White River National Forest Hanging Lake Visitor Transportation Survey: Summary of Results

January 2017

DOT-VNTSC-USDA-17-03

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13. ABSTRACT (Maximum 200 words)
The USDOT Volpe Center conducted a visitor transportation survey at Hanging Lake recreation site in the White River National Forest from July 14 to July 18, 2016. This report outlines the summary of results from that survey effort. Key findings include: 70 percent of visitors surveys had not visited Hanging Lake before; 58 percent of visitors made the decision to visit on the same day or 1 to 7 days prior; 79 percent of visitors would be likely or somewhat likely to take a shuttle to the site.

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298-102

Table of Contents

Table of Tables

Table of Figures

Background

This document summarizes the results of the Hanging Lake Visitor Transportation Survey conducted in July 2016 at Hanging Lake recreation site in the White River National Forest in western Colorado. The primary purposes of the Hanging Lake Visitor Transportation Survey are to:

1. Understand current visitor behavior and experiences in the parking lot and on the trail,
2. Evaluate visitors' economic impact on the surrounding community, and
3. Evaluate visitors' opinions regarding future transportation management options.

This survey is part of the larger Hanging Lake transportation management work being performed by the U.S. Forest Service (USFS), U.S. Department of Transportation (USDOT) John A. Volpe National Transportation Systems Center (Volpe Center), the Colorado Department of Transportation (CDOT), and other project stakeholders. The survey results, along with the Hanging Lake Capacity Study and Hanging Lake Transportation and Operations Study, will assist the USFS in its decision-making process for selecting and implementing sustainable transportation solutions for visitors to Hanging Lake.

Survey Methodology

The Hanging Lake project team created the Hanging Lake Visitor Transportation Survey and submitted it to the Office of Management and Budget (OMB) using the Collaborative Visitor Transportation Survey (CVTS) generic clearance. The CVTS is a multi-agency program in which the USFS participates and it therefore allows the USFS to use the CVTS Compendium of Questions to create visitor transportation surveys as well as expedite OMB approval time.[1] To submit a survey under the CVTS, potential information collection projects must fill out a Justification Form outlining the information collection's purpose and methodology. For reference, the Hanging Lake Visitor Transportation Survey Justification Form is provided in Appendix A.

As outlined in the Justification Form, the survey employed an intercept methodology. The project team identified its target population for the Hanging Lake survey as all visitors to Hanging Lake parking lot and trail over 16 years of age. It was important to capture all visitors not only hiking the trail, but also visitors passing through the area or using the restroom facilities as those visitors may also be users of the parking lot. Two survey instruments were developed, one that addressed visitors who just finished hiking Hanging Lake trail (hikers) and one for visitors who were only stopping in the area without the intention of hiking (visitors) (see Appendix B: Survey Instrument – Hiker and Appendix C: Survey Instrument – Visitor). The survey team administered only one survey instrument per group as groups experience the site together and would likely provide similar answers.

Survey respondents were intercepted in front of the restroom facilities adjacent to the end of the parking lot and approximately a half-mile away from the trailhead. This location was selected as it was convenient for intercepting visitors, hikers, and bicyclists. One limitation of this singular intercept location was that it did not capture hikers coming from the east beyond the parking lot and returning back before the restroom facilities, which are located west of the trailhead. Those potential hikers and bicyclists missed include only those who parked or were dropped off at Bair Ranch rest area, which is 3.6 miles east of Hanging Lake and visitors who stretched their legs after parking in the Hanging Lake parking lot or picnicked nearby but did not venture over to the restrooms or hike the trail. Since Hanging

[1] For more information on CVTS visit the CVTS Website.

Lake is the main attraction in this area, the project team estimates the groups missed to be very low in number.

A team of three Volpe Center staff administered the survey between Thursday, July 14, and Monday, July 18, 2016, from 7:30 AM to 7:00 PM. The project team chose those dates to represent typical weekend and week days during peak visitation in the summer months. The survey team followed a script when intercepting visitors to determine if the group should be surveyed and what survey should be administered. If users did not wish to participate in the survey, the surveyors asked quick follow up questions, if possible, and made brief notes in a non-response log. The survey team used the non-response log to check if there were any biases in the data. The project team found no significant biases using a +/-6 percent confidence interval. The surveyors attempted to intercept every other group.

The survey team manually coded the data into Excel for analysis. The project team performed quality assurance and quality control (QA/QC) during the data input process; following the data input, project team members checked entries to ensure correct and consistent coding. The projected team then analyzed and tabulated results in Excel and Stata.

Overview of Results

Table 1 below summarizes the number of survey responses by day. The survey saw a 64 percent average response rate for the five survey days, which is close to the anticipated response rate, based on similar past surveys, of 63 percent in the Justification Form. As can be seen in the table, the survey team administered more surveys on weekend days because there were more visitors on those days.

Table 1 Summary of survey responses

Survey Date	Day of Week	Hiker Surveys Completed	Visitor Surveys Completed	Non-Response	Response Rate
7/14	Thursday	118	12	56	68%
7/15	Friday	118	13	58	67%
7/16	Saturday	143	8	90	61%
7/17	Sunday	154	8	85	64%
7/18	Monday	150	6	96	61%
TOTAL		**683**	**47**	**385**	**64%**

The following sections more closely examine the hikers' responses to certain questions and how those results will help inform future transportation management decisions at Hanging Lake recreation site. The surveys in Appendix B and Appendix C contain all survey results. A summary of visitor demographics, including maps that show the zip codes where respondents live, can be found in Appendix D.

Current Hiker Behavior

By understanding current visitor behavior and traveler information, the USFS and its partners can use the survey results to further inform its transportation management options and solutions and the best methods of communicating with future visitors. The survey results also provide a baseline of comparison for how hikers gather trip information, perceive their experience, and use the site.

A majority of hikers surveyed had not visited Hanging Lake previously (Figure 1). This finding is of note because future communications and transportation management solutions for the site will need to target new, first-time visitors.

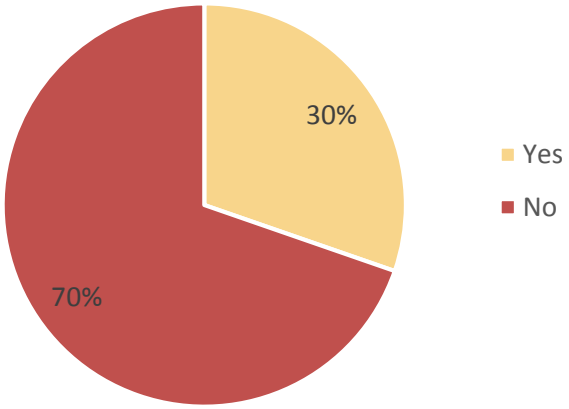

Figure 1 Percent of visitors who have visited Hanging Lake previously (n = 675)

Another key finding is that visitors primarily park in the Hanging Lake safety rest area parking lot even with USFS ranger management on some days and potentially long wait times for a parking space (Figure 2). This highlights that the Hanging Lake parking lot is not truly acting as a safety rest area, but rather access to recreation. Of the visitors (non-hikers) surveyed, only 10 respondents parked in Hanging Lake parking lot and six of those visitors surveyed were stopping to use the rest area. This means that only 0.8 percent of those surveyed used Hanging Lake parking lot for a rest area, while the vast majority of visitors parked at Hanging Lake for access to Hanging Lake trail or Glenwood Canyon Recreation Path. The findings of the survey that five percent of hikers arrive by bicycle is consistent with counts performed in 2015 that found 5.7 percent of visitors arrived by bicycle.

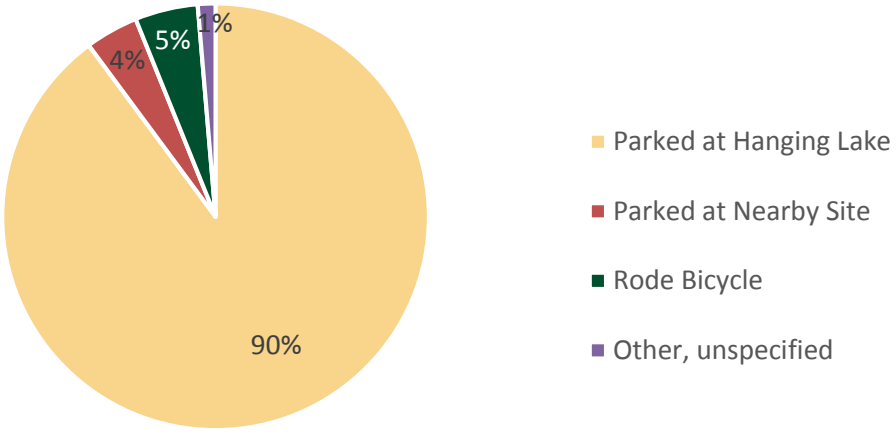

Figure 2 Hikers parking location (n = 671)

Trip Planning and Traveler Information

When looking at how far in advance hikers made the decision to visit Hanging Lake, most hikers decided one to seven days prior (44 percent) and 14 percent decided on the same day (Figure 3).

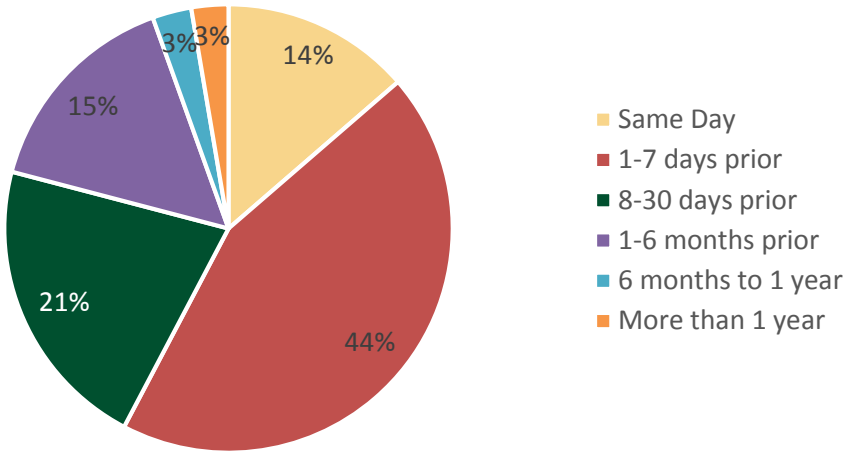

Figure 3 Hiker decision to visit Hanging Lake (n = 674)

Looking more closely at the survey data for trip planning, it appears that more than half of those who decided to take their trip on the same day did not know about potential parking problems or trail crowding (Figure 4 and Figure 5). This population will be important to consider as the USFS and its partners plan and develop transportation management solutions to ensure that visitors receive sufficient trip planning information.

