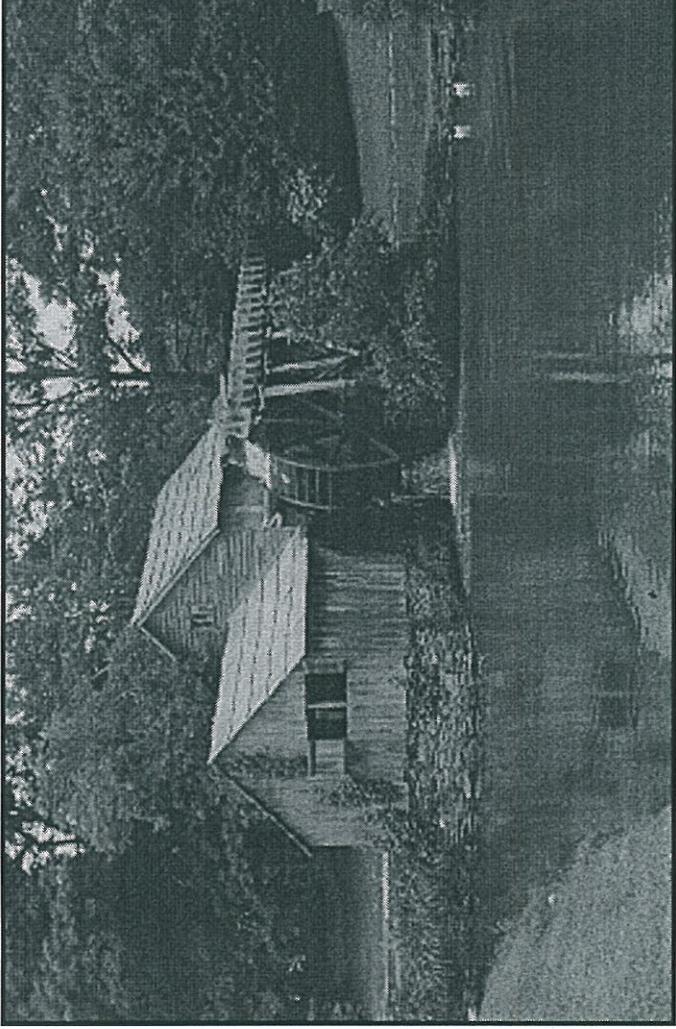


Visitor Survey Study Completion Report



BLUE RIDGE PARKWAY National Park Service

FINAL DRAFT – December 2002



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TABLE OF CONTENTS

I. INTRODUCTION..... 1
Visitor Experience and Resource Protection: 2
A Carrying Capacity Framework..... 2
Study Objectives 3

II. METHODS..... 4

III. STUDY FINDINGS..... 12
Use and Users 12
Indicators and Standards of Quality..... 30

IV. LITERATURE CITED 45

V. APPENDICES 47
Appendix A: Study Questionnaire..... 47
Appendix B: Study Photographs..... 56
Traffic on Roads 56
People at Overlooks 59



LIST OF TABLES AND FIGURES

Table 1: Response by Location..... 5

Table 2: Response by Road Segments 5

Figure 1: Road Segment 1..... 6

Figure 2: Road Segment 2..... 7

Figure 3: Road Segment 3..... 8

Figure 4: Road Segment 4..... 9

Figure 5: Road Segment 5..... 10

Figure 6: Road Segment 6..... 11

Table 3: Group Size 12

Table 4: Group Type..... 12

Table 5: Other Group Type..... 13

Table 6: Vehicle Type..... 13

Table 7: Other Vehicle Type..... 13

Table 8: Entrance to Blue Ridge Parkway..... 15

Table 9: Exit from Blue Ridge Parkway..... 16

Table 10: Primary Purpose of Visit 17

Table 11: Other Purpose of Visit..... 17

Table 12: Length of Trip in Days 18

Table 13: Length of Visit in Minutes..... 18

Table 14: Places Visited..... 19

Table 15: Activities Participated In 20

Table 16: Other Activities Participated In 20

Table 17: Overnight Stay Within Boundaries of Blue Ridge Parkway 22

Table 18: Number of Nights in Hotels/Motels 22

Table 19: Number of Nights in Inns/BB..... 23

Table 20: Number of Nights in Homes of Friends and/or Relatives 23

Table 21: Number of Nights in Campgrounds..... 23

Table 22: Other Number of Nights in Other Types of Accommodations..... 24

Table 23: Number of Different Accommodations Stayed In..... 24





Table 24: Overnight Locations within Blue Ridge Parkway 24

Table 25: Number of Previous Visits Since 1997 25

Table 26: Number of Previous Visits by Local/Non-local 26

Table 27: Trip Description 26

Table 28: Residence 26

Table 29: State of Residence 26

Table 30: Country of Residence 27

Table 31: Gender 28

Table 32: Age 28

Table 33: Education 29

Table 34: Income 29

Table 35: Language 29

Table 36: Acceptability of Traffic 28

Table 37: Acceptability for Cars Only 29

Table 38: Acceptability for Cars and RVs 29

Table 39: Acceptability of Cars and Motorcycles 30

Table 40: Acceptability of Cars and Bicycles 30

Figure 7: Norm Curves for Traffic 31

Table 41: Preference (Cars Only) 32

Table 42: Tolerance/Displacement (Cars Only) 32

Table 43: Management Action (Cars Only) 33

Table 44: Typically Seen (Cars Only) 33

Table 45: Expectation (Cars Only) 33

Table 46: Summary (Cars Only) 33

Table 47: Number of Cars by Road Segment 34

Table 48: Summary of Cars by Location 35

Table 49: Summary Cars per Mile 35

Table 50: Number of Cars by Weekend/Weekday 35

Table 51: Acceptability for Number of People 36

Figure 8: Norm Curve for Number of People at Scenic Overlooks 36

Table 52: Preference (Number of People) 37





Table 53: Tolerance/Displacement (Number of People)	37
Table 54: Management Action (Number of People).....	37
Table 55: Typically Seen (Number of People)	38
Table 56: Expected (Number of People)	38
Table 57: Summary (Number of People).....	38
Table 58: Number of People by Road Segments	39
Table 59: Summary of People by Location	39
Table 60: Number of People by Weekend/Weekday.....	39
Table 61: Problem Issues.....	40
Table 62: Problem Issues by Road Segments	41
Table 63: Problems by Weekend/Weekday.....	42
Table 64: Problem Issues by Local/Non-Local	42
Table 65: Comments.....	43
Table 66: Comments by Road Segments.....	44



APPENDICIES

Appendix A: Study Questionnaire.....	47
Appendix B: Study Photographs.....	56



I. INTRODUCTION

As the name suggests, the national park system contains natural and cultural resources of national and, increasingly, international significance. Units of the national park system contain natural and cultural resources of great importance to the nation and, in many cases, to the international community. Given the significance of this resource base, public demand to see and experience these areas is not surprising. Data on visitation to the national park system dramatically support this premise. Visits to the national park system are approaching 300 million per year.

The increasing popularity of the national park system presents substantial management challenges. Too many visitors may cause unacceptable impacts to fragile natural and cultural resources, and may also cause crowding and other social impacts that degrade the quality of the visitor experience. How many visitors can ultimately be accommodated in a park or related area? How much resource and social impact should be allowed? These and related questions are commonly referred to as carrying capacity (Manning 1999; Stankey and Manning 1986; Shelby and Herberlein 1986; Graefe et al. 1984).

The Blue Ridge Parkway is a good example of the issues noted above. Adjacent to the park are rapidly growing towns and cities whose residents use and affect conditions on the parkway. Increased development around the park could increase use of the parkway as a part of the regional transportation system, potentially creating congestion on the parkway and thereby changing the types of visitor use and the character and quality of the visitor experience. Increasing pressures to improve secondary roads that cross the parkway also threaten to change the character of the Blue Ridge Parkway. Significant resource and social impacts can occur as visitor use of the parkway increases. How much and what types of visitor use can ultimately be accommodated on the Blue Ridge Parkway?



VISITOR EXPERIENCE AND RESOURCE PROTECTION: A CARRYING CAPACITY FRAMEWORK

Several years ago, the National Park Service began developing a carrying capacity framework titled Visitor Experience and Resource Protection (VERP) (National Park Service 1997; Manning 2001). As the name suggests, this planning framework is aimed at maintaining the quality of the visitor experience and protecting natural and cultural resources in the face of increasing visitor use. VERP is built upon the same basic principles and concepts that drive other contemporary carrying capacity and related planning/management frameworks such as the Limits of Acceptable Change (Stankey et al. 1985), and Visitor Impact Management (Graefe et al. 1990).

VERP contains two critical steps that can be supported by research. The first is collecting baseline data on visitor use and associated resource and social impacts. How many and what types of visitor uses are occurring, where are these uses taking place, and what resource and social impacts are associated with such use? The second is formulation of indicators and standards of quality for natural/cultural resources and the visitor experience. Indicators of quality are measurable, manageable variables that help define the quality of natural/cultural resources and the visitor experience. Standards of quality define the minimum acceptable condition of indicator variables. Research suggests that visitors often have norms or standards about the resource and social conditions acceptable in a park or related area, and that such norms can be useful as a means of formulating indicators and standards of quality (Shelby and Heberlein 1986; Shelby et al. 1992; Manning et al. 1996a; Manning et al. 1996b).

VERP was initially applied to Arches National Park as a test case and a model for other units of the national park system (Hof et al. 1994; Manning et al. 1996b; Manning et al. 1993; Lime et al. 1994; Manning et al. 1995). This application resulted in a carrying capacity management plan that has now been implemented at that park (National Park Service 1995). A second application of VERP resulted in a carrying capacity management plan for the carriage roads at Acadia National Park (Jacobi and Manning 1997; Manning et al. 1998; Jacobi and Manning 1999).



Additional applications of VERP are now proceeding at selected units of the national park system.

STUDY OBJECTIVES

The overall purpose of this study was to gather information that will help support the creation of a new General Management Plan (GMP) for the Blue Ridge Parkway. In particular, study objectives focused on two elements of the VERP framework that benefit from empirical data: 1) collecting baseline data on visitor use and associated impacts, 2) identifying indicators and standards of quality for the visitor experience. The study focuses on the social or experiential component of carrying capacity. Specific study objectives were as follows:

1. Determine baseline conditions of visitor use levels, types and locations. Carrying capacity frameworks, including VERP, should be as informed as possible regarding current visitor use levels and types. Data were gathered on visitor characteristics and visitor use levels, activities, and locations.
2. Identify indicators and standards of quality. As described above, indicators of quality are measurable, manageable variables that help define the quality of the visitor experience. Standards of quality represent the minimum acceptable condition of indicator variables. Data were gathered from visitors to help managers identify indicators and standards of quality for the visitor experience at multiple locations along the Blue Ridge Parkway. Where appropriate, a visual approach using simulated photography was used to measure visitor norms for social conditions.



II. METHODS

Visitor surveys were conducted at eleven locations on the parkway. These locations included visitor centers and overlooks and were selected by park staff and researchers as representative of visitor attractions and facilities along the Blue Ridge Parkway. Sampling locations are shown in Figures 1 - 6. The reader should note that this research was conducted in coordination with another traffic study in which the Blue Ridge Parkway was partitioned into six road segments. Therefore, the maps in Figures 1-6 and subsequent analyses in this report refer to these six road segments. On three randomly selected days in the summer of 2002, a trained interviewer was stationed at each of these locations between the hours of 9 a.m. and 5 p.m. At the beginning of each survey day, the first person to complete their visit at the study site was asked to participate in the survey. If the group was willing to participate, the surveyor asked which group member would take responsibility for completing the questionnaire. The group leader was given a copy of the study questionnaire and asked to complete the questionnaire. When the visitor finished the survey, the next visitor to complete their visit was selected, and this process continued throughout the day. A total of 1,378 visitor groups were asked to participate in the study and 991 questionnaires were completed yielding a response rate of 72%. The questionnaire used in this survey focused primarily on parkway uses and users, potential indicators of the quality of the visitor experience and standards of quality for crowding-related issues. The study questionnaire is shown in Appendix A. The number of completed questionnaires for each study location is shown in Table 1 and Table 2 below.



