Northern Shenandoah Valley Regional Commission, City of Winchester/Frederick County Metropolitan Planning Organization

Bicycle and Pedestrian Master Plan Update

Winchester, Virginia

February 2014

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TRANSPORTATION ENGINEERING/PLANNING

City of Winchester/Frederick County Metropolitan Planning Organization

Bicycle and Pedestrian Master Plan Update

Winchester, Virginia

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

Appendix A Multimodal Level of Service Inputs

Appendix B Second Public Meeting, Questions and Map Guidance

Appendix C Project Maps

Appendix D Final Project Rankings

Section 1
Executive Summary

EXECUTIVE SUMMARY

The City of Winchester/Frederick County Metropolitan Planning Organization (WinFred MPO) has partnered with a consultant team led by Kittelson & Associates, Inc. (KAI) to conduct an update to their Bicycle and Pedestrian Master Plan. This update includes multiple analysis methods to assess existing bicycle and pedestrian conditions and a multi-part public involvement approach to collect community feedback. These analyses and feedback were used to create a customized prioritization methodology to help direct available funding to make the largest possible improvement in walking and bicycling conditions for residents and visitors to the area.

FINDINGS

The WinFred MPO is in a good position to quickly and efficiently make substantial positive impacts to bicycle and pedestrian mobility within its jurisdiction. The MPO's Bicycle and Pedestrian Master Plan has identified many projects, each of which would improve bicycling and walking conditions and connectivity at and near its location. An energized and organized constituency has mapped, advocated for and effectively promoted the Green Circle Trail. The larger community has participated in the public involvement process and expressed the area's unique context and its needs and priorities. With the synthesis of these factors, a simple suite of recommendations will maximize the impact of all available funding for bicycle and pedestrian improvements.

- Fund and construct most or all of the high value, lower cost projects, as identified in the final project rankings
- Intersperse the implementation of these projects with projects that add to the Green Circle Trail
- Conduct community outreach in order to most efficiently move forward with high value projects important for medium- and longer-term bicycle and pedestrian connectivity goals
- As opportunities arise to construct the other highly ranked projects, such as through restriping or repaving efforts, be sure those projects are included in the reconstruction efforts

Each of these recommendations is multi-faceted, but relatively simple to implement, provided funding can be identified. Bicycle and pedestrian projects have a large degree of community support; there are also opportunities to implement paint-based interventions during routine maintenance re-striping as well as other cost-strategic measures. Given these facts and the many benefits to the community from a high quality bicycle and pedestrian network, using these recommendations to move from a solid and supported planning effort to implementation will be an important step in meeting the MPO's overall mobility goals.

Section 2
Introduction

INTRODUCTION

PROJECT DESCRIPTION

The City of Winchester/Frederick County Metropolitan Planning Organization (WinFred MPO) has partnered with a consultant team led by Kittelson & Associates, Inc. (KAI) in conjunction with Alta Planning & Design to conduct an update to their Bicycle and Pedestrian Master Plan. This update includes multiple analysis methods and intersection site visits to assess existing bicycle and pedestrian conditions, and a multi-part public involvement approach to collect community feedback. These analyses and feedback were used to create a customized prioritization methodology in order to help direct available funding to make the largest possible improvement in walking and bicycling conditions for residents and visitors to the area.

SCOPE OF THE REPORT

This report provides a comprehensive picture of the processes used by the project team to establish existing conditions, community priorities and project prioritization recommendations. Specifically, it includes

- Methodologies describing the multimodal level of service analysis and the bicycle and pedestrian suitability analyses
    - Summarization of analysis results
- A description of the public involvement process
    - Summarization of documented comments
- Information gathered during the project team's field visits
    - Observed conditions at each of the 31 visited intersections
- The methodology used to develop and test the project prioritization process
    - Prioritization recommendations

Section 3
Existing Conditions

EXISTING CONDITIONS

MULTIMODAL LEVEL OF SERVICE ANALYSIS

The 2010 *Highway Capacity Manual* (HCM) (Reference 1) provides a scientific basis for evaluating the Multimodal Level of Service (MMLOS) on urban streets for auto drivers, bicyclists, pedestrians, and transit riders. The MMLOS analysis method for urban streets consists of a set of recommended procedures for predicting traveler perceptions of quality of service. A level of service (LOS) on an "A" to "F" scale for each mode is derived based on several inputs related to conditions along the corridor. Because the models are perception-based, they offer a measure of the "bicycle friendliness" or "pedestrian friendliness" of an urban street.

The following sections describe how this analysis was performed for bicyclists and pedestrians in the MPO area.

Methodology

Levels of service for bicyclists and pedestrians were analyzed on all roads in the MPO with a functional classification as an arterial or collector. For analysis purposes, each road is divided into segments with breaks between segments occurring at each signalized intersection or when a major change in cross section occurred (i.e., changes in the number of lanes and presence/absence of a sidewalk, bike lane, or buffer zone). If roads continued outside of the MPO boundary, only the portion within the MPO was analyzed. In total, 274 segments were analyzed.

The HCM methodology requires that a peak direction be specified. It was assumed that the PM peak direction is out of the City of Winchester. In most instances, Boscawen Street and Loudoun Street were used as the dividing line between north/south and east/west, respectively. For situations where a collector road ran into a neighborhood, the direction into the neighborhood was used as the PM peak direction regardless of the road's relative location to Boscawen Street or Loudoun Street.

Bicycle Level of Service

The following is a list of parameters that have a significant influence on the bicycle LOS scores. This is not a comprehensive list of all inputs.

- Vehicle volume in outside (right) lane
- Percentage of traffic that is heavy trucks
- Vehicle speeds
- Motor vehicle travel lane and bicycle lane widths
- Pavement quality

Vehicle volume and heavy truck percentages were taken from the 2010 Virginia Department of Transportation (VDOT) Daily Traffic Volume Estimates Jurisdiction Reports[1] for Frederick County and the City of Winchester. Values for some segments were not included in the reports, and in these cases the needed values were estimated based on similar roads and the surrounding land-use in the area. Posted speeds were found using the Street View feature of Google Maps. In cases where the speed limit was not identifiable, it was estimated based on similar roadways in the area.

Vehicle travel lanes and bicycle lane widths were measured in Google Earth, and information for the new bike lanes along Route 11 was included. Pavement quality data for the segments were not available. Therefore, all roads were given an "average" pavement quality rating, which is the appropriate default rating for a planning-level analysis such as this one.

It should be noted that the analysis assumes that bicyclist travel in the roadway and not on the sidewalk. Several segments in the MPO have shared-use paths running parallel to the roadways. In these cases, the level of service of the roadway is reported rather than that of the parallel shared-use path.

Pedestrian Level of Service

The following is a list of parameters that have a significant influence on the pedestrian LOS scores. This is not a comprehensive list of all inputs.

- Vehicle volume in outside (right) lane
- Vehicle speeds
- Presence and width of sidewalk and buffer
- Lateral separation between vehicles and pedestrians

Vehicle volume and heavy truck percentages are from the 2010 Virginia Department of Transportation (VDOT) Daily Traffic Volume Estimates Jurisdiction Reports[2] for Frederick County and the City of Winchester. Posted speeds were found using the Street View feature of Google Maps. In cases where the speed limit was not identifiable, it was estimated based on similar roadways in the area. The presence and width of sidewalks and buffers were measured in Google Earth. Any object at least three feet tall or higher and stands between a pedestrian and vehicles, including landscaping, trees, and poles, was counted as a buffer. The lateral separation between pedestrians and vehicles was measured in Google Earth from the edge of the travel lane to the edge of the sidewalk.

There are several locations in downtown Winchester that have stairs along the sidewalk. In order for a stroller or wheelchair to continue on the sidewalk without assistance, they must cross the street to avoid the steps. Because the HCM does not have an input to model the steps, the level of service on

[1] http://www.virginiadot.org/info/2010_traffic_data.asp

[2] http://www.virginiadot.org/info/2010_traffic_data.asp

these segments were manually adjusted to reflect the perceived "unfriendliness" of the pedestrian facilities due to the steps. It should also be noted that the condition of the sidewalk is not an input for pedestrian level of service.

Table 1 provides a summary of the HCM MMLOS inputs used for the bicycle and pedestrian analysis. *Appendix A contains the Multimodal Level of Service Inputs.*

Table 1. Highway Capacity Manual Multimodal Level of Service Inputs

Item	Units	How
Segment Length	Feet	Google Earth
Intersection Width	Feet	Google Earth
"K" and "D" Factors	Factors	VDOT Daily Traffic Volume Estimates Jurisdiction Reports, Judgment
AADT Volumes	Vehicles per Day	VDOT Daily Traffic Volume Estimates Jurisdiction Reports, Judgment
Heavy-Vehicle Percentage	Percent Heavy Vehicles	VDOT Daily Traffic Volume Estimates Jurisdiction Reports, Judgment
Peak-Hour Factor	Factor	Uniform 0.92
Sidewalk Width	Feet	Google Earth
Buffer Width	Feet	Google Earth
On-Street Parking	Absence/Presence, Width	Google Earth
Bike Lane	Absence/Presence, Width	Google Earth
Travel Lane Width(s)	Feet	Google Earth
Trees	Number	Google Earth
Percent Parking Occupancy	Percent	Google Earth, Judgment
Speed Limit	Miles Per Hour	Google Streetview
Median Type	Type	Google Earth
Speed Limit	MPH	Field Visit, Concept Plans

Initial Results

Bicycle LOS

Figure 1 displays the results of the bicycle MMLOS analysis. LOS A and B segments are comfortable for most riders, including families and casual bicyclists. LOS C and D segments are suitable for more experienced cyclists and commuters. LOS E and F segments are most likely only used by advanced bicyclists or those with no other transportation options. It should be noted, that although not analyzed, most local streets and shared-use paths also provide a bicycle LOS that would be comfortable for most riders, including families and casual bicyclists. Table 2 displays a summary of the bicycle LOS results for the analyzed roadway segments.

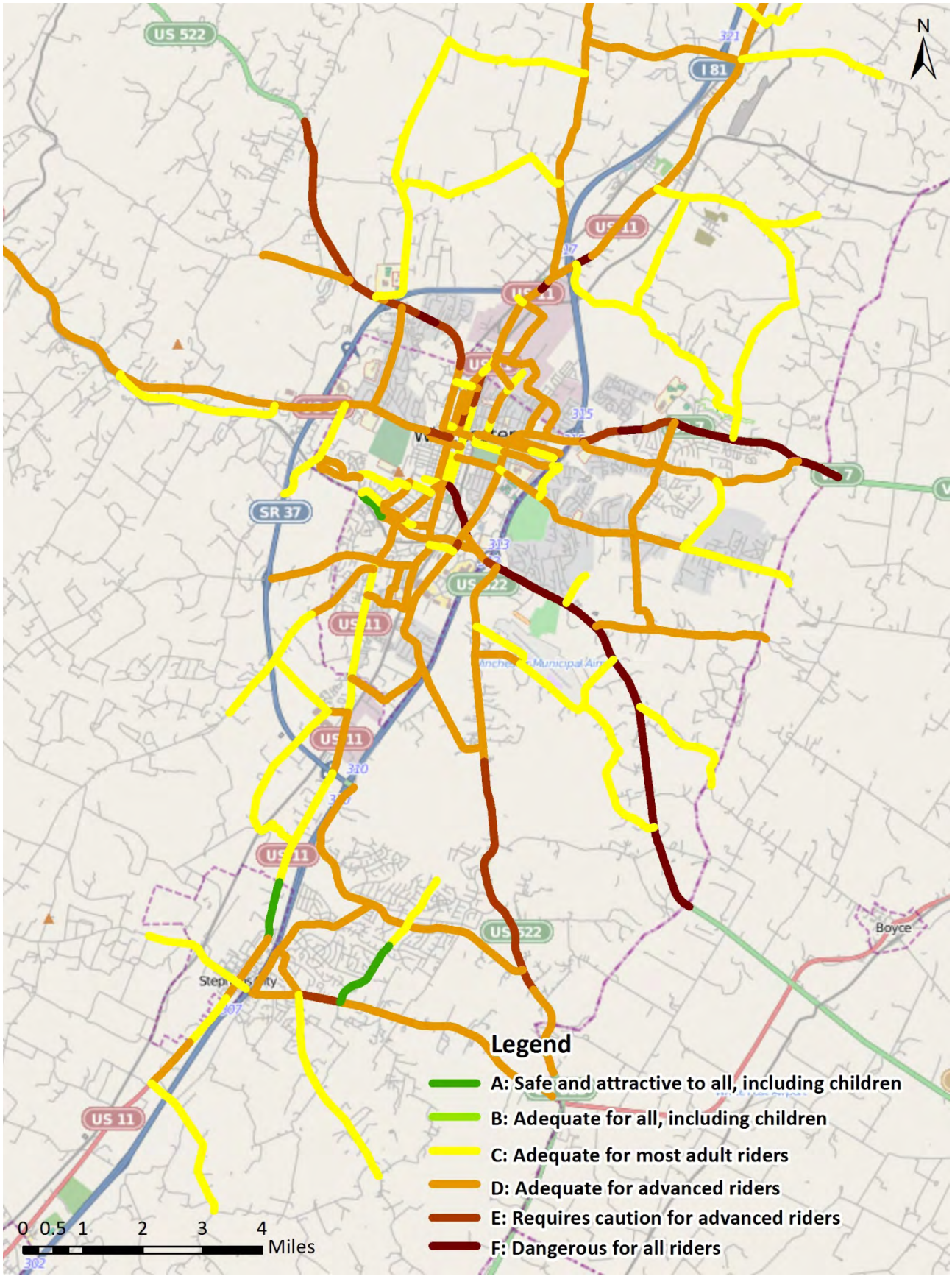


Figure 1. Bicycle Level of Service Results Map

Table 2. Bicycle Level of Service Summary Results

Bicycle Level of Service	Centerline Miles	Percent
A	0	0%
B	0	0%
C	64.671	38%
D	83.72	50%
E	9.54	6%
F	9.4	6%
Total	**167.33**	**100%**

As seen in Table 2, approximately 50% of the collector and arterial roads in the MPO are LOS D, which is defined as being adequate for most advanced riders. Approximately 12% of the centerline miles are LOS E and F, which is defined as requiring caution for advanced riders, and dangerous for all riders, respectively. No locations were classified as LOS A, which are considered safe and attractive to all, including children.

Pedestrian LOS

Figure 2 displays the results of the Pedestrian MMLOS analysis. LOS A and B segments are comfortable for most pedestrians, including families and children. LOS C and D segments are suitable most users, although they may not be used for recreation of choice pedestrians. LOS E and F segments require caution and are typically not suitable for all users. Similar to the bicycle LOS results, it should be noted, that although not analyzed, most local streets also provide a pedestrian LOS that would be comfortable for most users, including families and choice or recreation pedestrians. Table 3 displays a summary of the pedestrian LOS results for the analyzed roadway segments.

Table 3. Pedestrian Level of Service Summary Results

Bicycle Level of Service	Centerline Miles	Percent
A	14.06	8%
B	51.72	31%
C	96.14	57%
D	5.41	3%
E	0	0%
F	0	0%
Total	167.33	100%

As seen in Table 3, all of the collector and arterial roads in the MPO are LOS D or better. Approximately 57% of the roadways are classified as adequate at LOS C, and 3% of the roads as LOS, indicating they are adequate, but likely not used for recreation or choice users. Approximately 8% of the roadways are safe and attractive to all, including children at LOS A, with another 31% adequate for all, including children, at LOS B. In general, most of the LOS A segments are located near downtown Winchester and Stephens City. In addition to lower vehicle speeds, the majority of these areas have sidewalks on both sides of the road, and on-street parking serves as a buffer between pedestrians and vehicles.

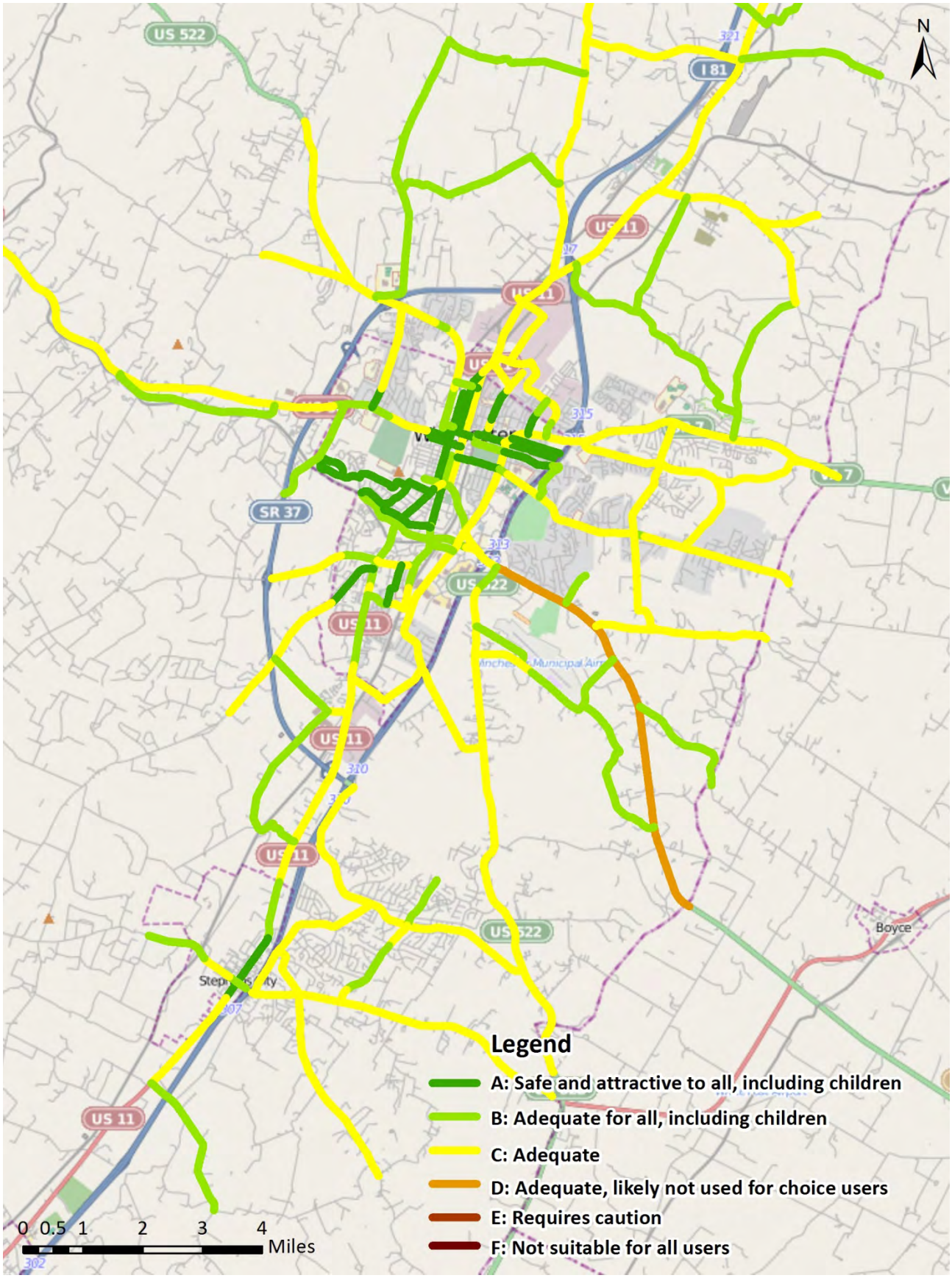


Figure 2. Pedestrian Level of Service Results Map

BICYCLE AND PEDESTRIAN SUITABILITY ANALYSES

This section discusses the Bicycle Suitability Analysis (BSA) and the Pedestrian Suitability Analysis (PSA) conducted for the MPO. A comparison of the previously presented MMLOS analysis and the BSA/PSA analyses is presented, followed by the background and theory behind the BSA/PSA analyses, the method used to conduct the analyses and how the local data was processed is included. The section concludes with a general discussion of the results subsequently generated. These results are presented graphically on a series of maps, which are displayed figures 3 to 16. Figure 15 and Figure 16 display the composite Bicycle and Pedestrian Suitability Analyses results, respectively.

Comparison of MMLOS and BSA/PSA analyses

The MMLOS and BSA/PSA analyses draw on similar local information sources for examining bicycling and pedestrian activities in the WinFred MPO area. However, each analysis is based on different input selections and presents distinct resulting information. Merging the two analysis methods would be a difficult exercise with considerable effort required to allow the data sets to be used in conjunction with each other. It is also not clear that the resulting findings would yield more in-depth insights than already available from viewing the separate analyses side by side.

While using similar inputs and metrics regarding the same topics, bicycling and walking, the analyses may come up with different implementation proposals for the development of future plans and prioritization. Whereas, the MMLOS analysis is typically employed to predict traveler perceptions of service quality, on the other hand, the BSA/PSA are used to assist in identifying best places to focus system improvements based on latent demand. In the case of bicycling, the MMLOS is used to predict bicyclist's perceptions of quality of service or 'bicycle friendliness'. Similarly for pedestrians, the MMLOS analysis is used to predict pedestrian perceptions of 'pedestrian friendliness'. In contrast, the BSA/PSA analyses assist in identifying best places to focus system improvements based on where bicyclists or pedestrians are most likely found and thus where improvements should be focused. This aids in identifying potential projects where there is unmet latent demand. While some areas might not currently be bike or pedestrian friendly due to the lack of infrastructure improvements, they might have the potential for considerable increases in rates due to the inherent trip supply and demand for that area.

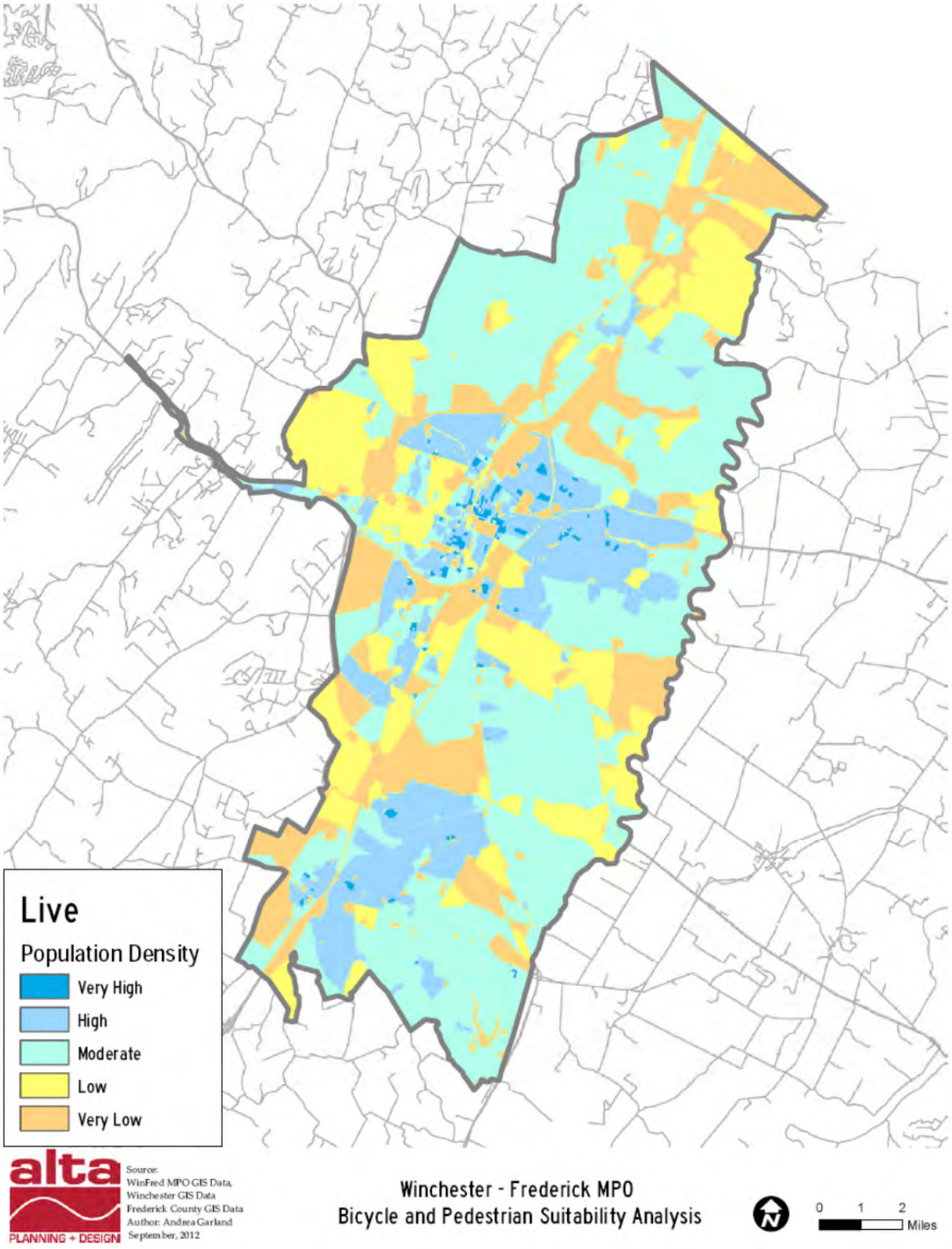


Figure 3. Bicycle and Pedestrian Suitability Analysis: Live, Population Density

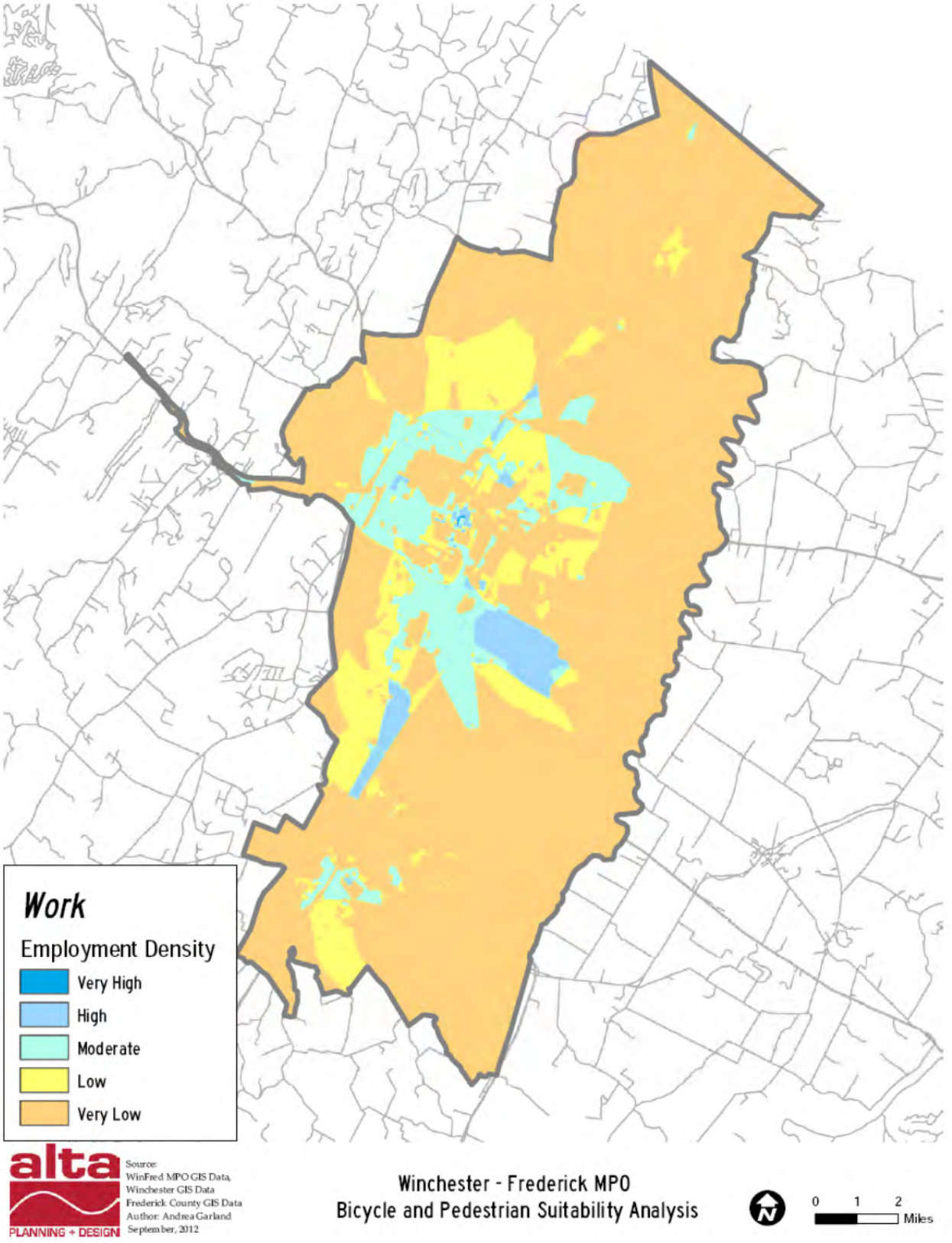


Figure 4. Bicycle and Pedestrian Suitability Analysis: Work, Employment Density

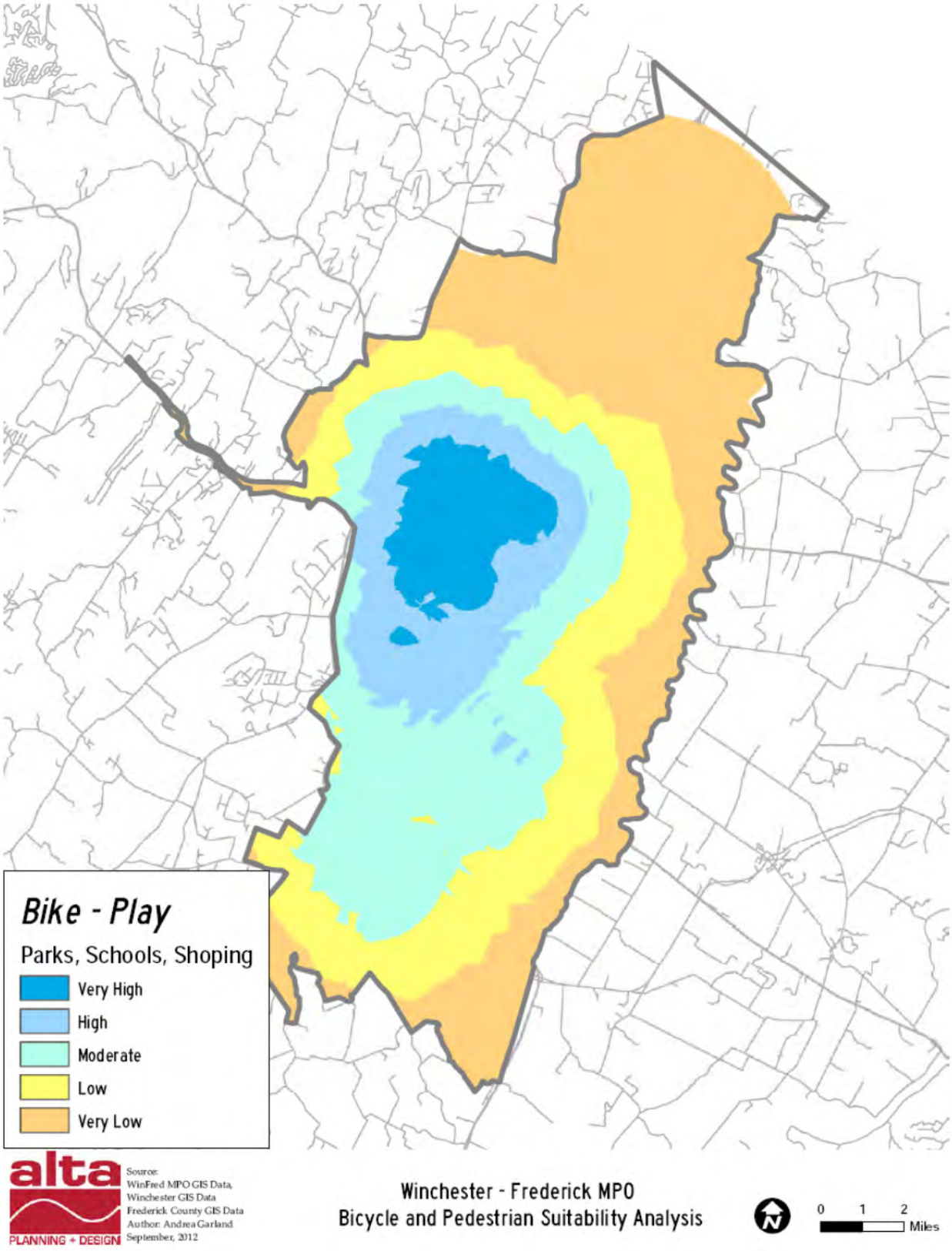


Figure 5. Bicycle and Pedestrian Suitability Analysis: Bike – Play; Parks, Schools, Shopping

