THE ECONOMIC IMPACT OF BICYCLING IN THE CENTRAL SHENANDOAH VALLEY

Bicycle tourism in the Central Shenandoah Valley region is estimated to have generated $8.6 million in sales activity in 2015. The total economic impact of bicycle tourism, including multiplier effects, is estimated to have been $13.6 million that supported 184 jobs in the region in 2015.

August 12, 2016

THE ECONOMIC IMPACT OF BICYCLING IN THE CENTRAL SHENANDOAH VALLEY

An estimate of the economic impact of bicycle-related tourism and business in the Central Shenandoah Valley

Public-Private Sponsors of the Study

City of Harrisonburg

Rockingham County

Shenandoah County

Greater Augusta Regional Tourism (GART) representing
Augusta County, City of Staunton, and City of Waynesboro

Lexington & the Rockbridge Area Tourism representing
Rockbridge County, City of Buena Vista, and City of Lexington

Shenandoah Valley Bicycle Coalition (SVBC)

Bryce Resort

Massanutten Resort

This report was prepared by the
Central Shenandoah Planning District Commission
with the assistance of the study sponsors and
the Roanoke Valley-Alleghany Regional Commission.

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Central Shenandoah Planning District Commission

TABLE OF CONTENTS

List of Figures **2**
1 Executive Summary **3**
2 Background **5**
2.1 Study Purpose 5
2.2 Central Shenandoah Valley's Bicycle Environment 6
2.3 Study Approach 8
2.3.1 Survey Instrument 8
2.3.2 Economic Impact Model 9
2.3.3 Rider Profile 10
3 Profile of Bicyclists **11**
3.1 Survey Response 11
3.2 Profile of Visiting Cyclists 11
3.2.1 Demographic & Economic Characteristics of Visiting Cyclists 12
3.2.2 Bicycling Characteristics of Visitors 14
3.2.3 Characteristics of Visit 15
3.3 Profile of Resident Cyclists 19
3.3.1 Demographic & Economic Characteristics of Resident Cyclists 19
3.3.2 Bicycling Characteristics of Residents 21
3.3.3 Bicycle Facilities 24
3.3.4 Travel Characteristics 26
4 Economic Impact of Bicycling **27**
4.1 Estimating Bicycling Tourism in the Region 27
4.1.1 Methodology 27
4.1.2 Survey Results 29
5 Building on Our Bicycling Assets **33**
5.1 Visitor Suggestions 33
5.2 Resident Suggestions 34
5.3 Regional Bicycling Recommendations 35
Appendix A: Central Shenandoah Valley Bicycling Organizations, Events & Trails 39

LIST OF FIGURES

CHAPTER 3 – PROFILE OF BICYCLISTS

Figure 3.1 Home Location of Survey Respondents 11

Profile of Visiting Cyclists

Figure 3.2 Age of Visitor Respondents 12
Figure 3.3 Highest Education Level Completed by Visitor Respondents 13
Figure 3.4 Income Level of Visitor Respondents 13
Figure 3.5 Rider Rating – Visitor Respondents 14
Figure 3.6 Length of Average Bike Ride – Visitor Respondents 14
Figure 3.7 Time Duration of Average Bike Ride – Visitor Respondents 15
Figure 3.8 Source of Region's Biking Information 15
Figure 3.9 Month of Visit 16
Figure 3.10 Location of Overnight Stay 16
Figure 3.11 Type of Accommodations 17
Figure 3.12 Number of Days Biking during Stay 17
Figure 3.13 Visitor Activities during Stay 18
Figure 3.14 Places Visitors Biked 18

Profile of Resident Cyclists

Figure 3.15 Age of Resident Respondents 19
Figure 3.16 Highest Education Level Completed by Resident Respondents 20
Figure 3.17 Income Level of Resident Respondents 20
Figure 3.18 Rider Rating – Resident Respondents 21
Figure 3.19 Length of Average Bike Ride – Resident Respondents 22
Figure 3.20 Time Duration of Average Bike Ride – Resident Respondents 22
Figure 3.21 Comparison of Visitor and Resident Responses Demographic & Economic Characteristics 23
Figure 3.22 Comparison of Visitor and Resident Responses, Bike Riding Characteristics 24
Figure 3.23 Overall Quality of Bicycling 25

CHAPTER 4 – ECONOMIC IMPACT OF BICYCLING

Figure 4.1 Overnight Visitors by Type of Lodging 30
Figure 4.2 Visitors – Average Daily Spending Per Person 30
Figure 4.3 Estimated Yearly Assumptions for IMPLAN Model 30
Figure 4.4 Visitors Impact Summary 31
Figure 4.5 Top 10 Impacted Sectors 31

1 EXECUTIVE SUMMARY

The "Bicycling in the Central Shenandoah Valley" Economic Impact Analysis (EIA) study estimated the economic impact of bicycle-related tourism and business in the Central Shenandoah Valley. The primary purpose of the study was to determine the direct, indirect, and induced economic impacts of bicycling within the study region, which was comprised of four counties and five cities. In addition to spending patterns, the study was intended to provide a profile of bicyclists visiting the region as well as a profile of residents that bicycle for recreation and/or commuting. The profiles and responses from both types of bicyclists, tourist and resident, were used to identify approaches to better promote the region's bicycling events, routes, and activities to tourists and to improve the riding experience for all bicyclists in the Central Shenandoah Valley.

Based on the survey conducted in 2015 for the economic impact study, *visitors* bicycling in the study area had the following characteristics:

- The majority of visiting bicyclists, 80 percent, were men.
- Most visiting bicyclists were middle-aged. Approximately 57 percent were 41-60 years old.
- Visiting bicyclists tended to have higher education levels; 80 percent held a Bachelor's degree or higher.
- The household income of visitors bicycling in the Central Shenandoah Valley region tended towards the higher-income range with 55 percent of visitor households having an annual income greater than $100,000.
- Most visiting cyclists considered themselves serious riders (63%). This is reflected in their longer rides. For 36 percent of visitors, their average bike ride was 50+ miles.
- The majority of visitors were from other parts of Virginia (62%). Maryland, Pennsylvania, North Carolina, and the District of Columbia rounded out the top five locations.
- Most visitors, 71 percent, stayed overnight in the area. Visitors stayed an average of 2.44 nights. The most popular accommodations were hotel/motel and campgrounds.
- For visitors, the average daily spending per person was approximately $155 with just over half of that amount being for lodging and meals.

Based on the survey conducted in 2015 for the economic impact study, *residents* bicycling in the study area had the following characteristics:

- Almost two-thirds of resident cyclists (64%) were men and about one-third was women.
- The number of resident cyclists in the 5-year age groups between the ages of 31 and 60 was fairly evenly distributed. The age group with the highest percentage of riders was the 36-40 year olds.
- The education level of resident bicyclists mirrored those of visitors; 80 percent held a Bachelor's degree or higher.
- The household income level of 52 percent of resident bicyclists was greater than $100,000. Compared to visitors, a greater percentage of local cyclists earned less than $25,000 (6.1%).
- Most local cyclists considered themselves intermediate/recreational riders (60%). Seven percent characterized themselves as beginner/novice riders.
- The average local cyclist spent $937 on bicycles or related equipment in 2015.

The bicycle tourism industry in the Central Shenandoah Valley had a total economic impact of $13.6 million and supported 184 jobs in 2015.

- Visitor spending had a direct economic impact of approximately $8.6 million that supported 144 jobs.
- Adding direct, indirect, and induced impact, the total economic impact of bicycle tourism in the study area is estimated at $13.6 million that supported 184 jobs.
- The top sectors impacted by bicycle tourism are restaurants, hotels, motels, and retail establishments.

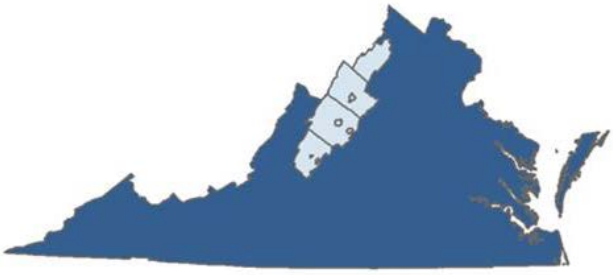
2 BACKGROUND

2.1 STUDY PURPOSE

The "Bicycling in the Central Shenandoah Valley" Economic Impact Analysis (EIA) study estimated the economic impact of bicycle-related tourism and business. The primary purpose of the study was to determine the direct, indirect, and induced economic impacts of bicycling within a four-county, five-city region within Virginia's Shenandoah Valley. In addition to spending patterns, the study was intended to provide a profile of bicyclists visiting the region as well as a profile of residents that bicycle for recreation or to commute. The profiles and responses from both types of bicyclists, tourist and resident, were used to were used to identify approaches to better promote the region's bicycling events, routes, and activities to tourists as well as to improve the riding experience for all bicyclists in the Central Shenandoah Valley.

The study area for the Central Shenandoah Valley Bicycle Economic Impact Analysis is shown on the map below. The study area covered four counties and five cities. The sponsors of the study were:

1. Shenandoah County
2. Bryce Resort
3. City of Harrisonburg
4. Rockingham County
5. Massanutten Resort
6. Greater Augusta Regional Tourism (GART) representing Augusta County and the Cities of Staunton and Waynesboro
7. Lexington & the Rockbridge Area Tourism representing Rockbridge County and the Cities of Buena Vista and Lexington
8. Shenandoah Valley Bicycle Coalition (SVBC)



Study area is shown in light blue.

The study sponsors contracted with the Central Shenandoah Planning District Commission (CSPDC) to manage the process to complete the bicycle economic impact study. These steps are described in greater detail below. To better understand the need for this study, it is helpful to be familiar with the bicycle environment of the study area.

2.2 CENTRAL SHENANDOAH VALLEY'S BICYCLE ENVIRONMENT

The Central Shenandoah Valley's pastoral landscapes, quaint cities and towns, and various historic, natural, and cultural resources offer an ideal setting for bicyclists. The region has a multitude of outdoor activities for visitors in addition to bicycling. These activities include hiking, camping, fishing, canoeing and kayaking. Shenandoah National Park, the Blue Ridge Parkway, and the Appalachian Trail are all located within the study area. The region has an opportunity to strengthen its reputation as a destination for people seeking an active vacation, and specifically, it has the opportunity to grow as a bicycle destination.

Realizing economic benefit from an appropriate use of rural road resources and trails coincides with the region's desire to maintain its rural character and quality of life. Bicycle tourism is a low impact activity that can bring dollars to many businesses and attractions, particularly those in small towns. Additionally, outdoor activities, such as bicycling, contribute to a region's quality of life. Businesses tend to invest in locations that have a high quality of life, and employers have an easier time attracting employees to such locations.[1]

Beyond tourism, many of the region's residents use bicycles for recreation but also transportation. For those that bicycle for travel purposes, connections among activity and population centers as well as rider comfort and safety are important. Regional and local governments have addressed this with intentional bicycle planning. In 2005, the Central Shenandoah Valley Bicycle Plan was completed and adopted by the 21 cities, counties, and towns that comprise the Central Shenandoah Planning District. This plan recognized the potential transportation, health, recreational, tourism and economic benefits of bicycling. The plan outlined a coordinated and strategic approach to the development of a regional transportation system that accommodates and encourages bicycling.

In addition to this regional plan, a number of the localities sponsoring this bicycle economic impact analysis participated in bicycle planning. These include:

- The City of Harrisonburg's Bicycle & Pedestrian Plan was adopted in 2010. It is currently being updated for 2016.
- The Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) is nearing completion on its bicycle-pedestrian plan. The HRMPO is a regional transportation planning organization that provides support for multimodal

[1] Central Shenandoah Valley Bicycle Plan, Central Shenandoah Planning District Commission, June 2005

transportation projects in the City of Harrisonburg, the Towns of Bridgewater, Dayton, and Mount Crawford, and the surrounding portions of Rockingham County.

- Rockingham County currently is developing its first bicycle and pedestrian plan for the area of the county that is outside of the Harrisonburg-Rockingham MPO boundary. The plan is in its final stages and was coordinated with the HRMPO bicycle-pedestrian plan.
- The City of Waynesboro Bicycle Plan was adopted in 2012.
- The City of Staunton was awarded grant funding in February 2016 to prepare a bicycle and pedestrian plan.

The study area is home to many bicycle-friendly rides, trails, events, and honors. Some of these are highlighted below. For a detailed list, refer to Appendix A.