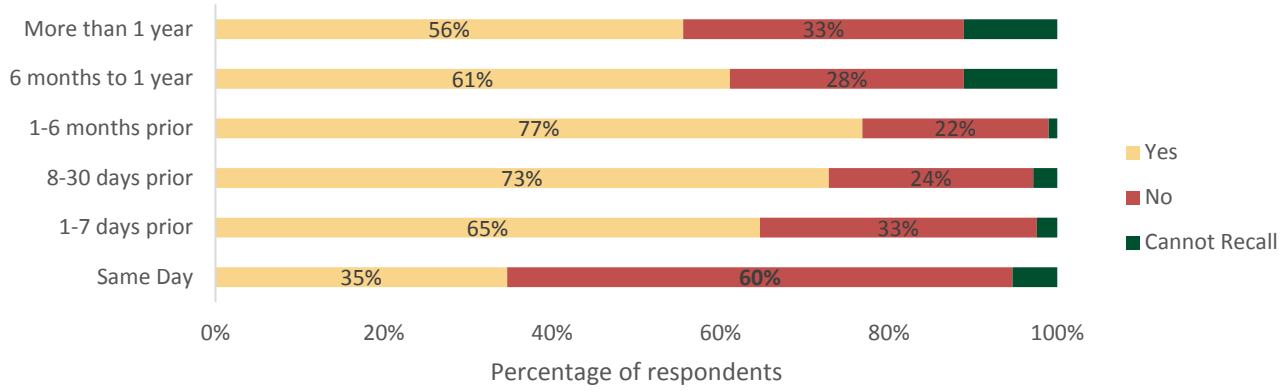

Figure 4 Comparison of when the decision to visit was made and prior knowledge of parking problems (n = 632)

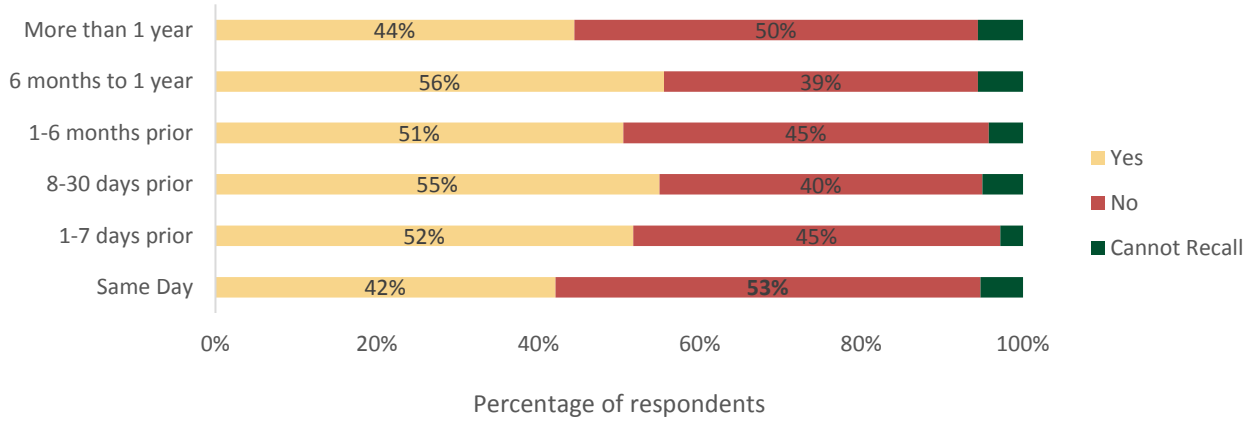

Figure 5 Comparison of when the decision to visit was made and prior knowledge of trail crowding (n = 633)

The survey also asked respondents to indicate which information sources they used prior to their visit and which sources they would use for their next visit (Table 2). Word of mouth was the most noted way of receiving information (in bold below); this is important as the USFS and its partners make changes to the transportation management system to ensure that proper information is being spread. Additionally, the USFS website saw the largest increase in information sources visitors would prefer to use in the future (in bold below). Therefore the USFS should continue to promote its website in all Hanging Lake information materials and make sure that information on their website about Hanging Lake is easy to access.

Table 2 Information sources used prior to the visit and likely to be used next visit (respectively, n = 642 and 611)

Information Sources	Prior to Visit	Next Visit
Obtained no information prior to visit	11%	7%
Live in local area	14%	8%
Word of mouth (friends/family)	**36%**	28%
Glenwood Springs Chamber of Commerce website	7%	11%
U.S. Forest Service website	10%	**24%**
Hotel/Concierge	3%	6%
Other website	14%	10%
Other	5%	5%

Hiker Experience and Perceptions

Looking at hiker experiences and perceptions will assist the USFS in developing a baseline of crowding at the site. As Table 3 shows, a majority of visitors across all days noted that the trail was crowded some of the time, with the largest percentage on the weekend days (in bold below). Also of note is that both Thursday and Monday saw a 21 percent response rate of crowding all or most of the time (in bold below), compared to 17 and 18 percent on weekend days. This may highlight the different hiker expectation and perceptions based on the day of week the hiker chose to visit. Additionally, the site is not managed on Thursdays which may affect the perception of crowding.

Table 3 Perceptions of trail crowding by day surveyed (n = 643)

Perception of Trail	Thursday	Friday	Saturday	Sunday	Monday	Total
Crowded all or most of the time	**21%**	19%	17%	18%	**21%**	19%
Crowded some of the time	51%	52%	**63%**	**60%**	52%	56%
Not crowded at all	29%	29%	20%	22%	27%	25%

The project team compared the time of arrival noted by the hiker and the hiker's perceptions of trail crowding with hourly average daily traffic for summer months (June to August 2015) data from the USFS's trail counter.[2] Figure 6 shows that time of arrival impacted how hikers perceived trail crowding. Visitors increasingly experienced crowding all or most of the time during peak times; however, it is apparent from the graph below that no matter what time a person is hiking, the majority of visitors feel that the trail is crowded some of the time.

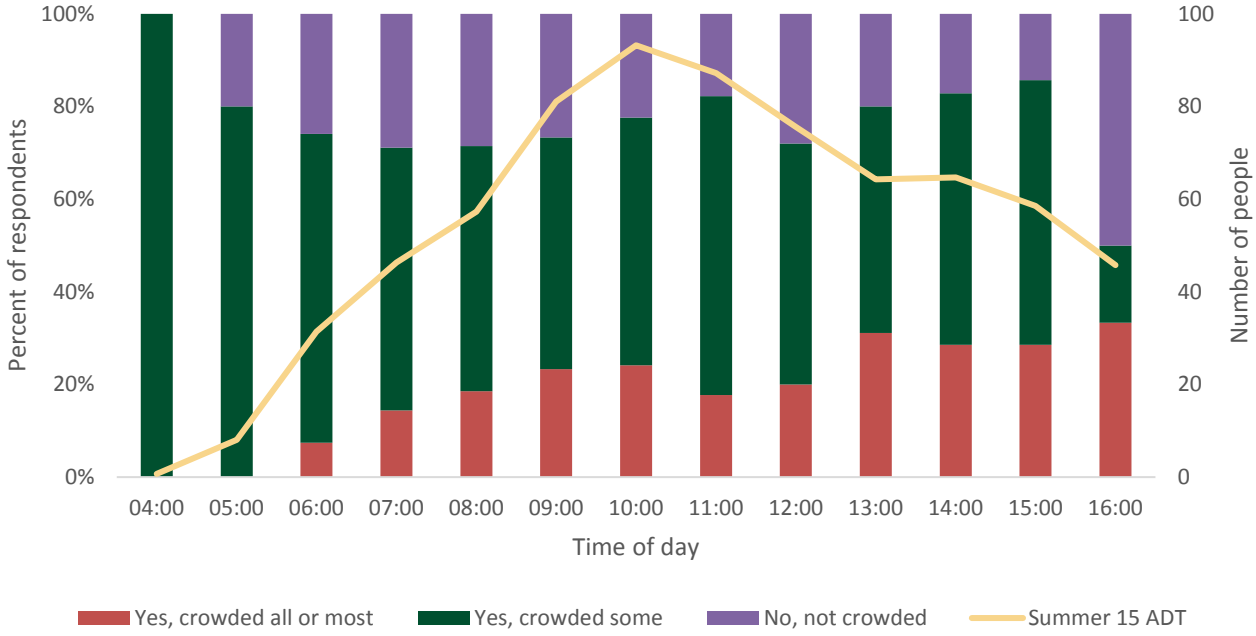

Figure 6 Comparison of 2015 summer ADT and hiker perceptions of trail crowding; source: TRAFx

The survey also asked hikers if they experienced parking problems. While the total responses show that 46 percent responded yes and 49 responded no to experiencing parking problems, looking at the data by time of arrival compared to hourly 2015 summer average daily traffic (ADT) measured in people on the trail provides more detail (Figure 7). As expected, not only did hikers experience parking problems during peak times, more hikers marked "not applicable," meaning they did not park at Hanging Lake.[3] The not applicable category captures visitors who were dropped off at a rest area, parked at a different rest area, or bicycled to the site.

[2] 2016 trail counter data is not available during the survey time period due to counter malfunction.

[3] Interestingly, the one hiker survey respondent who arrived at 4:45 AM (and left at 8:00 AM) marked the trail as crowded some of the time. This likely indicates the visitors encountered on their way down. This exemplifies how perception differs widely between individuals.

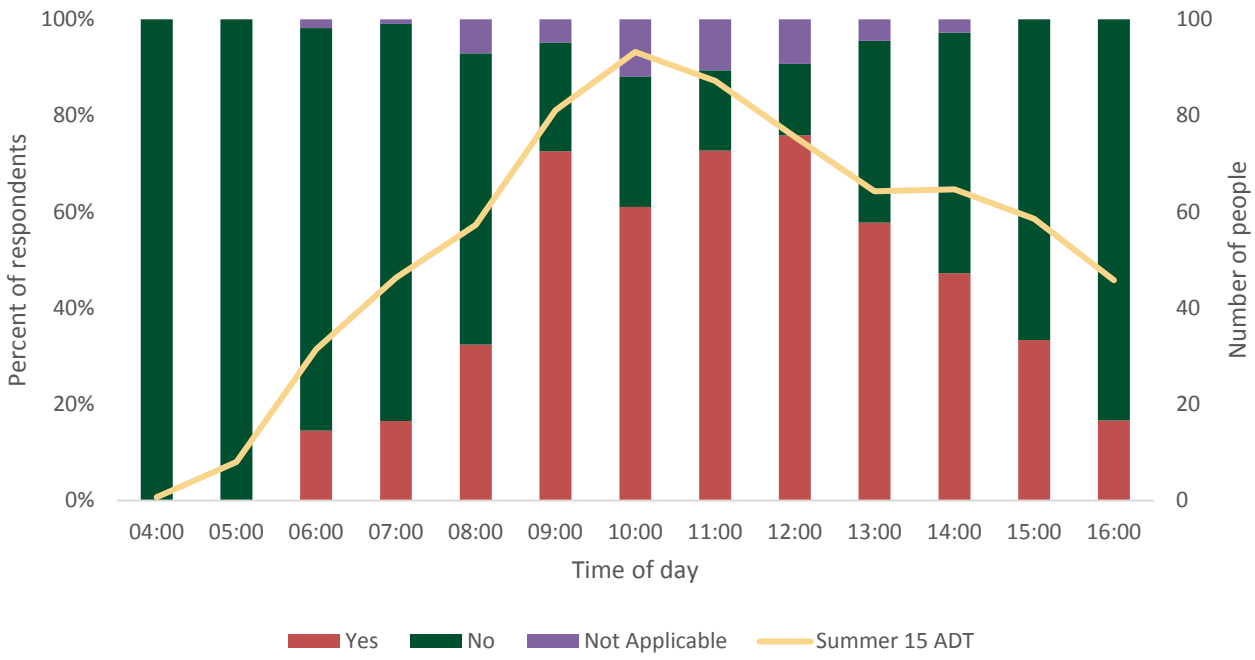

Figure 7 Comparison of 2015 summer ADT and hiker response to experiencing parking problems; source: TRAFx

The survey data shows that hikers experienced both parking problems and trail crowding at Hanging Lake, particularly during peak times of day and peak days of the week; however, this data was not statistically significant when a regression in Stata was performed to understand how time of arrival impacted a hiker's experience with parking problems. While this is not necessarily new information, the dataset quantifies impacts on the hiker's experience and will be useful during the USFS's decision making process. Overall, the survey found that 55 percent of hikers said the number of hikers should be limited to protect the natural resource (Figure 8).

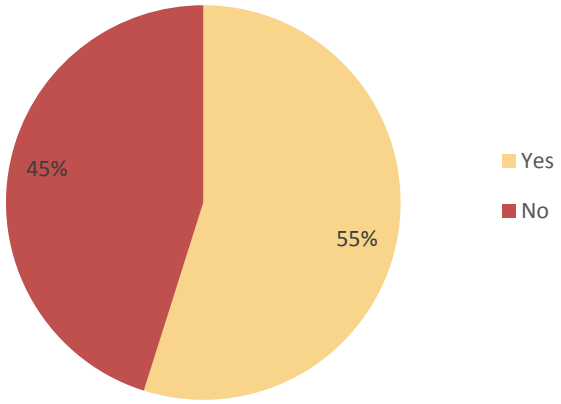

Figure 8 Hikers should be limited to protect the natural resource (n = 605)

The following figures depict the satisfaction and importance hikers gave to various aspects of the entire Hanging Lake recreation site from the parking lot to Spouting Rock. Overall, most respondents were

satisfied with the various visitor features at Hanging Lake. The feature most people were dissatisfied with was the availability of parking space availability (Figure 9).