Table 1: Response by Location

	Frequency	Percent
1. Peaks of Otter	94	9.5
2. Rocky Knob	72	7.3
3. Cumberland Knob	43	4.3
4. Moses Memorial	127	12.8
5. Julian Price Memorial Park	40	4.0
6. Linn Cove	105	10.6
7. Linville Falls	86	8.7
8. Folk Art Center	143	14.4
9. Graveyard Fields	95	9.6
10. Looking Glass Rock	83	8.4
11. Waterrock Knob	103	10.4

N = 991

Table 2: Response by Road Segments

	Frequency	Percent
Road Segment 1	94	9.5
Road Segment 2	0	0.0
Road Segment 3	72	7.3
Road Segment 4	170	17.2
Road Segment 5	374	37.7
Road Segment 6	281	28.4

N = 991



Figure 1: Road Segment 1

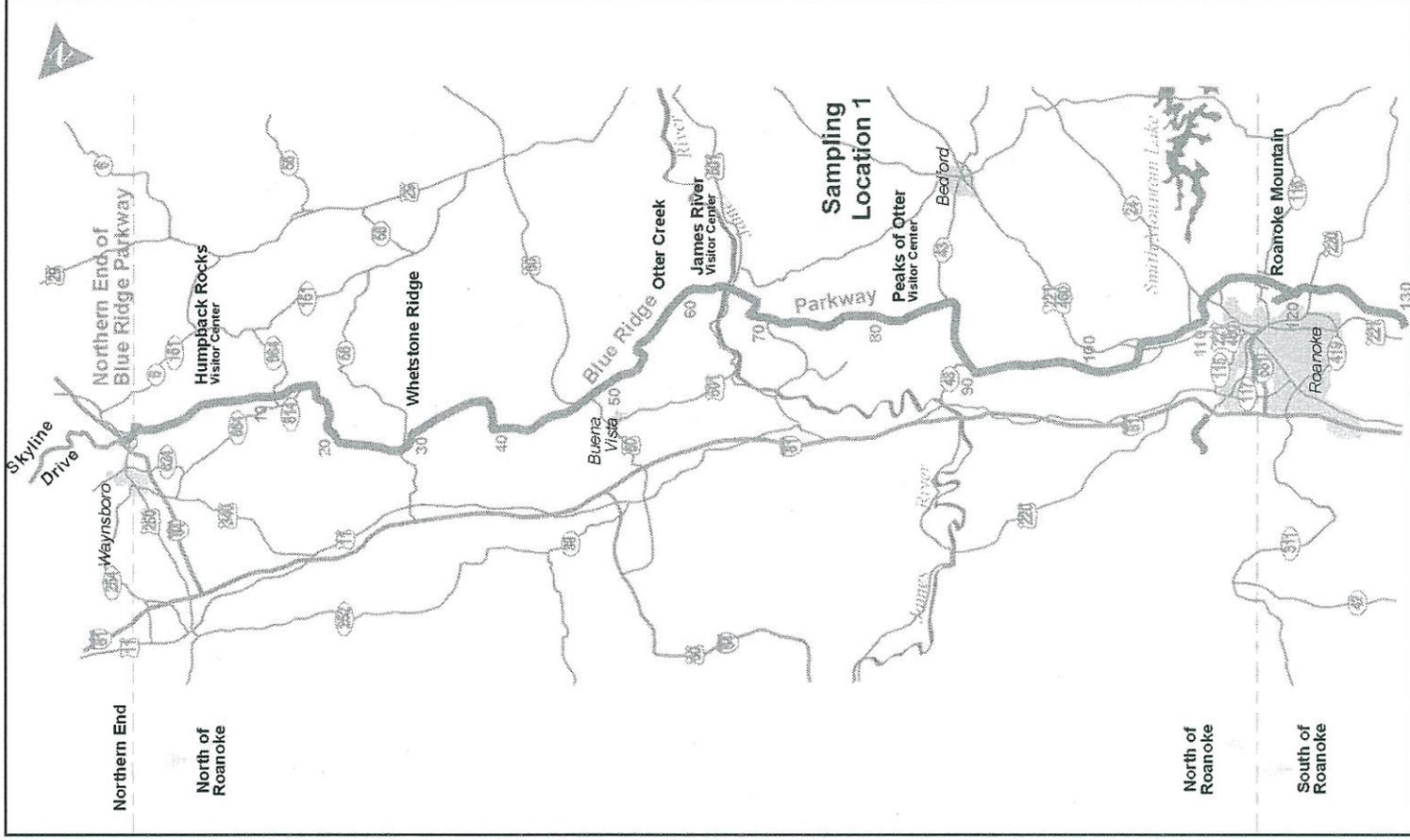




Figure 2: Road Segment 2

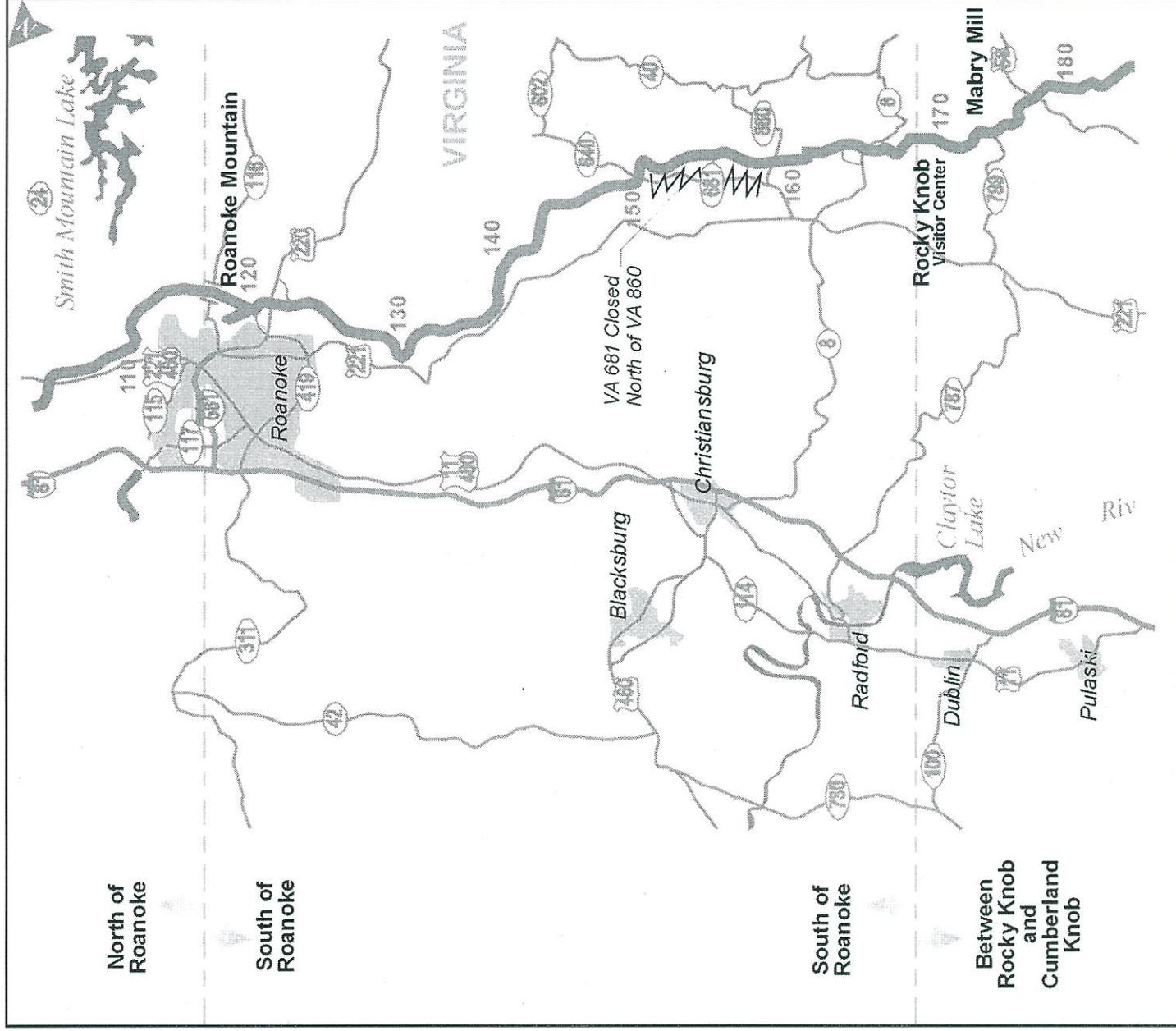




Figure 3: Road Segment 3

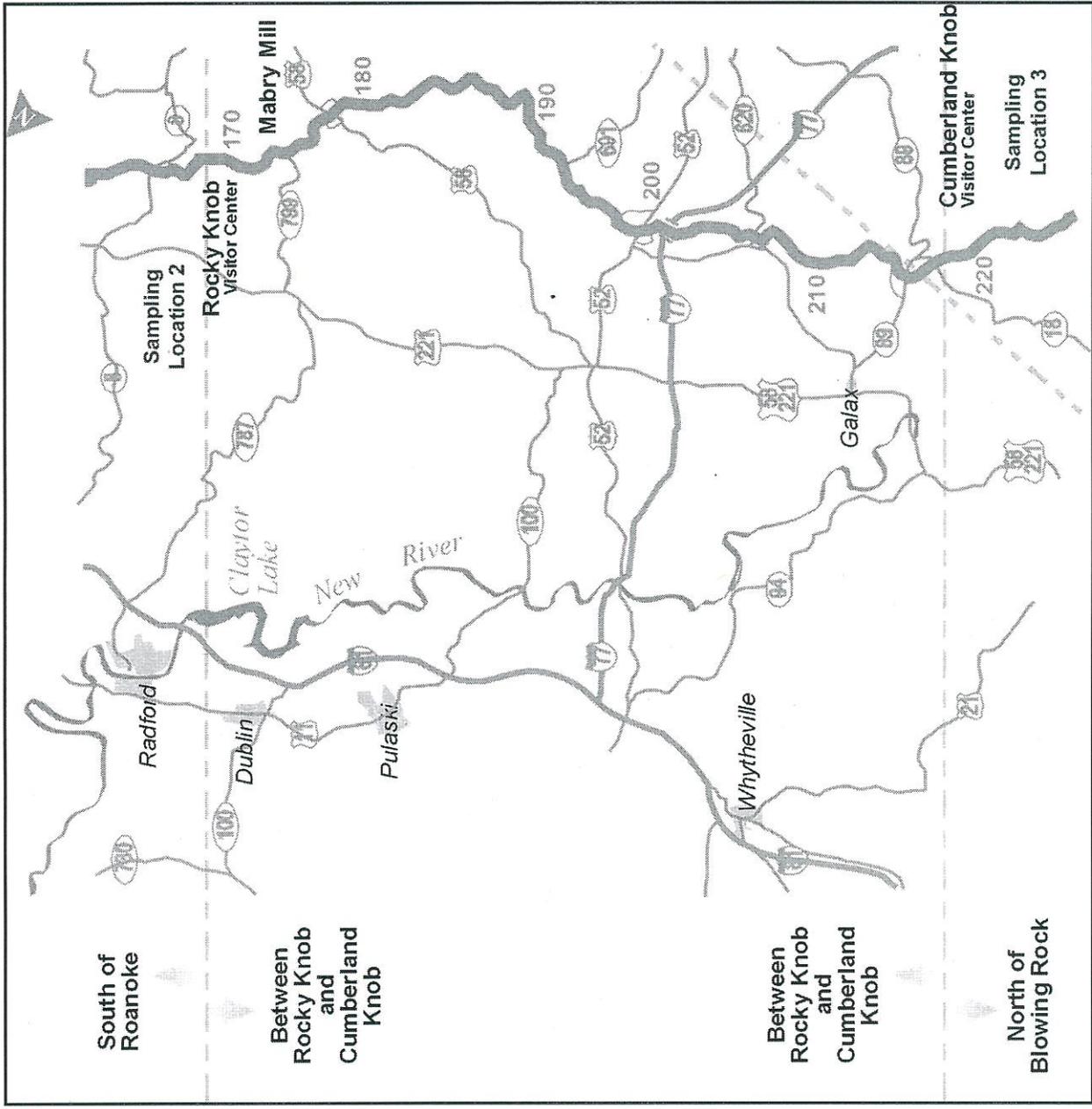




Figure 5: Road Segment 5

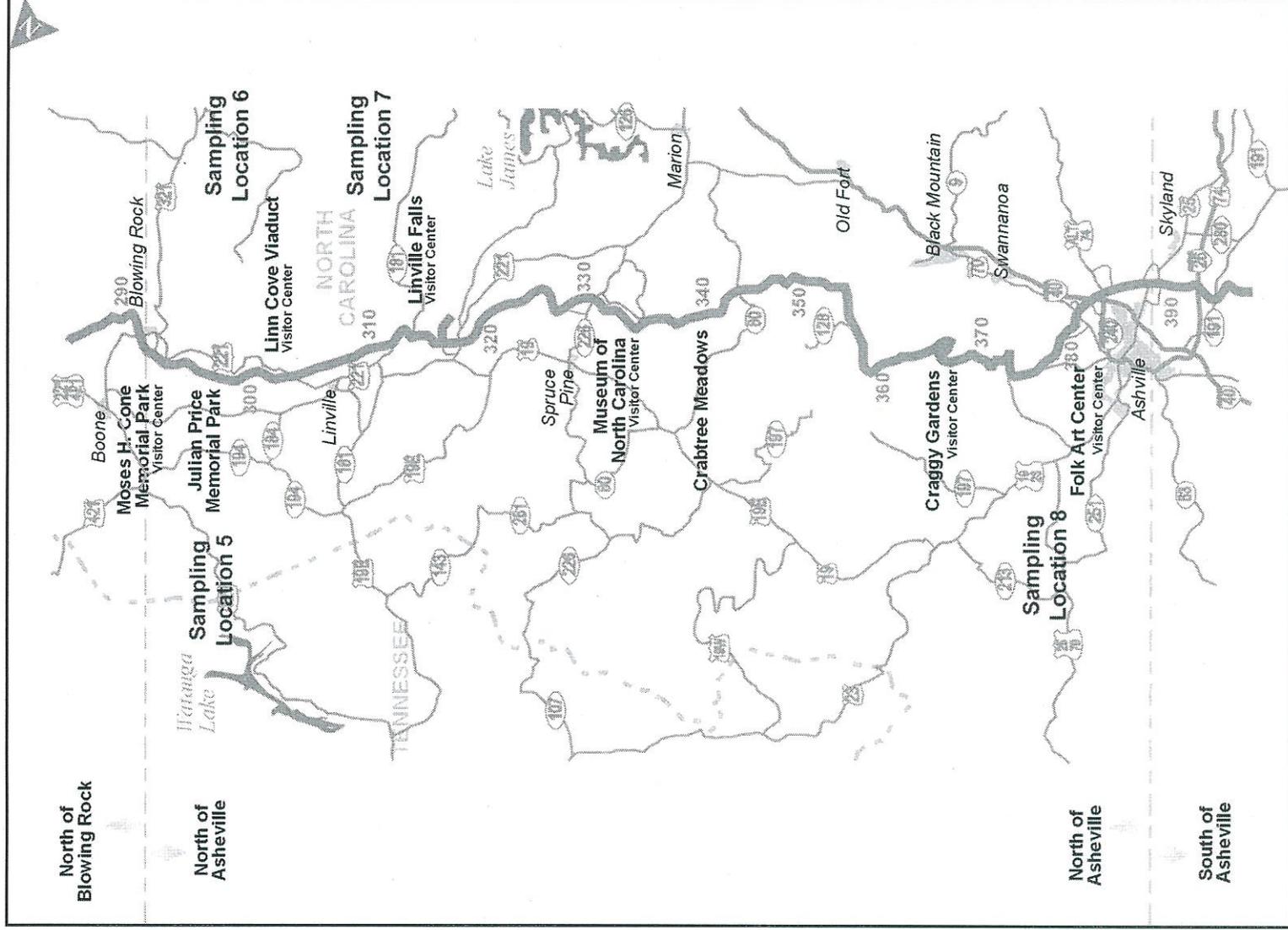
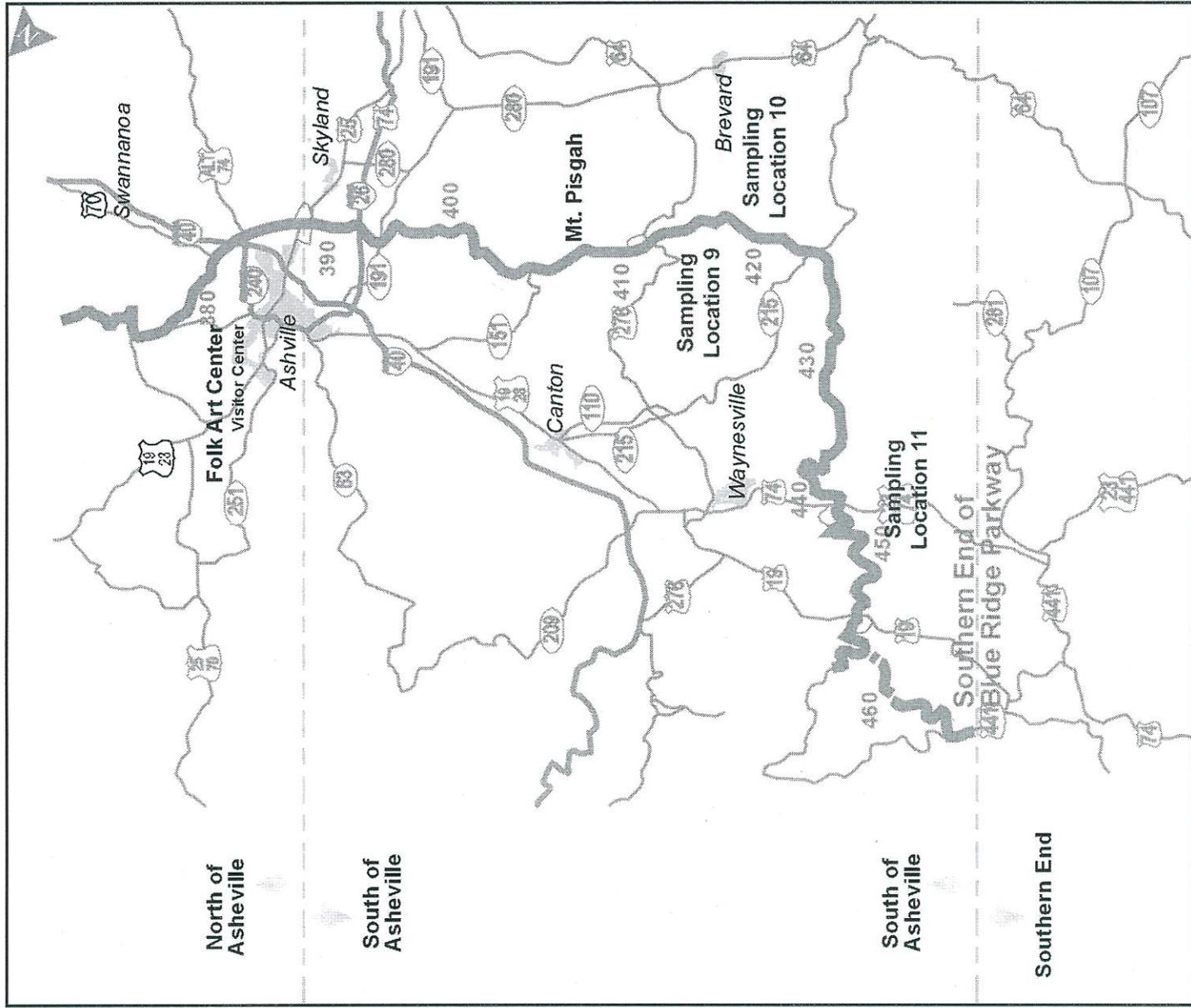




Figure 6: Road Segment 6





III. STUDY FINDINGS

USE AND USERS

Initially, respondents were asked several descriptive questions pertaining to their use of the Blue Ridge Parkway. The first question asked respondents to report the number of people in their group. Table 3 displays the frequency distribution of visitor group size. Most visitors come to the Blue Ridge Parkway in small groups of two or three with an average (mean) group size of 3.2 people and a median group size of 2 people. The second question asked respondents to report the composition of their group and results are shown in Table 4. The majority of visitors come in groups comprised of family and/or friends (90.8%). Respondents were also given the opportunity to indicate an “other” type of group. “Other” types of groups include church groups, local residents, couples, and youth groups (Table 5).

Table 3: Group Size

	Frequency	Percent
1	81	8.3
2	476	48.8
3	143	14.7
4	137	14.1
5	48	4.9
6	36	3.7
7	16	1.6
8	14	1.4
9	3	0.3
10 or more	21	2.1

N = 975; Mean = 3.2; Median = 2

Table 4: Group Type

	Frequency	Percent
Family	673	69.2
Friends	158	16.2
Family and friends	53	5.4
Organized group or club	7	0.7
Commercial tour group	3	0.3
Business associates	2	0.2
Visiting alone	72	7.4
Other	5	0.5

N = 973



Table 5: Other Group Type

	Frequency	Percent
Church group	2	33.3
Local resident	2	33.3
Couple	1	16.7
Youth group	1	16.7

N = 6

Respondents were also asked to indicate the type of vehicle in which they visited the Blue Ridge Parkway. Results are shown in Table 6 and indicate that the majority of visitors (84.5%) came in autos/SUV/pickup trucks. However, a second tier of respondents (8.3%) visited on motorcycles. Respondents were also given the opportunity to indicate an “other” type of vehicle and results are shown in Table 7. The most frequently reported “other” type of vehicle was mini-van (84.8%).

Table 6: Vehicle Type

	Frequency	Percent
Auto/SUV/Pickup truck	832	84.5
Commercial truck	3	0.3
RV	17	1.7
Bus	3	0.3
Motorcycle	82	8.3
Bicycle	15	1.5
Other	33	3.4

N = 984

Table 7: Other Vehicle Type

	Frequency	Percent
Mini-van	28	84.8
Hiking/walking	2	6.1
Motor-home	1	3.0
Jeep	1	3.0
Motorcycle	1	3.0

N = 33



The next two questions asked respondents to indicate the points at which they entered and exited the Blue Ridge Parkway. Results are shown in Tables 8 and 9. Overall, visitors entered and exited the Blue Ridge Parkway at a variety of locations. The most frequently reported entrance points were highway 321 (16.5%) and highway 74 (15.3%). The most frequently reported exit points were highway 321 (18.3%), highway 74 (16.3%) and highway 441 (10.5%).

Respondents were asked to report the primary purpose of their visit. Respondents were given three choices, 1) commuting between home and work, 2) recreation, or 3) other. Results shown in Table 10 indicate that the vast majority of respondents (92.0%) visited the Blue Ridge Parkway for purposes of recreation. The most frequently reported “other” purposes include visiting Folk Art Center/art/photography (27.4%) and sightseeing/scenery/joyride (16.4%) (Table 11).

