Chapter 8:
Overview of Non-Capacity Elements

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Overview

The scenarios discussed in the previous sections addressed interdependent systems comprised of both roadways and transit service. These capacity-building elements, while interdependent, are only one part of the entire transportation system. The other part of the MPO's work has been dedicated to the analysis and improvement of non capacity-building projects which focus on bridge connections; intersection improvements; bike connectivity; and pedestrian infrastructure.

MPO worked with local staff to determine the best performance measurement strategies for assessing each of the non capacity improvements. The MPO developed these assessment factors and created preliminary project lists which were reviewed by MPO Committees first in September and finalized based on Committee feedback and public input.

Bridges

The first category of non-capacity-building projects is bridges. MPO staff is responsible for identifying bridges that may need widening, as well as areas where new bridges for cars, transit, or bike and pedestrians can improve travel time and access to new places. An initial list of bridges was selected based on the Virginia Department of Transportation (VDOT) Sufficiency Rating, and input from City, County and VDOT staff.

Bridge sufficiency rating is a method of evaluating highway bridge data, developed by the Federal Highway Administration to serve as a prioritization tool to allocate funds. Sufficiency Rating is essentially an overall rating of a bridge's fitness for the duty that it performs based on a variety of factors, including fields that describe its Structural Evaluation, Functional Obsolescence, and its essentiality to the public. The rating is determined by calculating these factors to obtain a numeric value which is indicative of bridge sufficiency to remain in service. A low Sufficiency Rating may be due to structural defects, narrow lanes, low vertical clearance, or any other possible issues.

Twenty-five bridges were identified as being insufficient enough to warrant replacement, or enhancements, eleven of which were included in the previous long range plan and were carried over. (Refer to Table 8-1). Due to the nature of the bridge evaluation process dictated by the Federal Highway Administration, public input is not gathered for this portion of the long-range transportation plan.

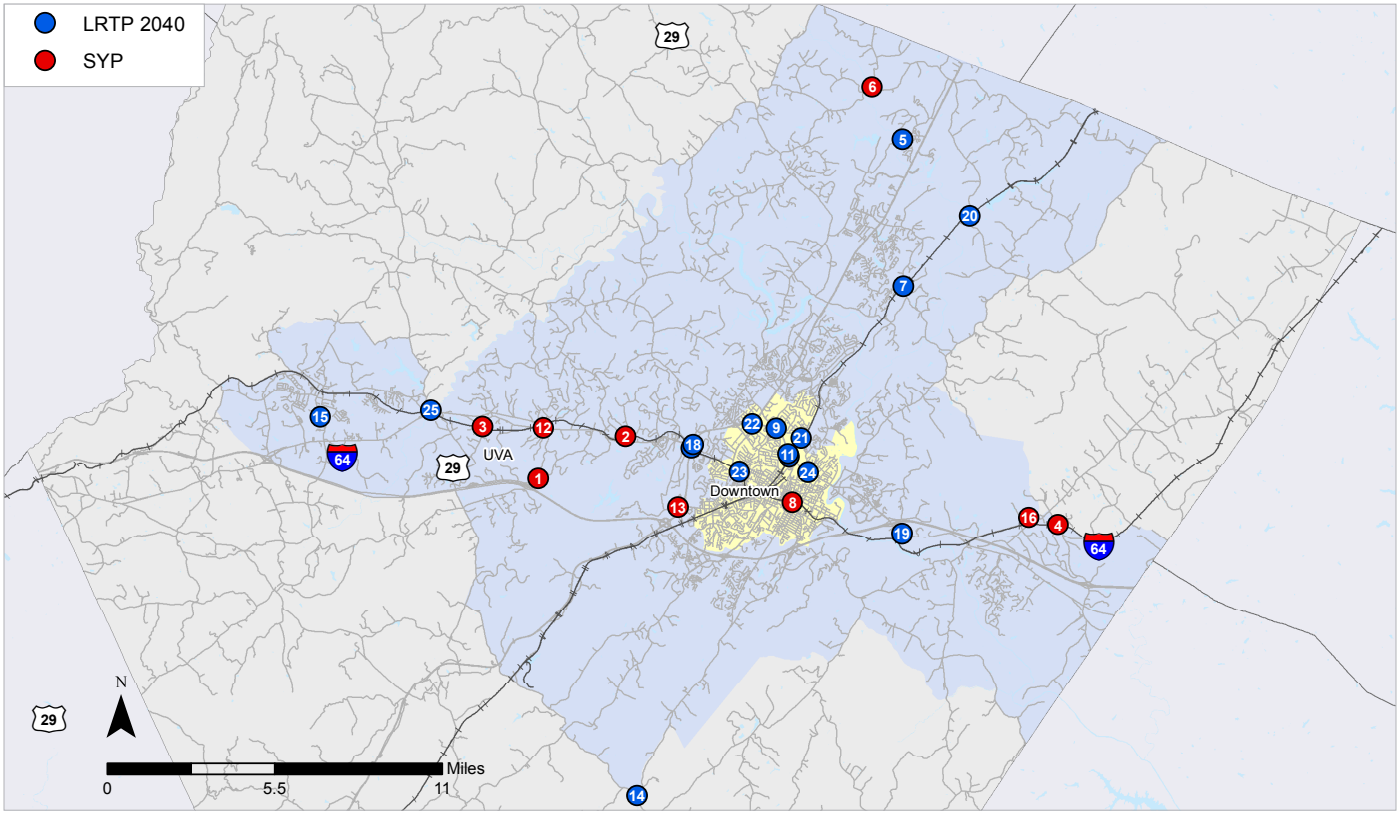
Bridge Replacement Projects (Table 8-1)

