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2000 Arrow Rock State Historic Site Visitor Survey

Project Completion Report

Submitted to

**Missouri Department of Natural Resources
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Executive Summary

The purpose of this study was to describe visitors' socio-demographic characteristics, patterns of use, and satisfaction with site facilities, programs and services at Arrow Rock State Historic Site (ARSHS).

An on-site survey of adult visitors to ARSHS was conducted July, August, September, and October 2000. One hundred ninety-three (193) surveys were collected, with an overall response rate of 89%. Results of the survey have a margin of error of plus or minus 7%. The following information summarizes the results of the study.

Socio-demographic Characteristics

- ARSHS visitors were comprised of more females (58%) than males (42%), and the average age of the adult visitor to ARSHS was 49.
- The largest percentage (47%) of visitors indicated a professional/technical occupation, while the second largest percentage (20%) of visitors indicated retirement status.
- Thirty-one percent (31%) of visitors reported an annual household income of between \$25,000 and \$50,000, and another 31% indicated an annual income of over \$75,000.
- Most (35%) of the visitors were married with children grown.
- Over half (52%) of ARSHS visitors indicated having completed a four-

year college degree or an advanced graduate degree.

- The majority (98%) of visitors were White, 1.1% were Hispanic, and 1.1% were African American.
- Most (77%) of the ARSHS visitors were from Missouri, with the majority (41%) residing within non-metropolitan areas.

Use-Patterns

- The majority (71%) of visitors drove less than a day's drive (a day's drive is defined as less than 150 miles one way) to visit ARSHS. Of those driving 150 miles or less, 36% drove 50 miles or less to visit the site.
- Almost two-thirds (62%) of ARSHS visitors had visited the site before, with an average of 4 visits in the past year.
- Two-thirds (67%) of the visitors were day-users, while 33% indicated staying overnight during their visit.
- Of those staying overnight, half (53%) reported staying in the site campground. The average number of nights overnight visitors stayed was 2 nights.
- The majority of ARSHS visitors visited the site with family and/or friends.
- The most frequent recreation activities in which visitors participated were

visiting the visitor center, walking, shopping in Arrow Rock, self-guided tour of historic buildings, attending a Lyceum Theatre production, and dining at the Old Tavern.

Satisfaction and Other Measures

- Ninety-eight percent (98%) of ARSHS visitors were either satisfied or very satisfied overall with their visit.
- Of the six site features, the campground and visitor center were given the highest satisfaction ratings and the hiking trail was given the lowest satisfaction rating.
- Visitors gave higher performance ratings to the following site attributes: being safe, being free of litter and trash, upkeep of the facilities, and having clean restrooms.
- Visitors gave a marginal performance rating to care of the cultural resources.
- Only 19% of visitors to ARSHS felt some degree of crowding during their visit.
- Visitors who did not feel crowded had a significantly higher overall satisfaction rating compared to visitors who did feel crowded.
- Only a fourth (24%) of the visitors at ARSHS did not give site safety an excellent rating.
- Fifty-six percent (56%) of all visitors felt that nothing specific could increase their feeling of safety at ARSHS, while 11% of all visitors indicated more lighting at ARSHS would increase their feeling of safety.
- Visitors who felt the site was safe were more satisfied overall, less crowded, and gave higher performance ratings to the eight site attributes as well.
- The majority of visitors reported that word of mouth from friends and relatives is their primary source of information about ARSHS and other Missouri state parks and historic sites.
- The majority (37%) of visitors placed a value of \$5.00 per day on a recreational opportunity offered in a visit to ARSHS. The researchers believe that our initial attempt at attributing an economic value perspective did not prove beneficial.
- Eighteen percent (18%) of visitors provided additional comments and suggestions, the majority (51%) of which were general positive comments about the site and staff.

Acknowledgements

Conducting and successfully completing a study of this magnitude and complexity could not have been accomplished without the cooperation of many individuals. Almost 200 visitors to Arrow Rock State Historic Site voluntarily agreed to provide the information upon which this report is based, many of whom willingly prolonged their stay in the various recreation areas within the site to complete a survey. It is clear from their input that these visitors care very much for the recreation resources in the Missouri State Park System. Their efforts will provide invaluable input into the planning process and providing for more effective and responsive management of these resources.

Many other individuals provided assistance during the 2000 Missouri State Parks Visitor Survey, without whom the study would not have been a success. The following expressions of gratitude are in acknowledgement of their contributions. Special acknowledgement goes to the staff at Arrow Rock State Historic Site for their willingness to accommodate the survey crew during the study period. Many thanks also go to the research assistants and volunteers who assisted in data collection and the students at the University of Missouri who assisted in computer data entry of the questionnaires. They are: Dennis Stevenson, Debra Stevenson, Betty Grossi, Tucker Fredrickson, and Licheng Lin.

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Introduction

NEED FOR RECREATION RESEARCH

With an estimated annual visitation of 18 million recreationists to Missouri's state parks and historic sites, research addressing such issues as recreation demand, visitor satisfaction, and resource degradation becomes an urgent necessity for natural resource recreation managers seeking to provide quality recreational experiences to their customers while at the same time protecting the natural environment. The task of providing quality visitor experiences and meeting recreation demand while maintaining an ecological equilibrium becomes even more difficult when combined with the complexities associated with measuring quality in outdoor experiences.

Quality in outdoor recreation has often been measured in terms of visitor satisfaction (Manning, 1999), making visitor satisfaction a primary goal of natural resource recreation managers (Peine, Jones, English, & Wallace, 1999). Visitor satisfaction, however, can be difficult to define because satisfaction is a multidimensional concept affected by a number of potential variables, some under the control of management but many not (Manning, 1999). Visitor satisfaction is also subject to the varying socio-demographic characteristics of the visitor, their cultural preferences and levels of experience, as well as their widely ranging attitudes and motivations (Manning, 1999). This study attempts to overcome the difficulty in defining visitor satisfaction by gathering additional information about visitor satisfaction through questions regarding:

a) visitors' socio-demographic characteristics; b) visitors' satisfaction with programs, services and facilities; c) visitors' perceptions of safety; and d) visitors' perceptions of crowding.

STUDY PURPOSE

In 1973, a research paper entitled "Recreation Research – So What?" criticized recreation research for not addressing "real problems" and for not being applicable to practical situations (Brown, Dyer, & Whaley, 1973). Twenty years later, this criticism was echoed by Glen Alexander, chief of the Ohio Department of Natural Resources, when he wrote, "Customer surveys are a dime a dozen in the private sector and are beginning to get that way in the public sector (Alexander, 1993, p. 168)." Alexander's complaint was that survey data was being filed away and not being utilized, particularly by the front line management and operating people who could most benefit from such information.

A primary goal of this report is to provide practical and applicable customer data to those front line managers who most need this information during their daily operations. This report examines the results of the visitor survey conducted at Arrow Rock State Historic Site (ARSHS), one of the seven parks and historic sites included in the 2000 Missouri State Parks Visitor Survey. Objectives specific to this report include:

1. Describing the use patterns of visitors to ARSHS during July,

August, September, and October 2000.

2. Describing the socio-demographic characteristics of visitors to ARSHS.
3. Determining if there are differences in select groups' ratings of site attributes, satisfaction with site features, overall satisfaction, and perceptions of crowding.
4. Determining any differences in select characteristics of visitors who rated site safety high and those who did not.
5. Gaining information about selected site-specific issues.

STUDY AREA

Arrow Rock State Historic Site, located in Saline County, is perhaps one of the most unique historic sites in the Missouri state park and historic site system in that

it is not the self-contained area usually associated with most parks and sites. Not only does DSP own and manage several historic buildings within the town of Arrow Rock, but additional recreational opportunities have also been provided in an area south of the town, including a visitor center, campgrounds, and a day-use area. The unique setting of Arrow Rock contributed to the unusual methodology used to collect questionnaire data during the study period.

SCOPE OF STUDY

The population of the visitor study at ARSHS consisted of ARSHS visitors who were 18 years of age or older (adults), and who visited ARSHS during the study period of July through October 2000.

Methodology

SAMPLING PROCEDURES

A 95% confidence interval was chosen with a plus or minus 5% margin of error. Based upon 1999 visitation data for July, August, September, and October at ARSHS, it was estimated that approximately 76,000 visitors would visit ARSHS during the period between July 1 and October 31, 2000 (DNR, 2000). Therefore, with a 95% confidence interval and a plus or minus 5% margin of error, a sample size of 400 visitors was required (Folz, 1996). A random sample of adult visitors (18 years of age and older) who visited ARSHS during the study period were the respondents for this study.

To ensure that visitors visiting ARSHS during various times of the day would have equal opportunity for being surveyed, seven time slots were chosen for surveying. For the visitor center, two time slots were used, as follows: during July and August, Time Slot 1 = 10:00 a.m. - 1:30 p.m. and Time Slot 2 = 1:30 - 5:00 p.m.; during September and August, Time Slot 1 = 10:00 a.m. - 1:00 p.m. and Time Slot 2 = 1:00 - 4:00 p.m. For the campground and day-use area, three time slots were used, as follows: Time Slot 1 = 8:00 a.m. - 12:00 p.m., Time Slot 2 = 12:00 - 4:00 p.m., and Time Slot 3 = 4:00 - 8:00 p.m. For Huston Tavern, two time slots were used, as follows: Time Slot 1 = 11:00 a.m. - 3:30 p.m. and Time Slot 2 = 3:30 - 8:00 p.m. A time slot was randomly chosen and assigned to the first of the scheduled survey dates and survey areas. Thereafter, time slots were assigned in ranking order based upon the first time

slot and recreation area. One time slot was surveyed during each survey day.

QUESTIONNAIRE

The questionnaire used in this study was based on the questionnaire developed by Fink (1997) for the Meramec State Park Visitor Survey. A copy of the questionnaire for this study is provided in Appendix A.