Another question concerned trip length and asked respondents to first, indicate how many days they expected to visit the Blue Ridge Parkway on their trip and second, record how long they expected to visit the Blue Ridge Parkway on the day they were contacted for this study. In general, respondents tended to visit for 1 to 3 days with an average (mean) trip length of 3.5 days and a median trip length of 2 days (Table 12). Length of visit on the day respondents were contacted for the study varied considerably and averaged a mean value of 6.1 hours and a median value of 4 hours (Table 13).

To help determine visitor use patterns along the Blue Ridge Parkway, respondents were asked to record the places they 1) visited, or 2) expect to visit along the parkway. Respondents were given a list of eight locations in Virginia and twelve in North Carolina and asked to indicate which they “visited” or “expect to visit”. Results are shown in Table 14. The most frequently reported places visited were Linville Falls (29.7%), Linn Cove Viaduct (29.0%), Moses H. Cone Memorial Park (28.8%), Folk Art Center (24.9%), and Mount Pisgah (23.7%). The most frequently reported places expected to visit were Linville Falls (10.4%) and Mt. Pisgah (8.8%). Both visited and expected to visit responses were combined into a third column in Table 14 labeled “total” to represent overall use of the Blue Ridge Parkway.



Table 8: Entrance to Blue Ridge Parkway

Highway	Frequency	Percent
321	143	16.5
74	133	15.3
441	59	6.8
221	47	5.4
276	45	5.2
181	42	4.8
43	41	4.7
64	32	3.7
220	32	3.7
23	28	3.2
70	26	3.0
421	23	2.6
8	22	2.5
191	22	2.5
19	22	2.5
52	20	2.3
215	18	2.1
16	10	1.2
25	13	1.5
58	12	1.4
89	12	1.4
226	10	1.2
60	9	1.0
80	7	0.8
21	7	0.8
151	7	0.8
460	7	0.8
501	5	0.6
24	3	0.3
130	3	0.3
18	2	0.2
250	2	0.2
694	2	0.2
691	1	0.1
799	1	0.1
860	1	0.1

N = 869



Table 9: Exit from Blue Ridge Parkway

Highway	Frequency	Percent
321	149	18.3
74	132	16.3
441	85	10.5
221	50	6.2
276	49	6.0
43	35	4.3
181	31	3.8
23	25	3.1
19	24	3.0
220	24	3.0
70	22	2.7
52	17	2.1
64	17	2.1
25	14	1.7
8	12	1.5
421	12	1.5
89	11	1.4
226	11	1.4
191	10	1.2
215	8	1.0
21	7	0.9
58	7	0.9
60	7	0.9
16	6	0.7
80	5	0.6
620	5	0.6
694	5	0.6
128	4	0.5
460	4	0.5
24	3	0.4
501	3	0.4
130	3	0.4



Table 9 (Continued): Exit from Blue Ridge Parkway

Highway	Frequency	Percent	
	80	5	0.6
	620	5	0.6
	694	5	0.6
	128	4	0.5
	460	4	0.5
	24	3	0.4
	501	3	0.4
	130	3	0.4
	250	2	0.2
	860	2	0.2
	77	1	0.1
	85	1	0.1
	151	1	0.1
	198	1	0.1
	216	1	0.1
	240	1	0.1
	255	1	0.1
	340	1	0.1
	640	1	0.1
	691	1	0.1
	799	1	0.1

N = 812

Table 10: Primary Purpose of Visit

	Frequency	Percent
Commuting between home and work	7	0.7
Recreation	899	92.0
Other	73	7.5

N = 977

Table 11: Other Purpose of Visit

	Frequency	Percent
Folk Art Center/art/photography	20	27.4
Sightseeing/scenery/joyride	12	16.4
Other	9	12.3
Stop in route to other location	8	11.0
Vacation	8	11.0
Hiking/walking/camping	7	9.6
Visit friends/family	6	8.2
Enjoy nature/natural resources	3	4.1
Picnic	3	4.1

N = 73



Table 12: Length of Trip in Days

	Frequency	Percent
1	450	47.9
2	200	21.3
3	113	12.0
4	62	6.6
5	42	4.5
6	17	1.8
7	21	2.2
8	4	0.4
9	2	0.2
10	6	0.6
11	1	0.1
12	2	0.2
14	4	0.4
15	3	0.3
18	2	0.2
20 or more	11	1.1

N = 940; Mean = 3.5; Median = 2

Table 13: Length of Visit in Minutes

Minutes	Frequency	Percent
5	1	0.1
15	3	0.3
20	1	0.1
30	11	1.2
40	1	0.1
45	2	0.2
60	55	5.9
90	9	1.0
120	140	15.1
150	20	2.2
180	108	11.7
210	25	2.7
240	124	13.4
249	1	0.1
270	18	1.9
300	87	9.4
330	7	0.8
360	92	9.9
390	4	0.4
420	11	1.2
450	1	0.1



Table 13 (Continued): Length of Visit in Minutes

Minutes	Frequency	Percent
452	1	0.1
480	70	7.6
540	8	0.9
600	23	2.5
660	3	0.3
720	12	1.3
740	1	0.1
780	2	0.2
840	2	0.2
960	1	0.1
1080	1	0.1
1440	82	8.8

