World Heritage promo info	379	3	n/a
Non-NPS newspaper	379	2	3
Recreation group pub.	379	2	6

### What other national parks do Chaco Culture National Historical Park visitors explore?

On average, visitors had or planned to visit 2.6 other parks as part of this trip suggesting that the visit to Chaco Culture National Historical Park is contextualized by a larger experience for many visitors (Table 8). The most frequently visited other parks include Mesa Verde, Aztec Ruins and Canyon de Chelly. Visitors in 2009 were more likely to visit Mesa Verde National Park, Aztec Ruins National Monument, Hovenweep National Monument and El Morro/El Malpais National Monument. Forty-nine percent of the visitors were aware that Chaco Culture National Historical Park is a UNESCO World Heritage site.

*Table 8. Chaco Culture National Historic Park, 2009 and 1995  
Other parks visited as part of this trip*

Other Parks	2009 N	2009 Percent Visited	1995 Percent Visited
Mesa Verde National Park	338	53	35
Aztec Ruins National Monument	338	42	23
Canyon de Chelly National Monument	338	32	26
Monument Valley / Window Rock	338	25	n/a
Bandelier National Monument	338	24	22
Acoma Pueblo	338	15	18
Hovenweep National Monument	338	15	3
Salmon Ruins	338	15	8
Other	338	14	n/a
El Morro/El Malpais National Monument	338	11	3
Zuni Pueblo	338	9	10
Hopi Mesas	338	7	<0.01
	2009 N	2009	1995
Mean number of listed parks visited	338	2.63	n/a
Standard deviation of the number of listed parks visited	338	1.94	n/a
Median number of listed parks visited	338	2	n/a
Most common response to number of listed parks visited	338	1	n/a
Minimum number of listed parks visited	338	1	n/a
Maximum number of listed parks visited	338	12	n/a
Did you know World Heritage site? (1=yes, 0=no)	504	49%	n/a



*Approximately 50% of visitors know Chaco Culture National Historical Park is a World Heritage Site.*

**Where do Chaco Culture National Historical Park visitors stay?**

Nearly half (49%) of the visitors spent the night visiting Chaco Culture National Historical Park in a hotel or motel. Twenty-three percent of the visitors camped in a public or private campground and 15% lived close enough to visit from home (Table 9). Visitors in 2009 were slightly more likely to stay in a public campground.

*Table 9. Chaco Culture National Historic Park, 2009 and 1995  
Type of accommodation the night before the visit*

Accommodation (q13)	2009	2009	1995
	N	Percent	Percent
Hotel/motel	243	49	44
Personal residence	77	15	10
Public campground	68	14	7
Private campground	50	10	13
With friends or relatives	41	8	15
Other	22	4	11
<b>Total</b>	<b>501</b>	<b>100</b>	<b>100</b>



### Where do visitors enter and exit the Park?

The north entrance is the most frequently used point of entry; approximately 75% of visitors arrive through that gate and seventy-nine percent depart there. Approximately 10% of the visitors who arrive through the north gate depart through the south gate. Nearly half (44%) of the visitors who arrive through the south gate depart through the north gate (Table 10).

*Table 10. Chaco Culture National Historic Park, 2009  
Visitor's entry and exit gates*

		Through which Park gate did you leave on your final EXIT?		Total	
		North gate	South gate		
Through which Park gate did you FIRST arrive?	North gate	Count	336	41	377
		%	89.1%	10.9%	77.1%
	South gate	Count	49	63	112
		%	43.8%	56.3%	22.9//%
Total		Count	385	104	489
		%	78.7%	21.3%	100.0%

### How long do visitors stay?

Visitors were asked how long they planned to stay at Chaco Culture National Historical Park. If they were going to visit for less than a day, they were asked to estimate the number of hours they would be in the Park. If they were staying more than 24 hours they were asked how many days they would be in the Park on this trip. Of the 456 respondents who indicated their length of stay, 341 (75%) were day visitors. Their average visit lasted 5 hours (Table 11). Of the 115 visitors (25%) that stayed more than one day, their average length of stay was 2.2 days. There was considerable variation on both of these variables which is illustrated in figures 2 and 3 respectively. In 1995, visitors tended to stay a little longer, with approximately one third of the visitors staying more than one day (Table 12). The length of day visits was very similar in 1995 and 2009.

*Table 11. Chaco Culture National Historic Park, 2009  
Distribution of visit length for single and multiday visits*

	Hours in Park if less than one day (q7a)	Days in Park if greater than 24 hours (q7b)
N	341	115
Mean	5.13	2.24
Median	5	2
Mode	4	2
Std. Deviation	2.5	1.2
Minimum	1	1
Maximum	22	7

*Table 12. Chaco Culture National Historic Park, 2009 and 1995  
Length of stay*

<b>Length of stay</b>	<b>2009 percent</b>	<b>1995 percent</b>
<b>2 hours or less</b>	8	6
<b>2-6 hours</b>	53	48
<b>6-12 hours/one day</b>	19	12
<b>Two days</b>	13	27
<b>Three days</b>	4	5
<b>More than three days</b>	3	2

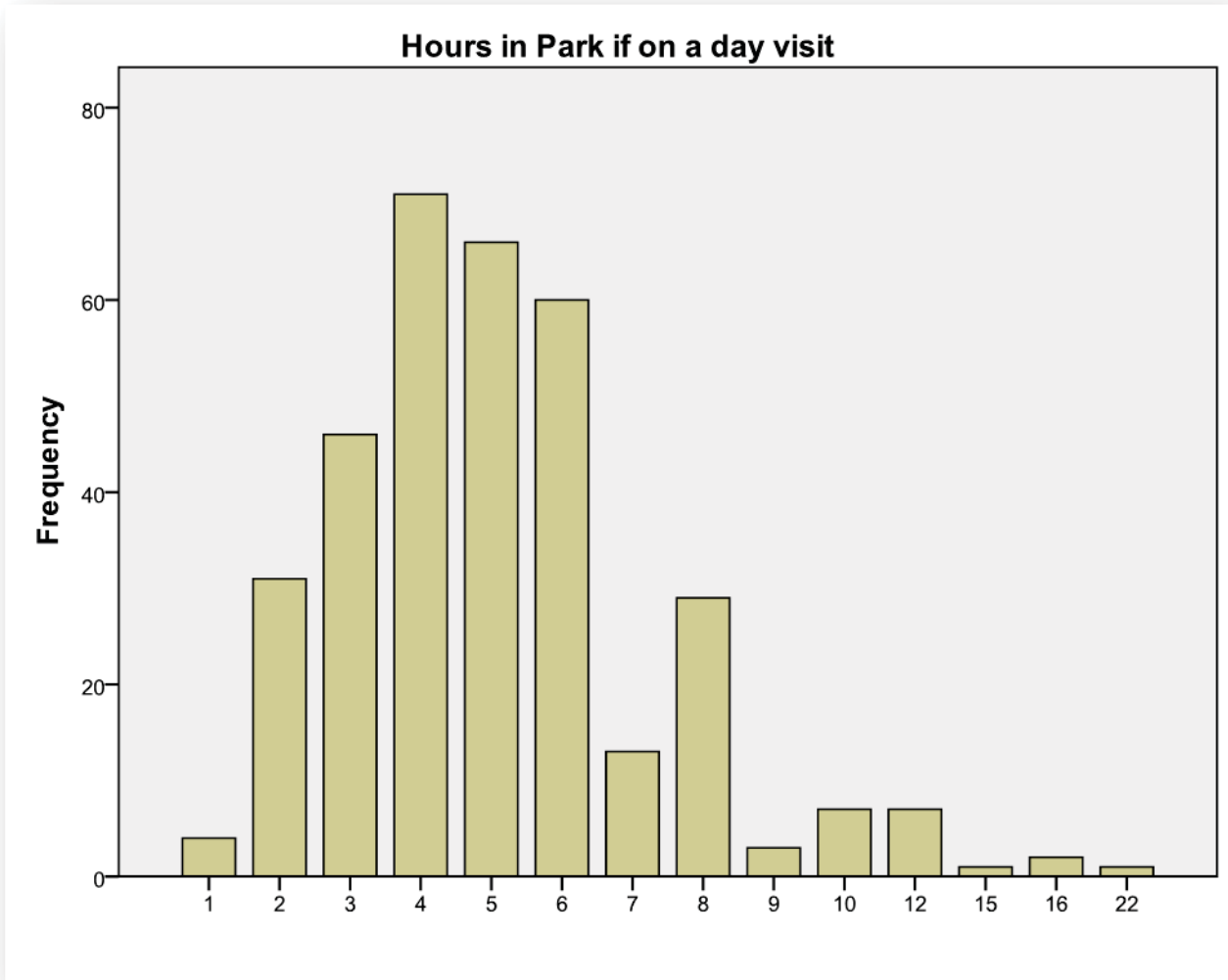


Figure 2. Distribution of hours spent in the Park for day visitors.

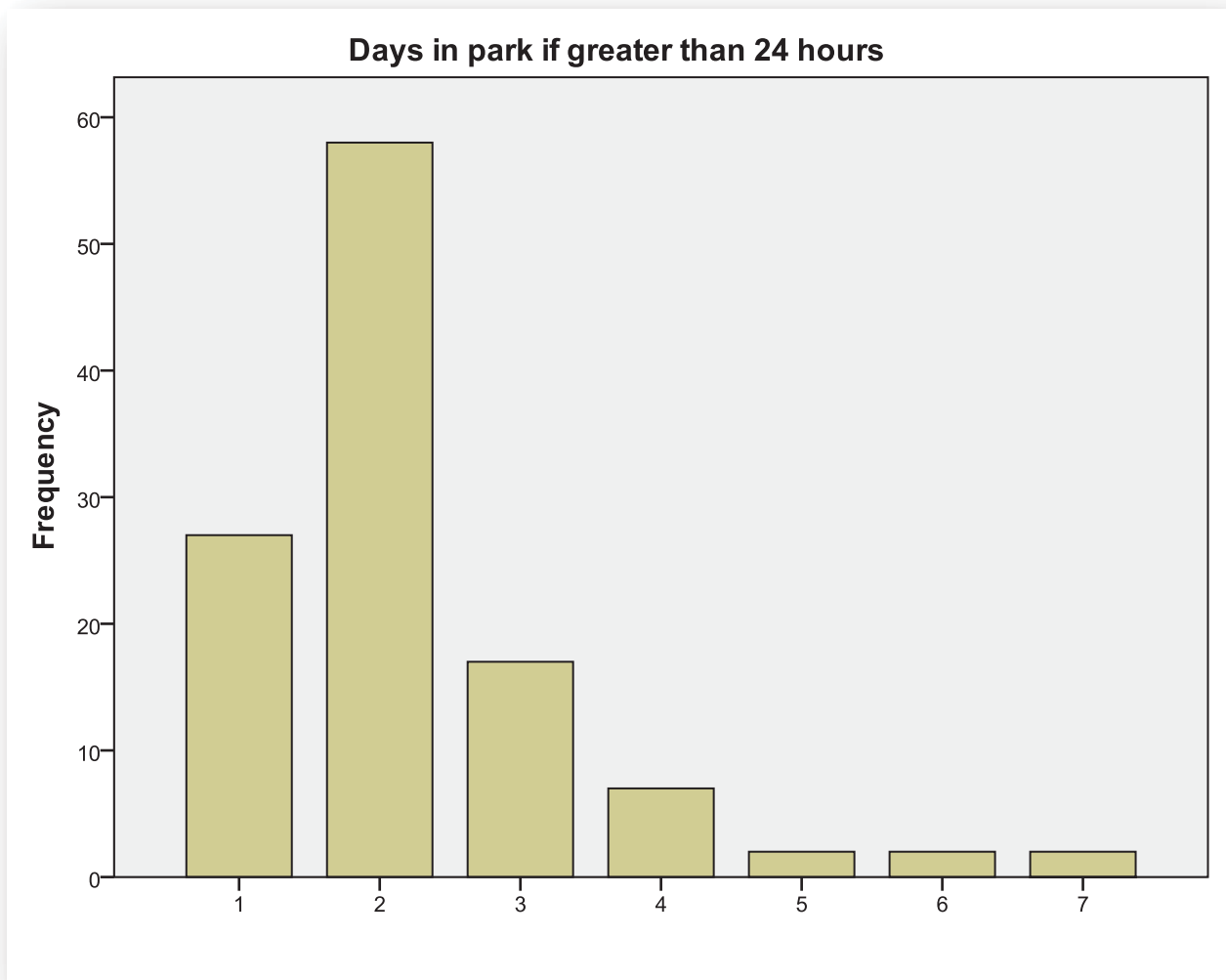


Figure 3. Distribution of days spent in the Park.