- Bicycle Organizations – The region has numerous bicycle clubs and groups, both for on-road riding and mountain biking. In addition to organizing rides and/or tours, many of these organizations host biking events and advocate for bicycle safety.
- Bicycle Events – The region hosts approximately 30 bicycle races and festivals each year. Events begin in April and conclude in early November.
- Route 76 – The region is home to a segment of the Transamerica Route 76, a cross-country cycling route from Oregon to Virginia. The route crosses Rockbridge County and the City of Lexington.
- Bike the Valley Program – The Bike the Valley program, administered by the CSPDC, is a marketing campaign designed to promote the Shenandoah Valley as a key bicycle tourism destination in the Commonwealth. (www.bikethevalley.org)
- Local Bike Shops – The study area supports seven small business retail stores selling bicycles and related products and services. These include three stores in Harrisonburg and one store each in Dayton, Waynesboro, Staunton, and Lexington. The region also is served by big box retail stores that sell bicycles such as Dick's, Target, and Walmart.
- The City of Harrisonburg was recognized as Bicycle Friendly Community by the League of American Bicyclists beginning in 2011. The City was honored with a bronze level award.

- Harrisonburg & Rockingham Bike-Walk Summit – Since 2012 the Harrisonburg-Rockingham MPO and the Shenandoah Valley Bike Coalition have sponsored a one-day workshop where participants learn about the recent accomplishments related to biking and walking in the Harrisonburg-Rockingham area. Participants share ideas and inspiration for encouraging biking and walking and creating a more bicycle and pedestrian friendly environment.

One of the outcomes of the 2014 Harrisonburg and Rockingham County Bike-Walk Summit was a goal to pursue the development of a bicycle economic impact analysis. It is under this bicycling culture backdrop that this economic impact study was initiated. The localities with a strong cycling community wished to perform an assessment of the economic impact of bicycle tourism.

2.3 STUDY APPROACH

This collective group of public, private, and non-profit study partners sought a report that would be used as an information resource and a baseline assessment for future funding and marketing decisions. The bicycle economic impact study was comprised of the following three main activities:

1. Online survey to collect spending and rider profile information
2. Estimation of economic impact using IMPLAN modeling software
3. Analysis of survey responses to propose recommendations for bicycling tourism and bicycle infrastructure in the Central Shenandoah Valley

2.3.1 SURVEY INSTRUMENT

The first step of the economic impact study was to conduct an online survey using SurveyMonkey to gather the necessary and relevant data related to bicycling and bicycle tourism in the region. The CSPDC conducted the survey from April 28, 2015, to November 18, 2015. The survey was for all bicyclists in the region, both local riders and visitors. This was accomplished by directing the survey taker to the applicable set of questions based on their place of residence. If they responded with a locality in the study area, they were considered a local resident. Otherwise, they were considered a visitor.

The survey was promoted throughout the region using several approaches. These included the following:

- A promotional business-sized card and display sign were produced. The signs were displayed at visitor centers, local government offices, local bike/outdoor shops, and biking events.
- The study partners promoted the survey through direct marketing at events, links on websites, and social media.
- The study partners contacted bike event organizers to include the survey information in event registration packets and follow-up correspondence with riders.
- To incentivize survey participation, those that completed a survey could enter a drawing to win one of several gift certificates which were donated by the study partners.

The survey was intended to determine bicycle-related spending amounts to estimate economic impact. Additionally, the survey was used to gather information on riders' socio-economic characteristics, biking habits, details of their visit, and suggested improvements to our region's bicycling facilities. Over 1,500 residents and visitors participated in the survey. Results of the survey are discussed in Chapters 3 through 5 of this report.

2.3.2 ECONOMIC IMPACT MODEL

Survey responses were used to compute average expenditures for food, lodging, and retail purchases made in the region per person per day. The IMPLAN (Impact Analysis for PLANning) economic impact model was used to estimate the amount of regional activity from bicycle tourism. The CSPDC contracted with the Roanoke Valley-Alleghany Regional Commission (RVARC) to model the survey responses to determine the economic impact of bicycling. Using the IMPLAN model, RVARC estimated the direct, indirect, and induced impacts of bicycle tourism in the Central Shenandoah Valley.

As an input to the economic impact model, the study committee needed to determine the percentage of all bicycling tourists that completed the survey; what was the capture rate of the survey. There is no data available that offers a precise number of bicycling visitors to area. Furthermore, there is no data available for the specific number of visitors in the area for any purpose. To determine the capture rate, visitor assumptions relied on information from the study area's Destination Marketing Organizations (DMO), or tourism offices. Assumptions for bicycling tourists additionally incorporated information from the Shenandoah Valley Region Travel Profile published by the Virginia Tourism Corporation (VTC). Specifically, the assumptions were:

- The total annual number of visitors to the study area was 5 million. This was determined by gathering data on the number of visitors to visitor centers within the study area. It was assumed that five percent of all visitors stop at a visitor center.
- According to the Shenandoah Valley Region Travel Profile, one percent of travelers indicated biking as an activity when visiting the Shenandoah Valley.
- With these two assumptions, above, the total number of bicycling visitors is 50,000. The bike survey represents about four percent of visiting bicyclists. For purposes of the IMPLAN model, a more conservative number of five percent was used.

The survey represented 2,187 bicycling tourists. While this is a good response, the assumptions indicate that this was small portion of the total number of visitors coming to the study area to bicycle. This indicates that bicycling may have a greater economic impact than initially thought, and it certainly provides opportunities to grow this tourism sector.

2.3.3 RIDER PROFILE

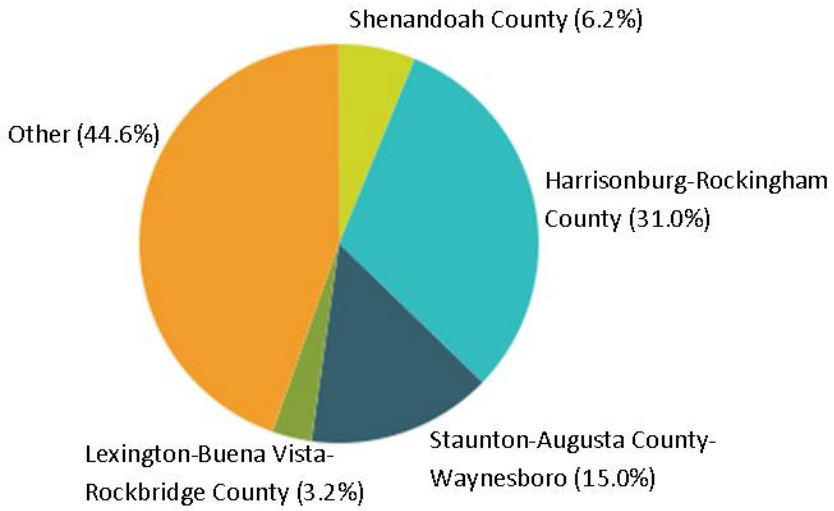
As mentioned above, the survey was used to evaluate the characteristics of both visitors and residents bicycling in the Central Shenandoah Valley. Using the survey responses, the CSPDC created a profile of those bicycling as a visitor as well as a profile of residents that participate in biking. The survey confirmed that there are variations in these two types of riders. These rider profiles are discussed in Chapter 3.

3 PROFILE OF BICYCLISTS

3.1 SURVEY RESPONSE

The study survey collected information about both bicycling visitors and residents. There were 1,581 total surveys completed representing 3,064 people. The first question of the survey asked for the address of the survey respondent. The distribution of responses is shown in Figure 3.1. For the purposes of this survey, anyone residing in the study area was considered a resident. The "other" category represents the percentage of visiting bicyclists.

Figure 3.1
Home Location of Survey Respondents



The responses from the survey were used to compile separate rider profiles for visitors and residents. Each is described below.

3.2 PROFILE OF VISITING CYCLISTS

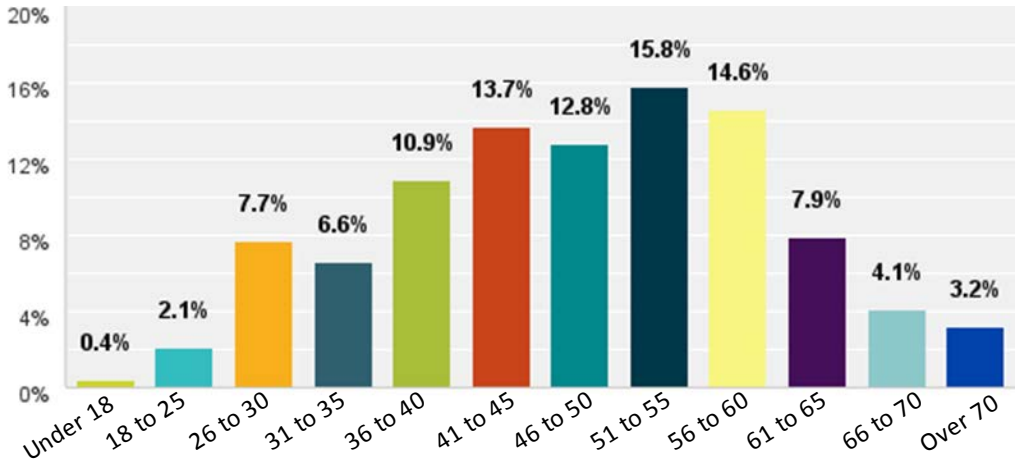
Forty-five percent of the bicycling surveys were completed by visitors. These 704 surveys represented 2,187 people. The questions asked of visitors centered on who they are, where they are going within the region, and what they are doing during their visit. Respondents represented 25 states, the District of Columbia, two Canadian provinces, and Australia. Overwhelmingly, visitors were from other regions of Virginia (62% of respondents). The top places from which visitor respondents originated are listed in order below:

1. Virginia
2. Maryland
3. Pennsylvania
4. North Carolina
5. District of Columbia
6. West Virginia
7. Tennessee
8. Delaware
8. New York
8. Ohio
8. Quebec
12. Georgia

3.2.1 DEMOGRAPIC & ECONOMIC CHARACTERISTICS OF VISITING CYCLISTS

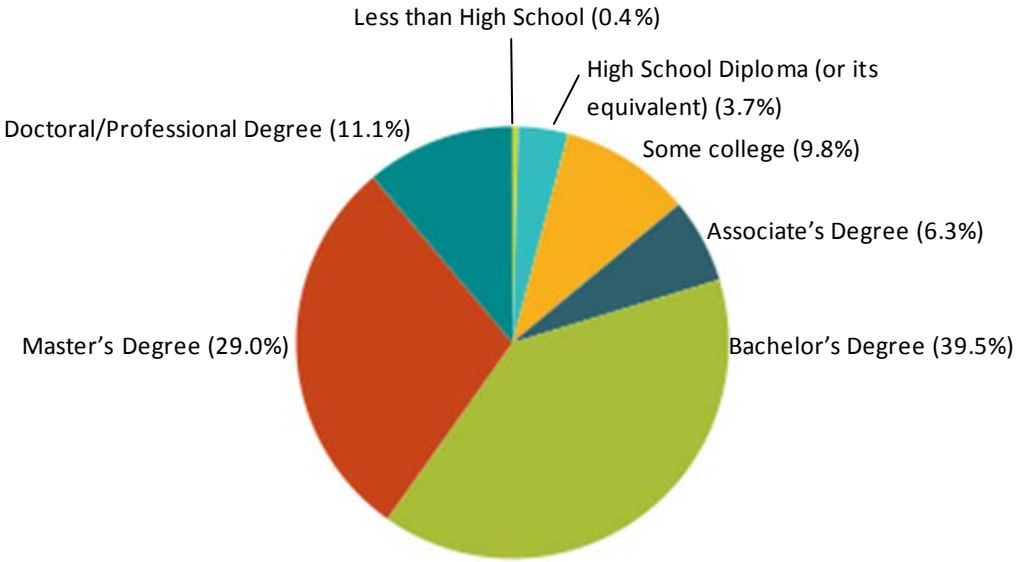
Those taking the bicycling survey were requested to provide demographic information about themselves. Eighty percent of respondents were male; 20 percent were female. The distribution of their ages is shown in Figure 3.2. Thirty percent of respondents were 51-60 years old, and another 27 percent were 41-50 years old.