N = 927; Mean = 365.4; Median = 240

Table 14: Places Visited

	Visited		Expect to visit		Total	
	N	Percent	N	Percent	N	Percent
Humpback Rocks	77	7.8	19	1.9	96	9.7
Otter Creek	101	10.2	23	2.3	124	12.5
James River	89	9.0	23	2.3	112	11.3
Peaks of Otter	181	18.3	27	2.7	208	21.0
Roanoke Mountain	106	10.7	31	3.1	137	13.8
Smart View	81	9.0	23	2.3	104	10.5
Rocky Knob	128	18.3	26	2.7	154	15.5
Mabry Mill	135	13.6	44	4.4	179	18.1
Cumberland Knob	130	13.1	36	3.6	166	16.8
Brinegar Cabin	87	8.8	34	3.4	121	12.2
Doughton Park	117	11.8	42	4.2	159	16.0
Northwest Trading Post	99	10.0	41	4.1	140	14.1
E.B. Jeffress Park	72	7.3	27	2.7	99	10.0
Moses H. Cone Memorial Park	285	28.8	56	5.7	341	34.4
Julian Price Memorial Park	187	18.9	57	5.8	244	24.6
Linn Cove Viaduct	287	29.0	69	7.0	356	35.9
Linville Falls	294	29.7	103	10.4	397	40.1
Museum of North Carolina Minerals	106	10.7	60	6.1	166	16.8
Crabtree Meadows	149	15.0	62	6.3	211	21.3
Graggy Gardens	171	17.3	70	7.1	241	24.3
Folk Art Center	247	24.9	75	7.6	322	32.5
Mount Pisgah	235	23.7	87	8.8	322	32.5
Graveyard Fields	196	19.8	55	5.5	251	25.3
Waterrock Knob	139	14.0	49	4.9	188	19.0



The next question addressed activities participated in along the Blue Ridge Parkway. Respondents were given a list of activities and asked to indicate which they have done or expected to do during their visit. Results are shown in Table 15. The percentages in this table total more than 100% as respondents may engage in multiple activities during their visit. The most popular activities reported were scenic driving/stopping at overlooks (88.1%), visiting visitor centers (60.5%), taking a hike (59.0%), picnicking (39.0%), purchasing something at visitor center stores (37.2%), and visiting historic sites (33.7%). Respondents were also given the opportunity to record “other” activities. These responses are shown in Table 16. The most frequently reported “other” activities were bicycling (15.9%) and photography (13.6%).

Table 15: Activities Participated In

Activity	Percent
Scenic driving/stopping at overlooks	88.1
Visiting visitor centers	60.5
Taking a hike	59.0
Picnicking	39.0
Purchasing something at visitor center stores	37.2
Visiting historic sites	33.7
Nature study	20.1
Camping	17.2
Other	9.2

Table 16: Other Activities Participated In

Activity	Frequency	Percent
Bicycling	14	15.9
Photography	12	13.6
Swimming	9	10.2
Folk Art Center	6	6.8
Fishing	4	4.5
Family time	3	3.4
Blueberry picking	2	2.3
Climbing	2	2.3
Cultural activities	2	2.3
Looking at waterfalls	2	2.3
Meditation	2	2.3
Taking the dog for a walk	2	2.3
Bird Watching	1	1.1
Business	1	1.1



Table 16 (Continued): Other Activities Participated In

Activity	Frequency	Percent
Artist	1	1.1
Curiosity visit	1	1.1
Driving through	1	1.1
Eating out	1	1.1
Enjoying nature	1	1.1
Enjoying the cool weather	1	1.1
Forestry study	1	1.1
Hiking	1	1.1
Jr. Park Ranger	1	1.1
Kayaking	1	1.1
Looking at property	1	1.1
Mt. Mitchell	1	1.1
Peaks of Otter Lodge	1	1.1
Playing in creek	1	1.1
Rafting	1	1.1
Relaxing	1	1.1
Revisiting childhood memories	1	1.1
Running	1	1.1
Sightseeing, food at Peaks Lodge	1	1.1
Sitting and reading	1	1.1
Sliding Rock/Looking Glass	1	1.1
Spent night at Mt. Pisgah	1	1.1
Tourist places	1	1.1
Tubing	1	1.1
Wildlife sightings	1	1.1
Work on 2nd home	1	1.1

N = 88

Respondents were asked a multi-part question concerning overnight use of the Blue Ridge Parkway and its surrounding area. The first part asked whether respondents had stayed at least one night within the boundaries of the Blue Ridge Parkway. Approximately a third of respondents (34%) reported that they had (Table 17). The second part asked respondents to record the number of nights they spent at various types of accommodations. Respondents were asked to record the number of nights they stayed in 1) hotels/motels, 2) inns/bed and breakfasts, 3) homes of friends and/or relatives, 4) campgrounds, and 5) other. These results are shown in Tables 18, 19, 20, 21 and 22. In general, overnight use was relatively consistent across the different types of accommodations. Respondents indicating that they stayed in hotels/motels stayed average (mean) of 2.4 nights; respondents indicating that they stayed in inns/bed and



breakfasts stayed an average (mean) of 3.1 nights; respondents indicating that they stayed in homes of friends and/or relatives stayed an average (mean) of 2.7 nights; and respondents indicating that they stayed in campgrounds stayed an average (mean) of 3.2 nights. Of those who chose “other”, the most frequently reported responses were “rental property” (41.7%) and “local resident/homeowner” (29.2%) (Table 22).

Further analysis was conducted to explore the extent to which visitors stay in multiple types of accommodations during their trip. Results of this analysis are shown in Table 23. The vast majority of respondents (90.4%) stayed in only one type of accommodation. The third and final part of this question asked respondents to indicate the locations at which they stayed or will be staying within the boundaries of the Blue Ridge Parkway. Results from this question appear in Table 24. Again, since it is feasible for visitors to stay in multiple locations throughout the course of their trip the percentages in this table add up to more than one-hundred percent. The most frequently reported overnight locations were Peaks of Otter Lodge (41.4%), Julian Price Campground (30.3%), Linville Falls Campground (28.3%), Pisgah Lodge (22.2%), and Doughton Park Campground (21.2%).

Table 17: Overnight Stay Within Boundaries of Blue Ridge Parkway

	Frequency	Percent
Yes	328	34.2
No	630	65.8

N = 958

Table 18: Number of Nights in Hotels/Motels

	Frequency	Percent
1	57	35.2
2	60	37.0
3	20	12.3
4	9	5.6
5	3	1.9
6	8	4.9
7	2	1.2
14	2	1.2
15	1	0.6

N = 162; Mean = 2.4; Median = 2



Table 19: Number of Nights in Inns/BB

	Frequency	Percent
1	10	26.3
2	8	21.1
3	10	26.3
4	3	7.9
5	2	5.3
6	2	5.3
7	1	2.6
10	1	2.6
12	1	2.6

N = 38; Mean = 3.1; Median = 3

Table 20: Number of Nights in Homes of Friends and/or Relatives

	Frequency	Percent
1	17	45.9
2	4	10.8
3	5	13.5
4	3	8.1
5	4	10.8
6	1	2.7
7	3	8.1

N = 37; Mean = 2.7; Median = 2

Table 21: Number of Nights in Campgrounds

	Frequency	Percent
1	36	29.3
2	28	22.8
3	20	16.3
4	14	11.4
5	10	8.1
6	2	1.6
7	5	4.1
8	2	1.6
9	1	0.8
10	1	0.8
11	1	0.8
12	1	0.8
14	2	1.6

N = 123; Mean = 3.2; Median = 2



Table 22: Other Number of Nights in Other Types of Accommodations

	Frequency	Percent
Rental property	10	41.7
Local resident/homeowner	7	29.2
Backpacking/camping	4	16.7
Lodge	2	8.3
Conference Center	1	4.2

N = 24

Table 23: Number of Different Accommodations Stayed In

	Frequency	Percent
1	293	90.4
2	27	8.3
3	3	0.9
4	1	0.3

N = 324

Table 24: Overnight Locations within Blue Ridge Parkway

	Frequency	Percent
Peaks of Otter Lodge	41	41.4
Julian Price Campground	30	30.3
Linville Falls Campground	28	28.3
Pisgah Lodge	22	22.2
Doughton Park Campground	21	21.2
Crabtree Meadows Campground	17	17.2
Peaks of Otter Campground	14	14.1
Rocky Knob Campground	12	12.1
Otter Creek Campground	9	9.1
Roanoke Mountain Campground	8	8.1
Bluffs Lake	7	7.1
Rocky Knob Cabins	3	3.0
Mt. Pisgah Campground	27	2.7

Respondents were asked to record the number of times they have previously visited the Blue Ridge Parkway. Visitors previously visited an average (mean) of 21.2 times and a median of 5 times. Further analysis was done to explore differences in previous use of the Blue Ridge Parkway between local and non-local residents. Local residents consist of all respondents residing in Virginia and North Carolina. Results from this analysis are shown in Table 26. As might be expected, local visitors (38.2) previously visited significantly more often than non-local visitors (7.9).



Respondents were asked to describe their visit as, 1) the primary destination of their trip, 2) one of several places visiting on their trip, or 3) visiting while in route to or from another destination. Visitor responses were relatively evenly distributed among the three choices. For 40.1% of respondents, the Blue Ridge Parkway was one of several places visited on their trip, for 39.2% of respondents the Blue Ridge Parkway was the primary destination of their trip, and the remaining 20.7% visited the Blue Ridge Parkway while in route to or from another destination (Table 27).

Several questions addressed visitor socio-demographic characteristics such as residence, gender, age, education, income and language. Respondents were asked to indicate which state they were from or, if a foreign visitor, which country they were from. The vast majority of visitors (96.5%) were from the United States (Table 28). Of those visitors from the United States, most were from North Carolina (35.0%), Florida (14.0%) or Virginia (9.9%) (Table 29). Most foreign visitors were from the United Kingdom (27.5%), Canada (13.8%), or Germany (10.3%) (Table 30).

Table 25: Number of Previous Visits Since 1997

Number of previous visits	Frequency	Percent
1	86	9.3
2	79	8.5
3	64	6.9
4	46	5.0
5	78	8.4
6	36	3.9
7	16	1.7
8	13	1.4
9	5	0.5
10	64	6.9
11	2	0.2
12	9	1.0
13	4	0.4
14	1	0.1
15	28	3.0
16	1	0.1
17	1	0.1
18	3	0.3
19	1	0.1
20	48	5.2
More than 20	585	63.0

N = 928; Mean = 21.2; Median = 5



Table 26: Number of Previous Visits by Local/Non-local

	Local	Non-local	Total
<i>Mean</i>			
Number of Previous Visits*	38.2	7.9	21.2

(*) Indicates statistical significance at the $p < .05$ level

Table 27: Trip Description

	Frequency	Percent
The Blue Ridge Parkway is the primary destination of my trip.	375	39.2
The Blue Ridge Parkway is one of several places I am visiting on this trip.	383	40.1
I am visiting the Blue Ridge Parkway while in route to or from another destination.	198	20.7

N = 956

Table 28: Residence

	Frequency	Percent
United States	795	96.5
Not from United States	29	3.5

N = 824

Table 29: State of Residence

	Frequency	Percent
North Carolina	278	35.0
Florida	111	14.0
Virginia	79	9.9
South Carolina	42	5.3
Tennessee	38	4.8
Georgia	33	4.2
Ohio	20	2.5
Pennsylvania	17	2.1
Kentucky	14	1.8
Maryland	14	1.8
California	13	1.6
Indiana	13	1.6
Massachusetts	10	1.3
Wisconsin	10	1.3
Illinois	9	1.1
Louisiana	9	1.1
New York	9	1.1
Texas	9	1.1
New Jersey	8	1.0
West Virginia	7	0.9
Alabama	6	0.8



Table 29 (Continued): State of Residence

	Frequency	Percent
Colorado	6	0.8
Michigan	6	0.8
Minnesota	4	0.5
Mississippi	4	0.5
Missouri	4	0.5
Arkansas	3	0.4
Washington	3	0.4
Arizona	2	0.3
District of Columbia	2	0.3
Iowa	2	0.3
New Hampshire	2	0.3
Oklahoma	2	0.3
Rhode Island	2	0.3
Alaska	1	0.1
Delaware	1	0.1
New Mexico	1	0.1
Vermont	1	0.1

N = 795

Table 30: Country of Residence

	Frequency	Percent
United Kingdom	8	27.5
Canada	4	13.8
Germany	3	10.3
Austria	2	6.9
France	2	6.9
Holland	2	6.9
Israel	2	6.9
Australia	1	3.4
Belgium	1	3.4
Costa Rica	1	3.4
Italy	1	3.4
Norway	1	3.4
Sweden	1	3.4

N = 29



Respondents were asked to indicate whether they were male or female. There were slightly more male (59.4%) than female (40.6%) respondents (Table 31). Respondents were also asked to record the year in which they were born. Table 32 presents a frequency distribution of visitor reported age. Visitors reported an average (mean) age of 47 years and a median age of 46.7 years. A subsequent question addressed respondents' educational background and results appear in Table 33. Overall, visitors to the Blue Ridge Parkway tend to be well educated with 87.3% having at least some college education or higher. Table 34 presents a frequency distribution of visitor reported incomes. In general, visitors reported a wide and relatively even distribution of income levels. The most frequently reported income level was \$40,000 to \$59,999 (21.7%). Finally, respondents were asked to indicate in which language they would like to receive park information. The most frequently reported language was English (98.6%) (Table 35).