SELECTION OF SUBJECTS

The survey of visitors at ARSHS was administered on-site, to eliminate the non-response bias of a mail-back survey. As discussed previously, the unique setting of the historic site required developing a methodology that would ensure visitors to both the town and to the visitor center, campground, and day-use area would have equal likelihood for being surveyed. Therefore, four recreation areas were identified in which to survey. The four areas were: Area 1 (the campground), Area 2 (the day-use area, including the picnic shelter and fishing pond), Area 3 (the visitor center), and Area 4 (Huston Tavern). To ensure that visitors to the four areas would have an equal opportunity for being surveyed, surveying alternated between the areas. Only one area was surveyed during each time slot.

DATA COLLECTION

The surveyor was stationed in each of the assigned recreation areas during the selected time slot. At Area 1, the surveyor walked a roving route between campsites. At Area 2, the surveyor

walked a roving route in the day-use area. At Area 3, the surveyor was stationed outside the visitor center, and at Area 4, the surveyor was stationed outside of Huston Tavern. A “Visitor Survey” sign was used at Areas 3 and 4 to inform visitors of the survey. During the selected time slot, the surveyor asked every visitor who was 18 years of age and older and in the assigned recreation area to voluntarily complete the questionnaire, unless he or she had previously filled one out.

To increase participation rates, respondents were given the opportunity to enter their name and address into a drawing for a prize package and were assured that their responses to the survey questions were anonymous and would not be attached to their prize entry form. Willing participants were then given a pencil and a clipboard with the questionnaire and prize entry form attached. Once respondents were finished, the surveyor collected the completed forms, clipboards, and pencils. Survey protocol is given in Appendix B and a copy of the prize entry form is provided in Appendix C.

An observation survey was also conducted to obtain additional information about: date, day, time slot, and weather conditions of the survey day; the number of adults and children in each group; and the number of individuals asked to fill out the questionnaire, whether they were respondents, non-respondents, or had already participated in the survey. This number was used to calculate response rate, by dividing the number of surveys collected by the number of adult visitors asked to complete a questionnaire. A

copy of the observation survey form is provided in Appendix D.

DATA ANALYSIS

The data obtained for the ARSHS study was analyzed with the Statistical Packages for the Social Sciences (SPSS) (SPSS, 1996).

Frequency distributions and percentages of responses to the survey questions and the observation data were determined. The responses to the open-ended questions were listed as well as grouped into categories for frequency and percentage calculations. The number of surveys completed by month, by day of week, by weekday versus weekend, by time slot, and by area was also determined.

Comparisons using independent sample t-tests for each group were also made to determine any statistically significant differences ($p < .05$) in the following selected groups’ satisfaction with site features (question 7), ratings of site attributes (question 8), overall satisfaction (question 13), and perceptions of crowding (question 11). The selected groups include:

1. First time visitors versus repeat visitors (question 1).
2. Campers versus day-users (question 3). Campers include those visitors camping in the site campground. Day-users include both day-users and the overnight visitors who did not camp in the campground.
3. Weekend visitors versus weekday visitors. Weekend visitors were surveyed on Saturday and Sunday, weekday

visitors were surveyed Monday through Friday.

Other comparisons were made using independent sample t-tests to determine any statistically significant differences in visitors who rated the site as excellent on being safe versus visitors who rated the site as good, fair, or poor on being safe, for the following categories:

1. First time versus repeat visitors.
2. Campers versus non-campers.
3. Weekend versus weekday visitors.

Differences between visitors who rated the site as excellent on being safe versus those who did not were also compared on the following questions: differences

in socio-demographic characteristics, perceptions of crowding, measures of satisfaction with site features, measures of performance of site attributes, and overall satisfaction.

Additional comparisons include:

1. Multiple linear regression analyses to determine which of the satisfaction variables and which of the performance variables most accounted for variation in overall satisfaction.
2. An independent sample t-test comparing overall satisfaction between visitors who felt some degree of crowding and those who were not at all crowded during their visit.

Results

This section describes the results of the Arrow Rock State Historic Site Visitor Survey. For the percentages of responses to each survey question, see Appendix E. The number of individuals responding to each question is represented as "n=."

SURVEYS COLLECTED & RESPONSE RATES

A total of 193 surveys were collected at ARSHS during the time period of July, August, September, and October 2000, with 89 collected in July (46.1%), 32 collected in August (16.6%), 66 collected in September (34.2%), and 6 collected in October (3.1%). Tables 1,

2, and 3 show surveys collected by day of week, by time slot, and by area respectively. Of the 193 surveys collected, 123 (63.7%) were collected on weekends (Sunday and Saturday) and 70 (36.3%) were collected on weekdays (Monday through Friday). The overall response rate was 87.7%, with daily response rates ranging from a low of 56.3% to a high of 100.0%.

SAMPLING ERROR

With a sample size of 193 and a confidence interval of 95%, the margin of error is plus or minus 7%. For this study, there is a 95% certainty that the true results of the study fall within plus

Table 1. Surveys Collected by Day of Week

Day of Week	Frequency	Percent
Sunday	72	37.3%
Monday	20	10.4%
Tuesday	37	19.2%
Thursday	2	1.0%
Friday	11	5.7%
Saturday	51	22.2%
Total	193	100.0%

Table 2. Surveys Collected by Time Slot

Area	Time Slot	Frequency	Percent
Campground & Day-use Area	1. 8:00 a.m. - 12:00 p.m.	5	2.6%
	2. 12:00 - 4:00 p.m.	7	3.6%
	3. 4:00 - 8:00 p.m.	22	11.4%
Visitor Center	1. 10:00 a.m. - 1:30 p.m.	52	26.9%
	2. 1:30 - 5:00 p.m.	45	23.3%
Huston Tavern	1. 11:00 a.m. - 3:30 p.m.	46	23.8%
	2. 3:30 - 8:00 p.m.	16	8.3%
Total		193	100.0%

Table 3. Surveys Collected by Area

Area	Frequency	Percent
Campground	16	8.3%
Day-use Area	18	9.3%
Visitor Center	97	50.3%
Huston Tavern	62	32.1%
Total	193	100.0%

or minus 7% of the findings. For example, from the results that 58.3% of the visitors to ARSHS during the study period were female, it can be stated that between 51.3% and 66.3% of the ARSHS visitors were female.

SOCIO-DEMOGRAPHIC CHARACTERISTICS

Age

The average age of adult visitors to ARSHS was 49.4. When grouped into four age categories, 17.1 % of the adult visitors were between the ages of 18-34, 46.3% were between the ages of 35-54, 12.3% were between the ages of 55-64, and 14.3% were 65 or over.

Gender

Visitors to ARSHS were more female than male. Female visitors comprised 58.3% of all visitors, and male visitors comprised 41.7% of all visitors.

Education

Over half (52.2%) of visitors to ARSHS indicated they had completed a four-year college degree or an advanced graduate degree. About one-fourth (24.2%) of visitors indicated having completed high school or less, while 23.6% indicated having completed vocational school or some college.

Occupation

The majority (47.2%) of visitors to ARSHS indicated a professional or technical occupation, while another large percentage (20.0%) of visitors to ARSHS indicated retirement status. The rest (32.8%) indicated another type of occupation, including being self-employed (8.9%), having a service-based occupation (5.6%), or being a homemaker (5.0%).

Household Composition

ARSHS visitors were asked to describe their household composition. The majority (34.6%) of visitors were married with children grown. Twenty-two percent (21.8%) were married with children still living at home, 19.6% were single with no children, 15.1% were married with no children, and 7.8% were single with children. One percent (1.1%) indicated having other types of household arrangements.

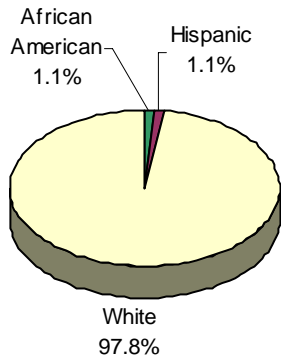
Income

Thirty-one percent (30.5%) of visitors to ARSHS reported an annual household income of over \$75,000. Another thirty-one percent (30.5%) indicated an annual household income of between \$25,000 and \$50,000. Over one-fifth (23.4%) of visitors indicated an annual household income of between \$50,001 and \$75,000, while 15.6% of visitors indicated an income of less than \$25,000.

Ethnic Origin

Figure 1 indicates the ethnic origin of ARSHS visitors. The vast majority (97.8%) of visitors was White. One percent (1.1%) of the visitors were African American, and 1.1% were Hispanic. There were no visitors of Asian or Native American descent.

Figure 1. Ethnic Origin of ARSHS visitors.



Residence

Most (77.0%) of the visitors to ARSHS were from Missouri with the rest (23.0%) of visitors coming from other states, including Kansas (5.2%) and Texas (3.5%). The majority (40.8%) of ARSHS visitors were from non-metropolitan areas, but 15.5% were from the Kansas City Metropolitan Statistical Area (MSA) and 13.8% were from the Columbia MSA. Figure 2 shows the residence of visitors by zip code.