Figure 3.2
Age of Visitor Respondents



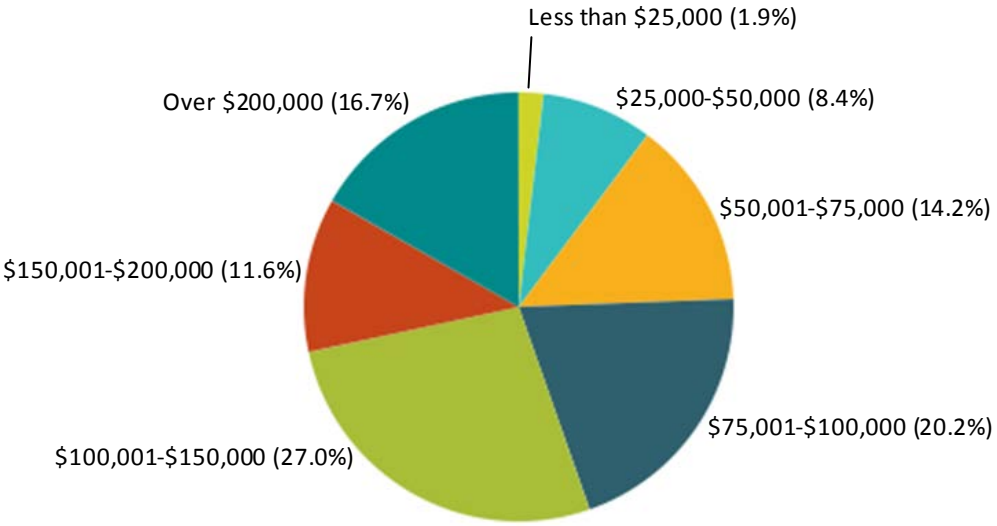
Survey respondents tended to have higher education levels. As shown in Figure 3.3, 40 percent of respondents had completed a Bachelor's degree and another 40 percent had completed either a Master's degree or Doctoral/professional degree. This is higher than the education level of responses included in the Virginia Tourism Corporation's (VTC) Shenandoah Valley Region Travel Profile. In VTC's travel profile, 53 percent of their respondents had graduated with a Bachelor's degree or post-graduate degree.

Figure 3.3
Highest Education Level Completed by Visitor Respondents



Because of the working age and education level of the survey's respondents, it is not surprising that they also tended to be upper income. The income distribution of respondents is shown in Figure 3.4.

Figure 3.4
Income Level of Visitor Respondents



3.2.2 BICYCLING CHARACTERISTICS OF VISITORS

Bicycling tourists that responded to the survey were primarily serious riders; they were in the Central Shenandoah Valley to ride. Furthermore, 88 percent of survey respondents were repeat visitors to region. Of survey respondents that rated their riding ability, 63 percent considered themselves to be advanced/serious riders. A little over a third (34.5 percent) labeled themselves as intermediate or recreational riders. Only two percent rated themselves as beginner/novice riders (Figure 3.5). This rider rating is reflected in the longer length and duration of rides by respondents (Figures 3.6 and 3.7). Over a third of riders biked more than 50 miles on their average ride. Nearly 3 out of 4 respondents biked three or more hours on a ride. The average ride for 20 percent of respondents was more than six hours.

Figure 3.5
Rider Rating – Visitor Respondents

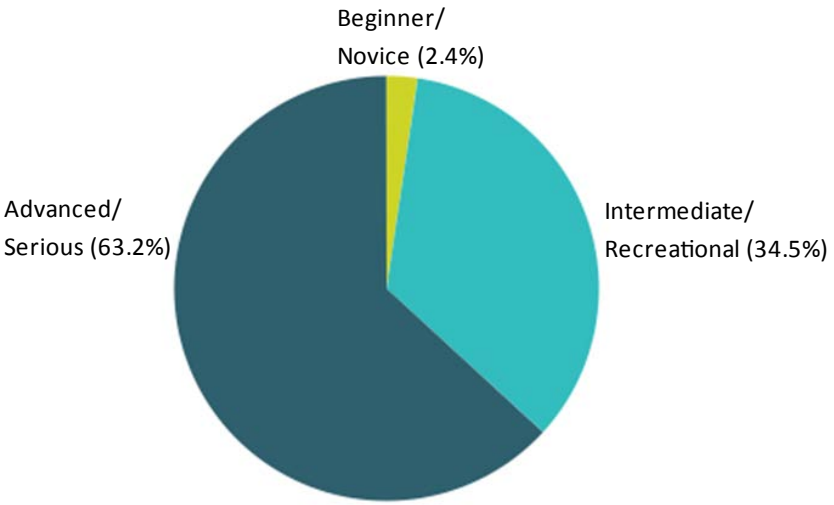


Figure 3.6
Length of Average Bike Ride – Visitor Respondents

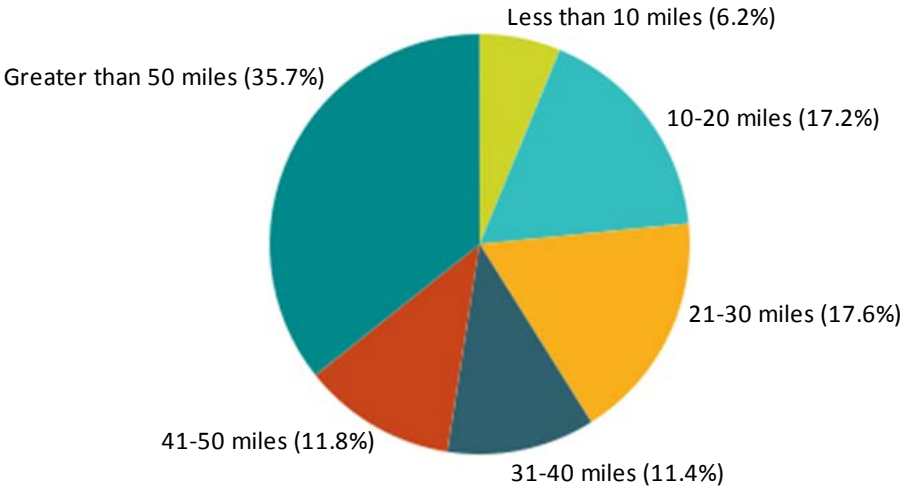
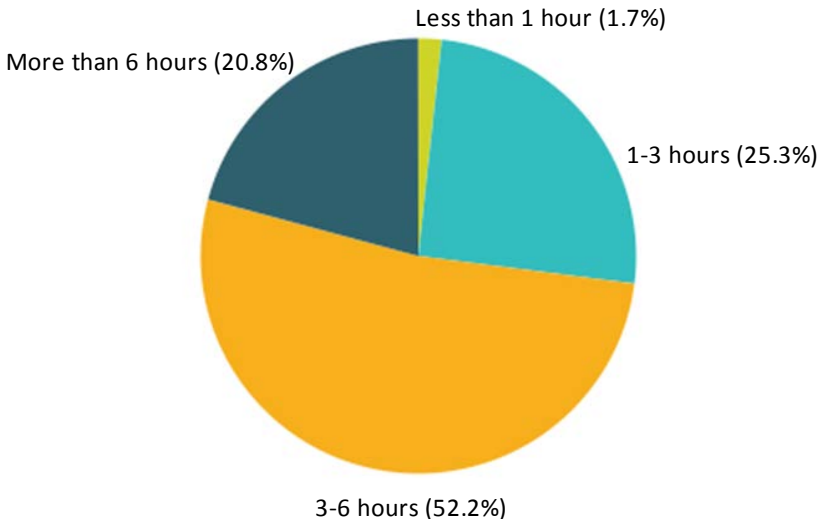


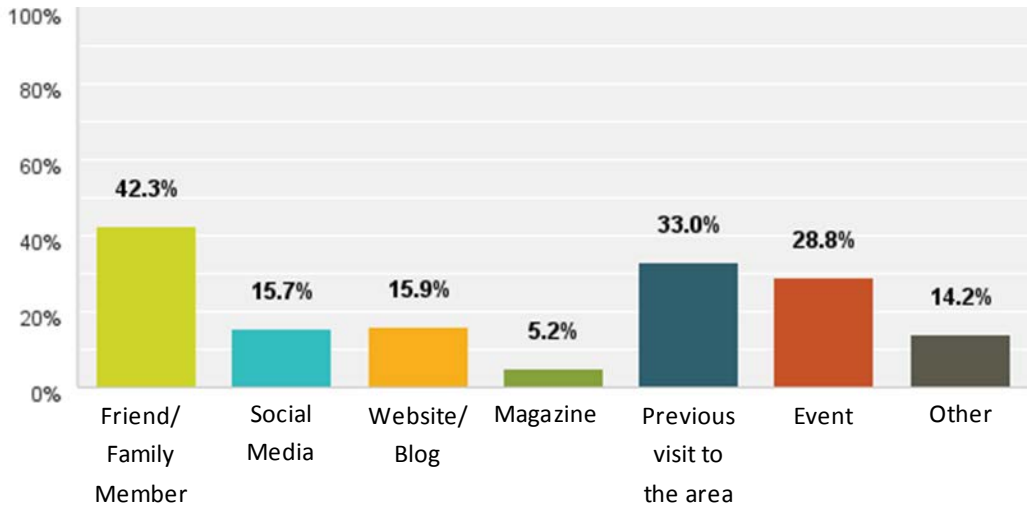
Figure 3.7
Time Duration of Average Bike Ride – Visitor Respondents



3.2.3 CHARACTERISTICS OF VISIT

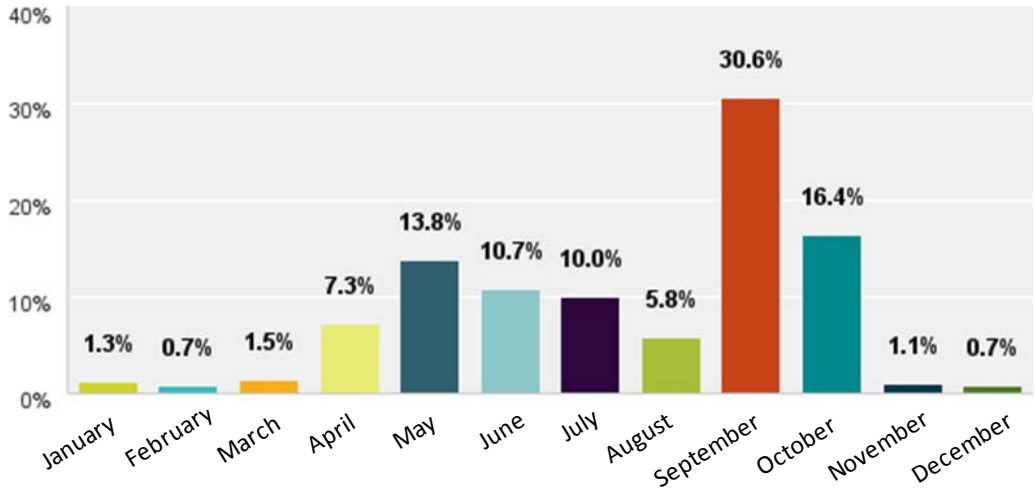
Visitors bicycling in the Central Shenandoah Valley became familiar with the area's bicycling opportunities through a variety of sources. Survey respondents could select more than one source of information. As shown in Figure 3.8, the top three sources were friends and family, previous visit to the area, and events. Online sources also were used including websites and social media such as Facebook and Twitter. Only five percent of visitors learned about bicycling in the area through magazines. Write-in responses indicated by the "other" category included that the person previously attended one of the area's universities, lived in the area, or traveled to the area for business.

Figure 3.8
Source of Region's Biking Information



The fall season was the most popular time for bicyclists to visit the region, 30 percent in September followed by 16 percent in October. May was third with 14 percent of visits during that month.

Figure 3.9
Month of Visit



Most survey respondents, 71 percent, stayed overnight in the area when visiting. Figure 3.10 indicates the location of their accommodations while Figure 3.11 shows their type of accommodations. About a third of visitors stayed at a hotel or motel and about a third of visitors camped.