Table 31: Gender

	Frequency	Percent
Female	359	40.6
Male	526	59.4

N = 885

Table 32: Age

	Frequency	Percent
Under 20	20	2.3
20 to 29	98	11.1
30 to 39	124	14.0
40 to 49	255	28.8
50 to 59	242	27.3
60 to 69	107	12.1
70 to 79	35	4.0
80 or older	5	0.6

N = 886; Mean = 46.7; Median = 48



Table 33: Education

	Frequency	Percent
Eighth grade or less	6	0.7
Some high school	12	1.3
High school graduate or GED	96	10.6
Business school, trade school, some college	182	20.1
College graduate	280	30.9
Some graduate school	87	9.6
Masters, doctoral, or professional degree	242	26.7

N = 905

Table 34: Income

	Frequency	Percent
Less than \$20,000	54	6.4
\$20,000 to \$39,999	103	12.3
\$40,000 to \$59,999	182	21.7
\$60,000 to \$79,999	150	17.9
\$80,000 to \$99,999	128	15.3
\$100,000 to \$149,999	124	14.8
\$150,000 or more	97	11.6

N = 838

Table 35: Language

	Frequency	Percent
English	834	96.1
Spanish	2	0.2
German	2	0.2
Gaelic	1	0.1
French	3	0.3
Latin	1	0.1
Ebonics	1	0.1
Multi-lingual	2	0.2
English and French	5	0.6
English and Spanish	11	1.3
English and German	1	0.1
English and Swahili	1	0.1
English or multi-lingual	1	0.1
English, Spanish and Japanese	1	0.1
English, Spanish and German	1	0.1
English, Spanish, German and French	1	0.1

N = 868



INDICATORS AND STANDARDS OF QUALITY

A section of the survey questionnaire contained a series of questions used to measure indicator variables and determine standards of quality for crowding-related issues. The first question presented respondents with a set of seventeen photographs depicting different amounts of traffic along a generic section of the parkway. Photographs contained varying combinations of traffic consisting of cars, recreational vehicles (RV), motorcycles, and bicycles. Study photographs are presented in Appendix B. Respondents were initially asked to evaluate the “acceptability” of each photograph using a response scale that ranged from -4 (“Very Unacceptable”) to +4 (“Very Acceptable”). Findings are shown in Tables 36, 37, 38, 39, and 40, and Figure 7. Figure 1 indicates that smaller amounts of traffic are more acceptable than larger numbers of visitors and that aggregate evaluations of the photographs fall out of the acceptability range and into the unacceptable range at between approximately 7 to 10 vehicles. This value is referred to as “acceptability.”

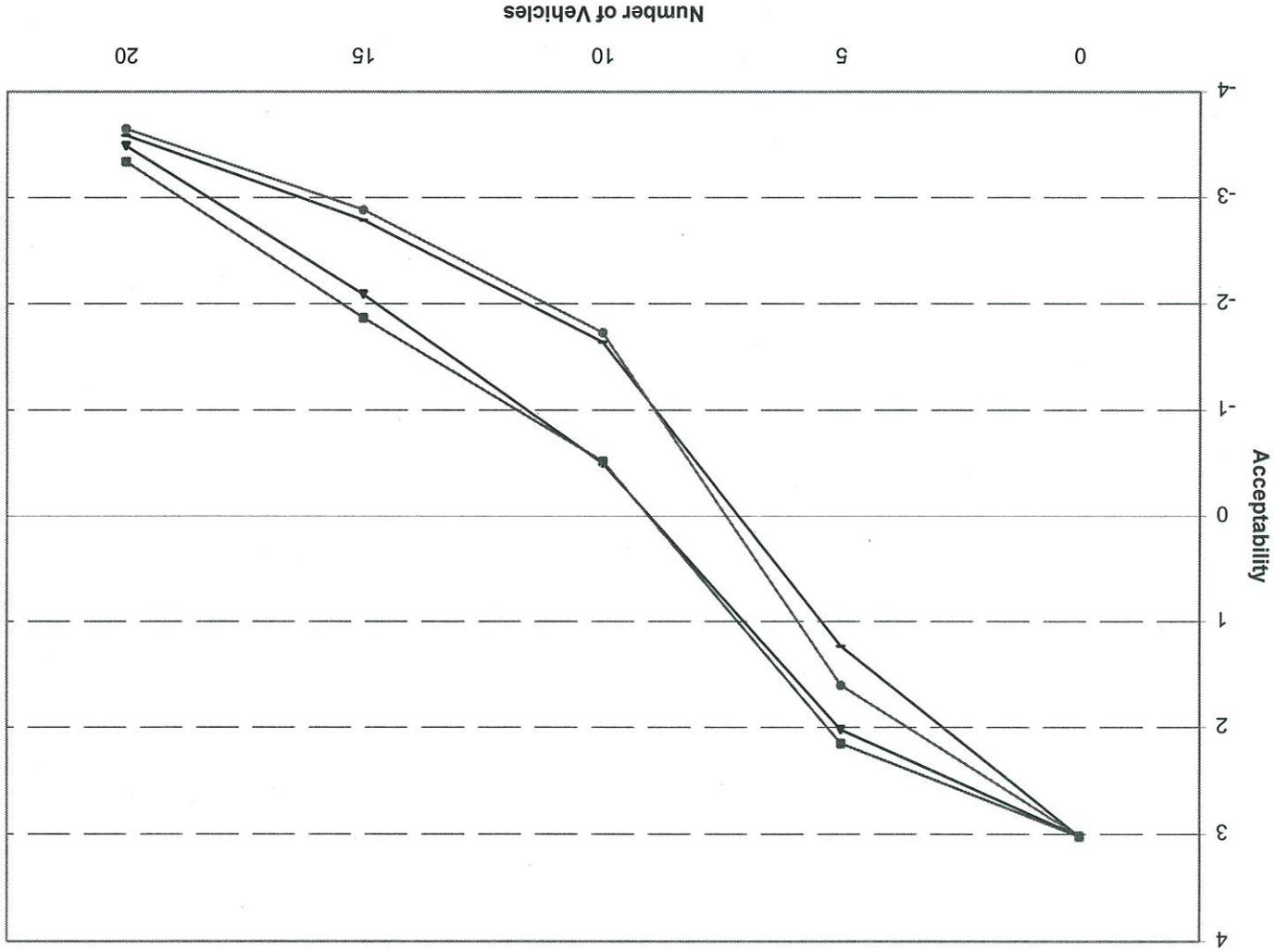


Table 36: Acceptability of Traffic

Photo Number	N	-4	-3	-2	-1	0	1	2	3	4	Acceptability	
											Very	Acceptable
Photo 11 (0 Cars)	882	5.8	1.1	1.1	1.8	3.4	1.6	2.9	3.7	78.5	3.0	
Photo 15 (5 Cars)	865	2.1	3.0	7.5	8.6	11.8	16.5	16.6	20.9	12.9	1.2	
Photo 5 (10 Cars)	901	19.3	21.5	18.9	14.9	9.5	7.3	4.7	2.1	1.8	-1.6	
Photo 2 (15 Cars)	917	37.4	35.2	14.5	5.8	2.4	1.3	1.2	1.0	1.2	-2.8	
Photo 12 (20 Cars)	863	86.0	7.3	1.6	0.8	0.7	0.3	0.6	0.9	1.7	-3.6	
Photo 13 (4 Cars, 1 Bicycle)	850	2.2	1.6	2.9	3.9	5.2	11.1	18.4	28.1	26.6	2.2	
Photo 10 (8 Cars, 2 Bicycles)	883	7.8	13.6	17.1	14.6	14.2	12.2	9.9	6.1	4.5	-0.5	
Photo 9 (12 Cars, 3 Bicycles)	898	20.0	25.6	19.3	15.8	6.8	5.7	3.2	1.7	1.9	-1.9	
Photo 6 (16 Cars, 4 Bicycles)	885	65.1	20.8	7.3	2.9	1.1	1.0	0.3	0.3	1.0	-3.3	
Photo 3 (4 Cars, 1 Motorcycle)	901	1.4	3.1	3.3	5.0	7.3	12.9	15.6	20.4	30.9	2.0	
Photo 14 (8 Cars, 2 Motorcycles)	886	5.6	14.1	19.4	14.7	13.4	11.9	10.4	6.1	4.4	-0.5	
Photo 4 (12 Cars, 3 Motorcycles)	910	24.4	27.0	20.2	11.4	5.8	4.8	3.4	1.4	1.4	-2.1	
Photo 16 (16 Cars, 4 Motorcycles)	899	77.2	13.3	4.0	1.7	0.8	0.6	0.2	0.6	1.7	-3.5	
Photo 8 (4 Cars, 1 RV)	875	2.4	3.4	5.6	6.1	9.7	12.6	16.7	22.5	21.0	1.6	
Photo 7 (8 Cars, 2 RVs)	870	18.4	24.5	22.2	11.5	8.6	6.6	4.0	2.0	2.3	-1.7	
Photo 17 (12 Cars, 3 RVs)	908	42.6	33.3	12.3	5.0	2.1	1.5	1.4	0.4	1.3	-2.9	
Photo 1 (16 Cars, 4 RVs)	922	85.0	8.5	2.9	1.0	0.4	0.2	0.1	0.3	1.5	-3.7	



Figure 7: Norm Curves for Traffic





Using the five of seventeen photographs containing only cars, respondents were asked to indicate the photograph that 1) shows the number of cars preferred (referred to as “preference”), 2) shows the number of cars that would be so unacceptable that respondents would no longer visit the area (referred to as “tolerance/displacement”), 3) shows the highest number of cars the National Park Service should allow (referred to as “management action”), 4) shows the number of cars typically seen by respondents on the day of the study (referred to as “typically seen”), and 5) shows the number of cars expected to see (referred to as “expectation”). Where appropriate, respondents were allowed options to indicate that none of the photographs represented the conditions asked or that the National Park Service should not restrict visitor use. Findings for these questions are shown in Tables, 41, 42, 43, 44, 45, and summarized in Table 46.

Respondents reported that 1) an average of 7.0 cars was the highest level of use acceptable, 2) they prefer to see an average of 3.4 cars, 3) they would be displaced by an average of 16.2 cars, 4) that the National Park Service should allow no more than an average of 12.1 cars, 5) that they typically saw an average of 5.1 cars, and 6) that they expected to see an average of 6.6 cars. The displacement and management action values are slightly underestimated as some respondents reported that either none of the photographs represented the condition asked or that the National Park Service should not restrict visitor use.

Table 41: Preference (Cars Only)

	Frequency	Percent
Photo 1 (0 cars)	352	43.8
Photo 2 (5 cars)	366	45.5
Photo 3 (10 cars)	74	9.2
Photo 4 (15 cars)	8	1.0
Photo 5 (20 cars)	4	0.5

N = 804; Mean = 3.4 cars

Table 42: Tolerance/Displacement (Cars Only)

	Frequency	Percent
Photo 1 (0 cars)	51	6.1
Photo 2 (5 cars)	9	1.1
Photo 3 (10 cars)	90	10.7
Photo 4 (15 cars)	187	22.3
Photo 5 (20 cars)	441	52.6
None of the photographs are so unacceptable that I would no longer visit this area.	60	7.2

N = 838; Mean = 16.2 cars



Table 43: Management Action (Cars Only)

	Frequency	Percent
Photo 1 (0 cars)	13	1.6
Photo 2 (5 cars)	79	9.7
Photo 3 (10 cars)	301	36.9
Photo 4 (15 cars)	167	20.5
Photo 5 (20 cars)	112	13.7
None of the photographs show a high enough number of vehicles to restrict vehicles from using this area.	52	6.4
The number of vehicles using this area should not be restricted.	92	11.3

N = 816; Mean = 12.1 cars

Table 44: Typically Seen (Cars Only)

	Frequency	Percent
Photo 1 (0 cars)	93	14.1
Photo 2 (5 cars)	469	71.0
Photo 3 (10 cars)	91	13.8
Photo 4 (15 cars)	6	0.9
Photo 5 (20 cars)	2	0.3

N = 661; Mean = 5.1 cars

Table 45: Expectation (Cars Only)

	Frequency	Percent
Photo 1 (0 cars)	43	6.1
Photo 2 (5 cars)	377	53.1
Photo 3 (10 cars)	180	25.4
Photo 4 (15 cars)	25	3.5
Photo 5 (20 cars)	3	0.4
I didn't know what to expect.	82	11.5

N = 710; Mean = 6.6 cars

Table 46: Summary (Cars Only)

Measure	Mean Number of Cars
Acceptability	7.0
Preference	3.4
Management Action	12.1
Tolerance/Displacement	16.2
Typically Seen	5.1
Expectation	6.6



Tables 47, 48, 49 and 50 present further analyses of the five evaluative questions pertaining to the number of cars described above. Table 47 presents a summary of findings from the five evaluative questions by the six road segments. No significant differences were present in findings across road segments. Similarly, Table 48 presents a summary of findings from the five evaluative questions by the eleven sampling locations. Again, no significant differences were present in findings across study locations. Table 49 presents an extension of study data from the 0.16 mile section of road shown in the photograph to cars per mile. Respondents reported that, 1) an average of 56 cars per mile was the maximum acceptable condition, 2) they prefer to see an average of 21 cars per mile, 3) they would be displaced by an average of 101 cars per mile, 4) the National Park Service should allow no more than an average of 75 cars per mile, 5) they typically saw an average of 31 cars per mile, and 6) they expected to see an average of 41 cars per mile. Finally, Table 50 presents a breakdown of the five evaluative questions by weekend and weekday visitors. Statistical analysis suggests that weekend visitors typically saw more cars than weekday visitors. However, while this finding is statistically significant, substantively it represents only 1.2 cars per 0.16 mile of road.

