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## Introduction

In 2012, the Thomas Jefferson Planning District Commission (TJPDC), also known as Region 10, started an initiative to study, promote and improve its portion of U.S. Bicycling Route 76 (BR 76). This report is the first step in this initiative, creating an inventory of existing conditions and highlighting recommendations for improving the safety and recreational value of the Route.



Figure 1: TJPDC's Bike Route 76 Initiative

## Purpose and Audience

This report is a technical document, intended to highlight roadway deficiencies that diminish cycling safety along BR 76, in Region 10. As a technical document, the intended audience includes regional and state transportation planners, along with cycling advocates. This report is intended to document cycling compatibility, with a secondary goal of recording cycling amenities and tourist destinations.

This report may also serve as a guide to local officials, to aid in decision-making for transportation-related investments. Since BR 76 is also a recreational and tourist amenity, this report may also be helpful for identifying strategies for supporting tourism efforts.

## Goals and Objectives

This report is intended to fulfill four main goals:

### Goal A: Inventory Road Conditions

Inventory all roadway conditions along the Region 10 portion of BR 76.

### Goal B: Safety Recommendations

Develop recommendations for improving overall cycling compatibility along the corridor.

### Goal C: Recreational Value

Identify strategies for improving the recreational experience along BR 76.

### Goal D: Data Collection

Collect data and develop maps that will assist with subsequent efforts to promote BR 76.

## U.S. Bicycling Route 76

U.S. Bicycling Route 76 is an on-road Bike Route that spans the eastern half of the Country, from Missouri to eastern Virginia, in Yorktown. The concept for BR 76 originated with a large cycling event in 1976, which celebrated the Country's bicentennial. As part of the event, the Adventure



TransAmerica Trail - Courtesy Adventure Cycling Association

Cycling Association (at that time known as Bikecentennial) first mapped a cross-country bike route named the TransAmerican Bicycle Trail. That trail still exists today and stretches from Oregon to Virginia, spanning approximately 4,242 miles from coast to coast. While the Adventure Cycling Association acts as overseer to this trail, there were no official bike route designations until 1982.

In 1978, the American Association of State Highway and Transportation Officials (AASHTO) established the U.S. Bicycling Route System (USBRS), the cycling equivalent to the numbering system for highways and interstates. The purpose of these route numberings and markings is to facilitate recreational riding between states, by way of roadways that are reasonably suitable for bicycling. While U.S. Bike Routes include off-road paths, the vast majority of route mileage consists of on-road facilities (public highways).

In 1982, AASHTO designated the first two U.S. Bicycling Routes (Routes 1 and 76), both of which pass through Virginia. This made the Commonwealth one of the first states with a USBR and the first with two routes. In recent years, AASHTO approved additional Bike Routes and there are more under review. At this time, there are over 6,200 miles of approved Bike Routes, spanning 12 states.



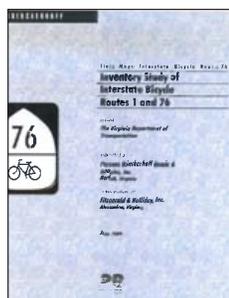
Route 76 and Route 1 Bike Routes in Virginia

There is common confusion between BR 76 and the Trans-American Trail. While the TransAmerican Trail spans the entire country, AASHTO officially designated only the eastern portion of that trail (Missouri to Virginia) as BR 76. While the USBR and TransAmerican Trail are related and overlap in most cases, there are areas where these routes diverge.

## Bicycling Route 76 in Virginia

In Virginia, BR 76 accounts for 559 miles of roadways, from the Cumberland Plateau and Appalachian Mountains to the lowlands of Hampton Roads. Along its path, BR 76 traverses 23 counties, including: Dickenson, Buchanan, Russell, Washington, Smyth, Grayson, Wythe, Pulaski, Montgomery, Roanoke, Botetourt, Rockbridge, Augusta, Nelson, Albemarle, Fluvanna, Goochland, Louisa, Hanover (overlaps with U.S. Bicycling Route 1), Henrico, Charles City, James City, and York. The Bike Route also passes through four of Virginia's cities: Radford, Lexington, Charlottesville, and Williamsburg – before the eastern terminus at Yorktown.

Across the Commonwealth, there have been several studies and initiatives to improve BR 76. In 1999, VDOT completed the Inventory Study of Interstate Bicycle Routes 1 and 76. This study provided a general snapshot of existing conditions along the entire length of both bike routes in Virginia. In 2012, the Department of Conservation and Recreation (DCR) and Virginia Department of Transportation (VDOT) released the Official State Bicycle Map: Bicycling in Virginia, which featured BR 76. The map included information on public destinations along the Route, along with road profiles that illustrated changes in topography.



## Project Study Area

The study area of this report includes all sections of BR 76 in Region 10, including small portions in Augusta and Goochland Counties. Within the TJPDC boundaries, BR 76 accounts for over 135 miles of roadway that include:

### Nelson County

Route 48: Blue Ridge Parkway  
Route 250: Rockfish Gap Turnpike  
Route 6: Afton Mountain Road  
Route 750: Old Turnpike Road  
(See Map 2)

### Western Albemarle County

Route 750: Old Turnpike Road  
Route 250: Rockfish Gap Turnpike  
Route 796: Brooksville Road  
Route 690: Newtown Road  
Route 691: Greenwood Road  
Route 691: Jarmans Gap Road  
Route 684: Lanetown Road  
Route 788: Railroad Avenue  
Route 789: Buck Road  
Route 810: White Hall Road  
Route 614: Garth Road  
Route 676: Garth Road  
Route 601: Garth Road  
Route 601: Old Garth Road  
Route 601: Old Ivy Road  
(See Map 3)

### Charlottesville

Route 250: Ivy Road  
Route 250: University Avenue  
Route 250: West Main Street  
Route 652: Water Street  
Route 3413: Second Street SE  
Route 620: Garrett Street

Route 20: Avon Street  
Route 20: Monticello Avenue

### Eastern Albemarle County

Route 20: Scottsville Road  
Route 53: Thomas Jefferson Parkway  
Route 795: James Monroe Parkway  
Route 620: Rolling Road  
Route 619: Ruritan Lake Road  
(See Map 4)

### Fluvanna

Route 619: Ruritan Lake Road  
Route 660: Ruritan Lake Road  
Route 53: Thomas Jefferson Parkway  
Route 15: James Madison Highway  
Route 601: Courthouse House  
Route 608: Wilmington Road  
Route 601: Venable Road  
Route 603: Tabscott Road  
Enter Goochland County  
(See Map 5)

### Louisa

Enter Goochland County  
Route 605: Shannon Hill Road  
Route 605: Willis Proffitt Road  
Route 522: Pendleton Road  
Route 522: Mineral Avenue  
Route 522: East 1st Street  
Route 618: East 1st Street  
Route 618: Fredericks Hall Road  
Route 700: Johnson Road  
Route 652: Kentucky Springs Road  
Route 650: Pottiesville Road  
Route 618: Fredericks Hall Road  
Route 618: Belsches Road  
(See Map 6)

Since AASHTO established BR 76 in 1982, traffic conditions along these roadways have changed significant. In the past 33 years, traffic counts have continued to increase, while roadway dimensions remained unchanged in many areas. Consequently, there are several dangerous corridors in this Region as seen throughout this report.

## Process

In 2012, the TJPDC proposed an initiative to study, promote and improve its portion of BR 76. This work fell under the TJPDC's Transportation Programs, which are funded annually by VDOT. Since most of the study area is within the region's rural boundaries, TJPDC staff designated its Rural Technical Advisory Committee (RTAC) as the Project Steering Committee for this report. The Committee's first meeting on the corridor study took place in November of 2013, with follow-up meetings every other month. The Committee reviewed draft documents and provided guidance on subsequent phases of the overall BR 76 initiative.

At the beginning of 2014, the TJPDC established an online presence for the project. Staff developed a project website that included drafts of deliverables, agendas and minutes from the Steering Committee. The site also provided op-

portunities for public comment. In March, staff created a Facebook® page for the study, as another tool for collecting feedback and distributing information. By the end of March, the TJPDC began an outreach effort to engage local bicycle shops, clubs and advocates from across the region. Staff conducted several one-on-one interviews with those in the local cycling community. In April, staff developed an online survey that helped gather detailed input from riders, which included questions on how to improve cycling safety. TJPDC staff worked with bike clubs to distribute the online survey to the cycling community.

TJPDC staff attended additional cycling meetings to discuss the Corridor Study and collect feedback. In May of 2014, staff made a presentation to the Charlottesville/Albemarle Bicycle Advisory Committee and held a lengthy discussion on the project. Starting that month, staff began to participate in meetings held by the Charlottesville/Albemarle Visitor's Bureau, to discuss promotion of BR 76.

In the summer of 2014, the TJPDC assembled a Bicycle Technical Committee, consisting of cycling experts from around the region, along with a representative from the Virginia Bicycling Federation and VDOT. The group also included stakeholders from tourism groups.

## Methodology

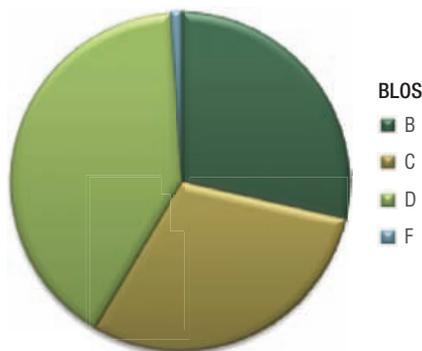
TJPDC staff worked closely with VDOT on data collection and conducted multiple site visits of the study area. VDOT representatives provided their expertise on roadway conditions and cycling deficiencies along the corridor. The Statewide Planning System (SPS) data was critical for this analysis, providing roadway dimensions, traffic counts and Level of Service information. If any roadway data seemed inaccurate, staff would verify dimensions with site visits and measurements from aerial photography. The Bicycle Technical Committee was another valuable resource for data collection.

### Bike Level of Service

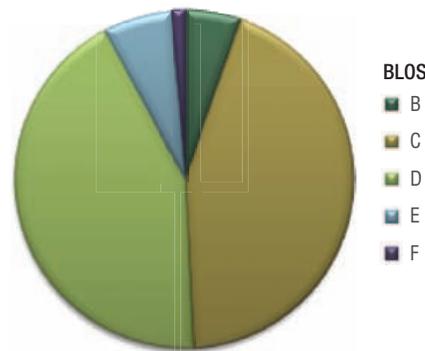
Staff used a Bike Level of Service (BLOS) calculator from the League of Illinois Bicyclists (LIB), as recommended by VDOT, to calculate bike compatibility. The equation provided a general score of bike compatibility for a given roadway. The calculator requires inputs on 8 critical indicators, which included:

1. Number of through-lanes per direction: (Default = 1 feet)
2. Width of outside lane, to outside stripe, in feet: (Default = 12 feet)
3. Paved shoulder, bike lane, OR marked parking area - outside lane stripe to pavement edge, in feet: (Default=0 feet)
4. Bi-directional Traffic Volume in ADT: (Default = 4000 ADT)
5. Posted speed limit in mph: (Default = 30 mph)
6. Percentage of heavy vehicles: (Default = 2%)
7. FHWA's pavement condition rating: (5 = Best, 1 = Worst; Default = 4)
8. Percentage of road segment with occupied on-street parking: (Default = 0%)

### Current BLOS by Mileage

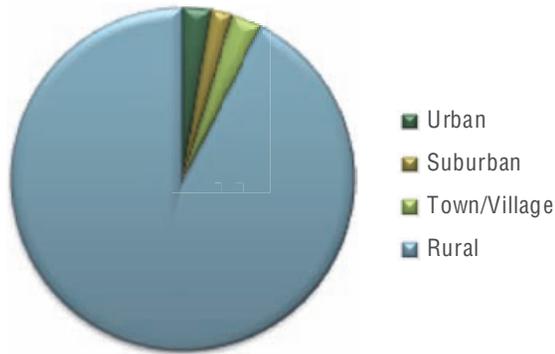


### 2035 BLOS by Mileage



<http://www.bikelib.org/>

## Road Mileage by Environment



The BLOS equation provided a score between 'A' and 'F'. According to LIB, a score of 'A' through 'C' indicated roadways that were compatible or "comfortable enough" for experienced cyclists. The worst score is an 'F', representing a roadway that is not compatible for cycling.