MAP ID	PROJ. # IN UNJAM 2035	JURSDICTION	SYSTEM	ROUTE	PROJECT		TYPE
					NAME	CROSSING	
1	I-27	Albemarle	Secondary	Rte 637	**Dick Woods Rd. (637)**	Ivy Creek	Construction: Replace
2	I-25	Albemarle	Secondary	Rte 677	**Old Ballard Rd. (677)**	Buckingham Branch RR	Construction: Replace
3	I-24	Albemarle	Secondary	Rte 708	**Dry Bridge Rd. (708)**	Buckingham Branch RR	Construction: Replace
4	I-26	Albemarle	Secondary	Rte 616	**Black Cat Rd. (616)**	Buckingham Branch RR	Construction: Replace
5	I-29	Albemarle	Secondary	Rte 606	**Dickerson Rd (606)**	North Fork of Rivanna River	Construction: Replace
6	I-28	Albemarle	Secondary	Rte 641	**Frays Mills Rd. (641)**	Marsh Run	Construction: Replace
7	I-29	Albemarle	Secondary	Rte 649	**Proffit Rd. (649)**	NS RR	Construction: Replace
8	I-17	Charlottesville	Urban	Route 20	**9th Street**	CSX Railroad and Water St.	Construction: Replace
9	N/A	Charlottesville	Urban	Dairy Rd	**Dairy Rd**	Route 250 Bypass	Construction: Replace
10	I-23	Charlottesville	Urban / Primary	US250	**US 250 Bypass**	Norfolk Southern Railroad	Construction: Replace
11	I-22	Charlottesville	Urban / Primary	US250	**US 250 Bypass**	Rugby Ave	Construction: Replace
12	N/A	Albemarle	Primary	US250	**Ivy Rd. (US 250)**	Little Ivy Creek	Construction: Replace
13	N/A	Albemarle	Secondary	Rte 702	**Fontaine Ave. Ext. (702)**	Morey Creek	Construction: Replace
14	N/A	Albemarle	Secondary	Rte 708	**Red Hill Rd. (708)**	North Fork Hardware River	Construction: Replace
15	N/A	Albemarle	Primary	US240	**Crozet Avenue (240)**	Lickinghole Creek	Construction: Replace
16	N/A	Albemarle	Secondary	Rte 731	**Keswick Rd. (731)**	Carroll Creek	Construction: Replace
17	N/A	Albemarle	Primary	US250	**Ivy Rd. (US 250)**	US 29/US250 Bypass	Construction: Replace
18	N/A	Albemarle	Secondary	Rte 601	**Old Ivy Rd. (601)**	US 29/US250 Bypass	Construction: Replace
19	N/A	Albemarle	Primary	US250	**Richmond Rd (US 250)**	Shadwell Creek	Construction: Replace
20	N/A	Albemarle	Secondary	Rte 600	**Watts Passage Rd. (600)**	Preddy Creek	Construction: Replace
21	N/A	Charlottesville	Urban	Melbourne Rd	**Melbourne Rd**	Norfolk Southern Railroad	Construction: Replace
22	N/A	Charlottesville	Urban / Primary	US250	**US 250 Bypass**	US 29	Construction: Replace
23	N/A	Charlottesville	Urban	Rugby Rd.	**Rugby Rd.**	CSX RAILWAY	Construction: Replace
24	N/A	Charlottesville	Urban / Primary	US250	**250 Bypass bw Park and Locust**	N/A	Repairing of Retaining Walls
25	N/A	Albemarle	Secondary	Rte 680	**Browns Gap Rd. (680)**	Lickinghole Creek	Construction: Replace

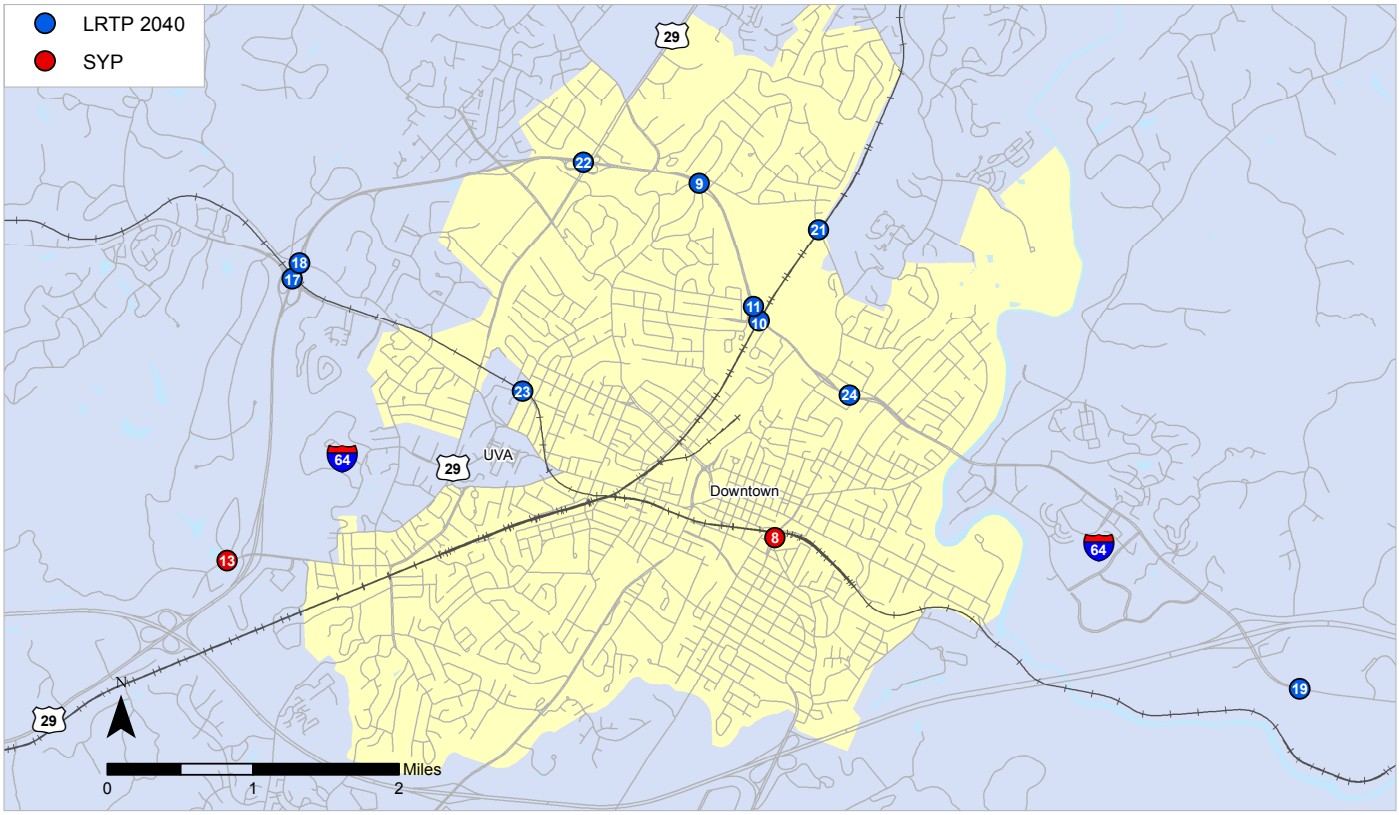
This bridge list was updated during the fiscal-constraint process.

Each bridge is mapped with its corresponding number in Figures 8-1 and 8-2. Color-coding indicates if the bridge has been newly identified as part of the 2040 Long Range Transportation Process or if it was already in the State's Six Year Improvement Program.

Bridge Projects within the MPO (Figure 8-1)



Bridge Projects in and around the City of Charlottesville (Figure 8-2)



Intersections

The next category of non-capacity-building projects is intersection improvements. MPO staff conducted an initial safety-related analysis of intersections that compared the safety hazards of major intersections to recommend safety improvements for all types of travelers.