Table 47: Number of Cars by Road Segment

Location	Prefer	Management Action	Tolerance	Typically Seen	Expected
	<i>Mean</i>				
Road Segment 1	3.2	12.6	16.8	4.7	6.4
Road Segment 2	-	-	-	-	-
Road Segment 3	3.3	11.5	16.0	5.2	6.6
Road Segment 4	3.4	12.5	15.4	5.1	6.5
Road Segment 5	3.6	12.1	15.8	5.3	6.8
Road Segment 6	3.4	11.9	16.8	5.0	6.4

(Bold figures indicate statistical significance at the p<.05 level)



Table 48: Summary of Cars by Location

Location	Prefer	Management Action	Tolerance	Typically Seen	Expected
	<i>Mean</i>				
Cumberland Knob	3.4	10.9	16.8	3.4	5.9
Folk Art Center	3.5	11.9	16.1	4.9	6.8
Graveyard Fields	3.4	11.6	16.3	5.4	6.5
Linn Cove	3.7	12.3	15.2	5.8	6.7
Linnville Falls	4.0	12.6	16.1	5.7	7.5
Looking Glass Rock	3.4	12.0	17.0	4.8	6.3
Moses Memorial	3.4	13.0	14.9	5.8	6.7
Peaks of Otter	3.2	12.6	16.8	4.7	6.4
Julian Price Memorial Park	2.8	12.0	15.0	5.3	5.8
Rocky Knob	3.3	11.5	16.0	5.2	6.6
Waterrock Knob	3.4	12.1	17.1	4.8	6.3

Table 49: Summary Cars per Mile

Measure	Number of Cars per Mile
Acceptability	56
Preference	21
Management Action	75
Tolerance/Displacement	101
Typically Seen	31
Expectation	41

Table 50: Number of Cars by Weekend/Weekday

	Prefer	Management Action	Tolerance	Typically Seen	Expected
	<i>Mean</i>				
Weekday	3.3	12.1	16.0	4.6	6.4
Weekend	3.6	12.2	16.4	5.8	6.8

(**Bold figures indicate statistical significance at the p<.05 level**)

A second set of questions presented respondents with a series of five photographs showing different numbers of visitors at a typical scenic overlook site along the Blue Ridge Parkway. Study photographs are shown in Appendix B. Respondents were asked to evaluate these photographs using the same evaluative scales previously described. First, respondents were asked to rate the “acceptability” of each photograph using a response scale that ranged from –4 (“Very Unacceptable”) to +4 (“Very Acceptable”). Findings are shown in Table 51 and Figure 8. Figure 2 indicates that smaller numbers of visitors are more acceptable than larger numbers of visitors and that aggregate evaluations of the photographs fall out of the acceptable range and

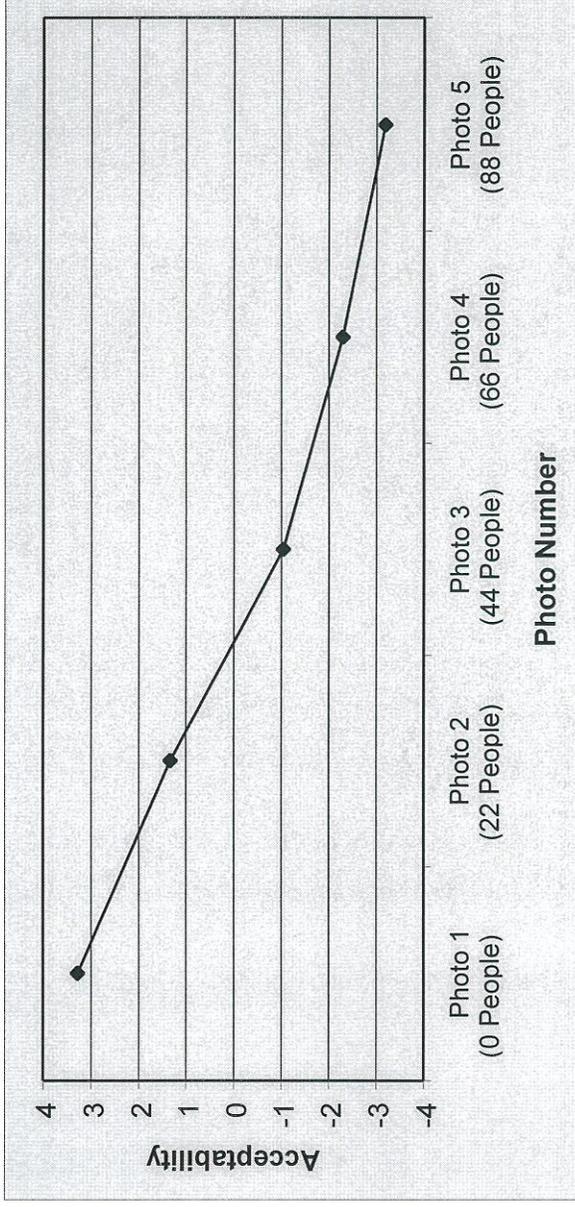


into the unacceptable range at approximately 34.5 visitors. This value is referred to as “acceptability”.

Table 51: Acceptability for Number of People

Photo Number	N	Very Unacceptable				Acceptable				Mean	
		-4	-3	-2	-1	0	1	2	3		4
Photo 1 (0 people)	882	4.0	0.8	0.7	1.1	2.5	2.8	1.8	3.3	83.0	3.3
Photo 2 (22 people)	880	3.4	3.9	4.7	7.0	9.8	17.0	20.7	18.2	15.3	1.3
Photo 3 (44 people)	868	18.1	11.8	17.9	12.7	15.1	9.6	6.3	5.3	3.3	-1.0
Photo 4 (66 people)	877	33.6	27.1	17.3	5.9	4.0	4.6	3.1	1.9	2.4	-2.3
Photo 5 (88 people)	879	73.2	10.4	4.7	3.3	2.3	1.4	1.3	0.8	2.8	-3.2

Figure 8: Norm Curve for Number of People at Scenic Overlooks



Respondents were also asked to indicate the photograph that 1) shows the level of use preferred (referred to as “preference”), 2) shows the level of use that would be so unacceptable that respondents would no longer visit the area (referred to as “displacement”), 3) shows the highest level of use the National Park Service should allow (referred to as “management action”), 4) shows the level of use typically seen by respondents on the day of the study (referred to as “typically seen”), and 5) shows the level of use expected to see (referred to as “expectation”). Where appropriate, respondents were allowed options to indicate that none of the photographs



represented the conditions asked or that the National Park Service should not restrict visitor use. Findings for these questions are shown in Tables 52, 53, 54, 55, 56, and summarized in Table 57. Respondents reported that 1) they prefer to see an average of 11.5 people, 2) they would be displaced by an average of 66.6 people, 3) that the National Park Service should allow no more than an average of 44.1 people, 4) that they typically saw an average of 13.5 people, and 5) that they expected to see an average of 19.3 people. The displacement and management action values are somewhat underestimated as some respondents reported that either none of the photographs represented the condition asked or that the National Park Service should not restrict visitor use.

Table 52: Preference (Number of People)

Photo Number	Frequency	Percent
Photo 1 (0 people)	472	53.9
Photo 2 (22 people)	363	41.5
Photo 3 (44 people)	31	3.5
Photo 4 (66 people)	3	0.3
Photo 5 (88 people)	6	0.7

N = 875; Mean = 11.5 people

Table 53: Tolerance/Displacement (Number of People)

Photo Number	Frequency	Percent
Photo 1 (0 people)	7	0.8
Photo 2 (22 people)	63	7.1
Photo 3 (44 people)	173	19.5
Photo 4 (66 people)	141	15.9
Photo 5 (88 people)	341	38.5
None of the photographs are so unacceptable that I would no longer visit this scenic overlook.	160	18.1

N = 885; Mean = 66.6 people

Table 54: Management Action (Number of People)

Photo Number	Frequency	Percent
Photo 1 (0 people)	6	0.7
Photo 2 (22 people)	231	26.3
Photo 3 (44 people)	234	26.7
Photo 4 (66 people)	107	12.2
Photo 5 (88 people)	69	7.9
None of the photographs show a high enough number of people to restrict people from visiting this scenic overlook.	86	9.8
The number of people visiting this scenic overlook should not be restricted.	144	16.4

N = 877; Mean = 44.1 people



Table 55: Typically Seen (Number of People)

Photo Number	Frequency	Percent
Photo 1 (0 people)	315	43.8
Photo 2 (22 people)	371	51.5
Photo 3 (44 people)	31	4.3
Photo 4 (66 people)	3	0.4
Photo 5 (88 people)	0	0.0

N = 720; Mean = 13.5 people

Table 56: Expected (Number of People)

Photo Number	Frequency	Percent
Photo 1 (0 people)	152	19.5
Photo 2 (22 people)	398	51.0
Photo 3 (44 people)	57	7.3
Photo 4 (66 people)	8	1.0
Photo 5 (88 people)	1	0.1
I didn't know what to expect.	164	21.0

N = 780; Mean = 19.3 people

Table 57: Summary (Number of People)

Measure	Mean
Acceptability	34.5
Preference	11.5
Management Action	44.1
Tolerance/Displacement	66.6
Typically Seen	13.5
Expectation	19.3

Tables 58, 59 and 60 present further analyses of the five evaluative questions pertaining to the number of other visitors at scenic overlooks. Table 58 presents a summary of findings by the six road segments. Statistical analysis suggests that there are significant differences in the number of people “preferred” and the number of people “typically seen” across road segments. Visitors in road segment 4 reported a lower preference (mean = 9) than other road segments. Similarly, visitors in road segment 3 reported typically seeing fewer people (9.4) than visitors in other road segments. Table 59 presents a summary of findings across the eleven sampling locations. No significant differences were present in findings across sampling locations. Finally, Table 60



presents a summary of findings broken out by weekend and weekday visitors. Weekend visitors reported typically seeing on average 6 more people than weekday visitors.

Table 58: Number of People by Road Segments

Location	Prefer	Management Action	Mean		
			Tolerance	Typically Seen	Expected
Road Segment 1	15.1	44.0	70.5	11.5	15.1
Road Segment 2	-	-	-	-	-
Road Segment 3	12.2	46.3	61.8	9.4	16.2
Road Segment 4	9.0	45.1	65.1	12.9	19.6
Road Segment 5	12.3	44.4	65.4	13.3	20.1
Road Segment 6	10.7	42.5	69.3	15.7	20.2

(**Bold figures indicate statistical significance at the p<.05 level**)

Table 59: Summary of People by Location

	Prefer	Management Action	Tolerance	Typically Seen	Expected
Cumberland Knob	11.6	44.0	65.3	9.2	18.2
Folk Art Center	10.4	41.8	63.2	11.9	19.6
Graveyard Fields	11.4	44.0	71.0	19.7	23.2
Linn Cove	10.6	44.6	68.8	14.8	18.9
Linnville Falls	16.3	48.0	66.4	12.0	25.6
Looking Glass Rock	8.4	40.3	63.9	15.0	16.9
Moses Memorial	8.2	45.5	65.1	14.3	20.1
Peaks of Otter	15.1	44.0	70.5	11.5	15.1
Julian Price Memorial Park	15.3	46.9	62.1	16.3	14.0
Rocky Knob	12.2	46.3	61.8	9.4	16.2
Waterrock Knob	11.8	42.8	72.1	12.9	20.4

Table 60: Number of People by Weekend/Weekday

	Prefer	Management Action	Mean		
			Tolerance	Typically Seen	Expected
Weekday	11.1	44.4	66.3	11.1	18.6
Weekend	12.1	43.6	67.1	16.9	20.2

(**Bold figures indicate statistical significance at the p<.05 level**)

To measure visitor perceptions of issues pertinent to the experience at the Blue Ridge Parkway, respondents were given a question containing a list of issues and were asked to rate each on a three point scale where 1 = (“No Problem”), 2 = (“Small Problem”), and 3 = (“Big Problem”). Respondents were also given the opportunity to indicate that they “Don’t Know”. Results are



shown in Table 61. All issues included in the question were rated by a majority of respondents as “No Problem”. Issues rated as the biggest problems were 1) poor condition of park trails, 2) traffic congestion on roads, 3) difficulty finding a parking place, 4) inadequate number of visitor facilities/resources, 5) crowding at park overlooks, and 6) crowding at park visitor centers.