Figure 3.10
Location of Overnight Stay

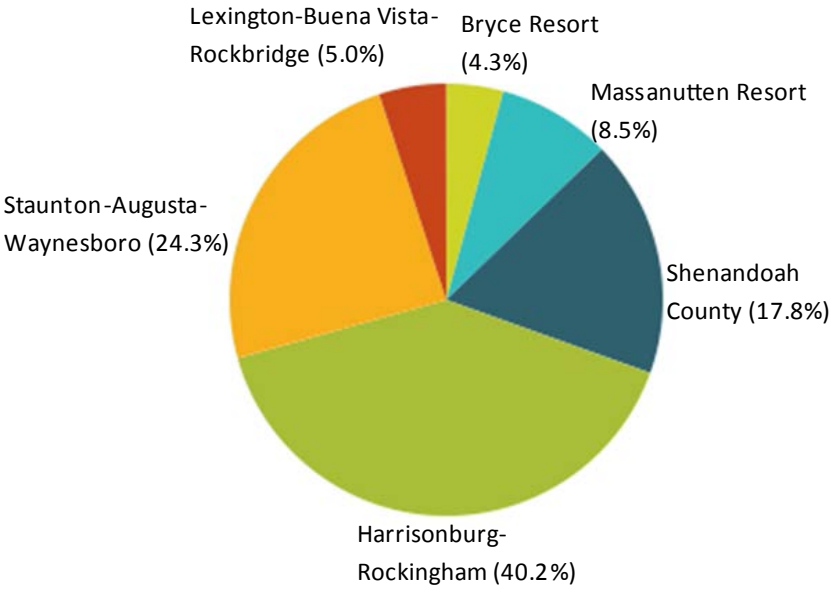
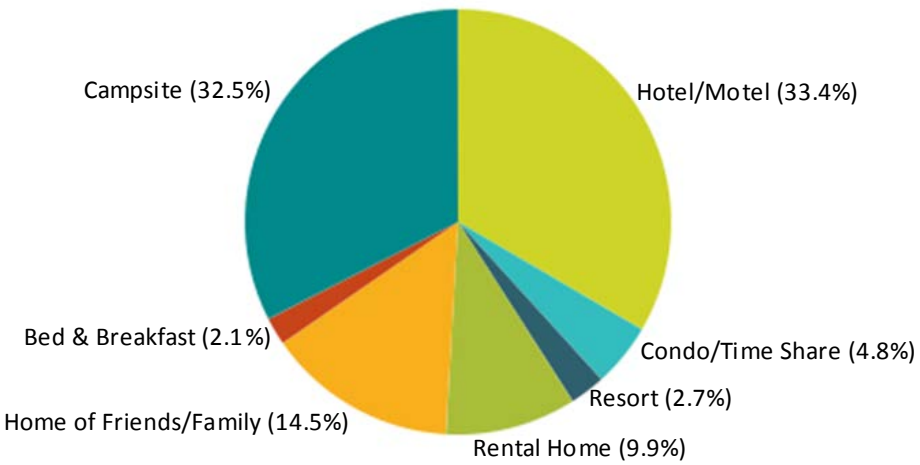
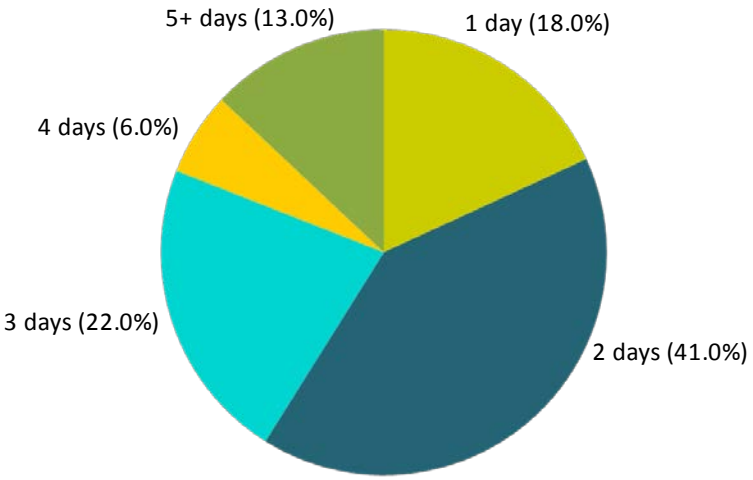


Figure 3.11
Type of Accommodations



Two out of five visiting bicyclists rode on two days of their visit (Figure 3.12). Another one out of five rode on three days. This would suggest weekend visits.

Figure 3.12
Number of Days Biking during Stay



As noted under the description of rider characteristics, Section 3.2.2, most visiting bicyclists were serious riders. They were primarily visiting the region to bicycle, just over half (54 percent) of survey respondents were here strictly for bicycling. The remaining 46 percent of bicycle tourists participated in other activities as shown in Figure 3.13.

Figure 3.13
Visitor Activities during Stay

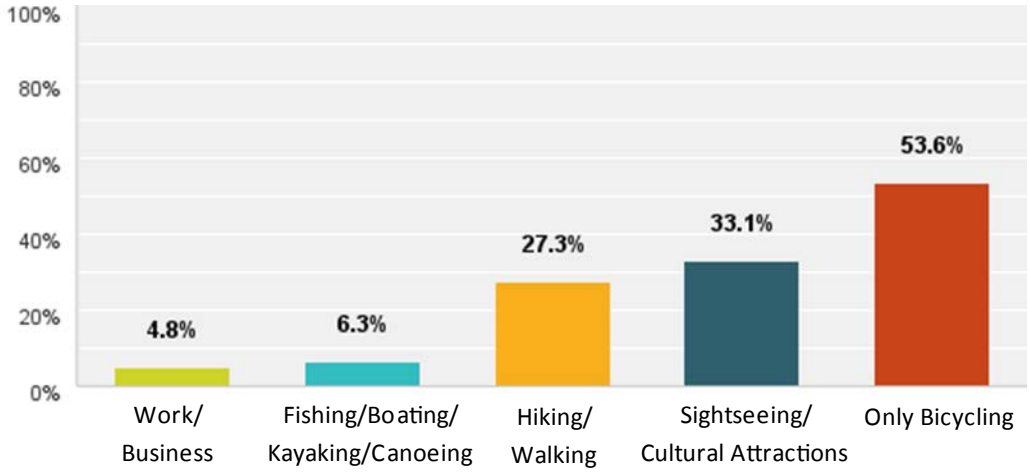
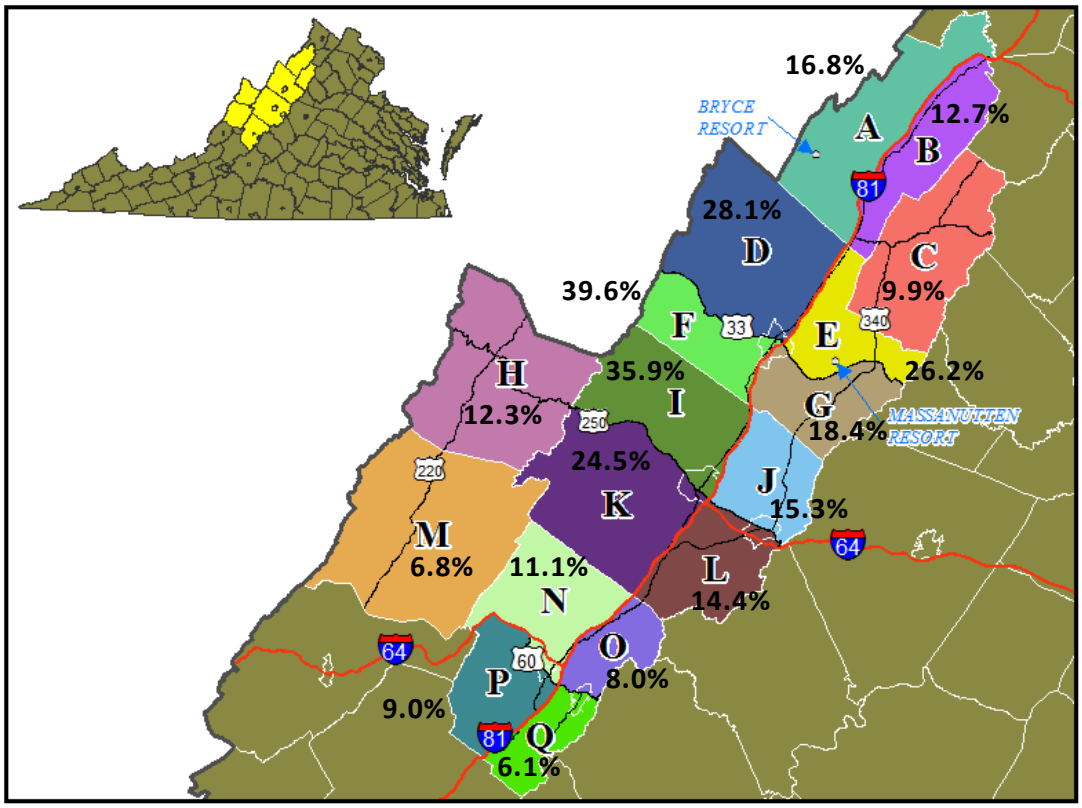


Figure 3.14 indicates where respondents were bicycling during their visit. Survey respondents could select all places they that they biked. As indicated on the map, Harrisonburg-Rockingham County and Staunton-Augusta County, west of Interstate 81, were the most popular. It is important to note, however, that the greatest percentage of survey respondents stayed overnight in these areas (see Figure 3.10).

Figure 3.14
Places Visitors Biked



Nearly all, 99 percent, of bicycling tourists that completed the survey replied that they would return to the Central Shenandoah Valley for bicycling. This is verified by the number of survey respondents that indicated that they previously had been to the region.

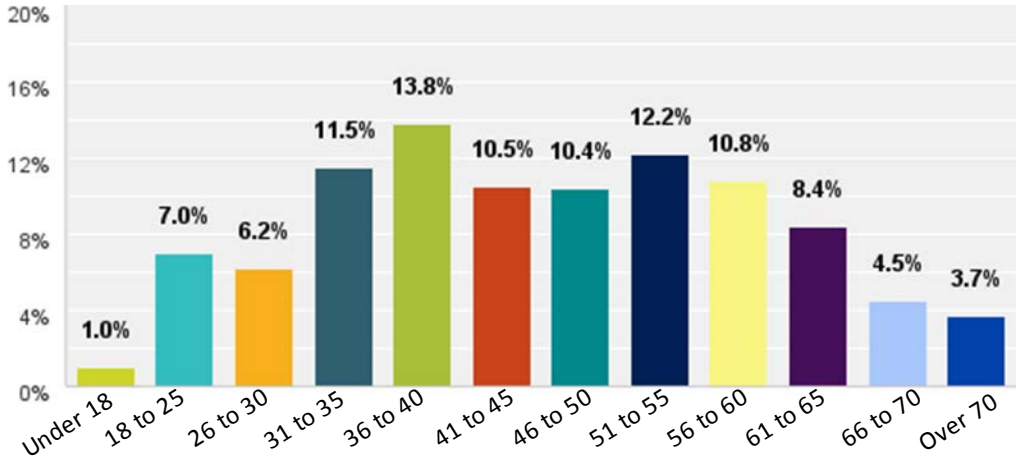
3.3 PROFILE OF RESIDENT CYCLISTS

Fifty-five percent of the total number of surveys, or 877, were submitted by residents of the study area. Similar to visitors, residents were asked questions about who they are and characteristics of their typical bike rides. Additionally, questions for residents focused on gathering information about bicycle facilities in the region.

3.3.1 DEMOGRAPIC & ECONOMIC CHARACTERISTICS OF RESIDENT CYCLISTS

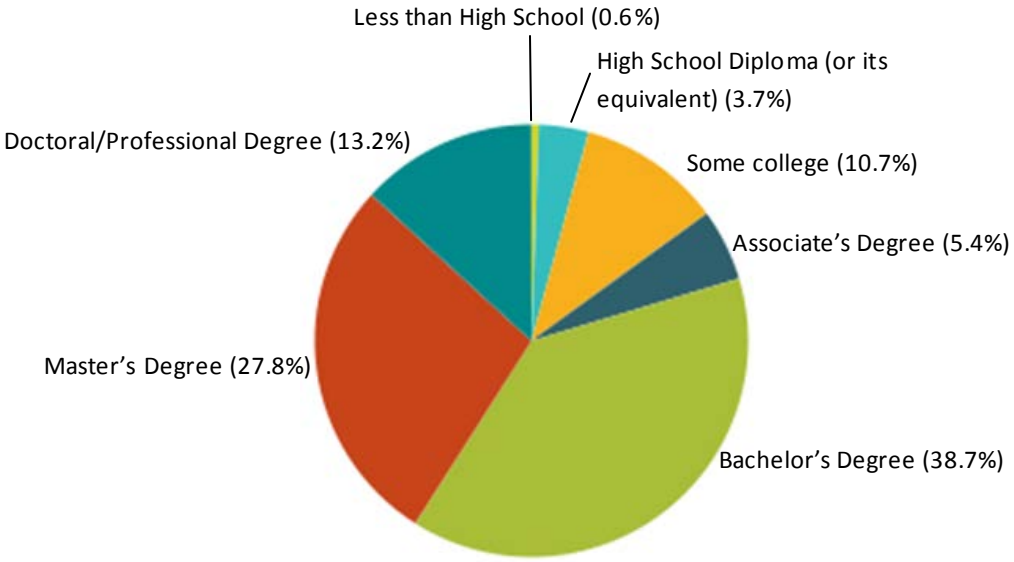
All survey respondents, both visitors and residents, were asked to provide basic demographic information. Of resident responders, 64 percent were male and 36 percent were female. The distribution of their ages is shown in Figure 3.15. The highest percentage of respondents was in the 36-40 year age group (13.8%). There were two notable differences between resident and visitor responses. With residents, a greater percentage of 18-25 year old as well as 31-36 year completed the bicycle survey (refer to Figure 3.21, Comparison of Visitor and Resident Survey Respondents, Demographic & Economic Characteristics). The presence of a number of colleges and universities within the study area, particularly James Madison University in Harrisonburg, is likely influencing the higher percentage of 18-25 year olds.