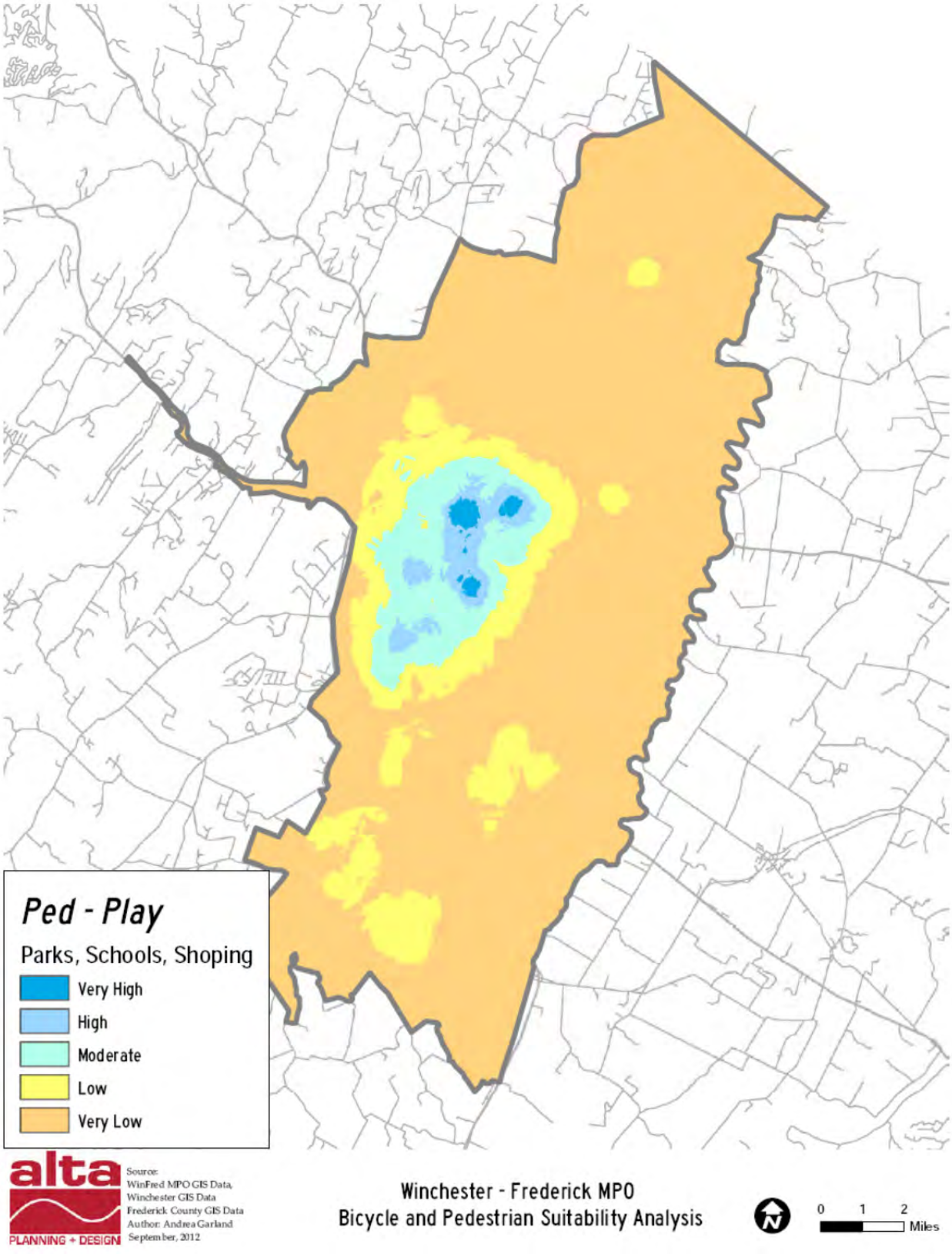


Figure 6. Bicycle and Pedestrian Suitability Analysis: Pedestrian – Play; Parks, Schools, Shopping

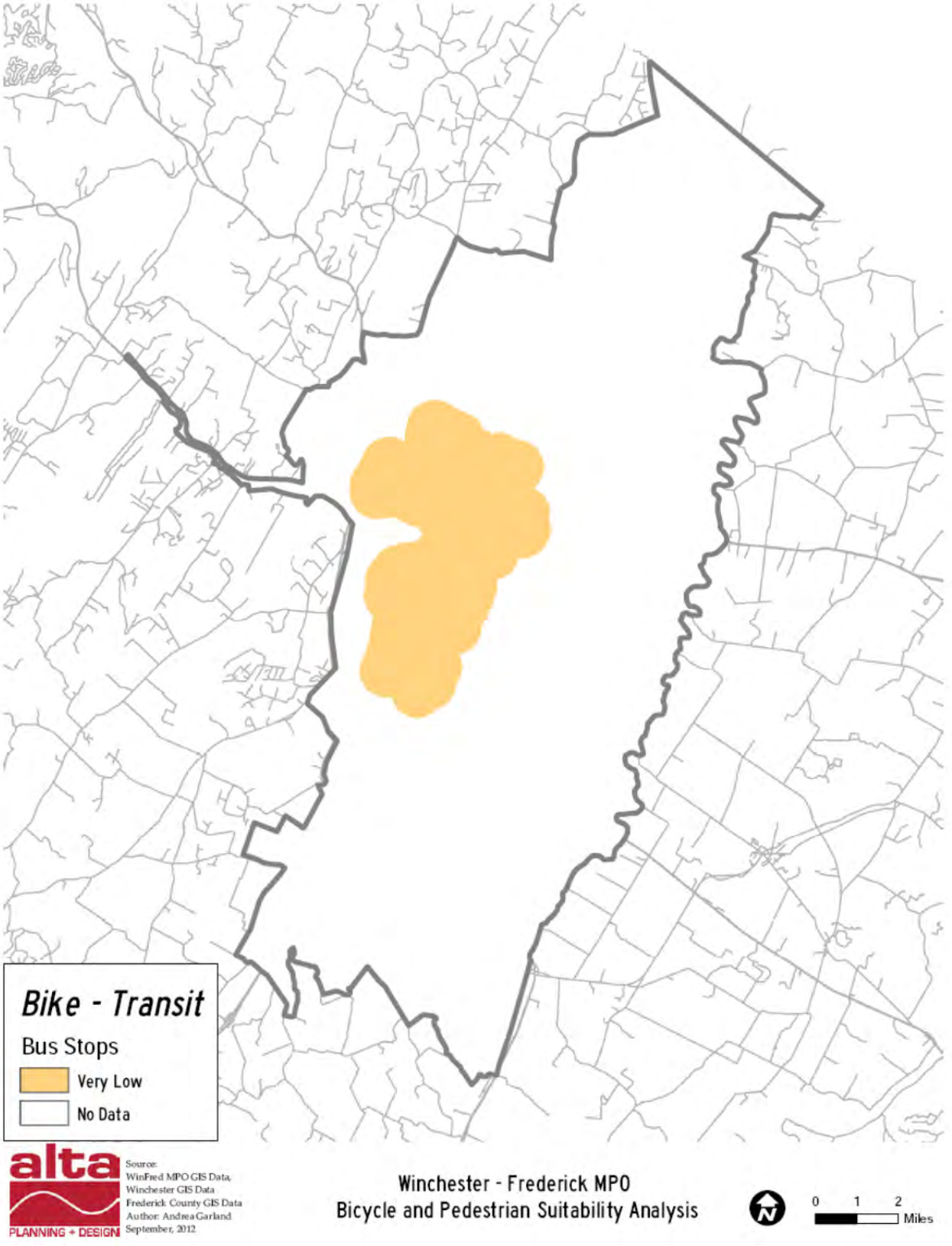


Figure 7. Bicycle and Pedestrian Suitability Analysis: Bike – Transit, Bus Stops

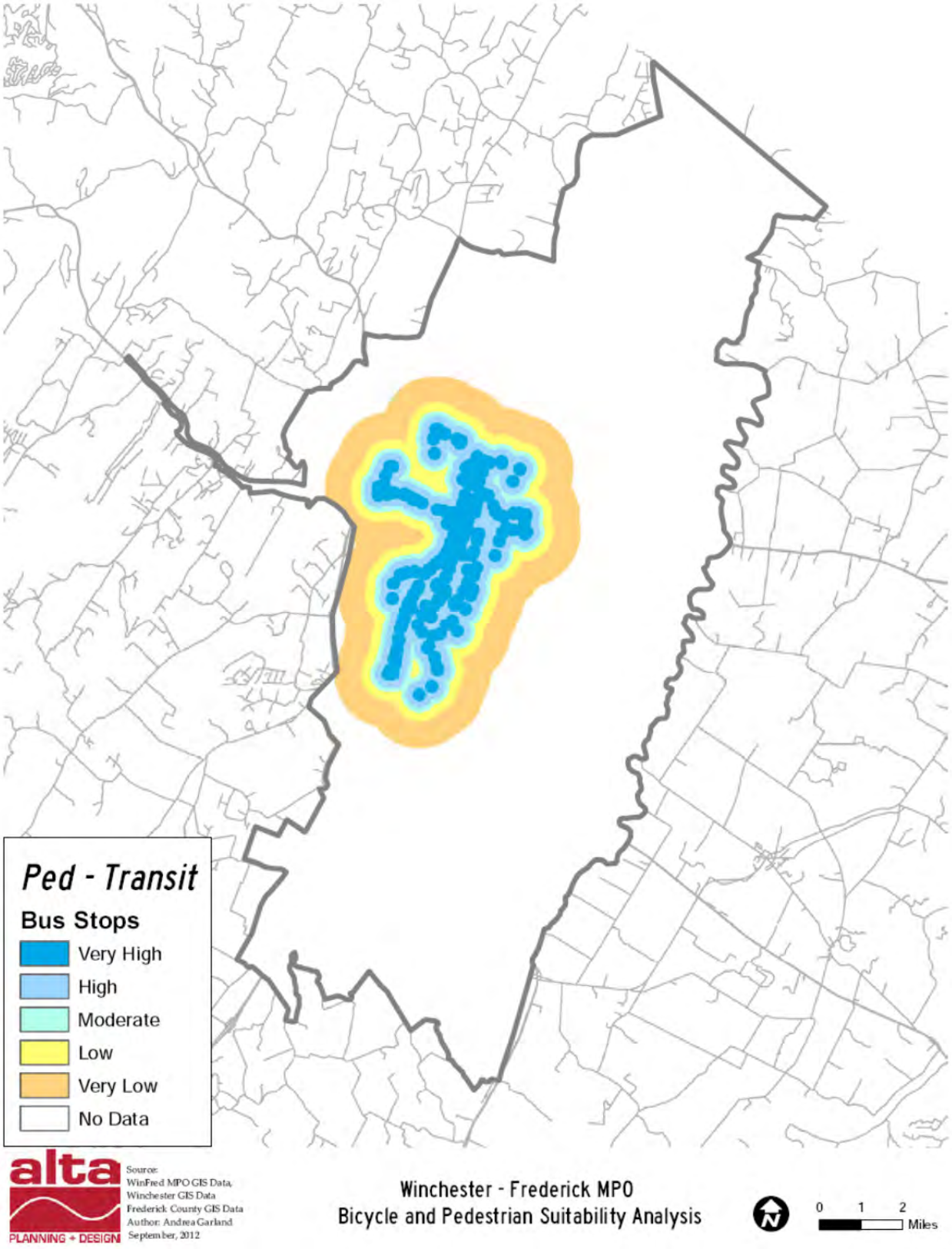


Figure 8. Bicycle and Pedestrian Suitability Analysis: Pedestrian – Transit, Bus Stops

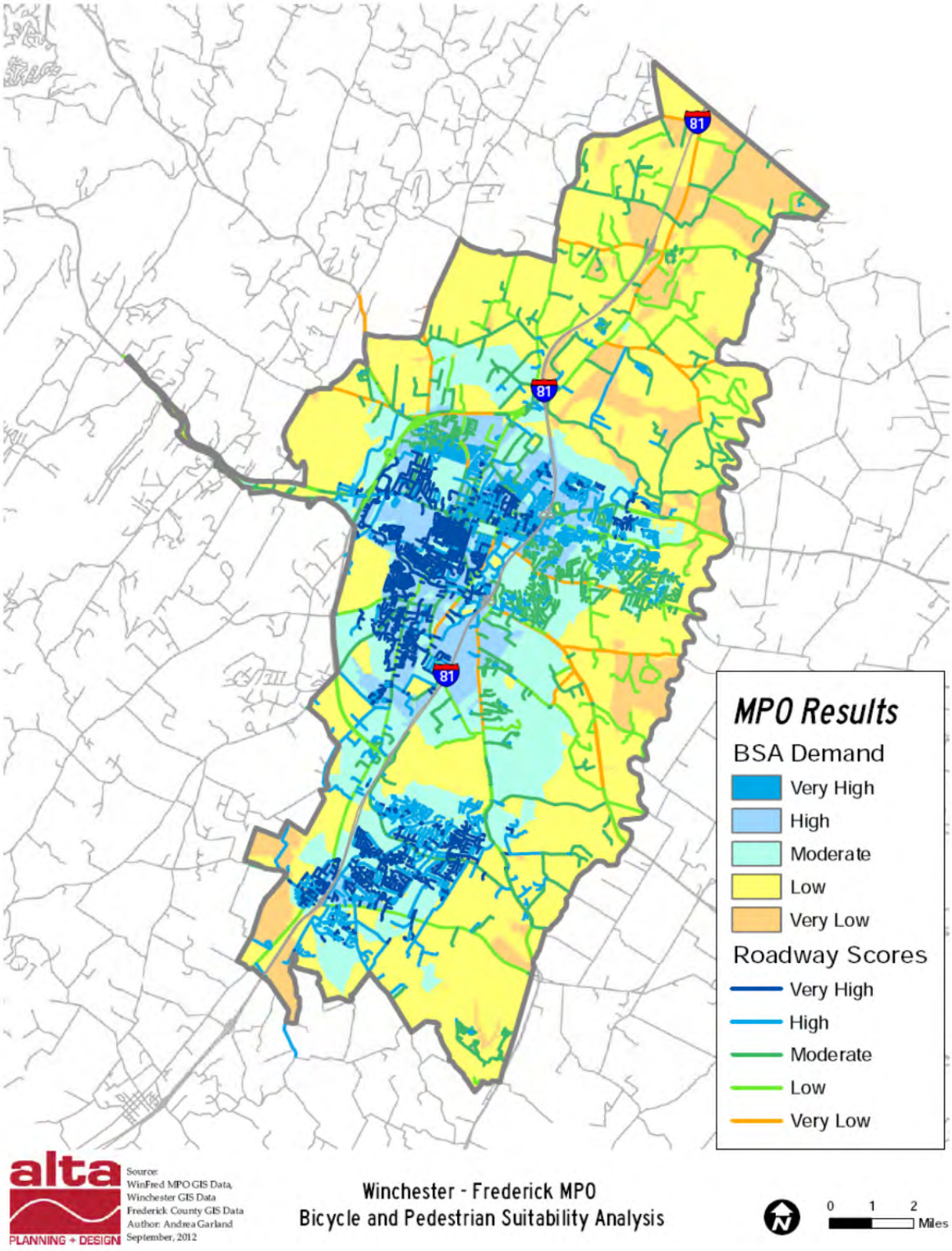


Figure 9. Bicycle and Pedestrian Suitability Analysis: MPO Results – BSA Demand, Roadway Scores

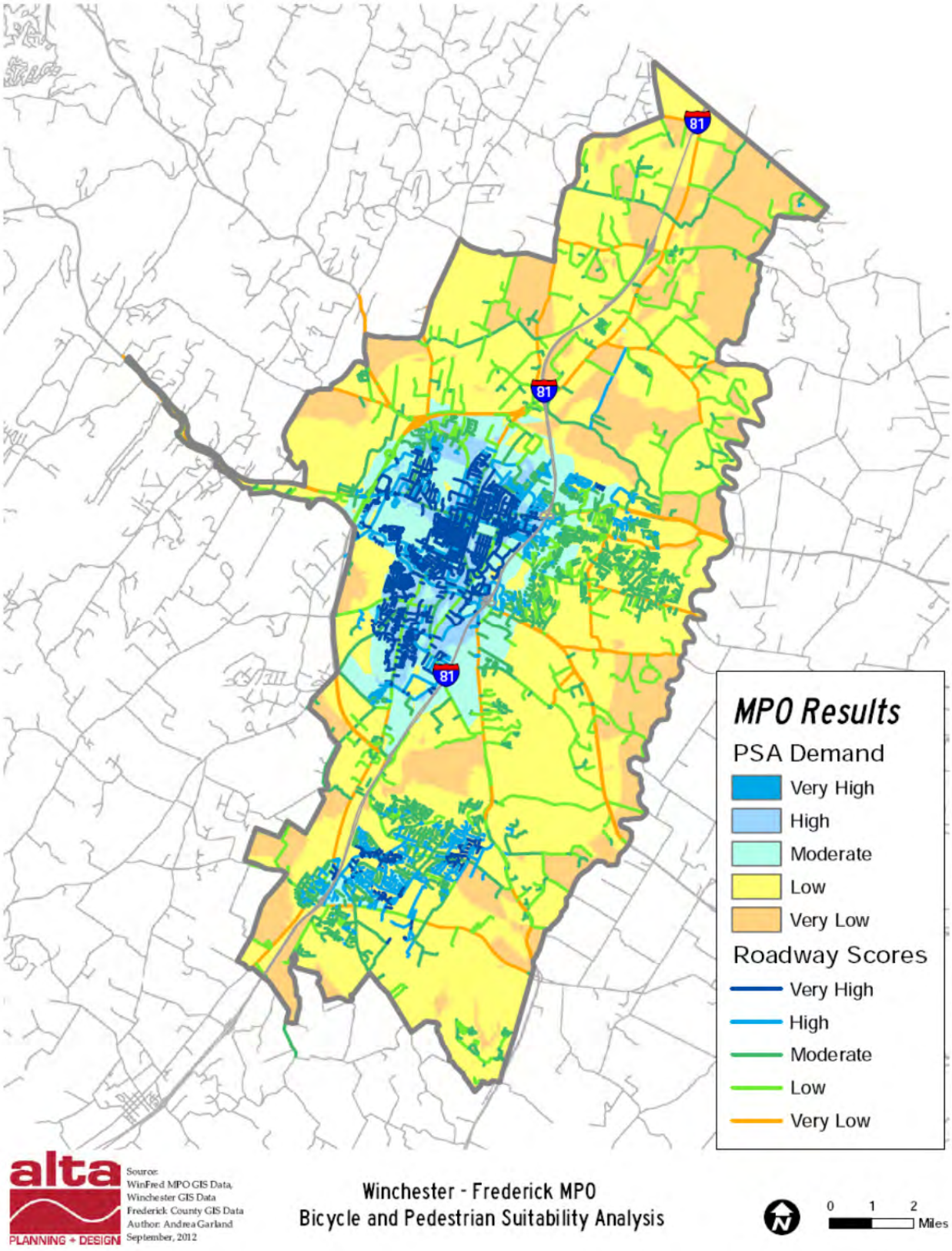


Figure 10. Bicycle and Pedestrian Suitability Analysis: MPO Results – PSA Demand, Roadway Scores

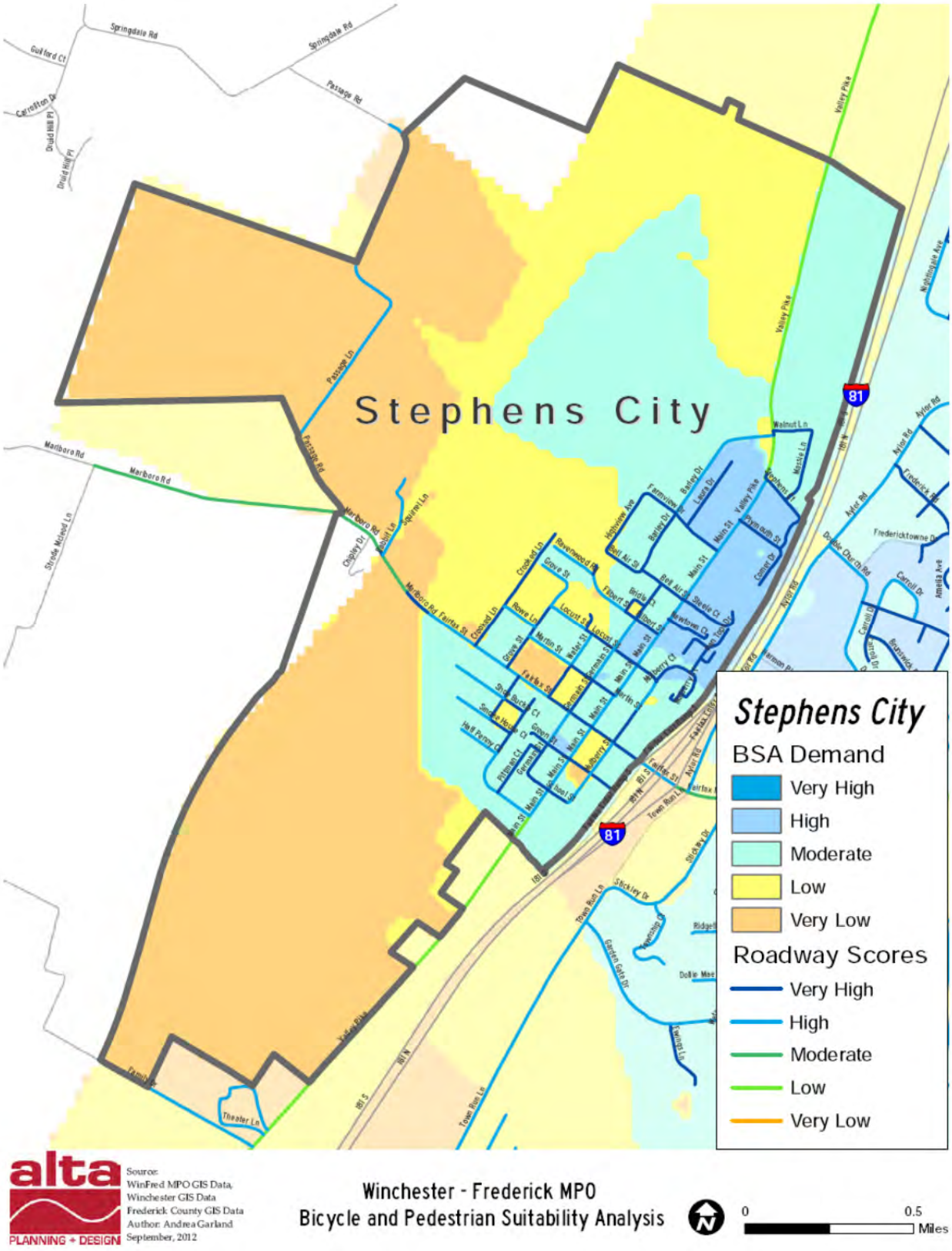


Figure 11. Bicycle and Pedestrian Suitability Analysis: Stephens City Results – BSA Demand, Roadway Scores

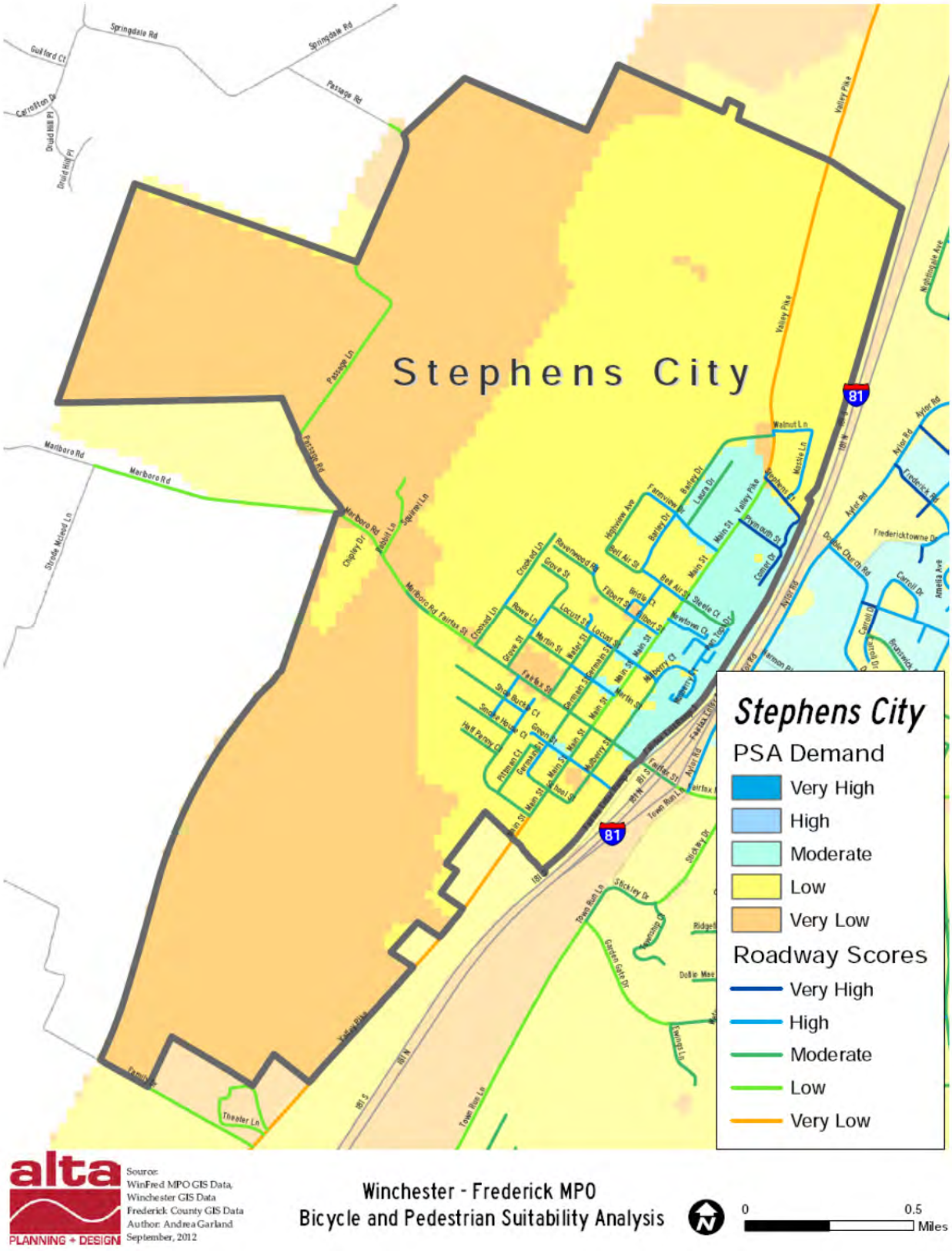


Figure 12. Bicycle and Pedestrian Suitability Analysis: Stephens City Results – PSA Demand, Roadway Scores