To do this, staff first separated intersections into categories based on their respective volumes of daily traffic. For example, intersections with a volume of 10,000 vehicles per day or less were placed in one category, while intersections with a volume between 10,000 and 20,000 vehicles per day were placed in another, and so on. Staff then compared the total number of crashes at each intersection to the traffic volume entering that intersection, and determined the average number of total crashes per volume category. Next, MPO staff selected one or more intersections with the highest total crashes within each volume category, depending on the average number of instances. Natural breaks in the data were used to determine how many "High Crash" intersections should be selected from each volume category. (Refer to Table 8-2). The table below lists the selected "High Crash" intersections for each volume category. This table also shows the total number of crashes for that intersection and the average number of total crashes for all the intersections within the volume category.

"High Crash" Intersections (Table 8-2)

INTERSECTION VOLUME	INTERSECTION	TOTAL NUMBER OF CRASHES 2005-2011	AADT
0-10,000	Average Number of Crashes	3.59	
0-10,000	Gordonsville Road and Louisa Road	8	6,666
0-10,000	Ivy Road and Broomley Road	13	8,847
0-10,000	Louisa Road and Black Cat Road	10	7,704
0-10,000	North Milton Road and US 250	15	8,542
0-10,000	Scottsville Road and Brookhill Ave	13	7,228
0-10,000	Thomas Jefferson Pkwy and Buck Island Road	14	9,227
0-10,000	Thomas Jefferson Pkwy and James Monroe Pkwy	8	8,330
0-10,000	Thomas Jefferson Pkwy and Milton Road	12	9,062
10,000-20,000	Average Number of Crashes	7.48	
10,000-20,000	Crozet Ave and Rockfish Gap Tpk	14	12,879
10,000-20,000	Hydraulic Road and Commonwealth Drive	20	17,302
10,000-20,000	Ivy Road and Old Ivy Road	24	17,167
10,000-20,000	Ridge Street and Monticello Ave	18	18,645
10,000-20,000	Rockfish Gap Tpk and Three Notched Road	18	12,770
10,000-20,000	Scottsville Road and Thomas Jefferson Pkwy	55	18,643
10,000-20,000	US 250 and Louisa Road	26	17,932
20,000-30,000	Average Number of Crashes	10.3	
20,000-30,000	Hydraulic Road and Lambs Road	26	27,139
20,000-30,000	Rio Road and Earlysville Road	31	26,418
20,000-30,000	Rio Road and Hillsdale Drive	28	29,754
30,000-40,000	Average Number of Crashes	15.7	
30,000-40,000	Ivy Road and Emmet Street	32	38,831
30,000-40,000	Rio Road West and Berkmar Drive	30	30,440
40,000-50,000	Average Number of Crashes	24.9	
40,000-50,000	US 29 North and Airport Road	64	46,695
40,000-50,000	US 29 North and Timberwood Blvd	42	40,268
50,000-60,000	Average Number of Crashes	27.2	
50,000-60,000	US 250 and Stony Point Road	70	54,489
50,000-60,000	US 29 North and Polo Grounds Road	66	51,641
50,000-60,000	US 29 North and Ashwood Blvd	61	53,145
Over 60,000	Average Number of Crashes	92.8	
Over 60,000	US 29 North and Hydraulic Road	145	80,604
Over 60,000	US 29 North and Rio Road	127	76,897

The bridge list was updated during the fiscal-constraint process.

To avoid including any extremely low-volume neighborhood intersections, staff only analyzed intersections of roadways included in the MPO Travel Demand Model's Roadway Network. The data used includes crash data from 2006 to 2011 and Average Annual Daily Traffic for each intersection (provided as part of the intersection data attributes), and was provided by VDOT's central office.

Based on this analysis, public input, and input from City, County and VDOT staff, a short list of five fiscally-constrained projects were identified, and added to the 26 intersections identified using this safety analysis. These newly identified intersections are labeled one through five on Table 8-3.

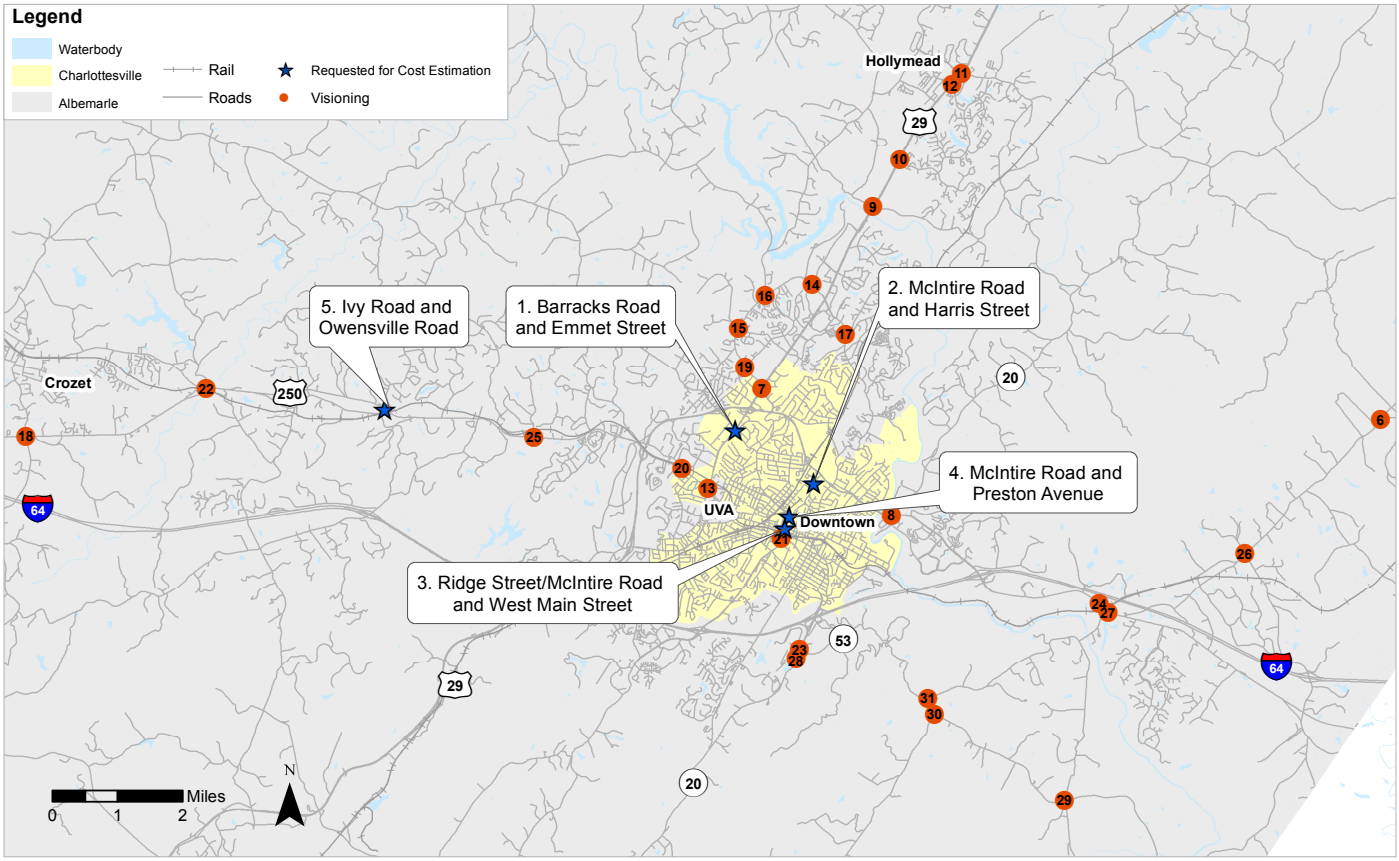
Intersection Improvement and Visioning Projects (Table 8-3)