Figure 3.15
Age of Resident Respondents



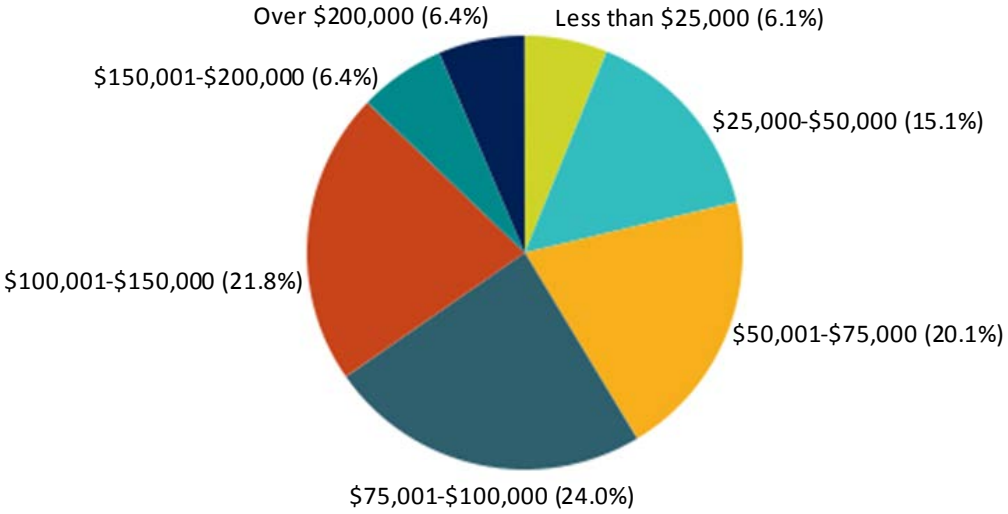
Resident survey respondents tended to have higher-education levels. Education levels tended to mirror those of visitors. Figure 3.16 shows that nearly 80 percent of respondents held a Bachelor's degree or higher.

Figure 3.16
Highest Education Level Completed by Resident Respondents



Income levels for resident respondents are shown in Figure 3.17. The percentage of residents with household incomes of $50,000 or less (21.2%) was double that of visitors (10.3%).

Figure 3.17
Income Level of Resident Respondents



3.3.2 BICYCLING CHARACTERISTICS OF RESIDENTS

As with visitors, residents were asked about their riding ability and riding habits. Overall, residents rode for shorter lengths and times. Most considered themselves intermediate/recreational riders (60.6%). Resident and visitor responses contrasted for the length, and subsequently, the time of the average bike ride (Figures 3.18 and 3.19). While the smallest proportion (0.9%) of resident respondents classified their average ride to be greater than 50 miles, the largest proportion (35.7%) of visitor respondents selected this category. Likewise, the average bike ride of one in five visitor respondents was more than 6 hours while no resident respondent chose this category. A side-by-side comparison of visitor and resident responses is available in Figure 3.21 and Figure 3.22.

Figure 3.18
Rider Rating – Resident Respondents

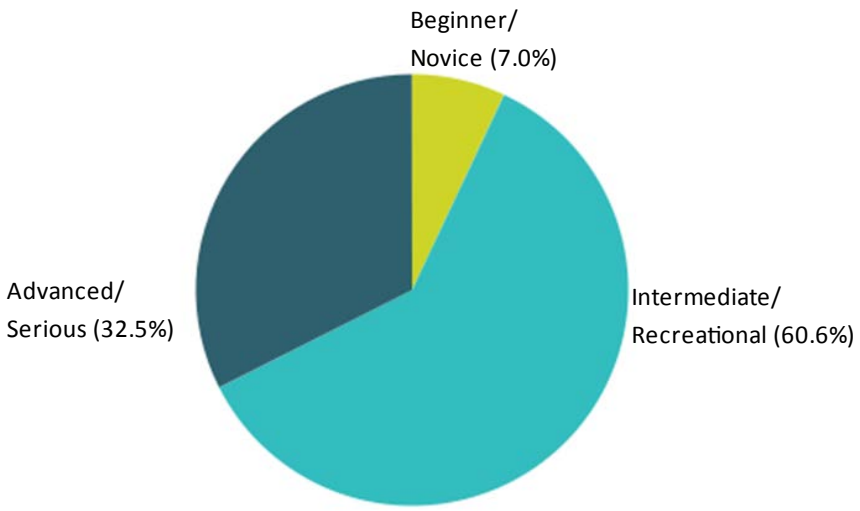


Figure 3.19
Length of Average Bike Ride – Resident Respondents

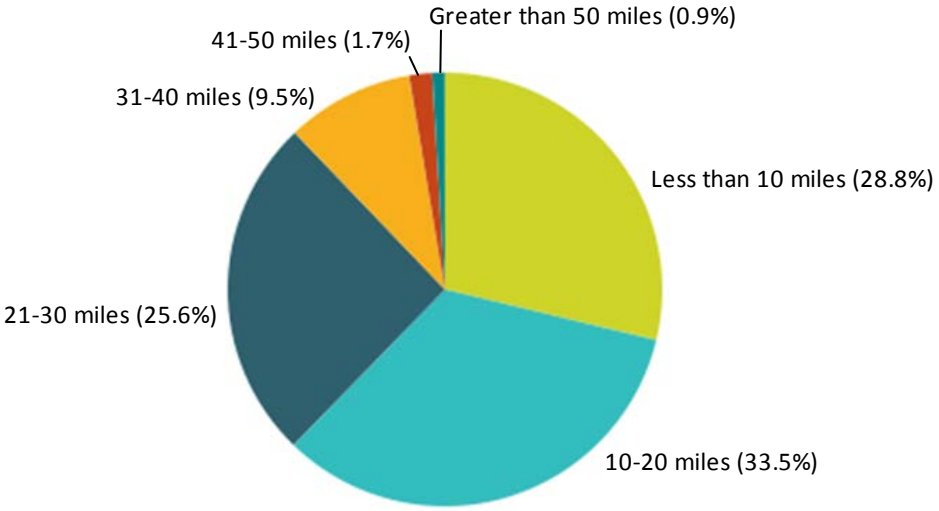


Figure 3.20
Time Duration of Average Bike Ride – Resident Respondents

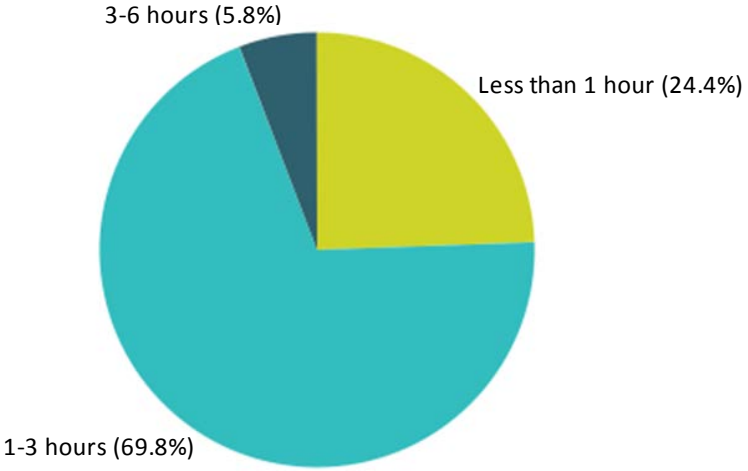


Figure 3.21
Comparison of Visitor and Resident Responses
Demographic & Economic Characteristics

Characteristic	Visitor (%)	Resident (%)
Gender		
Male	79.8	63.9
Female	20.2	36.1
Age (years)		
Under 18	0.4	1.0
18-25	2.1	7.0
26-30	7.7	6.2
31-35	6.6	11.5
36-40	10.9	13.8
41-45	13.7	10.6
46-50	12.6	10.4
51-55	15.9	12.2
56-60	14.6	10.8
61-65	7.9	8.4
66-70	4.1	4.5
Over 70	3.2	3.7
Highest Level of Education		
Less than High School Diploma	0.4	0.6
High School Diploma (or equivalency)	3.7	3.7
Some College	9.8	10.7
Associate's Degree	6.3	5.4
Bachelor's Degree	39.5	38.7
Master's Degree	29.0	27.8
Doctoral/Professional Degree	11.1	13.2
Household Income		
Less than $25,000	1.9	6.1
$25,000-$50,000	8.4	15.1
$50,001-$75,000	14.2	20.1
$75,001-$100,000	20.2	24.0
$100,001-$150,000	27.0	21.8
$150,001-$200,000	11.6	6.4
Over $200,000	16.7	6.4

Note: Totals may not equal to 100 due to rounding.

Figure 3.22
Comparison of Visitor and Resident Responses
Bike Riding Characteristics

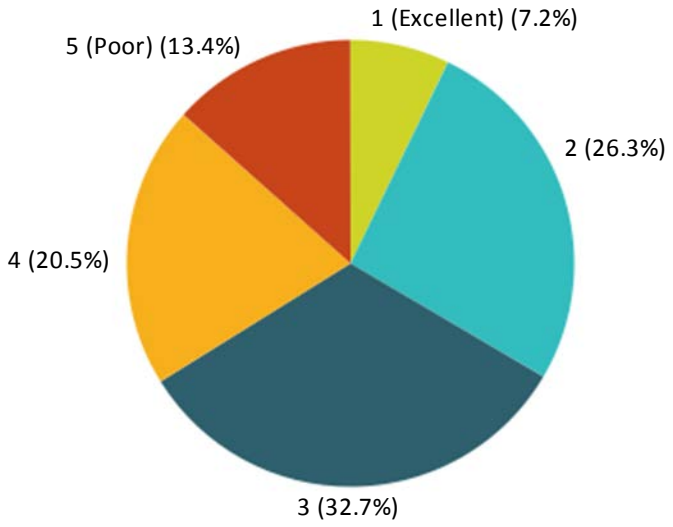
Characteristic	Visitor (%)	Resident (%)
Self-Rating as a Bicyclist		
Beginner/Novice	2.4	7.0
Intermediate/Recreational	34.5	60.6
Advanced/Serious	63.2	32.4
Length of Typical Bike Ride		
Less than 10 miles	6.2	28.8
10-20 miles	17.2	33.5
21-30 miles	17.6	25.6
31-40 miles	11.4	9.5
41-50 miles	11.8	1.7
Greater than 50 miles	35.7	0.9
Time Duration of Typical Bike Ride		
Less than 1 hour	1.7	24.4
1-3 hours	25.3	69.8
3-6 hours	52.2	5.8
More than 6 hours	20.8	0.0

Note: Totals may not equal to 100 due to rounding.

3.3.3 BICYCLE FACILITIES

Residents were asked to rate the overall quality of bicycling, including facilities, within the study area. For the purposes of the survey, bicycle facilities included wide-paved shoulders, bike lanes, shared lanes (for bicyclists and vehicles), multi-use paths (paved, off-road facilities used by bicyclists and pedestrians), mountain bike trails, and bike racks/parking. On a scale of 1 (excellent) to 5 (poor), the average rating was a 3. Approximately one-third of respondents rated the region's bicycling facilities as a 3, one-third responded with a 1 or 2 rating, and one-third responded with a 4 or 5 rating (Figure 3.23).

Figure 3.23
Overall Quality of Bicycling



Following the question about existing bicycling facilities, resident respondents were asked about future facilities that should be built. They were asked to rate various bicycle facilities on a scale of 1 (highest priority) to 5 (lowest priority). When combining those that received a 1 or 2 rating, the responses were ranked in the following order (highest listed first):

1. Designated bike lanes on the roadway with painted striping, bicycle symbol, and signs
2. Wide paved shoulders next to the regularly traveled portion of the road
3. Multi-use paths that are separate from the roadway; paths are shared by walkers, joggers, skaters, bicyclists
4. Shared lanes with street markings or sharrows that indicate that motorists and bicyclists share the travel lane
5. Bike racks/parking
6. Mountain bike trails

The first two facilities listed, designated bike lane and wide-paved shoulders, were rated almost even. Multi-use paths were a close third.

3.3.4 TRAVEL CHARACTERISTICS

Nearly two-thirds of resident respondents traveled outside of the study area for bicycling within the last year. Survey respondents were asked about their biking destination. Overwhelmingly, the location included the word "trail." Some responded generally that they rode on rails-to-trails while others were specific about the trail. The top responses were the C&O Canal Towpath Trail, Greenbrier River Trail, Virginia Creeper Trail, High Bridge Trail, and the Great Allegheny Passage.