BLOS scores and definitions:

BLOS A: High Level of Bike Compatibility

BLOS B: Compatible

BLOS C: Moderate Compatibility

BLOS D: Moderately Low Compatibility

BLOS E: Low Bike Compatibility

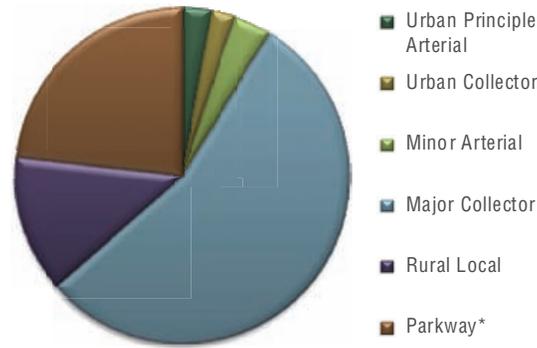
BLOS F: Extremely Low Compatibility

## Overview

### Environments

Across the study area, a rural landscape frames BR 76. Over 93 percent of the Route is within this rural environment. The remaining 7 percent of road mileage passes through small villages, the Town of Mineral, suburban areas and the City of Charlottesville. Consequently, cycling safety is linked with the challenges of rural transportation: high travel speeds, poor sight-distances and curvy roadways. Conversely, rural environments typically translate

## Mileage by Road Classification



into lower traffic counts, which is why AASHTO targets rural roadways from the USBRS.

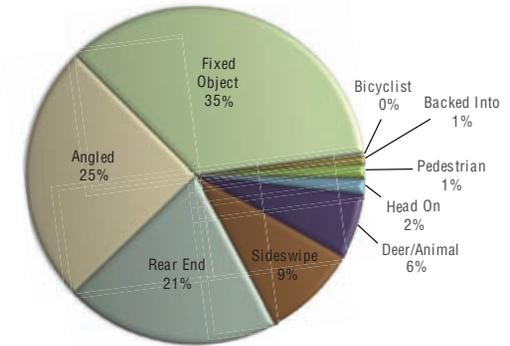
### Functional Classifications

Due to the rural nature of the study area, BR 76 consists mostly of rural road-types, including rural collectors and local roads. Those roadways typically have fewer traffic counts and serve more local traffic, rather than higher speed through traffic. Since relatively small portions of the route are in urbanized areas, there are few urban roadway classifications in the study area.

### Crash Data

The environments and roadway functions influence the types of safety issues along the corridor. Traffic accident data for the study area reveals that many accidents involve off-road collisions with fixed objects. This may be the result of narrow travel lanes on rural highways, a condition that can be particular hazardous to cyclists, since riders travel along the road's edge. The roadways of BR 76 also experience several angled collisions and sideswipes at intersections, which are where most cycling-related crashes occur. A positive from the crash data is the lack of collisions between motorists and bicyclists. The only bike-related crashes are in the City of Charlottesville, where vehicular and bike traffic is high. There may be bike-related crashes

## Traffic Accidents by Type (2005-2011)



in the rural areas, but recording is generally less accurate.

### Bike Level of Service (BLOS)

Using the LIB equations, TJPDC staff calculated the BLOS for all roadways along the Region 10 portion of BR 76. This report provides a detailed description of the scores for all roadways in the study area. Overall, approximately 42% of road mileage in the study area is incompatible for cycling (BLOS D-F).

VDOT's traffic forecasts show significant increases in Annual Average Daily Trips (AADT) along the corridor, for 2035. Without highway improvements to address cycling and road safety, the bike compatibility of BR 76 will noticeably decline. By 2035, 51% of the Bike Route will be incompatible for cycling. Additionally, there would also be a 24% decrease in road miles scoring a BLOS B.

### Traffic Counts

The BLOS results are tied to the roadway geometries and traffic counts. While traffic heavily influences bike compatibility, Chart 1 implies that there are other factors involved as well.

## Countywide Overview

### Nelson County

In Nelson County, BR 76 accounts for over 32 miles of roadway, primarily along the Blue Ridge Parkway (Map 1). In terms of cycling safety, there are several locations with limited sight-lines, particularly the areas referenced in Map 2. The Nelson County map also illustrates the various overlooks along the Parkway and proximity to destinations, such as Wintergreen Resort and wineries. There is a short section of BR 76 on US 250, in the Afton area. This roadway is one of the most dangerous in the corridor and scored an 'F' on the BLOS calculations.

### Western Albemarle County

The western side of Albemarle County is home to some of the most valued scenic vistas on BR 76, along with several tourist destinations. In terms of safety, the over 26 miles of BR 76 also presents frequent cycling hazards. Map 3 illustrates the various safety deficiencies, involving sight-distances, uneven road surfaces, dangerous intersections and guardrails.

### City of Charlottesville

While the study area consists mostly of rural roadways, the streets in Charlottesville present a unique experience for cyclists. On the City's 3.5 mile section, riders have access to numerous services and resources, as well as historic landmarks. Consequently, this corridor can serve as a destination for most cyclists.

Additionally, the League of American Bicyclists identified Charlottesville as a Silver Level, Bicycle Friendly City. This is the highest rated locality on the Virginia portion of BR 76, whereas Williamsburg, Richmond, and Roanoke received Bronze ratings.

### Eastern Albemarle County

In the eastern half of Albemarle County, BR 76 meanders 13 miles, between the City of Charlottesville and Fluvanna

County. The curvy roadway creates several deficiencies with sight-distances, as seen in Map 4. In terms of recreation and tourism, this area has some of the most desirable destinations, with the homes of two presidents and proximity to local wineries.

### Fluvanna County

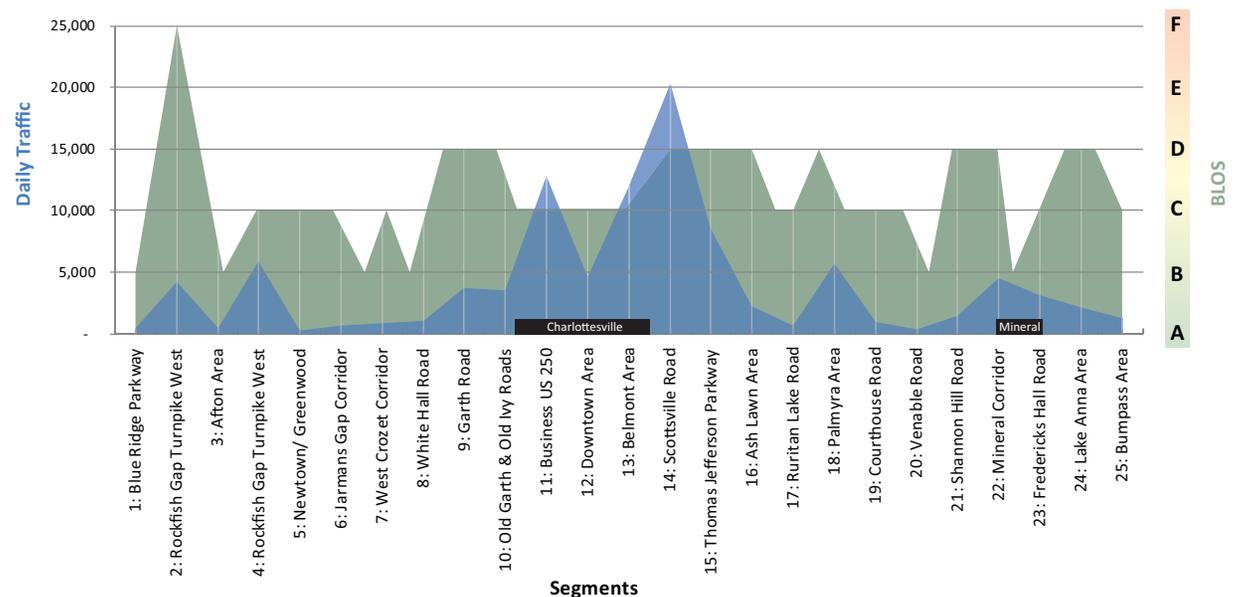
In Fluvanna County, BR 76 passes through the Village of Palmyra and several small crossroads. The route accounts for over 23 miles of roadway. Most cycling hazards involve sight-distances and guardrails. Refer to Map 5.

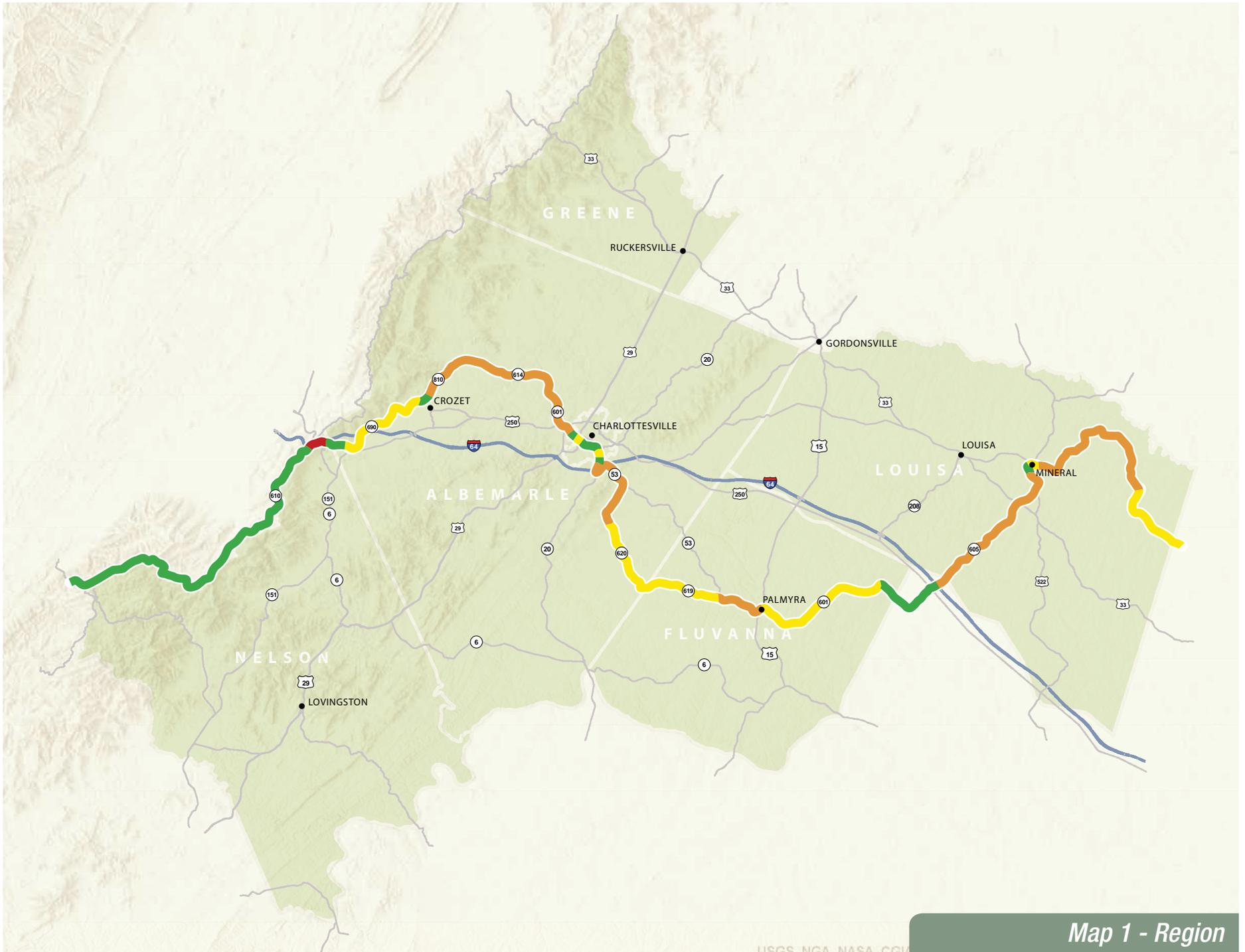
### Louisa County

There are nearly 35 miles of BR 76 in Louisa County, passing through the only incorporated town along the study area. In Louisa County, the most common road hazards are narrow roadways with guardrails. Refer to Map 6.