### How do visitors travel in and use information about the Park?

On average, Park visitors stopped at six sites while at the Park (Table 13). Nearly all visitors stopped at the Visitor Center and Pueblo Bonito. Sixty-nine percent of the visitors also stopped at Chetro Ketl. The next most frequently used sites were Hungo Pavi (52%), Una Vida (42%), and Casa Rinconada (41%). Site visit patterns remain quite consistent with those of 1995.

While in the Park, visitors used a variety of information sources. Almost all visitors (95%) used the Park brochure. Seventy-five percent used the visitor center for orientation (Table 14).



*Table 13. Chaco Culture National Historic Park, 2009 and 1995  
Sites visited in the Park*

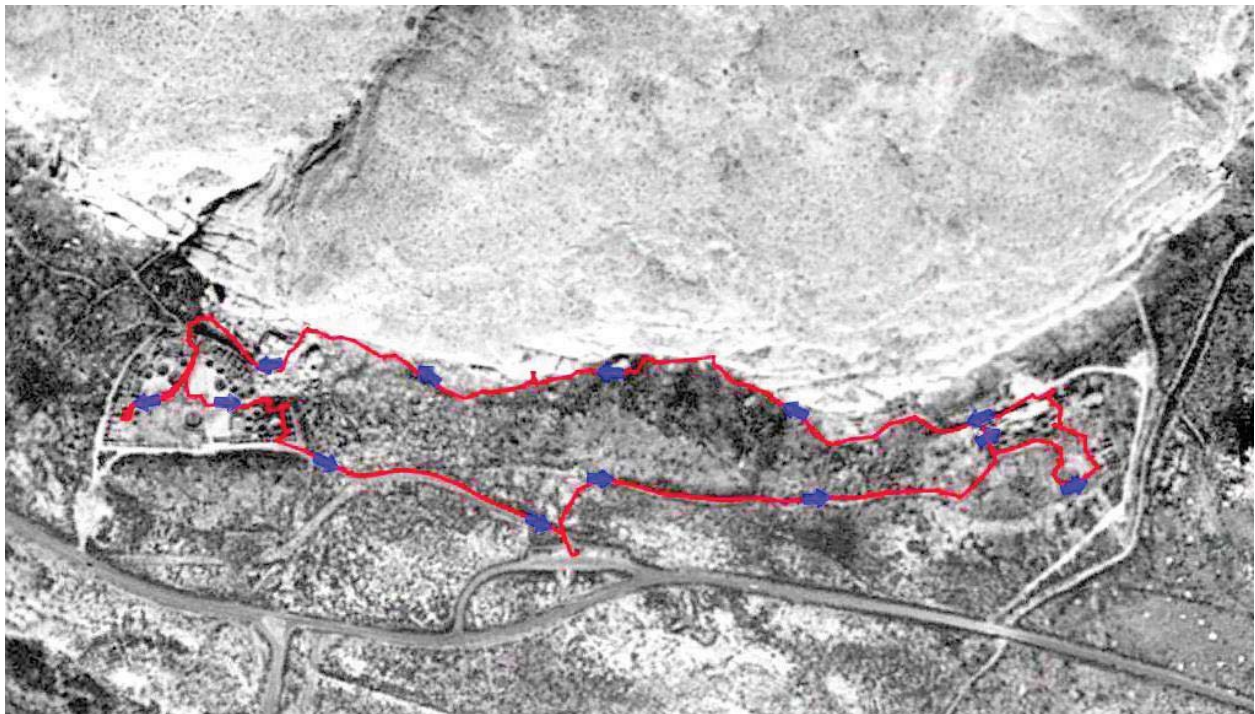
Sites	2009 N	2009 Percent	1995 percent
Pueblo Bonito	503	98	96
Visitor Center	503	97	97
Chetro Ketl	503	69	67
Hungo Pavi	503	52	43
Una Vida	503	42	43
Casta Rinconada	503	41	47
Pueblo del Arroyo	503	27	35
Kin Kletso	503	24	55
Campground	503	23	36
Petroglyphs	503	20	18
Pueblo Alto	503	20	21
Jackson Staircase	503	15	17
Alto Mesa	503	15	23
Wijiji	503	14	8
Pueblo Blanco	503	13	11
West of Mesa Overlook	503	12	5
Casa Chiquita	503	11	26
Tsin Kletsin	503	11	9
Mean number of sites visited	503	6.03	n/a
Standard deviation of sites visited	503	3.65	n/a
Median number of sites visited	503	5	n/a
Minimum number visited	503	1	n/a
Maximum number visited	503	18	n/a

*Table 14. Chaco Culture National Historic Park, 2009  
Information used*

Information sources	N	Percent Using
Brochure	501	95
Visitor center orientation	501	75
Movie at visitor center	501	39
Ranger-led tour	501	39
Mean number used	501	2.47
Standard deviation used	501	0.99
Median number used	501	2

## How do Visitors Use the Pueblo Bonito – Chetro Ketl complex?

Given the popularity of the Pueblo Bonito -- Chetro Ketl complex, specific attention was given to the way visitors used the site. Of particular interest are the routes used to get to and through these areas, the amount of time visitors spent there and where people congregated within the sites. To obtain this information, 155 random visitors were asked to carry GPS units with them as they visited the complex during the summer of 2009. GPS tracking has been demonstrated as a powerful tool in monitoring visitor use patterns in natural areas (D'Antonio et al, 2010, Hallo et al. 2005). It is a particularly useful tool in areas where satellite reception is good and visitor flows are such that there is not extended time standing in one place (where the accuracy of satellite reception is lowered) (D'Antonio et al, 2010). In the Chaco case, satellite reception is excellent. However, due to the inherent limitations of GPS accuracy, the data reported here is best used to look for patterns of visitor flows and average speeds etc. The tracking function of the GPS was turned on and each route was uploaded into the computer program Topofusion immediately after the route was taken. The memory cache was then cleared for the next visitor to be tracked. This approach maintains the greatest level of detail on each track and eliminates the potential for tracks to be combined when uploading onto the computer. In Topofusion, the details of the routes can be retraced individually or cumulatively, both graphically and empirically. Figure 4 depicts a sample route of a visitor that explored the entire complex.



*Figure 4. Sample route of a visitor that explored the entire Pueblo Bonito – Chetro Ketl Complex, overlaid onto an aerial photo of the area.*

### Routes taken at the Pueblo Bonito – Chetro Ketl complex

Across the 155 visitor routes, the mean distance walked was 1.28 miles and average length of time was 114 minutes (Table 15). Thus, the visitors moved at an average pace of 1.4 miles per hour. There is considerable variation on these metrics both within and across routes. Table 16 illustrates the percentage of the sample that used each of the nine distinguishable routes identified in this sample.

*Table 15. Chaco Culture National Historic Park, 2009  
Distance (miles) and time (minutes) of Pueblo Bonito complex visit*

	N	Mean	Std. Deviation	Minimum	Maximum
Length	155	1.3	.74	.14	5.60
Avg. speed	155	1.5	.42	.8	4.1
Total minutes	155	114	71.5	2	520

Approximately 10% of the visitors sampled visited only Chetro Ketl and 40% visited only Pueblo Bonito (Table 16). Nearly 90% of the visitors included Pueblo Bonito in their visit, but they took eight different routes to and from Pueblo Bonito. Of those who visited both Pueblo Bonito and Chetro Ketl, 73% went to Chetro Ketl first and 27% to Pueblo Bonito first.

The longest visits were by those who visited Chetro Ketl, Pueblo Bonito and the Trailhead to Alto. Those visits averaged 2.3 miles in distance and 172 minutes in length (Table 17). The shortest average visits in minutes were the Petroglyphs (mean 98 minutes) and the shortest in distance were to Pueblo Bonito which is a round trip of .89 miles.

*Table 16. Chaco Culture National Historic Park, 2009  
Routes used when visiting the Pueblo Bonito complex*

Route Name	N	Percent	Cumulative Percent
Pueblo Bonito only	65	42	90
Chetro Ketl to Pueblo Bonito	33	21	32
Chetro Ketl only	16	10	10
Pueblo Bonito and Petroglyphs	14	9	45
Pueblo Bonito to Chetro Ketl	14	9	99
Chetro Ketl to Pueblo Bonito to Alto Trailhead	5	3	35
Pueblo Bonito to Trail Head	5	3	48
Chetro Ketl to Trail Head to Pueblo Bonito	2	1	36
Pueblo Bonito to Chetro Ketl to Pueblo Bonito	1	0.6	100
Total	155	100	



*Table 17. Chaco Culture National Historic Park, 2009  
Mean miles and time by route*

Route Name		Distance	Total Minutes
Chetro Ketl only	Mean	.95	116
	N	16	16
	Std. Deviation	.58	82
Chetro Ketl to Pueblo Bonito	Mean	1.6	118
	N	33	33
	Std. Deviation	.46	62
Chetro Ketl to Pueblo Bonito to Trail Head	Mean	2.3	172
	N	5	5
	Std. Deviation	.55	78
Chetro Ketl to Trail Head to Pueblo Bonito	Mean	1.8	71
	N	2	2
	Std. Deviation	.29	33
Pueblo Bonito and Petroglyphs	Mean	1.0	98
	N	14	14
	Std. Deviation	.62	64
Pueblo Bonito and Trail Head	Mean	2.6	123
	N	5	5
	Std. Deviation	1.7	71.8
Pueblo Bonito only	Mean	.89	110
	N	65	65
	Std. Deviation	.39	79
Pueblo Bonito to Chetro Ketl	Mean	1.9	118
	N	14	14
	Std. Deviation	.77	52
Pueblo Bonito to Chetro Ketl to Pueblo Bonito	Mean	2.2	140
	N	1	1
	Std. Deviation	.	.
Total	Mean	1.3	114
	N	155	155
	Std. Deviation	.74	71

## Why do visitors come to Chaco Culture National Historical Park?

Visitors come to Chaco for a variety of reasons (Table 18). A desire to learn and curiosity about the Park were the most highly ranked reasons for visiting the Park and were important to almost all visitors. A majority of visitors felt that “getting away”, “being with family” and “get away from crowds” were of neutral importance but these reasons for visiting the Park were extremely important to some visitors and not important to some visitors. Being alone, developing spirituality and experiencing night skies were important to a smaller group of visitors and unimportant to many. Visitors were asked many of these same questions in 1995. The patterns of responses in 1995 and 2009 were remarkably similar.

*Table 18. Chaco Culture National Historic Park, 2009 and 1995  
Visitor motives for visiting*

Reasons for visit	2009 N	2009 Mean	1995 Mean
Learn about ancient cultures	475	4.3	n/a
Learn about history	479	4.2	4.1
Curiosity	470	3.9	3.7
Scenery	490	3.9	3.6
Enjoy smells and sounds	476	3.4	3.3
Get away	458	3.2	n/a
Be with family	443	3.1	2.5
Get away from crowds	465	3.0	3.1
Experience World Heritage site	436	2.8	n/a
Sketch, paint, photograph	458	2.5	2.5
Experience dark night skies	414	2.5	n/a
Develop spiritually	469	2.5	2.7
Be alone	448	2.1	2.4

## What do visitors view as the purpose of Chaco Culture National Historical Park?

To inform the notion of Chaco as a place of outstanding universal value, visitors were asked to evaluate a series of items based on how “important they are to the overall value of the Park.” These items provide a sense of what visitors believe is the overall purpose of the Park as opposed to specific experiences they seek while in the Park. Results suggest that visitors view preserving the cultural and historic resources as the most important values of the Park (Table 19). Values associated with escape from society, tourism, recreation and socialization were seen as least important in what makes Chaco National Historical Park a valuable place.