Resident respondents noted that they biked in other parts of Virginia. Cities and regions frequently mentioned included Richmond, Roanoke, Lynchburg, Northern Virginia, Virginia Beach, Blacksburg, New River, Central Virginia, and the Eastern Shore. Furthermore, a number of Virginia State Parks were listed. Following Virginia, the most popular states for residents to visit for bicycling were West Virginia, Colorado, North Carolina, Maryland, and Florida. The text cloud below indicates the reasons why resident respondents selected these locations for bicycling:

As evident through these responses, the top reasons that survey respondents selected a bicycling location were:

- They were visiting family or friends.
- They were seeking off-road trails, particularly rails to trails, or roads with low traffic volumes.
- They were participating in an organized event, race, or tour.
- They were seeking trails for mountain biking.

Comments about trails were extensive. Phrases and adjectives included flat, smooth, established, paved, safe, no traffic, family riding, long, for all riding levels, and nicely maintained. Respondents appreciated biking in a location that had nearby amenities, access to food, and other activities in the immediate area. One person summarized their reason for visiting a place as, "Fun trail, fun town." Additionally, scenic beauty and scenery were factors in choosing a bicycling location.

4 ECONOMIC IMPACT OF BICYCLING

4.1 ESTIMATING BICYCLING TOURISM IN THE REGION

This chapter reports the estimated economic impact of bicycling tourism within the four counties and five cities included in the study area. While the bicycle survey collected a broad amount of data, the primary purpose of the study was to gather information on bicycle-related spending by tourists. The economic impact analysis provided in this study, beginning with Section 4.1.1, was generated by the Roanoke Valley-Alleghany Regional Commission (RVARC) using an economic impact model (IMPLAN) calibrated for the specific study area using standard regional sets. The RVARC report indicated that the results of the economic impact analysis are to be interpreted as a best estimate of economic impact based on the assumptions and/or data provided by the study sponsors and CSPDC staff. After consultation with CSPDC staff, it was estimated that the survey captured about five percent of bicycle-related tourism in the region for 2015. The process and results of the economic impact analysis are described below.

4.1.1 METHODOLOGY

RVARC staff used specialized software called IMPLAN which was developed by IMPLAN Group LLC. This software was designed to model complex economic interactions to measure the financial impact of specified activities or events. The impact estimates should be considered conservative because the economic model was designed to account for competing hotel business, which is often not considered in these types of studies.

How does IMPLAN work?

At the heart of the IMPLAN model is a national input-output dollar flow table called the Social Accounting Matrix (SAM). Unlike other static input-output models, which just measure the purchasing relationships between industry and household sectors, SAM also measures the economic relationships between government, industry, and household sectors.

The model uses actual economic and employment data to model 440 industries to determine how industry dollars are spent to produce commodities. National level and county level production data sets are then combined to produce a series of multipliers.

Multipliers measure the amount of total economic activity that results from an industry or household spending money in the local economy. IMPLAN uses the national and county-level data multipliers to estimate economic impacts of various activities. Once all input data has been entered into the model, IMPLAN then generates a series of summary output tables to show the direct, indirect, and induced economic impacts.

- **Direct impacts** are those that result from the direct infusion of money in the economy as a result of an economic event. These impacts consist of permanent jobs, wages, and output of economic events.
- **Indirect impacts** are the jobs, wages, and output created by businesses, which provide goods and services essential to an economic activity (construction, tourism, etc.). Indirect impacts represent a cumulative total of several cycles of spending that work their way through the local economic supply chain until all remaining money from the initial stimulus leaks from the study area economy. For example, a series of restaurants making purchases of goods from local suppliers as a result of participant spending on meals would be an example of a portion of indirect impacts as defined in this analysis.
- **Induced impacts** are those impacts that result from household spending by those impacted by the direct and indirect phases of economic activities. The spending of wages earned by employees working for industries impacted by economic events represents the largest portion of induced impacts. This spending creates induced employment, especially in the service sectors.

The summary output tables also show the direct, indirect, and induced effects of labor income, value added, and output.

- **Labor income** equals employee compensation plus proprietor income. Employee compensation in the IMPLAN model is the total payroll cost of the employees paid by the employer. This includes wage and salary, all benefits, and employers paid payroll taxes (social security, unemployment, etc.). Proprietor income consists of payments received by self-employed individuals and unincorporated business owners.
- **Value added** is defined as the difference between an industry's total output and the cost of any intermediate inputs. Value added is the total income generated by the event in the local economy. Value added includes employee compensation, taxes, and operating surplus. Value added is best understood as the contribution made to gross domestic product or, more simply, as new wealth in the region.
- **Output** can generally be understood as regional sales activity. Output is more precisely defined as the value of industry production.
- **Employment** is estimated by the model as all jobs, including part-time and seasonal workers. Employment numbers can be changed to full-time equivalency (FTE), but the ratio varies by industry sector.

What Can IMPLAN Analyses Reveal?

An IMPLAN analysis seeks to quantify the economic benefit that expenditures for a project (construction) or an activity (general tourism or special events) have on a local or regional economy. For example, expenditures spent on the construction of a building or the purchase of items on a trip such as lodging and gasoline create additional purchases in various sectors of the economy. Money spent on landscaping for a newly constructed building or the purchase of hotel furniture both create numerous opportunities for those receiving the money to make additional consumer and business purchases. This process creates jobs and expands the economy. Typically, the total economic impact should measure the increase or decrease of an activity when new money is injected into an economy or a business closes. The economic impact is not a measure of the relative size of particular sector or business within the local economy, but rather a measure of the impact that business has on increasing or decreasing funds circulating in the local economy.

4.1.2 SURVEY RESULTS

The Central Shenandoah Planning District Commission conducted a survey in 2015 to gather data on bicycle related visitors and spending. The survey covered the geographic area of Augusta County, Rockbridge County, Rockingham County, Shenandoah County, and the Cities of Buena Vista, Lexington, Harrisonburg, Staunton, and Waynesboro. About 1,581 surveys were collected that represented an estimated 3,064 people. A little over half of the surveys represented local people while 704 surveys represented and estimated 2,187 visitors from outside the region. Furthermore, it was estimated that the surveys only captured about 5 percent of actual visitors to the region.

Data analysis was complicated since surveys represented multiple people, day visitors, overnight visitors and multiple day visitors. Not all visitors answered all questions in a consistent manner. For example, a party of two may have indicated an overnight motel stay, but did not enter spending for an overnight accommodation.

An analysis of visitor spending showed that most visitors appeared to be from Virginia, Northern Virginia and Maryland areas. A substantial portion of visitor surveys provided data on their trip such as overnight locations, money spent on food and lodging, length of stay and the number of people in each party. The following tables estimate the percentage of overnight visitors by lodging type and the average daily spending for each visitor.

Figure 4.1
Overnight Visitors by Type of Lodging

Percentage	Type of Lodging
3%	Bed and Breakfast
26%	Campground
16%	Family or Friends
31%	Hotel or Motel
24%	Resort or Rented a house/condo

Figure 4.2
Visitors – Average Daily Spending Per Person

Amount	Type
$ 51.00	Lodging (day visitors not included)
$ 30.92	Meals
$ 13.38	Groceries
$ 22.40	Bicycle Repairs/Supplies
$ 9.91	Other Retail Spending
$ 9.95	Entertainment
$ 17.50	Fuel/Gas

The following assumptions were made after assuming that survey results captured about five percent of the actual visitor spending.

Figure 4.3
Estimated Yearly Assumptions for IMPLAN Model

Number	Group
61,280	Total touring/event Cyclists
43,740	Touring/event cyclists visiting the region
28,868	Visitors that paid for lodging
14,872	Day Visitors
2.44	Days spent by overnight visitors

The largest assumption made was that the survey represented about 5 percent of the actual number of cyclists and visitors for the year. The numbers above were combined with spending patterns in the IMPLAN model to generate the following output table. The table represents the estimated impact of outside visitors to the region for an entire year (2015). Through spending by these visitors, 144 jobs are directly supported in the region. An additional 40 jobs are supported through indirect or induced spending. The total impact to the region is estimated to be about $13.6 million per year.

Figure 4.4
Visitors Impact Summary

Impact Type	Employment	Labor Income	Total Value Added	Total Output
Direct Effect	144	$ 2,740,647	$ 4,518,415	$ 8,590,064
Indirect Effect	21	$ 836,658	$ 1,405,355	$ 2,708,188
Induced Effect	19	$ 689,346	$ 1,283,944	$ 2,297,642
Total Effect	184	$ 4,266,652	$ 7,207,713	$ 13,595,894

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As expected, the top 10 impacted sectors represent restaurants, hotels, motels, and retail establishments. The top 10 impacted sectors by employment are listed below. Direct bicycle spending by visitors at local bicycle shops is estimated to be about $22 per day per person. This would equate to $962,000 per year of increased spending in the region, which as the table shows, would be expected to have a lower total output because of retail margins.

Figure 4.5
Top 10 Impacted Sectors

Description	Employment	Labor Income	Value Added	Total Output
Full-service restaurants	46	$ 825,968	$ 902,799	$ 1,851,711
Hotels and motels, including casino hotels	41	$ 949,610	$ 1,970,138	$ 3,599,860
Retail - Sporting goods	19	$ 292,258	$ 449,793	$ 806,698
Other amusement and recreation industries	17	$ 238,365	$ 365,363	$ 856,413
Limited-service restaurants	13	$ 203,975	$ 483,649	$ 961,943
Retail - Food and beverage stores	6	$ 146,367	$ 224,447	$ 359,407
Retail - General merchandise stores	4	$ 132,567	$ 211,588	$ 322,615
Real estate-(rentals)	4	$ 37,140	$ 365,583	$ 554,097
Retail - Gasoline stores	3	$ 80,019	$ 116,670	$ 198,153
All other food and drinking places	2	$ 42,229	$ 34,670	$ 65,476

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Local Resident Spending

Typically, spending by local residents in not included in an economic impact model; however, local cyclists were asked about their spending patterns in regards to local bicycle shop purchases and repairs. About 720 local surveys provided information on local spending in the region. The average local cyclist spent $937 on bicycles or related equipment in 2015 according to the survey results. As a group, the survey respondents spent $674,036 on bicycles or related equipment and they spent $164,036 on bicycle repairs at local shops. It is important to note that these numbers only represent 720 survey respondents, so the actual number of money spent by local residents at regional bike shops would be much higher.

5 BUILDING ON OUR BICYCLING ASSETS

Through the bicycling survey, both visitor and resident respondents were offered the opportunity to provide suggestions on what the region could do better for bicyclists. There were some overlapping comments. The suggestions by visitors and residents are outlined below.

5.1 VISITOR SUGGESTIONS

Visitor respondents offered a number of positive comments about their trip to the region, that they were welcomed and had a wonderful stay. They also appreciated that the region was continuing its work to improve bicycling in the region and gave suggestions on how to better the bicycling experience in the Central Shenandoah Valley. These are summarized below.

Places to Ride. Visitors wanted more – more trails, more off-road trails, more mountain biking trails, more beginner and intermediate trails, more bike lanes and wider shoulders, more organized events and races.

Bike Maps and Route Sheets. Visitors were seeking route recommendations. Many suggested having bike maps and route sheets available of popular routes of different lengths.

Signage. Several respondents commented on increasing signage. Most referred to share-the-road signs, but others suggested signs for trailheads and parking as well as marking locations where water is available to refill water bottles, particularly in more rural areas.

Bicycling Friendly Businesses. Visitors provided a variety of comments about bicyclists and local businesses. Specific suggestions included:

- Offer a bike friendly program that gives discounts to bicyclists at restaurants and stores
- Sell bike supplies at convenience stores
- Open bike shops on Sundays
- Offer a hostel and hut-to-hut trips for bicyclists
- Run a shuttle service to the forest area
- Add places to eat and snack
- Have food trucks at popular bicycling locations
- Provide directions to accommodations from popular biking routes

Marketing. Improved marketing was suggested. One respondent noted that the region has the right elements as a biking destination, but it is under the radar. Additional suggestions were for localities to pursue bicycle friendly status and to make the Shenandoah Valley a "bicycling district" complete with safety signage for bicyclists and motorists.

Education. A number of respondents mentioned educating drivers in shared road practices. There also was a comment about encouraging riders to wear bright colors while biking.

5.2 RESIDENT SUGGESTIONS

Resident respondents also were offered the opportunity to provide suggestions on what the region could do better for bicyclists. Residents frequently commented that bicycling can be intimidating, particularly in urban areas as well as on higher-volume, higher-speed roads. Suggestions to encourage more bicycle-friendly roads centered on education and additional bicycling infrastructure. These and other suggestions are summarized below:

Educate Drivers. The most common feedback by resident respondents was the need to educate drivers on the laws related to bikes as well as encouraging drivers to be more aware and courteous of bicyclists and to share the road. Enforcement of the three foot law was repeated. The three foot law states that motorists must approach and pass a bicyclist at a reasonable speed at least three feet to the left of the bicyclist. This law became effective July 1, 2014. Implementation suggestions included advocacy to discourage distracted driving, public service announcements, increased signage and sharrows, and the continued incorporation of bicycle safety in high school programs.