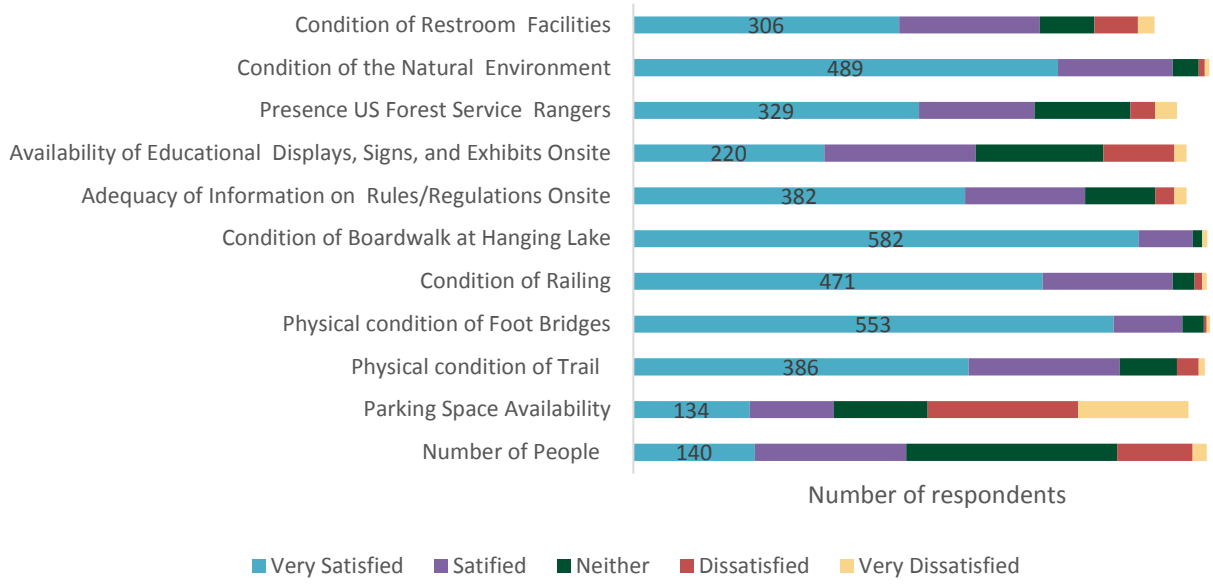

Figure 9 Hikers satisfaction and dissatisfaction with aspects of the site

Looking at the rating of importance to hikers, a majority of people marked all of the aspects as extremely or very important (Figure 10). The greatest number of people felt that the physical condition of the trail was extremely important to their overall recreational experience at Hanging Lake.

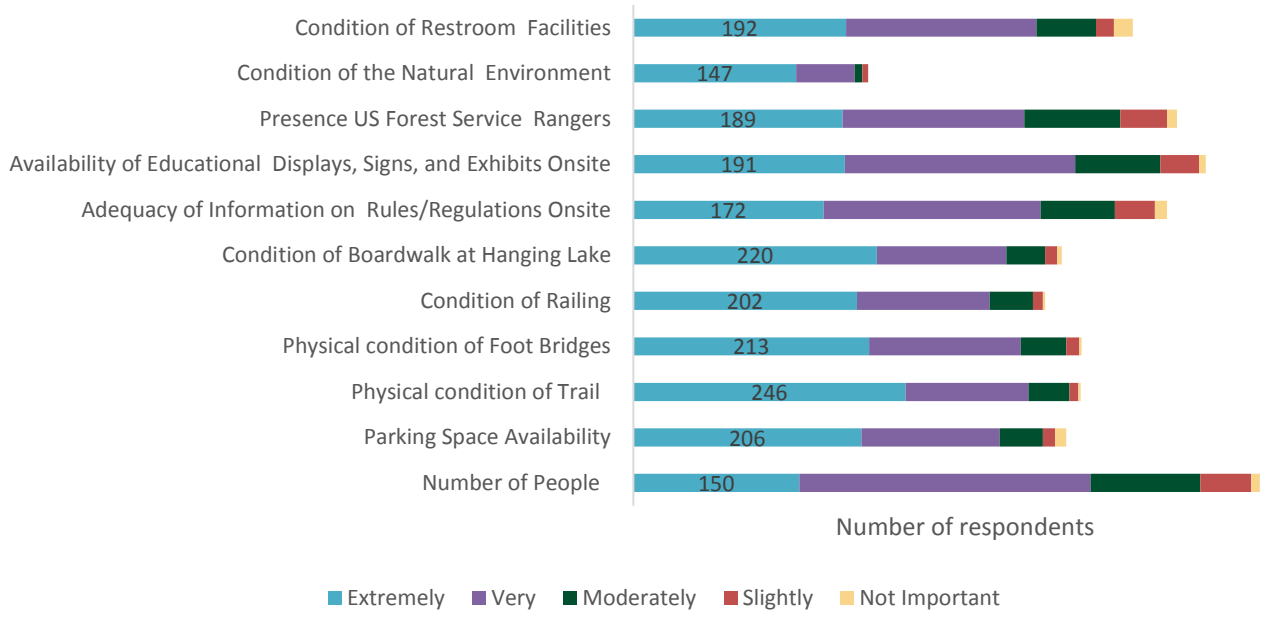

Figure 10 The importance of different aspects of the hiker's overall recreational experience

Economic Impact on the Local Area

In an effort to better understand Hanging Lake's economic impact on the local community, the survey asked respondents to estimate their group's expenditures within 50 miles of Hanging Lake during their entire trip. Table 4 depicts the average expenditures by spending category. On average, surveyed groups spent $836 during their trip within 50 miles of Hanging Lake (which includes Eagle County and Garfield County). The total amount that 489 respondents noted spending in the area was $272,880. This can be summarized that at a minimum, over the course of five days during the summer months, visitors to Hanging Lake contribute over $371,000 to the local economy.[4]

Table 4 Average hiker expenditures by spending category

Spending Category	Average	N
Lodging (Motel, Lodge, Cabin, B&B, Camping etc.)	$345	394
Food (Restaurants, Groceries, etc.)	$152	488
Gasoline and Oil	$64	472
Entry, Parking, or Recreation Use Fees for Other Sites	$50	261
Recreation and Entertainment (include Guide Fees, Equipment Rental or Purchase, and Souvenirs)	$105	289
Other	$120	126
TOTAL	**$403**	**489**

Opinions on Future Transportation Options

As the USFS moves forward in determining transportation management solutions at Hanging Lake, gathering input and feedback from the public will be important. The Hanging Lake Transportation Visitor Survey was an opportunity for the USFS to begin an understanding of how the public would feel about potential shuttle or guided service to the site. More than half of the hikers surveyed said they would be willing to take a shuttle to Hanging Lake from a nearby location if they were to visit again (Figure 11).

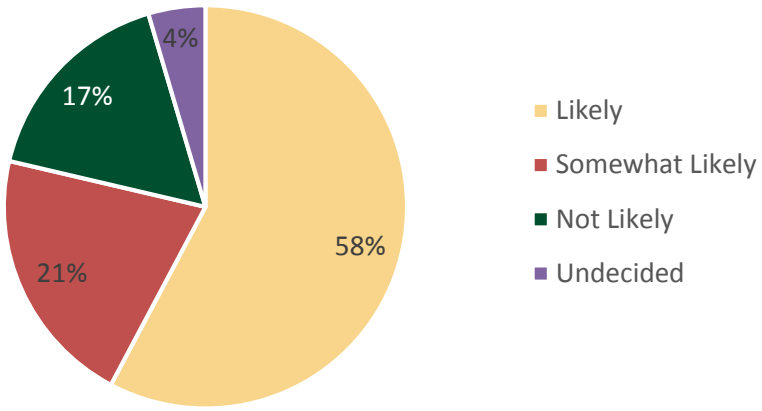

Figure 11 Percentage of visitors that would take a shuttle if they were to visit Hanging Lake in the future (n = 656)

[4] Calculated by increasing $272,880 by 36 percent to account for 100 percent of visitors sampled during that time.

With high willingness to take a shuttle, the project team then compared responses with the time of arrival and hourly 2015 summer ADT data. Figure 12 below shows that arrival time somewhat impacted the likelihood a survey respondent would take the shuttle; however, willingness to take the shuttle appears to be relevant as to when the hiker arrived: arriving during peak time was statistically significant in impacting willingness to take a shuttle.

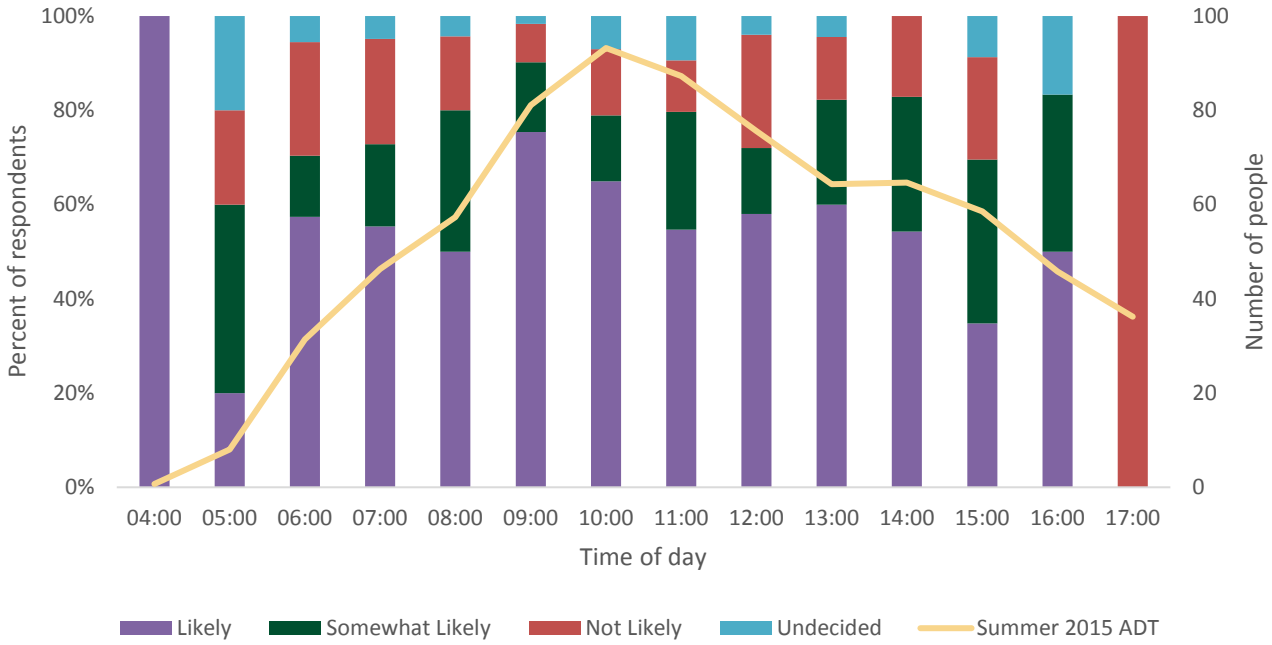

Figure 12 Comparison of 2015 summer ADT to hiker likelihood of using a shuttle; source: TRAFx

To better understand who is unlikely to take the shuttle and to improve the chances that they would be willing to take the shuttle, the USFS can target its public outreach efforts to address concerns of those groups. To analyze the data more in-depth, a linear probability model was run in Stata to examine characteristics that may have affected visitor's willingness to take the shuttle. At the 10 percent level, the following variables were found to be significant (the full model can be found in Appendix E):

- On average, being male is associated with a 7.8 percentage point *reduction* in the likelihood to take the shuttle, all else constant.
- On average, having visited before is associated with a 7.5 percentage point *reduction* in the likelihood to take the shuttle, all else constant.
- On average, intercepting the respondent during peak times (10:00 AM to 2:00 PM) is associated with an 8.1 percent point *increase* in the likelihood to take the shuttle, all else constant.