Table 61: Problem Issues

Issue	N	Percent			Mean	
		No Problem (1)	Small Problem (2)	Big Problem (3)		Don't Know
A. Difficulty finding your way around the park.	910	85.5	12.1	0.7	1.8	1.2
B. Traffic congestion on the roads.	912	67.4	27.5	3.6	1.4	1.4
C. Difficulty finding parking place.	901	70.8	24.9	3.1	1.2	1.4
D. Inadequate number of visitor facilities/services.	907	68.8	22.9	3.3	5.0	1.4
E. Poor condition of visitor facilities/services.	902	81.5	12.3	1.3	4.9	1.3
F. Lack of information about what to see and do in the park.	909	75.8	17.8	3.3	3.1	1.3
G. Lack of information on park natural/cultural resources.	903	76.2	18.2	2.1	3.5	1.3
H. Lack of recreation opportunities.	899	81.9	10.9	1.4	5.8	1.3
I. Poor condition of park trails.	887	69.6	11.7	1.6	17.1	1.6
J. Unattractive views from park overlooks.	893	77.9	15.2	4.6	2.2	1.3
K. Crowding at park overlooks.	899	68.3	26.0	2.8	2.9	1.4
L. Crowding at park visitor centers.	903	70.3	20.8	3.2	5.6	1.4

Further analysis was conducted to determine whether there were geographic differences in visitor perceptions of problem issues. Table 62 presents a breakdown of problem issues by the six road segments. There were no significant differences found in visitor perceptions of problem issues across road segments. A similar analysis was conducted to determine whether there were significant differences in problem issues between weekend and weekday visitors. Results are shown in Table 63 and indicate that there were statistically significant differences. Weekend visitors were more likely to find traffic congestion on the roads; difficulty finding a parking place; inadequate number of visitor facilities/services; poor condition of visitor facilities/services; crowding at park overlooks; and crowding at park visitor centers to be a problem than weekday visitors. The last analysis explored for differences in visitor perceptions of problem issues between local and non-local residents. Again, “local” residents were considered to be those visitors residing in Virginia and North Carolina. Results are shown in



Table 64 and indicate several statistically significant differences. Local residents were more likely to find the following issues to be a problem: traffic congestion on the roads; difficulty finding a parking place; poor condition of visitor facilities/services; unattractive views from park overlooks; crowding at park overlooks; and crowding at park visitor centers. Non-local residents were more likely to find lack of information about what to see and do in the park a problem. While these findings are statistically significant, substantively they represent relatively minor differences.

A final question gave respondents the opportunity to record in an open-ended format any comments or suggestions about the Blue Ridge Parkway they would like to offer to park managers. Responses have been coded and collapsed into categories as shown in Table 65. The majority of respondents (33.2%) mentioned the need for improved or more facilities/resources/services. A second tier of respondents mentioned their level of enjoyment or appreciation (14.4%) and need for improved or more information/maps/signs (14.1%). Visitor comments were broken out by the six road segments to explore for significant differences across geographic location (Table 66). No statistically significant differences were found.



Table 62: Problem Issues by Road Segments

	Road Segment 1	Road Segment 2	Road Segment 3	Road Segment 4	Road Segment 5	Road Segment 6	Total
A. Difficulty finding your way around the park.	1.2	-	1.1	1.1	1.1	1.1	1.1
B. Traffic congestion on the roads.	1.2	-	1.3	1.3	1.4	1.4	1.4
C. Difficulty finding parking place.*	1.2	-	1.2	1.5	1.3	1.4	1.3
D. Inadequate number of visitor facilities/services.*	1.3	-	1.4	1.3	1.2	1.4	1.3
E. Poor condition of visitor facilities/services.	1.2	-	1.2	1.1	1.1	1.2	1.2
F. Lack of information about what to see and do in the park.*	1.3	-	1.3	1.2	1.2	1.3	1.3
G. Lack of information on park natural/cultural resources.	1.2	-	1.2	1.2	1.2	1.3	1.2
H. Lack of recreation opportunities.	1.2	-	1.1	1.1	1.1	1.2	1.1
I. Poor condition of park trails.	1.1	-	1.2	1.1	1.2	1.2	1.2
J. Unattractive views from park overlooks.	1.2	-	1.2	1.3	1.3	1.2	1.2
K. Crowding at park overlooks.*	1.2	-	1.2	1.3	1.3	1.4	1.3
L. Crowding at park visitor centers.	1.2	-	1.2	1.3	1.3	1.4	1.3

Scale: 1 = "No Problem"; 3 = "Big Problem"
 (*) Indicates statistical significance at p<.05 level



Table 63: Problems by Weekend/Weekday

	No Problem (1)	Small Problem (2)	Big Problem (3)
A. Difficulty finding your way around the park.	Weekday 59.8	Weekend 56.4	50.0
	Weekend 40.2	Weekday 43.6	50.0
B. Traffic congestion on the roads.*	Weekday 64.1	Weekend 49.8	48.5
	Weekend 35.9	Weekday 50.2	51.5
C. Difficulty finding parking place.*	Weekday 63.5	Weekend 51.3	35.7
	Weekend 36.5	Weekday 48.7	64.3
D. Inadequate number of visitor facilities/services.*	Weekday 62.2	Weekend 50.0	60.0
	Weekend 37.8	Weekday 50.0	40.0
E. Poor condition of visitor facilities/services.*	Weekday 61.6	Weekend 47.7	50.0
	Weekend 38.4	Weekday 52.3	50.0
F. Lack of information about what to see and do in the park.	Weekday 59.4	Weekend 61.7	56.7
	Weekend 40.6	Weekday 38.3	43.3
G. Lack of information on park natural/cultural resources.	Weekday 60.6	Weekend 56.1	57.9
	Weekend 39.4	Weekday 43.9	42.1
H. Lack of recreation opportunities.	Weekday 59.4	Weekend 58.2	69.2
	Weekend 40.6	Weekday 41.8	30.8
I. Poor condition of park trails.	Weekday 61.3	Weekend 51.0	50.0
	Weekend 38.7	Weekday 49.0	50.0
J. Unattractive views from park overlooks.	Weekday 60.1	Weekend 56.6	53.7
	Weekend 39.9	Weekday 43.4	46.3
K. Crowding at park overlooks.*	Weekday 63.5	Weekend 53.4	28.0
	Weekend 36.5	Weekday 46.6	72.0
L. Crowding at park visitor centers.*	Weekday 63.3	Weekend 50.0	34.5
	Weekend 36.7	Weekday 50.0	65.5

(*) Indicates statistical significance at p<.05 level

Table 64: Problem Issues by Local/Non-Local

	Local	Non-local	Total
A. Difficulty finding your way around the park.	1.1	1.1	1.1
B. Traffic congestion on the roads.*	1.4	1.3	1.4
C. Difficulty finding parking place.*	1.4	1.3	1.3
D. Inadequate number of visitor facilities/services.	1.3	1.3	1.3
E. Poor condition of visitor facilities/services.*	1.2	1.1	1.2
F. Lack of information about what to see and do in the park.*	1.2	1.3	1.2
G. Lack of information on park natural/cultural resources.	1.2	1.2	1.2
H. Lack of recreation opportunities.	1.1	1.1	1.1
I. Poor condition of park trails.	1.2	1.2	1.2
J. Unattractive views from park overlooks.*	1.3	1.2	1.2
K. Crowding at park overlooks.*	1.4	1.3	1.3
L. Crowding at park visitor centers.*	1.4	1.2	1.3

Scale: 1 = "No Problem"; 3 = "Big Problem"

(*) Indicates statistical significance at p<.05 level



Table 65: Comments

	Frequency	Percent
Mentions need for improved or more facilities/resources/services	99	33.2
Mentions level of enjoyment or appreciation	43	14.4
Mentions need for improved or more information/maps/signs	42	14.1
Mentions status quo/don't change anything/keep up the good work	24	8.1
Concerned with management practices and policies	22	7.4
Miscellaneous comments	21	7.0
Concerned with condition of natural resources	13	4.4
Concerned with conflicting uses	13	4.4
Concerned with crowding or level of visitor/automobile use	9	3.0
Concerned with too much development	6	2.0
Mentions courteousness or helpfulness of staff/rangers	3	1.0
Concern with study or study design	3	1.0

N = 298



Table 66: Comments by Road Segments

	Road Segment 1	Road Segment 2	Road Segment 3	Road Segment 4	Road Segment 5	Road Segment 6	Total
Mentions need for improved or more facilities/resources/services	16.1	-	40.0	36.2	38.6	29.8	33.2
Mentions level of enjoyment or appreciation	22.6	-	16.0	19.1	13.9	9.6	14.4
Mentions need for improved or more information/maps/signs	6.5	-	8.0	19.1	11.9	18.1	14.1
Mentions status quo/don't change anything/keep up the good work	12.9	-	8.0	2.1	7.9	9.6	8.1
Concerned with management practices and policies	9.7	-	12.0	4.3	5.0	9.6	7.4
Miscellaneous comments	9.7	-	0.0	4.3	8.9	7.4	7.0
Concerned with conflicting uses	0.0	-	8.0	8.5	4.0	3.2	4.4
Concerned with condition of natural resources	6.5	-	0.0	0.0	2.0	9.6	4.4
Concerned with crowding or level of visitor/automobile use	6.5	-	4.0	2.1	3.0	2.1	3.0
Concerned with too much development	3.2	-	4.0	2.1	3.0	0.0	2.0
Mentions courteousness or helpfulness of staff/rangers	6.5	-	0.0	0.0	1.0	0.0	1.0
Concern with study or study design	0.0	-	0.0	2.1	1.0	1.1	1.0



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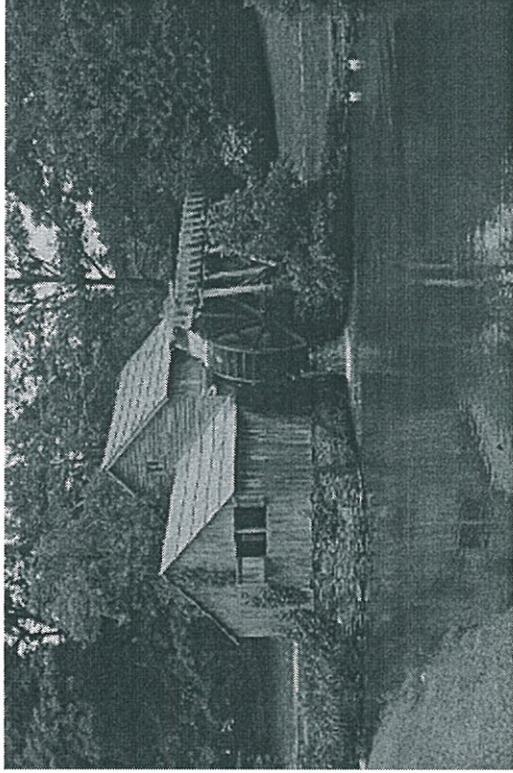
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V. APPENDICIES

APPENDIX A: STUDY QUESTIONNAIRE

**BLUE RIDGE PARKWAY VISITOR SURVEY
2002**



DATE: _____ ID: _____

Time: _____ AM/PM Location: _____

OMB # 1024-0224, NPS # 02-040
Expiration Date: 03/31/03



Blue Ridge Parkway Visitor Questionnaire

1. How many people are in your group today? _____
2. Which of the following best describes your group? (Circle one number.)
 - 1 Family
 - 2 Friends
 - 3 Family and friends
 - 4 Organized group or club
 - 5 Commercial tour group
 - 6 Business associates
 - 7 Visiting alone
 - 8 Other (Please specify.) _____
3. Which of the following types of vehicles are you using to visit the Blue Ridge Parkway today? (Circle one number.)
 - 1 Auto/SUV/Pickup truck
 - 2 Commercial truck
 - 3 RV
 - 4 Bus
 - 5 Motorcycle
 - 6 Bicycle
 - 7 Other (Please specify.) _____
4. a. Where did you enter the Blue Ridge Parkway on this trip? _____
b. Where do you expect to leave the Blue Ridge Parkway on this trip? _____
5. What is the primary purpose of your visit to the Blue Ridge Parkway today? (Circle one number.)
 - 1 Commuting between home and work (Skip to question 13.)
 - 2 Recreation (not commuting between home and work)
 - 3 Other (Please specify.) _____
6. a. How many days do you expect to be visiting the Blue Ridge Parkway on this trip?
Days: _____
b. How long do you expect to be visiting the Blue Ridge Parkway today?
Hours and/or minutes: _____



7. Which of the following places have you visited and which you expect to visit along the Blue Ridge Parkway on this visit? (Check all places that apply.)

	Visited	Expect to Visit
Virginia		
1 Humpback Rocks (milepost 5.8)		
2 Otter Creek (milepost 60.9)		
3 James River (milepost 63.8)		
4 Peaks of Otter (milepost 86.0)		
5 Roanoke Mountain (milepost 120.4)		
6 Smart View (milepost 154.5)		
7 Rocky Knob (milepost 169.0)		
8 Mabry Mill (milepost 176.1)		
North Carolina		
9 Cumberland Knob (milepost 217.5)		
10 Brinegar Cabin (milepost 238.5)		
11 Doughton Park (milepost 241.1)		
12 Northwest Trading Post (milepost 258.6)		
13 E.B. Jeffress Park (milepost 272.0)		
14 Moses H. Cone Memorial Park (milepost 294.1)		
15 Julian Price Memorial Park (milepost 297.1)		
16 Linn Cove Viaduct (milepost 304.4)		
17 Linville Falls (milepost 316.4)		
18 Museum of North Carolina Minerals (milepost 331.0)		
19 Crabtree Meadows (milepost 339.5)		
20 Graggy Gardens (milepost 364.6)		
21 Folk Art Center (milepost 382.0)		
22 Mount Pisgah (milepost 408.6)		
23 Graveyard Fields (milepost 418.8)		
24 Waterrock Knob (milepost 451.2)		

8. Which of the following activities have you done or do you expect to do along the Blue Ridge Parkway on this visit? (Circle all numbers that apply.)