*Table 19. Chaco Culture National Historic Park, 2009  
What is most important about Chaco Culture National Historical Park?*

Purpose of Park	N	Mean	Standard deviation	Percent Not Important	Percent Somewhat or Moderately Important	Percent Very or Extremely Important
Preserve heritage	449	4.7	0.5	0	2	98
Historical resource	451	4.7	0.5	<1	2	98
Unique cultural significance	453	4.7	0.5	0	3	97
Archeology	448	4.7	0.6	<1	4	96
Cultural education	451	4.6	0.6	<1	4	95
Undisturbed	455	4.5	0.8	1	9	90
Scenic beauty	449	4.4	0.8	<1	12	87
Symbol of USA	443	4.3	1.0	3	12	85
Darkness	392	4.2	1.1	5	18	77
Sacred Place	445	4.2	1.2	5	18	77
Quiet	452	3.9	1.1	3	29	67
Nature education	444	3.6	1.1	4	39	57
Wildlife Sanctuary	430	3.5	1.2	7	40	53
Renewal	451	3.3	1.3	12	41	47
Free from society	434	2.8	1.5	33	30	37
Tourist destination	443	2.7	1.4	26	44	30
Recreation	443	2.1	1.2	45	39	16
Socialize	450	1.8	1.1	59	32	9

Note: Respondents recorded 1=not important, 2, 3=somewhat or moderately important, 4, 5=very or extremely important.

## How do visitors evaluate the Chaco Culture Historic National Park setting?

### What added to or detracted from the experience?

Chaco visitors were asked about numerous aspects of their visit and how these aspects either added to or detracted from the visitors' experience (Table 20). The attributes that added the most to the visitors' experience were the Park's remoteness and access to intimately explore the features of the Park. The number of other visitors had little effect on the visitors' experiences but encountering large groups or disruptive visitor behavior, especially noise, did detract from the experience. Visitors also thought that access restrictions detracted from their experience.

*Table 20. Chaco Culture National Historic Park, 2009  
Factors affecting experience*

Impacts on Experience	N	Mean	Std. dev.	Percent responded detracted	Percent responded neutral	Percent responded added
Freedom to move about	458	4.3	1.0	4	22	73
Being remote	456	4.2	1.0	7	18	75
Ability to intimately explore	457	4.1	1.1	9	23	68
Access within sites	456	3.9	1.1	11	27	62
Parking	458	3.4	0.9	5	46	49
Number of visitors	455	3.0	0.6	18	70	12
Signs and fences as restriction	458	2.9	0.7	26	63	11
Sounds from vehicles	449	2.8	0.5	18	80	2
Large groups encountered	441	2.8	0.6	18	78	4
Sounds made by others	449	2.7	0.6	32	66	2

Note: Respondents used a scale of 1, 2=strongly detracted or detracted, 3=neutral, 4, 5= added or greatly added to the experience.

### What makes the Park enjoyable?

Visitors were asked about the importance of a variety of opportunities, services, and facilities that Park managers already provide or could provide to make their visit to Chaco Culture National Historical Park more enjoyable (Table 21). This identical list of items was also used by Lee in 1995. In both 1995 and 2009, visitors said that the ability to have a self-directed experience, looking around the Park on their own with information supplied either through books or at the visitor center and being in a remote place were the most important factors in making their visit enjoyable. In 2009, consistent with 1995, visitors said that added services (e.g., snack bars or souvenir shops), facilities (e.g., picnic areas, shade near sites) and activities for kids were the least important factors in their visits. .

*Table 21. Chaco Culture National Historic Park, 2009 and 1995  
The importance of opportunities, services, and facilities to visitor enjoyment  
1 = Not important, 5 = Extremely important*

Opportunities/Services/Facilities	2009 mean	1995 mean
Look around on own	4.2	4.4
Booklets	4.1	4.3
Visitor Center information	4.0	3.3
Being remote	3.9	4.0
Info exhibits and signs	3.9	3.9
Walking inside the sites	3.8	4.0
Museum displays	3.6	3.9
Ranger-led walks	3.5	3.3
Access to backcountry	3.3	3.3
Access for disabled	3.0	2.8
Picnic areas	2.8	2.6
Shady place near sites	2.8	2.6
Activities for kids	2.6	2.6
Souvenir shop	2.0	1.7
Snack bar or Restaurant	2.0	1.8

Note: Respondents used a scale of 1=not important to 5=extremely important.

### **How do visitors perceive the road to Chaco Culture National Historical Park?**

The road to Chaco Culture National Historical Park is a defining attribute of the Park. Its relatively low level of maintenance and unpredictability of conditions during rain events adds to the sense of remoteness that was identified in this study as important to visitor experience. In questions about road conditions, the mean responses suggest visitors have “no opinion”. However there was a range of opinions on each question and many visitors held strong opinions about the road. Generally, visitors agreed that the road deters some visitors from coming and helps keep the Park less crowded (Table 22). They also agreed that the road helps to protect the Park, perhaps because of that deterrence. Figure 5 demonstrates that there is considerable variability around the means on the road issue. Respondents tended to feel strongly about their opinions about the road. Slightly more visitors did not think that the road experience is unpleasant or reduces visitors’ time in the Park (Figure 5). The majority of visitors did not think that the threat of rain (and the subsequent potential to be stranded in the Park) detracted from their experience (Figure 6).

*Table 22. Chaco Culture National Historic Park, 2009  
Visitor perceptions of road conditions*

Perceptions of road	N	Mean	Std. dev.	Percent disagree	Percent	
					no opinion	Percent agree
Road deters visitors	498	4.0	0.9	10	9	81
Road keeps Park less crowded	497	3.9	1.0	10	14	76
Road protects	492	3.8	1.1	16	12	72
Road can damage cars	495	3.4	1.3	29	14	57
Road enhances experience	491	3.3	1.3	33	14	53
Road is unpleasant	493	3.0	1.3	45	13	42
Road reduces my time in Park	494	2.7	1.3	53	16	31
Threat of rain detracted	480	2.4	1.1	53	36	11

Note: Respondents used a scale of 1, 2=strongly disagree or disagree, 3=no opinion, 4, 5=agree or strongly agree.

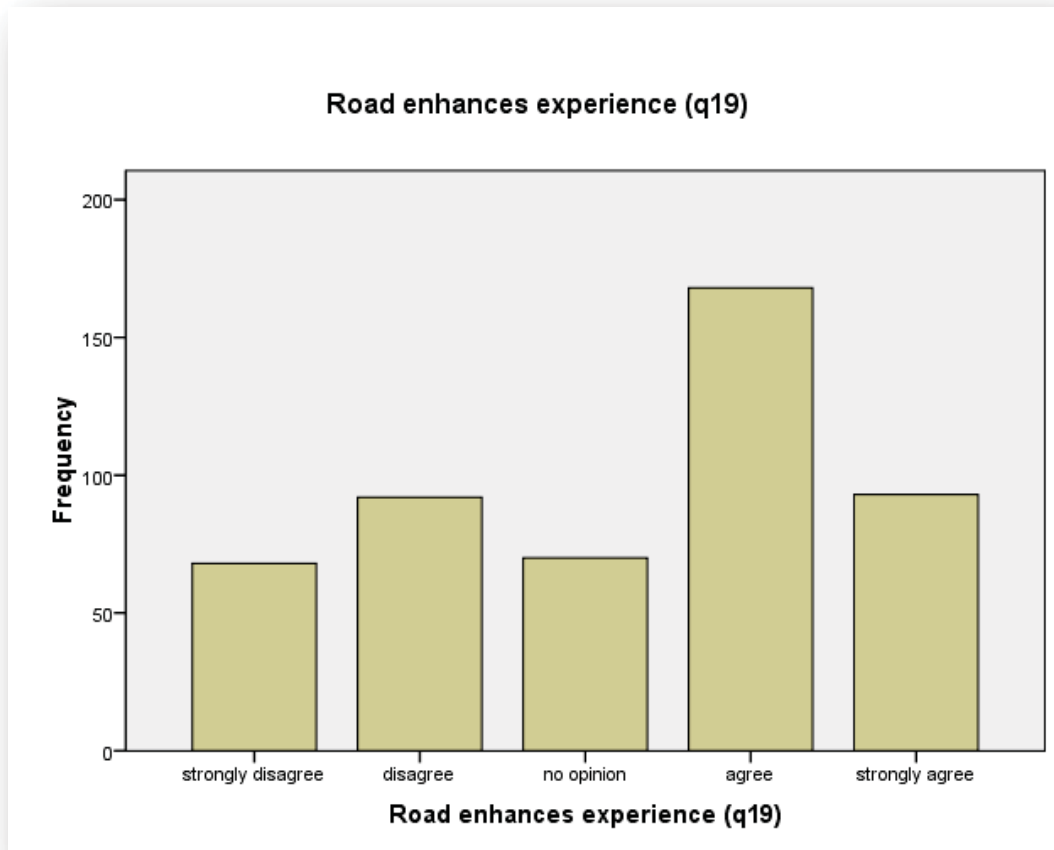


Figure 5. Distribution of beliefs about if the road enhances or detracts from the overall park experience.

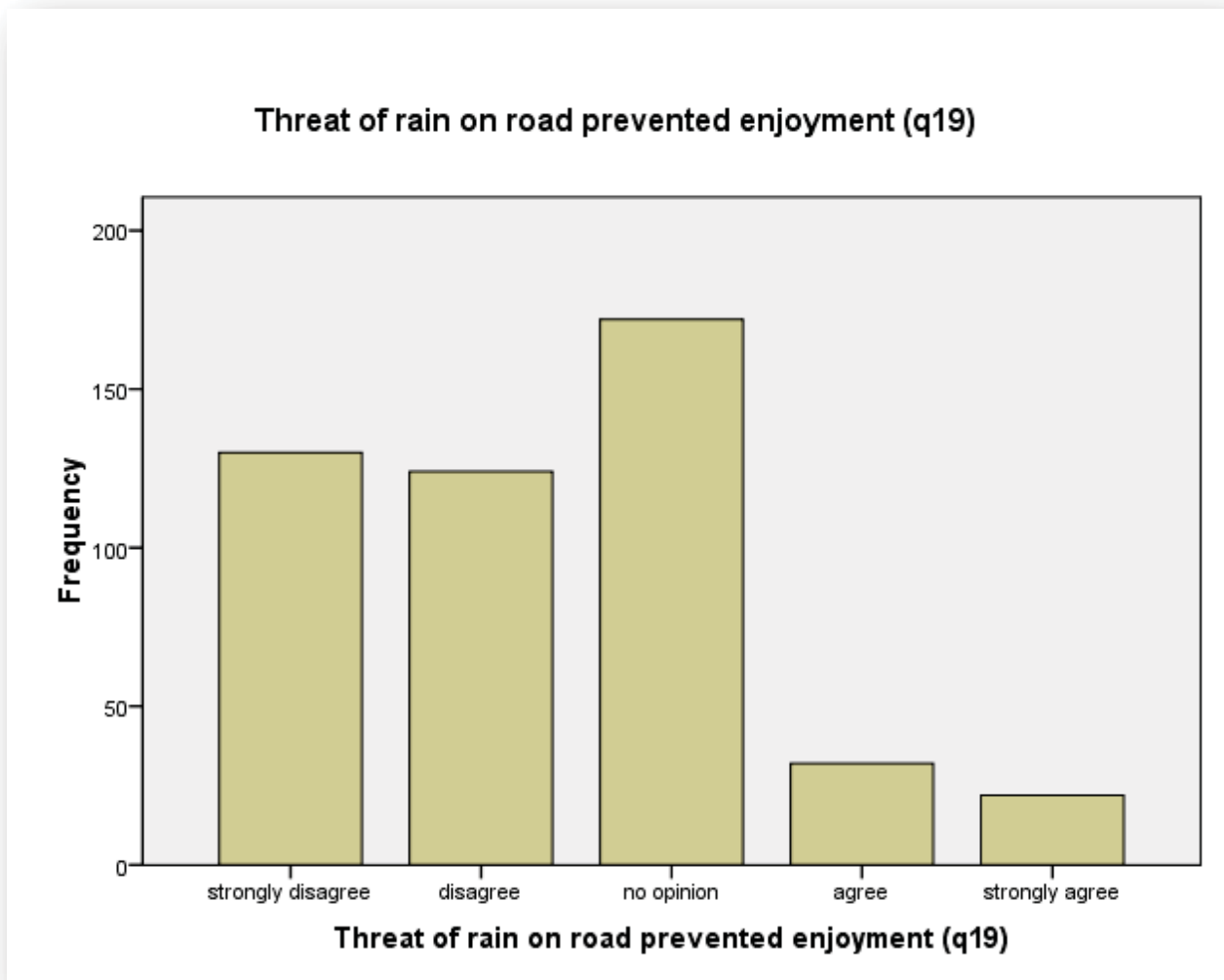


Figure 6. Perception of the threat of rain as a deterrent to enjoyment.