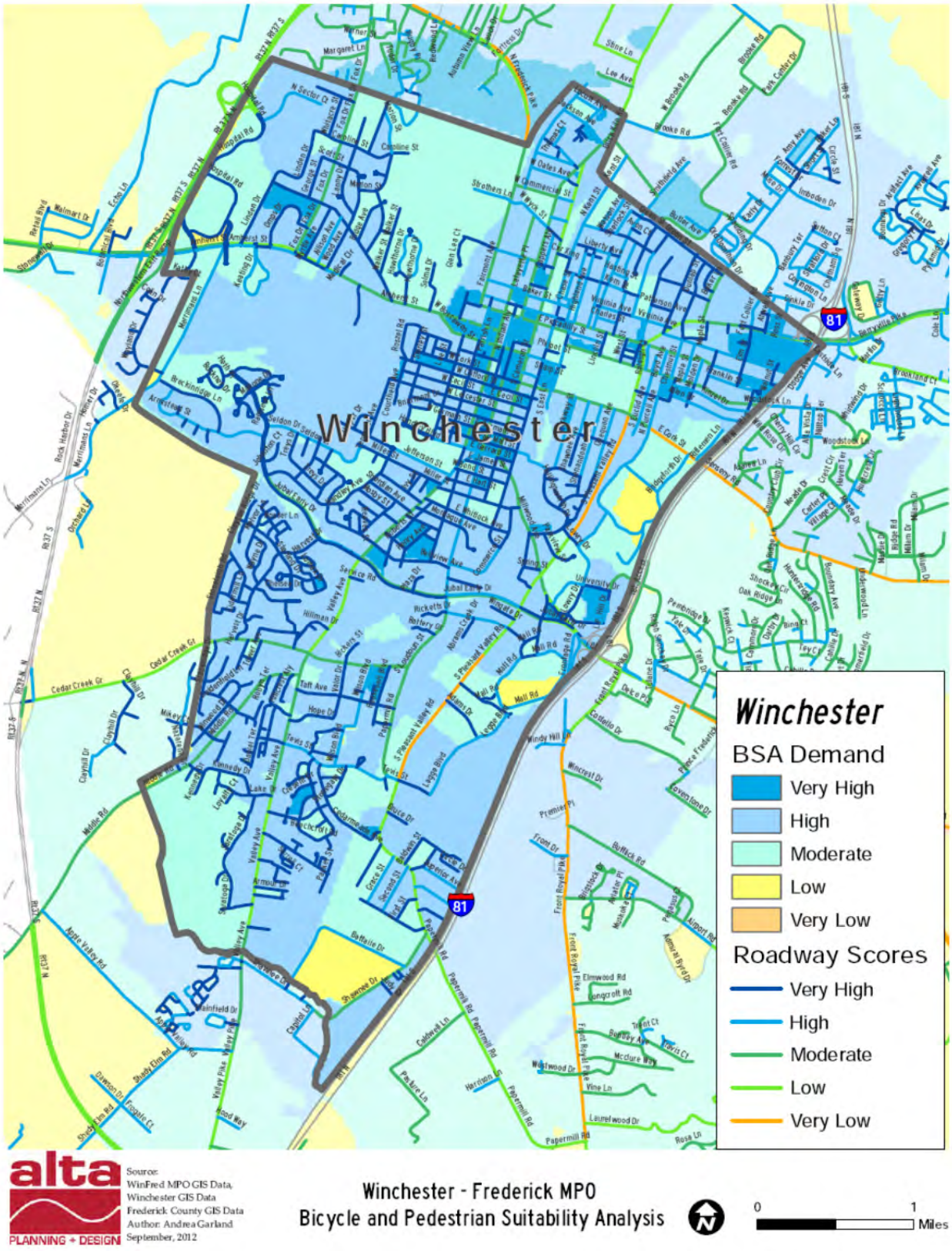


Figure 13. Bicycle and Pedestrian Suitability Analysis: Winchester Results – BSA Demand, Roadway Scores

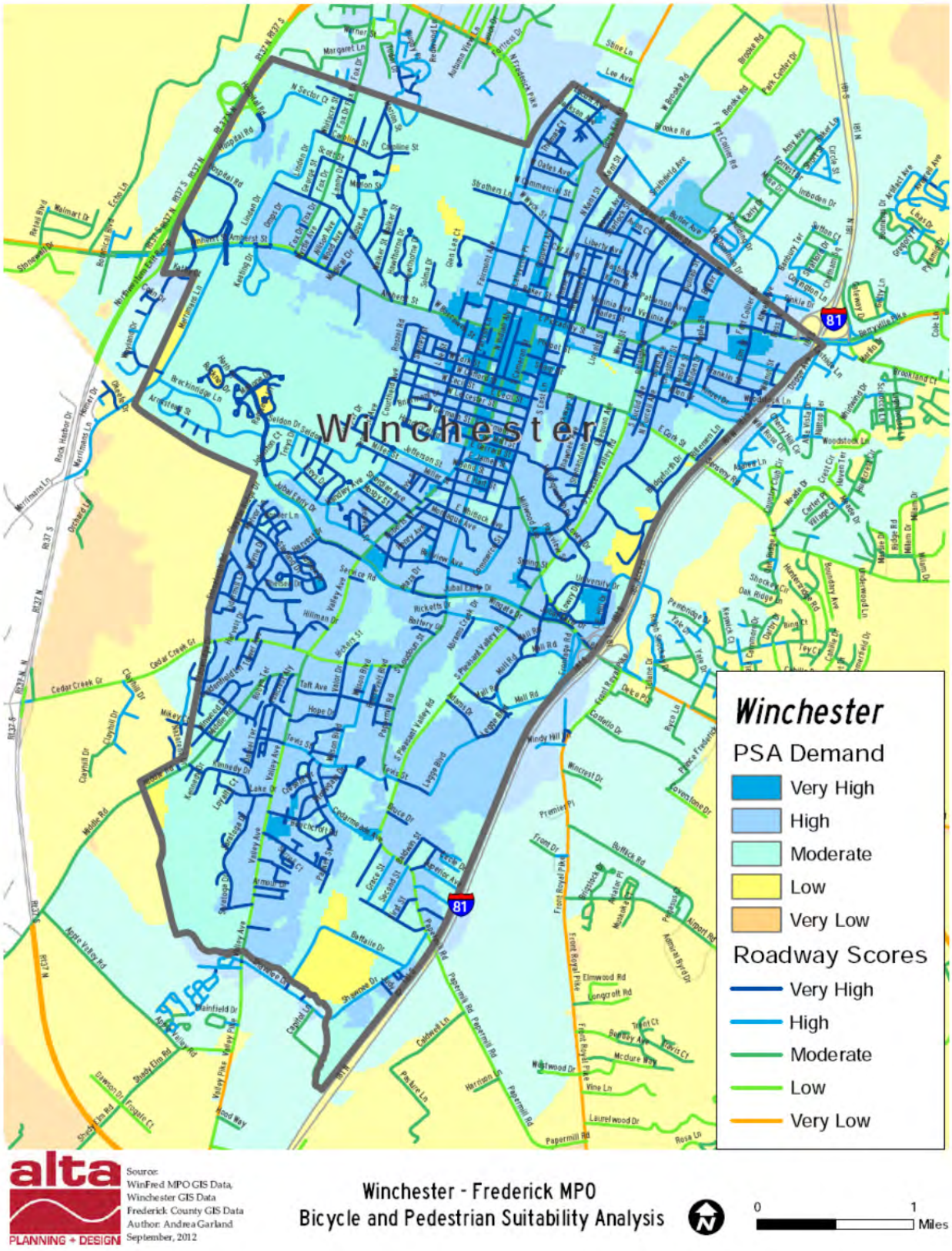


Figure 14. Bicycle and Pedestrian Suitability Analysis: Winchester Results – PSA Demand, Roadway Scores

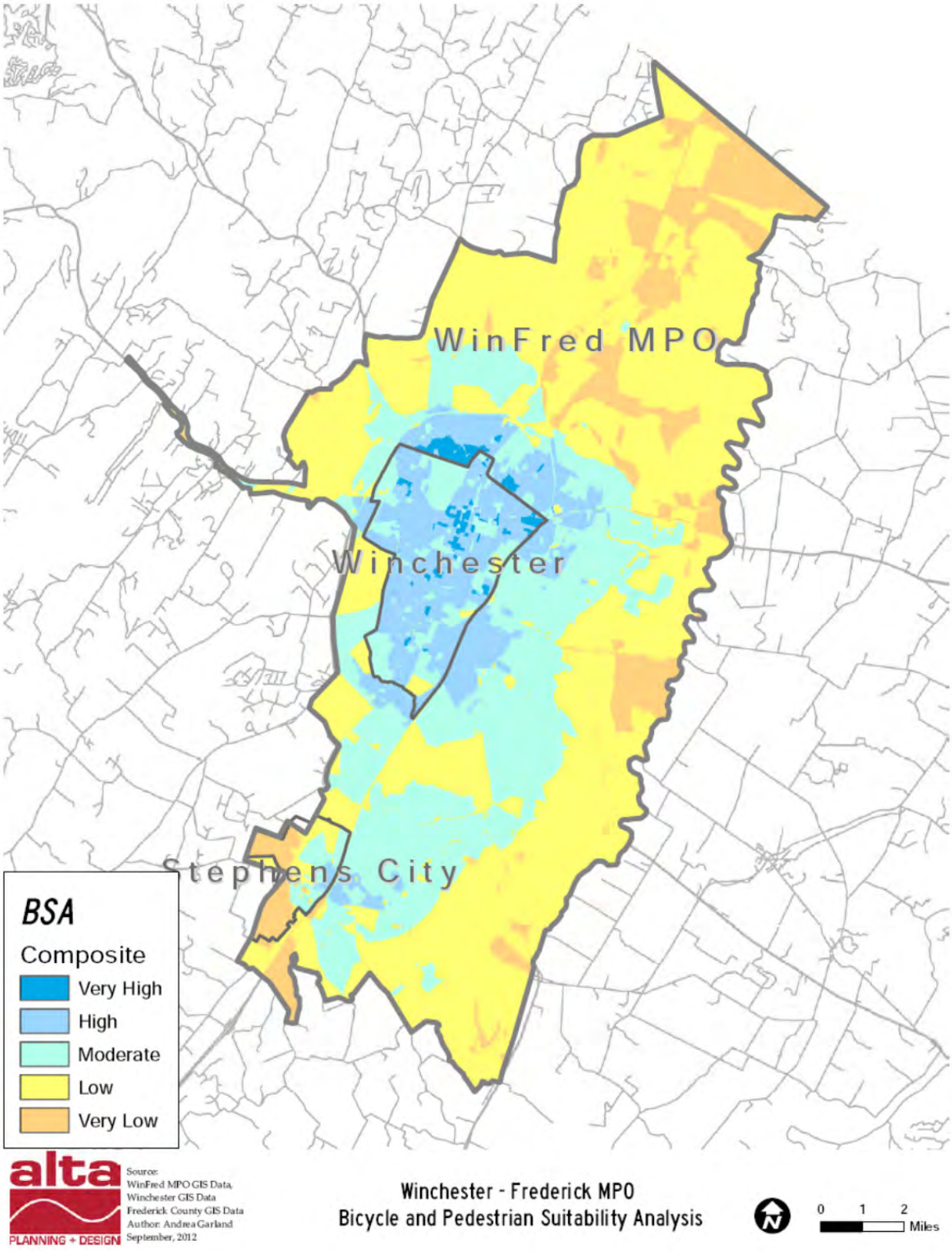


Figure 15. Bicycle and Pedestrian Suitability Analysis: BSA - Composite

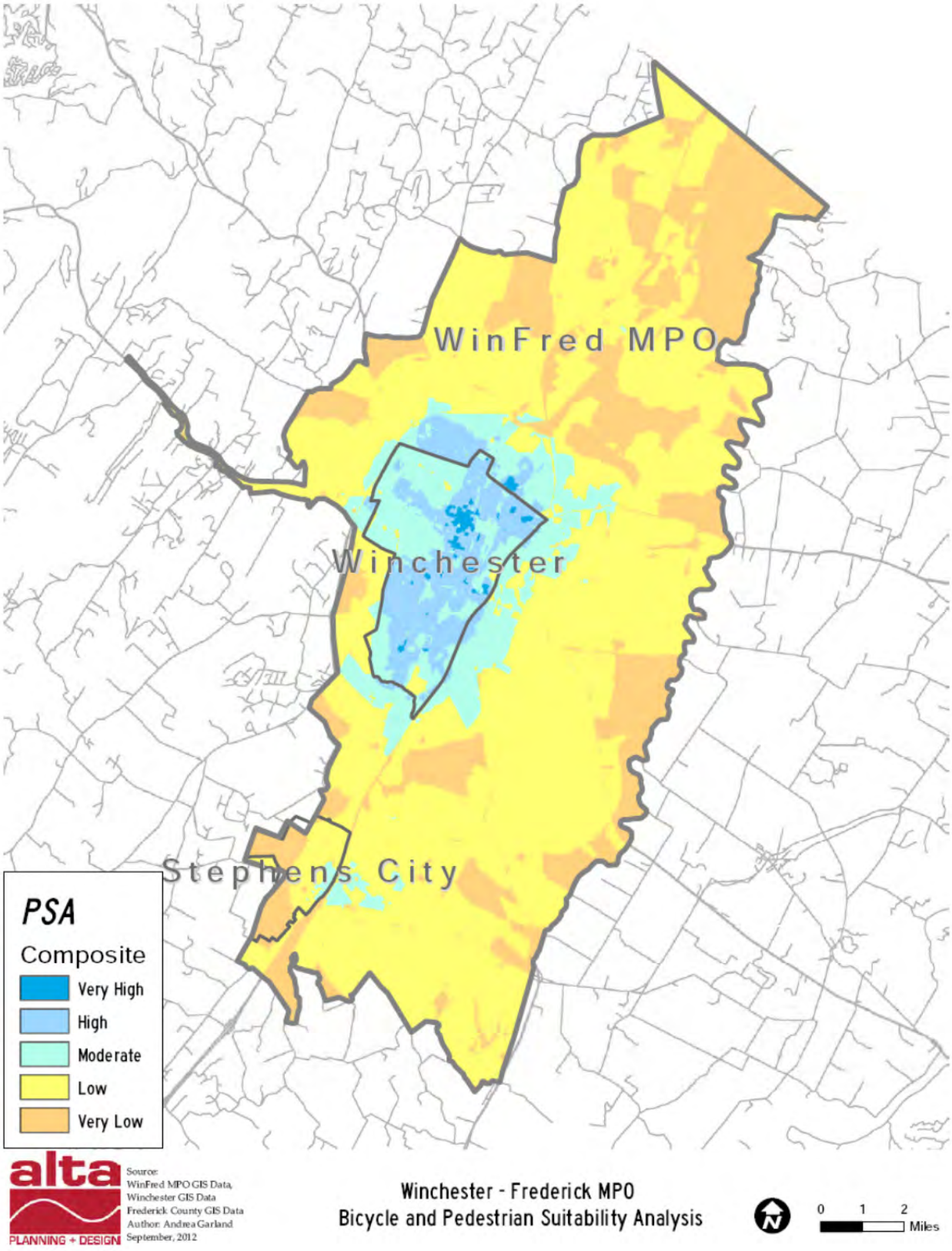


Figure 16. Bicycle and Pedestrian Suitability Analysis: PSA - Composite

Table 4. Comparison of MMLOS and BSA/PSA Analyses, Strengths and Differences

	MMLOS	BLOS	PLOS	BSA	PSA
Mode considered	• Motorized • Bicycling • Walking • Transit	• Bicycling	• Walking	• Bicycling	• Walking
Use of Analysis	• Predicting traveler perceptions of quality of service	• Predict bicyclists perceptions of quality of service, a measure of "bicycle friendliness"	• Predict pedestrian perceptions of quality of service , a measure of "pedestrian friendliness"	• Assist in identifying best places to focus system improvements most effectively • Identify areas where cyclists most likely found	• Assist in identifying best places to focus system improvements most effectively • Identify areas where pedestrians most likely found
Input (misc. sources)	• Segment length • Vol. (outside lane) • Vehicle Speeds • Pavement quality • Intersection width • K & D factors • AADT • Heavy-vehicle % • Peak hour factor • Sidewalk width • Buffer width • On-street parking • Bike lane • Travel lane widths • Trees • Percent parking occupancy • Median type • Speed limit	• Segment length • Vol. (outside lane) • Vehicle Speeds • Pavement quality • Intersection width • K & D factors • AADT • Heavy-vehicle % • Peak hour factor • Sidewalk width • Buffer width • On-street parking • Bike lane • Travel lane widths • Trees • Percent parking occupancy • Median type • Speed limit	• Segment length • Vol. (outside lane) • Vehicle Speeds • Pavement quality • Intersection width • K & D factors • AADT • Separation of vehicles and pedestrians • Peak hour factor • Sidewalk width • Buffer width • On-street parking • Bike lane • Travel lane widths • Trees • Percent parking occupancy • Median type • Speed limit	• Census block group population • Population density • Employment density • Roadway quality (AADT, speed limits, block length, on-street facilities, off-street facilities)	• Census block group population • Population density • Employment density • Roadway quality (AADT, speed limits, block length, on-street facilities, off-street facilities)
Score basis	• •Perception based	• •Bicyclist perception of comfort	• •Pedestrian perception of comfort	• Assigned based on suitability for biking • Factors weighted based on impact on rates	• Assigned based on suitability for walking • Factors weighted based on impact on rates
Metrics/ categories influencing scores		• •Vehicle volume in outside (right) lane • •Heavy truck % • •Vehicle speeds • •Vehicle travel/bicycle lane widths • •Pavement quality	• •Vehicle volume in outside (right) lane • •Vehicle speeds • •Presence/width of sidewalk/buffer • •Lateral separation of vehicles and pedestrians	• •Live • •Work • •Play and learn • •Transit • •Roadway quality	• •Live • •Work • •Play and learn • •Transit • •Roadway quality
Output	• Level of service (LOS) on an "A" to "F" scale for each mode	• •LOS A • LOS B • LOS C • LOS D • LOS E • LOS F • LOS Map	• LOS A • LOS B • LOS C • LOS D • LOS E • LOS F • LOS Map	• Generate score values approximating trip demand and trip supply	• Generate score values approximating trip demand and trip supply
Presentation Format	• Map	• LOS map for collector and arterial roads	• LOS map for collector and arterial roads	• Map composite score values (approximating trip demand) • Overlaying composite roadway quality scores (approximating trip supply) • Layer maps to create land area and road segment categories	• Map composite score values (approximating trip demand) • Overlaying composite roadway quality scores (approximating trip supply) • Layer maps to create land area and road segment categories
How to Use Results	• Allows rating of roadway links and segments and for assessment of the impact of improvements on LOS for all modes	• Allows rating of roadway links and segments and for assessment of the impact of improvements on LOS for bicyclists	• Allows rating of roadway links and segments and for assessment of the impact of improvements on LOS for pedestrians	• Allows visual identification & ranking of potential projects by area as opposed to road link or segment	• Allows visual identification & ranking of potential projects by area as opposed to road link or segment

GIS Theory – Map Overlay Analysis

The BSA and PSA are GIS analysis methods conducted to help identify the best places to focus system improvements most effectively. This section summarizes the theory behind these analyses and the method used to conduct them for the MPO, as well as the information generated.

These GIS analyses are based on a technique devised by prominent landscape architect Ian McHarg. McHarg was an early pioneer in the GIS field who established innovative approaches for route planning using photographic map overlays. Various trip-related factors were mapped on individual transparent sheets using different color shades (with darker shades representing increased social cost to the community). These sheets were then overlaid and this then revealed the most suitable route location based on the information inputs. These photographic map overlays paved the way for modern day GIS analysis and the McHarg's methodology has been updated and adapted to create the BSA and PSA techniques used today.

Bicycle and Pedestrian Suitability Analysis

BSA and PSA were conducted to evaluate current and future bicycling and pedestrian levels and identify deficiencies and opportunities in the WinFred MPO study area. Both analyses are similar in methodology, using quantitative modeling approaches to identify and prioritize bicycle and pedestrian corridors by visually overlaying local GIS data on the study area.

The steps of the analyses include:

- Collect available local GIS data
- Quantify the elements that impact cycling and walking rates
- Use information to identify areas where cyclists and pedestrians are most likely to be found
- Find the gaps in the existing cycling and walking networks
- Identify the possible bicycle and pedestrian corridors
- Provide guidance on how to best prioritize future projects

The analyses assign weighted values to the local data based on their relative impact on cycling and walking rates. In addition, values are assigned based on distances to likely bicycling and walking destinations. Scores are assigned to the roadway network based on their impacts. By mapping the values generated, the layering of this information can then help identify and rank potential projects, and can guide the development of new pedestrian and bicycle trip demand tools that enhance the user experience and help realize the latent biking and walking demand.

Locations in the study area are characterized by whether they are likely to be the starting point or destination for pedestrian or bicycle trips (trip generators and attractors, respectively). The metrics used to determine this likelihood are sub-categorized into live, work, play and learn, transit, and roadway quality; they use data readily available from local agencies. Table 5 lists metrics selected for the MPO analyses:

Table 5. PSA and BSA Metrics Overview

Category	Metric Used
Where People Live	Population density
Where People Work	Employment density by job sector (manufacturing and service)
Where People Play and Learn	Retail corridors, parks, schools and public facilities
Where People Access Transit	Proximity to WinTran bus stops
Roadway Quality	Presence of gaps within the existing bicycle and pedestrian network Speed limits, daily traffic volumes, block length

After collecting the input data from the MPO, City of Winchester, Town of Stephens City, and Frederick County, these metrics are mapped to create a model of local bicycling and walking levels and needs, and it then becomes apparent where projects could have the greatest impact. Recognizing that each community is different, the BSA and PSA are setup to so that they can be tailored to reflect local information and interests.

The following sections present the data inputs and resulting analysis for the MPO study area:

Where People Live

BSA and PSA look at a variety of demographic data as indicators of where cycling and walking trips could be generated. 2010 Census block group population data was used because demographic data are not readily available at the block level. Features were scored based on population density per census block area. Table 6 describes the features analyzed in this category.

Table 6. Data and Scoring for Where People Live

Category	Category Feature Dataset	Geography Level	Data Determination	BSA Score	PSA Score	Classification Technique	Data Evaluation Technique
Where People Live	Population density	Census block group	Total pop./census block acreage	1 - 5	1 – 5	Geometrical interval*	Scores scaled 1-5

Where People Work

The geographical location of work and the number of people working at that site is another key factor in generating trips. Employment density was obtained from the Longitudinal Employment and Household Dynamics (LEHD), a program conducted by the US Census Bureau. This information was sub-categorized into commercial manufacturing industry and service industry employment using the North American Industry Classification System (NAICS). The employment data was scored based on the density of employees per block. A higher weighting was assigned to service industries, as these locations tend to draw in customers and generate higher foot traffic. Table 7 describes the features analyzed in this category.

Table 7. Data and Scoring for Where People Work

Category	Category Feature Dataset	Geography Level	Data Determination	BSA Score	PSA Score	Classification Technique	Data Evaluation Technique
Where People Work	Manufacturing job density	Census block group	Total manufacturing industry jobs/block acreage.	1 - 5	1 - 5	Geometrical interval*	Scores scaled 1 – 5 (raw scores are divided by 3)
	Service job density	Census block group	Total service industry jobs/block acreage.	2 - 10	2 - 10		

Where People Play and Learn

While cycling and walking differ in nature, the recreational destinations that attract these activities are quite similar. Information about local attractions was taken from the *2030 Comprehensive Plan, Frederick County, Eastern Frederick County Long Range Land Use Plan* (Reference 2) and included parks, open space, mixed use areas, and public facilities.

Also considered in this category are trips associated with schools. Providing safe and convenient routes for students, staff and visitors to travel to schools is another important aspect of planning bicycling and walking trips. Table 8 display the specific features used in this portion of the model.

Table 8. Data and Scoring for Where People Play and Learn

Category	Dataset	Geometry Type	BSA Score	PSA Score	Weighted Value Technique	Data Evaluation Technique
Where People Play and Learn	**Parks**	Polygon	5	5	Assigned distance	Scores summed and scaled 1 - 5
	Libraries	Point	3	3		
	Schools	Point				
	High		1	1		
	Middle		3	3		
	Elementary		5	5		
	Shopping (Number of employees)	Polygon			Assigned distance/ corridor classification based on geometrical intervals in the number of employees per polygon	
	0-1		1	1		
	2-5		2	2		
	6-26		3	3		
	27-121		4	4		
	122-557		5	5		
	Public Facilities (Winchester)	Polygon	3	5	Assigned distance	

Where People Access Transit

Walking and biking to transit stops increase options for getting to the places in the community where people live, work, play, and learn, and are trip attractors. Including the location of the WinTrans' bus stops in the analyses adds important information about potential levels of bicycling and walking made as part of multi-modal trips.

As WinTrans' buses are not outfitted with bicycle racks, the BSA scores generated are lower than the PSA scores. Table 9 describes the metrics used in this category.

Table 9. Data Required and Scoring for Supply Category -Transit

Category	Category Feature Dataset	Geometry Type	BSA Score	PSA Score	Weighted Value Technique	Data Evaluation Technique
Transit	WinTrans' Bus Stops	Point	1	5	Assigned distance values	Scores scaled 1-5

Roadway Characteristics

Including data about the roadway quality further refines the demand analyses. This supply-side of the analyses identifies the quality of a roadway to and from the places in the community where people live, work, play and learn. Road features used in determining quality included annual average daily traffic (AADT) volume, speed limits, block length, and existing on- and off-street bicycle and pedestrian facilities (such as sidewalks, walking paths and multi-use trails). These road features were assigned scores based on suitability for biking and walking. Generally, roads which had low-volume, low-speed traffic and which included designated places to bike and walk were assigned higher scores. Table 10 and Table 11 describe the metrics used in the BSA and PSA categories, respectively.

BSA and PSA Composite Activity Models

Development of the composite activity models of bicycling and walking in the MPO was conducted in two steps for each of the analyses:

- First, by combining the scores for the places in the community where people live, work, play and learn (attractors and generators) to produce a composite set of scores for the areas of interest. This step approximates trip demand.
- Then, by overlaying the appropriate composite roadway quality scores. This step approximates trip supply

Table 12 displays the BSA and PSA Recommendations.

As displayed in Table 12, areas with high levels of demand for bicycling and walking as well as a high supply of suitable facilities can potentially benefit most from innovative programs and capital projects, and closure of key gaps. These are the areas where pedestrian and bicycling improvements would likely have the highest impact on the largest number of existing and potential users. They should be high priority for investment and should be considered for showcase projects where best practices can be modeled for the region.

Areas with high demand for cycling and walking and a low supply of suitable infrastructure can benefit from infrastructure improvements to improve cycling and walking conditions. Due to conditions such as high traffic volume or speed, these areas may require off-road facilities. They should also be high priority for investment.

Table 10. Data Required and Scoring for BSA Roadway Quality

Category	Category Feature Dataset	Geometry Type	BSA Score	Score Classification Technique	Data Evaluation Technique
Roadway Quality	Block Length	Linear		Manual interval	Scores summed and scaled 1 - 5
	< 365 feet		5		
	365 - 1000 feet		4		
	1001 feet - 1320 feet		3		
	1321 - 2640 feet		2		
	> 2640 feet		1		
Roadway Quality	Proximity to Existing Bike Facilities	Linear		Manual Interval	Scores summed and scaled 1 - 5
	Streets with bike facilities		5		
	Street connected to bike facilities (within 0.5 miles)		5		
	Street connected to bike facilities (within 1 mile)		4		
	Street connected to bike facilities (within 1.5 miles)		3		
	Street connected to bike facilities (within 2 miles)		2		
	Street connected to bike facilities (within 3 miles)		1		
	All other streets		0		
	Posted Speed Limit				
	Speed Limit < 25 mph		5		
	Speed Limit < 30 mph		4		
	Speed Limit 35-40mph		3		
	Speed Limit 40-45 mph		2		
	Speed Limit 45-55 mph		1		
	Speed Limit > 55 mph		0		
	VDOT 2010 AADT Data				
	< 1500		5		
	1500-3000		4		
	3000-8000		3		
	8000-10,000		2		
	< 10,000		1		

Areas with low levels of demand for cycling and walking combined with existing good facilities can potentially benefit from programs targeted to encourage cycling and walking. They may also be areas where land use changes or additional development should be considered. These areas are identified medium priority for investment.

Areas showing low levels of cycling and walking demand as well as a low supply of suitable infrastructure can potentially benefit from basic infrastructure improvements. These areas should be low-priority for investments.

Table 11. Data Required and Scoring for PSA Roadway Quality

Category	Category Feature Dataset	Geometry Type	BSA Score	Score Classification Technique	Data Evaluation Technique
Roadway Quality	Block Length	Linear		Manual Interval	Scores summed and scaled 1 - 5
	< 365 feet		5		
	365 - 800 feet		4		
	801 feet - 1000 feet		3		
	1001 - 1320 feet		2		
	> 1320 feet		1		
Roadway Quality	Proximity to Existing Sidewalks, Walking Paths and Multi-use Trails	Linear		Manual interval	Scores summed and scaled 1 - 5
	Streets with facilities		5		
	Street connected to facilities (within 0.125 miles)		5		
	Street connected to facilities (within 0.25 miles)		4		
	Street connected to facilities (within 0.33 miles)		3		
	Street connected to facilities (within 0.5 miles)		2		
	Street connected to facilities (within 1 mile)		1		
	All other streets		0		
	Posted Speed Limit				
	Speed Limit < 25 mph		5		
	Speed Limit < 30 mph		4		
	Speed Limit 35-40mph		3		
	Speed Limit 40-45 mph		2		
	Speed Limit 45-55 mph		1		
	Speed Limit > 55 mph		0		
	VDOT 2010 AADT Data				
	< 1500		5		
	1500-3000		4		
	3000-8000		3		
	8000-10,000		2		
	< 10,000		1		

Table 12. BSA and PSA Recommendations

		Demand	
		Low	**High**
Supply	**Low**	Basic infrastructure improvements; low investment priority	Invest in infrastructure to meet high demand, high invest priority
	High	Bicycle and pedestrian encourage programs; medium investment priority	Innovative design treatments, closure of key gaps; high investment priority

PUBLIC INVOLVEMENT

In addition to the technical analyses based on available geospatial data, a structured process was used to get a thorough understanding of the desires and concerns of the WinFred MPO residents as well as local expertise on the existing use patterns, critical gaps, and details about existing conditions that are not discernible from the collected geospatial data. This section describes the public-involvement process used to gather input, and summarizes the feedback received.