A majority of survey respondents indicated that their willingness to pay for the shuttle was $5 and some respondents were willing to pay $10 (Figure 13). While the price of a shuttle to Hanging Lake will depend on several external factors, it was important to gauge a baseline of the public's willingness to pay for the shuttle service.

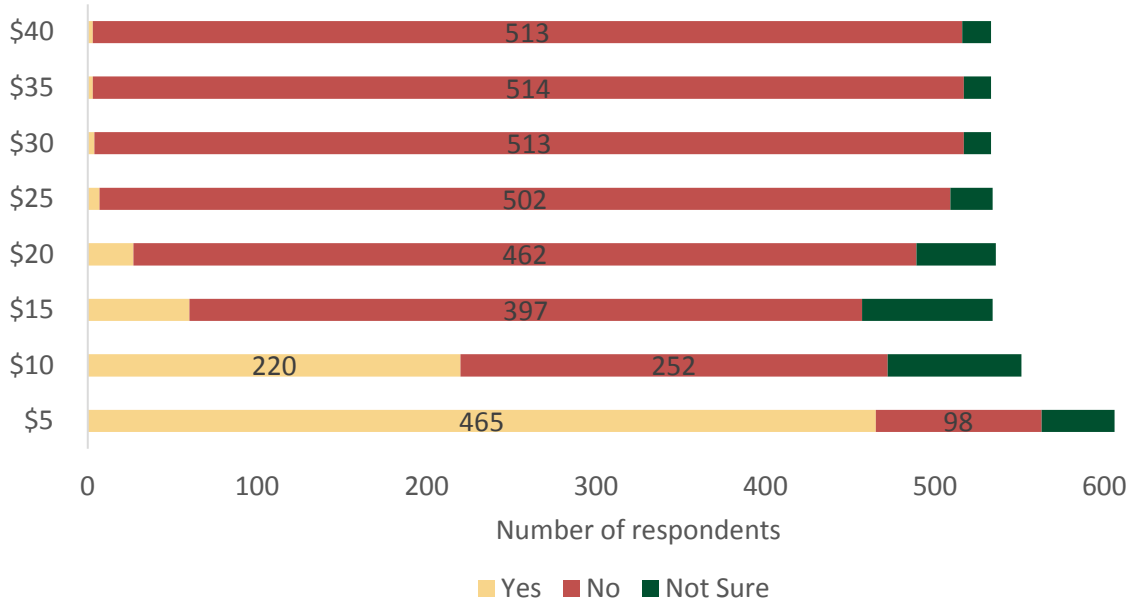

Figure 13 Willingness to pay for a shuttle service

In addition to considering a shuttle, the survey team asked visitors their thoughts if guided hikes were offered in addition to a shuttle service. A majority of respondents said they would not sign up for a guided hike if it was offered, regardless of cost (Figure 14).

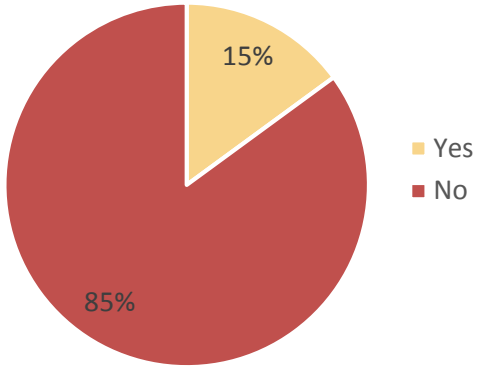

Figure 14 Willingness to sign up for a guided hike (n = 649)

The survey team then asked the respondent's willingness to pay for a guided hike in addition to a shuttle fee. More than one-third of hikers noted they would be willing to pay an additional $5 for a guided hike (Figure 15). Interpretation of willingness to pay answers come with some limitations as most people do not typically answer the questions with their true willingness to pay for a good or service once the good or service is implemented (stated versus true preferences).[5] Nonetheless, this willingness to pay

[5] Breidert, C., Hahsler, M., Reutter, T. (2006). "A Review of Methods for Measuring Willingness to Pay." Accessed: http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.68.990&rep=rep1&type=pdf

information for both the shuttle and the guided hike are good baselines for the USFS to keep in mind as it develops its transportation management solutions.

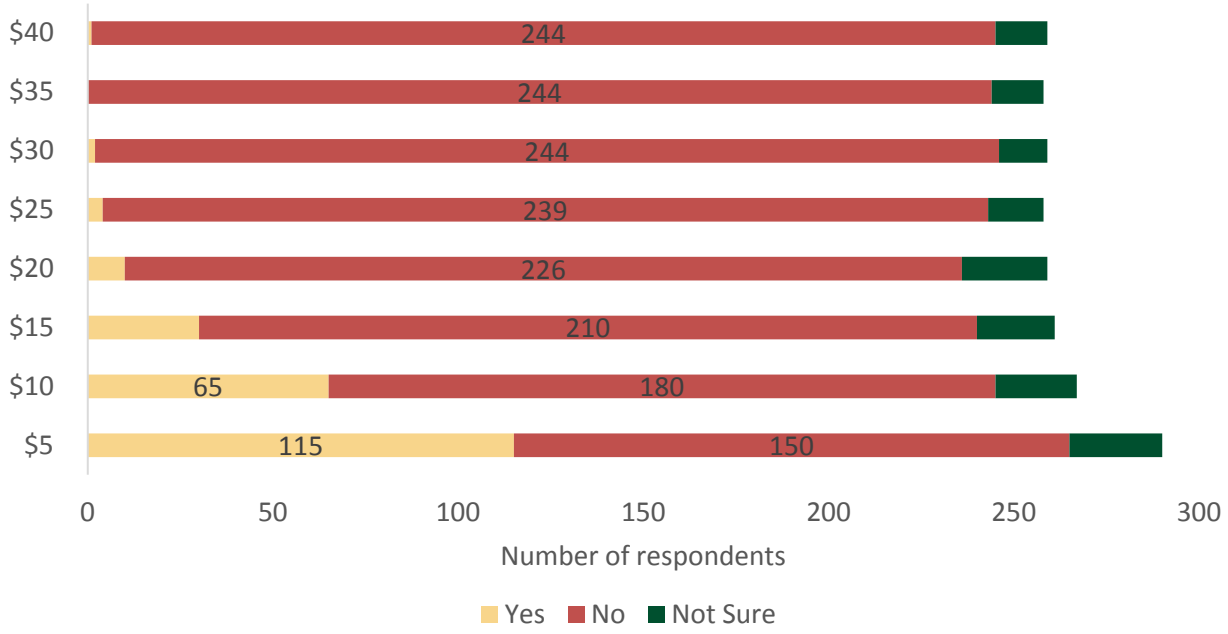

Figure 15 Willingness to pay for a guided hike in addition to the shuttle service fee

Application of Survey Findings

The survey results of the Hanging Lake Visitor Transportation Survey provides insights into current visitor and hiker behavior, perceptions, and attitudes towards future management options. The survey results indicate that most hikers are aware of parking problems and trail crowding and that most hikers experienced those issues. Those negative experiences are most prominently felt during peak times of the day and weekend days when visitation is at its highest during the summer. This information will help the USFS as it moves forward on refining and selecting its transportation operations and management solutions.

Appendix A: Justification Form

Justification for Submission under Federal Lands Transportation Generic Clearance (OMB Control Number 0596-0236)

U.S. Department of Agriculture-Forest Service Office of Regulatory and Management Services	Forest Service Tracking Number: 2016-5-FS

			Date Submitted to Forest Service/USDA:			
1.	**IC Title:**	**White River National Forest – Hanging Lake Surveys**				
2.	**Bureau/Office:**	USDA Forest Service				
3.	**Abstract:** (not to exceed 150 words) The purpose of this ICR is to assist the U.S. Forest Service staff in better understanding visitor behavior, experiences, and desires regarding future use of the White River National Forest's Hanging Lake Trail near Glenwood Springs, Colorado. This trail has been experiencing increased visitation causing safety issues on nearby Interstate 70, crowding in the parking lot and on the trail, and resource degradation issues throughout the site. The information collected will inform the U.S. Forest Service (FS) and U.S. Department of Transportation (DOT) Volpe Center's transportation management study that is looking at potential future fee and shuttle system opportunities. The survey serves three purposes: 1) Understand current visitor behavior and experiences in the parking lot and on the trail, 2) Evaluate visitors' economic impact on the surrounding community, and 3) Evaluate visitors' opinions regarding future transportation management plans. This visitor data will directly assist in the development of transportation solutions that address resource and visitor safety and crowding issues currently experienced at Hanging Lake.					
4.	**Bureau/Office Point of Contact Information**					
	First Name:	Kay				
	Last Name:	Hopkins				
	Title:	Outdoor Recreation Planner				
	Bureau/Office:	White River National Forest				
	Address:	900 Grand Avenuee				
	City:	Glenwood Springs	**State:**	CO	**Zip code:**	81601
	Phone:	970-945-3265	**Fax:**	970-945-9029		
	Email:	kchopkins@fs.fed.us				
5.	**Principal Investigator (PI) Information [If different from #4]**					
	First Name:	Benjamin				
	Last Name:	Rasmussen				
	Title:	Community Planner				

	Bureau/Office:	U.S. Department of Transportation Volpe Center				
	Address:	55 Broadway Avenue				
	City:	Cambridge	**State:**	MA	**Zip code:**	02142
	Phone:	617-494-2768	**Fax:**	617-494-3382		
	Email:	Benjamin.rasmussen@dot.gov				

6.	**Lead Agency IC Clearance Officer Reviewing the IC:**				
	First Name:	Kerri P.			
	Last Name:	Mills			
	Title:	Acting Information Collections Officer			
	Phone:	(202) 205-9967			
	Email:	kpmills@fs.fed.us			
7.	**Description of Population/Potential Respondents**	Surveys will be conducted with recreational visitors (18 years of age and older) who visit the Chattooga WSR during the study Period.			
8.	**IC Dates**	6/1/2016	To	10/01/2016	
9.	**Type of Information Collection Instrument (Check ALL that Apply)**				

X Intercept	**__ Telephone**	**__ Mail**	**__ Web-based**	**__ Focus Groups**	**__ Comment**
__ Other	**Explain:**				

10. Instrument Development:
(Who assisted in content development? Statistics? Was the instrument pretested? How were improvements integrated?)

The instrument was developed by staff at the Volpe Center and U.S. Forest Service:

- Lauren Deaderick, Community Planner, U.S. DOT Volpe Center
- Margaret Petrella, Social Scientist, U.S. DOT Volpe Center
- Benjamin Rasmussen, Community Planner, U.S. DOT Volpe Center
- Kay Hopkins, Outdoor Recreation Planner, U.S. Forest Service
- Paula Peterson, District Recreation Staff, U.S. Forest Service

The survey was developed using the Compendium of Question from the Collaborative Visitor Transportation Survey Generic Clearance and pre-tested by FS employees.

11. Which of the five areas from the Compendium of Questions will be addressed in your IC? (Check all that apply)**.** .

X Topic Area #1: Respondent characteristics
X Topic Area #2: Traveler Information
X Topic Area #3: Trip behaviors
X Topic Area #4: Assessment of Visitor Experiences and Transportation-Related Facilities, Conditions, and Services
X Topic Area #5: Economic Impact and Visitor Spending/Costs

In addition, for each question in your survey instrument (or discussion guide, comment card, etc.), please indicate the Compendium Topic Area and the unique question identifier from the Compendium. If the question is not taken from the Compendium, indicate "NEW".