Educate Cyclists. In addition to an educational campaign for drivers, resident respondents reported that cyclist also need education on riding with the traffic and obeying traffic rules as well as wearing helmets and bright colored clothing. Mountain bikers also were included among the educational comments in regards to riding on shared biking and hiking National Forest trails.

Delineated Space. Another suggestion by resident respondents was to add facilities that increase space for bicyclists on or alongside the roadway and decrease the conflict between motorists and bicyclists. A number of suggestions were given such as wider shoulders, bike lanes, multi-use paths, and bicycle and pedestrian bridges over busy roadway intersections. Also mentioned was the need for continuity in roadway markings for bicyclists or better transitions between different markings. Respondents shared the idea of identified alternative routes for bicyclists to direct them to more bicycle-friendly roads. Resident respondents advocated for increased signage and sharrows to better alert motorists to bicyclists.

Riding Opportunities for All Cycling Levels. Several respondents advocated for more family-friendly biking opportunities. Resident respondents wanted to engage beginner and intermediate level bicyclists, especially kids. Outreach to beginner cyclists and group rides was mentioned as an opportunity to help them become more comfortable and confident in their riding ability on roads. Other suggestions included trails to every school as well as mountain bike trails at local parks for kids.

Bike Network. Respondents commented that a connected system of trails and routes improve biking in the region. This would create riding loops, connect neighborhoods, and encourage commuting.

Identified Routes. A common suggestion was to identify recommended bicycling routes and provide accompanying maps, descriptions, and directions. Both printed routes and digital maps were suggested to show the routes and villages and towns along the way. Routes for various riding levels should be offered.

Maintenance. A few respondents commented on the need for improved pavement maintenance. They indicated that rough road surfaces and potholes hinder riding. A handful of respondents recommended street sweeping the shoulders.

Marketing. Resident respondents said that the region's bicycling opportunities need to be better promoted. Ideas for this included daily online posts and pictures, advertising the region's bicycling assets (mountain biking was particularly mentioned), and hiring a full time advocate for bicycle tourism and infrastructure. Additionally, promoting small businesses and projects related to cycling was mentioned.

5.3 REGIONAL BICYCLING RECOMMENDATIONS

The Bicycle Economic Impact Study Committee considered the information and comments collected from the survey, the estimates of the economic impact analysis, and regional bicycle context to form the recommendations outlined in this section. These recommendations include both programmatic, marketing, and infrastructure components. Understanding that some activities will require more time than others to implement, the recommendations of the committee are presented according to their anticipated time to implement.

As noted in the background section of this report, Chapter 2, the region's localities presently participate in the Bike the Valley program. This program was identified by the committee as a fundamental means to implement many of the recommendations of this report. Bike the Valley encourages bicycling in the Central Shenandoah Valley. The program was established in 2004 as a bicycling resource for visitors and residents. The website associated with the program, www.bikethevalley.org details on-and off-road cycling facilities in the

region's communities and provides a comprehensive list of scenic loop rides in each of the region's localities. Additionally, the website provides safety tips and rules of the road, links to local bicycle clubs and shops, information on bicycle tours and events, commuting tips, and links to each of the cities and counties.

Together the study partners have identified the following framework to strengthen the region's reputation as a bicycle destination. Concurrently, these recommendations expand opportunities for residents to more comfortably and confidently ride for commuting and recreation.

Organizational Recommendations

Short Term – Year 1

1. Present the information from this economic impact study to local government staff, elected officials, and transportation and tourism organizations.
2. Continue gatherings of the Bicycle Economic Impact Study Committee to coordinate implementation efforts and evaluate progress on accomplishing recommendations.
3. Partner with the Bike the Valley program to better promote the Central Shenandoah Valley's bicycling assets and rider resources.

Intermediate Term – Year 2-4

1. Recognizing that this study sets a baseline, conduct an economic impact analysis of bicycling tourism every 2 to 3 years to measure trends in bicycle tourism.

Longer Term – 5+ Years

1. Continue to have an active committee focused on promoting bicycling in the Central Shenandoah Valley.

Bicycle Facility Recommendations

Short Term – Year 1

1. Collaborate with local planning/community development staff to enhance bicycle tourism and commuter travel through infrastructure improvements that increase safety and the riding comfort level of bicycling visitors and residents.
2. Communicate the goals of this study with staff of the Virginia Department of Transportation, Staunton District Office.
3. Encourage each locality to track repaving schedules for roads to better coordinate the implementation of locally and/or regionally identified bicycle improvements with planned paving projects.

Intermediate Term – Year 2-4

1. Incorporate goals and priorities for bicycle improvements into local comprehensive plans and transportation plans. Develop local bicycle and pedestrian plans.
2. Install bike parking in communities.
3. Identify and develop bicycle routes that appeal to a variety of skill levels. Specifically, develop routes for beginner and intermediate riders.

Longer Term – 5+ Years

1. Build trails as destinations. Expand existing multi-purpose trails to create a bicycling destination for residents and tourists. Opportunities include the Chessie Trail (Lexington, Rockbridge County & Buena Vista), South River Greenway (Waynesboro), Bluestone Trail System (Harrisonburg & Rockingham County), and the Crozet Tunnel (Augusta County & Waynesboro).
2. Install wayfinding signage for bicyclists, where appropriate.
3. Put into place an interconnected system of routes that provide appropriate bicycle accommodations.

Marketing Recommendations

Short Term – Year 1

1. Partner with the Bike the Valley Program to establish and market the Bike the Valley website as the region's clearinghouse of bicycling information.
2. Request tourism and bike-related organizations and businesses to place a link to the Bike the Valley website on their respective websites.
3. Promote the MTB Project app for mountain biking routes.
4. As a model of a bicycle-friendly business, encourage each local visitor center to offer bike parking, have available a bike repair kit and bicycle pump, and provide information on bike routes, bike-friendly lodging, and the location of nearby bike shops and amenities.
5. Strengthen and form new partnerships between agencies and organizations to creatively market bicycling in the region and to emphasize bicycling as a component of outdoor recreation.
6. Identify and secure funding to brand and market the region as a bicycling destination.

Intermediate Term – Year 2-4

1. Launch a bicycle friendly business program throughout the region to provide tools to businesses to attract the bicycling customer and to assist with branding the region as a bicycle destination.
2. Fund and distribute printed maps of popular bicycle routes.
3. Develop a marketing plan for bicycle tourism in the Central Shenandoah Valley.

Longer Term – 5+ Years

1. Implement the strategies of a regional bicycle marketing plan to promote the Central Shenandoah Valley as a robust road and mountain biking destination.

APPENDIX A: Central Shenandoah Valley Bicycling Organizations, Events & Trails

BICYCLE CLUBS & ORGANIZATIONS

1. **Shenandoah Valley Bicycle Coalition (SVBC)** | http://svbcoalition.org/
   "SVBC envisions an active and organized cycling community in the central Shenandoah Valley that represents all types and levels of cycling and cyclists. The SVBC will further the interests of its diverse membership by advocating for, and providing resources to the cycling community so Harrisonburg and the Central Shenandoah Valley will become known as a center of safe, sustainable and enjoyable cycling on roads, trails, and streets."

2. **Mile Post Zero** | http://milepostzero.homestead.com/
   "We are pleased to offer local and visiting cyclists of all levels the opportunity to meet and ride with other cyclists."

3. **Staunton Cycle Group** | https://www.facebook.com/groups/46205822655/
   "Cyclists that live in and around Staunton, Virginia."

4. **Blue Ridge Bicycle Club** | http://brbcva.org/
   "The purpose of the Blue Ridge Bicycle Club is to promote and encourage the use of bicycles for transportation and recreation in southwestern Virginia; to support the rights of cyclists; to provide information in the interest of cycling and safety; and to provide a variety of recreational and competitive cycling opportunities for our members. We focus primarily on road cycling."

5. **International Mountain Biking Association** | https://www.imba.com/
   "Our mission is to create, enhance and preserve great mountain biking experiences."

6. **Queen City Cycling Club** | http://stauntoncycling.proboards.com/
   "Staunton Cycling Forum provides an easily accessed resource where area cycling enthusiasts can: announce or find group rides in Staunton, Augusta County and surrounding areas; raise questions and discuss issues related to bike riding, cycling events, bike racing, bike touring, training, equipment, etc.; buy, sell, or trade bike stuff; and tell tales (about biking), enjoy (or challenge) bragging rights, bestow praise, and chastise the deserved."

7. **Women's Cycling Group of Staunton** |
   https://www.facebook.com/groups/101620266652865/ and
   http://www.ridestaunton.org/about-us/
   "This is a place to post bike rides in and around Staunton, Virginia. We welcome and encourage both beginners and seasoned cyclists to post rides and events. We look to create a safe and fun riding community for us all."
   "The intent of the Facebook group was to connect women cyclists within and around Staunton to ride with."

LOCAL BICYCLE SHOPS

1. **Black Dog Bikes** | http://blackdogbikes.com/
   Bikes, Accessories, and Service
   121 S. Lewis Street
   Staunton, VA

2. **Lexington Bicycle Shop |** (no website)
   130 S. Main Street
   Lexington, VA

3. **Mole Hill Bikes |** http://www.molehillbikes.com/
   Bikes, Accessories, and Service & Repairs
   440 Main Street
   Dayton, VA

4. **Shenandoah Bicycle Company** | http://www.shenandoahbicycle.com/
   Service & Repair, Bikes, Accessories, and Rentals
   135 S. Main Street
   Harrisonburg, VA

5. **Rockfish Gap Outfitters** | http://www.rockfishgapoutfitters.net/
   Mountain, Road and Comfort Bicycles, Camping and Backpacking Equipment and Outdoor Clothing
   1461 E. Main Street
   Waynesboro, VA

6. **Bluestone Bike & Run** | http://www.bluestonebikerun.com/home
   Service and Products
   1570 S. Main Street
   Harrisonburg, VA

7. **Rocktown Bicycles** | http://www.rocktownbicycles.com/
   Service and Products
   50 S. Mason Street
   Harrisonburg, VA

BICYCLE GUIDES

1. **Shenandoah Mountain Touring** |
   http://www.mtntouring.com/mountain/htm/home/page_home.htm
   "Currently we promote special events, backcountry mountain bike races, and operate road and mountain bike tours by appointment only in the George Washington National Forest."

2. **Shenandoah Rides & Rentals and Best of VA Bike Tours** |
   http://www.bestofvabiketours.com/
   "We quickly realized the value of custom tours and shifted our focus to specializing in working with cyclists to create their own version of the perfect bicycle vacation."

BICYCLE EVENTS BY MONTH

A description from the prior event is provided.

April Events

1. **The Harris-Roubaix Gravel Spring Classic** | http://svbcoalition.org/events/annual/the-harris-roubaix/
   "The Harris-Roubaix is another great, fun cycling event brought to you by SVBC. It takes place every Spring on the same day as the Paris-Roubaix. The group leaves from the center of Harrisonburg at noon for a casual ride to a family farm about 7 miles to the north. From the farm there will be a 10-15 mile loop marked for your enjoyment. You are more than welcome to ride the loop once or more, and there is an informal 3-lap race that will crown the Champion of the Harris-Roubaix."

2. **Virginia's Rough Roubaix** |
   http://www.mtntouring.com/mountain/htm/home/page_home.htm
   "The Rough Roubaix is comprised of choice Shenandoah Valley's scenic rolling roads, the best National Forest dirt mountain passes and West Virginias flowing river roads."

3. **Massanutten Yee-Ha! Downhill Race** | http://www.massresort.com/v.php?pg=221
   "The 2015 YEE-HA! will be the first stop of the 2015 Gravity East Series and the Southeastern Gravity Series. Massanutten is looking forward to the 2015 YEE-HA! Downhill Bike race. See if you have what it takes to win on our Downhill course that hosted the 1997 Grundig World Cup.

May Events

4. **Annual Lexington Road & River Relay** | http://www.sunriserotarylexva.org/road-river-relay.php
   "The Lexington Road & River Relay is a four-leg event (individual or relay) over a challenging 16.1-mile course in and around Lexington, Virginia. Teams can consist of five or fewer members. The first leg is a 3.5-mile run on paved roads over a moderately hilly course. The second leg is a 9.1-mile bicycle ride on paved, hilly country roads. The third leg is a 2.2-mile canoe or kayak course down the Maury River. The fourth and final leg is a 1.3-mile loop run on a slightly hilly trail course. "

5. **Harrisonburg Bike to Work Day** | http://www.harrisonburgva.gov/bike-to-work-day
   "One of the most fun and rewarding days to bike – for all skill levels – is the annual Bike to Work Day Celebration. Join the Shenandoah Valley Bicycle Coalition, the City of Harrisonburg and hundreds of your neighbors who will be biking to work on this great day. To make your ride even more enjoyable, organizers will host free coffee and breakfast served at Court Square from 7:00 – 10:00a.m."