Annual Average Daily Traffic (AADT) and Bike Level of Service (BLOS) by Roadway Segments

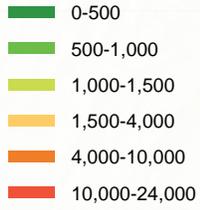




Map 1 - Region

### Vehicle Per Day

(Average Annual Daily Traffic)



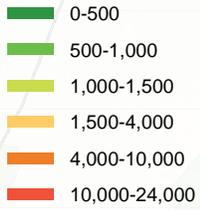
- |                     |                       |
|---------------------|-----------------------|
| Police Station      | Library               |
| Fire/Rescue Station | Tourism Destination   |
| Bike Shop           | Winery/Legend         |
| Gas Station         | Urban Areas           |
| Store/Grocery       | Parks                 |
| Lodging             | Poor Sight Distance   |
| Camping             | Uneven Road Surface   |
| Visitor Center      | High Crash Area       |
| Post Office         | Guardrail/No Shoulder |



Map 2 - Nelson

### Vehicle Per Day

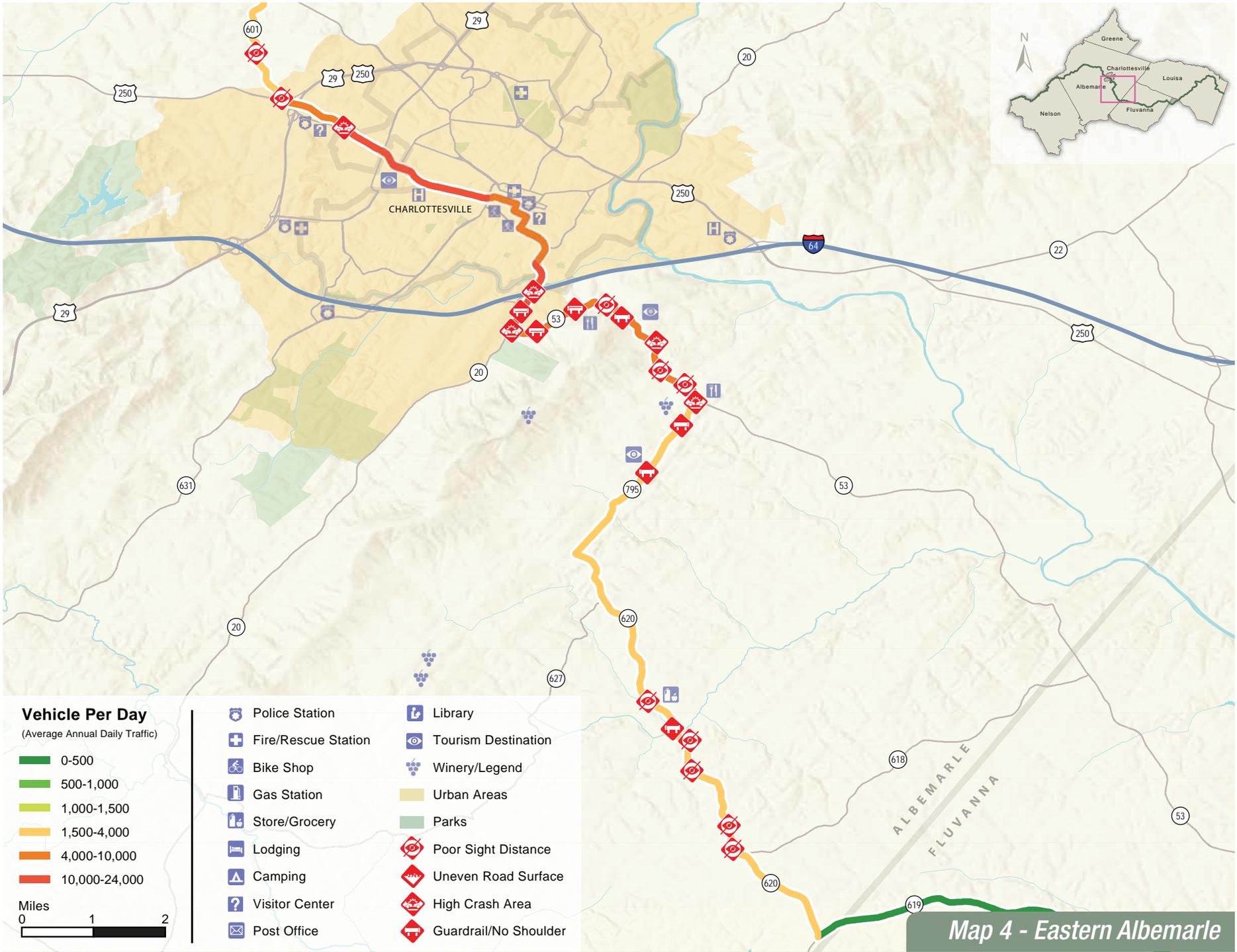
(Average Annual Daily Traffic)

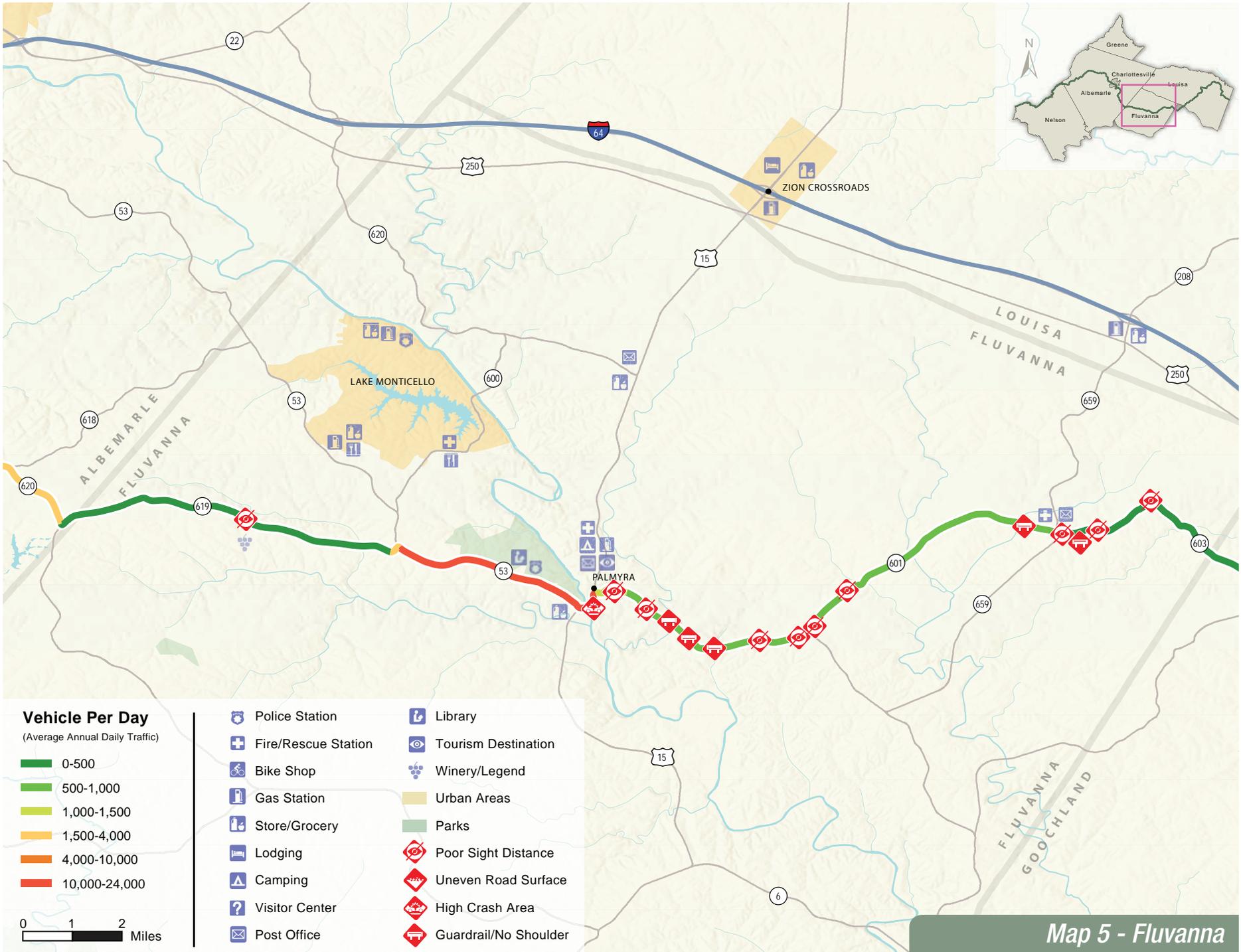


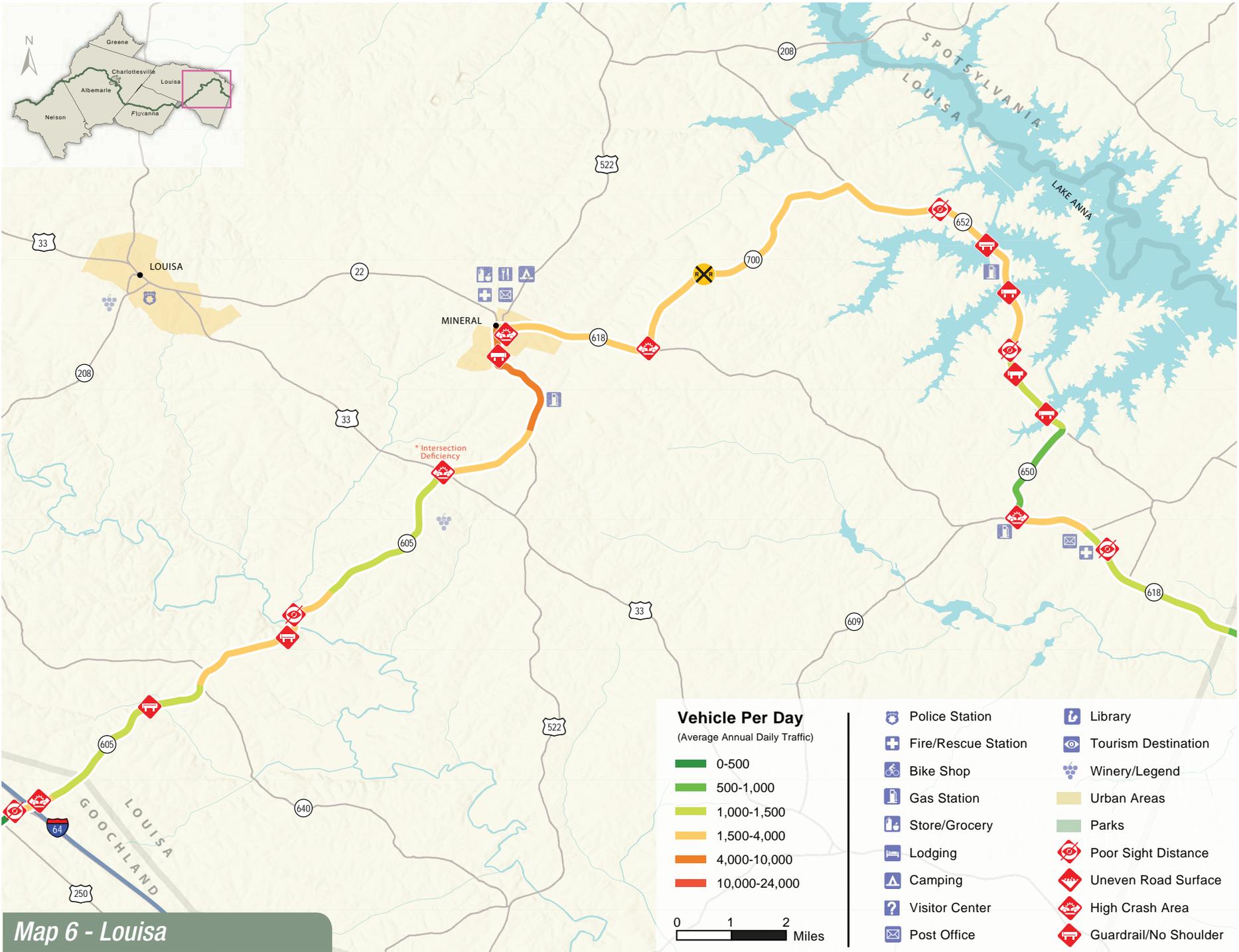
- |                     |                       |
|---------------------|-----------------------|
| Police Station      | Library               |
| Fire/Rescue Station | Tourism Destination   |
| Bike Shop           | Winery/Legend         |
| Gas Station         | Urban Areas           |
| Store/Grocery       | Parks                 |
| Lodging             | Poor Sight Distance   |
| Camping             | Uneven Road Surface   |
| Visitor Center      | High Crash Area       |
| Post Office         | Guardrail/No Shoulder |



Map 3 - Western Albemarle







## Segment Corridors

The following segments are the main deliverables of this report, providing a detailed inventory of all road, traffic and recreational conditions along this portion of BR 76. This existing conditions inventory is divided into 25 segments, or sub-corridor studies.\* Each segment includes roadways that are grouped together based on functional classifications, road dimensions and general corridor characteristics. The goal is to have concise but comprehensive assessments for every segment of BR 76 in the region. Each segment functions as its own mini-plan, with a detailed inventory, assessments and recommendations. Stakeholders can refer to a given segment to find information and recommendations on these targeted areas.