VISITOR SURVEY

Survey Question Number	Compendium Topic Area	Compendium Question Identifier
The question wording was adjusted, as necessary, to refer to Hanging Lake (the survey site). Likewise, response categories were adjusted to be site-specific, as needed.		
1	#3 – Trip Behaviors	TPURP3
2	#3 – Trip Behaviors	TDUR4/TDEST1
3	#3 – Trip Behaviors	TDEST1
4	#3 – Trip Behaviors	TRANCOND8
5	#3 – Trip Behaviors	TPURP8
6	#1 – Respondent characteristics	AGE11
7	#1 – Respondent characteristics	GEN1
8	#1 – Respondent characteristics	ETHNIC1
9	#1 – Respondent characteristics	RACE1
10	#1 – Respondent characteristics	INC1
11	#1 – Respondent characteristics	RES1

11. Which of the five areas from the Compendium of Questions will be addressed in your IC? (Check all that apply)**. (CONTINUED)**

X Topic Area #1: Respondent characteristics
X Topic Area #2: Traveler Information
X Topic Area #3: Trip behaviors
X Topic Area #4: Assessment of Visitor Experiences and Transportation-Related Facilities, Conditions, and Services
X Topic Area #5: Economic Impact and Visitor Spending/Costs

In addition, for each question in your survey instrument (or discussion guide, comment card, etc.), please indicate the Compendium Topic Area and the unique question identifier from the Compendium. If the question is not taken from the Compendium, indicate "NEW".

HIKER SURVEY

Survey Question Number	Compendium Topic Area	Compendium Question Identifier
The question wording was adjusted, as necessary, to refer to Hanging Lake (the survey site). Likewise, response categories were adjusted to be site-specific, as needed.		
1	#3 – Trip Behaviors	TPURP3
2	#3 – Trip Behaviors	TDUR4/TDEST1
3	#3 – Trip Behaviors	TDEST1
4	#3 – Trip Behaviors	TRANCOND8
5	#3 – Trip Behaviors	TPURP8
6	#3 – Trip Behaviors	VHIS1
7	#1 – Respondent Characteristics	TPLAN1
8	*Not in Compendium*	*NEW*
9	#2 – Traveler Information	TINFO8
10	#1 – Respondent Characteristics	KNOW10
11	#1 – Respondent Characteristics	KNOW10
12	#3 – Trip Behaviors	TRANCOND12
13	#4 – Assessment of Visitor Experience	EVAL33
14	#4 – Assessment of Visitor Experience	EVAL34
15	#4 – Assessment of Visitor Experience	RESPRO3
16	#4 – Assessment of Visitor Experience	SAFE6
17	#3 – Trip Behaviors	FUT1
18	#4 – Assessment of Visitor Experience	OPIN11
19	#4 – Assessment of Visitor Experience	SHPREF3
20	#5 – Economic Impact and Visitor Spending	ECON8
21	#4 – Assessment of Visitor Experience & #5 – Economic Impact and Visitor Spending	SHPREF6/ECON8
22	#4 – Assessment of Visitor Experience	SHPREF23
23	#5 – Economic Impact and Visitor Spending	ECON2
24	#1 – Respondent Characteristics	AGE11
25	#1 – Respondent Characteristics	GEN1
26	#1 – Respondent Characteristics	ETHNIC1
27	#1 – Respondent Characteristics	RACE1
28	#1 – Respondent Characteristics	INC1
29	#1 – Respondent Characteristics	RES1

12. Methodology: (Use as much space as needed; if necessary include additional explanation on separate page).	
Respondent Universe	The respondent universe includes adult visitors, 18 and over, to Hanging Lake. While we anticipate that most visitors will be hiking the Hanging Lake trail, other users, such as those traveling through the area or using the rest area facilities, will also be intercepted so that we can estimate different visitor types in the population. If users did not hike the Hanging Lake trail, they will answer only General Trip and Demographic questions. If users hiked the Hanging Lake trail, they will answer General Trip, Visitor Knowledge and Experience, Future Use, and Demographic questions.

Sampling Plan/Procedure	To capture the several visitor types of Hanging Lake trail and users of the Hanging Lake parking lot, surveyors will be intercepting visitors at one location on-site, in front of the restroom facilities along the Glenwood Recreation Path. This location is close to the Hanging Lake parking lot and the trailhead. A random sample of weekday and weekend visitors will be taken during a summer week. The summer months are the peak season for Hanging Lake and the FS is interested in learning about those peak season visitors as most of its management techniques will be designed to better manage the site during peak months. Based on visitor count data, total weekday visitation: Monday through Friday; is roughly equivalent to weekend visitation: Saturday and Sunday. As a result the sample will be divided evenly between weekdays and weekends, with approximately 200 surveys collected on weekdays and another 200 surveys collected over the course of a weekend. Based on visitor count data, it is estimated it will take 3 weekdays to complete 200 surveys of weekday visitors and 2 weekend days to complete 200 surveys. This total of 400 completed surveys will result in a margin of error of +/- 5% with a 95% confidence level (Dillman, Smyth, & Melani Christian, 2014). To ensure that all times of day are represented, the survey day will be from 8:00 AM to 7:00 PM. During the sample day on weekdays, one individual (the one with the closest upcoming birthday) will be asked to participate in the survey. During sample day on weekends, every other group will be intercepted and asked to participate due to the high amount of weekend visitation.

Instrument Administration	A team of three to four surveyors will be onsite to intercept visitors and to administer the paper-based survey. The next birthday method will be used to randomly select the person who will complete the survey within a group. The survey administration will be read the following introduction script: *"Hello, my name is [first and last name]. We are conducting a transportation study for the U.S. Forest Service to better understand visitor's experience at Hanging Lake. Would you like to participate in our brief survey? Participation is voluntary and all responses are anonymous."* If **YES**: "Thank you!" If there is more than one person in the group: screener will ask: "First, can I ask who in the group has celebrated their birthday most recently?" **ASK IDENTIFIED PERSON**: "Did you hike Hanging Lake today?" - If **YES**: "Thank you, this survey should take about 10-15 minutes" and screener will hand clipboard with the "HIKER" survey. - IF **NO but plan to**: "Thank you! Maybe we will survey you after your hike. - IF **NO**: "Thank you, this survey should take about 5 minutes" and screener will hand clipboard with the "VISITOR" survey. IF **NO**: "Thank you for your time! Could you answer just a couple of brief questions?" - If **YES**, we ask the following non-response questions: 1. "Have you visited Hanging Lake previously? If **YES**, will ask the following questions: a. "Approximate number of times? b. "What is your purpose for visiting Hanging Lake?" - IF **NO**: "Ok, enjoy your day!"

Expected Response Rate and Confidence Levels	The project team projects at least a 63 percent response rate based on other recreational on-site surveys administered by the FS in Colorado. The Arapahoe-Roosevelt National Forest, located just under 5 hours away from Hanging Lake, received an average response rate of 63 percent when conducting a similar visitor survey at its various sites a few years ago.
Strategies for dealing with potential non-response bias	The surveyors will keep a Non-Response Log. For each refusal, they will record the following observed characteristics: • time approached, • group size, including number of young children, and • activity participating in (if evident). In addition to these observations, surveyors will attempt to ask two questions: 1. Have you visited Hanging Lake previously? If yes, how many times?; and 2. What is the purpose of your visit to Hanging Lake? In recording these characteristics, the project team will better understand if there are differences on these measures between those who responded to the survey and those who refused to participate (non-respondents). If necessary, the survey team will develop and apply weights to the data based on this information.

Description of any pre-testing and peer review of the methods and/or instrument (recommended)	This survey was peer reviewed by both staff at the FS and the Volpe Center. Due to time and weather constraints at the site, the project team conducted a pre-test internally with nine FS employees who have all visited Hanging Lake. Two surveys were administered with a surveyor asking questions and found that elongated burden time, therefore the survey will be self-conducted by the visitor with staff available to answer questions. Average pre-test time for self-conducted was eight and a half minutes, this was used to inform the estimated burden hours. Additionally the following updates were made to the table based on the pre-tests: • Q5: changed and added language to ensure visitors will be able to read the Part A and B to the question if they rode a bicycle; during the pre-test several respondents missed Part B. • Q10: rearranged the columns as respondents found it confusing to have Column A first and the list of options in the middle.

13.	**Total Number of Initial Contacts and Expected Number of Respondents**	**Initial Contacts: 640** **Expected Respondents: 400**
14.	**Estimated Time to Complete Initial Contact and Time to Complete Instrument**	**Initial contact: 1 minute** **VISITOR SURVEY** **Instrument completion: 5 minutes** **HIKER SURVEY** **Instrument completion: 15 minutes**
15.	**Total Burden Hours** **Initial Contacts: 640** **Respondents – Visitor Survey: 40** **Respondents – Hiker Survey: 360** **----------** **Total**	 **10.67 hours** **3.33 hours** **90.00 hours** **----------** **101.0 hours**

16. Reporting Plan:

The data collected will be analyzed and presented in a detailed report format as well as in a PowerPoint presentation format to be completed by the Volpe Center. The data is important to the U.S. Forest Service's management plan for the area and therefore, presentations will be given internally to the Forest and District Supervisors, planners, resource managers, and engineers. Additionally, the information will be shared with the following stakeholders: Colorado Department of Transportation, Excel Energy, Glenwood Springs City Council, Garfield County Board of Commissioners, Glenwood Springs Chamber of Commerce, Glenwood Springs Tourism Promotion Board, Colorado State Patrol, Garfield County Sheriff's Department, and Glenwood Springs Fire Department.

The report will be published on the National Transportation Library's website and made public on the Volpe Center website as well as the White River National Forest website.

17. Justification, Purpose, and Use:

IC Justification and Purpose	The purpose of this IC is to fill gaps in information about visitor experience and future use expectations of visitors to Hanging Lake. The White River National Forest staff are developing an adaptive management plan that seeks to protect and preserve the unique and fragile natural resources within the Hanging Lake area. With growing visitor use, visitor safety is declining and natural resources are being degraded, resulting in negative impacts to the visitor experience. The parking lot is over-capacity, with U.S. Forest Service rangers having to take time to manage the parking lot. The traffic in the parking lot during summer months can spill over and cause congestion along I-70 and other safety rest areas in Glenwood Canyon. The parking lot and trail crowding has caused public safety issues in the past with emergency responders often slowed down by not being able to access the trail due to illegally parked vehicles and the number of people on the trail. In collecting data from visitors, the U.S. Forest Service staff will be better equipped to develop feasible transportation management solutions to sustain a high quality visitor experience as well as protect the environment and continue to economically benefit the surrounding communities.

IC Goals	The Volpe Center is conducting an Alternative Transportation Study at Hanging Lake, and the study identified the following broad goals: 1. Protect the natural resource 2. Improve management of congestion at Hanging Lake by better understanding the visitor experience at Hanging Lake parking lot and trail 3. Improve visitor experience by better understanding how growth in visitation over the last five years is affecting the visitor experience 4. Enhance public safety by asking visitors about safety experiences 5. Support local tourism by gathering information on visitor expenses in the area and opinions about future management techniques 6. Improve traveler information by collecting information about visitor decision making and traveler information outlets This IC includes the collection of visitor experience data that will be used in support of these goals. Moreover, this data cannot be obtained through means other than visitor surveys. Note: A summary of the draft Alternative Transportation Study at Hanging Lake can be accessed here: https://www.volpe.dot.gov/transportation-planning/public-lands/white-river-national-forest-hanging-lake-recreation-site The Alternative Transportation Study will be finalized with the inclusion of transportation solutions that address the problems at Hanging Lake. The development of these solutions rely in large part on the visitor data collected in this IC.
Utility to Managers	The results of this study will be used to not only inform the recommendations made in the Volpe Center's transportation study, but also will assist in determining the adaptive management strategies selected by U.S. Forest Service White River National Forest staff.

How will the results of the IC be analyzed and used?	The data collected on the paper-based survey will be coded and input into an Excel spreadsheet. After input, quality assurance and quality control (QA/QC) will be performed to ensure that data were coded properly and accurately. That data will then be imported in either SPSS or STATA. The data also will be uploaded into the Collaborative Visitor Transportation Survey sciencebase.gov account. All data will be stored in electronic and hard copy and will adhere to data management procedures by the Federal Government (since no personally identifiable information (PII) is being collected, there are no concerns about the sharing of PII). The data will be analyzed for any biases. In addition to overall frequencies, subgroup analysis will be performed looking at key variables, including time of day (peak versus non-peak), weekday versus weekend, group size, previous visitation, and other identifiers that are of interest. Additionally, visitor counter data collected through the software TRAFx at the trailhead will be paired with the sample days to understand the visitation on those days.