PROJECT ID	PROJECT NAME	JURISDICTION	TYPE	PROJECT DESCRIPTION
1	Barracks Road and Emmet Street	Charlottesville	Intersection Safety Improvement	Extend the Right turn lane on WB Barracks Road at the intersection with Emmet St.
2	McIntire Road and Harris Street	Charlottesville	Intersection Safety Improvement	One-lane roundabout at this location.
3	Ridge Street/McIntire Road and West Main Street	Charlottesville	Intersection Safety Improvement	One-lane roundabout at this location.
4	McIntire Road and Preston Avenue	Charlottesville	Intersection Safety Improvement	One-lane roundabout at this location.
5	Ivy Road and Owensville Road	Albemarle	Intersection Safety Improvement	One-lane roundabout at this location.
6	Gordonsville Road and Louisa Road	Albemarle	Intersection Safety Improvement	Visioning Project*
7	US 29 North and Hydraulic Road	Charlottesville and Albemarle	Intersection Safety Improvement	Visioning Project*
8	US 250 and Stony Point Road	Albemarle	Intersection Safety Improvement	Visioning Project*
9	US 29 North and Polo Grounds Road	Albemarle	Intersection Safety Improvement	Visioning Project*
10	US 29 North and Ashwood Boulevard	Albemarle	Intersection Safety Improvement	Visioning Project*
11	US 29 North and Airport Road	Albemarle	Intersection Safety Improvement	Visioning Project*
12	US 29 North and Timberwood Boulevard	Albemarle	Intersection Safety Improvement	Visioning Project*
13	Ivy Road and Emmet Street	Charlottesville	Intersection Safety Improvement	Visioning Project*
14	Rio Road West and Berkmar Drive	Albemarle	Intersection Safety Improvement	Visioning Project*
15	Hydraluic Road and Lambs Road	Albemarle	Intersection Safety Improvement	Visioning Project*
16	Rio Road and Earlysville Road	Albemarle	Intersection Safety Improvement	Visioning Project*
17	Rio Road and Hillsdale Drive	Albemarle	Intersection Safety Improvement	Visioning Project*
18	Crozet Ave and Rockfish Gap Turnpike	Albemarle	Intersection Safety Improvement	Visioning Project*
19	Hydraulic Road and Commonwealth Drive	Albemarle	Intersection Safety Improvement	Visioning Project*
20	Ivy Road and Old Ivy Road	Charlottesville and Albemarle	Intersection Safety Improvement	Visioning Project*
21	Ridge Street and Monticello Avenue	Charlottesville	Intersection Safety Improvement	Visioning Project*
22	Rockfish Gap Turnpike and ThreeNotched Road	Albemarle	Intersection Safety Improvement	Visioning Project*
23	Scottsville Road and Thomas Jefferson Parkway	Albemarle	Intersection Safety Improvement	Visioning Project*
24	US 250 and Louisa Road	Albemarle	Intersection Safety Improvement	Visioning Project*
25	Ivy Road and Broomley Road	Albemarle	Intersection Safety Improvement	Visioning Project*
26	Louisa Road and Black Cat Road	Albemarle	Intersection Safety Improvement	Visioning Project*
27	North Milton Road and US 250	Albemarle	Intersection Safety Improvement	Visioning Project*
28	Scottsville Road and Brookhill Avenue	Albemarle	Intersection Safety Improvement	Visioning Project*
29	Thomas Jefferson Parkway and Buck Island Road	Albemarle	Intersection Safety Improvement	Visioning Project*
30	Thomas Jefferson Parkway and James Monroe Parkway	Albemarle	Intersection Safety Improvement	Visioning Project*
31	Thomas Jefferson Parkway and Milton Road	Albemarle	Intersection Safety Improvement	Visioning Project*

** Improvement need has beenidentified but not yet fully assessed.*

The final list of safety improvements at intersections that have been requested for cost estimations are mapped in Figure 8-3 with blue stars. The remaining visioning projects are mapped with red circles and numbers which correspond to the list in Table 8-3.

Intersection Projects and Visioning (Figure 8-3)



Bike & Pedestrian Infrastructure

The last of the non-capacity improvements relates to bicycle and pedestrian infrastructure. For bicycle network analysis, MPO staff used existing trails and bike lanes to identify where the best connections can be made to move towards a complete bike network. For pedestrian network analysis, staff focused on finding areas with missing sidewalks or much needed crosswalks to improve safety and an overall walking experience.

Table 8-4 lists all of the areas that have been identified as needing some form of bicycle and/or pedestrian infrastructure improvement. Road, sidewalk, and trail segments are listed below, and correspond to the following maps by Map ID and Project ID numbers.