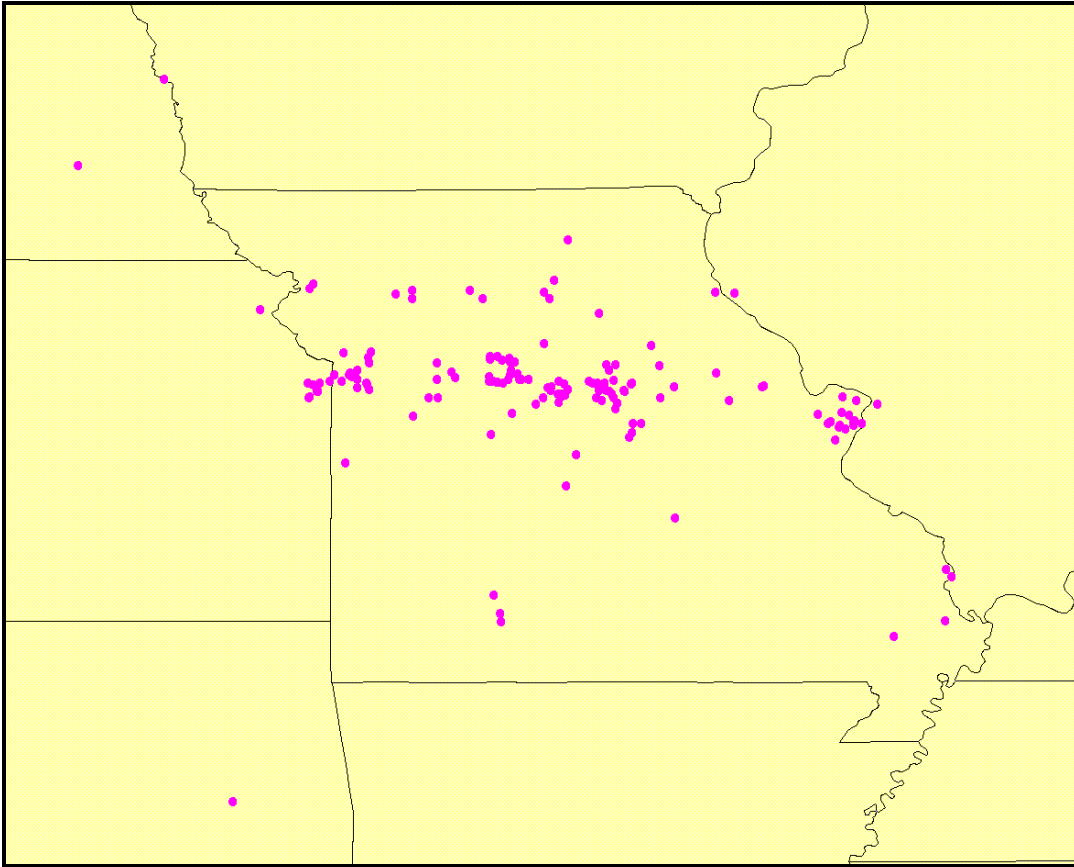
USE PATTERNS

Trip Characteristics

Based on zip code data, the majority (71.2%) of visitors to ARSHS traveled less than a day’s drive to visit the site (a day’s drive is defined as 150 miles or less, not exceeding 300 miles round trip). One-third (35.6%) of ARSHS visitors traveled 50 miles or less to visit ARSHS. Most of the visitors traveling 50 miles or less were from Columbia (32.3%), Marshall (24.2%), and Boonville (21.0%). The average number of miles visitors traveled to ARSHS was 208.6 miles while the median number of miles visitors traveled was 88.5, indicating that half of the visitors traveled more than 88.5 miles and half traveled less than 88.5 miles.

Visit Characteristics

Sixty-one percent (61.7%) of the visitors to ARSHS were repeat visitors, with 38.3% of the visitors being first time visitors. The average number of times all visitors reported visiting ARSHS within the past year was 4.1 times.

Figure 2. Residence of ARSHS Visitors by Zip Code

Two-thirds (66.8%) of the visitors to ARSHS during the study period indicated they were not staying overnight during their visit, with one-third (33.2%) reporting overnight stays. Of those staying overnight during their visit, over half (53.2%) of the visitors indicated they were staying in the site campground, 21.0% indicated they were staying in nearby lodging facilities, and 11.3% indicated they were staying in nearby bed and breakfast facilities. Of those camping in the campground, 73.1% indicated camping in a RV, trailer, camper, or van conversion, while 26.9% reported camping in a tent.

Of those reporting overnight stays, 36.4% stayed one night, 36.4% stayed two nights, 18.2% stayed three to four

nights, and 7.1% stayed five or more nights. The average stay for overnight visitors was 2.3 nights. The median number of nights visitors stayed was two, indicating that half of the visitors stayed less than two nights and half stayed more than two nights.

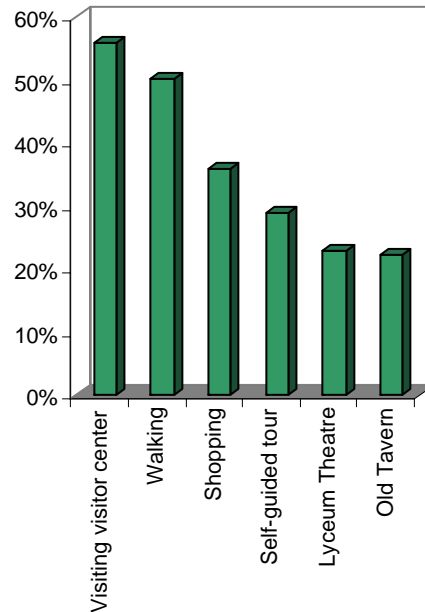
Sixty-three percent (63.4%) of the visitors to ARSHS visited the site with family. Fifteen percent (15.2%) visited with family and friends, while 16.2% visited with friends. Only 2.6% of visitors visited the site alone. Visitors were also asked to indicate whether they came by tour bus or personal vehicle. The majority (97.7%) came by personal vehicle. Visitors were also asked to report how many adults and children they brought with them in their

personal vehicles. The average number of people visitors brought with them in their personal vehicles was 2.8 people.

RECREATION ACTIVITY PARTICIPATION

Respondents to the survey were asked what activities they participated in during their visit to ARSHS. Figure 3 shows the percentage of visitor participation in the six most participated in activities. Visiting the visitor center was the highest reported (56.0%), walking was second (50.3%), shopping in Arrow Rock was third (35.8%), self-guided tour of historic buildings (29.0%) was fourth, attending a Lyceum Theatre production was fifth (22.8%), and dining at the Old Tavern was sixth (22.3%).

Figure 3. Participation in Recreational Activities at ARSHS



ARSHS visitors reported engaging in other activities, including camping (16.6%), viewing wildlife (16.1%), picnicking (14.0%), hiking (11.9%), going on a Friends of Arrow Rock Historic Walking Tour (10.9%), attending a special event (9.8%), fishing (7.8%), studying nature (7.3%), visiting Boone’s Lick State Historic Site (6.7%), and visiting Sappington Cemetery State Historic Site (6.7%). Seven percent (7.3%) of visitors reported engaging in an "other" activity, including dining at other restaurants in the area and visiting other area sites.

SATISFACTION MEASURES

Overall Satisfaction

When asked about their overall satisfaction with their visit, only 1.7% of visitors reported being dissatisfied with their visit. Ninety-eight percent (98.3%) of visitors were either satisfied (18.1%) or very satisfied (80.2%). Visitors’

mean score for overall satisfaction was 3.79, based on a 4.0 scale with 4 being very satisfied and 1 being very dissatisfied.

No significant difference ($p < .05$) was found in overall satisfaction between first time and repeat visitors. Nor was there any significant difference in overall satisfaction between campers and day-users. Weekday visitors, however, were significantly ($p < .05$) more satisfied overall (3.89) than weekend visitors (3.72).

Satisfaction with Site Features

Respondents were also asked to express how satisfied they were with six site features. Figure 4 shows the site scores for the six features and also for visitors’ overall satisfaction. The satisfaction scores for the campground and visitor center (3.72) were the highest, with the

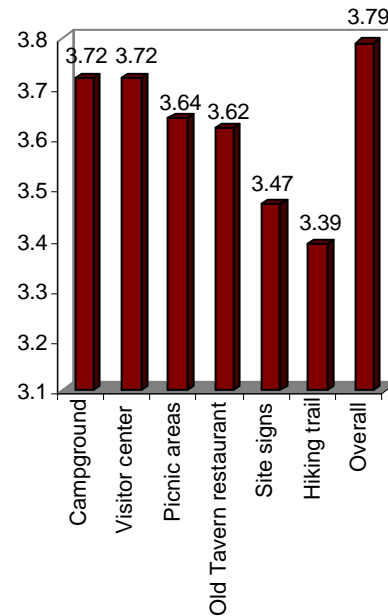
other scores ranging from 3.64 (picnic areas) to the lowest of 3.39 (hiking trail). A multiple linear regression analysis ($r^2=.15$) of the six site features showed that all the variables combined to account for only about 15% of the overall satisfaction rating.

There were no differences in satisfaction ratings between campers and day-users. Repeat visitors were significantly ($p<.01$) more satisfied with site signs (3.62) than first time visitors (3.27). Weekday visitors were significantly ($p<.05$) more satisfied with the picnic areas (3.81) than weekend visitors (3.54).

PERFORMANCE RATING

Visitors were asked to rate the site’s performance of eight select site attributes: being free of litter and trash, having clean restrooms, upkeep of site facilities, having helpful and friendly staff, access for persons with disabilities, care of natural resources, care of the cultural resources, and being safe. Performance scores were based on a 4.0 scale, with 4 being excellent and 1 being poor. There were no differences between first time and repeat visitors,

Figure 4. Satisfaction with ARSHS Features



between campers and day-users, or between weekend and weekday visitors and their performance ratings. A multiple linear regression analysis ($r^2=.43$) showed that the eight performance attributes combined to account for 43% of the variation in overall satisfaction.