Public Involvement Process

Constituent input has been collected from three sources:

1. An online interactive map that allowed residents to leave comments and highlight locations and routes that are important to them (Active from July 2012 to November 2012);
2. A stakeholder meeting allowing participants to compare the existing MMLOS results to their firsthand experience; and,
3. A public open house meeting with a guided map-markup exercise, conversations with the KAI team and written answers to open ended questions.

The specific processes and summarized results of the public involvement process are summarized in the following section.

Summary and Analysis of Interactive Map Input

The project team received 67 comments from the interactive map tool; 49 of the comments were tied to specific locations, and eighteen of them were more general comments or criticisms. Of the comments left with the mapping tool, 20 were primarily about bicycling, six were about walking and 41 were directly relevant to both. While there was considerable variation in the content of the location-specific comments, there were also a few highly prevalent themes, summarized in Table 13.

Table 13. Frequently Mentioned Themes

Theme or Issue	Number of Times Mentioned	Geographic Extent
Completion of the Green Circle	8	Specific to proposed Green Circle route
Dangerous walking and bicycling routes to schools	4	MPO-wide
Too many bike/pedestrians plans, studies, public comment periods, not enough building of facilities	3	MPO-wide
Abrupt cessation of sidewalks	6	MPO-wide
Lack or poor repair of road shoulders	12	MPO-wide
Lack of bicycle lanes	7	MPO-wide
Bicycle features at intersections (bike boxes/left turn detection)	3	MPO-wide, Specifically Mentioned in Winchester
Signage/driver education initiatives	2	MPO-wide
Bicycle connection between Stephens City and Winchester	2	One North/South Route
Bike and Pedestrian connection to downtown	7	MPO-wide
Lack of sidewalks in residential neighborhoods	5	MPO-wide
Cork/Senseny Road	7	Corridor Segment
Valley Avenue	8	Corridor Segment
Pleasant Valley Road	3	Corridor Segment
Jubal Early Drive	2	Corridor Segment
Merrimans Lane	3	Corridor Segment
Route 11	3	Corridor Segment
Fox Drive	5	Corridor Segment
Bicycle/Pedestrian Facilities adjacent to Route 37	6	Large Loop
Piccadilly Street	3	Short Downtown Corridor Segment, Mostly at Specific Intersections
Tasker Road	5	Corridor Segment

Note: The number of mentions in column 2 exceeds the total number of comments, because some comments addressed multiple themes

Public Stakeholder Meeting

The public stakeholder meeting took place on August 16, 2012. The project team presented the preliminary results of the MMLOS analysis, and solicited feedback on the findings. Participants used markers, stickers and numbered comment adhesive notes to modify large maps displaying the MMLOS results. Below is a summary of the comments; they are arranged according to the four maps on which the comments were recorded.

Pedestrian Level of Service Map for the WinFred MPO

- Fairmont Avenue, which becomes North Frederick Pike, is 70% complete for bike/pedestrian access (a six-foot wide shoulder). Currently, joggers are using it west of Winchester, which participants described as perilous.

- A participant noted that schools on Senseny Road and Pioneer Road would greatly benefit from a multi-use path adjacent to the roadway.

Pedestrian Level of Service Map for Winchester, Virginia

- Several participants noted problems on Merrimans Lane between Amherst Street and Route 37 North. This segment was assessed a pedestrian level of service of "B", but meeting participants said that it should be considered inadequate for pedestrians. There is no pedestrian facility present, speeds are high and there is a high volume of traffic. Despite this, it is highly utilized by pedestrians and bicyclists for its connectivity to trail destinations favored by recreational runners and bicyclists. Participants communicated that this segment should be a high priority, for this reason, or, alternately, a bridge over a gully between Westside Station and Wayland Dr. would allow an alternate route.
- Fairmont Avenue between Commercial Street and Piccadilly Street is reported to have high levels of pedestrian use, though some of it is seasonal. A labor camp just north of Commercial Street on Fairmont Avenue contributes pedestrians for part of the year. Speed limits are largely ignored on this segment, and crossings are very difficult for pedestrians.
- There are poles in the sidewalk on Cork Street entering downtown from the east.
- Cameron Street downtown has some very narrow portions and stairs in the sidewalk.

Pedestrian Level of Service Map for Stevens City, Virginia

There were no comments on this map.

Bicycle Level of Service Map for the WinFred MPO

- Some segments of Valley Avenue/Valley Pike had "A" and "B" ratings that were questioned by the participants. There is also a lack of paved shoulder through the business area from the Winchester city limits to Springdale Road
- Windwood Drive was rated "C", participants said that traffic makes it very threatening.
- Five miles of a popular bike trail off of Redbud Road are hard to access by bicycle.
- The "C" rating of Old Charles Town Road and Jordan Springs Road was questioned, as shoulders are narrow and traffic can be significant.
- Martinsburg Pike also had a "C" rating that was questioned, because of the high prevalence of heavy vehicles.
- On a "C" rated segment of Millwood Avenue there is a bridge that is very tricky to cross on a bicycle and has a low guard railing.
- Senseny Road was mentioned again on this map as an important east-west corridor that has narrow shoulders.

- Greenwood Road south of Senseny was described as narrow and dangerous.
- The length of Tasker Road rated a "C" was described as very dangerous and scary.
- Papermill Road from Route 522 to Route 11 was also described as scary and hazardous.

Bicycle Level of Service Map for Winchester, Virginia

- North Cameron Street, North Loudoun Street and North Braddock Street through downtown Winchester were noted as having problems with speeding drivers. The east side of Cameron along the same stretch also has instances of parking on the sidewalk.
- Multiple participants suggested that bicycles should be allowed through the downtown pedeMestrian mall.
- Senseny Road east of Pleasant Valley Road serves many subdivisions but does not have dedicated multi-modal facilities, and participants said this is even avoided by experienced bicyclists.
- Amherst Street does not have a bike lane, and participants said that since Amherst has a steep grade, getting passed by cars is uncomfortable, and the speed differential is very high.
- Route 50 just west of Sulphur Springs Road has some very narrow shoulders (this note confirms to the "E" rating given by the MMLOS).
- Merrimans Lane was noted on both the pedestrian and bicycle feedback maps as being classified as too friendly, and being dangerous to cyclists and pedestrians.

Bicycle Level of Service Map for Stevens City, Virginia

- No decipherable comments were included on this map

Second Public Meeting

The second public meeting, which was an open house format, was held on November 8th War Memorial Building in Jim Barnett Park. The goal was to elicit as much usable input as possible from constituents in the WinFred MPO about critical gaps in bicycle and pedestrian infrastructure, their overall impressions of the bike and pedestrian network and their opinions and concerns. A guided map markup exercise was used to get as much clear, specific, and geographically focused input as possible. Additionally, to make sure that the participants' perspectives were adequately explored and documented, even when they are broader than a specific geographic location, one-on-one discussions and written answers to a short set of open-ended questions were also used.

Appendix B contains the Second Public Meeting, Questions and Map Guidance

Items identified by constituents as the "biggest problem" with the MPO's pedestrian network:

Numbers in parenthesis denote the number of participants who recorded a particular comment.

- Merrimans Lane is heavily used by both pedestrians and bicyclists, and very unsafe
- The Green Circle needs to be completed (3), and connected to county/other trails (1), and should be used to begin to provide one unbroken off-street route for pedestrians and bicyclists between major destinations like medical center, Shenandoah University and Downtown (1)
- Lack of sidewalks in many neighborhood (Meadow Branch, Williamsburg Heights)
- Gaps in sidewalks/trails, and general lack of connectivity (3)
- Unsafe routes for kids to school (2)
- Lack of awareness/education on the part of drivers that other users are entitled to use of the roads (suggestions of signage to that effect)

Items identified by constituents as the "biggest problem" with the MPO's bicycle network:

- Left turn lanes will not give a protected phase unless they detect a vehicle, and their detectors do not register bicycles. It's difficult to use the permissive phase because visibility is blocked by the opposing turn lane
- Merrimans Lane is heavily used by both pedestrians and bicyclists, and very unsafe
- Bike trails/lanes start on outskirts of Old Town area and are not easy to get to
- Lack of dedicated bike lanes (4)
- Lack of community education about safe bike/car interaction, and road sharing (2)
- No design criteria to designate a roadway for shared use (since bike lanes seem unfeasible in many areas due to constrained right of way)
- Riding on the road (as opposed to trails) feels unsafe throughout the MPO

Improvements identified by constituents as having the largest potential benefit to the MPO's pedestrian network:

- More non-sidewalk walking trails
- Improvements prioritized based on need and use, not just already-planned infrastructure
- Upgrade sidewalks in downtown
- "No Gaps" (3)
- Add trail from downtown to Daniel Morgan Middle School
- Add path along Cork Street
- Safe paths from major residential pockets to neighborhood schools
- Upgrade/repair existing sidewalks (plus fill gaps) (2)

Improvements identified by constituents as having the largest potential benefit to the MPO's bicycle network:

- Dedicated bicycle lanes downtown
- Bike lanes on "open road" areas near town such as 37, Merrimans Lane, Cedar Creek Grade, Middle Road
- Focus dedicated lane additions on a destination (suggests Daniel Morgan Middle School)
- Trails to get to Loudoun Street walking mall
- Marked bike lane on Meadow Branch Ave.

Important takeaways from map markup:

- Map markup comports with existing impressions of critical infrastructure gaps
- At locations scattered through town, constituents identified areas where the sidewalk abruptly stops
- Intersections highlighted by constituents are all on the existing priority list
- Two of the intersections highlighted as dangerous for cyclists are on the list specifically due to left turn non-detection, as described above
- East Cork Street was noted as widely used and unsafe on three maps, as was Senseny Road
- Multiple constituents identified the Green Circle as a route that they walked, and felt safe, but they highlighted the path's gaps as places where they felt unsafe
- Areas near Daniel Morgan Middle School were of great concern
- Multiple participants drew routes from the medical center or Shenandoah University to their homes (because they commute). Each route had highlighted dangerous intersections (already on priority list), or sidewalk gaps.

Public Involvement Conclusions

The most common themes mentioned by participants were in regards to addressing the gaps in the current bicycle and pedestrian networks at critical locations separating likely origins (residential neighborhoods) from the most common destinations such as employment centers, downtown, schools and Shenandoah University. Many participants noted that narrow roads and constrained rights of way pose challenges, and identified a relatively complete multi-use trail network (such as the completion of the Green Circle) as a priority. Several participants also expressed concern about the safety of the few children who attempt to walk and bike to school.

In addition to filling in key gaps in infrastructure, the few cyclists who are currently riding with traffic can be better accommodated at some of the highlighted intersections by including some kind of bicycle detection at heavily used intersections.

SITE VISIT SUMMARIES

Over the course of three site visits, the project team observed the operations and conditions -- from both the bicycle and pedestrian perspectives -- of 31 intersections within the MPO. These intersections were identified by the project team based on the input of the client, the comments on the project interactive website, and constituent feedback at public meetings. The chosen intersections are shown in Figure 17, Figure 18, and Figure 19.

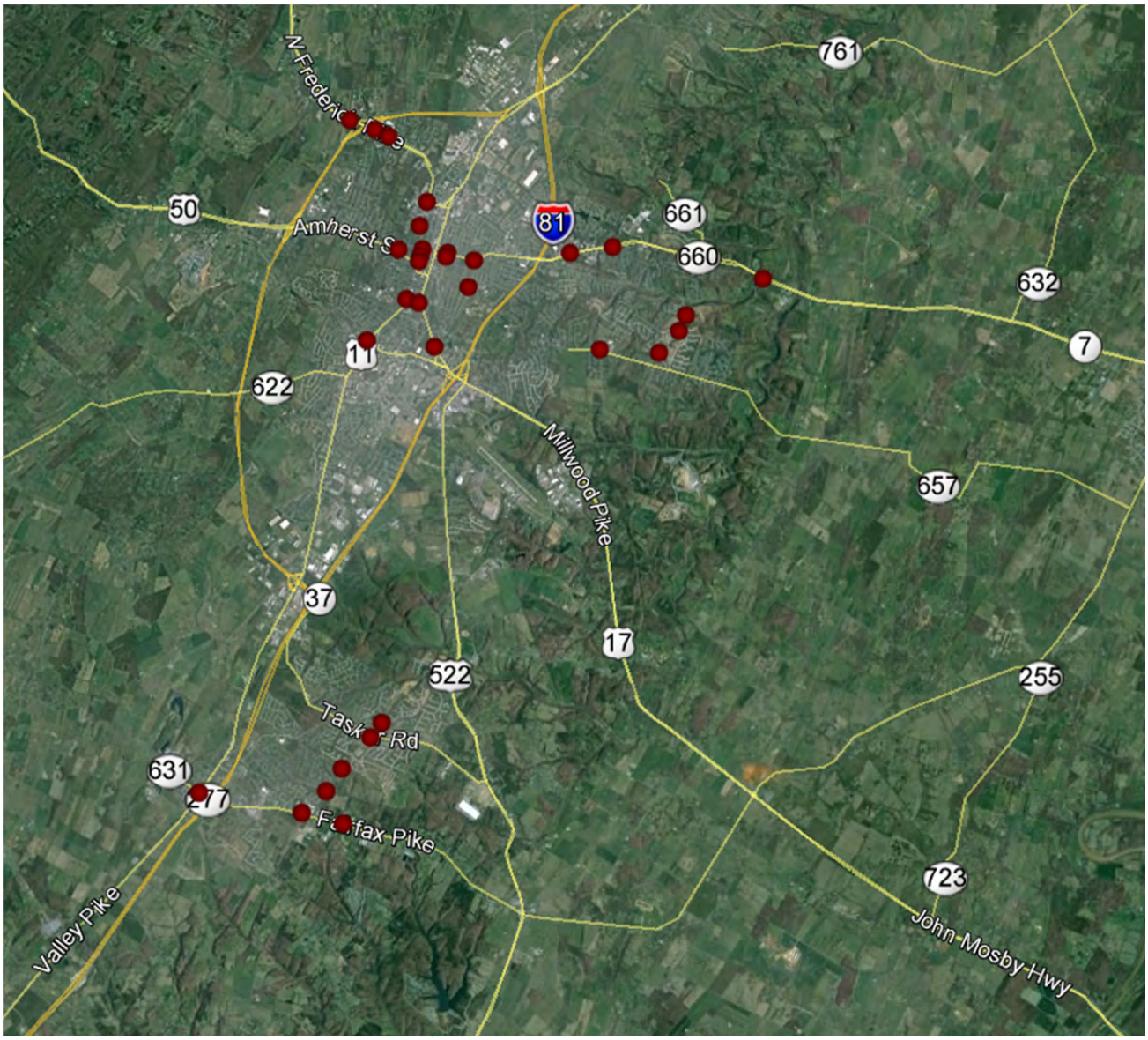


Figure 17. MPO Scale Map of Visited Intersections (Map from Google Earth)

Figure 18. Map of Visited Intersections Focusing on the City of Winchester, VA

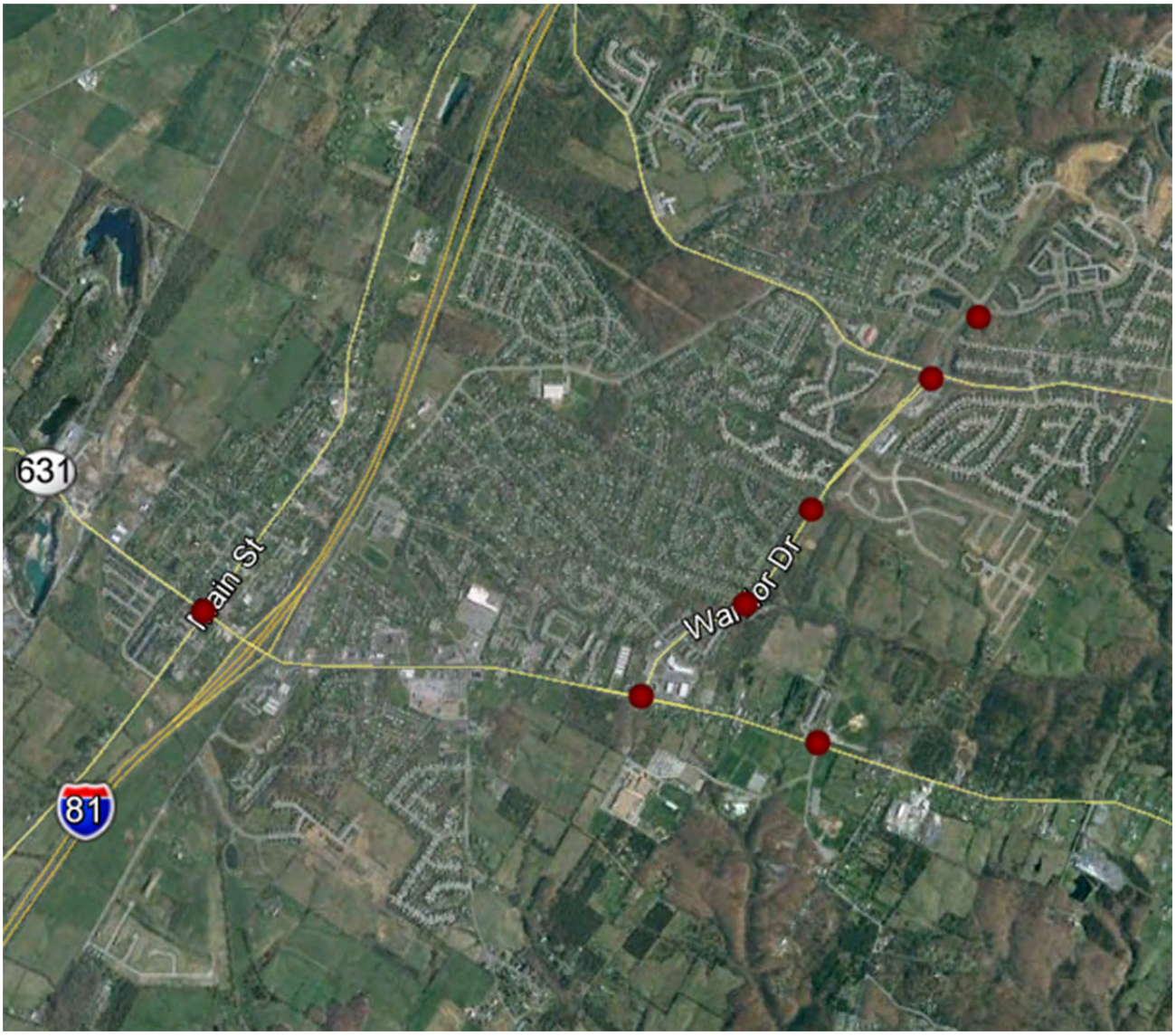


Figure 19. Map of Visited Intersections Focusing on Stephens City, VA

Team members rode their bikes to each of the intersections and navigated each intersection both on foot and on bicycle. An intersection feedback form, shown in Figure 20, was used to collect each participant's qualitative assessment of the intersection based on seven criteria, as well as their suggestions for intersection improvements.

Name: _____ Organization: _____

Intersection Major Road Name: _____

Intersection Minor Road Name: _____

Please circle your level of agreement with the following statements on a scale from 1, Strongly Disagree to 5, Strongly Agree.

	Strongly Disagree		Neutral		Strongly Agree
I feel safe and comfortable biking through this intersection.	1	2	3	4	5
The bike lane or shoulder is present and wide enough.	1	2	3	4	5
I am comfortable with a middle-school aged child biking through this intersection unsupervised.	1	2	3	4	5
Traffic moves through this intersection at a safe speed.	1	2	3	4	5
If there is a bicycle facility, drivers and parking cars stay out.	1	2	3	4	5
It's easy to see oncoming and crossing traffic.	1	2	3	4	5
The amount of time I have to wait to cross this intersection on a bicycle is appropriate.	1	2	3	4	5

Please circle your level of agreement with the following statements on a scale from 1, Strongly Disagree to 5, Strongly Agree.

	Strongly Disagree		Neutral		Strongly Agree
I feel safe and comfortable walking through this intersection.	1	2	3	4	5
The pedestrian light is present, and lasts long enough for me to cross.	1	2	3	4	5
Drivers respect the speed limit through this intersection.	1	2	3	4	5
It's easy to see oncoming and crossing traffic.	1	2	3	4	5
Drivers stay out of the crosswalk as much as possible (if crosswalk is present).	1	2	3	4	5
I am comfortable with a middle-school aged child walking through this intersection unsupervised.	1	2	3	4	5
The amount of time I have to wait to walk across this intersection is appropriate.	1	2	3	4	5

What pedestrian and bicycle improvements would you make at this intersection? *Use back side if more space is needed.*

_____

_____

_____

Figure 20. Intersection Feedback Form

Major Intersection Themes

While each intersection observed had its unique operational characteristics based on its geometry and context, there were several overarching themes based on intersection type, location and challenges. The functional classification of the intersecting roadways, as well as the geographic location of the various intersections suggested three general categories:

- **Town Center Intersections**, an example of which is shown in Figure 21, are located on streets within the core of Winchester or Stephens City. These intersections typically have sidewalks on all approaches and have a relatively large amount of pedestrian traffic; most are signalized.
- **Suburban Connector Intersections**, an example of which is shown in Figure 22, are on roadways with slightly higher traffic, often traveling at a greater speed than in the Town Centers. Sometimes not all approaches have sidewalks, and the wait for the signal to change is often longer.
- **Inter-City Arterial Intersections**, an example of which is shown in Figure 23, have at least one road that is either a divided highway or high speed roadway with the primary purpose of increasing mobility between towns (as opposed to access to specific destinations within a town, as is the case with the Town Center Intersections).

Each of these intersection types is described in further detail below.

Figure 21. North Braddock Street and West Piccadilly Street; Typical Town Center Intersection

Figure 22. Millwood Avenue and South Pleasant Valley Road; Typical Suburban Connector Intersection

Figure 23. Aerial View of Berryville Pike and Blossom Drive, Typical Inter-City Arterial Intersection

Town Center Intersections

The following intersections met the definition of Town Center Intersection:

- North Braddock Street/ West Boscawen Street
- North Braddock Street/ Amherst Street
- North Braddock Street/ West Piccadilly Street
- East Fairfax Lane/ Highland Avenue/National Avenue

- East Piccadilly Street/ North East Lane
- Fairfax Street/ Main Street (Stephens City)

This group of intersections could generally be said to be working well for pedestrians. Sidewalks are mostly complete on all intersection approaches and most corner ramps have detectable warnings and other ADA compliant features. Traffic speeds through these areas are relatively low due to the narrower rights of way, low posted speed limits, (usually) right angle intersections and high street and sidewalk activity. These intersections are signalized or stop control (on slightly lower volume streets), and have relatively short crossing distances.

The signalized intersections in Winchester also have a pedestrian phase, but it must be called by the pedestrian wishing to cross, by pressing the actuator button; an automatic pedestrian phase at these intersections may improve pedestrian operations. The removal of various trash cans or utility obstacles which narrow sidewalks in some places would also benefit pedestrians with limited mobility or wheelchairs, in particular.

Bicycle operations for these intersections can be described as acceptable for intermediate to advanced riders. The narrow rights of way make it difficult to site a dedicated bicycle facility, so interaction with traffic is inevitable. If a cyclist is comfortable with vehicular cycling and able to use the full travel lane, the relatively low traffic speeds reduce risk to the cyclist. Shared lane markings (or "sharrows") may help increase drivers' awareness that cyclists will be using the full lane. An example of a "sharrow" is shown in Figure 24. The street segments in Winchester's downtown core where the frequent intersections and pedestrian traffic keep vehicle speeds relatively low – such as Braddock and Loudoun Streets) are the most appropriate locations for sharrows. Since they are not considered true bicycle facilities, but instead an MUTCD pavement marking that simply highlights the existing use of a facility, sharrows should be used to complement the network of bicycle facilities, not replace it.

Figure 24. Example of a Sharrow

Suburban Connector Intersections

The following intersections met the definition of Suburban Connector Intersection:

- East Cork Street/Pleasant Valley Road
- North Pleasant Valley Road/National Avenue/Berryville Pike
- Amherst Street/West Boscawen Street
- Fairmont Avenue/West North Avenue
- South Braddock Street/West Gerrard Street
- West Jubal Early Drive/Valley Avenue
- East Gerrard Street/South Cameron Street
- Millwood Avenue/South Pleasant Valley Road
- West Commercial Street/Fairmont Avenue
- Senseny Road/Greenwood Road
- Channing Drive/Farmington Boulevard
- Channing Drive/Woodrow Road
- Channing Drive/Nassau Drive
- Fairfax Pike/Warrior Drive
- Warrior Drive/Westmoreland Drive
- Warrior Drive/Montgomery Circle
- Warrior Drive/Tasker Road
- Warrior Drive/Craig Drive
- Fairfax Pike/Lakeview Circle

These intersections differ from the Town Center Intersections in the types of facilities present, the volume and speed of vehicles passing through and the proximity to origins and destinations such as housing, jobs, schools and recreational or commercial areas. Suburban Connector Intersections are generally signalized, with vehicles often entering the intersection at higher speeds. Where pedestrian signals are present, they are actuated, not automatic, and many of these intersections do not have complete sidewalks and ramps leading to all approaches. Though these intersections are further from the densest parts of the town centers, they are often near important destinations such as schools and shopping centers.

Pedestrians at these intersections often experienced longer waits for a signal to cross, and crossing distances were typically longer, crossing more traffic lanes. Where necessary, effective interventions at these intersections may be curb extensions to shorten crossing distance, pedestrian refuge medians at a few particularly long crossings, and expanded sidewalk connectivity to ramps at each corner. These improvements may be particularly important near schools and other locations observed to be frequently used by children.

Specific bicycle infrastructure approaching these intersections was rare, and almost always in the form of off street mixed use paths, some of which were in poor repair. As a result, bicyclists usually need to ride in the lane mixed with traffic. Higher traffic speeds in these areas increase the potential severity of collisions between bicyclists and motor vehicles. Input from community members and team member observations also suggest that making left turns is often challenging for bicyclists using the vehicle lane at these intersections.

Due to the dangers of bicycle and motor vehicle interactions at higher speeds, and because of the increased availability of right-of-way, many of these intersections and their approaches may be appropriate for a conventional or buffered on-street bike lane, an example of which is shown in Figure 25. At specific locations where making a left turn has been difficult for bicyclists and is in high demand, a bike box may be an appropriate intervention, as shown in Figure 26. Slightly higher speed streets such

as Fairmount Avenue may be more appropriate for bike lanes, instead of sharrows, if right of way can be allocated, so as to provide some designated bicyclist space. At slightly higher-speed roads further from Downtown Winchester and with more right of way, such as some portions of Cork Street, a buffered bike lane may be preferred, specifically near locations where turns and grade diminish sight distance. Intersections with multiple turn lanes or a skewed angle, such as Cork Street/ Pleasant Valley Road could be good applications for a bike box to allow for left turn positioning for bicycles during the red signal phase. These are typically used in conjunction with right-side bike lanes.

Figure 25. Example of a Buffered Bike Lane (from the NACTO Urban Bikeways Design Guide)

Figure 26. Example of a Bike Box (from the NACTO Urban Bikeways Design Guide)

Inter-City Arterial Intersections

The following intersections met the definition Inter-City Arterial Intersection:

- Berryville Pike/Valley Mill Road
- Berryville Pike/Gateway Drive
- Berryville Pike/Blossom Drive
- North Frederick Pike/Apple Pie Ridge Road
- North Frederick Pike/Fox Drive
- North Frederick Pike/Rivendell Court

The Inter-City Arterial Intersections were characterized by a lack of complete pedestrian facilities at each approach, a lack of dedicated bicycle facilities, a relatively far distance from town centers, very wide crossings and very high vehicle speeds. Each of these intersections also has a median, as the approaching roadways are divided highways.

While these intersections are far from most of the major destinations, they were highlighted by the community due to some existing bicycle and pedestrian demand as well as their proximity to specific origins and destinations such as schools, shopping centers, or senior housing. Some of the Inter-City Connector Intersections closest to downtown Winchester do have sidewalks and pedestrian signals, though the crossing time at these intersections is relatively short for the crossing distance and the wait for a signal is quite long. It was common to observe pedestrians jogging or running to safely cross these streets, as well as to walk for some distance in the median.

Due to the severity likely for any crash occurring between a motor vehicle and a pedestrian or bicyclist at the high prevailing speeds on these roadways, the most appropriate facilities for these conditions are also the most separated from traffic. Mixed use paths, shown in Figure 27, adjacent to the roadway or even within the median may be appropriate for both pedestrians and bicyclists, if wide enough. At the intersections, there should be designated crosswalks and buttons to call for a pedestrian/bicyclists crossing interval, due to the high level of potential danger from attempting to cross without a signal.

Figure 27. Mixed Use Path Intended for Pedestrians and Bicyclists

Section 4 Project Prioritization Process

PROJECT PRIORITIZATION PROCESS

One of the key components of the Bicycle and Pedestrian Plan is a procedure to objectively evaluate the effectiveness of proposed bicycle and pedestrian projects in the WinFred MPO area. This process will allow the MPO to allocate funding for competing projects and programs in a way that will most benefit local residents. The projects evaluated are displayed in Figure 28.

Appendix C contains larger maps displaying and identifying the individual projects.

The Prioritization Criteria, seen in Table 14, were established based on feedback from the Stakeholder group, MPO Staff and the public. The Criteria represent measureable objectives explained in more detail herein.