How will the data be tabulated? What Statistical Techniques will be used to generalize the results to the entire customer population? How will limitations on use of data be handled? If the survey results in a lower than anticipated response rate, how will you address this when reporting the results? (Use as much space as needed; if necessary include additional explanation on separate page).

The data will be tabulated in Excel and imported in either SPSS or STATA, as described above. Results will be reported separately for the hiker sample and the visitor sample. For categorical data (e.g., a question asking respondents which types of transportation they used to reach the site), data will be analyzed as the percentage of respondents selecting each response. A question that asked respondents to rate their satisfaction on a 5-point scale can utilize parametric statistics such as means. Frequencies or means will be reported for all questions in the survey.

For subgroup analysis (e.g., weekday vs. weekend; peak vs. non-peak; previously visited vs. not) appropriate statistical tests will be applied (the chi-square, t-test, or analysis of variance). With 400 completed surveys, findings will be reported with 95 percent confidence. Statistical significance and confidence intervals will be reported.

Any limitations on use of the data will be noted in the data codebook and in the survey report.

If the response rate is lower than expected, we will use the non-response analysis to determine if weighting is needed. If that analysis reveals that there are no significant differences between respondents and non-respondents, then weighting will not be necessary. Appropriate confidence intervals will be reported, based on sample sizes.

Is this survey intended to measure a Government Performance and Results Act (GPRA) performance measure? If so, please include an excerpt from the appropriate document. (Use as much space as needed; if necessary include additional explanation on separate page). No.

Appendix B: Survey Instrument – Hiker

Hanging Lake – Hiker Survey

SECTION I: TRIP CHARACTERISTICS

1. Which one of the following best describes the purpose of your overall trip?

   [55.7%] Primarily for visiting the Hanging Lake area

   [26.9%] Primarily for recreation (e.g., hiking, rafting, cycling, swimming) at one or more sites nearby

   [10.5%] Primarily for visiting other destinations outside the Glenwood Springs area

   [6.8%] Other reason, please specify:

2. How many total nights are you spending away from home on this trip? **[Average: 4.4; Min: 0; Max: 95]** nights (if 0, go to Q4)

   If one or more nights away from home:

   Where are you coming FROM and going TO on your visit today?

   a) I stayed last night (slept last night) at [ENTER TOWN]:

   _____

   b) I will spend the night (tonight) at [ENTER TOWN]:

   _____

3. Please provide the following information about your visit today:

   a) I entered the Hanging Lake area today at [ENTER TIME]: _____:_____ AM/PM (circle one)

   b) I will leave the Hanging Lake area today at [ENTER TIME]:_____:_____ AM/PM (circle one)

   c) I visited, or plan to visit, the following locations today (list in order of your visit):

   1) _____

   2) _____

   3) _____

4. Did you park in the Hanging Lake parking lot today?

   [89.9%] Yes

[4.0%] No, parked at a nearby site and walked here.

[4.7%] No, rode a bicycle here (if you rode a bicycle answer Q5a and 5b)

a) Did you rent the bicycle? Yes **[57.1%]** No **[42.9%]**

b) If you rented the bicycle, were you dropped off along Glenwood Recreation Path? Yes **[69.6%]** No **[30.4%]**

[1.3%] Other (Please specify_____)

5. What is the primary purpose of your stop at Hanging Lake today?

[79.3%] Hike Hanging Lake

[16.3%] Only stopping to use the rest area (e.g., bathroom, picnicking, stretching, scenery)

[3.3%] Using Glenwood Recreation Path

[1.1%] Other (Please specify): _____

SECTION II: VISITOR INFORMATION AND EXPERIENCE

6. Have you visited Hanging Lake before today? **[30.52%]** Yes [**69.48%]** No

If **yes**, approximately how many times have you visited before today?

Number of prior visits (Please mark only one):

[45.8%] 1

[33.0%] 2-4

[14.3%] 5-10

[6.4%] 11 +

[0.5%] Do not know

7. When did you and your personal group make the decision to visit Hanging Lake? (Please mark only one)

[13.7%] On the day of the visit

[44.1%] 1-7 days before the visit

[21.4%] 8-30 days before the visit

[15.4%] 1-6 months before the visit

[2.8%] More than 6 months but less than a year before the visit

[2.7%] A year or more before the visit

8. Why did you and your personal group choose to visit Hanging Lake today?

_____

_____

_____

9. a) Prior to this visit, how did you and your personal group obtain information about Hanging Lake. Please mark all that apply in Column A.
   b) If you were to visit Hanging Lake in the future, which sources would you and your personal group prefer to use to obtain information in planning your visit? Please mark all that apply in Column B.

How did you and your personal group obtain information about Hanging Lake?	**Column A Prior to this visit?**	**Column B On a future visit?**
Obtained no information prior to visit	**[11.0%]**	**[7.4%]**
Live in local area	**[14.1%]**	**[8.5%]**
Word of mouth (friends/family)	**[35.9%]**	**[28.1%]**
Glenwood Springs Chamber of Commerce website	**[6.7%]**	**[11.0%]**
U.S. Forest Service website	**[10.2%]**	**[24.1%]**
Hotel/Concierge	**[3.4%]**	**[5.7%]**
Other website (Please specify): _____	**[14.1%]**	**[10.1%]**
Other (Please specify): _____	**[4.7%]**	**[5.1%]**

10. Prior to your visit, had you or any members of your personal group heard or read about visitors having parking problems at Hanging Lake? Yes **[63.5%]** No **[33.4%]** Cannot recall **[3.1%]**

11. Prior to your visit, had you or any members of your personal group heard or read about crowded trail conditions at Hanging Lake? Yes **[50.3%]** No **[45.7%]** Cannot recall [**3.99%]**

12. During this visit, did you encounter any problems finding or waiting for a parking space at Hanging Lake? Yes **[44.9%]** No **[49.8%]** Not Applicable (did not park at Hanging Lake) **[5.4%]**

13. Did you think it was crowded <u>on the trail</u>? Check one response in Column A.

    Did you think it was crowded <u>at the lake</u>? Check one response in Column B.

    Did you think it was crowded at <u>Spouting Rock</u>? Check one response in Column C.

	A Trail	B Hanging Lake	C Spouting Rock
Yes, it was crowded all or most of the time	**[19.1%]**	**[17.3%]**	**[7.0%]**
Yes, it was crowded some of the time	**[55.7%]**	**[39.4%]**	**[23.2%]**
No, it wasn't crowded	**[25.0%]**	**[43.1%]**	**[55.1%]**
Not Applicable (did not go to site)	**[0.2%]**	**[0.3%]**	**[14.7%]**

14. Did the presence of other people on the trail make you feel rushed or slow you down at any point during your hike to Hanging Lake today? (Please mark only one)

    Yes **[29.9%]** No **[62.0%]**

15. Now I would like to have you rate your recreation experience and the quality of the recreation/trail facilities at Hanging Lake.
    - First, rate your satisfaction or dissatisfaction with the item using a scale of 1 to 5 where **1 means very dissatisfied and 5 means very satisfied**.

	SATISFACTION RATING					
	Very Dissatisfied	Somewhat Dissatisfied	Neither Dissatisfied nor Satisfied	Somewhat Satisfied	Very Satisfied	Not Applicable
Number of People Encountered on the Trail	**[2.4%]**	**[13.2%]**	**[36.8%]**	**[26.3%]**	**[21.2%]**	**[0.2%]**
Parking Space Availability	**[19.2%]**	**[26.1%]**	**[16.3%]**	**[14.7%]**	**[20.2%]**	**[3.5%]**
Physical condition of Trail (e.g. erosion)	**[1.1%]**	**[3.8%]**	**[10.0%]**	**[26.3%]**	**[58.4%]**	**[0.5%]**
Physical condition of Foot Bridges	**[0.6%]**	**[0.5%]**	**[3.8%]**	**[11.9%]**	**[83.3%]**	**[0.0%]**
Condition of Railing	**[0.8%]**	**[1.4%]**	**[3.8%]**	**[22.7%]**	**[71.3%]**	**[0.2%]**
Condition of Boardwalk at Hanging Lake	**[0.9%]**	**[0.0%]**	**[1.7%]**	**[9.4%]**	**[87.8%]**	**[0.3%)]**
Adequacy of Information on Rules/Regulations Onsite	**[2.1%]**	**[3.3%]**	**[12.4%]**	**[20.9%]**	**[58.0%]**	**[3.3%]**

	SATISFACTION RATING					
Availability of Educational Displays, Signs, and Exhibits Onsite	**[2.1%]**	**[12.4%]**	**[22.3%]**	**[26.4%]**	**[33.4%]**	**[3.3%]**
Presence US Forest Service Rangers	**[3.8%]**	**[4.4%]**	**[16.6%]**	**[20.1%]**	**[49.8%]**	**[5.3%]**
Condition of the Natural Environment	**[0.8%]**	**[1.1%]**	**[4.5%]**	**[19.9%]**	**[73.6%]**	**[0.2%]**
Condition of Restroom Facilities	**[2.9%]**	**[7.5%]**	**[9.5%]**	**[24.4%]**	**[46.2%]**	**[9.5%]**

- Next rate the importance of this item to the overall quality of your recreation experience on this trip. To rate importance use a scale from 1 to 5 where **1 means not at all important and 5 means extremely important**.

	IMPORTANCE RATING					
	Not at all important	Slightly Important	Moderately important	Very Important	Extremely Important	Not Applicable
Number of People Encountered on the Trail	**[7.2%]**	**[15.5%]**	**[41.1%]**	**[23.4%]**	**[11.6%]**	**[1.3%]**
Parking Space Availability	**[1.7%]**	**[6.1%]**	**[19.6%]**	**[32.3%]**	**[38.7%]**	**[1.6%]**
Physical condition of Trail (e.g. erosion)	**[1.3%]**	**[5.8%]**	**[17.4%]**	**[38.6%]**	**[36.6%]**	**[0.3%]**
Physical condition of Foot Bridges	**[1.9%]**	**[6.4%]**	**[21.4%]**	**[33.3%]**	**[36.6%]**	**[0.3%]**
Condition of Railing	**[1.4%]**	**[6.1%]**	**[18.8%]**	**[31.7%]**	**[41.6%]**	**[0.3%]**
Condition of Boardwalk at Hanging Lake	**[1.7%]**	**[5.5%]**	**[18.3%]**	**[34.4%]**	**[39.5%]**	**[0.6%]**
Adequacy of Information on Rules/Regulations Onsite	**[5.7%]**	**[10.5%]**	**[30.8%]**	**[27.0%]**	**[24.3%]**	**[1.7%]**
Availability of Educational Displays, Signs, and Exhibits Onsite	**[5.5%]**	**[12.1%]**	**[32.7%]**	**[30.0%]**	**[18.8%]**	**[0.9%]**

	IMPORTANCE RATING					
Presence US Forest Service Rangers	**[6.6%]**	**[13.6%]**	**[25.7%]**	**[29.6%]**	**[23.2%]**	**[1.4%]**
Condition of the Natural Environment	**[0.8%]**	**[1.1%]**	**[8.3%]**	**[23.0%]**	**[66.8%]**	**[0.0%]**
Condition of Restroom Facilities	**[2.5%]**	**[8.4%]**	**[26.9%]**	**[30.0%]**	**[29.5%]**	**[2.7%]**

16. Did you or your personal group encounter any safety issues during your visit Hanging Lake?

    Yes **[6.7%]** No **[93.3%]**

    If **yes**, explain (Open-ended):

    _____

    _____

    _____

SECTION III: FUTURE USE

17. Would you and your personal group consider visiting Hanging Lake again?

    Yes, likely **[90.3%]** No, unlikely **[4.1%]** Not sure **[5.6%]**

    Why or Why not?

    _____

    _____

    _____

18. Should the number of people allowed to hike on this trail each day be limited if it is needed to protect and preserve the visitor experience and environment, even if it means you might have to change your plans about when to hike? Yes **[54.3%]** No **[45.7%]**

19. If you were to visit Hanging Lake in the future, would you and your group be willing to ride a shuttle bus from designated parking lot in Glenwood Springs or other nearby location to the Hanging Lake parking lot?