Table 4. Mean Performance and Importance Scores for Site Attributes

Attribute	Mean Performance Score*	Mean Importance Score*
A. Being free of litter/trash	3.81	3.85
B. Having clean restrooms	3.76	3.90
C. Upkeep of site facilities	3.80	3.83
D. Having helpful & friendly staff	3.75	3.81
E. Access for persons with disabilities	3.60	3.55
F. Care of natural resources	3.72	3.80
G. Care of cultural resources	3.75	3.82
H. Being safe	3.83	3.88

* 1 = Poor performance or low importance rating, 4 = excellent performance or high importance rating

IMPORTANCE-PERFORMANCE MEASURES

The Importance-Performance (I-P) Analysis approach was used to analyze questions 8 and 14. Mean scores were calculated for the responses of the two questions regarding visitors’ ratings of the performance and importance of the eight select site attributes. Table 4 lists the scores of these attributes, which were based on a 4.0 scale of 4 being excellent and 1 being poor, and 4 being very important and 1 being very unimportant. Figure 5 shows the Importance-Performance (I-P) Matrix. The mean scores were plotted on the I-P Matrix to illustrate the relative performance and importance rating of the attributes by site visitors.

The I-P Matrix is divided into four quadrants to provide a guide to aid in possible management decisions. For example, the upper right quadrant is labeled “high importance, high

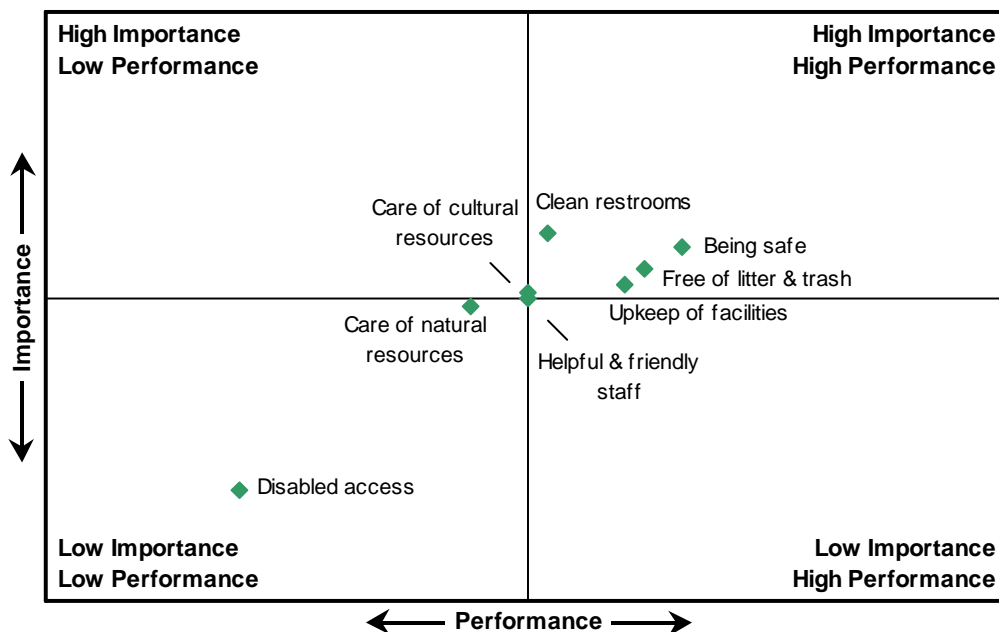
performance” and indicates the attributes in which visitors feel the site is doing a good job. The upper left quadrant indicates that management may need to focus on these attributes, because they are important to visitors but were given a lower performance rating. The lower left and right quadrants are less of a concern for managers, because they exhibit attributes that are not as important to visitors.

ARSHS was given high importance and performance ratings for being safe, being free of litter and trash, upkeep of the facilities, and having clean restrooms. The characteristic that visitors felt was important but gave ARSHS a marginal rating on performance was caring for the cultural resources.

CROWDING

Visitors to ARSHS were asked how crowded they felt during their visit. The following nine-point scale was used to

Figure 5. Importance-Performance Matrix of Site Attributes



determine visitors' perceptions of crowding:

1	2	3	4	5	6	7	8	9
Not at all Crowded		Slightly Crowded			Moderately Crowded			Extremely Crowded

Visitors' overall mean response to this question was 1.4. Eighty-one percent (81.0%) of the visitors to ARSHS did not feel at all crowded (selected 1 on the scale) during their visit. The rest (19.0%) felt some degree of crowding (selected 2-9 on the scale) during their visit.

Visitors who indicated they felt crowded during their visit were also asked to specify where they felt crowded (question 12). Only 4 visitors (11.1% of those who reported feeling crowded) answered this open-ended question, and their comments included feeling crowded in the Lyceum Theatre, in the shops in Arrow Rock, and in the campground.

No significant differences were found between first time and repeat visitors and between campers and day-users and their perceptions of crowding. Weekend visitors felt significantly ($p < .05$) more crowded (1.5) than weekday visitors (1.2).

Crowding and satisfaction

A significant difference ($p < .01$) was found in visitors' mean overall satisfaction with their visit and whether they felt some degree of crowding or not. Visitors who did not feel crowded had a mean overall satisfaction score of 3.84, whereas visitors who felt some degree of crowding had a mean overall satisfaction score of 3.59.

SAFETY CONCERNS OF VISITORS

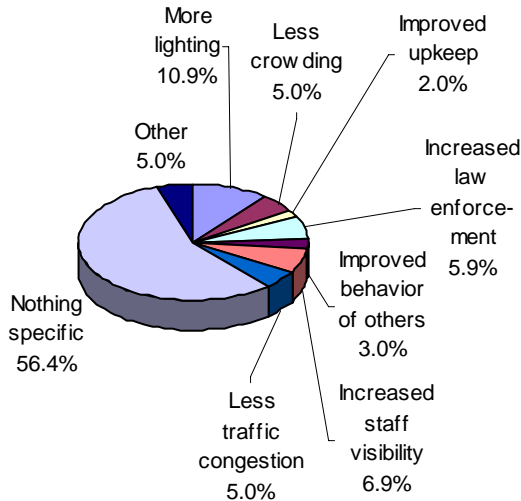
Only 42 (23.6%) visitors to ARSHS did not rate the site as excellent for safety. Of those, 18 noted what influenced their rating. Their comments were grouped into categories and are listed in Table 5.

Visitors were also given a list of nine attributes and were asked to indicate which of the nine would most increase their feeling of safety at ARSHS. Although instructed to select only one attribute, many visitors selected more than one; consequently, 101 responses were given by 92 visitors. Figure 6 shows the percentage of responses given by visitors. Most (56.4%) felt that nothing specific would increase their feeling of safety, but 10.9% felt that more lighting would most increase their feeling of safety.

Table 5. Comments from Visitors Not Rating ARSHS Excellent on Safety

Category	Frequency	Percentage
1. Don't know/no reason/no place is perfect	10	55.6%
2. Behavior of others	2	11.1%
3. Lack of park rangers patrolling	1	5.6%
4. Other	5	27.8%
Total	18	100.0%

Figure 6. Percentage of Safety Attributes Chosen by Visitors



Visitors who felt that more lighting in the site would most increase their feeling of safety were asked to indicate where they felt more lighting was necessary. Eight visitors answered this question, and their comments include more lighting along the streets and parking areas in Arrow Rock, in the restrooms, and in the campground.

There were no significant differences in the rating of safety by first time visitors versus repeat visitors, by campers versus day-users, or by weekend versus weekday visitors. There were no differences in safety ratings by socio-demographic characteristics. To determine if there were differences in perceptions of crowding, satisfaction with site features, and overall satisfaction, responses were divided into two groups based on how they rated ARSHS on being safe. Group 1 included those who rated the site excellent, and Group 2 included those who rated the site as good, fair, or poor.

Group 1 was significantly ($p < .05$) more satisfied overall than Group 2, with an overall satisfaction score of 3.86 whereas Group 2 had an overall satisfaction score of 3.62. Group 1 was also significantly ($p < .05$) less crowded than Group 2, with a mean crowded score of 1.3 compared to 1.7 for Group 2. Group 1 also had significantly ($p < .01$) higher performance ratings for the eight site attributes.

SUPPORT OF RESERVATION SYSTEM

ARSHS visitors were asked to indicate whether they would support setting aside 50% of all campsites in a reservation system, and whether they would be willing to pay a reservation fee not to exceed \$7.00. Two-thirds (67.3%) of the visitors reported they would support setting aside 50% of all campsites in a reservation system, while 32.7% would not. Three-fourths (77.5%) of visitors also indicated they would be willing to pay a reservation fee not to exceed \$7.00.

VISITORS' SOURCES OF INFORMATION ABOUT MISSOURI STATE PARKS

ARSHS visitors were also asked to indicate how much information they receive from nine information sources regarding Arrow Rock or other Missouri state parks and historic sites. Word of mouth from friends or relatives was the most frequently cited source of information, with 81.3% of the visitors responding to this question reporting they receive some or lots of information through this medium. The second most frequent source of information from which visitors receive information about Arrow Rock or other Missouri state parks and historic sites is from brochures, pamphlets or other printed

material. Two-thirds (67.4%) of visitors answering this question indicated receiving some or lots of information from this source. Magazines were the third most frequently cited sources of information, with 60.2% of the visitors responding to this question indicating they receive some or lots of information from magazines. Visitors were also given the opportunity to indicate any other sources from which they receive information about Arrow Rock or other Missouri state parks and historic sites. These other sources include maps and guide books.

Visitors were also asked how often they use the Internet when planning a trip or vacation. One-fourth (20.3%) indicated always using the Internet when planning a trip or vacation. Forty-one percent (41.2%) of visitors frequently use the Internet, 17.6% rarely use it, and 20.9% never use it when planning a trip or vacation.

HOW MUCH VISITORS VALUE ARROW ROCK STATE HISTORIC SITE

For the first time, the researchers have attempted to investigate the value that visitors attribute to a site visit. Literature has stated that the value a visitor places on a recreational opportunity is often difficult to measure with confidence and accuracy (Bergstrom & Loomis, 1999; Manning, 1999). The researchers believe that our initial attempt at attributing a value perspective did not prove beneficial due to visitors interpreting the question to mean how much they would be willing to pay a day to utilize ARSHS rather than how valuable the site is to them.