In every segment, there are six (6) sections, to provide an overview of the cycling conditions and recreational value of each corridor. These sub-headings cover:

- Segment characteristics,
- Road features,
- Traffic conditions,
- Recreational,
- Cycling Assessment, and
- Recommendations.

*\* Customized versions of this report were created for each of the five localities in the study area. This version may not include all 25 segments.*

### Segment Characteristics

Each segment begins with a general description of the corridor. This includes an overview of the roadway designations and adjacent land uses, along with feedback from local cyclists.

### Environment

Roadways are classified as either rural or urban, based on VDOT and AASHTO definitions. These classifications deter-

mine whether AASHTO's rural or urban cycling standards should be applied to the corridor (Refer to Appendix).

### Functional Classification System

The functional classification system identifies the function and design of roadways. For the purposes of this report, these classifications help to highlight how motorists use the roadways and whether the corridor is intended to serve high-speed, through-traffic or low-speed, local trips. The categories include:

- Urban principal arterial
- Urban minor arterial
- Urban collector
- Urban local
- Rural principal arterial
- Rural minor arterial
- Rural major collector
- Rural minor collector
- Rural local

(Refer to Glossary)

### Roadways

A list of roadways helps to define the boundaries of each segment. This list includes mileage to communicate the length of each corridor. Please note that the distances are measured in road-miles, not lane-miles.

### Land Uses

Land use is a critical component to transportation and can heavily influence recreational cycling. Consequently, the segments include a description of the land uses along each corridor. (For a more detailed look at existing land uses, refer to the appendix).

### Public Comments

While local cyclists are aware of BR 76, many do not intentionally target their rides for those roadways. Instead, local riders pick unofficial routes that provide the safest and most satisfying rides. At the same time, local riders will know the existing roadway and traffic conditions better than out-of-town riders. Consequently, feedback from locals was critical to the review of existing conditions.

## Road Features

The assessment of road features is the first of two sections that identify bike compatibility of each road section. Roadway widths and geometrics are critical considerations for cycling.

### Road Sections

Road widths are the simplest and fundamental aspect of roadway geometries. Under each segment, there are detailed measurements of the travel lanes and shoulders. Each segment also includes assessments of existing bike facilities. While shared use lanes are the most common facility along BR 76, there are also bike lanes, wide shoulders, and wide outside lanes. (Refer to Glossary.)

### Bike Signage

Signage can direct cyclists along the Bike Route; provide information or warnings to riders; and, inform motorists of areas with heavy bike traffic. In each segment, there is a count of all bike-related signs that are currently in the corridor.

### Featured Intersections

Intersections are the most dangerous places for cyclists and are where most bike-related accidents occur. Due to this importance, each segment includes a list of intersections in the corridor. The text includes a brief description of the intersections and identifies any apparent deficiencies.

### Sight Distance

Particularly on rural roads, sight-lines can be fundamental to cycling safety. Under each segment, there is an overview of sight distances throughout the featured roadways.

### Additional Road Hazards

In certain segments, there are additional road hazards that do not fall under a specific section heading. The report identifies any of these additional hazards, road surfaces, guardrails, or dangerous curves.

## Planned Road Improvements

The segments include lists of any existing recommendations, projects, assessments or studies that may influence road conditions on BR 76. In many cases, existing recommendations will benefit cycling safety. These findings help to feed into the action items of this study, guiding VDOT and other stakeholders to give priority to projects along BR 76.

### *Traffic Conditions*

The traffic conditions assessment is the second part to the equation for bike compatibility. Traffic flow is one of the most important characteristics that affect cycling safety.

#### Traffic Counts

The ADT data in this report originates from VDOT's 2012 traffic counts. The segments also include 20-year forecasts from VDOT, to anticipate future traffic volumes. These future counts help to prioritize roadway improvements and determine whether portions of BR 76 should be rerouted to lower volume roads.

#### Truck Traffic

The amount of truck traffic can greatly influence bike compatibility. Truck blast occurs when heavy vehicles generate high winds that can blow cyclists off-balance. Other than safety, heavy vehicles can also diminish overall comfort for riders. The truck traffic assessment is expressed as a percentage of total ADT, as seen in the sub-headings.

#### Travel Speeds

The segments include inventories on the posted speed limits. Due to traffic congestion and road conditions, the actual travel speeds may be lower or higher than what is posted. Consequently, the segments include estimates of those actual speeds.

#### Level of Service

The Level of Service (LOS) serves as a congestion stan-

dard for roadways (refer to glossary). The existing LOS data originates from VDOT's 2012 records. The segments also include VDOT forecasts for the year 2035.

#### Traffic Accidents

Crash data is a key indicator of general roadway safety, especially if the accidents involve cyclists. VDOT provided crash data, for the years 2005 to 2011. In each segment, there is an analysis that shows a breakdown of crash types and locations.

#### Additional Traffic Hazards

This final section addresses any miscellaneous traffic hazards, such as distracted drivers, high levels of pedestrian and bus traffic or other traffic conditions that could endanger cyclists.

### *Recreational*

Since BR 76 serves mostly recreational purposes, the location and quality of attractions is an important consideration. In each segment, there is an assessment of historic and scenic resources, tourist destinations, cycling services and resources, access points and terrain.

#### Historic Resources

Whether open to the public or visible from the roadway, historic resources can be an important part of recreational cycling. These resources give the Bike Route a unique character and allow cyclists to connect with the history of our region, state and nation. The Virginia Department of Historic Resources (VDHR) provided mapping data on the sites along the corridors.

#### Highway Markers

At the roadside, highway markers can be valuable resources, allowing visitors to pause and learn more about historic places and famous residents who lived in the area. The 25 segments include a list of any highway markers or historic plaques on or near the Route.

## Scenic Resources

Scenic resources are difficult to measure but provide great value to recreational riding. While a corridor can be attractive to visitors, there may not be any identified vistas or views from the roadway. The segments indicate any official designation or scenic byways. There is also a short description of notable views.

#### Other Destinations

Other than historic sites, there may be other destinations that interest cyclists. These destinations could include wineries, orchards, parks, trails, small towns and other interesting places.

#### Cycling Services & Resources

For long distance riders, there is great interest in cycling services and resources. These amenities may include items such as: restrooms, food and water, air pumps, medical services, post offices and internet access, along with bike shops, information centers and lodging.

#### Access Points

Access is an important consideration for recreational cycling. While some cyclists attempt to complete BR 76 at once, others may break this ride into multiple trips. There are still others who may want to access BR 76 for a shorter rider, with no intention of completing other portions of the Route. In addition to short route cycling, long distance riders frequently have support and gear (SAG) vehicles that need short term parking, as cyclists often "leap frog" the SAG vehicle, taking turns driving. Each segment includes an inventory of these public parking areas.

#### Topography

In this region, cyclists experience frequent changes in topography, as the Route passes through the foothills and into the Blue Ridge Mountains. The segments include a cross-section of the terrain in each corridor, along with a brief description.

## *Cycling Assessment*

The cycling assessment provides an overview of the inventory found in each segment corridor. This includes a score of bike compatibility and recreational value. The recreational assessment is less scientific, resulting in a general range of values from low to high. The recreational range is based on the presence and quality of destinations and amenities in the segment.

## *Recommendations*

The recommendations section includes a preliminary list of actions that can improve cycling safety and experience in the segment corridors. A more thorough, in-depth list of recommendations is included in a consolidated project list, found at the back of the report.

## **Overview of Segments**

To provide a quick reference of the conditions throughout the study area, the following matrix highlights the key indicators. This data feeds into the BLOS equations, to identify an overall bike compatibility rating. Since road and traffic conditions can vary within a segment, some BLOS scores may be displayed in a range. The 25 segments are listed in order, from west to east.



BLOS Key Indicators

	Segment	BLOS	Road Conditions		Traffic Conditions		
			Lane Widths (Feet)	Width of Shoulder/Bike Lane (Feet)	Annual Average Daily Trips (AADT)	Truck Traffic (% of AADT)	Posted Speed (MPH)
Rural	1: Blue Ridge Parkway	B*	10	None	440	0%	45
	2: Rockfish Gap Turnpike West	F	10	0 – 2	8,450	7%	35 – 55
	3: Afton Area	B – C*	8 – 11	0 – 2	435	1%	55 (NP)
	4: Rockfish Gap Turnpike East	C	10 – 12	1 – 2	5,890	4%	55
	5: Newtown/Greenwood	C	9	None	290	0%	55 (NP)
	6: Jarmans Gap Corridor	C	8	None	635	1%	40
	7: West Crozet Corridor	B – C	9	None	875	.5%	40
	8: White Hall Road	D	9	.5	2,020	2%	45
	9: Garth Road	D	9 – 10	0 – .5	3,700	1.5%	35 – 50, 45 (TR)
SU	10: Old Garth & Old Ivy Roads	D	9 – 11	0 – .5	3,495	1%	30
Urban	11: Business US 250	B – C	10 – 14	5 + 8 (Parking)	12,850	2%	25 – 35
	12: Downtown Area	B – C	9 – 12	8 (Parking)	4,625	3%	25
	13: Belmont Area	B – C	10 – 12	8 (Parking)	12,000	2%	25 – 35
SU	14: Scottsville Road	D	12	0 – 12	20,345	2%	45
Rural	15: Thomas Jefferson Parkway	D	10	1 – 2	8,525	3%	45
	16: Ash Lawn Area	C – D	10	None	2,200	1%	45 - 55
	17: Ruritan Lake Road	C	9	None	600	0%	45
	18: Palmyra Area	C – D	11	.5 – 10	5,650	8%	35 – 55
	19: Courthouse Road	C	9	None	980	0%	40
	20: Venable Road	B – C	9	None	385	0%	55
	21: Shannon Hill Road	D	9 – 10	None	1,470	4%	45 – 50
	22: Mineral Corridor	B – D	12	1 – 3	4,535	3.5%	25 – 55
	23: Fredericks Hall Road	C – D	10	None	3,100	2%	25 – 45
	24: Lake Anna Area	D	10	0 – 1	2,160	3%	55
	25: Bumpass Area	C	9 – 10	None	1,255	1%	35 – (55) NP

\*Other conditions may diminish BLOS; SU = Suburban; NP = Not Posted; TR = Trucks



# Segment C1: Business US 250

## City of Charlottesville

Segment C1 evaluates the existing cycling environment on Business US 250, through the City of Charlottesville. While the study area consists mostly of rural roadways, the streets in Charlottesville present a unique experience for cyclists. On these streets, riders have access to numerous services and resources, as well as historic landmarks. Consequently, this corridor can serve as a destination for most cyclists.