    [16.8%] Not likely

    [20.9%] Somewhat likely

    [57.8%] Likely

[4.6%] Undecided

20. Currently no fee is charged to visit Hanging Lake. In the future, a fee may be considered which would include a shuttle service instead of private vehicle parking. For each of the following fee amounts, please indicate whether or not you would be willing to pay it for the shuttle service (Check one response for each item):

	Yes	No	Not Sure
a. $5 per person	**[76.6%]**	**[16.6%]**	**[6.8%]**
b. $10 per person	**[39.6%]**	**[46.5%]**	**[13.8%]**
c. $15 per person	**[10.9%]**	**[75.0%]**	**[14.1%]**
d. $20 per person	**[4.8%]**	**[86.7%]**	**[8.5%]**
e. $25 per person	**[1.3%]**	**[94.3%]**	**[4.5%]**
f. $30 per person	**[0.7%]**	**[96.4%]**	**[2.9%]**
g. $35 per person	**[0.5%]**	**[96.6%]**	**[2.9%]**
h. $40 per person	**[0.5%]**	**[96.4%]**	**[3.0%]**

21. If a guided hike of Hanging Lake were offered in addition to the shuttle service, would you and your group sign up for the guided hike? **[15.0%]** Yes **[85.0%]** No

If yes, for each of the following fee amounts, please indicate whether or not you would be willing pay that amount for the additional guided service, in <u>addition</u> to the shuttle fee. (Check one response for each item):

	Yes	No	Not Sure
a. $5 per person	**[39.1%]**	**[52.3%]**	**[8.6%]**
b. $10 per person	**[24.5%]**	**[67.6%]**	**[7.9%]**
c. $15 per person	**[12.1%]**	**[80.1%]**	**[7.7%]**
d. $20 per person	**[4.1%]**	**[87.4%]**	[**8.5%]**
e. $25 per person	**[0.9%**]	**[92.6%]**	**[5.6%]**
f. $30 per person	**[0.7%**]	**[94.4%]**	**[4.8%]**
g. $35 per person	**[0.0%]**	**[94.8%]**	**[5.2%]**
h. $40 per person	**[0.4%]**	**[94.4%]**	**[5.2%]**

22. In your opinion, what is an **acceptable** wait time for shuttles to and from Hanging Lake?

[8.3%] The wait time doesn't matter to me.

[59.2%] 10 to 15 minutes

[27.9%] 16 to 30 minutes

[3.3%] 31 to 45 minutes

[0.3%] 46 to 60 minutes

[0.9%] No Wait/No Shuttle

23. For the following categories, please estimate how much you (and other members of your party) will spend for your entire trip within 50 miles of here. Please round off to the nearest dollar.

Lodging (Motel, Lodge, Cabin, B&B, Camping etc.)	[**Average $345]**
Food (Restaurants, Groceries, etc.)	[**Average $152]**
Gasoline and Oil	[**Average $64]**
Entry, Parking, or Recreation Use Fees for Other Sites	[**Average $50]**
Recreation and Entertainment (include Guide Fees, Equipment Rental or Purchase, and Souvenirs)	[**Average $105]**
Other (Please specify:_____)	[**Average $120]**

SECTION IV: DEMOGRAPHIC INFORMATION

24. How many people are in your group today, including yourself?

Adults (18 and older): **[Average: 2.9; Min: 1; Max: 14]**

Children (under 18): **[Average: 2.0; Min: 0; Max: 12]**

25. What is your gender? Please mark one. Male **[48.8%]** Female **[50.3%]** Other **[0.9%]**

26. Are you Hispanic or Latino? Yes **[18.1%]** No **[81.9%]**

27. With which racial group(s) do you most closely identify? Please select one or more.

[1.1%] American Indian/Alaska Native

[5.9%] Asian

[1.9%] Black/African American

[0.5%] Native Hawaiian or other Pacific Islander

[76.4%] White

[5.0%] Mixed

[9.3%] No Response

28. Which category best represents your annual household income (before taxes) last year?

    Please mark (•) one.

    [7.9%] Less than $24,999

    [4.8%] $25,000-$34,999

    [7.8%] $35,000-$49,999

    [14.3%] $50,000-$74,999

    [12.2%] $75,000-$99,999

    [17.9%] $100,000-$149,999

    [17.1%] $150,000 or more

    [18.1%] Do not wish to answer

29. Where do you live?

    City _____ State_____ ZIP _____

    Country (if not US) _____

Thank you for participating!

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0236. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Appendix C: Survey Instrument – Visitor

Hanging Lake – Visitor Survey

SECTION I: TRIP CHARACTERISTICS

30. Which one of the following best describes the purpose of your overall trip?

[25.5%] Primarily for visiting the Hanging Lake area

[53.2%] Primarily for recreation (e.g., hiking, rafting, cycling, swimming) at one or more sites nearby

[14.9%] Primarily for visiting other destinations outside the Glenwood Springs area

[6.4%] Other reason, please specify:

_____

31. How many total nights are you spending away from home on this trip? **[Average: 4.1; Min: 0; Max: 20]** nights (if 0, go to Q4)

If one or more nights away from home:

Where are you coming FROM and going TO on your visit today?

a) I stayed last night (slept last night) at [ENTER TOWN]:

_____

b) I will spend the night (tonight) at [ENTER TOWN]:

_____

32. Please provide the following information about your visit today:

a) I entered the Hanging Lake area today at [ENTER TIME]: _____:_____ AM/PM (circle one)

b) I will leave the Hanging Lake area today at [ENTER TIME]:_____:_____ AM/PM (circle one)

c) I visited, or plan to visit, the following locations today (list in order of your visit):

4) _____

5) _____

6) _____

33. Did you park in the Hanging Lake parking lot today?

[21.3%] Yes

[4.3%] No, parked at a nearby site and walked here.

[70.2%] No, rode a bicycle here (if you rode a bicycle answer Q5a and 5b)

c) Did you rent the bicycle? Yes **[22.6%]** No **[77.4%]**

d) If you rented the bicycle, were you dropped off along Glenwood Recreation Path? Yes **[70.0%]** No **[30.0%]**

[4.3%] Other (please specify_____)

34. What is the primary purpose of your stop at Hanging Lake today?

[57.4%] Only stopping to use the rest area (e.g., bathroom, picnicking, stretching, scenery)

[42.6%] Using Glenwood Recreation Path

[0.0%] Other (please specify):

_____

SECTION II: DEMOGRAPHIC INFORMATION

35. How many people are in your group today, including yourself?

Adults (18 and older): **[Average: 2.7; Min: 1; Max: 9]**

Children (under 18): **[Average: 1.8; Min: 0; Max: 6]**

36. What is your gender? Please mark one. Male **[47.6%]** Female **[52.4%]** Other **[0.0%]**

37. Are you Hispanic or Latino? Yes **[7.3%]** No **[92.7%]**

38. With which racial group(s) do you most closely identify? Please select one or more.

[0.0%] American Indian/Alaska Native

[7.3%] Asian

[0.0%] Black/African American

[0.0%] Native Hawaiian or other Pacific Islander

[87.8%] White

[4.9%] No Response

39. Which category best represents your annual household income (before taxes) last year? Please mark (•) one.

[7.1%] Less than $24,999

[0.0%] $25,000-$34,999

[4.8%] $35,000-$49,999

[14.3%] $50,000-$74,999

[14.3%] $75,000-$99,999

[16.7%] $100,000-$149,999

[28.6%] $150,000 or more

[14.3%] Do not wish to answer

40. Where do you live?

City _____ State_____ ZIP _____

Country (if not US) _____

Thank you for participating!

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0236. The time required to complete this information collection is estimated to average 15 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

Appendix D: Visitor Demographics

This appendix includes a summary of the demographics of survey respondents (both hikers and visitors). A majority of survey respondents identified as white (77 percent) with the next largest racial group being Asian at 6 percent (Figure 16).

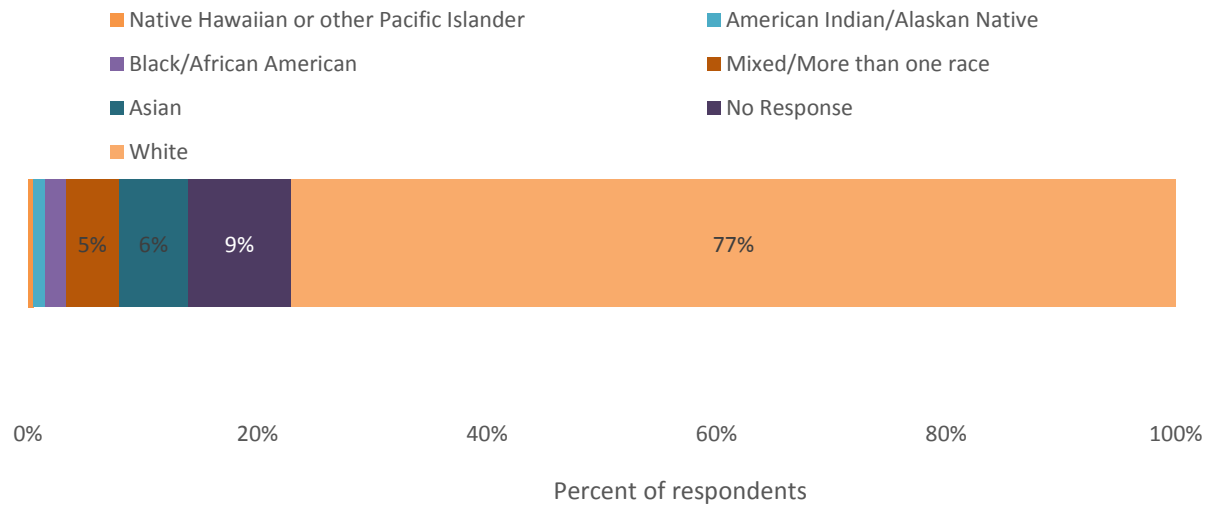

Figure 16 Respondent race identification (n = 694)

Seventeen percent of visitors identified as Hispanic or Latino (Figure 17). There was a nearly even distribution of respondents who identified as male or female (Figure 18).

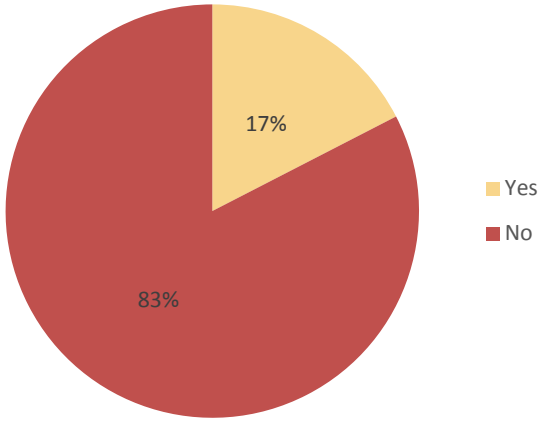

Figure 17 Respondents identifying as Hispanic or Latino (n = 694)

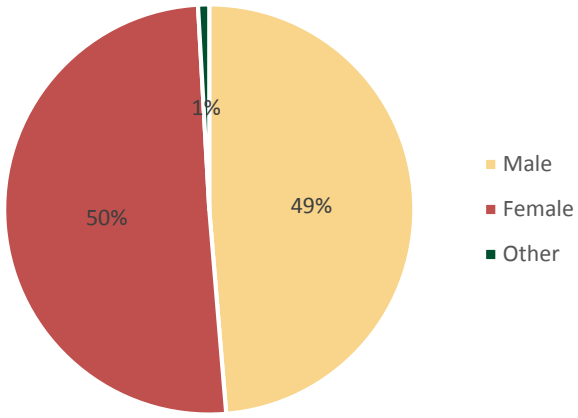

Figure 18 Respondent gender identification (n = 682)

Compared to national and Colorado's income levels, a larger portion of Hanging Lake survey respondents have higher income levels (Figure 19).