Visitors were asked to place a value on the overall recreation opportunity

offered in a visit to ARSHS (question 17), and were given four choices: \$3.00 a day, \$5.00 a day, \$7.00 a day, or any other value. Over one-third (37.3%) of visitors responding to this question indicated a value of \$5.00 a day, while 28.2% indicated \$7.00 a day, 27.5% indicated \$3.00 a day, and 7.0% indicated some other value. One-third (33.3%) of the visitors indicating some other value reported a value of \$0.00, while another one-third (33.3%) indicated a value of \$10.00 a day.

ADDITIONAL VISITOR COMMENTS

Respondents to the survey were also given the opportunity to write any additional comments or suggestions on how DNR could make their experience at ARSHS a better one (question 28). Eighteen percent (18.1%) of the total survey participants responded to this question with 35 comments. The comments and suggestions were listed and grouped by similarities into 6 categories for frequency and percentage calculations. The list of comments and suggestions is found in Appendix G. Table 6 lists the frequencies and percentages of the comments and suggestions by category.

The majority (51.4%) of comments were general positive comments about the site and staff, such as: "Great place", "Keep up good work", and "Nice place and very well done". The rest of the comments were categorized based on similar suggestions or comments, such as comments made in response to question 17, and other suggestions not falling into any other category.

**Table 6. Frequency and Percentage of Comments and Suggestions
from ARSHS Visitors**

Category	Frequency	Percent
1. General positive comments	18	51.4%
2. Comments regarding question 17	4	11.4%
3. Need additional/improved facilities	4	11.4%
4. Comments about businesses in Arrow Rock	3	8.6%
5. Comments/suggestions about visitor center, staff, & tours	3	8.6%
6. Other	3	8.6%
Total	35	100.0%

Discussion

MANAGEMENT IMPLICATIONS

The results of this study provide relevant information concerning ARSHS visitors. However, the results should be interpreted with caution. The surveys were collected only during the study period of July, August, September and October 2000; therefore, visitors who visit during other seasons of the year are not represented in the study's sample. The results, however, are still very useful to site managers and planners, because much of the annual visitation occurs during this period.

Satisfaction Implications

Eighty percent (80.2%) of ARSHS visitors reported that they were very satisfied with their visit to the site. Williams (1989) states that visitor satisfaction with previous visits is a key component of repeat visitation. The high percentage of repeat visitation (61.7%) combined with their positive comments provide evidence that ARSHS visitors are indeed satisfied with their site experience. The overall satisfaction score also provides a benchmark in which to compare overall satisfaction of ARSHS visitors over a period of time.

One cautionary note, however. It has been suggested that uniformly high levels of overall satisfaction can be of limited usefulness to recreation managers in understanding relationships between outdoor recreation opportunities and experiences, particularly because most visitors choose recreation opportunities in keeping with their tastes and preferences (Manning, 1999). In

other words, visitors to ARSHS may be visiting ARSHS because it is the type of site they prefer, offering amenities and services that correspond with their taste in recreational opportunities, consequently contributing to high overall satisfaction ratings. For this reason, the following comments are provided in order to furnish further insight into visitor satisfaction with services, facilities, and opportunities provided at ARSHS.

Safety Implications

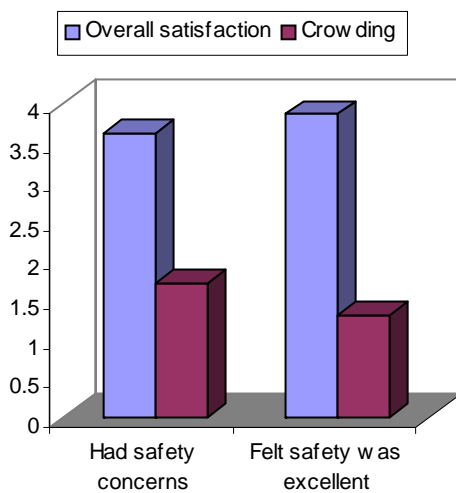
ARSHS managers should be commended for providing a site in which visitors feel relatively safe. Only 23.6% of visitors did not give an excellent rating regarding safety, and the majority of those not giving an excellent rating gave a good rating instead (Figure 7). Safety was also given a "high importance, high performance" rating on the I-P Matrix. In fact, over half (56.4%) of ARSHS visitors indicated

Figure 7. Safety Ratings of ARSHS Visitors



that nothing specific would increase their feeling of safety at ARSHS. There were some visitors, however, who did express safety concerns; and since visitors' perception of safety did affect their overall satisfaction and perceptions of crowding at ARSHS (Figure 8), it behooves managers to give consideration to their concerns.

Figure 8. Levels of Satisfaction and Crowding by Safety Concerns

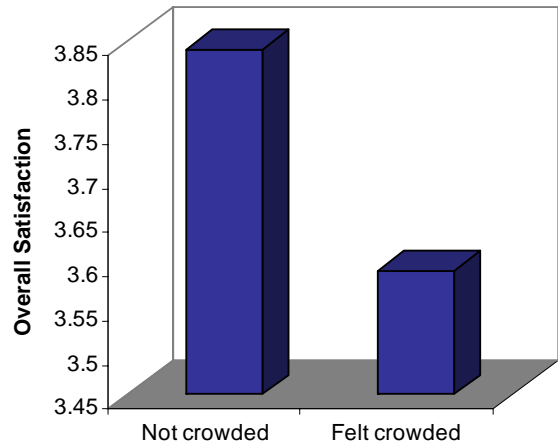


Crowding Implications

Visitors' perceptions of crowding at ARSHS were very low. Eighty-one percent (81.0%) of visitors did not feel at all crowded, and the mean crowded score for visitors was only 1.4. However, visitors' perceptions of crowding did influence their overall satisfaction at ARSHS, indicating that visitors' perceptions of crowding should be a management concern.

Crowding is a perceptual construct not always explained by the number or density of other visitors. Expectations of visitor numbers, the behavior of other visitors, and visitors' perception of resource degradation all play a

Figure 9. Overall Satisfaction is Lower for Those Who Felt Crowded



significant role in crowding perceptions (Armistead & Ramthun, 1995; Peine et al., 1999). Visitors who felt crowded had a significantly lower overall satisfaction than visitors who did not feel crowded (Figure 9). In addressing the issue of crowding, further study could determine if crowding perceptions at the site are due to the number of people or perhaps the behavior of those visiting the site.

Performance Implications

ARSHS managers should be commended for the high performance ratings given to restroom cleanliness and upkeep of the facilities, since both are often given lower ratings by visitors to state parks and historic sites (Fredrickson & Vessell, 1999). Of interest is the marginal performance but high importance rating given to care of the cultural resources at ARSHS. Further investigation suggests that the lower performance rating may be due in part to two situations not entirely within

ARSHS management control, both a function of the unique setting at ARSHS.

The first possibility may be that visitors to Arrow Rock suppose the entire town to be part of the historic site, with all the historic buildings in the town under DSP management. A few of the additional comments from visitors indicate dissatisfaction with some of the shops and restaurants in the town, citing frustration that these businesses were closed during their visits. Visitors may assume that DSP leases the historic buildings to these businesses and should be responsible for their management and upkeep.

Another likely scenario partially responsible for the lower performance rating given to care of the cultural resources may be the possibility that there are three distinct sets of visitors who visit ARSHS and to whom care of the cultural resources may have differing levels of importance. The three sets of visitors may include those visitors who more often visit the “park” (i.e., the campground and day-use areas), those who are more likely to visit the visitor center, and those who are more likely to visit businesses in the town.

For instance, the following I-P Analysis (Figure 10) compares the importance and performance ratings between those visitors who were surveyed in the “park”, those who were surveyed at the visitor center, and those who were surveyed at the Old Tavern. Care of cultural resources (represented by the letter *G* on the matrix) was given a high performance, but marginal importance rating by the visitors in the park. Visitors surveyed at the visitor center gave care of cultural resources a high

performance rating but a low importance rating, and visitors to the Old Tavern gave care of cultural resources a high importance but low performance rating.

A third possibility contributing to the low performance rating may be the multiple interpretations visitors ascribe to the word “cultural”. It is recommended that the phrase “care of cultural resources” be reworded to “care of cultural/historical resources” for future studies. It is also recommended that this result be monitored over a period of time to determine if this particular site response is repeated.