Table 14. Prioritization Criteria

Investment Decision Criteria
Safety
Reduce potential threat of crashes
Increase Bicycling and Walking Activity in the MPO
Improve (corridor) bicycling or walking conditions
Expand Recreational Opportunities and Enhance Quality of Life
Create access to parks and recreation centers
Provide multi-use pathways near populations
Preserve and enhance downtown character
Provide access to tourist destinations/visitors'
Provide Transportation Equity
Provide mobility options to underserved populations
Provide safe active transportation to schools and learning centers
Provide pedestrian mobility for seniors and disabled populations
Maximize Transportation Investments
Complete or connect network or system
Reduce motor vehicle traffic congestion
Enhance multimodal efficiency (expand utility of public transportation)
Improve State/Regional Economy
Provide better access to jobs
Induce mode shift to bicycling, walking, and transit
Community Feedback
Desired connections identified by the community

PRIORITIZATION METHODOLOGY

The establishment of performance measures allows the prioritization criteria to be objectively evaluated. In addition, the use of performance measures allows NSVRC WinFred MPO Staff to track progress over time.

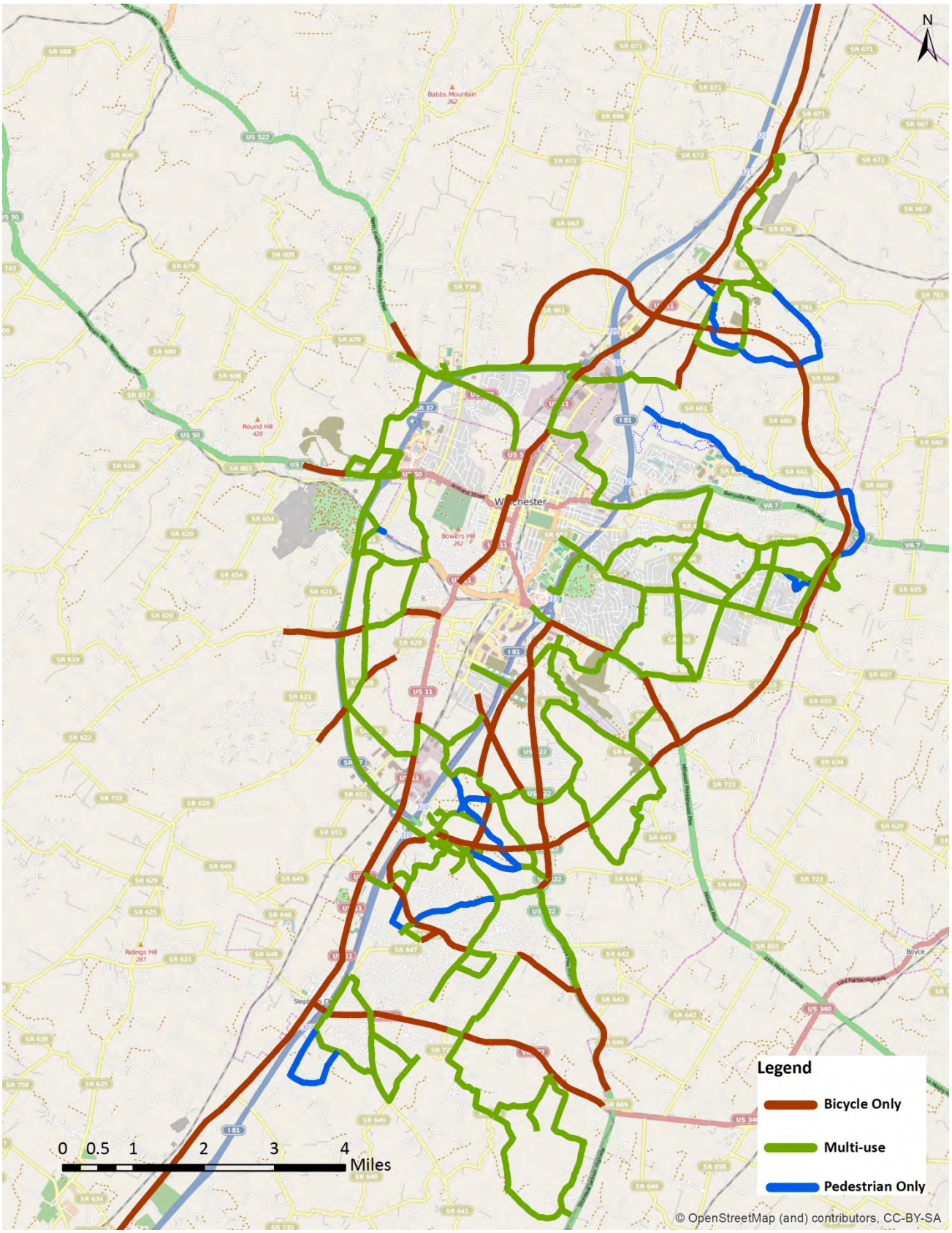


Figure 28. Full Project List

Project Prioritization

The prioritization procedure follows the prioritization criteria identified in Table 14, using the Prioritization Criteria Source Data and Justification for Inclusion illustrated in Table 15. The project prioritization procedure described below uses a project-level measure of effectiveness (MOE), also seen in Table 15, for each criterion. By using a specific MOE for each criterion, the prioritization methodology allows the various MOEs to be combined in order to quantify the total expected benefits of proposed projects. In addition, the cost of the project can be incorporated to evaluate the economic benefit of the project. This allows for the establishment of priority projects within the constraints of available funding.

Table 15. Prioritization Criteria Source Data and Justification for Inclusion

Criterion	Source for Data	Measure of Effectiveness	Justification for Inclusion
Bicycling/walking conditions before project	From MMLOS, or other measure on local roads	Multimodal Level of Service before	Sets baseline and assesses improvement in perceived comfort on the facility
Crash rate reduction potential	Crash Modification Factor (CMF) database	Crash Modification Factors	A good predictor for safety improvement
Motor vehicle operations	Capacity measures from MMLOS evaluation	Multimodal Level of Service capacity evaluation	Predicts changes in vehicle delay from project
Population density in surrounding area	U.S. Census	Population density in quartiles	Identifies population potentially served by a project
Direct access to public lands/recreational centers/tourist destinations/visitors'	County GIS Data	Yes/No	These are a good indication of latent pedestrian and bicycle demand
Whether the project is a protected facility (cycletrack, shared use path, etc…)	Project plan specifications	Yes/No	Buffered/separated facilities provide greater safety benefits and attract a larger population than standard bike lanes
Located in a designated downtown or historic area	County GIS Data	Yes/No	Community input indicates that bicycling and walking are compatible with these areas' goals/identity
Minority or low income percentage of population in surrounding area	Census	Percentage of population in census tract, divided into quartiles for the region	Important for assessing equity concerns
Access to a school	County GIS Data	Yes/No	These are a good indication of latent pedestrian and bicycle demand
Senior population percentage nearby	Census	Percentage of population in census tract, divided into quartiles for the region	This is a group that drives at a lower rate, and is important for assessing equity concerns
Closes gap between two existing facilities	County GIS Data	Yes/No	Network connectivity and critical gaps are stated concerns of the community
Extends existing facility	County GIS Data	Yes/No	Network connectivity and critical gaps are stated concerns of the community
Provides access to fixed route transit	County GIS Data	Yes/No	Bicycle and pedestrian access expands transit's potential users and reach
Provides access to park and ride facility	County GIS Data	Yes/No	Bicycle and pedestrian access expands transit's potential users and reach
Did the community identify the project?	Online community feedback and public meetings	Yes/No	Include the community in the planning process
Facility construction cost level	Estimates based on comparable projects	Cost Level	Rough cost levels will be used to judge cost vs. benefit, when necessary

To ensure the criteria are evaluated objectively, a zero to three scale is used to score each measure. A score of 0 represents the worst score and 3 represents the best score. In cases where the criterion is a "yes" or "no", a score of 3 and 0 are used, respectively. For Criteria with a range of numeric values (such as population density or proximity to a large population of senior citizens), the range of values for that criterion for the entirety of Virginia was divided into quartiles, with zero assigned to the lowest value and three to the highest.

Several of the criteria are based on census data, and all of these which were evaluated at the census tract scale. For projects that passed through more than one census tract, the criterion was assigned the highest value of any of the census tracts that it passes through. This allows projects to be scored objectively by identifying those projects which serve user populations that benefit the most from the proposed bicycle or pedestrian project. Further, larger projects tend to a better job of closing network gaps and connecting key locations, thereby providing greater value to the community.

PRIORITIZATION SCORING AND WEIGHTING

Once each proposed project was assigned the appropriate point value for each criterion, resulting scores were mapped. Since each criterion was assessed on the same zero-to-three point scale, weighting factors were applied to emphasize factors that were highlighted as of particular importance to the community. The following three criteria were weighted more heavily than the rest:

- MMLOS score for the link (weighting factor of 2.0)
- Closes a gap in the existing bicycle/pedestrian facility networks (weighting factor of 1.5)
- Provides access to a school (weighting factor of 1.25)

All criteria selections are supported by similar plans that have determined them to be indicative of latent bicycling and walking demand and notable value to communities where projects with these characteristics are implemented.

Section 5
Project Priorities

PROJECT PRIORITIES

In order to recommend a framework for prioritizing the proposed and proffered bicycle and pedestrian improvements for the MPO, both the project prioritization methodology and the stated priorities of the community were taken into account. The top ten projects as ranked by the weighted Attribute Score described in the prioritization process methodology can be seen in Table 16, below. Figure 29 displays the top ten projects by attribute score.

Table 16. Top Ten Prioritized Proposed Bicycle and Pedestrian Projects by Weighted Attribute Score

Rank	Route Name	Facility Type	Length (miles)	Attribute Score
1	Brooke Road, Fort Collier Road, and Berryville Ave Between north Loudoun Street, and Greenwood Road	Multi-use	4.22	27.75
2	Valley Avenue and North Loudoun Street Between Jubal Early Drive and Brooke Road (J)	Bicycle Only	4.77	26
3	Meadow Branch Avenue	Multi-use	1.31	26
4t	Front Royal Pike between Lakeside Drive and Macedonia Church Road	Multi-use	0.63	25.75
4t	Neighborhood Connector X	Pedestrian Only	2.59	25.75
5	Aylor Road Between Fairfax Street and Double Church Road (B)	Multi-use	0.6	23.75
6t	North Frederick Pike Between Apple Pie Ridge Road and West Commercial Street (A)	Multi-use	1.74	23
8	Greenwood Road Between Berryville Pike and Valley Mill Road (C)	Multi-use	0.61	22.75
9	Neighborhood Connector B	Pedestrian Only	0.59	22.5
10t	Shawnee Drive Southwest of Papermill Road (B)	Multi-use	0.67	22
10t	Double Church Road (B)	Multi-use	0.68	22
10t	Rt. 11 Valley Pike, Heritage Route (K)	Multi-use	4.22	22
10t	Redbud Road	Multi-use	1.61	22

COST EFFECTIVENESS

Since longer projects tended to have higher prioritization scores, and also tend to be more expensive, it may also be useful to put particular short term priority on projects that are both high impact and more affordable. Therefore, planning level cost estimates were applied to the projects to assist in determining their cost effectiveness. The expected costs by facility type were developed by referring to Example Planning-Level Cost Estimates from VDOTs website, dated September 2011[3], and are shown in Table 17. The cost estimates are used to get a relative impact associated with the construction of the facility, and are not meant to provide actual estimated costs. Many other impacts, including right-of-way acquisition, drainage and grading, maintenance of traffic, and other considerations would need to be reviewed before proceeding with a project.

[3] http://www.virginiadot.org/programs/resources/bic_planning_cost_estimates.pdf

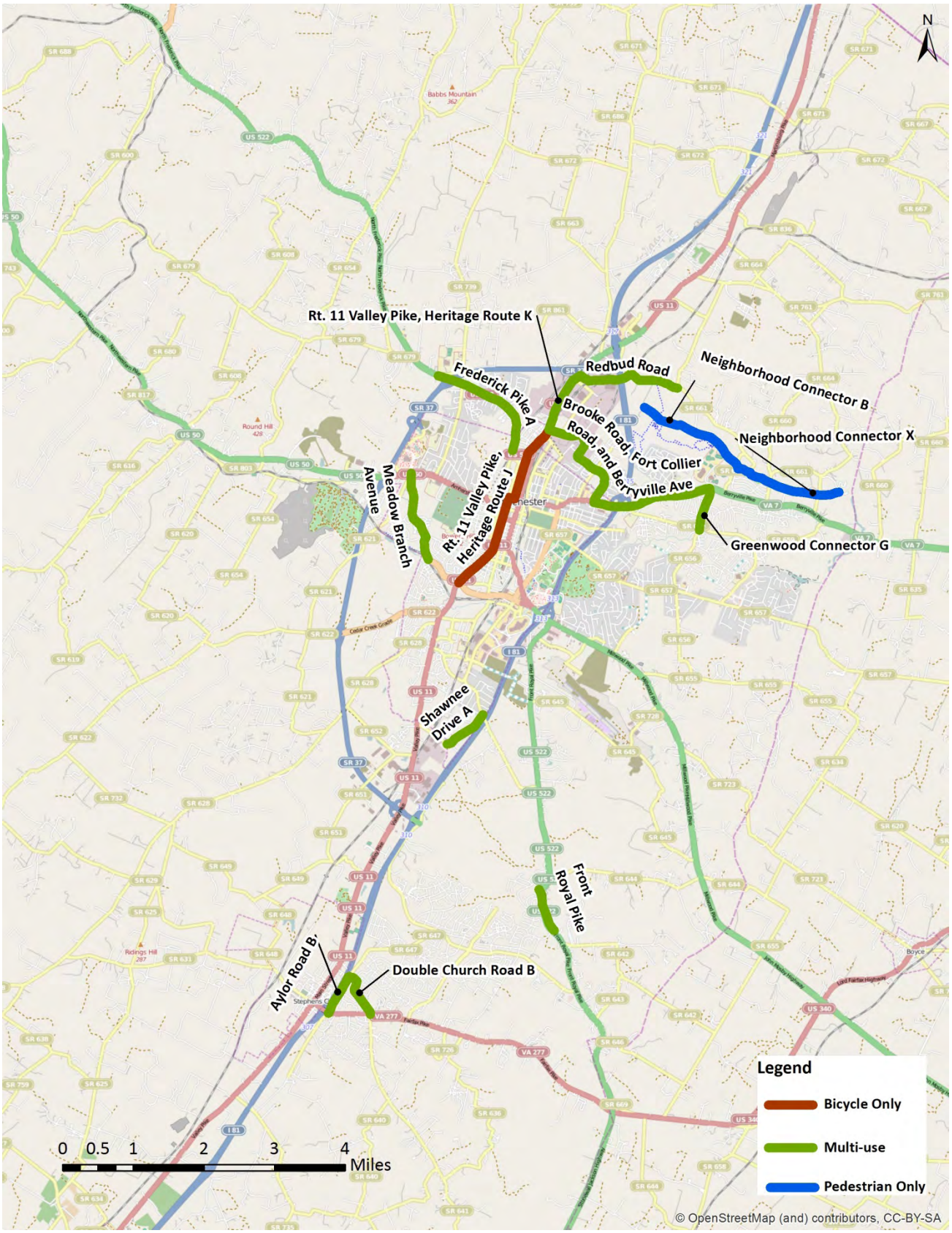


Figure 29. Top Ten Projects by Weighted Attribute Score

Table 17. Expected Cost by Facility Type

Facility Type	Cost	Unit
Multi-use	$ 109.00	Linear Feet
Bicycle Only	$ 82.00	Linear Feet
Pedestrian Only	$ 62.00	Linear Feet
Shared Lane Facility ("Sharrow")	$ 3.00	Linear Feet

The estimated project cost was divided by the total weighted attribute score to develop an estimate of the expected cost per attribute point for each project. The top ten projects as ranked by the cost per weighted attribute point can be seen in Table 18, below.

Table 18. Top Ten Prioritized Proposed Bicycle and Pedestrian Projects by Cost per Attribute Point

Rank	Route Name	Facility Type	Length (miles)	Attribute Score	Cost Estimate	Cost Effectiveness Ranking
1	Clearbrook Connector A	Bicycle Only Shared Lane	0.73	12	$ 11,600	$ 967
2	Costello Drive B	Multi-use	0.03	13	$ 14,900	$ 1,146
3	Neighborhood Connector BT	Pedestrian Only	0.06	13	$ 18,700	$ 1,438
4	Tasker Rd I	Multi-use	0.04	15	$ 21,900	$ 1,460
5	Apple Valley Road B	Multi-use	0.03	13	$ 19,200	$ 1,477
6	Warrior Drive E	Multi-use	0.04	13	$ 21,300	$ 1,638
7	Tasker Rd B	Multi-use	0.05	15	$ 28,700	$ 1,913
8	Neighborhood Connector AU	Multi-use	0.04	13	$ 25,100	$ 1,931
9	Rt. 37 Circle X	Multi-use	0.05	13	$ 25,900	$ 1,992
10	Middle Road C	Multi-use	0.05	13	$ 27,200	$ 2,092

As seen in Table 18, the projects that tend to be the most cost-effective in terms of cost per attribute point tend to be generally shorter than those projects shown in Table 16, and have generally lower attribute scores as well. In order to identify projects that have the greatest potential community benefit, the projects were split into short-term, medium-term and long-term projects. Projects that were considered short-term projects are those with cost estimates of less than $100,000. Medium-term projects have cost estimates of $100,000 to $500,000, and long-term projects are expected to cost greater than $500,000. Broken down into each subcategory, the projects were prioritized by their cost per attribute point. Tables 18, 19 and 20 list the short-, medium, and long-term projects, respectively, and figures 30, 31 and 32, display the short-, medium-, and long-term projects, respectively.

Based on input from WinFred MPO staff, several lower-cost short-term projects were reassigned to the medium-term category due to the expected timeframe of their completion coinciding with adjacent development. For the tables and figures, only projects meeting the cost estimate thresholds were included. The rankings included in the appendix include all of the projects.

Appendix D includes the final project rankings.

Table 19. Short-Term Priority Projects

Rank	Route Name	Facility Type	Length (miles)	Attribute Score	Cost Estimate	Cost Per Attribute Point
1	Clearbrook Connector A	Bicycle Only Shared Lane	0.73	12	$ 11,600	$ 967
2	Costello Drive B	Multi-use	0.03	13	$ 14,900	$ 1,146
3	Apple Valley Road B	Multi-use	0.03	13	$ 19,200	$ 1,477
4	Rt. 37 Circle X	Multi-use	0.05	13	$ 25,900	$ 1,992
5	Middle Road C	Multi-use	0.05	13	$ 27,200	$ 2,092
6	Merrimans Lane B	Multi-use	0.06	15	$ 33,600	$ 2,240
7	Rt. 37 Circle D	Multi-use	0.06	12	$ 35,100	$ 2,925
8	Neighborhood Connector BB	Multi-use	0.07	12	$ 39,600	$ 3,300
9	Neighborhood Connector AZ	Multi-use	0.1	17	$ 59,600	$ 3,506
10	Neighborhood Connector AJ	Multi-use	0.11	17	$ 61,200	$ 3,654

Table 20. Medium-Term Priority Projects

Rank	Route Name	Facility Type	Length (miles)	Attribute Score	Cost Estimate	Cost Per Attribute Point
1	Aylor Road A	Bicycle Only	0.27	19	$ 115,200	$ 6,227
2	Tasker Rd C	Multi-use	0.18	15	$ 100,500	$ 6,700
3	Clearbrook Connector E	Multi-use	0.21	18	$ 121,900	$ 6,772
4	Neighborhood Connector AO	Multi-use	0.2	15	$ 113,700	$ 7,580
5	Tasker Rd D	Multi-use	0.2	15	$ 116,000	$ 7,733
6	Neighborhood Connector AT	Multi-use	0.18	13	$ 102,800	$ 7,908
7	Greenwood Connector I	Multi-use	0.2	14	$ 112,700	$ 8,050
8	Neighborhood Connector O	Multi-use	0.18	13	$ 105,800	$ 8,138
9	Neighborhood Connector H	Multi-use	0.19	13	$ 110,500	$ 8,500
10	Sheppard Pond F	Multi-use	0.18	12	$ 103,400	$ 8,617

Table 21. Long-Term Priority Projects

Rank	Route Name	Facility Type	Length (miles)	Attribute Score	Cost Estimate	Cost Per Attribute Point
1	Meadow Branch Avenue	Multi-use	1.31	26	$ 753,900	$ 28,996
2	Neighborhood Connector X	Pedestrian Only	2.59	26	$ 847,500	$ 32,913
3	Neighborhood Connector L	Multi-use	0.87	15	$ 500,400	$ 33,360
4	Costello Drive, Neighborhood Connector	Multi-use	1.18	20	$ 680,000	$ 34,000
5	Greenwood Connector L	Multi-use	1.14	19	$ 653,400	$ 34,389
6	Rt. 11 Valley Pike, Heritage Route E	Bicycle Only	1.53	18	$ 662,700	$ 37,335
7	Rt 522 - Front Royal Pike - SNP E	Multi-use	0.91	14	$ 526,200	$ 37,586
8	Double Church Road, Sherando Lane	Multi-use	1.11	17	$ 639,600	$ 37,624
9	Greenwood Connector C	Multi-use	0.92	14	$ 527,900	$ 37,707
10	Airport Road B	Multi-use	0.99	15	$ 569,000	$ 37,933

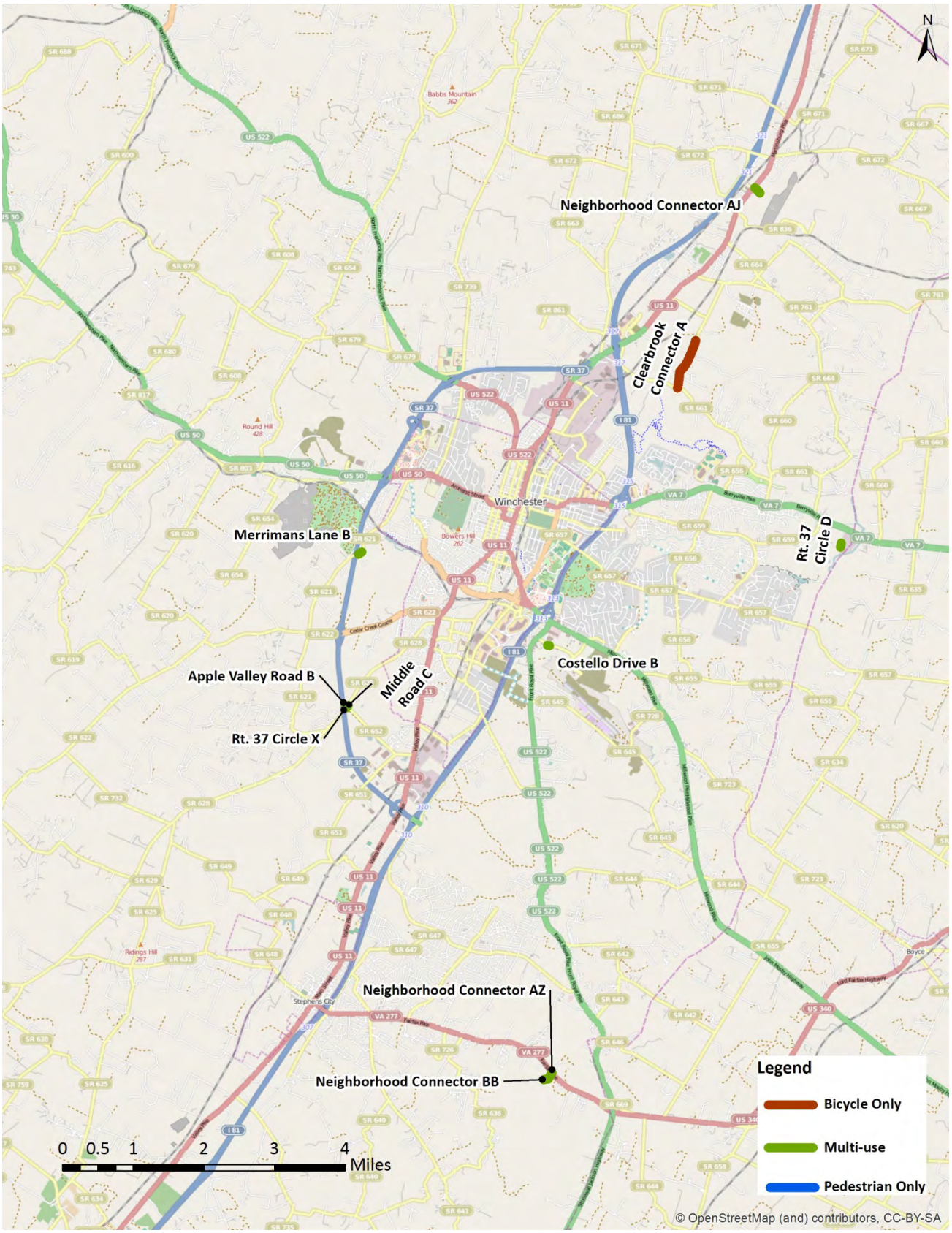


Figure 30. Short-Term Priority Projects

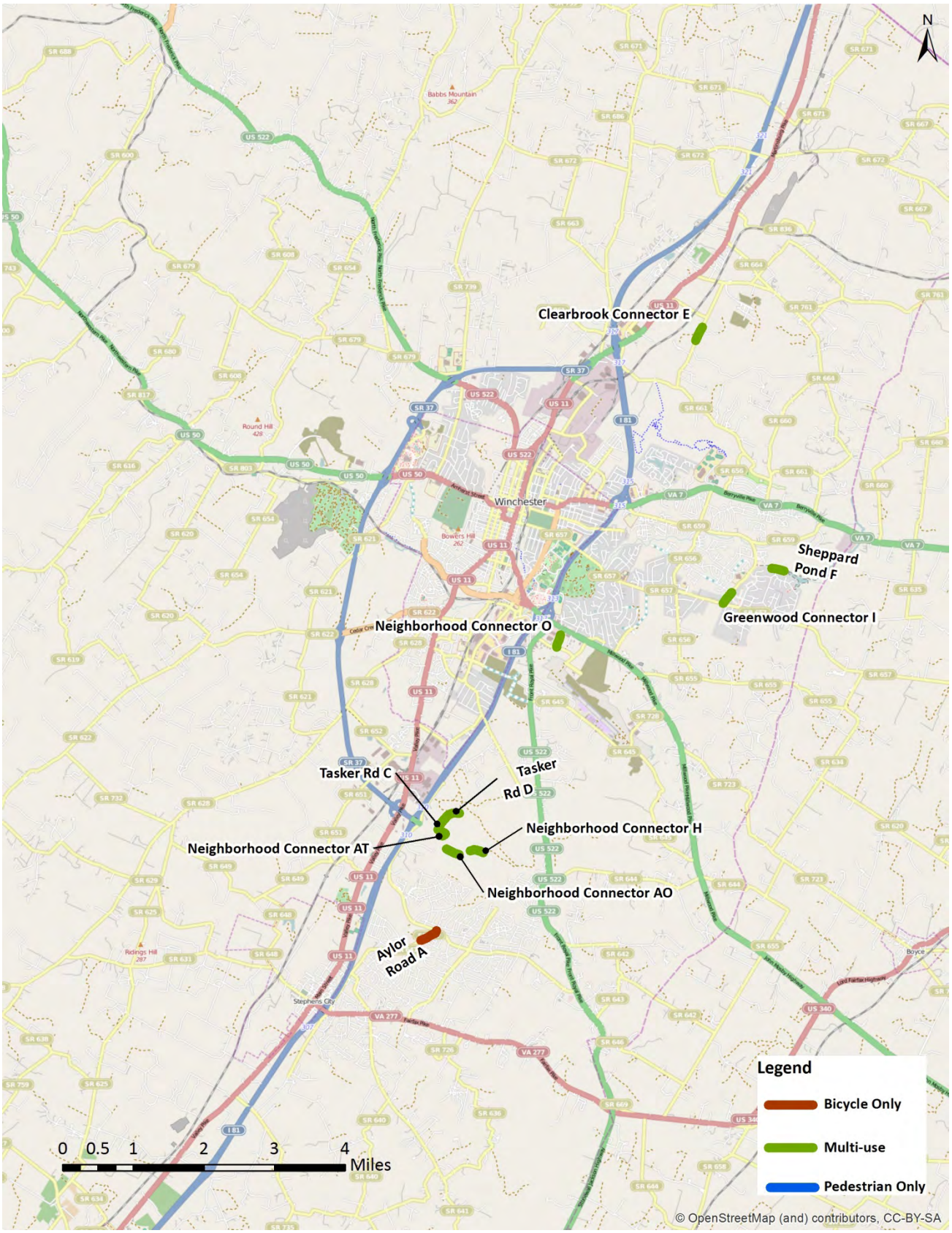


Figure 31. Medium-Term Priority Projects

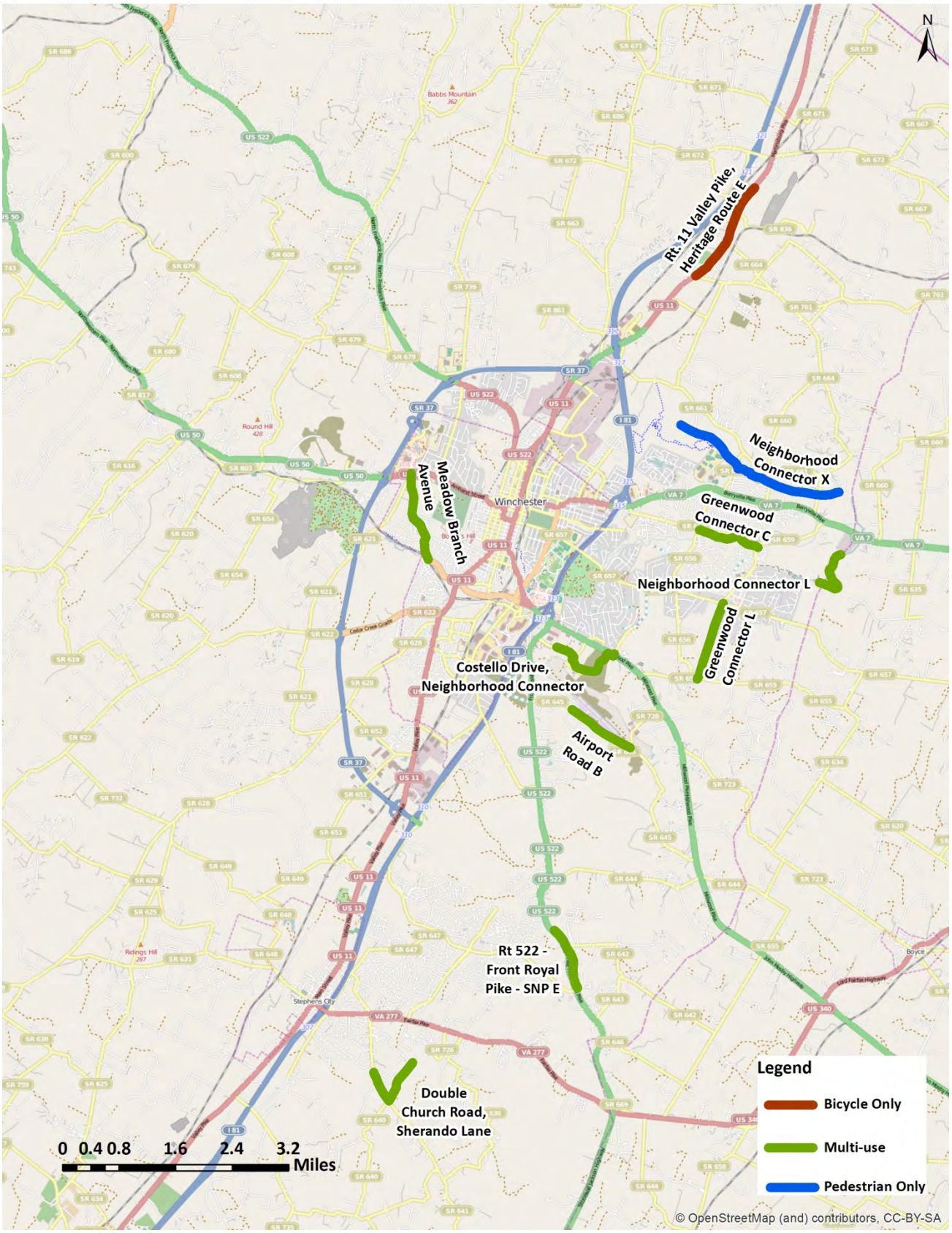


Figure 32. Long-Term Priority Projects

GREEN CIRCLE TRAIL

In addition to the prioritization process applied to projects from the Bicycle and Pedestrian Master Plan, community support for specific projects is also an important consideration for recommendations. In particular, the projects that constitute the Green Circle Trail, seen in Figure 33, were repeatedly supported by community members. These projects also pass through areas with a high level of latent and existing demand, serve important origins and destinations, and share many of the other qualities included in the project prioritization criteria.