Bicycle and Pedestrian Infrastructure Improvement Projects (Table 8-4)

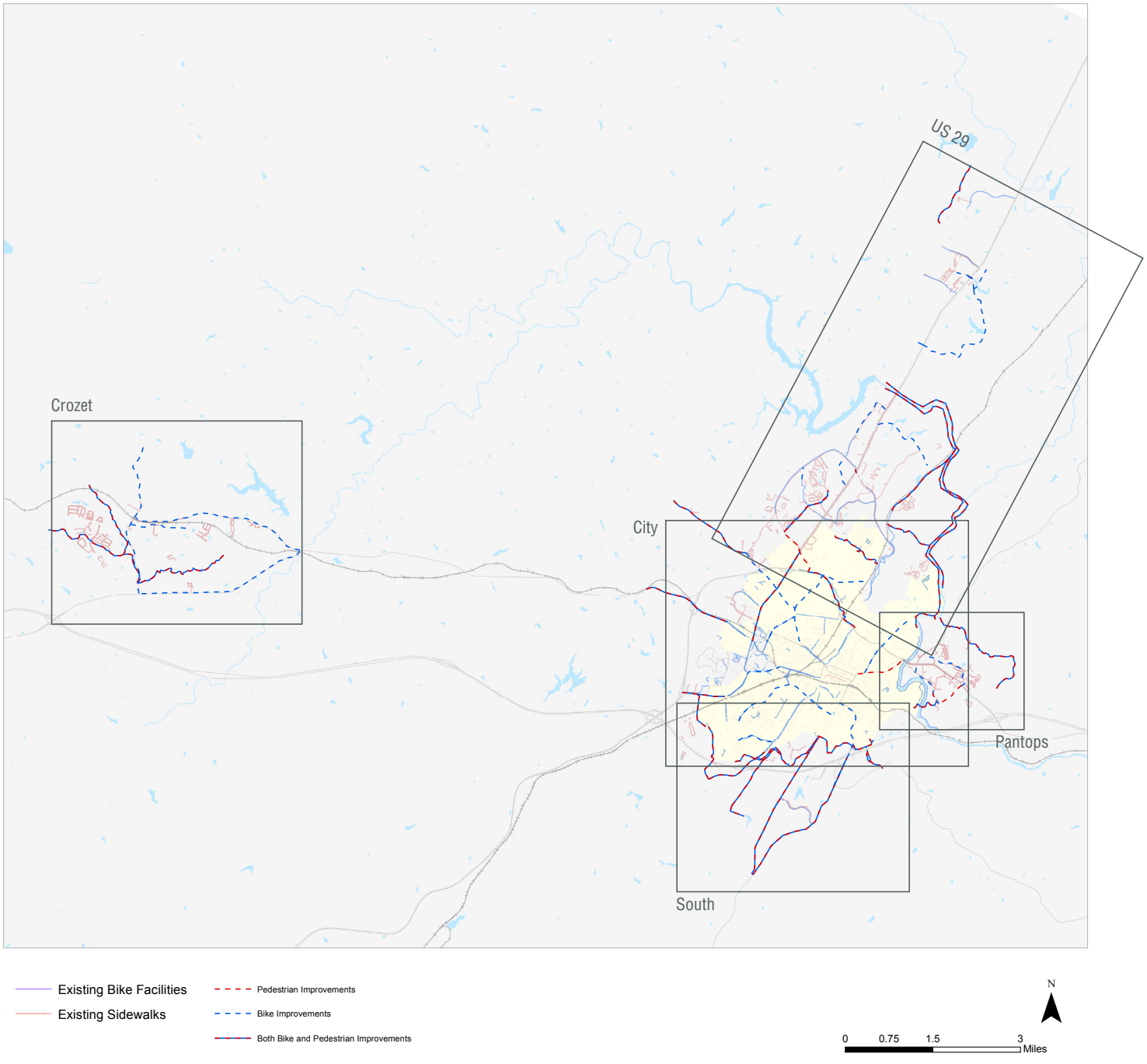
Area	Map ID	Proj. ID	Project Name	FROM	TO	Type
US 29 CORRIDOR	A	21	Rivanna River Trail (north)	Existing Rivanna River Trail (County)	Berkmar Dr Ext (Proposed)	Multi-Use Path
	A	22	Rivanna River Trail (south)	Existing Rivanna River Trail (City)	Berkmar Dr Ext (Proposed)	Multi-Use Path
	A	23	Town Branch Trail	Rivanna River Trail (south)	Belvedere Drive	Multi-Use Path
	A	25	Dickerson Road	Chris Greene Lake Road	Quiet Acres Lane	Multi-Use Path
	A	26	Belvedere Boulevard	South Fork Rivanna River	E Rio Road	Multi-Use Path
	A	27	Commonwealth Drive	Hydraulic Road	Four Seasons	Sidewalks and Bike Lanes
	A	30	Hydraulic Rd	Crossing Over US 29	Crossing Over US 29	Bridge
	A	31	Rio Rd	Crossing Over US 29	Crossing Over US 29	Bridge
	A	32	Timberwood Dr	Crossing Over US 29	Crossing Over US 29	Bridge
	A	45	Townwood Drive	Cool Springs Road	Hydraulic Road	Bike Lane
	A	46	Berkmar Drive	Hilton Heights	Woodbrook Drive	Bike Lane
	A	47	Berkmar Drive	US 29	W Rio Road	Bike Lane
	A	48	Hilton Heights Road	US 29	Berkmar Drive	Bike Lane
	A	49	Carrsbrook Drive	Huntington Dr	US 29	Bike Lane
	A	50	Worth Crossing	Timberwood Boulevard	Proffit Road	Bike Lane
	A	51	Timberwood Boulevard	US 29	Towncenter Drive	Bike Lane
	A	52	Timberwood Boulevard	Worth Crossing	US 29	Bike Lane
	A	53	Timberwood Boulevard	Timberwood Parkway	Worth Crossing	Bike Lane
	A	54	Timberwood Parkway	Timber Pointe Road	Ashwood Blvd	Bike Lane
	A	55	Ashwood Boulevard	Powell Creek Drive	US 29	Bike Lane
	A	56	Ashwood Boulevard Ext.	Ashwood Boulevard	Berkmar Drive Ext.	Bike Lane
	A	63	Hydraulic Road	US 250	Commonwealth Dr	Sidewalk
CHARLOTTESVILLE	B	12	McIntire Park East Trail	McIntire Park West Trail	McIntire Road Ext	Multi-Use Path
	B	13	McIntire Park West Trail	McIntire Park East Trail (Bridge)	Route 250 Bypass Trail	Multi-Use Path
	B	14	Route 250 Bypass Trail	McIntire Park West Trail	Hydraulic Rd	Multi-Use Path
	B	24	Emmet St/Route 29	University Ave	Hydraulic Rd	Multi-Use Path
	B	28	Barracks Road	Georgetown Road	Old Garth Road	Multi-Use Path
	B	29	Ivy Road (Bike Route 76)	Old Ivy Road	Farmington Road/Boards Head	Sidewalks and Bike Lanes
	B	34	Fontaine Ave	Fontaine Research Park	Maury Ave	Sidewalks and Bike Lanes
	B	35	Meadow Creek Greenbrier/Greenbrier Park	Meadow Creek	John Warner Parkway	Multi-Use Path
	B	36	Sunset Ave/Fontaine Connector	Sunset Ave	Fontaine	Multi-Use Path
	B	37	Rugby Road	Culbreth Rd	Preston Ave	Bike Lane
	B	38	Jefferson Park Ave	Jefferson Park Ave	W Main St	Bike Lane
	B	39	Locust Ave	Locust Lane	E High St	Bike Lane
	B	40	Cherry Ave, Elliot Ave	Avon St	Cleveland Ave	Bike Lane
	B	41	Harris Rd	5th Street	Camelia Dr	Bike Lane
	B	42	Rugby Rd/Dairy Rd/Grove Rd	US 250	Melbourne Rd	Bike Lane
	B	43	Barracks Road/Preston	10th Street	Georgetown Road	Bike Lane
	B	44	Route 20 (Bike Route 76)	Route 53	Avon Street	Bike Lane
	B	64	East High Street	US 250	9th Street	Sidewalk