The League of American Bicyclists identified Charlottesville as a Silver Level, Bicycle Friendly City. This is the highest rated locality on the Virginia portion of BR 76, whereas Williamsburg, Richmond, and Roanoke received Bronze ratings. Despite the City's successes, urban environments come with inherent hazards for cyclists. To help mitigate those challenges, the City is undergoing several efforts to address cycling conditions in this corridor and community-wide. In those efforts, the City already conducted extensive assessments of the cycling conditions. Consequently, there is less emphasis on recommendations for this segment.

## Segment Characteristics

### Urban Environment

- Urban Principal Arterial
- Primary Route

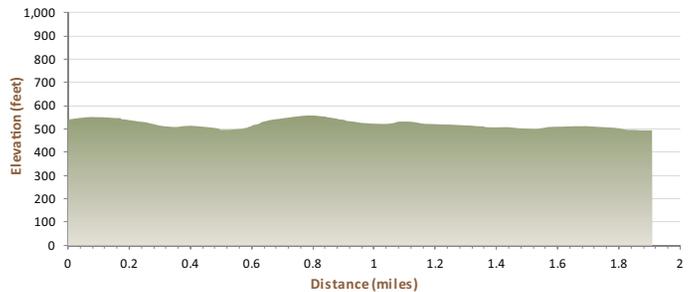
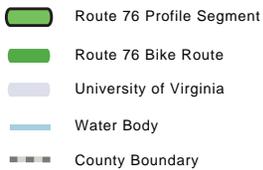
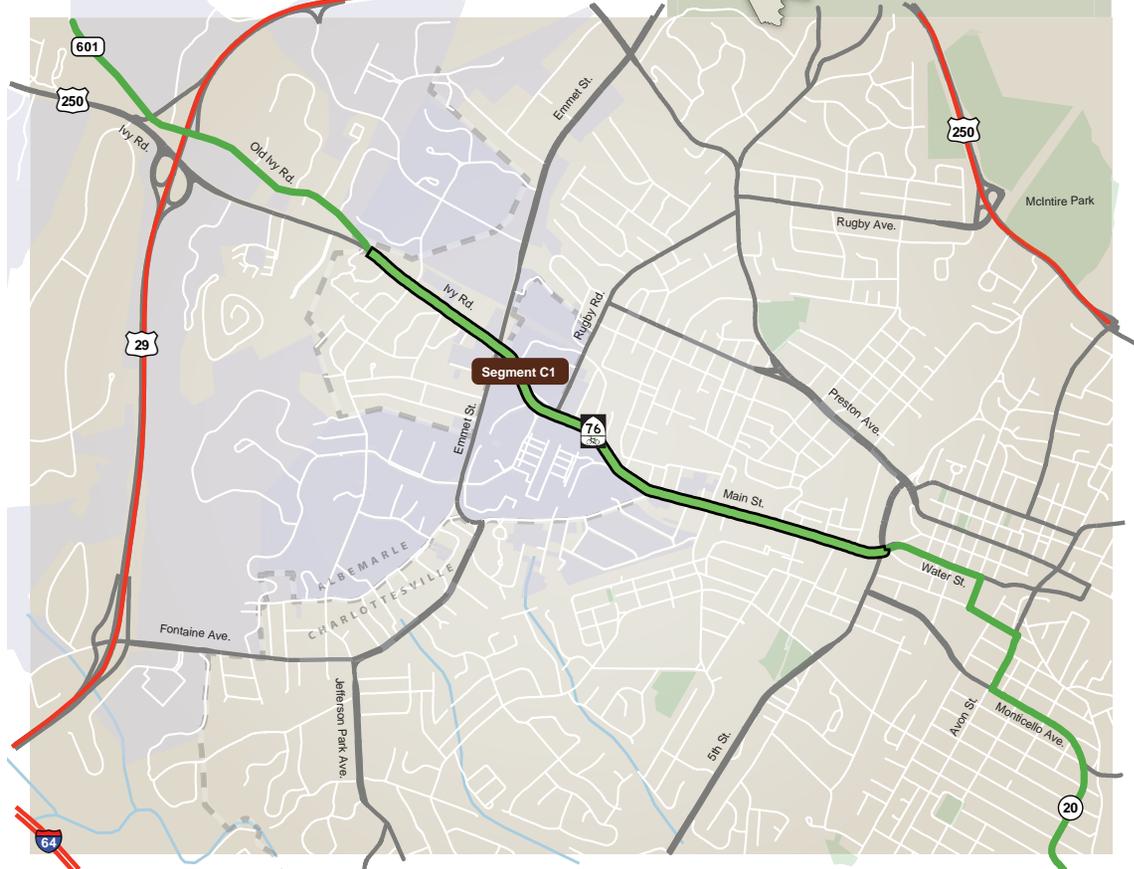
### Road Segments

» **Total Road Mileage: 1.91 Miles**

- US 250 (Ivy Road) - .5 Mile
- US 250 (University Avenue) - .59 Mile
- US 250 (West Main Street) - .82 Mile

<b>B-C</b> Bike Level of Service	12,850 Annual Average Daily Trips	25 - 35 Posted Speed (MPH)
12' Average Lane Widths (feet)	4-7'+8' Shoulder/Bike Lane Width (feet) <i>(parking)</i>	2% Truck Traffic (percent)

Positive Contributing Factor (Green) Negative Contributing Factor (Red)



## Land Uses

### » Urban

This segment is an urban environment, with one of the most diverse mixes of land uses in the project study area. BR 76 passes through strip commercial on Ivy Road. It then climbs up to the University of Virginia and the urban-scaled commercial properties along University Avenue. On West Main Street, cyclists enter one of the most active corridors in the City, as there are apartment buildings, storefronts, restaurants and multi-storied/mixed use buildings.

## Public Comment

### » Bypass Urban Cycling

In an online questionnaire, local cyclists said that they preferred to avoid riding in the City. Respondents would rather ride on low-volume, rural roads. Consequently, local cyclists recommended that an alternate route bypass the City, using rural roads (such as Plank Road) to the south. It is important to note that these comments came from local cyclists. Touring cyclists would see Charlottesville as one of the few cities along the route and would mark this area as a valued destination.

## Road Features

### Road Sections

For an urban environment, this profiled corridor is relatively long, with a great diversity of street sections. Those variations roughly correspond to the road segments of Ivy Road, University Avenue and West Main Street.

#### » Urban, Three-Lane Street (Bike Lanes)

While Ivy Road generally has three (3) travel lanes (one eastbound, two westbound) there can be multiple turn lanes in any given sections. At its widest point (the Alderman Road intersection), the road surface is nearly 70 feet wide. Generally, the turn lanes are ten (10) feet wide, while the travel lanes are 12 to 14 feet wide. Between Alderman

and Rothery Road, the street section includes five (5)-foot bike lanes that are clearly marked. (Figure 11-1)

#### » Urban, Two-Lane Street (Bike & Shared-Use Lanes)

The street section on University Avenue varies from west to east. The widest point is at the Emmet Street intersection, where the road reaches approximately 50 feet. This section includes two (2) turn lanes, two (2) through lanes and a bike lane. To the east, closer to the university, the road begins to narrow to 40 feet. On the eastbound side, the section consists of an 11-foot travel lane, four (4)-foot bike lane and eight (8) feet of on-street parking. The westbound side consists of an 11-foot travel lane and five (5)-foot bike lane. The narrowest street section is at the UVA Corner, where the road is 26 feet wide, with on-street parking cut into the sidewalk. The eastbound lane is 14 feet, while the westbound lane is 12 feet. There is a stone wall on the eastbound lane, which creates a hard edge to the road. At the edge of the westbound lane, there is a curb and wide sidewalks (approximately 20 feet) or on-street parking. (Figure 11-2)

#### » Urban, Two-Lane Street (Bike Lanes)

The easternmost street in this corridor is West Main Street. While the arrangement of travel and turn lanes vary, the road on West Main Street is generally 45 feet wide. The two (2) travel lanes are 11 feet wide. On the east- and westbound sides, there is seven (7) feet for on-street parking, which leaves room for four (4)-foot bike lanes in both directions. (Figure 11-3)

## Bike Signage

### » Sufficient Signage

This corridor has the most comprehensive bike signage in the project study area. There are eight (8) BR 76 signs. Additionally, there are 32 other bike-related signs and 25 sharrows stenciled on the road surface.



Figure 11-1: Typical Road Section



Figure 11-2: Typical Road Section



Figure 11-3: West Main Street

## Intersections

### » VA 302 (Alderman/Copeley Road)

There are no identified deficiencies with this four-way, signalized intersection. Although, there is a large volume of vehicular and pedestrian traffic, which creates greater chances of accidents. Between 2005 and 2011, there were 36 reported crashes at this location. Reportedly, 16

of those crashes were related to the intersection. None of those accidents involved cyclists.

» **US 29 (Emmet Street)**

The Emmet Street intersection poses several dangers for cyclists, as there is heavy traffic. The only bike lane is on the eastern leg, University Avenue. Vehicles must cut across the bike lane, to reach the right turn lane. Between 2005 and 2011, there were 23 intersection-related crashes, including a bike-automobile collision.

» **US 250 (Rugby Road)**

The City recently implemented a pilot project with this intersection, installing bike boxes and painted bike lanes. This constitutes the most innovative cycling accommodation in the study area.

» **Typical Intersection on the UVA Corner**

There are three (3) alleys that intersection with University Avenue, along with several smaller intersections in the “Corner” area. There are no identified deficiencies at these intersections, though sight distance is a common concern. Motorists can have difficulty spotting cyclists, due to visual obstacles, such as buildings, on-street parking, traffic, pedestrians and other features.

» **VA 607 (14th Street NW)**

The high volume of vehicular, pedestrian and bus traffic at this T-Intersection introduces greater potential of collisions with cyclists. Overall, this location has a relatively high concentration of traffic accidents, with at least 18 reported crashes, between 2005 and 2011, though none involved pedestrian or cyclists. There are also limited sight-lines in the area, due to features along the street, such as the railroad bridge. (Figure 11-4)

» **VA 625 (Jefferson Park Avenue)**

This Y-intersection can be challenging for cyclists, as there are multiple turn lanes and relatively heavy traffic volumes. Between 2005 and 2011, there were ten (10) crashes at

this intersection, including three (3) vehicle/pedestrians collisions. Recent improvements to this intersection helped to increase cycling safety.

» **VA 606 (10th Street NW)**

10th Street NW forms a four-way, signalized intersection with West Main Street. There are well-marked bike lanes on West Main Street, helping improve cycling safety. Between 2005 and 2011, there were 18 crashes associated with this intersection, including a collision with a cyclist.

» **Typical West Main Street Intersections**

There are at least 12 intersections along West Main Street. The high volume of vehicles, pedestrians and cyclists make these intersections difficult for cycling. There are multiple turning movements and modes of travel at each intersection. In terms of accident data, most of the crashes in this corridor occur at these intersections. The six (6) accidents that involved vehicles/cyclists appear to have taken place at intersections. This included a cycling fatality.

» **US 250 (Ridge McIntire Road)**

The Ridge McIntire Road intersection presents many hazards for cyclists. With 5 legs, there are multiple turning movements and conflict points where vehicles and bikes could cross paths. There are additional conflict points at turn lanes, where cyclists must merge into and cut across traffic. With the numerous turn lanes, the intersection is relatively large. Consequently, cyclists must travel greater distances to clear the intersection between lighting cycles. Despite these issues, there were no recorded traffic accidents that involved bicycles, between 2005 and 2011.

### Sight Distance

» **Obstructed Sight-Lines at Intersections**

The sight distances in this corridor are generally clear, but there are obstructed sight-lines at some intersections. Obstacles that block sight-lines include: vegetation, signs, buildings and on-street parking. Sight distance issues are most apparent at 4th and 8th Street. (Figure 11-5)



Figure 11-4: 14th Street NW



Figure 11-5: Obstructed Sight-Lines

## Additional Road Hazards

» **On-Street Parking**

On-street parking presents many difficulties for cyclists. Parked vehicles narrow the street section but also create dangers as motorists can unexpectedly open car doors.