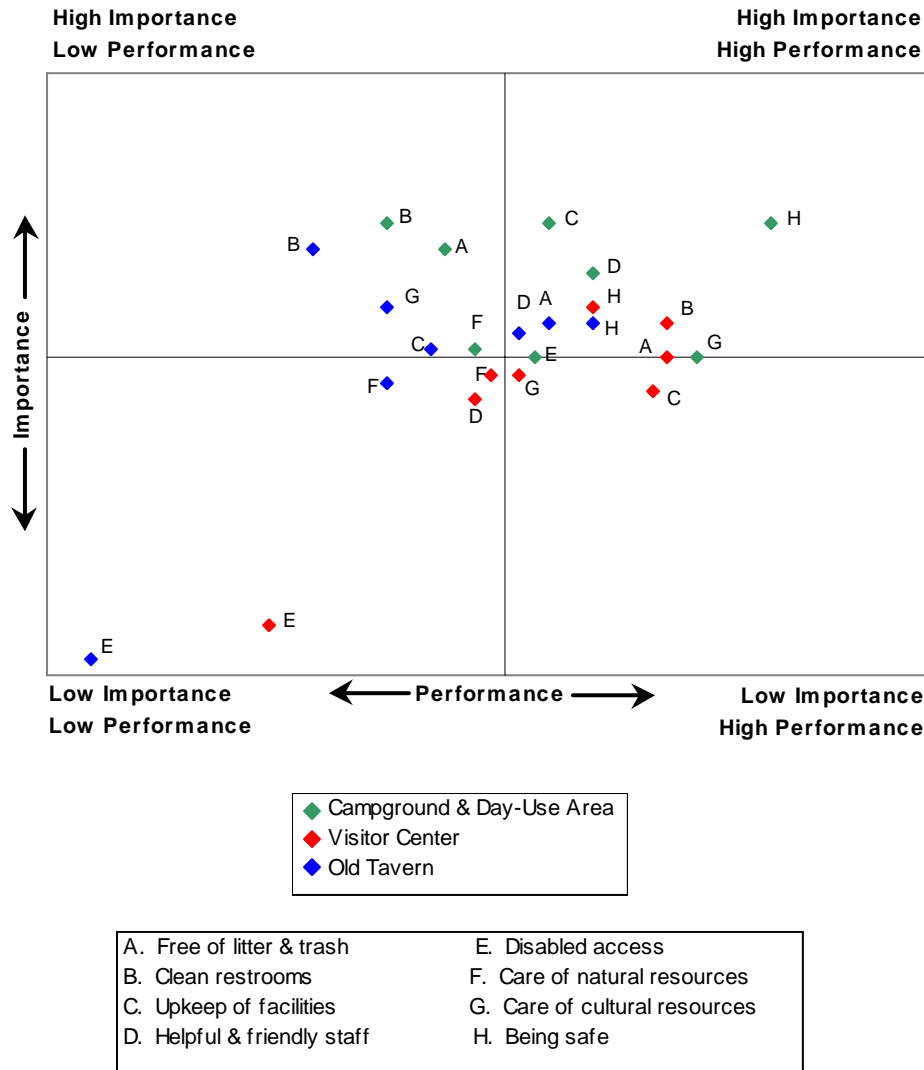
Conclusion

ARSHS visitors are very satisfied with ARSHS, as evidenced by the high percentage of visitors who were repeat visitors, and also by their high satisfaction ratings. ARSHS visitors also gave high performance ratings to the site being safe, being free of litter and trash, having clean restrooms, and maintaining the site facilities.

The results of the present study suggest some important management and planning considerations for ARSHS. Even though ARSHS visitors rated their visits and the site features relatively high and felt fairly safe, continued attention to safety, crowding, and care of the cultural resources can positively effect these ratings.

Just as important, on-going monitoring of the effects of management changes will provide immediate feedback into the effectiveness of these changes. On-site surveys provide a cost effective and timely vehicle with which to measure management effectiveness and uncover potential problems.

Figure 10. Importance-Performance Matrix of Site Attributes Compared Between Different Types of Visitors



RESEARCH RECOMMENDATIONS

The results of the present study serve as baseline visitor information of ARSHS. The frequency and percentage calculations of survey responses provide useful information concerning socio-demographic characteristics, use patterns, and satisfaction of ARSHS visitors. In addition, the “sub-analysis” of data is important in identifying implications for management of ARSHS. (The sub-analysis in the

present study included comparisons using Chi-square and ANOVA between selected groups, multiple linear regression, and the Importance-Performance analysis.) Additional relevant information may be determined from further sub-analysis of existing data. Therefore, it is recommended additional sub-analysis be conducted to provide even greater insight to management of the site. Data collection should be on a continuum (Peine et al., 1999), which is why additional visitor surveys at

ARSHS should also be conducted on a regular basis (e.g., every three, four, or five years). Future ARSHS studies can identify changes and trends in socio-demographic characteristics, use patterns, and visitors' satisfaction at ARSHS.

The methodology used in this study serves as a standard survey procedure that the DSP can use in the future. Because consistency should be built into the design of the survey instrument, sampling strategy, and analysis (Peine et al., 1999), other Missouri state parks and historic sites should be surveyed similarly to provide valid results for comparisons of visitor information between parks, or to measure change over time in other parks.

The present study was conducted only during the study period of July, August, September, and October 2000. Therefore, user studies at ARSHS and other parks and historic sites might be conducted during other seasons for comparison between seasonal visitors.

METHODOLOGY RECOMMENDATIONS AND CONSIDERATIONS FOR ARSHS AND OTHER PARKS

The on-site questionnaire and the methodology of this study were designed to be applicable to other Missouri state parks and historic sites. Exit surveys provide the most robust sampling strategy to precisely define the visitor population (Peine et al., 1999); therefore, it is recommended that exit surveys be conducted at other state parks and historic sites if at all possible.

Survey Signage

It is recommended that adequate signage be utilized when collecting surveys on-

site. A "Visitor Survey" sign was used in the present study to inform visitors that a survey was being conducted. Having the sign aided in the workability of the methodology, as many visitors voluntarily approached the survey station and willingly filled out a survey before being asked to do so.

Survey Administration

The prize package drawing and the one-page questionnaire undoubtedly helped attain the high response rate in the present study. Continued use of the one-page questionnaire and the prize package drawing is suggested.

Achieving the highest possible response rate (within the financial constraints) should be a goal of any study. To achieve higher response rates, the following comments are provided. The most frequent reasons that visitors declined to fill out a survey were because they did not have enough time or because of the heat. Most non-respondents were very pleasant and provided positive comments about the site. Some even asked if they could take a survey and mail it back. One recommendation would be to have self-addressed, stamped envelopes available in future surveys to offer to visitors only after they do not volunteer to fill out the survey on-site. This technique may provide higher response rates, with minimal additional expense. One caution, however, is to always attempt to have visitors complete the survey on-site, and to only use the mail-back approach when it is certain visitors would otherwise be non-respondents.

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Appendix A. Arrow Rock State Historic Site Visitor Survey



Arrow Rock State Historic Site



The Missouri Department of Natural Resources and the University of Missouri are seeking your evaluation of Arrow Rock State Historic Site. This survey is voluntary and completely anonymous. Your cooperation is important in helping us make decisions about managing this site. Thank you for your time.

1. **Is this your first visit to Arrow Rock State Historic Site?** (Check only one box.) yes no **If no, about how many times have you visited the park in the past year?** _____

2. **During this visit to Arrow Rock State Historic Site, are you staying overnight?**
 yes **If yes, how many nights are you staying?** _____
 no (If no, skip to question 4.)

3. **If staying overnight, where are you staying?**
 campground in Arrow Rock State Historic Site
 nearby lodging facilities
 nearby bed and breakfast
 nearby campground
 friends/relatives
 other (Please specify.) _____

4. **Who did you come to Arrow Rock State Historic Site with during this visit?** (Check only one box.)
 I came alone family & friends club or organized group
 family friends other (Please specify.) _____

5. **If you did not arrive on a tour bus, please indicate the number of people you brought with you in your personal vehicle.**
 I came by tour bus
 I came by personal vehicle adults _____ children _____

6. **Which recreational activities are you engaging in during your visit to Arrow Rock State Historic Site?** (Check all that apply.)
 picnicking Friends of Arrow Rock Historic Walking Tour
 fishing self-guided tour of historic buildings
 camping attending Lyceum Theatre production
 hiking shopping in Arrow Rock
 walking dining at the Old Tavern
 viewing wildlife visiting Sappington Cemetery State Historic Site
 studying nature visiting Boone's Lick State Historic Site
 visiting visitor center other (Please specify.) _____
 attending special event _____

7. **How satisfied are you with each of the following at Arrow Rock State Historic Site?** (Check one box for each feature.)

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Don't Know
a. campground	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. site signs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. picnic areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. visitor center	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. The Old Tavern restaurant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. hiking trail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. **How do you rate Arrow Rock State Historic Site on each of the following?** (Check one box for each feature.)

	Excellent	Good	Fair	Poor	Don't Know
a. being free of litter & trash	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. having clean restrooms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. upkeep of site facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. having helpful & friendly staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. access for persons with disabilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. caring for the natural resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. caring for the cultural resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. being safe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. **If you did not rate the site as excellent on being safe, what influenced your rating?** _____

10. **Which of the following would most increase your feeling of being safe at Arrow Rock State Historic Site?** (Check only one box.)

- more lighting where? _____
- improved behavior of others
- increased visibility of site staff
- less crowding
- less traffic congestion
- improved upkeep of facilities
- nothing specific
- increased law enforcement patrol
- other (Please specify.) _____

11. **During this visit, how crowded did you feel?** (Circle one number.)

1	2	3	4	5	6	7	8	9
Not at all Crowded		Slightly Crowded			Moderately Crowded			Extremely Crowded

12. **If you felt crowded on this visit, where did you feel crowded?**



PLEASE TURN SURVEY OVER.



13. Overall, how satisfied are you with this visit to Arrow Rock State Historic Site? (Check only one box.)

Very Satisfied Satisfied Dissatisfied Very Dissatisfied

14. When visiting any state park or historic site, how important is each of these items to you? (Check only one box for each feature.)

	Very Important	Important	Unimportant	Very Unimportant	Don't Know
a. being free of litter & trash	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. having clean restrooms	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. upkeep of site facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. having helpful & friendly staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. access for persons with disabilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. caring for the natural resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. caring for the cultural resources	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. being safe	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

15. Do you support setting aside at least 50% of all campsites in a reservation system in order to reserve a site? yes no

16. When reserving a campsite, would you be willing to pay a reservation fee not to exceed \$7.00? yes no

17. What is the value of Missouri state parks and historic sites? We are often asked this question. As you know, Missouri state parks and historic sites are funded through a one-tenth cent sales tax approved by the voters. We are interested in what you think. What value would you place on the overall recreation opportunity offered in a visit to this site?