6. **Staunton Bike & Walk to Work Day** | http://www.staunton.va.us/news/staunton-bike-walk-to-work-day-may-20th
   "May is National Bike Month, and the City is celebrating with Staunton Bike & Walk to Work Day. A commuter breakfast and celebration will be held from 7:30 to 9:30AM on the Johnson Street side of the Wharf Parking Lot. Walking and biking commuters are encouraged to stop by for coffee and a light breakfast, and enjoy music, gear giveaways, and free bike maintenance."

7. **Valley Aids Network: Tour & Taste** | http://www.valleyaidsnetwork.org/
   "The 6th annual Tour & Taste Bike Ride Fundraiser will take place on Saturday, May 21st, 2016. The event will take place at Pale Fire Brewing in Harrisonburg, VA. All proceeds will benefit the Valley AIDS Network. Riders can choose between 50, 25, and 15-mile ride options, all of which start and finish at the brewery. Participants will enjoy a scenic ride through the beautiful Shenandoah Valley with bike support and rest stops provided throughout the course. All riders will receive a Tour & Taste 2016 t-shirt and 1 beer, kombucha, or soft drink from Pale Fire."

8. **Virginia Mountain Bike Trail Festival** | http://www.mtntouring.com/mountain/htm/special_events/VA%20Mountain%20Bike%20Festival%202011.htm
   "The Virginia Mountain Bike Trail Festival is an event celebrating mountain bicycling in the Virginia National Forests. Come out and enjoy the atmosphere, the riding, and social

gathering that is the Virginia Mountain Bike Trail Festival. The festival will feature fun events, and great company on a glorious weekend at a private campground nestled against the George Washington National Forest. Many groups will be heading out on rides in the GW during the event, and everyone is invited to head out and enjoy the trails! This fun-filled event is brought to you by SMT."

June Events

9. **Massanutten Hoo-Ha Professional Mountain Bike Race** | http://www.massresort.com/v.php?pg=220
   "Massanutten has partnered with Shenandoah Mountain Touring to add a four-stage Enduro event to the Saturday Hoo-Ha! Schedule. The Enduro format is an incredible way to experience the amazing trails that come off the Massanutten ridgeline. Cross Country, XXC, Short Track and Super D! A unique event that is a mix of cross country and downhill racing. The Massanutten course includes a little bit of everything: tight, twisty, rocking technical ridge riding and finishes with high speed smooth trail that include rollers, rhythm sections, berms, and some pedaling."

10. **Virginia Off-Road Series – Montgomery Hall Park Race Series #1** | http://vors2015.cycleva.com/schedule.php
    Categories: Expert/Pro Men; Expert/Pro Women; Expert/Pro Youth (18 and younger); Sport Men; Sport Women; Sport Youth (18 and younger); Beginner Women; Beginner Men; Beginner Youth (18 and younger); Singlespeed

11. **Bike Virginia Tour** | http://bikevirginia.org/2015-tour/
    "The next 6 day Bike Virginia Tour will be held June 24–29, 2016. For our 29th annual event we will pilgrimage to one of Virginia's most prized cycling areas—the Shenandoah Valley, as seen through the areas surrounding Woodstock and Harrisonburg! We focus on great riding, relaxing, entertainment, exploration, fun and just the right services to keep you happy and comfortable. Come for a day, three days (weekend or weekday), or the whole 6-day adventure!

July Events

12. **Tour de Burg** | http://svbcoaltion.org/events/annual/tour-de-burg
    "A grueling multi-day mountain and road bike stage race. Held the first week of July each year, this event combines the most challenging trails and roads that the central valley has to offer. Who will take home the prestigious yellow jersey, or the coveted DFL title?"

13. **Red Wing Roots Music Festival** | http://www.redwingroots.com/biking/
    "Red Wing Festival Bike Rides will be held on Saturday, July 11. All rides leave near the main entrance to the festival at either 8am or 8:30am. Choose your ride: Short Road Ride (10-15 miles); Intermediate Road Ride (35 miles); Intermediate-Advanced Road Ride (40 miles); Mountain Bike Ride (10 miles)."

14. **Virginia Off-Road Series – Montgomery Hall Park Race Series #2** |
    http://vors2015.cycleva.com/schedule.php
    Categories: Expert/Pro Men; Expert/Pro Women; Expert/Pro Youth (18 and younger); Sport Men; Sport Women; Sport Youth (18 and younger); Beginner Women; Beginner Men; Beginner Youth (18 and younger); Singlespeed

15. **Shenandoah Valley Bicycle Festival** |
    http://ourcommunityplace.org/calendar/action~month/exact_date~1435761443/request_format~html/
    "Brought to you by Our Community Place (OCP). The Annual Shenandoah Valley Bicycle Festival offers a variety of scenic rides for both the beginner and the more experienced rider. Ride options include 25 miles, 50 miles and a 100-mile "Century Ride" over the rolling roads of the beautiful Shenandoah Valley. The rides start and finish at Our Community Place at 17 E. Johnson Street in Harrisonburg, VA, and all proceeds go to support OCP's programs, which help folks facing difficult life circumstances and those seeking recovery from addiction."

August Events

16. **Virginia Off-Road Series – Montgomery Hall Park Race Series #3** |
    http://vors2015.cycleva.com/schedule.php
    Categories: Expert/Pro Men; Expert/Pro Women; Expert/Pro Youth (18 and younger); Sport Men; Sport Women; Sport Youth (18 and younger); Beginner Women; Beginner Men; Beginner Youth (18 and younger); Singlespeed

September Events

17. **Tour de Valley** | http://www.runthevalley.com/tour-de-valley/
    "The Tour de Valley was started in 1988 as part of the Mile Post Zero Bicycle Club in Waynesboro, VA. The Tour de Valley Century and Metric Century takes you through 100 miles of scenic and challenging countryside in Augusta and Rockbridge Counties. Starting in Waynesboro's beautiful Ridgeview Park, the course offers abundant mountain, pasture, and river views traveling to Goshen Pass and back."

18. **Shenandoah Mountain 100** |
http://www.mtntouring.com/mountain/htm/shenandoah_mountain_100/page_sm100.htm
"The Shenandoah Mountain 100, held in Virginia's George Washington National Forest is the only true big mountain 100 on the east coast. The challenging and fun course is the largest NUE event. The route takes 600 bicyclists over 6 large mountains and along amazing scenic singletrack and is second in popularity to the Leadville 100."

19. **VELO Virginia** | http://2015velovirginia.bike/
"This one-of-a-kind bike tour is a 4 day boutique bike event featuring great accommodations, supported routes, social gatherings, and a special guest Pro and Olympian. Routes total 280+ miles with options. Take your pick, go big for serious challenges when you tackle the Blue Ridge Mountains or go moderate with our valley routes. This unique bike tour event will show off some of Virginia's very best bike routes in the beautiful Shenandoah Valley and Blue Ridge Mountains. The event is operated by Bike Virginia, the state's leading bike tour event organization."

20. **Shenandoah Valley Century** | http://svbcoalition.org/events/century/
"We invite you to help us celebrate the Shenandoah Valley Century for some of the finest cycling to be found. The ride starts in Harrisonburg, the bike capital of Virginia, and includes scenic vistas, small towns, beautiful farms, quiet roads, and more. All routes are paved and have low traffic volume. Participants ride at their own pace; the event is not a race."

21. **Jeremiah Bishop's Gran Fondo Alpine Loop** | http://alpineloopgranfondo.com/
"A Gran Fondo is an amazing mix of the best aspects of each: a long distance bicycle group ride, a race and festival! Often hosted by a professional cyclist or patron, the premiere routes are celebrated for their heritage, difficulty or scenery, if not for their use also as a professional race course. The events are timed, and participants can race the clock or simply challenge themselves to complete the course within the designated cutoff. Unlike a race, rest stations along the route welcome and encourage riders to linger and enjoy food and drink. The festival is what sets these events apart from your average group ride. Communities come together to welcome riders, cheer them along the route and enjoy the excitement of the event. At the finish line, participants celebrate their achievement, relax and enjoy the festivities together."

October Events

22. **Shenandoah Mountain Bike Festival** | http://svbcoalition.org/events/annual/shenandoah-mountain-bike-festival/
    "The Shenandoah Mountain Bike Festival originated in 1997 and has since become a highlight of Virginia's fall cycling scene. The Festival is the largest fundraiser for the Shenandoah Valley Bicycle Coalition (SVBC) the funds from the Festival help SVBC achieve our goals of promoting, educating and increasing cycling awareness in the Shenandoah Valley. The Festival is held at the beautiful Stokesville Campground, a spectacular venue with mountains as a backdrop and riding right out the gate. The trail and road riding around Stokesville and in the George Washington National Forest is beautiful and challenging. When you ride from the Festival location expect plenty of gravel roads, county paved roads, Forest Service fire roads, endless single track trail riding and big old fashion mountains."

23. **Shenandoah Fall Foliage Bike Festival** | http://shenandoahbike.org/
    "Enjoy the scenic heart of Virginia's Shenandoah Valley as you join us for the 25th annual Fall Foliage Bike Festival. A perennial favorite with cyclists up and down the mid-Atlantic states and beyond, the Fall Foliage Bike Festival offers a full weekend of riding, sightseeing and warm Virginia hospitality. Perfectly suited for a wide range of cyclists: from motivated century riders to families with young children (and all levels in between), we offer well-marked courses with maps and cue sheets, plentiful rest stops with abundant snacks, a hearty lunch on Saturday and a brunch on Sunday, evening entertainment, and discounts to local attractions. For the past few years, this ride has annually attracted over 600 cyclists."

24. **Rocktown Cyclocross Festival** |
    http://www.rocktownbicycles.com/events/2016/10/16/rocktown-cyclocross-festival & http://vacyclocross.com/
    "The Rocktown Cyclocross Festival is an annual cyclocross race hosted by Rocktown Bicycles in Harrisonburg, VA."

November Events

25. **Harrisonburg & Rockingham Bike-Walk Summit** | http://svbcoalition.org/bike-walk-summit/
    "Each year the Bike-Walk Summit brings together a broad range of partners who are working to make Harrisonburg and Rockingham County a great biking and walking community to live in and visit."

BICYCLE ROUTES AND TRAILS

Principal Routes

The Central Shenandoah Valley Bicycle Plan (2005) indicated that region's bicycle route network includes over fifty routes to connect key destinations and recreational riding loops. The following principal routes in the study area were identified:

- Route 11 – Shenandoah County to Natural Bridge
- Route 33 – East and West of Harrisonburg
- Route 42 – From Churchville through Bridgewater and Harrisonburg to Broadway
- Route 250 – From Staunton to Waynesboro
- Route 250 – From Waynesboro to Blue Ridge Parkway/Skyline Drive
- Route 608 – From Grottoes to Stuarts Draft
- Route 252 – From Staunton to Rockbridge Baths
- Route 39 – From Rockbridge Baths through Goshen to Warm Springs
- Routes 501 and 130 – From Buena Vista to Natural Bridge

Off-Road Trails

The routes listed below have been noted as suitable for families and beginner riders. These "off-road" routes include mountain biking routes and trails. Trail descriptions and route maps are available on the Bike the Valley website at www.bikethevalley.org.

- Town of Grottoes – Path between Mountain View Park and Grand Caverns Park
- City of Staunton – Montgomery Hall Park
- City of Harrisonburg – Rocktown Trails
- City of Harrisonburg – Bluestone Trail
- City of Waynesboro – South River Greenway
- Town of Shenandoah – Big Gem Park

Bike Parks (fee-based)

- Bryce Mountain Bike Park – Shenandoah County | www.bryceresort.com/Summer/Bike-Park-Hours-Rates.aspx

  Bryce Mountain Park is a custom designed park with trail features. The Park has eight lift-accessed trails ranging from beginner to advanced, some of which are over 2 miles in length. A progressive skills park is available for riders to hone their skills prior to heading up the mountain. Bryce Mountain Bike Park offers lessons, rentals, and bike packages.

- Massanutten Resort – Rockingham County | www.massresort.com/play/bike-park/ Massanutten Resort offers a lift-served Bike Park. Massanutten's Park features a lower lift that provides access to beginner and intermediate trails for newcomers while also offering advanced jump and singletrack trails accessible from an upper lift. Lessons, rentals and bike packages are available.

On-Road Routes

The Bike the Valley website (www.bikethevalley.org) lists numerous on-road bicycling routes. The routes are organized by locality and each route begins at a place with public parking, bathrooms, and options for food and drink. The routes, maps, and turn-by-turn directions (cue sheets) are supported by Ride with GPS (www.ridewithgps.com).