### The Role Visitor Numbers Plays in the Visitor Experience

The number of other visitors encountered and the behavior of other visitors had both positive and negative effects on the quality of visitors' experience. Visitors were asked how encountering large groups (12 or more visitors) impacted their experience. Visitors were also asked if the number of people they saw fit with their preferences and expectations about the Park as a whole, Pueblo Bonito specifically and experiences in backcountry areas of the Park.



## Encountering large groups

While only 5% of the respondents were in a group of 10 or more, 36% of the respondents encountered a group of 12 or larger. Visitors who encountered large groups were asked to estimate the size of the groups they had seen; the average estimate of large group size was 20 (Table 23). Visitors were generally neutral in their response to seeing large groups (Figure 7). However, there was a lot of variability in visitors' feelings about the acceptability of large groups with some visitors feeling it was very unacceptable and others feeling it were very acceptable. To address conflicts related to large groups, visitors' most favored management approach was to limit group size; this management option had mean acceptance of 3.5 on a scale of one to five. Visitors generally disliked other proposed management options. These options can be divided into management options that impose limitations directly on the visitors' ability to move as they desire and management options that limit access to the Park.

*Table 23. Chaco Culture National Historic Park, 2009  
Large group and management options*

Groups Encountered/Management Preferences	N	Mean	Percent unacceptable /disagree	Percent neutral / no opinion	Percent Acceptable /agree
Percent that encountered a large group (>12)	486	36%			
Acceptability of encounter	378	0.6	27	31	42
	180	20			
What was the size?					
Management options that directly limit group size:					
Limit group size	482	3.5	21	20	59
Management options that impose limitations on movement within the Park:					
Compulsory orientation	482	3.0	38	22	39
Require wait at visitor center	482	2.5	56	13	21
Require group tour	481	2.1	74	12	14
Management options that limit access to the Park:					
Close gate	476	2.9	43	21	36
Limit permits to key sites	483	2.6	53	21	26
Reservation required	482	2.3	65	13	22
Restrict access to Pueblo Bonito	476	2.3	68	13	19

Notes: The acceptability scale ranged from -4=very unacceptable to 4 very acceptable. The management options scale ranged from 1=strongly disagree to 5=strongly agree. The minimum size group encountered was 2, the maximum was 100 and the standard deviation was 11.9 people.

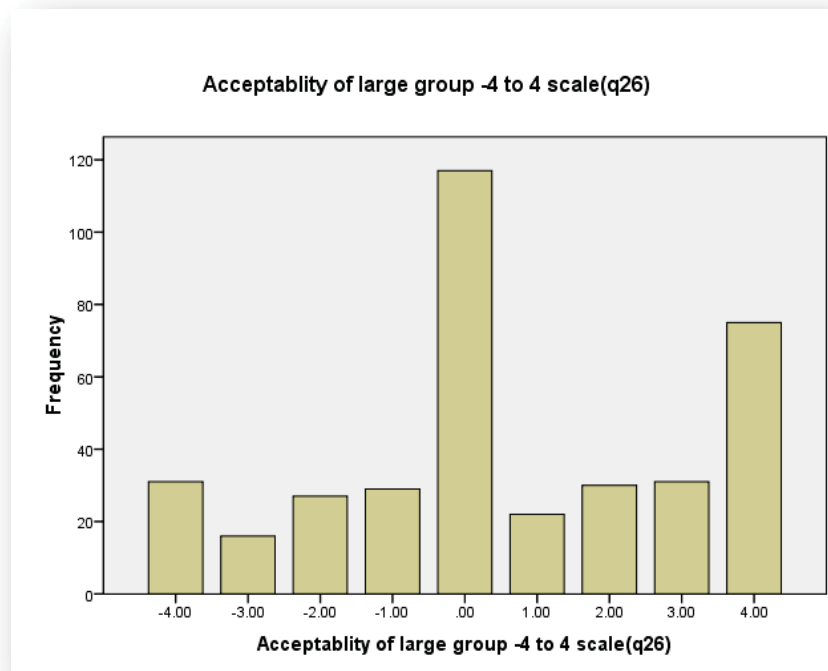


Figure 7. Range of Acceptability relative to encountering large groups. -4 =very unacceptable, +4 =very acceptable.

### How did visitor encounters compare to expectations and preferences?

As described in Table 20, on average encounters with other visitors neither added to, nor detracted from the visitor experience. Table 24 demonstrates that the number of other visitors encountered was the same as or less than the number that visitors expected to see in the Park as a whole, in Pueblo Bonito specifically, and in the backcountry areas in the Park. Similarly, visitors tended to see the number of visitors they preferred or slightly fewer than they preferred. Thirteen or less percent of the visitors encountered more people than they preferred, depending on where in the Park the encounter occurred.

*Table 24. Chaco Culture National Historic Park, 2009  
Expected and preferred number of visitors (in percent)*

Visitors encountered	Did not visit	Fewer than expected	About number expected	More than expected	Had no preference
	%	%	%	%	%
Expected # in whole Park	3	35	42	13	7
Expected # at Pueblo Bonito	3	34	43	14	7
Expected # in Backcountry	59	15	14	3	10
Preferred # in whole Park	3	25	51	11	10
Preferred # in Pueblo Bonito	2	24	51	13	9
Preferred # in Backcountry	60	10	19	2	11

## How Would Visitors Respond to Scenarios of Increased Visitor Demand?

### Visitor preference for management options

The Visitor Experience survey included one question about management options, which read: “If visitation to Chaco Cultural National Historical Park continues to increase, the National Park Service may consider one or more of the following actions to protect the quality of visitor experience and preserve Park resources. Considering that you may be affected by these actions, please indicate how much you agree or disagree that the National Park Service should do the following:” Table 25 shows the range of responses and the mean level of agreement with each response. Restriction on group size had the highest level of agreement, but only just above a neutral rating on average. Requiring group tours had the lowest level of agreement of the options surveyed.

*Table 25. Chaco Culture National Historic Park, 2009  
Visitor preference for management options*

Policy			Percent		
	Mean Response	Std. dev.	Percent disagree	no opinion	Percent agree
Limit group size	3.5	1.1	21	20	59
Compulsory orientation	3.0	1.2	38	22	39
Close gate	2.9	1.1	43	21	36
Limit permits to key sites	2.6	1.1	53	21	26
Require wait at Visitor Center	2.5	1.1	56	13	21
Reservation required	2.3	1.2	65	13	22
Restrict access to Pueblo Bonito	2.3	1.1	68	13	19
Require a group tour	2.1	1.0	74	12	14

Note: Respondents used a scale of 1, 2= strongly disagree or disagree, 3=no opinion, 4, 5=agree or strongly agree.

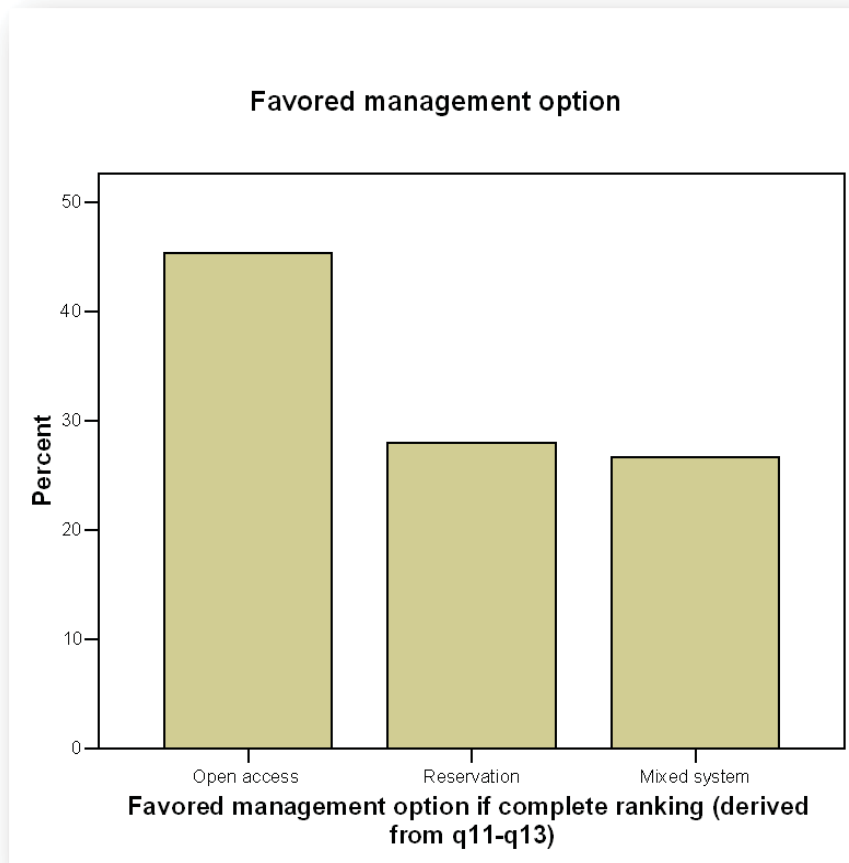
To better understand visitors’ preferences for management options, some visitors received the Management Alternative Survey. This survey asked visitors to rank three possible options for managing the Park if visitation were to double. The three options were:

1. Management Alternative A (which is called Open Access for analysis): Open access to all visitors; mandatory participation in Park orientation at the visitor center before entering the Park. There is a 40% chance of encountering at least 50 people at Pueblo Bonito.
2. Management Alternative B (Reservation): Reservation required to enter the Park; 10% chance of getting same-day reservation, but advance reservations available by phone or internet. There is a 40% chance of encountering at least 50 people at Pueblo Bonito.
3. Management Alternative C (Mixed System): Open Access to all visitors except Pueblo Bonito; On-site reservations required for ranger-guided tours to Pueblo Bonito; \$3 per person tour fee; visitors may need to wait at visitor center up to two hours for a tour; tour sizes are likely to be 30-40 people.

To gain an estimate of actual probabilities of encountering other visitors under an increased demand scenario, actual visitation levels were monitored at the Pueblo Bonito complex during peak hours (see study methods for description of this process). During the five days monitored, on average there was a

35% chance a visitor would share the sites with 20 or more people. There was a 21% chance they would share the sites with 25 or more people and a 12% chance for sharing the sites with 30 or more people. This data was used to develop an estimate of the chance of encountering other people under increased visitation. The authors assumed a linear increase in overall use levels. However, this linear increase was adjusted slightly based on professional judgment that use levels during the observation period were slightly lower than normal because the campground was closed at the time. It was estimated that there would be a 40% chance of encountering 50 or more people if Park visitation were to double.

Figure 8 shows the distribution of preference for the three management alternatives to address increased visitation. The Open Access option was preferred by roughly 45% of the visitors, followed by the Reservation Option (28%), and a Mixed System (27%).



*Figure 8. Percent of respondents selecting each management scenario as their preferred option.*

In addition, visitors were asked about their perceptions of the key characteristics of each option including convenience, constraints on independence, protection of the Park's resources, fairness, and ability to maintain the quality of visitor experience. Table 26 shows the mean score for each of these characteristics by management alternative.