(Table 8-4 Continued)

Area	Map ID	Proj. ID	Project Name	FROM	TO	Type
PANTOPS	C	19	Rivanna River Connector (State Farm)	Riverview Park (City)	S Pantops Drive	Multi-Use Path
	C	20	Cason Farm Rd/Lego Dr Trail	Rivanna River Trail (County)	Lego Drive	Multi-Use Path
	C	57	River Bend Drive/South Pantops Drive	Route 250/20	State Farm Boulevard	Bike Lane
	C	58	Pantops 250 (parallel road)	State Farm/US 250	Route 20	Bike Lane
	C	65	St. Farm Blvd	S. Pantops Drive	US 250	Sidewalk
	C	66	S. Pantops Dr.	Existing sidewalk on S. Pantops Dr	Overlook Pl	Sidewalk
	C	67	Hansen Rd across US 250	Hansen Rd	north sidewalk US 250	Crosswalk
	C	68	Rolkin Rd across US 250	Rolkin Rd	Rolkin Rd	Crosswalk
	C	69	State Farm Blvd across US 250	State Farm Blvd	north sidewalk US 250	Crosswalk
CROZET	D	15	Licking Hole Creek Trail	Crozet Ave (Multi-Use Path)	Licking Hole Creek (pond ?)	Multi-Use Path
	D	16	Licking Hole Creek Trail	Crozet Ave (Multi-Use Path)	Jarman's Gap Rd	Multi-Use Path
	D	17	Crozet Avenue Multi-Use Path	Licking Hole Creek Trail (E)	Licking Hole Creek Trail (W)	Multi-Use Path
	D	18	Powell's Creek Trail	Licking Hole Creek Trail (Proposed)	Railroad Ave	Multi-Use Path
	D	59	Route 250	Route 240	Crozet Ave	Bike Lane
	D	60	Route 240	Route 250	Crozet Ave	Bike Lane
	D	61	Crozet Avenue	Thurston Drive	Route 250	Bike Lane
	D	62	Crozet Main Street Extension	Eastern Avenue (prop.)	Crozet Avenue	Bike Lane
SOUTH	E	1	Old Lynchburg Rd	5th St Ext	City Limit	Sidewalks and Bike Lanes
	E	2	Avon Street	Moore's Creek Trail (proposed W Avon)	Moore's Creek Trail (proposed E Avon)	Multi-Use Path
	E	3	5th St Extended	Old Lynchburg Rd	Bent Creek Rd	Multi-Use Path
	E	4	Moore's Creek	Sunset Ave	Old Lynchburg Road	Multi-Use Path
	E	5	Carlton Bridge	Moore's Creek Trail	Linden Avenue	Multi-Use Path
	E	6	Moore's Creek - 5th St Crossing	Bent Creek Road	5th St Ext	Multi-Use Path
	E	7	Moore's Creek - Quarry Rd Park	City of Charlottesville Line	Avon St Ext	Multi-Use Path
	E	8	Bent Creek Path	Avon Street	5th Street	Multi-Use Path
	E	9	Biscuit Run	Moore's Creek	Reynovia Lake	Multi-Use Path
	E	10	Route 20	City Limit	Avon Street Ext	Sidewalks and Bike Lanes
	E	11	Avon St Extended	City Limits	Route 20	Sidewalks and Bike Lanes
	E	33	Trail/Tunnel Michie Tavern Lane	Moore's Creek Trail (proposed)	Saunders Trail	Multi-Use Path

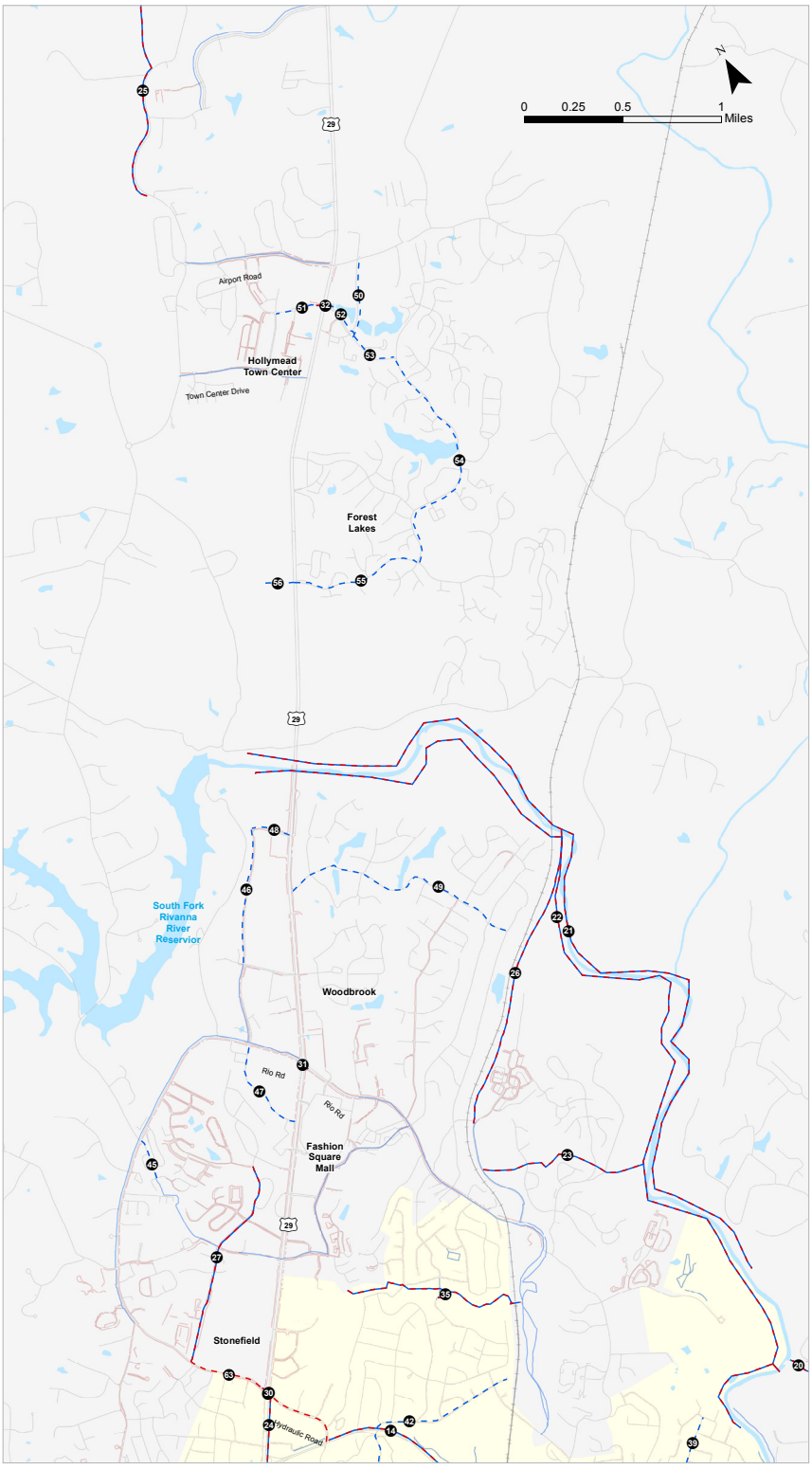
Figure 8-4 below shows a regional extent of the existing and proposed bicycle and pedestrian infrastructure in the MPO. Existing networks are symbolized by light, solid lines, while new improvements are symbolized by dark, dashed lines. Some projects, like multi-use trails, relate to both bicycle and pedestrian networks.