- 1 Scenic driving/stopping at overlooks
- 2 Visiting visitor centers
- 3 Purchasing something at visitor center stores
- 4 Taking a hike
- 5 Camping
- 6 Picnicking
- 7 Visiting historic sites
- 8 Nature study
- 9 Other (Please specify.) _____



9. a. Are you staying at least one night within the boundaries of the Blue Ridge Parkway on this trip? (Circle one number.)

- 1 Yes
- 2 No (Skip to question 10.)

b. Approximately how many nights will you be spending in each of the following types of accommodations? (Enter approximate number of nights in each category.)

- Hotels/motels _____
- Inns/bed and breakfasts _____
- Homes of friends and/or relatives _____
- Campgrounds _____
- Other (Please specify.) _____

c. If you are staying overnight within the boundaries of the Blue Ridge Parkway, at which locations have you or will you be staying (Circle all numbers that apply.)

- 1 Peaks of Otter Lodge
- 2 Rocky Knob Cabins
- 3 Bluffs Lake
- 4 Pisgah Lodge
- 5 Otter Creek Campground
- 6 Peaks of Otter Campground
- 7 Roanoke Mountain Campground
- 8 Rocky Knob Campground
- 9 Doughton Park Campground
- 10 Julian Price Campground
- 11 Linville Falls Campground
- 12 Crabtree Meadows Campground
- 13 Mt. Pisgah Campground

10. Approximately how many times (other than this trip) have you visited the Blue Ridge Parkway since 1997? _____

11. Which of the following best describes your visit to the Blue Ridge Parkway on this trip? (Circle one number.)

- 1 The Blue Ridge Parkway is the primary destination of my trip.
- 2 The Blue Ridge Parkway is one of several places I am visiting on this trip.
- 3 I am visiting the Blue Ridge Parkway while in route to or from another destination.

12. a. If you are from the United States, what state are you from? _____



b. If you are not from the United States, what country are you from? _____

13. a. We would like to know how many vehicles you think could use this section of the Blue Ridge Parkway without this road being too crowded. To help judge this, we have a series of photographs that shows different numbers of vehicles along a section of this road. (Please look at the photographs in Panel A.) Please rate each photograph by indicating how acceptable you find it based on the number of vehicles shown. A rating of “-4” means that the number of vehicles is very unacceptable, and a rating of “+4” means that the number of vehicles is very acceptable. (Circle one number for each photograph.)

	Very Unacceptable				Very Acceptable				
Photo 1.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 2.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 3.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 4.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 5.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 6.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 7.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 8.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 9.....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 10....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 11....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 12....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 13....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 14....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 15....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 16....	-4	-3	-2	-1	0	+1	+2	+3	+4
Photo 17....	-4	-3	-2	-1	0	+1	+2	+3	+4

For questions b through f, please look at photographs in Panel B.

b. Which photograph shows the number of vehicles you would prefer to see?

Photo number: _____

c. Which photograph shows the number of vehicles that would be so unacceptable that you would no longer visit the Blue Ridge Parkway? If none of the photographs represent this condition, you may indicate that.

Photo number: _____

OR

None of the photographs are so unacceptable that I would no longer visit this area.



- d. Which photograph shows the highest number of vehicles you think the National Park Service should allow? In other words, at what point do you think vehicles should be restricted from using the Blue Ridge Parkway? If you think use should not be restricted at any point represented by the photographs, or not restricted at all, you may indicate that.

Photo number: _____

OR

- None of the photographs show a high enough number of vehicles to restrict vehicles from using this area.

OR

- The number of vehicles using this area should not be restricted.

- e. Which photograph looks most like the number of vehicles you typically saw today?

Photo number: _____

- f. Which photograph looks most like the number of vehicles you expected to see? If you didn't know what to expect, you may indicate that.

Photo number: _____

OR

- I didn't know what to expect.

14. a. We would like to know how many people you think could use scenic overlooks along the Blue Ridge Parkway without these areas being too crowded. To help judge this, we have a series of photographs that shows different numbers of people at a scenic overlook. (Please look at the photographs in Panel C.) Please rate each photograph by indicating how acceptable you find it based on the number of people shown. A rating of "-4" means the number of people is very unacceptable, and a rating of "+4" means the number of people is very acceptable. (Circle one number for each photograph.)

	Very Unacceptable		Very Acceptable				
Photo 1.....	-4	-3	-1	+1	+2	+3	+4
Photo 2.....	-4	-3	-1	+1	+2	+3	+4
Photo 3.....	-4	-3	-1	+1	+2	+3	+4
Photo 4.....	-4	-3	-1	+1	+2	+3	+4
Photo 5.....	-4	-3	-1	+1	+2	+3	+4

- b. Which photograph shows the number of people you would prefer to see?

Photo number: _____



- c. Which photograph shows the number of people that would be so unacceptable that you would no longer visit this scenic overlook? If none of the photographs represent this condition, you may indicate that.

Photo number: _____

OR

- None of the photographs are so unacceptable that I would no longer visit this scenic overlook.

- d. Which photograph shows the highest number of people you think the National Park Service should allow at this scenic overlook? In other words, at what point should people be restricted from visiting this scenic overlook? If you think use should not be restricted at any point represented in the photographs, or not restricted at all, you may indicate that.

Photo number: _____

OR

- None of the photographs show a high enough number of people to restrict people from visiting this scenic overlook.

OR

- The number of people visiting this scenic overlook should not be restricted.

- e. Which photograph looks most like the number of people you typically saw today at scenic overlooks?

Photo number: _____

- f. Which photograph looks most like the number of people you expected to see at scenic overlooks? If you didn't know what to expect, you may indicate that.

Photo number: _____

OR

- I didn't know what to expect.



15. Based on your experience along the parkway, do you think the following issues are "no problem", a "small problem", or a "big problem"? (Circle one number for each issue.)

	No Problem	Small Problem	Big Problem	Don't know
a. Difficulty finding your way around the park	1	2	3	DK
b. Traffic congestion on the roads	1	2	3	DK
c. Difficulty finding a parking place	1	2	3	DK
d. Inadequate <u>number</u> of visitor facilities/services	1	2	3	DK
e. Poor <u>condition</u> of visitor facilities/services	1	2	3	DK
f. Lack of information about what to see and do in the park	1	2	3	DK
g. Lack of information on park natural/cultural resources	1	2	3	DK
h. Lack of recreation opportunities	1	2	3	DK
i. Poor condition of park trails	1	2	3	DK
j. Unattractive views from park overlooks	1	2	3	DK
k. Crowding at park overlooks	1	2	3	DK
l. Crowding at park visitor centers	1	2	3	DK

16. a. What is your gender (Circle one number.)

- 1 Female
- 2 Male

b. In what year were you born?

Year: _____

c. What is the highest level of formal education you have completed? (Circle on number.)

- 1 Eighth grade or less
- 2 Some high school
- 3 High school graduate or GED
- 4 Business school, trade school, some college
- 5 College graduate
- 6 Some graduate school
- 7 Masters, doctoral, or professional degree



d. What was your total household income (before taxes) last year? (Circle one number.)

- 1 Less than \$20,000
- 2 \$20,000 to \$39,999
- 3 \$40,000 to \$59,999
- 4 \$60,000 to \$79,999
- 5 \$80,000 to \$99,999
- 6 \$100,000 to \$149,999
- 7 \$150,000 or more

e. What language would you prefer receiving park information in? _____

17. Do you have any comments or suggestions about the Blue Ridge Parkway that you would like to offer to park managers? _____

Thank you for your help with this survey!

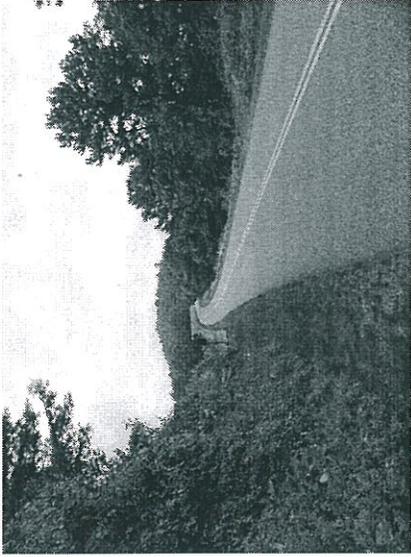
PRIVACY ACT and PAPERWORK REDUCTION ACT statement:

16 U.S.C. 1a-7 authorizes collection of this information. This information will be used by park managers to better serve the public. Response to this request is voluntary. No action may be taken against you for refusing to supply the information requested. Your name is requested for follow-up mailing purposes only. When analysis of the questionnaire is completed, all name and address files will be destroyed. Thus the permanent data will be anonymous. Data collected through visitor surveys may be disclosed to the Department of Justice when relevant to litigation or anticipated litigation, or to appropriate Federal, State, local or foreign agencies responsible for investigating or prosecuting a violation of law. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. **BURDEN ESTIMATE STATEMENT:** Public reporting burden for this form is estimated to average 10 minutes per response. Direct comments regarding the burden estimate or any other aspect of this form to Information Collection Clearance Officer, WASO Administration Program Center, National Park Service, 1849 C Street, N.W., Washington, D.C. 20240.



APPENDIX B: STUDY PHOTOGRAPHS

Traffic on Roads



(0 Cars)



(5 Cars)



(10 Cars)



(15 Cars)



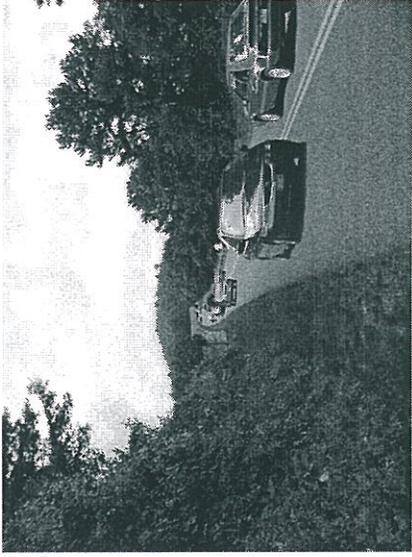
(20 Cars)



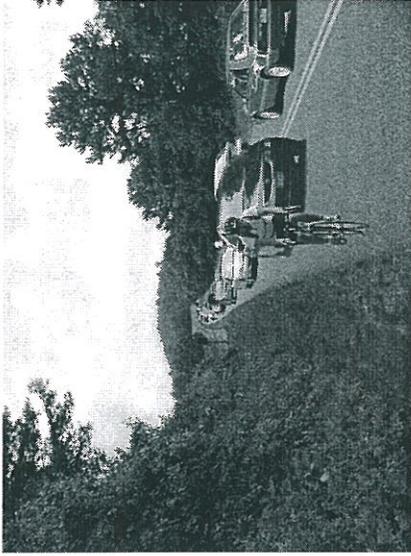
(4 Cars, 1 Bicycle)



(8 Cars, 2 Bicycles)



(12 Cars, 3 Bicycles)



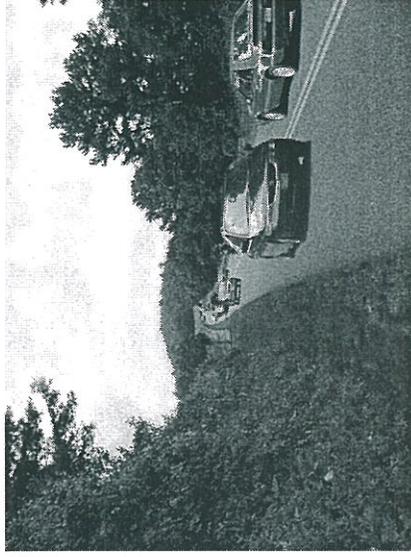
(16 Cars, 4 Bicycles)



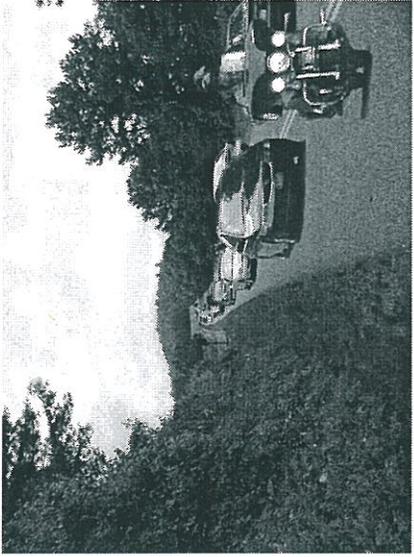
(4 Cars, 1 Motorcycle)



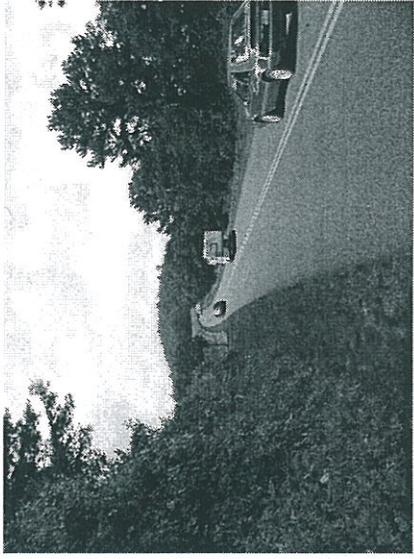
(8 Cars, 2 Motorcycles)



(12 Cars, 3 Motorcycles)



(16 Cars, 4 Motorcycles)



(4 Cars, 1 RV)



(8 Cars, 2 RVs)



(12 Cars, 3 RVs)



(16 Cars, 4 RVs)



People at Overlooks



(0 People)



(22 People)



(44 People)



(66 People)



(88 People)