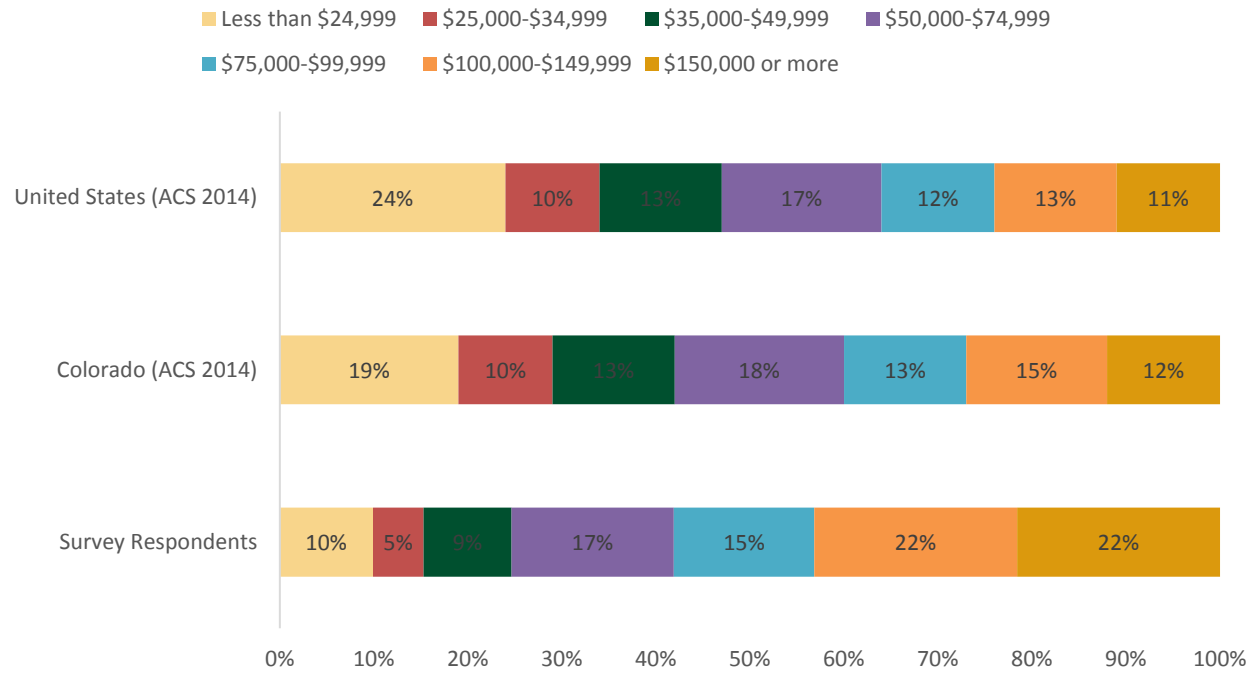

Figure 19 Respondent household income (n = 556)

Based on respondents' home zip codes, Figure 20 shows the number of respondents by county nationally and Figure 21 shows the number of respondents by county in Colorado.

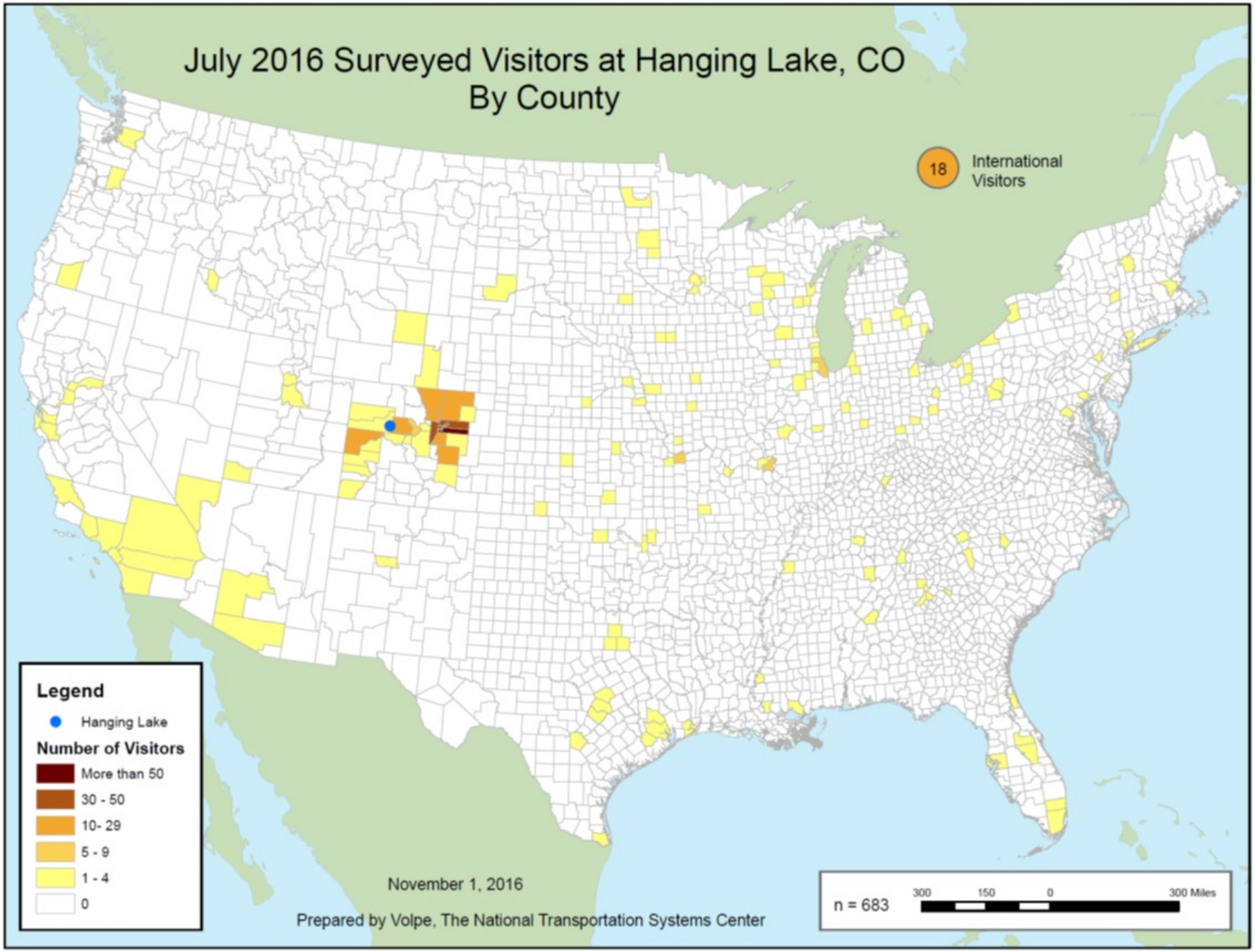

Figure 20 Respondent home zip code by county

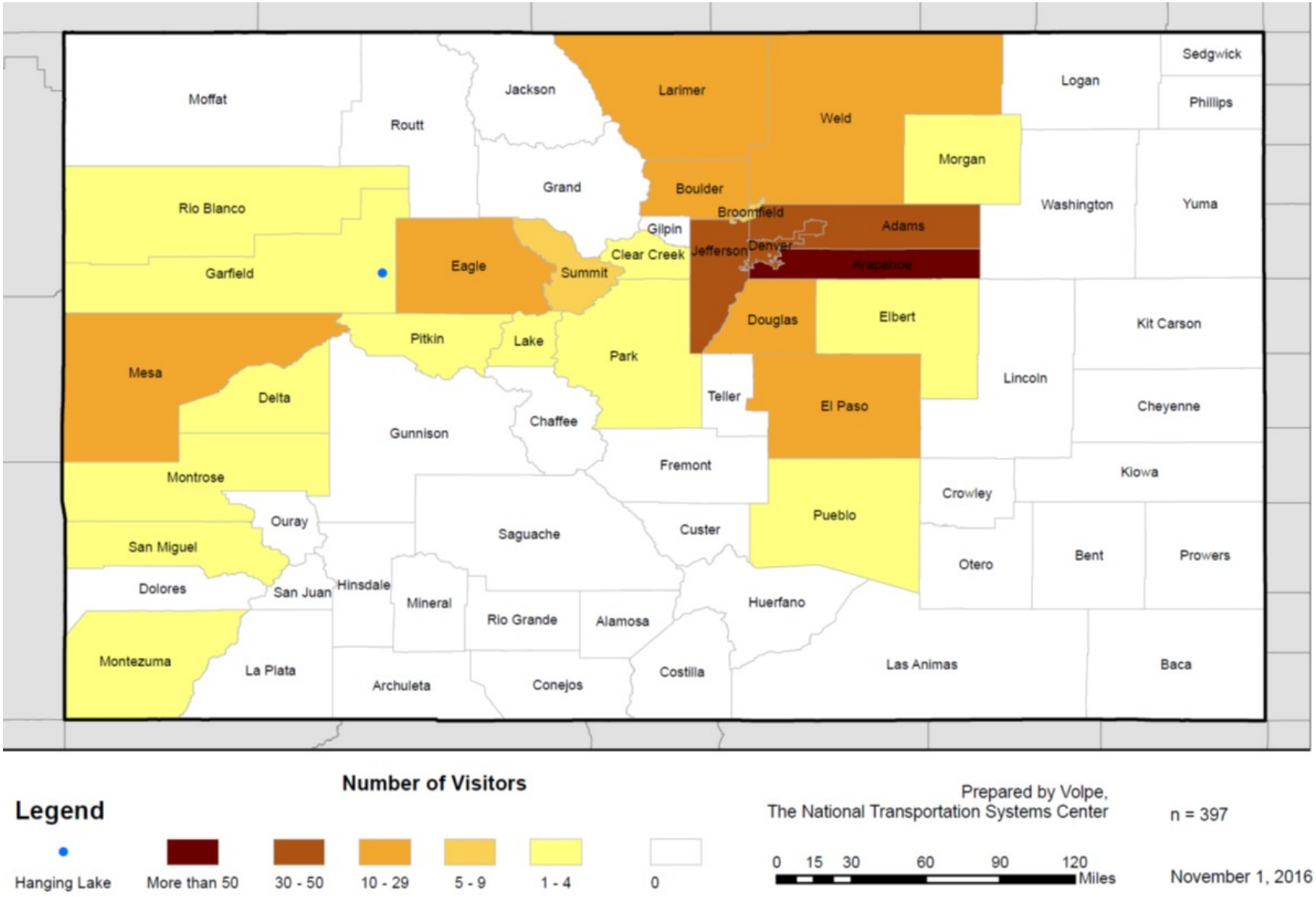

Figure 21 Respondent home zip code by county in Colorado

Appendix E: Linear Probability Model

The following is the Stata output from the linear probability model regressing possible impacts on willingness to take the shuttle.

```
. regress Yes_Shuttle Child Limit_Hikers male Peak Shoulder Visit_Before InState Total_Sp
> end, robust

Linear regression                               Number of obs     =        636
                                                F(8, 627)         =       2.49
                                                Prob > F          =     0.0116
                                                R-squared         =     0.0301
                                                Root MSE          =     .4056

------------------------------------------------------------------------------
             |               Robust
 Yes_Shuttle |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
 Child_Group |  -.0500369   .0321204    -1.56   0.120    -.1131134    .0130396
Limit_Hikers |   .0492549   .0326677     1.51   0.132    -.0148965    .1134063
        male |  -.0776712   .0328097    -2.37   0.018    -.1421014    -.013241
        Peak |   .0735084   .0375413     1.96   0.051    -.0002135    .1472303
    Shoulder |  -.0091779   .0583748    -0.16   0.875    -.1238116    .1054559
Visit_Before |  -.0787846   .0373784    -2.11   0.035    -.1521865   -.0053827
     InState |   .0127494   .0337814     0.38   0.706     -.053589    .0790877
 Total_Spend |   .0000137   .0000232     0.59   0.555    -.0000318    .0000592
       _cons |   .8235557    .042243    19.50   0.000     .7406007    .9065106
------------------------------------------------------------------------------
```