*Table 26. Chaco Culture National Historic Park, 2009  
Influence of experiential attributes on choice of management scenario  
1 is low and 5 is high regarding the option's ability to provide the characteristic*

Experiential attributes	Respondent Chose: Open Access	Respondent Chose: Reservation	Respondent Chose: Mixed System
Open Access adds convenience	3.2	2.6	2.6
Open Access constrains my independence	3.0	3.1	3.1
Open Access protects Park resources	3.8	3.3	3.5
Open Access is fair to all visitors	3.9	3.5	3.4
Open Access will maintain quality of experience	3.6	2.9	2.9
Reservation adds convenience	1.9	3.4	2.0
Reservation constrains my independence	3.4	2.8	3.3
Reservation protects the Park resources	3.6	4.3	3.6
Reservation is fair to all visitors	2.6	3.9	2.7
Reservation will maintain quality of experience	2.6	4.3	2.8
Mixed System adds convenience	2.5	2.5	3.5
Mixed System constrains my independence	3.4	3.4	2.9
Mixed System protects the Park resources	3.6	3.4	3.8
Mixed System is fair to all visitors	3.1	3.1	3.7
Mixed System will maintain quality of experience	2.7	2.6	3.6
N	131	87	80

Note: Respondents used a scale of 1=low to 5=high regarding the option's ability to provide the characteristic.

Using these rankings, the preferred management option was modeled to be better understood based on three broad classes of variables. The perceived characteristics of each option (convenience, independence, protection, equity and quality), information about the individual and their trip (days in the Park, whether it was summer or fall, their age, their group type and size, whether they visited before, and when they decided to visit), and visitors' Park experiences (responses to factors affecting their experience listed in Table 20 including scales for the number of visitors they saw, the number of large groups they encountered, sounds encountered and parking experiences).

The multinomial logit model fit the data well. The Chi-square for the overall model was 393.0 ( $p < .001$  with 74 degrees of freedom) indicating that the factors used to predict the choice of individuals was statistically different than random assignment. The Pseudo  $R^2$  was 0.61 indicating a good overall fit. Many of the estimated individual coefficients were statistically significant. Due to the form of the model, the individual coefficients are not easily interpretable, so rather than reporting the individual coefficients which have little direct meaning, the marginal effects are reported in Table 27. The marginal effects are easily interpretable since they show the effect on the probability of each category being chosen for an increase of one unit for the isolated factor, holding all else constant.

*Table 27. Chaco Culture National Historic Park, 2009  
Key variables affecting management preference*

Visitor experience variables (if increased by one unit)	Change in probability of choosing Open Access as most favored	Change in probability of choosing Reservation as most favored	Change in probability of choosing Mixed System as most favored
Open access adds convenience	+ 9.3 pct pts	-3.6 pct pts	-5.7 pct pts
Open access maintains quality of Park resources	+17.9	-7.5	-10.4
Reservation adds convenience	-5.6	+9.7	-4.1
Reservation maintains quality of Park resources	-17.3	+19.0	-1.7
Mixed System adds convenience	-6.8	-3.0	+9.8
Mixed System maintains quality of Park resources	-8.7	-0.3	+9.0
Group type other rather than alone	-29.1	+0.5	+28.6
Group size	+2.6	+0.3	-2.9
Experience scale: number of visitors	-8.0	-0.3	+8.3
Experience scale: vehicle sounds	-8.5	-3.5	+12.0

Based on this model, the probability of choosing the “Open Access” management alternative increased by 9.3 percent when visitors strongly agreed instead of just agreed with the following statement: “Open access adds convenience.” In addition, when visitors strongly agreed with this statement they were less likely to support the Reservation System and the Mixed System options. Visitors’ perceptions of how each management option would maintain convenience and quality of experience seemed to be the key factors in which management option they preferred. Group type and size, experience with the number of visitors, and vehicle sounds also had statistically significant effects on which management option visitors preferred.

The results suggest that visitors were more likely to favor the Open Access option if they felt it added convenience to the trip and maintained the quality of the Park features. Those who favored the Reservation System were driven most by an assurance that resource quality would be protected and felt a reservation would add convenience. Those who favored a Mixed System felt it would add to convenience and quality and would improve conditions related to vehicle sounds.

## Conclusion

Visitors to Chaco Culture National Historical Park have a clear perception of the Park's purpose and why they are visiting it. According to visitors, protection of cultural resources is the most important purpose of the Park and learning about these cultural resources is the dominant experiential motivation. This did not vary by season of use and has varied little since last measured in 1995.

Visitors are very satisfied with their experience and strongly support the current management structures. Few things detract from the experience, the road to the Park is viewed as a more positive than negative element of visitor experience and the level of autonomy provided to the visitor satisfies their desire for independence in decision making and intimacy in exploring the sites.

As of 2009, visitor numbers are problematic for a small portion of visitors. Visitors do not see the Park as a social place, but they also do not expect to be alone.

Visitors prefer the existing experience including the opportunity for personal independence and the current management of groups and visitor numbers. Personal independence is an important part of visitor experience and most visitors do not want to give that up, even if it means they will experience more congestion. This study suggests that visitors may be more likely to support a group size restriction than other more intrusive management measures such as a reservation system. However, about half of the visitors would support a reservation system of some type to protect current conditions in the Park including the level of congestion and the ability to explore the Park independently. Convenience, quality of experience, and protection of Park resources are the most important issues of concern for visitors. Management may be able to mitigate the impacts of management alternatives to address increased visitation by focusing on maintaining and enhancing those qualities of visitor experience.

This study will be useful to managers in several ways. First, it provides support to previous research findings on visitors' perceptions of the purpose of the Park and their reasons for visiting it. This understanding is an important foundation for Park managers in developing future management plans that will protect this purpose and maintain the key reasons visitors come to the Park. In addition, the study provides data that will help managers choose between management alternatives for dealing with increased visitation if the road to the Park is improved. Specifically, this study suggests that visitors will be more supportive of management options that maintain the convenience and independence of visits to the Park. For example, visitors seem to be more supportive of management options that restrict group sizes rather than those that require reservations.

From a visitor perspective, the management framework in place for Chaco Culture National Historical Park continues to provide a high quality experience which features an intimate relationship with the Chacoan sites within the Park. The experiential and managerial conditions desired by the visitors have remained consistent with those desired in 1995 as does the high quality of the experience provided.



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## Appendix A: Visitor Contact Script

### Introductory Script for Chaco Visitor Survey

Hello. I am \_\_\_\_\_ (name) and am working for the University of Montana in cooperation with Chaco Culture National Historical Park. We are doing a survey of visitors to the park this year. Would you be willing to answer some questions?

The Paperwork Reduction Act requires approval of all federal government surveys by the Office of Management and Budget. This survey has been approved under this Act. The Office of Management and Budget control number and expiration date is available at your request. Additional information about this survey and its approval is available at your request.\* The questions on this survey will take about **15 minutes** to complete. All of your answers are voluntary and anonymous.

Thank you.

#### **\*Additional Information Provided upon Request.**

OMB Approval number: 1024-0224 (NPS #08-033)

Expiration Date: March 31, 2010

Person Collecting and Analyzing Information:

*Dr. Wayne Freimund  
Department of Society and Conservation  
College of Forestry and Conservation  
University of Montana  
Missoula, MT 59812  
(406) 243-5184*

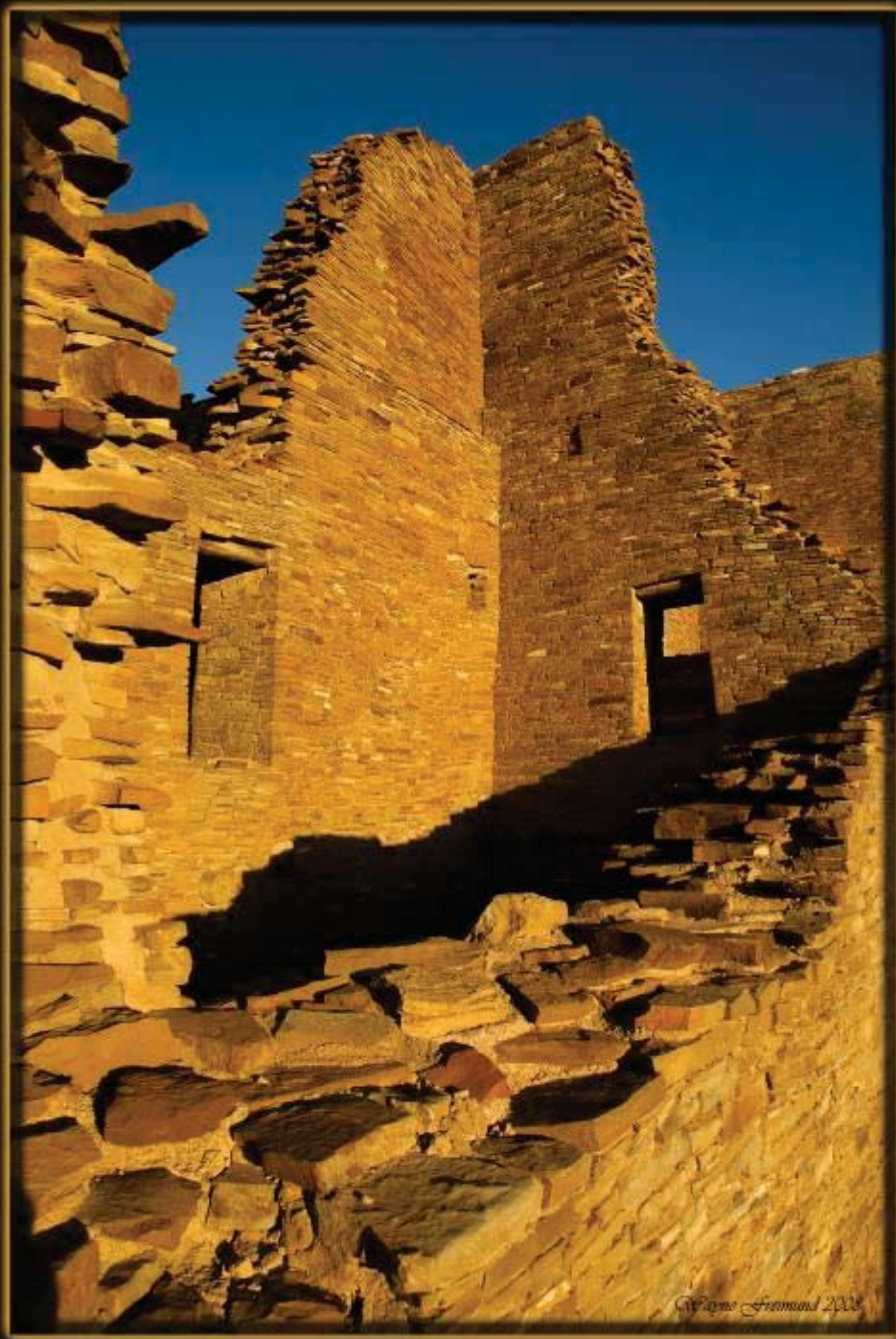
16 U.S.C. 1a-7 authorizes collection of this information. This information will be used by park managers to better serve the public. Response to this request is voluntary and anonymous. No action may be taken against you for refusing to supply the information requested. No personal data will be recorded.

You may direct comments on the number of minutes required to respond, or on any other aspect of this survey to:

Barbara West  
Chaco Culture National Historical Park  
505 786-7014 x 230  
Barbara\_West@nps.gov

Survey #	
Date	
Time	
Interview Site	

## **Appendix B: Visitor Experience Questionnaire**



*Chaco Culture National Historical Park*

# Visitor Experience Survey

## Introductory Script for Visitor Experience Survey

Hello. I am \_\_\_\_\_ (name) and am working for the University of Montana in cooperation with Chaco Culture National Historical Park. We are doing a survey of visitors to the park this year. To begin, we would like to know which person in your group has the closest birthday to today. Since we only need to interview one person from each group, we would like to interview you. Would you be willing to answer some questions?

The Paperwork Reduction Act requires approval of all federal government surveys by the Office of Management and Budget. This survey has been approved under this Act. The Office of Management and Budget control number and expiration date is available at your request. Additional information about this survey and its approval is available at your request.\* The questions on this survey will take about **15 minutes** to complete. All of your answers are voluntary and anonymous.

Thank you.