Regional Map of Existing and Proposed Bicycle and Pedestrian Infrastructure (Figure 8-4)

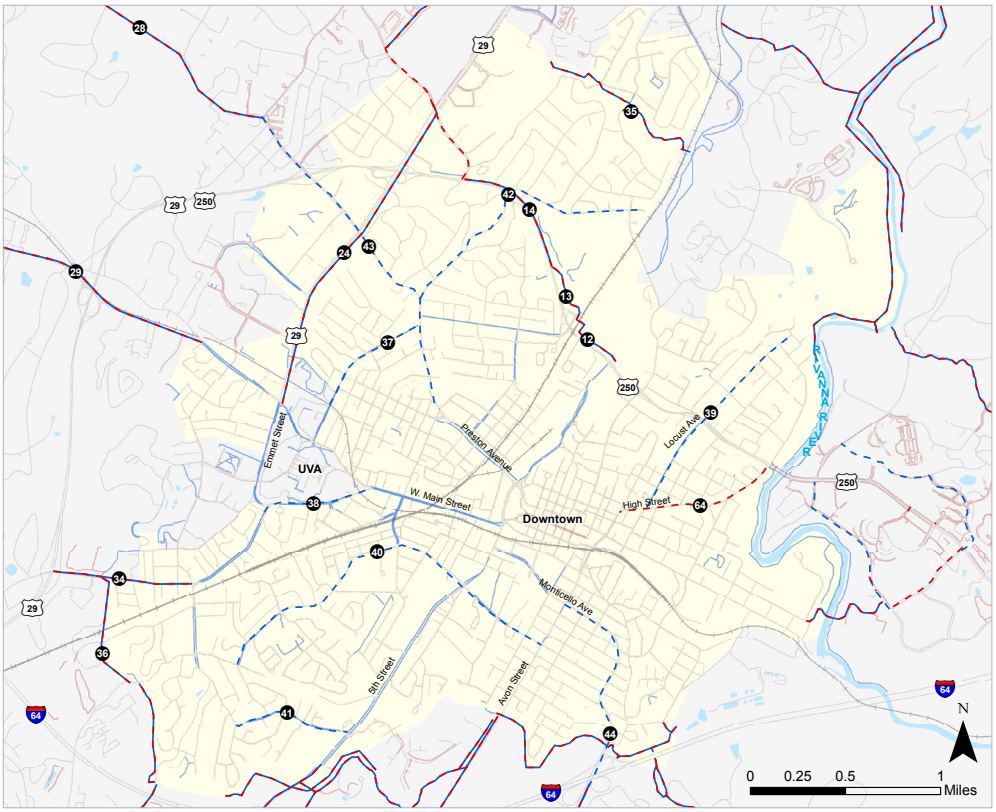


Each of the following maps is focused on a specific region in the MPO, and displays all the proposed bike and pedestrian projects within that area.

Bike and Pedestrian Projects US 29 corridor (Figure 8-5)

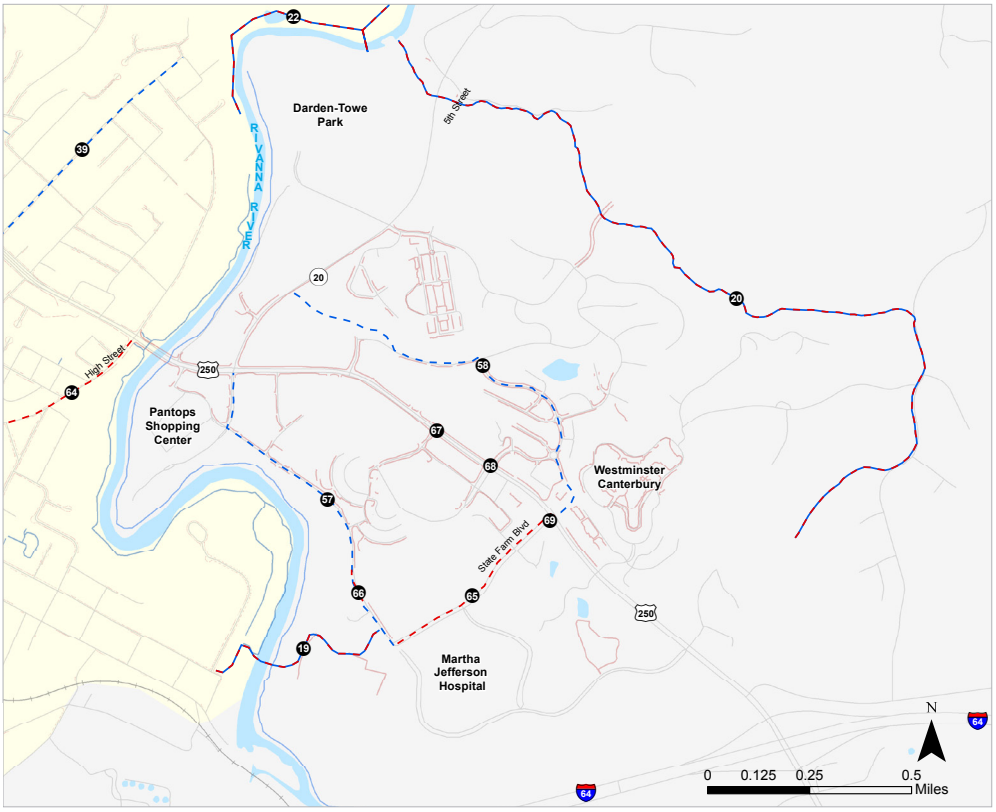


Bike and Pedestrian Projects in the City of Charlottesville (Figure 8-6)