\$3 per day \$5 per day \$7 per day other \$ _____

18. How do you typically receive information about Arrow Rock State Historic Site or other Missouri state parks and historic sites? Please indicate how much information you receive from the following sources:

	None	Some	Lots	Don't Know
a. Internet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
b. magazines	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
c. newspapers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
d. direct mail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
e. brochures, pamphlets, or other printed material	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
f. radio	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
g. television	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
h. word of mouth, relatives, friends, etc.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
i. other (Please specify.) _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

19. If you have access to the Internet, how often do you use the Internet when planning a trip or vacation? (Check only one box.)

never frequently
 rarely always

20. What is your age? _____ 21. Gender? female male

22. What is the highest level of education you have completed? (Check only one box.)

grade school vocational school graduate of 4-year college
 high school some college advanced graduate degree

23. What is your primary occupation? (Check only one box.)

homemaker professional/technical
 self-employed retired
 service-based employee student
 manufacturing-based employee other (Please specify.) _____

24. What is your household composition? (Check only one box.)

single with no children married with children living at home
 single with children married with children grown
 married with no children other (Please specify.) _____

25. What is your ethnic origin? (Check only one box.)

African American Asian White
 American Indian Hispanic other (Please specify.) _____

26. What is your 5-digit zip code (or country of residence, if you live outside the U.S.)? _____

27. What is your annual household income? (Check only one box.)

less than \$25,000 \$50,001 - \$75,000
 \$25,000 - \$50,000 over \$75,000

28. Please write any additional comments about your site visit or suggestions on how the Missouri Department of Natural Resources can make your experience at Arrow Rock State Historic Site a better one.

THANK YOU FOR YOUR HELP.
 YOU ARE ALWAYS WELCOME IN MISSOURI STATE PARKS.

Appendix B. Survey Protocol

Protocol for Arrow Rock State Historic Site Visitor Survey

Hi, my name is _____, and I am conducting a survey of park visitors for Missouri state parks. The information that I am collecting will be useful for future management of Arrow Rock State Historic Site.

The survey is one page, front and back side, and only takes about 3-5 minutes to complete. Anyone who is 18 or older may complete the survey, and by completing the survey, you have the opportunity to enter your name in a drawing for a prize package of \$100 worth of concession coupons. Your participation is voluntary, and your responses will be completely anonymous.

Your input is very important to the management of Arrow Rock State Historic Site. Would you be willing to help by participating in the survey?

[If no,] Thank you for your time. Have a nice day.

[If yes,]

Here is a pencil and clipboard with the survey attached (for each respondent). Please complete the survey on both sides. When finished, return the survey(s), clipboard(s), pencils, and prize entry form(s) to me.

Thank you for taking time to complete the survey. Your help is greatly appreciated. Have a nice day.

Appendix C. Prize Entry Form

**WIN A PRIZE PACKAGE OF CONCESSION COUPONS
WORTH \$100**

Enter a drawing to win \$100 worth of concession gift certificates! These certificates are good for any concessions at any state park or historic site. Concessions include cabin rentals, canoe rentals, boat rentals, restaurant dining, horseback riding, etc.

You may enter the drawing by simply filling out the back of this entry form and returning it to the surveyor. Your name, address, and telephone number will be used only for this drawing; your survey responses will be anonymous. The drawing will be held January 2, 2001. Winners will be notified by telephone or by mail. Redemption of gift certificates is based on dates of availability through August 31, 2001.

Name: _____

Address: _____

Phone #: () _____

Would you be interested in receiving a subscription to *Missouri Resources* magazine, a quarterly magazine free to Missouri residents? yes no

Appendix D. Observation Survey

Date _____ Day of Week _____ Time Slot _____
 Weather _____ Starting Temp. _____ Ending Temp. _____

	Survey #	# of Adults	# of Children	Area*
1				
2				
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28				
29				
30				

Time Slot Codes for campground & day-use area:

- 1 = 8:00 a.m. – 12:00 p.m.
- 2 = 12:00 – 4:00 p.m.
- 3 = 4:00 – 8:00 p.m. (or until dark for October)

Time Slot Codes for Old Tavern:

- 1 = 11:00 a.m. – 3:30 p.m.
- 2 = 3:30 – 8:00 p.m.

Time Slot Codes for visitor center:

- 1 = 10:00 a.m. – 1:30 p.m. (for July-Aug.)
- 1 = 10:00 a.m. – 1:00 p.m. (for Sept.-Oct.)
- 2 = 1:30 – 5:00 p.m. (for July-Aug.)
- 2 = 1:00 – 5:00 p.m. (for Sept.-Oct.)

Appendix E. Responses to Survey Questions

Arrow Rock State Historic Site Visitor Survey

1. Is this your first visit to Arrow Rock State Historic Site? (n=193)

yes	38.3%
no	61.7%

If no, about how many times have you visited the site in the past year? (n=85)

The responses from this open-ended question were grouped into the following 8 categories:

0	29.4%
1	14.1%
2	20.0%
3-5	16.6%
6-10	10.6%
11-50	9.4%

The average # of times visitors visited the site in the past year was 4.1 times.

2. During this visit to Arrow Rock State Historic Site, are you staying overnight?

(n=190)	yes	33.2%
	no	66.8%

If yes, how many nights are you staying? (n=44)

The responses from this open-ended question were grouped into the following 4 categories:

1	36.4%
2	36.4%
3-4	18.2%
5+	9.1%

The average number of nights respondents stayed overnight was 2.3 nights.

3. If staying overnight, where are you staying? (n=62)

campground in Arrow Rock State Historic Site	53.2%
tent	26.9%
RV	73.1%
nearby lodging facilities	21.0%
nearby bed and breakfast	11.3%
nearby campground	3.2%
friends/relatives	9.7%
other	1.6%

4. Who did you come to Arrow Rock State Historic Site with during this visit?

(n=191)					
alone	2.6%	family & friends	15.2%	club or organized group	0.0%
family	63.4%	friends	16.2%	other	2.6%

5. If you did not arrive on a tour bus, please indicate the number of people you brought with you in your personal vehicle. (n=171)

I came by tour bus 2.3%
 I came by personal vehicle 97.7%

The responses from this open-ended question were grouped into the following categories:

adults: 1	10.5%	children: 1	59.5%
2	62.7%	2	29.7%
3	7.8%	3	5.4%
4	12.4%	4	2.7%
5+	6.6%	5	2.7%

The average number of people visitors brought with them was 2.8.

6. Which recreational activities are you engaging in during your visit to Arrow Rock State Historic Site? (n=193)

picnicking	14.0%	Friends of Arrow Rock Historic Walking Tour	10.9%
fishing	7.8%	self-guided tour of historic buildings	29.0%
camping	16.6%	attending Lyceum Theatre production	22.8%
hiking	11.9%	shopping in Arrow Rock	35.8%
walking	50.3%	dining at the Old Tavern	22.3%
viewing wildlife	16.1%	visiting Sappington Cemetery State Historic Site	6.7%
studying nature	7.3%	visiting Boone's Lick State Historic Site	6.7%
visiting visitor center	56.0%	other	7.3%
attending special event	9.8%		

14 visitors participated in an "other" activity. Their responses are as follows:

Antique shops.	Following Lewis and Clark trail.
Antiques.	Just driving.
Ate at Old School.	Katy Trail.
Boonville.	Reunion at the chapel.
Checkers.	Rocheport and Blackwater.
Church over at shelter.	Sightseeing.
Evergreen.	Watercolor class.

In addition to percentages of responses, a mean score was calculated for each feature in questions 7, 8, 13, and 14. The score is based on a 4.0 scale with 4 = very satisfied, 3 = satisfied, 2 = dissatisfied, and 1 = very dissatisfied (Q. 7 & 13); 4 = excellent, 3 = good, 2 = fair, and 1 = poor (Q. 8); and 4 = very important, 3 = important, 2 = unimportant, and 1 = very unimportant (Q. 14). The mean score is listed in parenthesis following each feature.

7. How satisfied are you with each of the following in Arrow Rock State Historic Site?

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	Don't Know	
a. campground (3.72)	43.0%	13.2%	0.0%	0.8%	43.0%	n=121
b. site signs (3.47)	43.9%	34.8%	0.8%	2.3%	18.2%	n=132
c. picnic areas (3.64)	42.6%	20.0%	0.0%	0.9%	36.5%	n=115
d. visitor center (3.72)	67.7%	16.5%	0.0%	2.5%	13.3%	n=158
e. The Old Tavern restaurant (3.62)	35.9%	11.5%	1.5%	1.5%	49.6%	n=131
f. hiking trail (3.39)	23.9%	17.7%	0.9%	2.7%	54.9%	n=113

8. How do you rate Arrow Rock State Historic Site on each of the following?

	Excellent	Good	Fair	Poor	Don't Know	
a. being free of litter/trash (3.81)	82.2%	13.5%	1.1%	1.1%	2.2%	n=185
b. having clean restrooms (3.76)	72.4%	16.6%	2.8%	0.0%	8.3%	n=181
c. upkeep of site facilities (3.80)	75.6%	19.3%	0.0%	0.0%	5.1%	n=176
d. having a helpful/friendly staff (3.75)	75.0%	18.2%	2.8%	0.0%	4.0%	n=176
e. access for persons with disabilities (3.60)	46.3%	17.7%	3.0%	1.2%	31.7%	n=164
f. care for the natural resources (3.72)	65.5%	23.7%	0.6%	0.0%	10.2%	n=177
g. care for the cultural resources (3.75)	69.0%	20.1%	1.1%	0.0%	9.8%	n=174
h. being safe (3.83)	76.4%	15.2%	5.2%	0.0%	8.4%	n=178

9. If you did not rate the site as excellent on being safe, what influenced your rating?

18 visitors (42.9% of those who did not rate the site as excellent on being safe) responded to this question. The 18 responses were divided into 4 categories. Frequencies and percentages of responses in each category are listed.