The Green Circle Trail, in addition to being highly supported, is well promoted, and at least anecdotally has been attractive to people hoping to visit the area. It is a great recreation and tourism opportunity, and could add substantial connectivity and function to the bicycle and pedestrian networks. Opportunities to implement projects that extend or complete the Green Circle Trail should be interspersed with other high value projects for priority implementation.

Because the Green Circle Trail is not part of the proposed bicycle and pedestrian project list, the Green Circle trail was not included in the prioritization process. However, the many benefits of the Green Circle outside the bounds of the prioritization methodology, coupled with large community support make the Green Circle Trail a project that should be prioritized in the WinFred MPO.

Figure 33. Green Circle Trail

(From: City of Winchester)

Section 6
Conclusions and Recommendations

CONCLUSIONS AND RECOMMENDATIONS

The WinFred MPO is in a good position to quickly and efficiently make substantial positive impacts to bicycle and pedestrian mobility within its jurisdiction. The MPO's Bicycle and Pedestrian Master Plan has identified many projects, each of which would improve bicycling and walking conditions and connectivity at and near its location. An energized and organized constituency has mapped, advocated for, and effectively promoted the Green Circle Trail. The larger community has participated in the planning process and expressed the area's unique context and its needs and priorities. With the synthesis of these factors, a simple suite of recommendations will maximize the impact of all available funding for bicycle and pedestrian improvements.

- Long term, work toward a "wheel and spoke" bicycle network based around:
    - Completing the Green Circle with high quality infrastructure
    - Identifying and constructing a similar loop around Stephens City
    - Identifying and constructing a high quality inter-city connector between these two facilities
- Fund and construct most or all of the high value, lower cost projects, as identified in the final project rankings
- Conduct community outreach to most efficiently move forward with high value projects important for medium- and longer-term bicycle and pedestrian connectivity goals
- As opportunities arise to construct the other highly ranked projects, such as through restriping or repaving efforts, ensure those projects are included in the reconstruction efforts
- While the project prioritization methodology of this report reward projects that extend the existing bicycle and pedestrian networks, the relatively incomplete nature of the current network meant that very few projects had this important attribute
    - Whenever possible, new bicycle and pedestrian facilities should connect to existing facilities, as gaps in routes and incomplete facilities between origins and destinations particularly discourage bicycling

Each of these recommendations is multi-faceted, but relatively simple to implement, provided funding can be identified. Bicycle and pedestrian projects have a large degree of community support; there are also opportunities to implement paint-based interventions during routine maintenance re-striping as well as other cost-strategic measures. Given these facts and the many benefits to the community from a high quality bicycle and pedestrian network, using these recommendations to move from a solid and supported planning effort to implementation will be an important step in meeting the MPO's overall mobility goals.

Section 7
Implementation Plan

IMPLEMENTATION PLAN

This implementation plan explains and contextualizes the prioritized projects from the WinFred MPO's existing bicycle and pedestrian plan, outlines criteria for assessing individual projects from the perspective of creating a high-functioning bicycle and pedestrian network, defines appropriate contexts for specific intersection and crossing treatments, and includes example cross-sections suitable for the MPO's most prevalent street types.

PROJECT PRIORITIZATION IN A NETWORK CONTEXT

The project prioritization methodology used in this report is a helpful tool for assessing the latent bicycle and pedestrian demand that a project might serve, as well as its expected safety and traffic impacts. These are crucial elements to understand when making decisions about the use of limited resources.

However, any prioritization methodology that considers individual projects has the inherent shortcoming of being unable to fully capture the project's larger geographic, network and social context. Criteria in this report's methodology that prioritized projects based on the destinations they will serve and whether they connect to existing bicycle and pedestrian facilities provide some measurement of network connectivity, but are insufficient on their own, for several reasons. First, the bicycle network, in particular, in the WinFred MPO is relatively minimal. When very few of the proposed projects link existing facilities, this criterion loses much of its utility; as the bicycle network matures and the methodology is re-run, this criterion will be more meaningful. Secondly, the methodology has no way to account for current use of the street network by bicyclists. Conducting extensive bicycle and pedestrian counts and including these data in the methodology will complement the potential demand analysis with an understanding of existing high demand locations. Due to the tendency of bicyclists and pedestrians to seek out and use the routes that feel safest and are most direct, this information could also help identify the bicycle and pedestrian routes that require the least complicated retrofit process to attract users.

Finally, the consideration of individual projects, while perfectly logical from the standpoint of resource allocation, does reflect a mindset different from that used to assess the other transportation networks – most notably public streets for motor vehicle use. If walking and bicycling facilities are truly being considered as transportation infrastructure, as opposed to recreational amenities, it is crucial for the eventual goal of the bicycle and pedestrian networks to connect nearly all origins and destinations in the MPO with safe, comfortable routes that have minimal detours, as is expected of the street network.

Creating these safe, inviting, and direct routes throughout the MPO should be the ultimate goal of a bicycle and pedestrian network. For the pedestrian network, sidewalks adjacent to all or most roadway infrastructure, coupled with multi-use paths through large parks and other areas with limited road cut-throughs, will usually serve this purpose. However, consideration also needs to be given to the quality of the facility. For example, on higher speed roadways, providing a landscape strip or other barrier between vehicles and sidewalks can greatly improve the use and feel of the sidewalk. The bicycle

network can be more challenging to establish, especially in areas such as the WinFred MPO in which many of the roadways are high speed, and traverse long distances between intersections.

The emerging Green Circle, if completed with high quality infrastructure for its whole length, could serve as the basis for a "wheel and spoke" bicycle network around the City of Winchester. Coupled with a similar route around Stephens City and a high quality inter-city route connecting the two, the WinFred MPO would have an impressive base from which to build real accessibility by bicycle to all of its major destinations. From this starting point, lower cost treatments, such as sharrows, are suitable on the space-constrained and lower speed downtown streets. The strategic use of paint-and-bollard or multi-use trail connections can connect to the outside of the loops or inter-city route to extend it to important destinations. Other regions such as Boise, Idaho, Minneapolis, Minnesota and Tulsa, Oklahoma have successfully leveraged a main "spine" or loop of high quality bicycle infrastructure not only as a basis for a bicycle network but also to attract tourists and residents. Anecdotally, the website presence of the Green Circle Trail is already attracting the attention of people interested in bicycle related tourism.

Criteria for Choosing Among Prioritized Projects

Even with a robust prioritization methodology in place, the allocation of limited resources ultimately requires a judgment call based on local expertise to choose projects that best serve the needs and wants of the community. The following set of key questions can help guide decision makers toward the best outcomes.

- Does it serve the goal of direct and comfortable network connectivity?
- Does it address a specific safety concern?
- How many important destinations does it serve?
- Is it likely to be used by special user groups such as children?
    - Is it suitable for these special user groups?
- Is it on -- or directly parallel and adjacent – to routes already well used by cyclists?
- Does the project require moving curbs, changing sidewalk ramps, or constructing new pavement?
    - Can a nearby parallel route be accomplished using paint on existing pavement or paint and bollards?

INTERVENTIONS AND THEIR APPROPRIATE CONTEXTS

As the bicycle and pedestrian networks expand, there will be some projects that have crossings, turning movements, or obstacles that require special consideration. The following toolbox of interventions have the potential to address challenges present on some of the projects proposed in the MPO's Bicycle and Pedestrian Master Plan, as well as observed on site visits.

Intersection and Crossing Solutions

As observed on the intersection site visits and identified by the community, there are many intersections that under some circumstances pose difficulties for pedestrians and bicyclists to use. There are several changes that can be made at intersections, especially where the intersection may serve as a barrier on an important bicycle or pedestrian route. These interventions are context sensitive, and not appropriate for all situations, but should certainly be considered part of a toolbox for addressing challenges to pedestrian and bicycle mobility during and after implementation of planned projects. Bicycle and pedestrian projects that extend a facility to any of the intersections highlighted in this report should consider each of these options when assessing appropriate treatments to get users of the new facility safely and conveniently across or through the intersection.

Bike Boxes

Bike boxes allow bicyclists to pass queued cars at red lights and wait for the signal in a designated location. This helps increase the visibility of cyclists to drivers and reduces the likelihood of "right-hook" crashes in which a vehicle turning right collides with a bicycle traveling through the intersection. This treatment improves comfort for bicyclists, who typically do not accelerate from a stop as quickly as cars, which can create conflicts when the signal indication changes to green.

Appropriate context: Where bicycle facilities approach an intersection and high vehicle right-turn volumes conflict with "through" bicycles; or where bicyclists desire to turn left; implementation should be prioritized for where there is likely to be higher bicycle left turn demand.

Left Turn Detection for Bicycles

Several constituents mentioned that they have to wait for a long time at some signalized intersections to make left turns because the left-turn cycle was only triggered by a motor vehicle driving over the detector. In addition to adjusting the loop detector settings, there are smaller, more sensitive induction loop detectors available that can be triggered by bicycles. These should be considered where bicycle left-turn demand is high, and could be integrated into the next scheduled maintenance cycle of selected roadways. A small bicycle pavement marking guides cyclists where to wait to trigger the detector, and provides a visual reinforcement that the signal is designed to acknowledge bicyclists.

Appropriate context: Where there are bike boxes which bicyclists use to wait for left turns, and on routes without bicycle facilities that are nonetheless popular with the MPO's vehicular cyclists (cyclists that operate in the travel lane with mixed traffic). Vehicular cyclists in the area seem to be relatively well organized and informed, so a short discovery process or request for public comment could identify candidate locations for this detection.

Intersection Crossing Lines for Bicyclists

Dashed lines indicating where bicyclists should cross intersections can be used in conjunction with "sharrows," bike lanes, or other types of facilities provide visual reinforcement for both cyclists and

motorists. Bicycle crossing markings help bicyclists feel safe crossing intersections and direct them to cross an in a designated location, while alerting drivers of their most likely course. If the MPO determines that such a treatment is desirable, there are many different designs that are commonly used; however, attempts should be made to use consistent treatments within the MPO.

Appropriate context: Where there are bicycle facilities approaching the intersection that have a change in location or facility type on the other side of an intersection. For example, they may be helpful where a road widens and thus the bike lane is significantly to the right on the far side of the intersection. In locations where a bike lane transitions to a sharrow or the bicyclist and adjacent vehicle must merge, an intersection crossing line can help make this action predictable. In addition, signage indicating who should yield is also helpful.

Pedestrian Hybrid Beacons

At unsignalized locations where there is high pedestrian or bicyclist crossing demand, Pedestrian Hybrid Beacons (formerly called HAWK signals) may be appropriate treatments to facilitate safe crossings. These beacons are push button actuated and activate an overhead flashing signal to warn drivers that pedestrians are crossing ahead. Some designs activate a double-red signal to stop drivers, allowing pedestrians to cross, and then allow vehicles to proceed through the intersection after stopping if the pedestrians have already crossed the roadway.

Appropriate context: Mid-block locations, especially those with multilane crossings, with high pedestrian or bicycle demand that prompt crossings away from intersections, but that do not meet warrants for a full traffic signal. Due to the out-of-way travel required by pedestrians, these locations often have a higher number of pedestrians crossing without the protection of a signal, and a pedestrian hybrid beacon can help alert drivers to the fact that pedestrians will be crossing ahead.

High Visibility Crosswalks

Drivers can be alerted to expect pedestrian crossings at unsignalized or signalized locations, and also be encouraged to stay clear of the crosswalk by using bright, high visibility color schemes. These are often used in downtown, high foot traffic areas, both to increase pedestrian safety and comfort and to create an identity for the area. Some applications use alternative paving materials such as brick for the crosswalk area, and others use bright paint in designs meaningful to the community or associated with historical or cultural characteristics of the area.

Appropriate context: High visibility crosswalks are a best practice, and should be included when crosswalks are updated, whenever possible. Locations with high pedestrian demand are highest priority for implementation.

Automatic Pedestrian Cycles

Many of the intersections in downtown Winchester that operate quite well for pedestrians do require the pedestrians to push a button to request a walk signal. Especially at higher demand intersections, it

may be advantageous to have the pedestrian signal automatically recall with non-conflicting auto movements. This change can be made whenever signal timing is updated, or independently, with relatively little effort.

Appropriate context: Where there is high pedestrian demand at a signalized intersection, especially in the downtown areas, a pedestrian phase should be an automatic part of the signal cycle.

Elimination of Pedestrian Obstacles (for ADA Compliance)

Many of the intersections in downtown Winchester that operate quite well for most pedestrians might be difficult for pedestrians with lower mobility or wheelchair users, due to ramp and sidewalk obstacles. Where obstacles are trash cans or newspaper boxes, they can be easily moved. In many of these locations the right of way is constrained, and the obstacles are utility or signal poles and unlikely to be relocated. Where there are significant conflicts in these locations, ramp relocation can be considered when the current ramps need major maintenance.

Appropriate context: Wherever possible. This is a best practice that is important for residents and visitors with limited mobility and should be followed as stringently as is feasible.

PROGRAMMATIC SOLUTIONS

In addition to the implementation of the identified projects and interventions previously described, programmatic solutions are intended to promote and increase the safety of walking and bicycling within the region.

Safe Routes to School

VDOT currently sponsors a Safe Routes to School program. Infrastructure and program grants are available up to $2,500 dollars for projects that will help provide pedestrian and bicycling access to schools for students. Community members mentioned concerns about the walking and biking routes available for children to access their schools safely. These grants could help address some small and specific infrastructure need or enable community members to start programs such as walking school buses or crossing guard initiatives. Safe Routes to School may fund the hiring of a local Safe Routes to School program coordinator as well. Further information is available at:
http://www.virginiadot.org/programs/ted_Rt2_school_pro.asp

MPO Level Education Initiative

The public outreach efforts brought forth sentiment from that community that, in general, drivers do not respect the rights of pedestrians and bicyclists on the road. Targeted education initiatives to accompany the implementation of infrastructure projects could help alert drivers on bicycle and pedestrian interactions with motorists, such as:

- How to safely pass cyclists

- What to expect from "sharrows"
- When bicyclists and pedestrians have the right of way
- The safety benefits of obeying speed limits.

An education initiative could also help educate bicyclists and pedestrians about their responsibilities, safe habits, and the locations and benefits of upcoming infrastructure projects. More information about walking and cycling routes, and their associated benefits, and opportunities may also encourage more walking or bicycling among community members

Pavement Resurfacing

VDOT is responsible for building, maintaining, and operating the roads in the WinFred MPO. VDOT routinely peforms preventive roadway maintenance, including pavement resurfacing on roads throughout the Commonwealth. Because pavement markings need to be reapplied after pavement resurfacing projects, the application of bicycle facilities coinciding with pavement resurfacing projects can save significant resources. These mutually-beneficial projects can be identified by coordinating with VDOT's Staunton District (District 8), when the pavement resurfacing projects are scheduled.

EXAMPLE CROSS SECTIONS

After prioritizing and identifying the routes with the highest potential towards improving the pedestrian and bicycling environment, the development of a cross-section allows for the identification of constraints and design challenges as the project is advanced. The following example cross sections show options for the three most prevalent types of roadways in the MPO, as previously described in the Site Visit Summaries section. The different roadway environments, including Town Center Streets, Suburban Connectors and Inter-City Arterials are described and illustrated below with the inclusion of pedestrian and bicycle facilities.

Town Center Streets

For the downtown streets inside the Green Circle loop, there are relatively low traffic speeds and a relatively constrained right of way. In this environment, when seeking to construct a high priority route, the removal of parking on one side of the street can free up the space for a bike lane on each side of the road or a two way separated bike lane on one side of the street. For lower priority routes, "sharrows" may be adequate, allowing bicyclists to more confidently operate in mixed traffic. At least one route should have the higher priority treatments, as operating in mixed traffic is generally only suitable for more experienced adult bicyclists. The cross sections shown in Figure 34 and Figure 35 are based on the Cameron Street right of way, which is currently a two-lane roadway with parking on both sides of the street. These cross-sections can be achieved without altering the curb line, using paint, or paint and bollards.

Figure 34. Priority Bicycle Route on Town Center Street

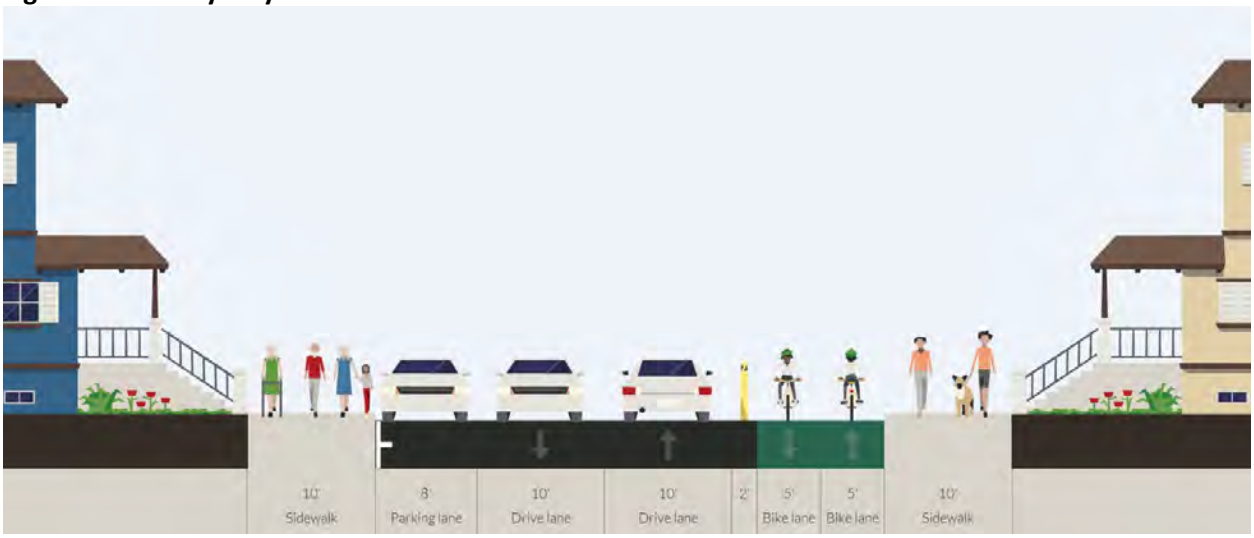
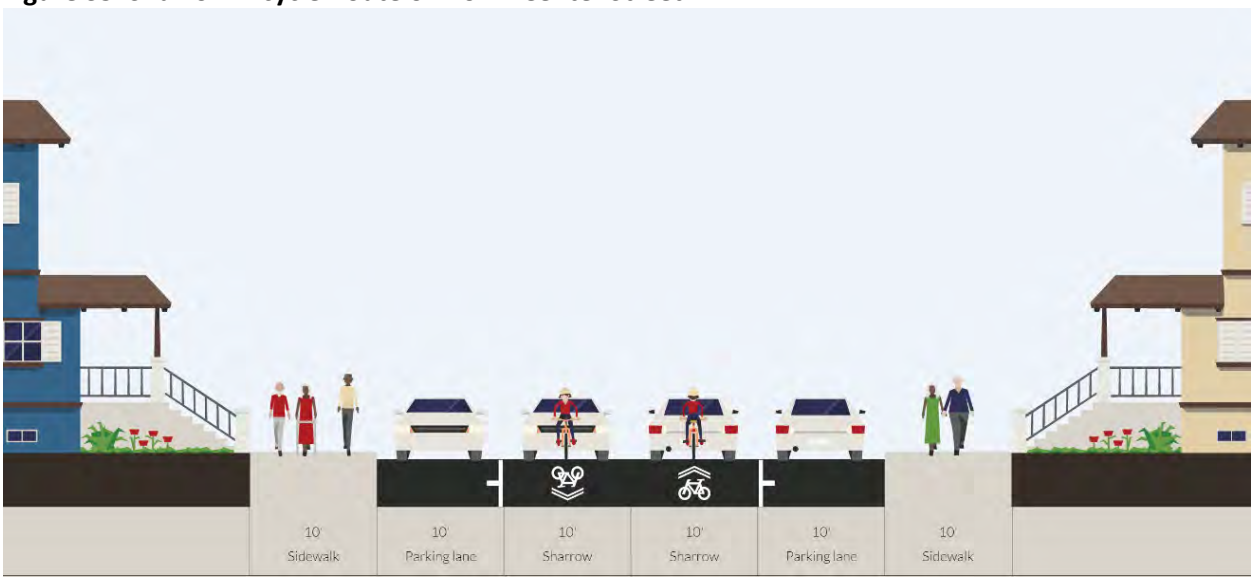


Figure 35. Sharrow Bicycle Route on Town Center Street



Suburban Connectors

Suburban connector streets make up a significant portion of the MPO's roadways, and can be challenging places in which to incorporate bicycle infrastructure. These are often used by motorists as major commuting and through routes across town and are rarely perceived to have excess capacity to remove a travel lane in favor of bicycle facilities. Lower-priority treatments such as "sharrows" are not appropriate in these settings due to the higher vehicle traffic speeds. However, many of these roadways have parking on both sides of the roadway, which, due to the relatively low density of the surrounding residential development and prevalence of driveways and garages, is often under-utilized. If a few key connections to the Green Circle are identified among this group of roadways, a small scale parking utilization study could help build community support for the removal of one parking lane in favor of bicycle facilities by showing that parking demand will still rarely exceed supply in the area. Alternatively, in locations with paved shoulders, the shoulder could be converted to a bicycle facility.

The following cross sections in Figure 36 and Figure 37 are based on the existing right of way of Millwood Avenue which is currently a two-lane parking available on both sides of the street. These cross-sections could be accomplished using only paint, or paint and bollards, without moving the curb lines.

Figure 36. Standard or High Visibility Bike Lanes on Suburban Connector

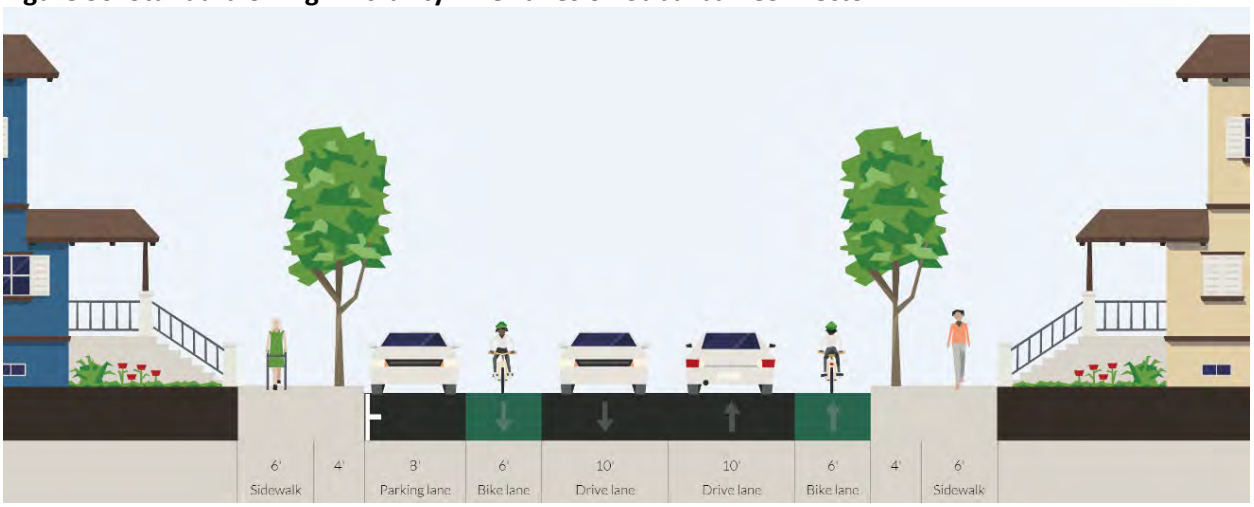
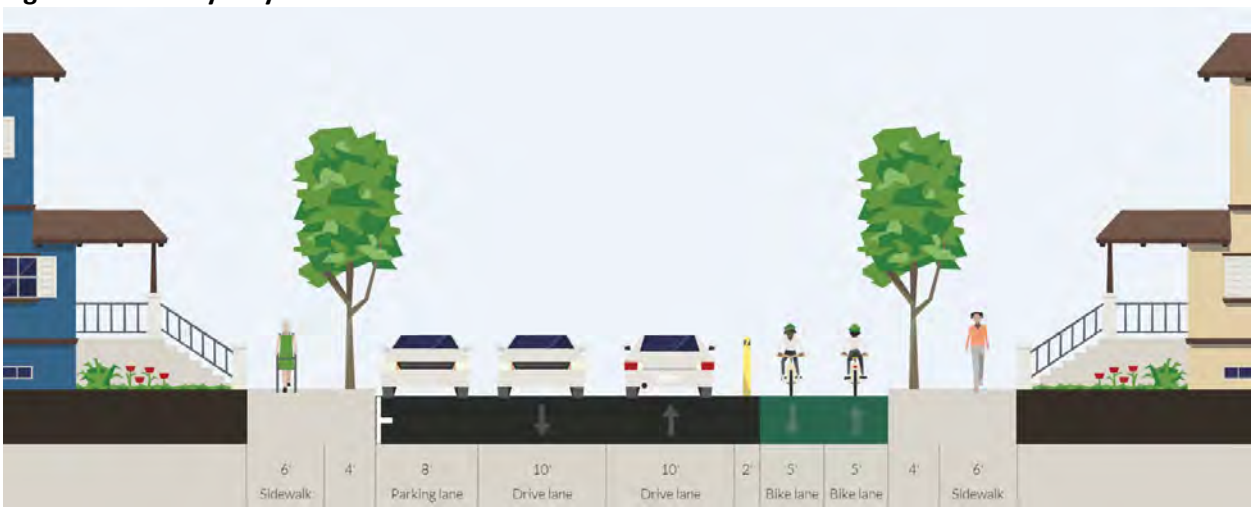


Figure 37. Priority Bicycle Route on Suburban Connector



Inter-City Arterials

Valley Pike, one of the most direct surface street routes between Winchester and Stephens City is a good example of a higher speed inter-city arterial. Conflicts between cars and bicyclists on these roadways can be severe due to the high travel speeds, and thus should be minimized. Most roadways of this type have no bicycle facility except sometimes a paved shoulder, as is the case now. Widening the shoulder and placing a buffer between bicyclists and motor vehicle traffic would create the most direct bicycle connection between Winchester and Stephens City, and would be a unique and ambitious addition to the bicycle network. Interim improvements such as a wider, better maintained shoulder

with bicycle route signage would also improve the bicycle connectivity between the MPO's two major population centers.