### **\*Additional Information Provided upon Request.**

OMB Approval number: 1024-0224 (NPS #08-033)  
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You may direct comments on the number of minutes required to respond, or on any other aspect of this survey to:

Barbara West  
Chaco Culture National Historical Park  
505 786-7014 x 230  
Barbara\_West@nps.gov

Survey #	
Date	
Time	
Interview Site	

We appreciate your willingness to help us learn more about visitors to Chaco Culture National Historical Park (NHP). Please answer all the questions. There are no right or wrong answers; the best answer is the one that most closely reflects your own personal feelings or beliefs.

First we would like to ask you a few questions about your visit to Chaco Culture NHP.

1. Have you visited Chaco Culture NHP before today? (check one.) [1.VISITHIS1]

- Yes       No (skip to question 2)

1b. If YES, when was your last visit (month/year)? \_\_\_\_\_/\_\_\_\_\_

2. When did you and your group make the decision to visit Chaco Culture NHP? (check one.) [2.TPLAN19]

- |  |   |
|--|---|
| <input type="checkbox"/> On the day of the visit     | <input type="checkbox"/> More than 6 months but less than a year before the visit |
| <input type="checkbox"/> 2-7 days before the visit   | <input type="checkbox"/> A year or more before the visit                          |
| <input type="checkbox"/> 8-30 days before the visit  |   |
| <input type="checkbox"/> 1-6 months before the visit |   |

3. On this visit, what kind of personal group (not guided tour/school group) are you with? (check one.) [1.GR5]

- |                                  |   |
|----------------------------------|---|
| <input type="checkbox"/> Alone   | <input type="checkbox"/> Family and Friends     |
| <input type="checkbox"/> Friends | <input type="checkbox"/> Other (Specify: _____) |
| <input type="checkbox"/> Family  |   |

4. How many people are in your personal group? [1.GR3] \_\_\_\_\_

5. On this visit, are you and your personal group with the following types of groups? (check yes or no for each item.) [1.GR6]

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| Guided tour group   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| School/educational group  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Other organized group (such as business group, scout group, etc.) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

6a. Through which park gate did you **first** arrive? (check one in the entrance column.) [3.TRIPC7]

6b. Through which park gate will you leave on your final **exit** from the park? (check one in the exit column.) [3.TRIPC8]

Access Road	6a. Entrance	6b. Exit
North gate		
South gate		

7a. Please indicate which source(s) of information you have used in the park. [Topic Area 3: Individual Activities and Uses of Park Resources]

Information Source	a. Used? (circle one for each)	
Brochures	Yes	No
Orientation at the visitor center front desk	Yes	No
Movie at the visitor center	Yes	No
Ranger-led tour	Yes	No

7b. Which one of the information sources you used has been the most useful? [Topic Area 5: Individual Evaluation of Park Services]

\_\_\_\_\_

8a. Please indicate which sites you've visited in the park, leaving the places you did not visit blank. [3. ITIN1]

Site	Sites visited (circle one for each)	
Visitor Center	Yes	No
Campground	Yes	No
Una Vida	Yes	No
Hungo Pavi	Yes	No
Wijiji	Yes	No
Pueblo Bonito	Yes	No
Chetro Ketl	Yes	No
Kin Kletso	Yes	No
Casa Rinconada	Yes	No
Pueblo del Arroyo	Yes	No
Jackson Staircase	Yes	No
Alto Mesa	Yes	No
Casa Chiquita	Yes	No
Petroglyphs (west of Chiquita)	Yes	No
Pueblo Alto	Yes	No
Peñasco Blanco	Yes	No
Tsin Kletsin	Yes	No
West Mesa Overlook	Yes	No



8b. Which one of the sites you've visited did you spend the most time at? [Topic area 3: Individual Activities and Use of Park Resources]

\_\_\_\_\_

We would next like to ask you about your travel to and from Chaco Culture NHP.

9a. Where did you stay the night before you entered Chaco Culture NHP? [variation of 3.TRIPC16]

City\_\_\_\_\_ State\_\_\_\_\_

9b. What type of accommodations did you use? [variation of 3.TRIPC15]

- |  |   |
|--|---|
| <input type="checkbox"/> Hotel/motel               | <input type="checkbox"/> Private campground |
| <input type="checkbox"/> With friends or relatives | <input type="checkbox"/> My home            |
| <input type="checkbox"/> Public campground         | <input type="checkbox"/> Other: _____       |

10a. Where do you plan to stay the night after you leave Chaco Culture NHP? [variation of 3.TRIPC17]

City\_\_\_\_\_ State\_\_\_\_\_

10b. What type of accommodations will you use (check one)? [variation 3.TRIPC 15]

- |  |   |
|--|---|
| <input type="checkbox"/> Hotel/motel               | <input type="checkbox"/> Private campground |
| <input type="checkbox"/> With friends or relatives | <input type="checkbox"/> My home            |
| <input type="checkbox"/> Public campground         | <input type="checkbox"/> Other: _____       |

11a. Did you receive any information about Chaco Culture NHP before arriving (check one)? [Topic Area 2: Trip/Visit Characteristics]

- No (please skip to question 12)       Yes

11b. If YES, from which source(s) (check all that apply):

- |  |   |
|--|---|
| <input type="checkbox"/> Live in the local area                | <input type="checkbox"/> Archeological or historical organization's publication |
| <input type="checkbox"/> State promotional agency publications | <input type="checkbox"/> Non-NPS newspaper                                      |
| <input type="checkbox"/> Travel agency publications            | <input type="checkbox"/> Recreation group publication                           |
| <input type="checkbox"/> Radio/TV programming                  |   |

- Environmental group publication
- Word-of-mouth
- Internet (please specify):
  - NPS website
  - Other non-NPS website

- World Heritage promotional material
- Material you requested from NPS
- Other: \_\_\_\_\_

12. Did you visit any of the following cultural areas as part of this trip to Chaco Culture NHP (check all that apply)? [Topic Area 2: Trip/Visit Characteristics]

- |   |   |
|---|---|
| <input type="checkbox"/> Mesa Verde National Park           | <input type="checkbox"/> Monument Valley/Window Rock            |
| <input type="checkbox"/> Aztec Ruins National Monument      | <input type="checkbox"/> Hovenweep National Monument            |
| <input type="checkbox"/> Canyon de Chelly National Monument | <input type="checkbox"/> El Morro/El Malpais National Monuments |
| <input type="checkbox"/> Bandelier National Monument        | <input type="checkbox"/> Salmon Ruins                           |
| <input type="checkbox"/> Zuni Pueblo                        | <input type="checkbox"/> Hopi Mesas                             |
| <input type="checkbox"/> Acoma Pueblo                       | <input type="checkbox"/> Other _____                            |

13. Prior to your visit, were you aware that Chaco Culture NHP was a World Heritage Site (check one)? [Topic Area 6: Individual Perceptions of their Park Experiences]

- No     Yes



14. People come to this park for many different reasons. Here is a list of reasons why people might come here. Please rate the importance of these items in your decision to visit Chaco Culture NHP. (Circle the number that best describes how you feel about each statement.) [Topic Area 6: Individual Perceptions of their Park Experiences]

Reason to visit Chaco Culture NHP	Not Important	Somewhat Important	Moderately Important	Very Important	Extremely Importance	I Don't Know
To satisfy my curiosity	1	2	3	4	5	6
To learn and see how people lived back then	1	2	3	4	5	6
To look at the scenery	1	2	3	4	5	6
To grow and develop spiritually	1	2	3	4	5	6
To enjoy the smells and sounds of nature	1	2	3	4	5	6
To do something with the family	1	2	3	4	5	6
To do something such as sketch, paint or photograph	1	2	3	4	5	6
To be away from crowds of people	1	2	3	4	5	6
To be alone	1	2	3	4	5	6
To learn about ancient cultures	1	2	3	4	5	6
To get away from the usual demands of life	1	2	3	4	5	6
To experience a World Heritage Site	1	2	3	4	5	6
To experience dark night skies	1	2	3	4	5	6
Other: _____	1	2	3	4	5	6

15. Managers are interested in your opinions about the road leading to the park. Please indicate the extent to which you agree or disagree with each of the following statements about the road. (Circle the number that best describes how you feel about each statement.)  
[5. CRWDATT10]

Statement about the road you used to enter the park	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
The road can damage automobiles	1	2	3	4	5
Road conditions enhance the experience at Chaco	1	2	3	4	5
The threat of rain affecting the road prevented me from enjoying my visit	1	2	3	4	5
Road conditions preserve fragile resources by reducing crowds	1	2	3	4	5
Road conditions deter less serious visitors	1	2	3	4	5
The road is a physically unpleasant driving experience	1	2	3	4	5
Road conditions keep the park from being crowded	1	2	3	4	5
Additional travel time on the road to the park cut down on my time to visit the park	1	2	3	4	5

16. Please indicate how your experience of each of the following items during your visit to Chaco Culture NHP has affected your ability to reflect on Chacoan culture. (Circle one number for each statement.)  
 [Topic Area 6: Individual Perceptions of their Park Experiences]

What you experienced	Detracted Greatly	Detracted Somewhat	Had No Effect	Added Somewhat	Added Greatly
The number of visitors you saw while you were visiting sites	1	2	3	4	5
The ability to intimately explore the ancient cultural sites	1	2	3	4	5
The freedom to move about the sites at your desired pace	1	2	3	4	5
Being in a remote setting	1	2	3	4	5
Sounds made by other visitors	1	2	3	4	5
The amount of time during your visit to the sites that you heard sounds from vehicles	1	2	3	4	5
The amount of access allowed within the sites	1	2	3	4	5
The amount of signs and fences that restricted access	1	2	3	4	5
The availability of parking at each site you visited	1	2	3	4	5
The number of large groups (12 or more people) you encountered while visiting the sites	1	2	3	4	5

17. Please indicate how the number of other visitors you encountered in each of the following areas compared to your expectations. If you haven't visited an area, please check "Did not visit." (Check one for each item.) [Topic Area 6: Individual Perceptions of their Park Experiences]

Area	Have not visited	How number of encounters <u>compared with your expectations</u>			
		Fewer than I expected	About the number I expected	More than I expected	I had no expectation
The park in general					
Pueblo Bonito					
Backcountry trails					

18. Next we would like to know how the number of other visitors you encountered in each of the following areas relates to your preferences. If you haven't visited an area, please check "Did not visit." (Check one for each item.) [Topic Area 6: Individual Perceptions of their Park Experiences]

Area	Have not visited	How number of encounters <u>compared with your preferences</u>			
		Fewer than I prefer	About the number I prefer	More than I prefer	I had no preference
The park in general					
Pueblo Bonito					
Backcountry trails					



19. There are many kinds of opportunities, services, and facilities that park managers already provide or could provide to make your visit to Chaco Culture NHP more enjoyable. Below is a list of things that might be provided. Please indicate how important you feel each of the following is or could be in making your visit to the park enjoyable. (Circle one number that best describes how you feel about each statement.) [Topic Area 6: Individual Perceptions of their Park Experiences]

Opportunity, service, or facility	Not Important	Slightly Important	Moderately Important	Very Important	Of Utmost Importance	I Don't Know
Being able to walk inside the sites	1	2	3	4	5	6
Being in a remote, wilderness-like setting	1	2	3	4	5	6
Ranger-led talks, walks, or presentations	1	2	3	4	5	6
Picnic areas available	1	2	3	4	5	6
A place to buy souvenirs	1	2	3	4	5	6
Access for the disabled	1	2	3	4	5	6
A snack bar or restaurant	1	2	3	4	5	6
Shady places near the sites	1	2	3	4	5	6
Access to the backcountry	1	2	3	4	5	6
Being able to look around on my own	1	2	3	4	5	6
Museum displays	1	2	3	4	5	6
Booklets explaining what is seen in the sites	1	2	3	4	5	6
Information exhibits and signs	1	2	3	4	5	6
Programs and activities especially for kids	1	2	3	4	5	6
Information available at the visitor center	1	2	3	4	5	6
Other: _____	1	2	3	4	5	6



The management of group sizes is important at Chaco and we are interested in your opinion of the size of the groups you encountered today.