» **Variable Road Widths**

Cyclists prefer to have consistent, predictable bike facilities. When the widths of travel and bike lanes vary, cyclists need to continuously adjust. In choke points, where the roads narrow, cyclist must merge in and out of traffic. Overall, these conditions can confuse motorists and cyclists, increasing the chances of collisions.

## Planned Road Improvements

» **Planning Efforts**

The City of Charlottesville updated its Bike and Pedestri-

an Plan, which includes additional assessments of these areas. Additionally, the City is involved with an extensive planning effort for West Main Street. In that process, the City is weighing several options for improving bike and pedestrian facilities. Recommendations will include improved bike lanes and other cycling accommodations.

#### » *Other Improvements*

In VDOT's Six-Year Improvement Program, there is a project that includes Bike and Pedestrian Improvements at the Buckingham Branch railroad line. These are listed as safety improvements. To date, preliminary engineering work is complete.

### **Additional Traffic Hazards**

#### » *Pedestrians & Buses*

In this urban environment, there is a greater occurrence of pedestrian traffic, compared to the rural areas of BR 76. As pedestrians cross the street, there are added conflict points for cyclists. Additionally, there are frequent bus routes on these streets. As buses arrive at stops, there are greater chances of collisions with cyclists.

## **Traffic Conditions**

### **Traffic Counts**

#### » *12,400 to 13,300 ADT*

This corridor is the third most traveled area in the project study area. As an urban environment, these higher traffic volumes are expected. On Ivy Road, counts range from 12,439 to 13,264 ADT. The traffic counts on University Avenue are similar, between 12,390 to 13,052 ADT. West Main Street carries 13,052 ADT.

VDOT estimates that traffic counts will continue to increase over the next twenty years. On Ivy Road, counts could reach 15,000 ADT. University Avenue and West Main Street would also experience increases, as traffic counts are estimated to reach 15,500 ADT or more.

### **Truck Traffic**

#### » *1 to 3 Percent*

Truck traffic is negligible in most part of the corridor, though University Avenue and West Main Street have a 3 percent rate from heavy vehicles. Note: buses and emergency vehicles can also present dangers to cyclists, even if they are not defined as truck traffic.

### **Travel Speeds**

#### » *25 to 35 MPH*

On Ivy Road, the posted speed limit is 35 MPH. On University Avenue and West Main Street, the speed limit reduces to 25 MPH. Due to congestion and frequent stops at intersections, the actual travel speeds are at or below posted limits.

### **Level of Service**

#### » *C - Stable Flow, at or Near Free Flow*

#### » *D - Approaching Unstable Flow*

On Ivy Road and West Main Street, congestion levels are high, LOS D. Consequently, travel speeds begin to decrease due to increased traffic volumes. On portions of University Avenue, congestion is slightly improved, with a LOS C.

According to VDOT forecasts, Ivy Road will remain at a LOS D in the next twenty years. On University Avenue, forecasts show that LOS will degrade to an F, resulting in a breakdown of travel flow, also known as stop-and-go traffic or a traffic jam. West Main Street would have LOS F and E. Actual congestion in the future may be difficult to calculate, as the City will likely take actions to mitigate traffic along this corridor.

### **Traffic Accidents**

#### » *272 Crashes (8 Bicycles), 1 Fatal (Bicyclist)*

This is the most crash-prone corridor in the study area, though not because of road deficiencies. This corridor has the third highest traffic counts of the 25 segments in this study. This area also has the highest counts of cyclists and pedestrians. Consequently, large volumes of people are crossing paths on various travel modes. Additionally,

reporting of accidents in the City is likely more accurate and inclusive.

On Ivy Road, there were nearly 100 crashes, between 2005 and 2011. This count includes four (4) vehicle/pedestrian collisions and one (1) vehicle/bicyclist collision. On University Avenue, there were close to 70 crashes, including another collision with a cyclist. There were also six (6) instances where vehicles struck pedestrians.

West Main Street had over 100 automobile accidents. This street has the most accidents involving cyclists and pedestrians. In six years, there were at least seven (7) pedestrians that were struck and injured by vehicles. Three (3) of these accidents occurred in the vicinity of Jefferson Park Avenue. Another three (3) occurred between 4th and 6th Street NW. During the same time, there were six (6) vehicular crashes involving cyclists. Most of these accidents occurred at intersections, including two (2) at the 7th Street crossing. While most of these cyclists escaped with injuries, there was one (1) fatality at the intersection of 4th Street NW.

## **Recreational**

### **Historic Resources**

#### » *Historic District and Properties*

This corridor has more historic resources than any other corridor in the project study area. There are four (4) historic districts, including the Rugby Road/University Corner, University of Virginia, the 10th & Page and the Fifeville Districts. Historic buildings are visible from the roadway, including the UVA Rotunda, which is on the World Heritage List.

### **Highway Markers**

#### » *5 Historic Markers*

There are 5 historic markers along this corridor. The western most highway marker is at the intersection with US

29 (Emmet Street). The text honors a local World War II hero, Technical Sergeant, Frank D. Peregory, who landed at Omaha Beach in the Normandy invasion. The next highway marker is in front of the UVA Rotunda and provides a brief history of the University of Virginia. At the intersection of Jefferson Park Avenue, a marker provides a history for the old Charlottesville Hospital. On West Main Street, there is a marker that provides history of the First Baptist Church of West Main. Finally, there is an historic plaque at the Lewis and Clark Statue, in the Ridge/McIntire intersection. The marker honors Sacajawea, who guided the Lewis and Clark Expedition.

## Scenic Resources

### » *Scenic Road*

These streets are designated as Scenic, because of the historic properties in the corridor. Despite this designation, there are no identified scenic vistas.

## Other Destinations

### » *Downtown Pedestrian Mall*

This corridor is full of destinations that could interest cyclists who are passing through town on BR 76. Downtown Charlottesville is home to one of the only pedestrian malls in the country. In the 1970s, the City designated eight (8) blocks for a pedestrian only street. This area developed into the cultural center for the city.

### » *University of Virginia*

The UVA Lawn and Rotunda is a popular tourism destinations because of its architectural and historical significance.

### » *Local Businesses*

Throughout this corridor, there are several other businesses and restaurants that would interest cyclists.

## Cycling Services & Resources

### » *Lodging, Restrooms, Food & Bike Racks*

Commercial properties allow cyclists to resupply on food and water. Many businesses also have restrooms for pa-

trons. With bike racks throughout the university and West Main Street area, cyclists can easily secure their bikes. There are also multiple hotels in this corridor, providing valuable lodging opportunities to cyclists.

### » *Amtrak Service*

The Amtrak station provides a unique service for cyclists. Charlottesville is one of only two Amtrak stations nationwide on BR 76 with full checked baggage service. For a small charge, Amtrak passengers can have their bike delivered with their checked luggage in a recyclable box. The only other full checked baggage service directly on BR 76 is in LaJunta, Colorado.

Along the TransAmerican Trail, the only other on-route locations with Amtrak stations include Williamsburg, VA; Ashland, VA; Carbondale, IL; and Eugene, OR.

## Access Points

### » *On-Street & Public Parking*

There are numerous locations in the City where someone can access BR 76.

## Topography

### » *Rolling*

While there are flat sections, this corridor include several significant hills. The most challenging climb is on University Avenue, from US 29 (Emmet Street). University Avenue climbs in elevation, with a long slope greater than 3 percent. The road then drops in elevation to 14th Street NW, also at a 3 percent grade. After another small climb, West Main Street is relatively flat.

## Route Assessment

### **Bike Compatibility: BLOS B – C**

Ivy Road, University Avenue and West Main Street are reasonably compatible for cycling. While traffic counts are relatively high, travel speeds are low and the travel lanes are

wider than on most rural roadways. Many sections have bike lanes, which are ideal in this urban environment.

Despite the cycling accommodations, there are also dangers to cyclists. At intersections, riders have limited sightlines and must travel across turn- and travel lanes. Also, on-street parking and varied street dimensions can serve as cycling hazards.

### **Recreation: Very High Value**

While the US Bike Route System is intended for rural roadways, this urban setting provides abundant recreational amenities. There are historic resources to view from the roadway. The University of Virginia is a popular tourist destination, for its architectural and historical significance. There are also abundant bike racks in the area, allowing cyclists to access destination, resources and services by foot. Finally, the Amtrak services provides one of the more unique and valued services along the entire route.

## Recommendations

### **Alternate Routes**

The TJPDC should explore opportunities to establish alternative routes that bypass the City, for cyclists who would like to remain on rural roadways, while maintaining the existing route through the City.





# Segment C2: Downtown Area

## City of Charlottesville

Segment C2 evaluates the existing cycling conditions on the downtown portion of BR 76. This is the commercial and cultural center of the City, providing cyclists and visitors with one of the more unique experiences along the entire route, nationwide. While the City continues to implement innovative bike accommodations and while the streets are relatively safe for cycling, there are inherent features of urban environments that can be hazardous to riders. Despite those challenges, this corridor services as a destination for cyclists on BR 76.

### Segment Characteristics

#### Urban Environment

- Urban Collector
- Urban Local
- Secondary Routes

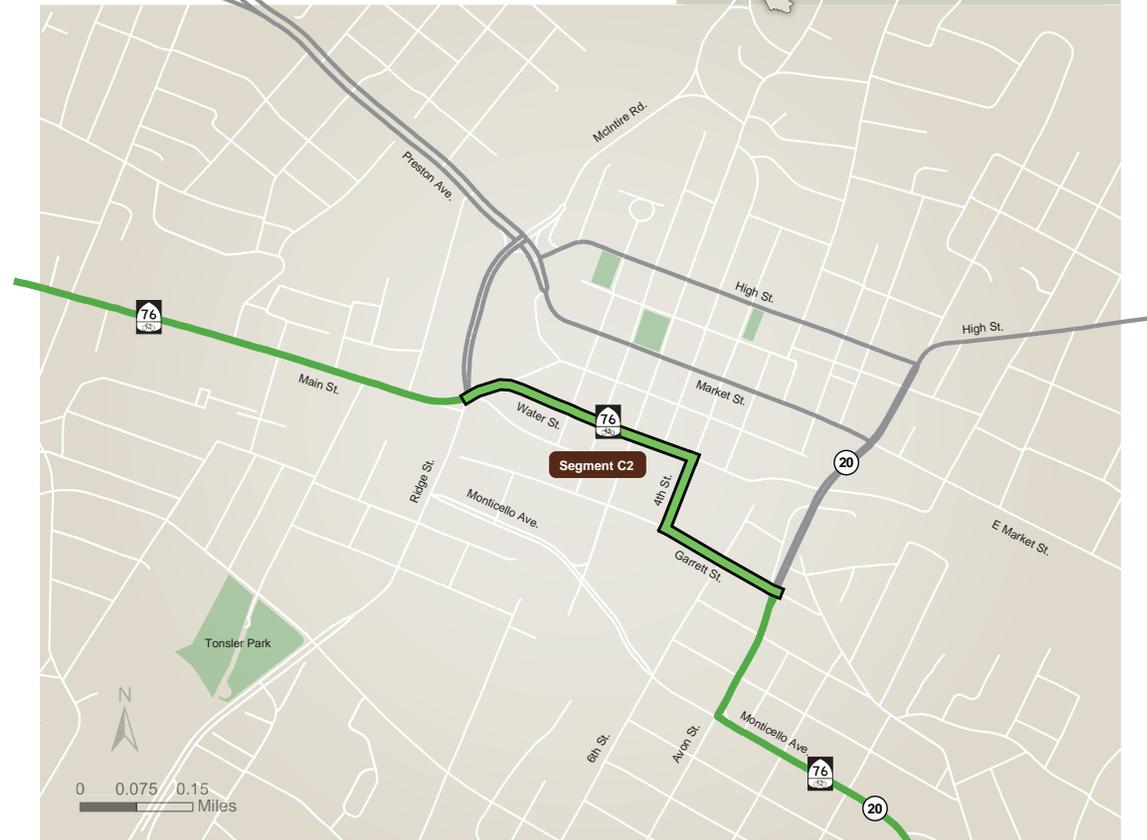
#### Road Segments

- » *Total Road Mileage: .58 Mile*
- VA 652 (Water Street) - .32 Mile
- VA 3413 (4th Street SE) - .10 Mile
- VA 620 (Garrett Street) - .16 Mile

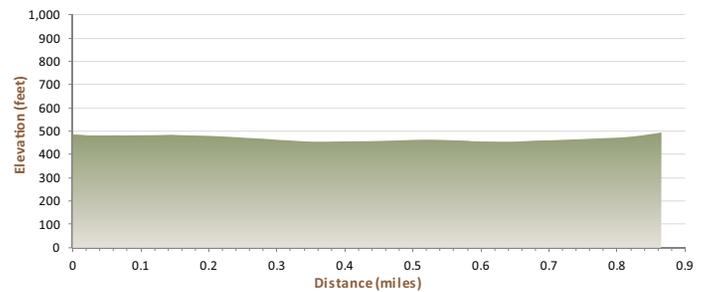
#### Land Uses

» *Urban*  
 Downtown is the most urban environment in the BR 76 study area. The route passes by high density areas, with multi-storied buildings and a diverse mixture of uses. North of the railroad tracks, cyclists ride past the downtown mall (the central business district and mixed-use center for the City). South of the railroad track, on Garrett Street, the surrounding properties include multi-family and commercial/industrial buildings.