Figure 38. Approximate Existing Conditions on Valley Pike

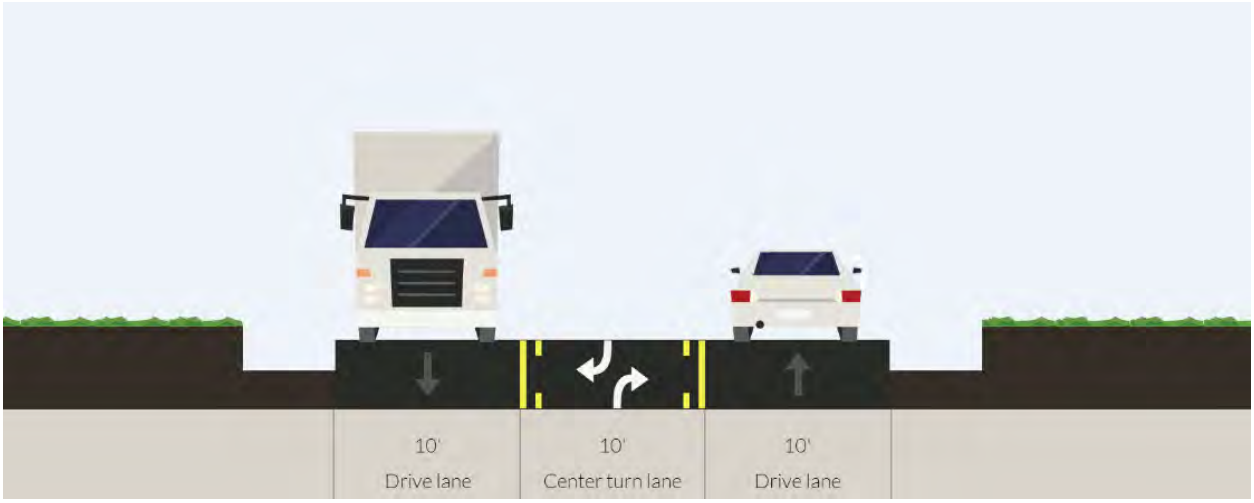
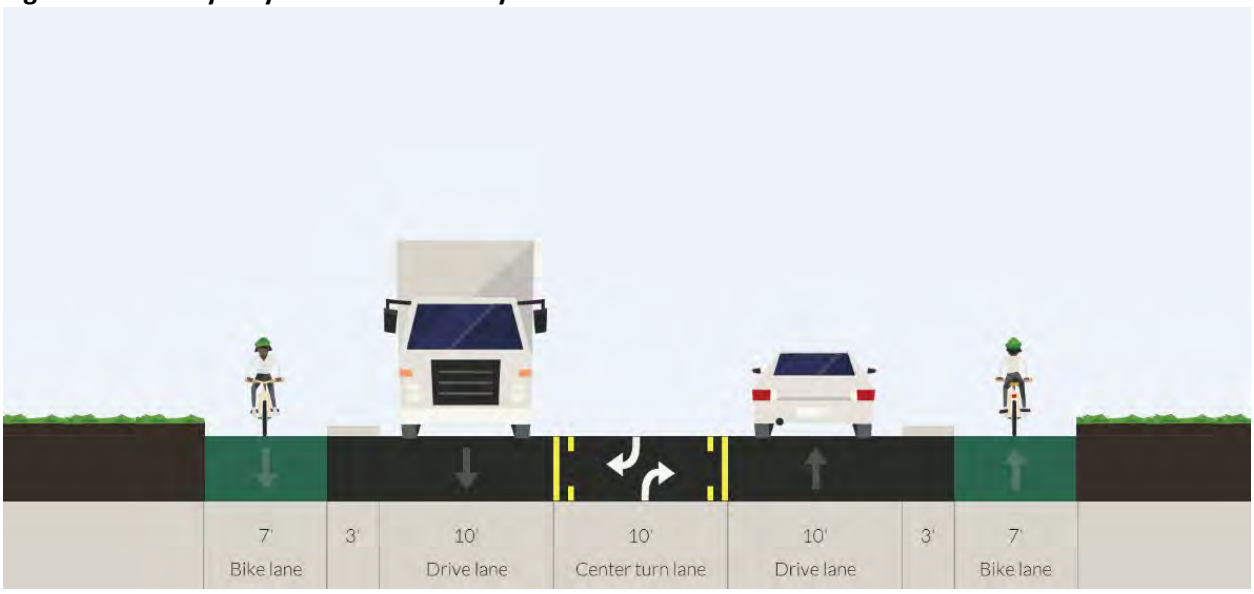


Figure 39. Priority Bicycle Route on Valley Pike



Transitions between Roadway Environments

As discussed above, town center and suburban roadways have different characteristics than more rural routes, which suggest different appropriate facilities. Inter-city and other longer bicycle routes usually include two or more types of roadway environments, and care should be taken to provide a comfortable transition between types. General best practices for these transitions include:

- Avoid abrupt cessation of a bicycle facility, especially away from a signalized intersection or other convenient location for the cyclist to turn around and use an opposite-direction facility

- Do not put the continuation of bicycle facility across the street from the transition, or, if this is necessary, provide a safe crossing for bicyclists wishing to continue
- Avoid facility transitions that necessitate merging across lanes of traffic
- Automobile speed often increases in these transition zones, so bicyclists will likely need more space and, when possible, a more separate facility on the faster section of roadway
- Provide clear signage and striping direction to indicate to bicyclists where the facility continuation is, and where on the road they should ride while transitioning into it
- Provide signage warning drivers of the facility change, particularly if bicyclists will be expected to transition to operating in mixed traffic

FINAL THOUGHTS

From the excitement over the Green Circle trail to the energized constituency advocating for improved bicycle and pedestrian connection in the region, the WinFred MPO has the foundation in place to be a region known for its great bicycle and pedestrian environment. The projects, identified interventions, programmatic solutions, and example cross-sections provide supporting material for improving bicycling and walking in the WinFred region, in order to create a truly multimodal transportation network that is accessible to all users.

Appendix A Multimodal Level of Service Inputs

Street	Origin Intersection	Downstream Intersection	Analysis Direction	Segment Length (ft)	Intersection width	K	D	2-way vph	% Heavy Vehicles	PHF	Sidewalk	Buffer	Parking	Bike Ln	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Median	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Bike Ln	Parking	Buffer	Sidewalk	TOTAL BUILT WIDTH	Trees	% Parking Occupancy	Pavement Condition	Ped Volume	Speed Limit	Median Type
Martinsburg Pike	State Route 1322	Stine Lane	NB	1,555	55	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	45	0
	Stine Lane	Park Centre Drive	NB	2,610	40	0.086	60	10,000	4.0%	0.92	0	0	0	0	11	0	0	0	10	0	0	0	11	0	0	0	0	32	0	0	3.0	1	45	2
	Park Centre Drive	Route 37 Interchange	NB	1,525	116	0.086	60	10,000	4.0%	0.92	0	0	0	0	14	0	0	0	200	0	0	12	12	0	0	0	0	238	0	0	3.0	1	45	3
	Route 37 Interchange	Pactiv Way	NB	975	250	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	12	12	0	250	0	0	12	12	0	0	0	0	310	0	0	3.0	1	45	3
	Pactiv Way	Amoco Lane	NB	625	125	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	12	12	0	45	0	0	12	12	0	0	0	0	105	0	0	3.0	1	45	3
	Amoco Lane	I-81 SB Ramp	NB	800	100	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	12	12	0	40	0	12	12	12	0	0	0	0	112	0	0	3.0	1	45	3
	I-81 SB Ramp	I-81 NB Ramps	NB	810	115	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	13	0	0	35	0	0	13	12	0	0	0	0	85	0	0	3.0	1	45	3
	I-81 NB Ramps	Market Street	NB	1,200	220	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	12	14	0	35	0	0	12	12	0	0	0	0	97	0	0	3.0	1	45	3
	Market Street	Yard Master Court	NB	10,245	55	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	45	2
	Yard Master Court	State Road 836	NB	1,925	35	0.086	60	10,000	4.0%	0.92	0	0	0	0	11	11	0	0	0	0	0	0	11	0	0	0	0	33	0	0	3.0	1	45	0
	State Road 836	Stonewell Elementary School	NB	2,280	45	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	0	0	0	11	0	0	0	12	0	0	0	0	35	0	0	3.0	1	45	2
	Stonewell Elementary School	Community Drive	NB	1,475	35	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	12	12	0	0	0	0	36	0	0	3.0	1	45	0
	Community Drive	Railroad Crossing	NB	1,895	25	0.086	60	10,000	4.0%	0.92	0	0	0	0	11	0	0	0	12	0	0	0	11	0	0	0	0	34	0	0	3.0	1	45	2
	Railroad Crossing	Unnamed Street	NB	3,320	30	0.086	60	10,000	4.0%	0.92	0	0	0	0	11	11	0	0	0	0	0	0	11	0	0	0	0	33	0	0	3.0	1	45	0
	Unnamed Street	Branson Spring Road	NB	3,320	35	0.086	60	10,000	4.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	11	11	0	0	0	0	33	0	0	3.0	1	45	0
	Branson Spring Road	State Route 669	NB	5,975	80	0.086	60	10,000	4.0%	0.92	0	0	0	0	11	0	0	0	11	0	0	0	11	0	0	0	0	33	0	0	3.0	1	45	2
	State Route 669	State Line	NB	1,695	35	0.086	60	10,000	4.0%	0.92	0	0	0	0	12	0	0	0	11	0	0	0	12	0	0	0	0	35	0	0	3.0	1	45	2
N Cameron Street	Picadilly Street	Clark St	NB	950	55	0.110	60	14,000	4.0%	0.92	5	4	9	0	11	0	0	0	0	0	0	0	11	0	9	4	5	58	63	0	3.0	1	25	0
	Clark St	Wyck Street	NB	1,265	30	0.110	60	14,000	4.0%	0.92	0	0	9	0	11	0	0	0	0	0	0	0	11	0	7	4	6	48	84	0	3.0	1	25	0
	Wyck Street	N Loudon Street	NB	2,150	85	0.110	60	14,000	4.0%	0.92	6	5	0	0	11	0	0	0	0	0	0	0	11	0	0	5	6	44	143	0	3.0	1	25	0
S Cameron Street	Picadilly Street	E Leicester St	SB	950	45	0.110	60	14,000	4.0%	0.92	7	3	9	0	11	0	0	0	12	0	0	0	11	0	9	3	7	72	63	0	3.0	1	25	2
	E Leicester St	E Gerrard St	SB	1,175	40	0.110	60	14,000	4.0%	0.92	6	5	9	0	11	0	0	0	0	0	0	0	11	0	9	5	6	62	78	0	3.0	1	25	0
N Loudoun Street	Picadilly Street	Peyton Street	NB	710	30	0.085	69.5	8,400	3.0%	0.92	6	5	0	0	11	0	0	0	0	0	0	0	11	0	9	5	6	53	28	10	3.0	1	25	0
	Peyton Street	E North Avenue	NB	780	45	0.085	69.5	8,400	3.0%	0.92	5	4	8	0	11	0	0	0	0	0	0	0	11	0	8	4	5	56	31	10	3.0	1	25	0
	E North Avenue	Wyck Street	NB	960	35	0.085	69.5	8,400	3.0%	0.92	6	0	8	0	11	0	0	0	0	0	0	0	11	0	8	0	6	50	38	10	3.0	1	25	0
	Wyck Street	W Commercial Street	NB	810	50	0.092	60	9,500	4.0%	0.92	5	4	9	0	11	0	0	0	0	0	0	0	11	0	9	0	5	54	32	10	3.0	1	25	0
	W Commercial Street	N Cameron Street	NB	1,160	40	0.092	60	9,500	4.0%	0.92	4	2	9	0	11	0	0	0	0	0	0	0	11	0	9	5	5	56	46	10	3.0	1	25	0
	N Cameron Street	State Route 132	NB	1,530	50	0.092	60	9,500	4.0%	0.92	0	0	9	0	11	0	0	0	0	0	0	0	11	0	0	7	5	43	61	0	3.0	1	25	0
S Loundon Street	State Route 657	Gerrard Street	SB	1,970	40	0.085	69.5	8,400	3.0%	0.92	6	5	9	0	11	0	0	0	0	0	0	0	11	0	9	5	6	62	79	0	3.0	1	25	0
	Gerrard Street	E Southwerk Street	SB	1,190	40	0.085	69.5	8,400	3.0%	0.92	5	3	8	0	10	0	0	0	0	0	0	0	10	0	8	3	5	52	48	10	3.0	1	25	0
	E Southwerk Street	E Whitlock Avenue	SB	530	45	0.085	69.5	8,400	3.0%	0.92	4	3	8	0	10	0	0	0	0	0	0	0	10	0	8	6	6	55	21	10	3.0	1	25	0
	E Whitlock Avenue	Commerce Street	SB	1,285	30	0.085	69.5	8,400	3.0%	0.92	5	3	10	0	10	0	0	0	0	0	0	0	10	0	10	3	5	56	51	10	3.0	1	25	0
	Commerce Street	W Jubal Early Drive	SB	900	90	0.085	69.5	8,400	3.0%	0.92	6	4	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	30	36	0	3.0	1	25	0
	W Jubal Early Drive	Featherbed Lane	SB	400	65	0.085	69.5	8,400	3.0%	0.92	5	5	0	0	11	0	0	0	0	0	0	0	11	0	0	5	5	42	0	0	3.0	1	25	0
	Featherbed Lane	Weems Lane	SB	1,800	65	0.085	69.5	8,400	3.0%	0.92	9	0	0	0	11	11	0	0	13	0	0	11	11	0	0	0	9	75	0	0	3.0	1	25	2
N Braddock Street	W Boscawen Street	W Picadilly Street	NB	870	40	0.086	60	14,000	4.0%	0.92	6	5	8	0	11	0	0	0	0	0	0	0	11	0	8	5	6	60	58	10	3.0	1	25	0
	W Picadilly Street	Wyck Street	NB	2,660	40	0.090	60	7,600	5.0%	0.92	6	3	8	0	11	0	0	0	0	0	0	0	11	0	8	3	6	56	106	10	3.0	1	25	0
S Braddock Street	W Boscawen Street	State Route 657	SB	740	45	0.086	60	14,000	4.0%	0.92	9	6	10	0	11	0	0	0	0	0	0	0	11	0	10	6	9	72	30	10	3.0	1	25	0
	State Route 657	W Gerrard Street	SB	2,040	40	0.096	60	12,000	3.0%	0.92	7	4	9	0	11	0	0	0	0	0	0	0	11	0	9	4	7	62	136	10	3.0	1	25	0
W Picadilly Street	N Loudoun Street	N Braddock Street	WB	430	45	0.089	60	11,000	3.0%	0.92	8	3	10	0	10	0	0	0	0	0	0	0	10	0	10	3	8	62	17	60	3.0	1	25	0
	N Braddock Street	Farimont Avenue	WB	695	50	0.089	60	11,000	3.0%	0.92	7	4	10	0	10	0	0	0	0	0	0	0	10	0	10	4	7	62	28	20	3.0	1	25	0
E Picdailly Street	N Loudoun Street	N Cameron Street	EB	440	30	0.089	60	11,000	3.0%	0.92	5	3	8	0	10	0	0	0	0	0	0	0	10	0	8	3	5	52	29	50	3.0	1	25	0
	N Cameron Street	N Kent Street	EB	435	40	0.089	60	11,000	3.0%	0.92	6	5	9	0	10	0	0	0	0	0	0	0	10	0	9	5	6	60	29	50	3.0	1	25	0
	N Kent Street	East Lane	EB	395	35	0.089	60	11,000	3.0%	0.92	8	5	10	0	12	0	0	0	0	0	0	0	12	0	10	5	8	70	26	30	3.0	1	25	0
E Boscawen Street	Indian Alley	Loudon Street	EB	230	20	0.094	60	11,000	3.0%	0.92	9	3	0	0	15	0	0	0	0	0	0	0	0	0	7	3	9	46	9	50	3.0	1	25	1
	Loudon Street	Cameron Street	EB	460	35	0.094	60	11,000	3.0%	0.92	9	3	7	0	15	0	0	0	0	0	0	0	0	0	0	3	9	46	18	20	3.0	1	25	1
W Boscawen Street	Indian Alley	Braddock Street	WB	200	40	0.094	60	11,000	3.0%	0.92	8	3	7	0	10	0	0	0	0	0	0	0	10	0	7	3	8	56	8	90	3.0	1	25	0
	Braddock Street	Washington Sreet	WB	430	35	0.094	60	11,000	3.0%	0.92	6	5	7	0	11	0	0	0	0	0	0	0	11	0	7	5	6	58	17	40	3.0	1	25	0
	Washington Sreet	Stewart Street	WB	445	35	0.094	60	11,000	3.0%	0.92	6	6	7	0	11	0	0	0	0	0	0	0	11	0	7	6	6	60	18	50	3.0	1	25	0
	Stewart Street	Amherst Street	WB	835	45	0.094	60	11,000	3.0%	0.92	7	0	9	0	12	0	0	0	0	0	0	0	12	0	0	0	7	47	0	20	3.0	1	25	0
Amherst Street	N Braddock Street	W Boscawen Street	WB	1,580	40	0.090	60	18,000	1.0%	0.92	5	5	9	0	11	0	0	0	0	0	0	0	11	0	9	5	5	60	63	30	3.0	1	25	0
	W Boscawen Street	Medical Circle	WB	2,855	40	0.090	60	18,000	1.0%	0.92	4	5	0	0	12	0	0	0	12	0	0	0	12	0	0	5	4	54	114	0	3.0	1	25	2
	Medical Circle	Campus Blvd	WB	3,150	110	0.090	60	18,000	1.0%	0.92	6	6	0	0	12	12	0	0	30	0	0	12	12	0	0	0	0	90	126	0	3.0	1	35	3
	Campus Blvd	Westside Station Drive	WB	835	110	0.090	60	18,000	1.0%	0.92	7	5	0	0	12	14	12	0	45	0	0	14	12	0	0	0	0	121	0	0	3.0	1	35	3
	Westside Station Drive	Route 37 E Ramp	WB	795	115	0.090	60	18,000	1.0%	0.92	0	0	0	0	12	12	0	0	40	0	0	12	12	0	0	0	0	88	0	0	3.0	1	35	3
	Route 37 E Ramp	Route 37 W Ramp	WB	560	115	0.086	60	15,000	1.0%	0.92	0	0	0	0	12	12	0	0	20	0	0	12	12	0	0	0	0	68	0	0	3.0	1	35	3
	Route 37 W Ramp	Ward Avenue	WB	860	140	0.086	60	15,000	1.0%	0.92	0	0	0	0	12	14	12	0	40	0	12	14	12	0	0	0	0	116	0	0	3.0	1	35	3

Street	Origin Intersection	Downstream Intersection	Analysis Direction	Segment Length (ft)	Intersection width	K	D	2-way vph	% Heavy Vehicles	PHF	Sidewalk	Buffer	Parking	Bike Ln	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Median	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Bike Ln	Parking	Buffer	Sidewalk	TOTAL BUILT WIDTH	Trees	% Parking Occupancy	Pavement Condition	Ped Volume	Speed Limit	Median Type
	Ward Avenue	Reatil Blvd	WB	1,830	110	0.086	60	15,000	1.0%	0.92	0	0	0	0	12	14	12	0	30	0	0	12	12	0	0	0	0	92	0	0	3.0	1	35	3
	Reatil Blvd	Mount Olive Road	WB	26,700	120	0.086	60	15,000	1.0%	0.92	0	0	0	0	12	12	0	0	60	0	0	12	12	0	0	0	0	108	0	0	3.0	1	35	3
W Fairfax Lane	N Braddock Street	Fairmont Avenue	WB	710	30	0.100	60	6,000	3.0%	0.92	6	0	6	0	9	0	0	0	0	0	0	0	9	0	6	0	6	42	0	0	3.0	1	25	0
Fairmont Avenue	Picadilly Street	Wyck Street	WB	2,785	25	0.101	60	5,700	3.0%	0.92	6	5	0	0	11	0	0	0	0	0	0	0	11	0	0	5	6	44	111	0	3.0	1	25	0
	Wyck Street	Winchester City Line	WB	1,690	40	0.101	60	5,700	3.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	4	15	41	68	0	3.0	1	25	0
N Frederick Pike	Winchester City Line	Lauck Drive	WB	2,790	135	0.082	58	23,000	11.0%	0.92	0	0	0	0	12	12	0	0	60	0	0	12	12	0	0	0	0	108	0	0	3.0	1	45	3
	Lauck Drive	Carpers Drive	WB	890	110	0.082	58	23,000	11.0%	0.92	7	10	0	0	12	12	0	0	60	0	0	12	12	0	0	0	0	125	0	0	3.0	1	45	3
	Carpers Drive	Westminster Canterbury Drive	WB	1,420	145	0.082	58	23,000	11.0%	0.92	0	0	0	0	12	12	0	0	60	0	0	12	12	0	0	0	0	108	0	0	3.0	1	45	3
	Westminster Canterbury Drive	Fox Drive	WB	1,100	130	0.082	58	23,000	11.0%	0.92	0	0	0	0	12	12	0	0	40	0	0	12	12	0	0	0	0	88	0	0	3.0	1	45	3
	Fox Drive	Route 37 S Rmaps	WB	505	110	0.082	58	23,000	11.0%	0.92	0	0	0	0	12	12	0	0	40	0	0	12	12	0	0	0	0	88	0	0	3.0	1	45	3
	Route 37 S Rmaps	Route 37 N Rmaps	WB	790	105	0.082	58	23,000	11.0%	0.92	0	0	0	0	12	12	0	0	20	0	0	12	12	0	0	0	0	68	0	0	3.0	1	45	3
	Route 37 N Ramps	Apple Pie Ridge Road	WB	590	105	0.084	58	18,000	11.0%	0.92	0	0	0	0	12	12	0	0	40	0	0	12	12	0	0	0	0	88	0	0	3.0	1	45	3
	Apple Pie Ridge Road	Indian Hollow Road	WB	2,180	110	0.084	58	18,000	11.0%	0.92	0	0	0	0	12	12	0	0	50	0	0	12	12	0	0	0	0	98	0	0	3.0	1	45	3
	Indian Hollow Road	Cedar Grove Road	WB	11,510	110	0.084	58	18,000	11.0%	0.92	0	0	0	0	12	12	0	0	40	0	0	12	12	0	0	0	0	88	0	0	3.0	1	45	3
E Commercial Street	N Loudoun Street	N Cameron Street	EB	395	60	0.100	60	3,400	2.0%	0.92	4	7	8	0	12	0	0	0	0	0	0	0	12	0	8	7	4	62	16	10	3.0	1	25	0
W Commercial Street	N Loudoun Street	Fairmont Avenue	WB	1,145	40	0.100	60	3,400	2.0%	0.92	6	8	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	38	46	0	3.0	1	25	0
W North Avenue	N Loudoun Street	N Braddock Street	WB	395	40	0.087	60	10,000	4.0%	0.92	5	5	8	0	10	0	0	0	0	0	0	0	10	0	8	5	5	56	16	10	3.0	1	25	0
W Gerrard Street	S Loudoun Street	S Braddock Street	WB	460	45	0.087	60	10,000	4.0%	0.92	5	3	8	0	11	0	0	0	0	0	0	0	11	0	0	3	5	46	31	5	3.0	1	25	0
	S Braddock Street	S Stewart Street	WB	455	35	0.087	60	10,000	4.0%	0.92	5	7	0	0	16	0	0	0	0	0	0	0	16	0	0	7	5	56	18	0	3.0	1	25	0
	S Loudoun Street	S Cameron Street	EB	435	40	0.087	60	10,000	4.0%	0.92	6	3	0	0	11	0	0	0	0	0	0	0	11	0	0	3	6	40	17	0	3.0	1	25	0
East Lane	E Picadilly Street	National Avenue	NB	260	45	0.085	60	8,600	3.0%	0.92	6	0	6	0	10	0	0	0	0	0	0	0	10	0	6	0	6	44	0	0	3.0	1	25	0
National Avenue	East Lane	N Pleasant Valley Road	EB	1,870	65	0.097	60	8,900	3.0%	0.92	6	2	0	0	10	0	0	0	0	0	0	0	10	0	8	0	6	42	0	10	3.0	1	25	0
	Berryville Avenue	Pine Street	EB	1,860	30	0.100	60	5,000	3.0%	0.92	5	6	5	0	11	0	0	0	0	0	0	0	11	0	0	6	5	49	74	5	3.0	1	25	0
Berryville Avenue	N Pleasant Valley Road	Battle Ave/Woodland Ave	EB	635	55	0.084	60	22,000	3.0%	0.92	2	4	0	0	11	11	0	0	0	0	0	11	11	0	0	4	2	56	25	0	3.0	1	35	0
	Battle Ave/Woodland Ave	Baker Lane	EB	1,075	45	0.084	60	22,000	3.0%	0.92	2	4	0	0	11	11	0	0	0	0	0	11	11	0	0	4	2	56	43	0	3.0	1	35	0
	Baker Lane	Apple Valley Square Shopping Center	EB	520	50	0.084	60	22,000	3.0%	0.92	2	4	0	0	11	11	0	0	0	0	0	11	11	0	0	4	2	56	21	0	3.0	1	35	0
	Apple Valley Square Shopping Center	Elm Street	EB	760	70	0.084	60	22,000	3.0%	0.92	2	4	0	0	11	11	0	0	0	0	0	11	11	0	0	4	2	56	0	0	3.0	1	35	3
	Elm Street	Ross Street	EB	780	70	0.084	60	22,000	3.0%	0.92	2	4	0	0	11	11	0	0	20	0	0	11	11	0	0	4	2	76	0	0	3.0	1	35	3
	Ross Street	I-81 SB Ramps	EB	550	65	0.087	60	25,000	3.0%	0.92	2	4	0	0	11	11	0	0	20	0	0	11	11	0	0	4	2	76	0	0	3.0	1	35	0
	I-81 SB Ramps	I-81 NB Ramps	EB	1,315	100	0.087	60	25,000	3.0%	0.92	0	0	0	0	13	13	0	0	20	0	0	13	13	0	0	0	0	72	0	0	3.0	1	35	3
Berryville Pike	I-81 NB Ramps	Gateway Drive	EB	1,350	110	0.078	60	27,000	5.0%	0.92	0	0	0	0	12	12	0	0	20	0	11	11	11	0	0	0	0	77	0	0	3.0	1	45	3
	Gateway Drive	Regency Lake Drive	EB	1,310	125	0.078	60	27,000	5.0%	0.92	0	0	0	0	11	11	0	0	55	0	0	11	11	0	0	0	0	99	0	0	3.0	1	45	3
	Regency Lake Drive	Blossoms Drive	EB	1,780	190	0.078	60	27,000	5.0%	0.92	0	0	0	0	12	12	0	0	65	0	0	12	12	0	0	0	0	113	71	0	3.0	1	45	3
	Blossoms Drive	Greenwood Road	EB	2,050	125	0.078	60	27,000	5.0%	0.92	0	0	0	0	12	12	0	0	40	0	0	12	12	0	0	0	0	88	0	0	3.0	1	45	3
	Greenwood Road	State Route 660	EB	4,110	155	0.078	60	27,000	5.0%	0.92	0	0	0	0	12	12	0	0	110	0	0	12	12	0	0	0	0	158	0	0	3.0	1	45	3
	State Route 660	Clarke County Line	EB	7,660	130	0.078	60	27,000	5.0%	0.92	0	0	0	0	11	11	0	0	65	0	0	11	11	0	0	0	0	109	0	0	3.0	1	45	3
W Jubal Early Drive	S Loudoun Street	Valley Avenue	WB	2,550	85	0.089	60	5,800	1.0%	0.92	3	6	0	0	12	12	0	0	15	0	0	12	12	0	0	6	3	81	102	0	3.0	1	35	3
	Valley Avenue	Harvest Drive	WB	1,270	65	0.089	60	5,800	1.0%	0.92	6	0	0	0	11	11	0	0	20	0	0	11	11	0	0	0	0	70	0	0	3.0	1	35	3
	Harvest Drive	Hadley Avenue	WB	2,170	70	0.089	60	5,800	1.0%	0.92	0	0	0	0	12	12	0	0	20	0	0	12	12	0	0	0	0	68	0	0	3.0	1	35	3
E Jubal Early Drive	S Loudoun Street	S Pleasant Valley Road	EB	2,000	115	0.089	60	5,800	1.0%	0.92	4	3	0	0	12	12	0	0	20	0	0	12	12	0	0	3	4	82	80	0	3.0	1	35	3
	S Pleasant Valley Road	Apple Blossom Drive	EB	645	100	0.089	60	20,000	1.0%	0.92	5	4	0	0	12	12	0	0	10	0	0	12	12	0	0	4	5	76	26	0	3.0	1	35	3
	Apple Blossom Drive	Mall Boulevard	EB	1,010	80	0.091	60	25,000	3.0%	0.92	4	3	0	0	11	11	0	0	20	0	0	11	11	0	0	3	4	78	0	0	3.0	1	35	3
Valley Mill Road	Berryville Pike	Greenwood Road	WB	5,650	60	0.096	60	8,200	2.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	45	0
	Greenwood Road	Channing Drive	WB	4,170	50	0.096	60	6,800	2.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	45	0
	Channin Drive	Berryville Pike	WB	6,130	80	0.096	60	6,800	2.0%	0.92	0	0	0	0	13	0	0	0	0	0	0	0	13	0	0	0	0	26	245	0	3.0	1	45	0
Millwood Avenue	E Gerrard Street	S Kent Street	EB	515	65	0.091	60	25,000	3.0%	0.92	4	3	8	0	10	0	0	0	0	0	0	0	10	0	0	3	4	42	21	20	3.0	1	25	0
	S Kent Street	Railroad Crossing	EB	1,340	40	0.091	60	25,000	3.0%	0.92	0	0	10	0	11	0	0	0	0	0	0	0	11	0	10	0	0	42	0	5	3.0	1	25	0
	Railroad Crossing	S Pleasant Valley Road	EB	1,670	75	0.091	60	25,000	3.0%	0.92	5	6	9	0	11	0	0	0	0	0	0	0	11	0	9	6	5	62	67	5	3.0	1	25	0
	S Pleasant Valley Road	Apple Blossom Drive	EB	415	85	0.091	60	25,000	3.0%	0.92	5	4	0	0	12	0	0	0	12	0	0	0	12	0	0	4	5	54	17	0	3.0	1	25	2
	Apple Blossom Drive	Mall Boulevard	WB	1,400	80	0.091	60	25,000	3.0%	0.92	7	0	0	0	12	12	0	0	0	0	0	0	0	0	0	0	0	31	0	0	3.0	1	35	1
	Mall Boulevard	I-81 SB Ramp	EB	300	70	0.091	60	25,000	3.0%	0.92	5	0	0	0	12	12	0	0	10	0	0	12	12	0	0	0	5	68	0	0	3.0	1	35	3
	I-81 SB Ramp	I-81 NB Ramps	EB	1,240	120	0.091	60	25,000	3.0%	0.92	5	0	0	0	12	12	0	0	5	0	0	12	12	0	0	0	5	63	0	0	3.0	1	35	3
Milwood Pike	I-81 NB Ramps	Tulane Drive	EB	935	95	0.082	60	37,000	5.0%	0.92	0	0	0	0	11	11	0	0	20	0	0	11	11	0	0	0	0	64	0	0	3.0	1	45	2
	Tulane Drive	Custer Avenue	EB	2,120	120	0.082	60	37,000	5.0%	0.92	0	0	0	0	12	12	0	0	20	0	0	12	12	0	0	0	0	68	0	0	3.0	1	45	2
	Custer Avenue	Sulphur Springs Road	EB	4,910	120	0.082	60	37,000	5.0%	0.92	0	0	0	0	11	11	0	0	60	0	0	11	11	0	0	0	0	104	0	0	3.0	1	45	3
	Sulphur Springs Road	Clarke County Line	EB	20,600	95	0.082	60	37,000	5.0%	0.92	0	0	0	0	11	11	0	0	40	0	0	11	11	0	0	0	0	84	0	0	3.0	1	45	3
Valley Avenue	W Gerrard Street	S Braddock Street	NB	585	45	0.093	60	12,000	3.0%	0.92	6	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	6	36	0	0	3.0	1	25	1