20a. Have you encountered a group of 12 or larger on this visit? [Topic area 6: Individual Perceptions of their Park Experiences]

- No (skip to question 23)       Yes

20b. If YES, please estimate the number of individuals in the largest group that you saw today.  
\_\_\_\_\_ (number of people)      OR       I can't remember

20c. Please indicate how acceptable it was to encounter that group (circle a single number):

<b>Very Unacceptable</b>				<b>Very Acceptable</b>				
-4	-3	-2	-1	0	1	2	3	4

20d. If your rating of the encounter was unacceptable (-1 to -4), please explain (check one):

- The number of people  
 The behavior of people within the group  
 Both the number and behavior

Next we would like to know how you feel about a range of management policies that are currently in place, as well as actions that could be implemented if visitation to Chaco Culture NHP increased.

21. If visitation to Chaco Culture NHP continues to increase, the National Park Service may consider one or more of the following actions to protect the quality of visitor experiences and preserve park resources. Considering that you may be affected by these actions, please indicate how much you agree or disagree that the NPS should do the following (circle one number for each statement): [Topic Area 7: Individual Opinions on Park Management]

To maintain high quality experiences, during times of peak use, the NPS should:	Strongly Disagree	Disagree	No Opinion	Agree	Strongly Agree
Require a compulsory park orientation at the visitor center	1	2	3	4	5
Close the gate to additional visitors when available parking spaces are filled	1	2	3	4	5
Limit the size of groups to 12 people	1	2	3	4	5
Restrict access at Pueblo Bonito to the plazas and a few sample rooms	1	2	3	4	5
Require visitors to wait at the visitor center up to one hour (or until a group leaves) before beginning to travel to the sites in the park	1	2	3	4	5
Require a reservation to visit the park	1	2	3	4	5
Require visitors to join guided tours of the site	1	2	3	4	5
Limit the number of daily permits available to sites such as Pueblo Bonito, Pueblo de Arroyo and Casa Rinconada.	1	2	3	4	5

These last questions will help managers learn about the people who participated in the study.

22. Do you live in the United States? [1.RES3]

- Yes (What is your zip code? \_\_\_\_\_ )
- No (what country do you live in? \_\_\_\_\_ )

23. Which of the following describes your present situation (check one)? [Topic Area 1: Individual Characteristics]

- Single, no children
- Married, no children
- Other
- Married with children
- Single parent with children

24. What is the year of your birth? [1. AGE 1]\_\_\_\_\_

25. What is the highest level of formal education you have completed (check one)? [1.ED2]

- 8<sup>th</sup> grade or less
- 9-11<sup>th</sup> grade
- 12<sup>th</sup> grade (H.S. Graduate)
- 13-15 years (some college, business, trade school)
- 16 years (college/university graduate)
- 17+ years (some graduate work)
- Master, doctorate or professional degree

26. Are you Hispanic or Latino? (check one.) [1.RACE/ETH2]

- Yes
- No

27. What is your race? (check one or more.) [1.RACE/ETH3]

- American Indian or Alaskan Native
- Asian
- Black or African American
- Native Hawaiian or other Pacific Islander
- White

28. Which category best represents your annual household income (check one)? [1.INCOME1]

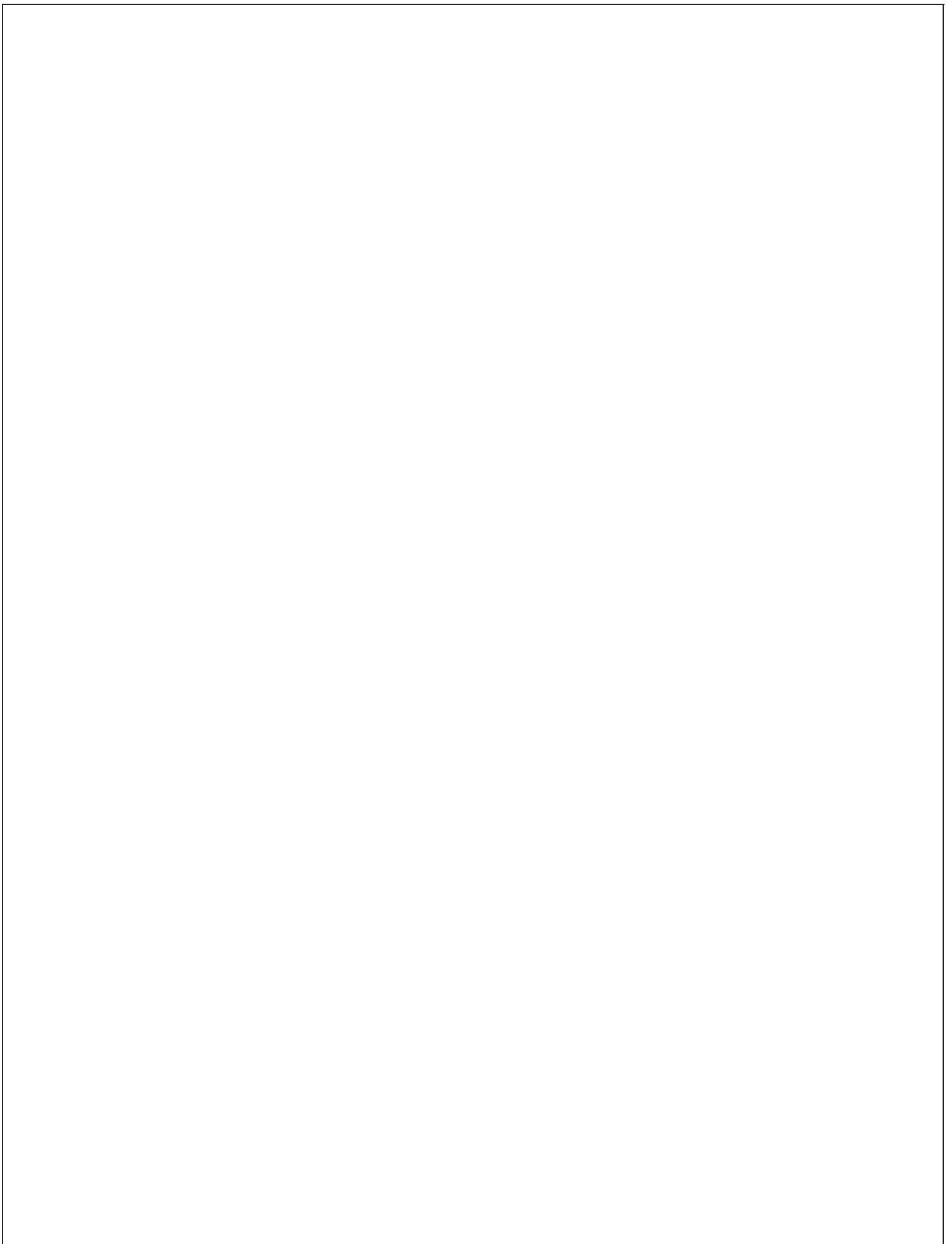
- Less than \$24,999
- \$25,000 to \$34,999
- \$35,000 to \$49,999
- \$50,000 to \$74,999
- \$75,000 to \$99,999
- \$100,000 to \$149,999
- \$150,000 to \$199,999
- \$200,000 or more

Do not wish to answer

29. What did you **most** enjoy about your visit to Chaco Culture NHP? [6.EVALSERV25]

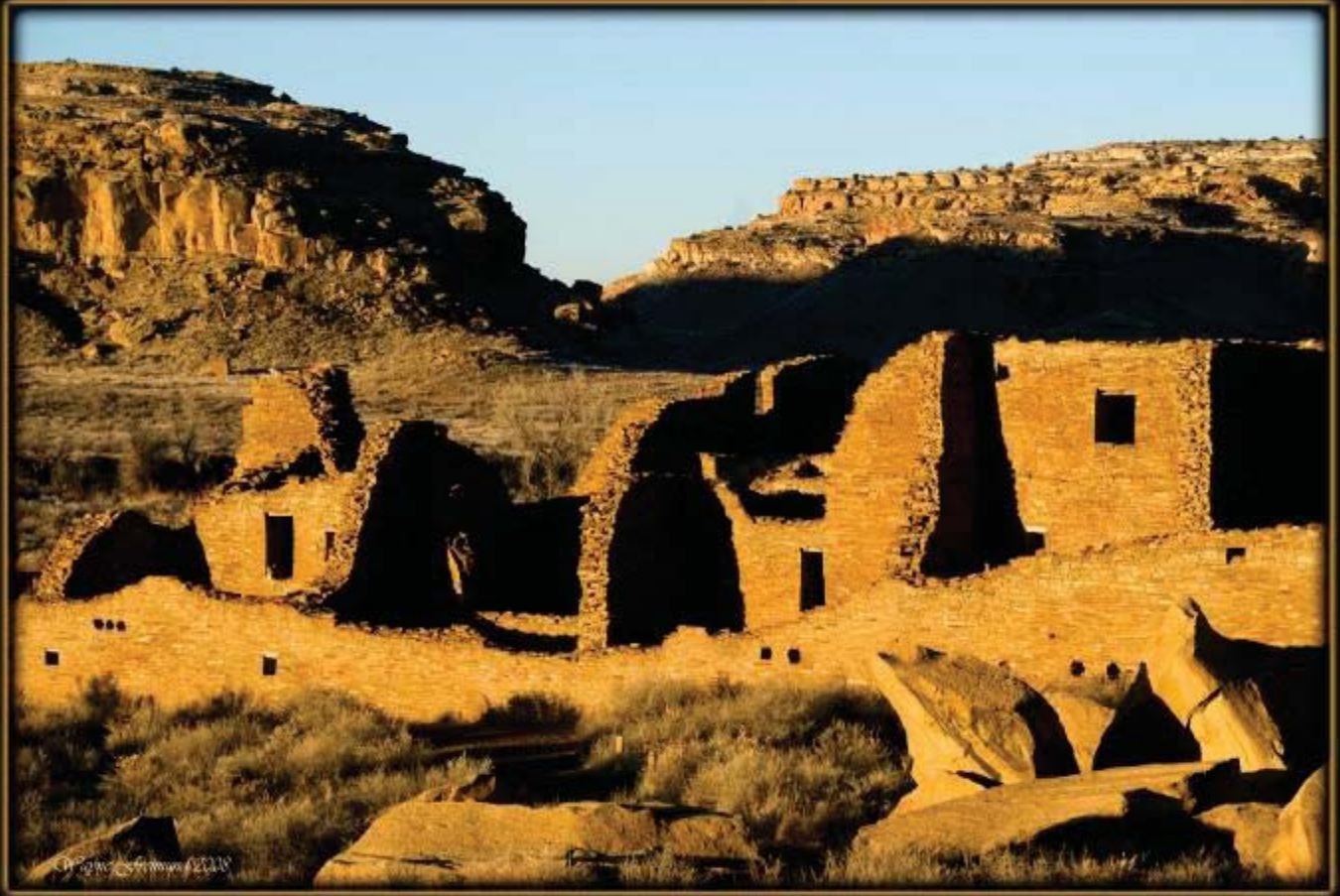
30. What did you like **least** about your visit to Chaco Culture NHP? [6.EVALSERV24]

THANK YOU FOR YOUR TIME  
AND OPINIONS!!!



**Appendix C: Management Action Questionnaire**





*Chaco Culture National Historical Park*

# Management Alternative Survey

**Introductory Script for Chaco Visitor Survey**

Hello. I am \_\_\_\_\_ (name) and am working for the University of Montana in cooperation with Chaco Culture National Historical Park. We are doing a survey of visitors to the park this year. Would you be willing to answer some questions?

The Paperwork Reduction Act requires approval of all federal government surveys by the Office of Management and Budget. This survey has been approved under this Act. The Office of Management and Budget control number and expiration date is available at your request. Additional information about this survey and its approval is available at your request.\* The questions on this survey will take about **15 minutes** to complete. All of your answers are voluntary and anonymous.

Thank you.