<b>B-C</b> Bike Level of Service	4,625 Annual Average Daily Trips	25 Posted Speed (MPH)
10.5' Average Lane Widths (feet)	8' (parking) Shoulder/Bike Lane Width (feet)	3% Truck Traffic (percent)
Positive Contributing Factor		Negative Contributing Factor



- Route 76 Profile Segment
- Route 76 Bike Route
- Water Body
- County Boundary



## Public Comment

### » *Bypass Urban Cycling*

In an online questionnaire, local cyclists said that they preferred to avoid riding in the City. Respondents would rather ride on low-volume, rural roads. Consequently, local cyclists recommended that an alternate route bypass the City, using rural roads (such as Plank Road) to the south. It is important to note that these comments came from local cyclists. Touring cyclists would see Charlottesville as one of the few cities along the route and would mark this area as a valued destination.

## Road Features

### Road Sections

#### » *Urban, Two-Lane Street (Shared-Lane)*

On Garrett Street, the roadway consists of a 40-foot paved surface. The travel lanes are approximately 12 feet wide, with an additional eight (8) feet on the outside edge of both lanes for on-street parking. None of the on-street parking is marked. Adjacent to the road is curb and gutter, along with a five (5)-foot planting strip and five (5)-foot sidewalk. (Figure 12-1)

The road surface on 4th Street SE is narrower, due to a small railroad bridge, with approximately 35 feet. With on-street parking, the travel lanes are approximately nine (9) feet. On the northbound lane, some of the on-street parking is framed by bulb-outs. This section also includes curb and gutter, along with five (5)-foot sidewalks.

The street section on Water Street varies, as turn lanes appear and taper away. Generally, the roadway is 35 to 40 feet wide. There is on-street parking (marked) on the westbound lane, claiming eight (8) feet of the road surface. With a turn lane, the east- and westbound lanes are generally ten (10) feet wide. There is curb and gutter, along with five (5) to eight (8)-foot sidewalks. (Figure 12-2)

Note: When the on-street parking is unoccupied, the street section essentially includes a wide outside lane for cyclists.

### Bike Signage

#### » *Additional Signage Needed*

There are six (6) signs that mark BR 76, though no signage that directs cyclists onto Garrett Street from Avon Street. Aside from BR 76, there are eight (8) bike sharrows on Water Street, indicating shared use lanes. (Figure 12-3)

### Featured Intersections

#### » *Typical Intersection*

There are five (5) intersections on Water Street, with cross streets from the downtown pedestrian mall. Only two (2) of those intersections have 4 legs, while the other three (3) essentially function as T-intersections. The T-intersections on Garrett Street tend to have poor sight-lines, due to on-street parking and other features that obstruct sight distance.

#### » *VA 652 (Water Street)/ VA 3413 (4th Street SE)*

There are several features at this four-way intersection that are challenging to cycling safety and comfort. With relatively high traffic counts and frequent pedestrian crossings at the crosswalks, there are greater chance of accidents and difficult sight-lines for cyclist from 4th Street SE. (Figure 12-4)

#### » *VA 3413 (4th Street SE)/ VA 620 (Garrett Street)*

Sight distance is the main concern for cyclists at this T-intersection. On-street parking along Garrett Street blocks sight-lines from 4th Street SE.

#### » *US 20 (Avon Street)*

The intersection at Garrett and Avon creates challenges for cyclists. With 5 legs, there are additional turning movements and potential conflict points between vehicles and bicycles. On Avon Street, cyclists must cut across travel lanes in order to make a left turn onto Garrett Street, crossing paths with motorists. (Figure 12-5)



Figure 12-1: Typical Road Section on Garrett Street



Figure 12-2: Typical Road Section on Water Street



Figure 12-3: Bike Sharrows

### Sight Distance

#### » *Obstructed Sight-Lines at Cross Streets*

Commonly, there are obstructed sight-lines at many intersections. Visual obstructions include vegetation, signs and on-street parking.



Figure 12-4: Intersection of Water and 4th Streets



Figure 12-5: Avon Street

## Additional Road Hazards

### » Variable Road Widths

Cyclists prefer to have consistent, predictable bike facilities. When the widths of travel and bike lanes vary, cyclists need to continuously adjust. In choke points, where the roads narrow, cyclist must merge in and out of traffic. Overall, these conditions can confuse motorists and cyclists, increasing the chances of collisions.

## Planned Road Improvements

### » Road Improvements

There are two (2) road projects that could influence the BR 76 sections. The City is in the process of replacing the Belmont Bridge, just north of BR 76, on Avon Street. In the final designs, construction may require minor redesigns of the Avon/Garrett Street intersection. On South Street, the City installed a contraflow bike facility. While this is a one-

way street, cyclists will legally be able to travel east- and westbound. While this street is not part of BR 76, it is one of the legs in the Ridge McIntire intersection.

## Traffic Conditions

### Traffic Counts

#### » 3,250 to 6,000 ADT

In this urban environment, traffic volumes are relatively high (5,997 ADT), compared to the rest of the study area. The VDOT forecast for 2035 indicates that ADT could increase to nearly 10,000 ADT along Water Street. Traffic counts on Garrett Street shows slight increases in traffic over the next twenty years, reaching 3,250 ADT.

### Truck Traffic

#### » 3 Percent

The percentage of heavy vehicles is moderate, having a slight effect on the bike compatibility score.

### Travel Speeds

#### » 25 MPH

The posted speed is 25 MPH. Due to frequent intersections and stops, actual speed is likely similar to posted speeds.

### Level of Service

#### » B - Reasonably Free Flow

#### » A - Free Flow

On Water Street, motorists are able to travel at or above the posted speed limit, but maneuverability within the traffic stream is slightly restricted. VDOT forecasts show that LOS will remain at B over the next twenty years. On Garrett Street, traffic also flows freely. VDOT forecasts show that LOS will remain at A over the next twenty years.

### Traffic Accidents

#### » 10 crashes, 0 fatal

Between 2005 and 2011, VDOT records show at least 10 crashes in this area. On Water Street, the intersection with

McIntire Road had the highest number of crashes, with six (6) accidents. The most common crash type was angled collisions between vehicles. While there was one vehicular accident that involved a pedestrian, there were no crashes between motorists and cyclists.

## Additional Traffic Hazards

### » Pedestrians & Buses

In this urban environment, there is a greater occurrence of pedestrian traffic, compared to the rural areas of Bike Route 76. As pedestrians cross the street, there are added conflict points for cyclists. Additionally, there are frequent bus routes on these streets. As buses arrive at stops, there are greater chances of collisions with cyclists.

## Recreational

### Historic Resources

#### Historic District

In this corridor, there is an abundance of structures and properties with historic significance. This is evident from the local designation of the Courthouse Historic District. From the street, cyclists can see a wide range of architectural styles from various historical periods.

### Scenic Resources

#### » No Designation

While this area provides an interesting urban environment, such as the Downtown Mall, there are no identified scenic vistas or resources in this corridor.

### Other Destinations

#### » The Downtown Pedestrian Mall

Downtown Charlottesville is home to one of the only pedestrian malls in the country. This area developed into the cultural center for the city, as well as the central business district. While cycling is not allowed on the mall, there are several bike racks in the area. The restaurants, stores and overall environment make this corridor a great destination on BR 76.

## Cycling Services & Resources

### » All Services

Commercial properties allow cyclists to resupply on food and water. Many businesses also have restrooms for patrons. With bike racks and fix-it racks throughout the downtown area, cyclists can easily secure and maintain their bikes. South of Garrett Street is the only bike shop along the BR 76 study area, providing a unique and critical resource for cyclists. In the summer months, there is also a farmers market along Water Street. The City offers various parks that may be of interest to cyclists. With a post office, medical services, bike repair, a library and numerous other resources, this is a critical designation for cyclists on BR 76.

## Access Points

### » On-Street & Public Parking

There are several locations in the City where someone can access BR 76.

## Topography

### » Rolling

While the Downtown area is relatively flat, there are two (2) hills. On Water Street, the terrain slopes downward from Ridge McIntire. On Garret Street, there is a hill that climbs up to Avon Street. These climbs can be difficult, as there is no designated bike space for the climbs. On-street parking and busy traffic leave little room for cyclists to maneuver on these climbs.

## Route Assessment

### Bike Compatibility: BLOS B – C

The streets in downtown Charlottesville are reasonably compatible for cycling. While there are higher traffic counts than in other segments, travel speeds are low and the travel lanes are wider than on most rural roadways. There are also dangers to cyclists on these streets. At intersections, cyclists have limited sight-lines and must travel across turn and travel lanes.

## Recreation: High Value

While the US Bike Route System is intended for rural roadways, this urban corridor is a definite designation for riders. This corridor has all of the resources and services that touring cyclists may need.

## Recommendations

### Additional Signage

The City should install an additional BR 76 sign at the Garrett/Avon Street intersection.

### Other Signage

There should also be discussions of road stencils at crosswalks, warning pedestrians of cyclists. (Figure 12-6)



Figure 12-6: Road Stencil



# Segment C3: Belmont Area

## City of Charlottesville

Segment C3 evaluates the existing cycling environment on Bike Route 76, near the Belmont neighborhood of Charlottesville. As with segments C1 and C2, there are challenges to cycling safety that are inherent to urban areas. At the same time, the City also has the most innovative approaches to improving the cycling environment. Regardless of the conditions, this corridor is a destination for cyclists on BR 76.

### Segment Characteristics

#### Urban Environment

- Urban Principal Arterials
- Primary Routes

#### Road Segments

- » **Total Road Mileage: 1.07 Miles**
- US 20 (Avon Street) - .18 Mile
- US 20 (Monticello Avenue) - .89 Mile

For cyclists traveling northbound on Monticello Avenue, BR 76 diverts riders onto less-traveled roads that provide an easier climb. The Uphill Route includes: Levy Avenue (.06 mile), Monticello Road (.91 mile) and Quarry Road (.06 mile).