	Frequency	Percent
1. Don't know/no reason/no place is perfect	10	55.6%
2. Behavior of others	2	11.1%
3. Lack of park rangers patrolling	1	5.6%
4. Other	5	27.8%
Total	18	100.0%

10. Which of the following would most increase your feeling of being safe at Arrow Rock State Historic Site?

101 responses were given by 92 visitors.

	Frequency	Percent
1. More lighting	11	10.9%
2. Less crowding	5	5.0%
3. Improved upkeep of facilities	2	2.0%
4. Increased law enforcement patrol	6	5.9%
5. Improved behavior of others	3	3.0%
6. Increased visibility of park staff	7	6.9%

7. Less traffic congestion	5	5.0%
8. Nothing specific	57	56.4%
9. Other	<u>5</u>	<u>5.0%</u>
Total	101	100.0%

8 visitors reported where they felt more lighting was necessary. Their answers are as follows:

Around campsites on the end.	By bathhouse.
Around lake area.	Off street parking.
Back streets and end of Main.	Parking areas.
Bathroom.	Side streets.

4 visitors reported what other attribute would most increase their feeling of safety. Their responses are as follows:

Parking.
 Self-guided tour map, had to fend for self.
 Stop night traffic.
 Walking ramps on both sides of street over rock gullies.

11. During this visit, how crowded did you feel? (n=189)

On a scale of 1-9, with 1 = Not at all crowded and 9 = Extremely crowded, the mean response was 1.4.

12. If you felt crowded on this visit, where did you feel crowded?

4 visitors answered this open-ended question, and their responses are as follows:

Theatre.	Campground.
In shops and Lyceum Theatre.	Some street crossings unsafe for car to cross.

13. Overall, how satisfied are you with this visit to Arrow Rock State Historic Site?

	Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	
(Mean score = 3.79)	80.2%	18.1%	1.6%	0.0%	n=182

14. When visiting any state park or historic site, how important is each of these items to you?

	Very Important	Important	Unimportant	Very Unimportant	Don't Know	
a. being free of litter/trash (3.85)	83.4%	14.9%	0.0%	0.0%	1.7%	n=175
b. having clean restrooms (3.90)	88.1%	10.2%	0.0%	0.0%	1.7%	n=177
c. upkeep of site facilities (3.83)	82.2%	16.0%	0.6%	0.0%	1.2%	n=169
d. having a helpful/friendly staff (3.81)	80.0%	18.9%	0.0%	0.0%	1.1%	n=175
e. access for disabled persons (3.55)	59.1%	24.4%	6.7%	1.2%	8.5%	n=164
f. care for the natural resources (3.80)	79.7%	18.6%	0.6%	0.0%	1.2%	n=172
g. care for the cultural resources (3.82)	81.9%	14.6%	1.8%	0.0%	1.8%	n=171
h. being safe (3.88)	88.4%	9.3%	1.2%	0.0%	1.2%	n=172

15. Do you support setting aside at least 50% of all campsites in a reservation system in order to reserve a site? (n=153)

yes 67.3%
no 32.7%

16. When reserving a campsite, would you be willing to pay a reservation fee not to exceed \$7.00? (n=151)

yes 77.5%
no 22.5%

17. What is the value of Missouri state parks and historic sites? We are often asked this question. As you know, Missouri state parks and historic sites are funded through a one-tenth cent Parks and Soils sales tax approved by the voters. We are interested in what you think. What value would you place on the overall recreation opportunity offered in a visit to this site? (n=142)

\$3 per day 27.5% \$7 per day 28.2%
\$5 per day 37.3% other 7.0%

6 visitors indicated an other value on the overall recreation opportunity offered at ARSHS. The following is the frequency and percent of their responses.

	<u>Frequency</u>	<u>Percent</u>
\$0	2	33.3%
\$2	1	16.7%
\$10	2	33.3%
\$12	<u>1</u>	<u>16.7%</u>
Total	6	100.0%

18. How do you typically receive information about Arrow Rock State Historic Site or other Missouri state parks and historic sites? Please indicate how much information you receive from the following sources:

	None	Some	Lots	Don't know	
a. Internet	39.5%	30.3%	15.1%	15.1%	n=119
b. magazines	28.0%	49.2%	11.0%	11.9%	n=118
c. newspapers	33.0%	42.6%	10.4%	13.9%	n=115
d. direct mail	56.1%	22.4%	4.7%	16.8%	n=107
e. brochures, pamphlets, or other printed material	19.4%	33.3%	34.1%	19.4%	n=129
f. radio	51.9%	28.3%	1.9%	17.9%	n=106
g. television	51.8%	27.3%	3.6%	17.3%	n=110
h. word of mouth, relatives, friends, etc.	10.7%	48.0%	33.3%	8.0%	n=150
i. other (<i>Please specify.</i>)	27.3%	27.3%	0.0%	45.5%	n=11

8 respondents indicated an other source from which they receive information about Arrow Rock or other Missouri state parks and historic sites, and their responses are as follows:

AAA guide.	Maps/drives.
AAA.	Missouri Tourism Department.
Books.	Passport Program mailing.
Lewis and Clark Trail Guide.	Visited.

19. If you have access to the Internet, how often do you use the Internet when planning a trip or vacation? (n=148)

never	20.9%	frequently	41.2%
rarely	17.6%	always	20.3%

20. What is your age? (n=175)

Responses were divided into the following 4 categories:

18-34	17.1%
35-54	46.3%
55-64	22.3%
65-85	14.3%

(Average age = 49.4)

21. Gender? (n=168)

Female	58.3%
Male	41.7%

22. What is the highest level of education you have completed? (n=178)

grade school	1.7%	vocational school	4.5%	graduate of 4-year college	25.8%
high school	22.5%	some college	19.1%	advanced graduate degree	26.4%

23. What is your primary occupation? (n=180)

homemaker	5.0%	professional/technical	47.2%
self-employed	8.9%	retired	20.0%
service-based	5.6%	student	3.9%
manufacturing-based	4.4%	other	5.0%

24. What is your household composition? (n=179)

single with no children	19.6%	married with children living at home	21.8%
single with children	7.8%	married with children grown	34.6%
married with no children	15.1%	other	1.1%

25. What is your ethnic origin? (n=182)

African American	1.1%	Asian	0.0%	White	97.8%
American Indian	0.0%	Hispanic	1.1%	Other	0.0%

26. What is your 5-digit zip code (or country of residence, if you live outside the U.S.)? (n=174)

The states with the highest percentages of respondents were:

Missouri (77.0%)
Kansas (5.2%)
Texas (3.5%)

27. What is your annual household income? (n=157)

less than \$25,000	15.6%	\$50,001 - \$75,000	23.4%
\$25,000 - \$50,000	30.5%	over \$75,000	30.5%

28. Please write any additional comments about your site visit or suggestions on how the Missouri Department of Natural Resources can make your experience in Arrow Rock State Historic Site a better one.

35 of the 193 visitors (18.1%) responded to this question. Frequencies and percentages of responses in 6 category are listed.

	<u>Frequency</u>	<u>Percent</u>
1. General positive comments	18	51.4%
2. Comments regarding question 17	4	11.4%
3. Need improved/additional facilities	4	11.4%
4. Comments about businesses in Arrow Rock	3	8.6%
5. Comments/suggestions about visitor center	3	8.6%
6. Other	<u>3</u>	<u>8.6%</u>
Total	81	100.0%

Appendix F. List of Responses for Safety Concerns (Q 9)

Responses to Question # 9

If you did not rate the site as excellent on being safe (Question 8, letter h.), what influenced your rating?

Don't know/no reason/no place is perfect and can always improve

- Always room for improvement.
- Being in area for 50 years. Some problems.
- Did not have time to see all of the site.
- I'm here during the day, so don't know what it is like at night.
- Inexperience.
- Just arrived.
- Looks safe, however, only been here 5 minutes.
- No public place has excellent safety rating.
- Nothing.
- Only have very short time -- don't know.
- We just got here.

Behavior of others

- Lots of traffic through the camping area (non-campers).
- People in general.

Lack of park rangers patrolling the site

- We have not seen any park rangers/law enforcement.

Other

- Loose dogs.
- Need to keep poison ivy back some from the trail.
- Parking.
- Sidewalks very unsafe.

Appendix G. List of Responses for Additional Comments (Q 28)

Responses to Question #28

Please write any additional comments about your site visit or suggestions on how the Missouri Department of Natural Resources can make your experience at Arrow Rock State Historic Site a better one.

General positive comments

- Arrow Rock is a very nice little town.
- Beautiful.
- Enjoy.
- Great display.
- Great place.
- I have frequented Arrow Rock since childhood. My grandma has owned 2 different homes in this town.
- I have had fun, thank you.
- I though it was a really nice place to visit.
- Keep up good work.
- Lovely place.
- Nice place and very well done.
- Thank you for maintaining this site.
- Thought it was very good.
- Very beautiful park.
- Very enjoyable community.
- Very nice park.
- Very satisfying.
- Wonderful place.

Comments regarding question 17

- If you provide the tours, I'm paying \$3.
- Keep for same.
- Less than \$3.
- Pay \$12 already; wouldn't pay more.

Need improved/additional facilities

- Could add signs to help people identify poison ivy.
- Improve gutters.
- Need another shower house. Shower heads too high. Need a hot and cold knob to adjust temperature better.
- Need trashcan at each campsite.

Comments about businesses in Arrow Rock

- Difficult to find lodging and restaurants open.
- Tavern isn't open very often.
- Too many stores were closed and others had a bad attitude about opening. One was watching Chiefs game.

Comments/suggestions about visitor center, staff, and tours

- All staff were excellent except one. She was very rude and no help -- Mary B.
- Don't like the revised history.
- You need a better tour/guide system. In place of Friends of Arrow Rock, you should run tour and start from visitor center, and tour should be more comprehensive.

Other

- Change limit length on bass. Too many small bass.
- Police protection at night.
- Reservation fee reimbursable if camping, no refund if no show.