**\*Additional Information Provided upon Request.**

OMB Approval number: 1024-0224 (NPS #08-033)  
Expiration Date: March 31, 2010

Person Collecting and Analyzing Information: *Dr. Wayne Freimund  
Department of Society and Conservation  
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University of Montana  
Missoula, MT 59812  
(406) 243-5184*

16 U.S.C. 1a-7 authorizes collection of this information. This information will be used by park managers to better serve the public. Response to this request is voluntary and anonymous. No action may be taken against you for refusing to supply the information requested. No personal data will be recorded.

You may direct comments on the number of minutes required to respond, or on any other aspect of this survey to:

Barbara West  
Chaco Culture National Historical Park  
505 786-7014 x 230  
Barbara\_West@nps.gov

Survey #	
Date	
Time	
Interview Site	

Dear visitor,

Thank you for your assistance with this survey. The Managers of Chaco are currently working on a plan that will define the way visitors will access the park over the next 10-20 years. Your input to this questionnaire will greatly assist them in evaluating some alternatives for the future.

First, we would like to ask you a few questions about your experiences at Chaco Culture NHP.

6. Have you visited Chaco Culture NHP before today? (check one.) [1.VISITTHIS1]

- Yes             No (skip to question 2)

1b. If YES, when was your last visit (month/year)? \_\_\_\_\_/\_\_\_\_\_

7. When did you and your group make the decision to visit Chaco Culture NHP? (check one.) [2.TPLAN19]

- On the day of the visit  
 2-7 days before the visit  
 8-30 days before the visit  
 1-6 months before the visit  
 More than 6 months but less than a year before the visit  
 A year or more before the visit

8. On this visit, what kind of personal group (not guided tour/school group) are you with? (check one.) [1.GR5]

- Alone  
 Friends  
 Family  
 Family and Friends  
 Other (Specify: \_\_\_\_\_)

9. How many people are in your personal group? [1.GR3] \_\_\_\_\_

10. On this visit, are you and your personal group with the following types of groups? (check yes or no for each item.) [1.GR6]

- |   |                              |                             |
|---|------------------------------|-----------------------------|
| Guided tour group   | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| School/educational group  | <input type="checkbox"/> Yes | <input type="checkbox"/> No |
| Other organized group (such as business group, scout group, etc.) | <input type="checkbox"/> Yes | <input type="checkbox"/> No |

11. Did/will you attend a ranger led tour while in Chaco (check one)? [3. ACT8]

- Yes             No

12. How long did you stay at Chaco Culture NHP? Please list partial hours as  $\frac{1}{4}$ ,  $\frac{1}{2}$ , or  $\frac{3}{4}$ . [3. TRIPC11]

\_\_\_\_\_ Number of **hours**, if less than 24 hours

**OR**

Number of **days**, if 24 hours or more

13. Please indicate how your experience of each of the following items during your visit to Chaco Culture NHP has affected your ability to reflect on Chacoan culture. (Circle one number for each statement.) [Topic Area 6: Individual Perceptions of their Park Experiences]

What you experienced	Detracted Greatly	Detracted Somewhat	Had No Effect	Added Somewhat	Added Greatly
The number of visitors you saw while you were visiting sites	1	2	3	4	5
The ability to intimately explore the ancient cultural sites	1	2	3	4	5
The freedom to move about the sites at your desired pace	1	2	3	4	5
Being in a remote setting	1	2	3	4	5
Sounds made by other visitors	1	2	3	4	5
The amount of time during your visit to the sites that you heard sounds from vehicles	1	2	3	4	5
The amount of access allowed within the sites	1	2	3	4	5
The amount of signs and fences that restricted access	1	2	3	4	5
The availability of parking at each site you visited	1	2	3	4	5
The number of large groups (12 or more people) you encountered while visiting the sites	1	2	3	4	5

14. Please indicate how the number of other visitors you encountered in each of the following areas compared to your preferences. If you haven't visited an area, please check "Did not visit." (Check one for each item.) [Topic Area 6: Individual Perceptions of their Park Experiences]

Area	Did not visit	How number of encounters <u>compared with your preferences</u>			
		Fewer than I prefer	About the number I prefer	More than I prefer	I had no preference
The park in general					
Pueblo Bonito					
Backcountry trails					

15. We would like to know what you feel is most important about Chaco Culture NHP. For each of the following, please indicate the extent to which you believe Chaco Culture National Historical Park is important as: (Circle one number for each statement.) [Topic Area 6: Individual Perceptions of their Park Experiences]

	Not Important	Somewhat	Moderately	Very Important	Extremely Important	Don't Know
A wildlife sanctuary	1	2	3	4	5	6
A place for education about nature	1	2	3	4	5	6
A place for education about cultural heritage	1	2	3	4	5	6
A place for natural quiet and to hear the sounds of nature	1	2	3	4	5	6
A place with undisturbed cultural landscapes	1	2	3	4	5	6
A sacred place	1	2	3	4	5	6
A place to protect dark night skies	1	2	3	4	5	6
An historical resource	1	2	3	4	5	6
A symbol of America's identity	1	2	3	4	5	6
A place of unique cultural significance	1	2	3	4	5	6
A place where visitors can socialize with others	1	2	3	4	5	6
A site to renew your sense of personal well-being	1	2	3	4	5	6
A place of scenic beauty	1	2	3	4	5	6
A place to be free from society and its regulations	1	2	3	4	5	6
A place for preserving heritage resources	1	2	3	4	5	6

A tourist destination	1	2	3	4	5	6
A place for archeological research and monitoring	1	2	3	4	5	6
A place for recreational activities	1	2	3	4	5	6

These last questions will help managers learn about the people who participated in the study.

16. Do you live in the United States? [1. RES3]

↑Yes (What is your zip code? \_\_\_\_\_ )

↑No (what country do you live in? \_\_\_\_\_ )

17. Which of the following describes your present situation (check one)?

[Topic Area 1: Individual Characteristic]

single, no children

married with children

married, no children

single parent with children

Other

18. What is the year of your birth? [1.AGE1] \_\_\_\_\_

19. What is the highest level of formal education you have completed? (Check one) [1.ED2]

8<sup>th</sup> grade or less

17+ years (some graduate work)

9-11<sup>th</sup> grade

Master, doctorate or professional degree

12<sup>th</sup> grade (H.S. Graduate)

13-15 years (some college, business, trade school)

16 years (college/university graduate)

20. Are you Hispanic or Latino? (check one.) [1. RACE/ETH2]

Yes

No

21. What is your race? (check one or more.) [1. RACE/ETH3]

American Indian or Alaska Native

White

Asian

Black or African American

Native Hawaiian or other Pacific Islander

17. Several changes are occurring that affect Chaco and may lead to an increase in park visitation. This includes the paving of the road to Chaco and a prominent exhibit on Chaco at the Smithsonian in Washington D.C. While it is unclear just how many more people may visit, planners are considering the possibility of a doubling of visitation within the next ten years. A doubling of visitors means it will be harder to find parking at the visitor center. Access to Chaco's limited facilities and services, including restrooms, the bookstore, and assistance from park rangers, will become more difficult. During peak

periods, 60 or more people may be encountered during stops at frequently used sites such as Pueblo Bonito. We would like your input on some alternative ways that management could prepare for and respond to this increased demand.

Evaluate three possible options for managing **Chaco if visitation were to double**. Those options include keeping the current entry system, developing a reservation system, and requiring mandatory tours of cultural sites like Pueblo Bonito. First, we would like you to rank your preference for the three following approaches to visitor management, **with a one being your most preferred** and **a three being your least preferred** alternative. Then we would like you to evaluate how each alternative would affect your experience.

Management Alternative	Ranking
<ul style="list-style-type: none"> <li>• Open access to all visitors.</li> <li>• Mandatory participation in park orientation at the visitor center before entering the park.</li> <li>• Chance of encountering at least 50 people at Pueblo Bonito is <u>40</u> %.</li> </ul>	Rank _____
<ul style="list-style-type: none"> <li>• Reservation required to enter the park.</li> <li>• 10% chance of getting a same-day reservation, but advance reservations available by phone or internet.</li> <li>• Chance of encountering at least 50 people at Pueblo Bonito is <u>40</u> %.</li> </ul>	Rank _____
<ul style="list-style-type: none"> <li>• Open access to all visitors except at Pueblo Bonito.</li> <li>• On-site reservations required for ranger-guided tours to Pueblo Bonito.</li> <li>• \$3 per person tour fee.</li> <li>• Visitors may need to wait at the visitor center up to two hours for a tour.</li> <li>• Tour group sizes are likely to be 30-40 people.</li> </ul>	Rank _____

If visiting the park would mean:

- Open access to all visitors.
- Mandatory participation in park orientation at the visitor center before entering the park.
- Chance of encountering at least 50 people at Pueblo Bonito is 40 %.

To what extent do you agree with the following statements?

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Adds to the convenience of my trip	1	2	3	4	5
Constrains my independence within the park	1	2	3	4	5
Protects Chaco	1	2	3	4	5
Is fair to all visitors	1	2	3	4	5
Will maintain the quality of my experiences here	1	2	3	4	5

If visiting the park would mean:

- Reservation required to enter the park.
- 10% chance of getting a same-day reservation, but advance reservations available by phone or internet.
- Chance of encountering at least 50 people at Pueblo Bonito is 40 %.

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Adds to the convenience of my trip	1	2	3	4	5
Constrains my independence within the park	1	2	3	4	5
Protects Chaco	1	2	3	4	5
Is fair to all visitors	1	2	3	4	5
Will maintain the quality of my experiences here	1	2	3	4	5



If visiting the park would mean:

- Open access to all visitors except at Pueblo Bonito.
- On-site reservations required for ranger-guided tours to Pueblo Bonito.
- \$3 per person tour fee.
- Visitors may need to wait at the visitor center up to two hours for a tour.
- Tour group sizes are likely to be 30-40 people.

To what extent do you agree with the following statements?

	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree
Adds to the convenience of my trip	1	2	3	4	5
Constrains my independence within the park	1	2	3	4	5
Protects Chaco	1	2	3	4	5
Is fair to all visitors	1	2	3	4	5
Will maintain the quality of my experiences here	1	2	3	4	5

Do you have any other comments about these different options? (Ask the attendant for an additional sheet of paper if you desire.)

## Appendix D: Example Use Level Monitoring Form Data

Date	Time	Entry	Exit	Total
7/14/2009	9:am start			
Tuesday	9:30 AM	3		3
	10:01 AM		3	0
	10:20 AM	2		2
	10:25 AM	2		4
	10:27 AM		1	3
	10:28 AM	3		6
	10:30 AM		1	5
	10:32 AM	1		6
	10:45 AM	2		8
	10:46 AM		2	6
	10:49 AM	2		8
	11:00 AM	2		10
	11:05 AM		3	7
	11:15 AM	5		12
	11:23 AM	3		15
	11:30 AM	1	2	14
	11:35 AM	2		16
	11:43 AM		1	15
	11:45 AM	1		16
	11:49 AM		3	13
	11:52 AM	3		16
	11:55 AM		2	14
	11:59 AM	2		16
	12:00 PM	3		19
	12:05		2	17
	12:08	4		21
	12:15		2	19
	1:00	1		20
	1:03	3		23
	1:05		2	21
	1:09	4	3	22
	1:10	3		25
	1:12	2		27
	1:15	2		29

	1:20		4	25
	1:22	5		30
	1:25		2	28
	1:31		2	26
	1:40	1		27
	1:41	2		29
	1:47		1	28
	1:59	22		50
	2:00	3		53
	2:10	1		54
	2:13	4	2	56
	2:14	1		57
	2:17	2		59
	2:33		3	56
	2:44		2	54
	2:55		2	52
	2:59	2		54
	3:06		2	52
	3:09		3	49
	3:14		4	45
	3:18		2	43
	3:23		2	41
	3:24	2		43
	3:26	2		45
	3:27		3	42
	3:42		2	40
	3:43		1	39
	3:45		2	37
	3:46		2	35
	3:47		2	33
	3:49	4	2	35
	3:53		2	33
	3:55		3	30
	3:57		2	28
	4:00	1		29
	4:02		4	25
	4:08		2	23
	4:09	1		24
	4:11	1	1	24
	4:15		2	22
	4:20		1	21

	4:21		3	18
	4:28		1	17
	4:37	1		18
	4:43		2	16
	5:02		1	15
	5:15		1	14