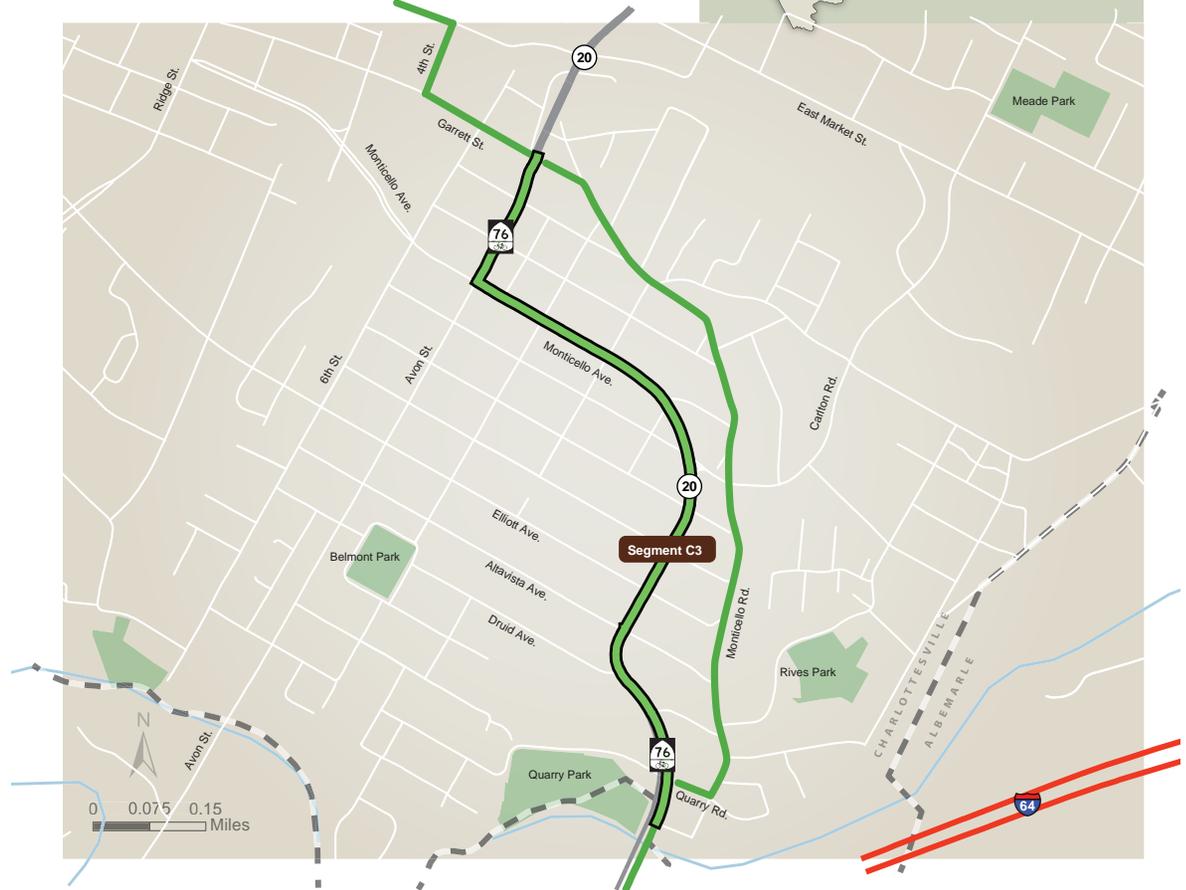
#### Land Uses

##### » Urban

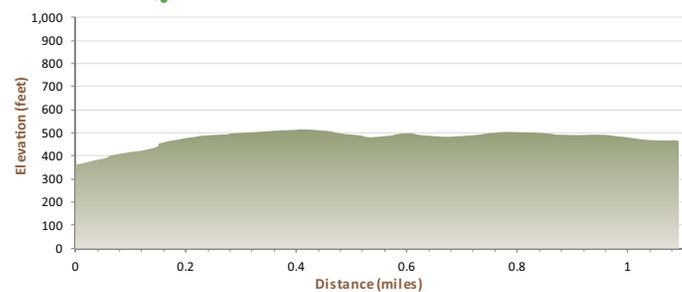
The Belmont corridor is an urban setting, with a well-defined grid network. While there is a mix of land uses, most properties in this corridor are small, single-family lots. The area also includes several churches, a school, small commercial properties and multi-family residential.

<b>B-C</b> Bike Level of Service	12,000 Annual Average Daily Trips	25 - 35 Posted Speed (MPH)
	11' Average Lane Widths (feet)	8' (parking) Shoulder/Bike Lane Width (feet)

■ Positive Contributing Factor    
 ■ Negative Contributing Factor



- Route 76 Profile Segment
- Route 76 Bike Route
- Water Body
- - - County Boundary



## Public Comment

### » *No additional Comments*

There were no additional comments from those provided for segments C1 and C2.

## Road Features

### Road Sections

#### » *Urban, Two-Lane Street (Shared Lane & Bike Lanes)*

The street section varies, as the roadway transitions to the wider widths on Scottville Road or as turn lanes appear and taper away. Overall, the roadway is typically 44 feet wide on Monticello Avenue and Avon Street. The travel lanes are approximately 12 feet wide, with an additional eight (8) feet on the outside edge for on-street parking. None of the on-street parking spaces are marked. Adjacent to the road pavement, there is curb and gutter, along with 5-foot sidewalks. On Avon, the City recently created bike lanes, narrowing the travel lanes but creating a much improved cycling environment. (Figure 13-1)

On the uphill route, the roadway ranges in width, from 20 to 25 feet. There is sporadic on-street parking on these streets, along with crosswalks and sidewalks. (Figure 13-2)

### Bike Signage

#### » *Additional Signage Needed*

There are multiple signs that mark BR 76, though there is additional signage needed in locations. Currently, there is no signage that directs cyclists onto Garrett Street from Avon Street. There is also additional signage needed for the uphill route. Aside from BR 76, there are also two (2) “Share the Road” Signs.

### Featured Intersections

#### » *Typical Intersection*

There are numerous intersections in this corridor. Since the urban street plan consists of regular, rectangular blocks,

most intersections are evenly spaced. Most intersections have 4 legs, which includes lower volume cross streets. There are instances of poor sight-lines at these intersections. (Figure 13-3)

#### » *US 20 (Avon Street)/ US 20 (Monticello Avenue)*

The City of Charlottesville is studying this intersection and exploring several innovative approaches to improving cycling safety. Westbound, on Monticello Avenue, cyclists must take a channelized right turn onto Avon Street. With this movement, cyclists merge into the same lane as motorists, who are turning left on Avon Street from the western leg of Monticello Avenue. For bikes traveling southbound on Avon Street, cyclists must turn left onto Monticello Avenue, crossing multiple lanes. (Figure 13-4)

Between 2005 and 2011, there were 12 crashes at this intersection. These incidents included a collision involving a pedestrian and a separate accident involving a cyclist. The pedestrian and cyclists were both injured.

#### » *VA 615 (Bolling Avenue/Carlton Road)*

The City of Charlottesville is also studying this intersection and developing strategies to improve cycling safety. In terms of BR 76, cyclists pass directly through the intersection, without taking turning movements. The uphill route is 280 feet to the east, passing through another intersection with Carlton Road.

### Sight Distance

#### » *Obstructed Sight-Lines at Cross Streets*

Typically, there are obstructed sight-lines at cross streets. Obstacles include vegetation, signs and on-street parking.

### Additional Road Hazards

#### » *On-Street Parking*

On-street parking presents many difficulties for cyclists. (Figure 13-5)



Figure 13-1: Typical Road Section



Figure 13-2: Typical Road Section - Uphill



Figure 13-3: Sight-Lines at Cross Streets

## Planned Road Improvements

### » *Study of Cycling Improvements*

The City is assessing bike and pedestrian improvements on Monticello Avenue, weighing several options, such as marked bike lanes and removal of on-street parking. There are also efforts to make improvements at intersections, to improve cycling safety. (Figure 13-6)



Figure 13-4: Avon Street/Monticello Avenue Concept

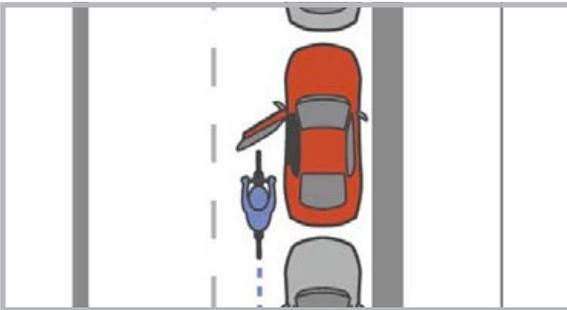


Figure 13-5: Dangers of On-Street Parking



Figure 13-6: Road Improvements

## Traffic Conditions

### Traffic Counts

» 9,000 to 15,000 ADT

Avon Street is a major artery into the downtown area, carrying 14,182 ADT. The traffic counts on Monticello Avenue

vary. As a major gateway into the City, it also has relatively high traffic counts (9,096 to 15,015 ADT), compared to other segments. The higher volumes are at the southern end of Monticello Avenue, near Interstate 64.

VDOT forecasts show large increases in traffic for this area. For Avon Street, volumes could increase by approximately 50 percent by the year 2035, to 21,500 ADT. The northern end on Monticello Avenue may increase to at least 12,000 ADT, whereas the southern segment may reach 40,000 ADT in the next twenty years.

### Truck Traffic

» 2 Percent

### Travel Speeds

» 25 to 35 MPH

The posted speed varies from 25 to 35 MPH. The higher speed is designated for the southeast segments of Monticello Avenue. Due to congestion and frequent stops on these roads, actual speed is likely similar to posted speeds.

### Level of Service

» C - Stable Flow, at or Near Free Flow

» D - Approaching Unstable Flow

On Avon Street, the roadway is safely below capacity. VDOT forecasts show that LOS will remain at C over the next twenty years. On Monticello Avenue, speeds may decrease due to increased traffic volumes. Motorists have limitations to maneuver freely and driver comfort levels decrease. In the northern segments, between Avon Street and Altavista Avenue, VDOT forecasts show that LOS will remain at a D. For the area closer to the Interstate 64 interchange, the twenty year forecasts show a LOS F. This will result in a breakdown in travel flow, also known as stop-and-go traffic or a traffic jam.

### Traffic Accidents

» 75 Crashes, 1 Fatal

Between 2005 and 2011, there were 75 crashes in this

corridor. The records include 13 crashes on Avon Street. Most of the crashes occurred at intersections. There was one fatal accident, between Levy Street and Hinton Avenue, where a vehicle struck and killed a pedestrian. The City has since made pedestrian improvements in this area, including installation of a crosswalk with LED lights.

There were 51 recorded crashes along Monticello Avenue, including an incident involving a pedestrian. The most common crash type was angled collisions between vehicles. The second most common was rear-end collisions.

## Recreational

### Historic Resources

» Historic District

There is an abundance of structures and properties with historic significance. This is captured with the local designation of the Belmont Historic District. From the street, cyclists can see a wide range of architectural styles from various historical periods.

### Highway Markers

» City of Charlottesville

There is an historic marker near the Bolling Avenue/Carlton Road intersection. The marker provides a brief written history of the founding of Charlottesville.

### Scenic Resources

» Virginia Byway

While this area is not known for its scenic resources, there are narrow views of the mountains to the east and west. These views are on Monticello Avenue, South of the Bolling Avenue/Carlton Road intersection.

### Other Destinations

» Urban Destination

As the only urban environment in the BR 76 study area, the City of Charlottesville serves as a destination for cyclists.

## Cycling Services & Resources

» *All Services*

### Access Points

» *On-Street Parking*

There are several locations in the City where someone can access BR 76.

### Topography

» *Rolling*

The terrain in this area varies, between flat and rolling. Avon Street is generally flat, but there is a small hill on the west end of Monticello Avenue. On the southeast end of this corridor, there is a significant hill that can be challenging to cyclists. From Scottsville Road, US 20 climbs 130 feet as a cyclist travels northbound. The average grade is nearly 9 percent. Consequently, BR 76 detours through more favorable roads, but only for the uphill lane.

## Cycling Assessment

### Bike Compatibility: BLOS B - C

The BLOS equation indicates that Monticello Avenue and Avon Street are generally compatible for cycling. While there are high traffic counts, the travel speeds are low and travel lanes are relatively wide. There are also low percentages of truck traffic. The most prominent hazards are on-street parking and sight-distances at intersections.

### Recreation: High Value

While the US Bike Route System is intended for rural roadways, this urban corridor is a definite designation for riders. This corridor has all of the resources and services that touring cyclists may need.

## Recommendations

### Additional Signage

The City should install an additional BR 76 sign at the Garrett/Avon Street intersection.

### Other Signage

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