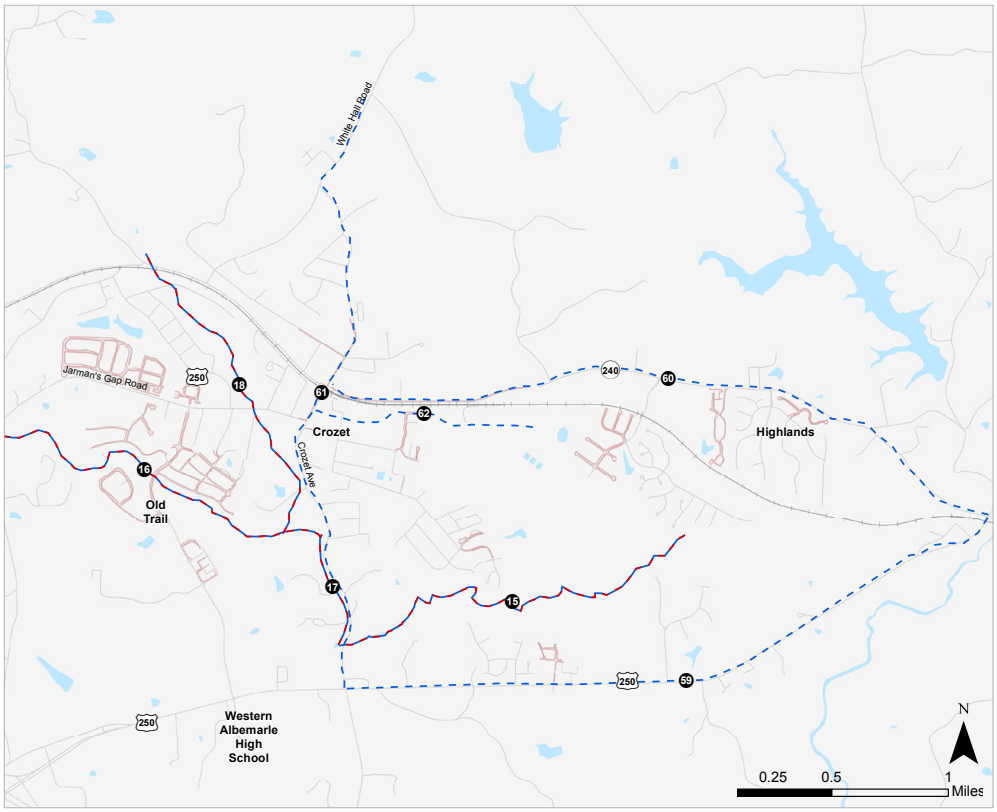
Existing Bike Facilites
Existing Pedestrian Facilities
Pedestrian Improvements
Bike Improvements
Both Bike and Pedestrian Improvements

Bike and Pedestrian Projects in Pantops (Figure 8-7)



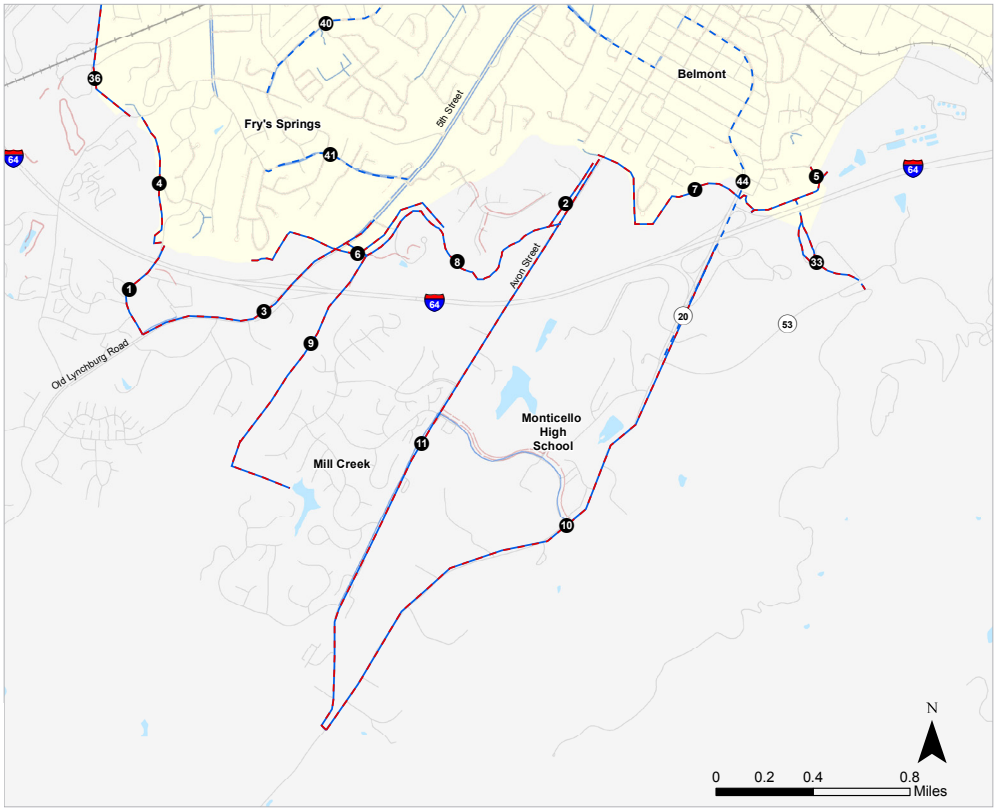
Existing Bike Facilites
Existing Pedestrian Facilities
Pedestrian Improvements
Bike Improvements
Both Bike and Pedestrian Improvements

Bike and Pedestrian Projects in Crozet (Figure 8-8)



Existing Bike Facilites
Existing Pedestrian Facilities
Pedestrian Improvements
Bike Improvements
Both Bike and Pedestrian Improvements

Bike and Pedestrian Projects south of Charlottesville (Figure 8-9)



Existing Bike Facilites
Existing Pedestrian Facilities
Pedestrian Improvements
Bike Improvements
Both Bike and Pedestrian Improvements

Findings & Conclusions

After several iterations of project lists developed through individual analysis; existing planning documents; City, County and VDOT staff; and public input, the above non-capacity improvement projects have been identified as the most vital to our community. The MPO Policy Board approved this list at their meeting on November 20, 2013. These projects will progress to the fiscal constraint process as discussed in Chapter 9. Staff will work with VDOT to determine which projects or phases of projects it can reasonably afford to implement over the life of this plan. The findings from this analysis will further assist in prioritizing the projects and phasing of projects as the plan is fiscally constrained.