Street	Origin Intersection	Downstream Intersection	Analysis Direction	Segment Length (ft)	Intersection width	K	D	2-way vph	% Heavy Vehicles	PHF	Sidewalk	Buffer	Parking	Bike Ln	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Median	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Bike Ln	Parking	Buffer	Sidewalk	TOTAL BUILT WIDTH	Trees	% Parking Occupancy	Pavement Condition	Ped Volume	Speed Limit	Median Type
	S Braddock Street	Jerrson Street	SB	430	45	0.093	60	11,000	2.0%	0.92	5	5	12	0	12	0	0	0	0	0	0	0	12	0	12	5	5	68	29	10	3.0	1	25	0
	Jerrson Street	W Southwerk Avenue	SB	400	45	0.093	60	11,000	2.0%	0.92	4	5	10	0	10	0	0	0	0	0	0	0	10	0	10	0	4	53	16	10	3.0	1	25	0
	W Southwerk Avenue	Bellview Avenue	SB	2,240	45	0.093	60	11,000	2.0%	0.92	5	6	9	0	10	0	0	0	0	0	0	0	10	0	9	6	5	60	90	10	3.0	1	25	0
	Bellview Avenue	W Jubal Early Drive	SB	550	70	0.093	60	11,000	2.0%	0.92	6	9	0	0	12	0	0	0	0	0	0	0	12	0	0	9	6	54	22	0	3.0	1	35	0
	W Jubal Early Drive	Cedar Creek Grade	SB	2,890	95	0.100	60	17,000	3.0%	0.92	5	3	0	4	11	11	0	0	0	0	0	11	11	0	0	3	5	64	25	0	3.0	1	35	0
	Cedar Creek Grade	Middle Road	SB	615	75	0.100	60	17,000	3.0%	0.92	6	6	0	4	11	11	0	0	10	0	0	11	11	0	0	6	6	82	48	0	3.0	1	35	2
	Middle Road	Hope Drive	SB	1,200	65	0.100	60	17,000	3.0%	0.92	4	15	0	4	12	12	0	0	0	0	0	12	12	0	0	8	4	83	25	0	3.0	1	35	0
	Hope Drive	Tevis Street	SB	635	60	0.100	60	17,000	3.0%	0.92	0	0	0	4	11	11	0	0	0	0	0	11	11	0	0	6	6	60	25	0	3.0	1	35	0
	Tevis Street	Lake Drive	SB	1,365	70	0.086	60	13,000	3.0%	0.92	5	10	0	4	10	10	0	0	0	0	0	10	10	0	0	10	5	74	55	0	3.0	1	35	0
	Lake Drive	Brookefield Drive	SB	3,750	60	0.086	60	13,000	3.0%	0.92	6	10	0	4	12	12	0	0	0	0	0	12	12	0	0	10	6	84	150	0	3.0	1	35	0
	Brookefield Drive	State Route 652	SB	545	35	0.086	60	13,000	3.0%	0.92	0	0	0	4	12	0	0	0	0	0	0	0	12	0	0	0	0	28	0	0	3.0	1	35	0
Valley Pike	State Route 652	Apple Valley Road	SB	2,330	55	0.100	51	16,000	3.0%	0.92	0	0	0	4	12	0	0	0	12	0	0	0	12	0	0	0	0	40	0	0	3.0		35	2
	Apple Valley Road	Hood Way	SB	1,800	45	0.100	51	16,000	3.0%	0.92	0	0	0	4	12	0	0	0	12	0	0	0	12	0	0	0	0	40	0	0	3.0		45	2
	Hood Way	Commonwealth Court	SB	760	55	0.100	51	16,000	3.0%	0.92	0	0	0	4	12	0	0	0	12	0	0	0	12	0	0	0	0	40	0	0	3.0		45	2
	Commonwealth Court	State Route 37	SB	2,330	110	0.100	51	16,000	3.0%	0.92	0	0	0	4	12	12	0	0	20	0	0	12	12	0	0	0	0	72	0	0	3.0		45	3
	State Route 37	Stephens City Line	SB	11,040	30	0.088	60	8,800	5.0%	0.92	0	0	0	4	11	0	0	0	11	0	0	0	11	0	0	0	0	37	0	0	3.0		45	2
	Stephens City Line	Stephens Court	SB	640	40	0.088	60	8,800	5.0%	0.92	10	3	10	0	12	0	0	0	12	0	0	0	12	0	10	0	5	74	0	0	3.0		45	2
Main Street	Stephens Court	Newton Court	SB	2,080	35	0.088	60	8,800	5.0%	0.92	5	4	8	0	11	0	0	0	0	0	0	0	11	0	8	0	0	47	83	10	3.0		25	0
	Newton Court	Fairfax Street	SB	1,660	40	0.088	60	8,800	5.0%	0.92	8	4	8	0	11	0	0	0	0	0	0	0	11	0	8	4	8	62	66	20	3.0		25	0
	Fairfax Street	Stepehns Run Street	SB	1,280	45	0.102	60	5,000	6.0%	0.92	4	3	7	0	12	0	0	0	0	0	0	0	12	0	7	3	4	52	51	10	3.0		25	0
Valley Pike	Stephens Run Street	Southern States	SB	3,700	35	0.102	60	5,000	6.0%	0.92	0	0	0	0	14	0	0	0	0	0	0	0	14	0	0	0	0	28	0	0	3.0		40	0
	Southern States	Salem Church Road	SB	4,090	35	0.102	60	5,000	6.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0		40	2
N Pleasant Valley Road	Grove Street	Woodstock Lane	NB	565	55	0.100	60	18,000	2.0%	0.92	4	4	0	0	12	12	0	0	0	0	0	12	12	0	0	4	4	64	23	0	3.0	1	40	0
	Woodstock Lane	Berryville Avenue	NB	650	65	0.100	60	18,000	2.0%	0.92	4	3	0	0	12	12	0	0	0	0	0	12	12	0	0	3	4	62	26	0	3.0	1	40	0
S Pleasant Valley Road	Grove Street	Senseny Road	SB	675	70	0.100	60	18,000	2.0%	0.92	4	4	0	0	12	12	0	0	0	0	0	12	12	0	0	4	4	64	27	0	3.0	1	40	0
	Senseny Road	Hollingsowrth Drive	SB	3,560	55	0.100	60	22,000	2.0%	0.92	4	4	0	0	12	12	0	0	0	0	0	12	12	0	0	4	4	64	0	0	3.0	1	40	0
	Hollingsowrth Drive	Millwood Avenue	SB	1,310	75	0.100	60	22,000	2.0%	0.92	5	5	0	0	12	12	0	0	0	0	0	12	12	0	0	5	5	68	0	0	3.0	1	40	0
	Millwood Avenue	Kmart	SB	470	75	0.065	60	23,000	2.0%	0.92	4	5	0	0	12	12	0	0	0	0	0	12	12	0	0	5	4	66	19	0	3.0	1	40	0
	Kmart	E Jubal Early Drive	SB	535	85	0.065	60	23,000	2.0%	0.92	4	4	0	0	12	12	0	0	10	0	0	12	12	0	0	0	4	70	0	0	3.0	1	40	3
	E Jubal Early Drive	Featherbed Lane	SB	620	80	0.100	60	21,000	2.0%	0.92	5	5	0	0	10	10	0	0	15	0	0	10	10	0	0	5	5	75	25	0	3.0	1	40	3
	Featherbed Lane	Featherbed Lane Shopping Center	SB	1,110	60	0.100	60	21,000	2.0%	0.92	6	0	0	0	11	11	0	0	12	0	0	11	11	0	0	15	5	82	44	0	3.0	1	40	2
	Featherbed Lane Shopping Center	Trevis Street	SB	3,820	60	0.100	60	21,000	2.0%	0.92	0	0	0	0	12	12	0	0	0	0	0	12	12	0	0	8	5	61	153	0	3.0	1	40	0
	Trevis Street	Papermill Road	SB	1,760	30	0.100	60	21,000	2.0%	0.92	6	3	0	0	11	11	0	0	12	0	0	11	11	0	0	3	6	74	70	0	3.0	1	40	2
Front Royal Pike	Milwood Pike	Travelodge Lane	SB	640	95	0.100	60	14,000	14.0%	0.92	6	4	0	0	12	12	0	0	5	0	12	12	12	0	0	4	6	85	0	0	3.0	1	45	3
	Travelodge Lane	Costello Drive	SB	900	80	0.100	60	14,000	14.0%	0.92	5	3	0	0	14	12	0	0	12	0	11	11	14	0	0	3	5	90	0	0	3.0	1	45	2
	Costello Drive	Garber Lane Entry	SB	565	80	0.100	60	14,000	14.0%	0.92	5	3	0	0	14	11	0	0	12	0	0	10	13	0	0	3	5	76	0	0	3.0	1	45	2
	Garber Lane Entry	Airport Road	SB	4,380	70	0.100	60	14,000	14.0%	0.92	0	0	0	0	16	11	0	0	12	0	0	11	16	0	0	0	0	66	0	0	3.0	1	45	2
	Airport Road	Papermill Road	SB	6,390	70	0.100	60	14,000	14.0%	0.92	0	0	0	0	15	11	0	0	12	0	0	11	15	0	0	0	0	64	0	0	3.0	1	45	2
	Papermill Road	Justes Drive	SB	1,050	80	0.084	60	15,000	14.0%	0.92	0	0	0	0	15	11	0	0	12	0	0	11	15	0	0	0	0	64	0	0	3.0	1	45	2
	Justes Drive	Maranto Manor Drive	SB	16,620	120	0.084	60	15,000	14.0%	0.92	0	0	0	0	12	12	0	0	40	0	0	12	12	0	0	0	0	88	0	0	3.0	1	45	3
	Maranto Manor Drive	Clarke County Line	SB	6,820	80	0.084	60	15,000	14.0%	0.92	0	0	0	0	12	12	0	0	40	0	0	12	12	0	0	0	0	88	0	0	3.0	1	45	3
Fairfax Pike	I-81 NB Ramps	Stickley Drive	EB	505	65	0.092	60	14,000	6.0%	0.92	0	0	0	0	12	0	0	0	10	0	0	0	12	0	0	0	0	34	0	0	3.0	1	35	2
	Stickley Drive	State Route 641	EB	2,610	60	0.092	60	14,000	6.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	35	2
	State Route 641	Warrior Drive	EB	2,900	75	0.092	60	14,000	6.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	45	0
	Warrior Drive	White Oak Road	EB	4,250	40	0.092	60	14,000	6.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	45	0
	White Oak Road	Clarke County Line	EB	12,200	24	0.092	60	8,300	9.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	45	0
E Cork Street	S Cameron Street	S Kent Street	EB	415	40	0.091	60	8,100	1.0%	0.92	4	3	8	0	10	0	0	0	0	0	0	0	10	0	8	3	4	50	17	20	3.0	1	25	0
	S Kent Street	S East Lane	EB	445	35	0.088	60	9,400	1.0%	0.92	5	2	8	0	11	0	0	0	0	0	0	0	11	0	0	2	5	44	18	5	3.0	1	25	0
	S East Lane	S Pleasant Valley Road	EB	2,100	60	0.088	60	9,400	1.0%	0.92	2	3	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	27	84	5	3.0	1	25	0
	S Pleasant Valley Road	Maple Drive	EB	640	35	0.097	60	12,000	2.0%	0.92	5	0	9	0	14	0	0	0	0	0	0	0	14	0	9	0	5	56	0	0	3.0	1	25	0
Senseny Road	Maple Drive	Greenwood Road	EB	10,110	60	0.097	60	12,000	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	45	0
	Greenwood Road	Food Lion	EB	770	70	0.097	60	4,500	2.0%	0.92	6	5	0	0	10	10	0	0	20	0	0	10	10	0	0	5	6	82	31	0	3.0	1	45	3
	Food Lion	Channing Drive	EB	2,740	45	0.097	60	4,500	2.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	45	0
	Channing Drive	Clarke County Line	EB	7,560	24	0.109	60	2,400	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	45	0
Woodstock Lane	East Lane	N Pleasant Valley Road	EB	2,120	45	0.101	60	1,700	3.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	6	28	0	0	3.0	1	25	0
	N Pleasant Valley Road	I-81 Overpass	EB	3,290	24	0.101	60	1,700	3.0%	0.92	0	0	8	0	10	0	0	0	0	0	0	0	10	0	8	0	5	41	0	10	3.0	1	25	0
	I-81 Overpass	Wilkins Drive	EB	610	30	0.096	60	2,200	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0

Street	Origin Intersection	Downstream Intersection	Analysis Direction	Segment Length (ft)	Intersection width	K	D	2-way vph	% Heavy Vehicles	PHF	Sidewalk	Buffer	Parking	Bike Ln	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Median	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Bike Ln	Parking	Buffer	Sidewalk	TOTAL BUILT WIDTH	Trees	% Parking Occupancy	Pavement Condition	Ped Volume	Speed Limit	Median Type
Wilkins drive	Woodstock Lane	Senseny Road	NB	2,690	45	0.102	60	1,500	2.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	25	0
Woodland Avenue	Berryville Avenue	Orchard Avenue	EB	3,360	25	0.097	53	880	3.0%	0.92	4	9	5	0	9	0	0	0	0	0	0	0	9	0	5	9	4	54	134	20	3.0	1	25	0
Orchard Avenue	Pine Street	Walnut Street	EB	1,710	30	0.128	59	190	3.0%	0.92	5	0	5	0	10	0	0	0	0	0	0	0	10	0	5	0	5	40	0	20	3.0	1	25	0
Smithfield Avenue	E Fairfax Lane	Virginia Avenue	NB	605	30	0.093	59	2,200	3.0%	0.92	4	2	5	0	10	0	0	0	0	0	0	0	10	0	5	0	0	36	24	20	3.0	1	25	0
	Virginia Avenue	Kern Street	NB	615	30	0.093	59	2,200	3.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	25	0
	Kern Street	Winchester City Line	NB	2,140	30	0.093	59	2,200	3.0%	0.92	4	6	6	0	12	0	0	0	0	0	0	0	12	0	6	6	4	56	86	30	3.0	1	25	0
	Winchester City Line	End of Smithfield Avenue	NB	1,660	20	0.106	63	2,100	4.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	25	0
Brick Kiln Road	State Route 1322	Smithfield Avenue	EB	2,380	30	0.091	60	3,300	10.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	25	0
State Route 1322	N Loudoun Street	Fort Collier Road	EB	2,430	30	0.091	60	6,300	5.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
Fort Collier Road	State Route 1322	Baker Lane	EB	3,740	45	0.091	60	6,900	5.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
	Baker Lane	W Virginia Parkway	EB	1,860	70	0.091	60	6,300	5.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	25	2
	W Virginia Parkway	Berryville Avenue	EB	1,010	70	0.089	60	7,200	5.0%	0.92	7	0	0	0	12	0	0	0	0	0	0	0	12	0	0	4	5	40	0	0	3.0	1	25	0
Baker Lane	Berryville Avenue	Old Dominion Drive	NB	1,580	40	0.094	60	3,600	3.0%	0.92	5	4	6	0	10	0	0	0	0	0	0	0	10	0	6	4	5	50	63	5	3.0	1	25	0
	Old Dominion Drive	Fort Collier Road	NB	965	50	0.094	60	3,600	3.0%	0.92	6	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	6	36	0	0	3.0	1	25	0
W Brooke Road	State Route 1322	Park Center Drive	NB	3,840	70	0.091	60	6,300	5.0%	0.92	0	0	0	0	13	0	0	0	0	0	0	0	13	0	0	0	0	26	0	0	3.0	1	25	0
Park Center Drive	W Brooke Road	Martinsburg Pike	EB	1,610	55	0.100	60	3,000	3.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	25	0
Cives Lane	State Route 37	Martinsburg Pike	EB	550	55	0.100	60	2,900	3.0%	0.92	0	0	0	0	15	0	0	0	0	0	0	0	15	0	0	0	0	30	0	0	3.0	1	25	0
Fox Drive	Amherst Drive	Whittier Avenue	NB	1,380	20	0.104	60	5,200	3.0%	0.92	0	0	8	0	10	0	0	0	0	0	0	0	10	0	8	0	0	36	0	10	3.0	1	35	0
	Whittier Avenue	N Frederick Pike	NB	5,720	50	0.104	60	5,200	3.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	35	0
Apple Pie Ridge Road	N Frederick Pike	James Wood High School	NB	660	45	0.117	1	3,800	0.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	12	12	0	0	0	0	35	0	0	3.0	1	40	0
	James Wood High School	Hiatt Road	NB	19,400	50	0.117	1	3,800	0.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	40	0
Jefferson Street	Valley Avenue	Handley Avenue	WB	1,625	30	0.100	60	700	3.0%	0.92	0	0	5	0	10	0	0	0	0	0	0	0	10	0	5	4	5	39	0	10	3.0	1	25	0
Handley Avenue	Jefferson Street	Bellview Avenue	SB	2,340	35	0.146	60	660	3.0%	0.92	4	7	5	0	10	0	0	0	0	0	0	0	10	0	5	7	4	52	94	10	3.0	1	25	0
	Bellview Avenue	W Jubal Early Drive	SB	1,960	50	0.146	60	660	3.0%	0.92	0	0	6	0	12	0	0	0	0	0	0	0	12	0	6	0	0	36	78	10	3.0	1	25	0
Bellview Avenue	S Loudon Street	Henry Avenue	WB	1,225	35	0.105	60	950	3.0%	0.92	5	5	5	0	10	0	0	0	0	0	0	0	10	0	5	5	5	50	49	10	3.0	1	25	0
	Henry Avenue	Valley Avenue	WB	875	30	0.105	60	950	3.0%	0.92	0	0	8	0	12	0	0	0	0	0	0	0	12	0	8	0	0	40	0	5	3.0	1	25	0
	Valley Avenue	Handley Avenue	WB	1,840	35	0.105	60	950	3.0%	0.92	4	7	3	0	10	0	0	0	0	0	0	0	10	0	3	7	4	47	74	5	3.0	1	25	0
Miller Street	Handley Avenue	Seldon Drive	WB	690	30	0.100	60	490	3.0%	0.92	4	5	5	0	10	0	0	0	0	0	0	0	10	0	5	0	0	39	0	10	3.0	1	25	0
Seldon Drive	Miller Street	Meadow Branch Avenue	WB	2,960	40	0.100	60	700	3.0%	0.92	0	0	6	0	12	0	0	0	0	0	0	0	12	0	6	0	0	36	0	5	3.0	1	25	0
Armistead Street	Meadow Branch Avenue	Breckinridge Lane	WB	1,250	55	0.100	60	700	3.0%	0.92	0	0	5	0	11	0	0	0	0	0	0	0	11	0	5	0	0	32	0	10	3.0	1	25	0
Breckinridge Lane	Armistead Street	Merrimans Lane	WB	2,290	55	0.100	60	1,000	3.0%	0.92	0	0	5	0	11	0	0	0	0	0	0	0	11	0	5	0	0	32	0	10	3.0	1	25	0
Featherbed Lane	S Loudon Street	S Pleasant Valley Road	EB	1,670	65	0.100	60	700	3.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	4	5	31	0	0	3.0	1	25	0
Papermill Road	Weems Lane	Roosevelt Blvd	SB	1,490	50	0.099	60	8,300	3.0%	0.92	8	0	0	0	11	11	0	0	12	0	0	11	11	0	0	0	8	72	0	0	3.0	1	25	2
	Roosevelt Blvd	Trevis Street	SB	1,390	50	0.099	60	8,300	3.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
	S Pleasant Valley Road	Front Royal Pike	SB	10,210	60	0.099	60	8,300	3.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	40	0
Merrimans Lane	Amherst Drive	SR 37	SB	7,560	36	0.100	60	1,600	3.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	25	0
Cedar Creek Grade	Valley Avenue	Stoneridge Drive	WB	2,570	65	0.095	60	13,000	2.0%	0.92	4	5	0	0	12	12	0	0	0	0	0	12	12	0	0	5	4	66	103	0	3.0	1	35	0
	Stoneridge Drive	SR 37	WB	5,370	24	0.090	60	14,000	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	45	0
Middle Road	Valley Avenue	Crestview Terrace	SB	1,990	40	0.101	60	4,300	2.0%	0.92	0	0	9	0	11	0	0	0	0	0	0	0	16	0	9	0	0	45	0	10	3.0	1	35	0
	Crestview Terrace	Rockland Drive	SB	1,870	40	0.101	60	4,300	2.0%	0.92	4	8	9	0	12	0	0	0	0	0	0	0	12	0	0	0	0	45	0	10	3.0	1	35	0
	Rockland Drive	Winchester City Line	SB	1,350	25	0.101	60	4,300	2.0%	0.92	0	0	0	0	10	0	0	0	12	0	0	0	10	0	0	0	0	32	0	0	3.0		35	2
	Winchester City Line	Powder Horn Lane	SB	9,050	30	0.096	60	3,000	4.0%	0.92	0	0	0	0	13	0	0	0	0	0	0	0	13	0	0	0	0	26	0	0	3.0	1	45	0
Weems Lane	Papermill Road	Roosevelt Blvd	WB	360	45	0.086	60	11,000	2.0%	0.92	5	3	0	0	10	10	0	0	12	0	0	0	12	0	0	3	5	60	14	0	3.0	1	35	2
	Roosevelt Blvd	Valley Avenue	WB	2,260	40	0.086	60	11,000	2.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	35	2
Shawnee Drive	Valley Avenue	Capital Lane	EB	1,830	35	0.094	60	5,100	4.0%	0.92	0	0	0	0	11	0	0	0	12	0	0	0	11	0	0	0	0	34	0	0	3.0	1	25	2
	Capital Lane	Papermill Road	EB	4,270	70	0.094	60	5,100	4.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
State Route 776/Bufflick Road	Front Royal Pike	Airport Road	EB	4,370	55	0.100	60	500	6.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
Airport Road	Front Royal Pike	Bufflick Road	EB	3,240	55	0.096	61	2,600	6.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
	Bufflick Road	Admiral Byrd Drive	EB	970	45	0.096	60	2,600	6.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	25	2
	Admiral Byrd Drive	Milwood Pike	EB	15,970	60	0.100	60	460	6.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	35	0
	Milwood Pike	Airport Road	SB	3,960	28	0.107	55	2,400	10.0%	0.92	0	0	0	0	14	0	0	0	0	0	0	0	14	0	0	0	0	28	0	0	3.0	1	45	0
Inventee Way	Milwood Pike	End of Road	NB	2,340	70	0.100	60	1,000	6.0%	0.92	0	0	0	0	16	0	0	0	0	0	0	0	16	0	0	0	0	32	94	0	3.0	1	25	0
Tevis Street	Valley Avenue	Stonegate Drive	EB	1,800	40	0.087	60	7,700	1.0%	0.92	4	5	0	0	10	10	0	0	0	0	0	10	10	0	0	0	0	49	72	0	3.0	1	25	0
	Stonegate Drive	S Pleasant Valley Road	EB	1,160	60	0.087	60	7,700	1.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	25	0
Wilson Blvd	Tevis Street	Weems Lane	SB	2,940	60	0.100	60	1,000	3.0%	0.92	0	0	6	0	10	0	0	0	0	0	0	0	10	0	6	0	0	32	0	5	3.0	1	25	0
Apple Valley Road	Valley Pike	State Route 651	WB	1,360	30	0.083	60	4,900	3.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	25	0
	State Route 651	Middle Road	WB	5,060	90	0.100	59	2,200	3.0%	0.92	0	0	0	0	14	0	0	0	0	0	0	0	14	0	0	0	0	28	0	0	3.0	1	25	0

Street	Origin Intersection	Downstream Intersection	Analysis Direction	Segment Length (ft)	Intersection width	K	D	2-way vph	% Heavy Vehicles	PHF	Sidewalk	Buffer	Parking	Bike Ln	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Median	Trav. Lane	Trav. Lane	Trav. Lane	Trav. Lane	Bike Ln	Parking	Buffer	Sidewalk	TOTAL BUILT WIDTH	Trees	% Parking Occupancy	Pavement Condition	Ped Volume	Speed Limit	Median Type
State Route 651/ Shady Elm Road	Apple Valley Road	GE Lighting Lamp Plant	SB	1,230	35	0.100	60	500	3.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
	GE Lighting Lamp Plant	Route 37 Overpass	SB	1,670	25	0.100	60	500	3.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	5	6	47	0	0	3.0	1	25	2
	Route 37 Overpass	State Route 649	SB	7,000	45	0.100	60	500	3.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	25	0
State Route 649/Springdale Road	Valley Pike	State Route 651	WB	3,260	55	0.100	60	550	3.0%	0.92	0	0	0	0	8	0	0	0	0	0	0	0	8	0	0	0	0	16	0	0	3.0	1	25	0
Indian Hollow Road	N Frederick Pike	Burnt Church Road	WB	6,230	25	0.092	60	3,200	7.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	45	0
Round Hill Road	Northwestern Pike	Northwestern Pike	WB	11,780	55	0.106	57	840	8.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	35	0
Greenwood Road	Berryville Pike	Valley Mill Road	SB	3,030	50	0.094	60	5,100	2.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	35	0
	Valley Mill Road	Sensony Road	SB	5,320	70	0.099	60	10,000	2.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	35	2
	Sensony Road	Sulphur Spring Road	SB	7,290	130	0.100	58	4,100	2.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	35	0
Sulphur Spring Road	Milwood Pike	Clarke County Line	EB	11,790	40	0.094	60	4,800	4.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	35	0
Channing Drive	Senseny Road	Valley Mill Road	NB	5,560	55	0.100	60	1,000	3.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	25	2
Carpers Valley Road	Milwood Pike	Clarke County Line	EB	8,400	20	0.101	51	980	2.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	35	0
Tasker Road	I-81 NB Ramp	Oak Ridge Drive	EB	10,430	70	0.090	60	5,400	2.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	35	0
	Oak Ridge Drive	Warrior Drive	EB	3,060	60	0.090	60	5,400	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	35	0
	Warrior Drive	Rainville Road	EB	7,990	80	0.090	60	5,400	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	35	0
	Rainville Road	Front Royal Pike	EB	870	75	0.090	60	5,400	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	35	0
Warrior Drive	Tasker Road	Vincent Drive	NB	3,930	100	0.100	60	470	3.0%	0.92	0	0	0	0	14	0	0	0	20	0	0	0	14	0	0	0	0	48	0	0	3.0	1	35	3
	Tasker Road	Bridgewater Drive	SB	1,770	80	0.100	60	470	3.0%	0.92	0	0	0	0	12	12	0	0	30	0	0	12	12	0	0	0	0	78	0	0	3.0	1	35	3
	Bridgewater Drive	Ivory Drive	SB	4,420	70	0.100	60	470	3.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	35	0
	Ivory Drive	Fairfax Pike	SB	990	80	0.100	60	470	3.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	35	3
Aylor Road	Tasker Road	Fairfax Pike	SB	11,070	70	0.089	60	5,700	2.0%	0.92	0	0	0	0	12	0	0	0	12	0	0	0	12	0	0	0	0	36	0	0	3.0	1	25	2
Double Church Road/ State Route 641	Aylor Road	Fairfax Pike	SB	3,560	65	0.100	60	3,400	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
	Fairfax Pike	Hudson Hollow Road	SB	13,960	30	0.094	52	2,400	2.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	25	0
Salem Church Road	Valley Pike	Canterburg Road	EB	10,340	24	0.114	53	800	4.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
Fairfax Street	I-81 SB Ramp	Main Street	WB	775	35	0.078	54	3,400	4.0%	0.92	5	3	0	0	12	0	0	0	12	0	0	0	12	0	0	0	7	51	31	0	3.0	1	25	2
	Main Street	Water Street	WB	685	24	0.078	54	3,400	4.0%	0.92	5	3	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	32	27	0	3.0	1	25	0
	Water Street	Crooked Lane	WB	1,100	35	0.078	54	3,400	4.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	5	5	34	0	0	3.0	1	25	0
	Crooked Lane	Squirrel Lane	WB	875	24	0.078	54	3,400	4.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	25	0
Marlboro Road	Squirrel Lane	Strode Mcleod Lane	WB	4,560	24	0.101	58	1,800	6.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	35	0
	Martinsburg Pike	Mercedes Court	NB	900	35	0.097	60	4,400	2.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	45	0
	Mercedes Court	Jessica Lane	NB	1,410	65	0.097	60	4,400	2.0%	0.92	0	0	0	0	11	0	0	0	12	0	0	0	11	0	0	0	0	34	0	0	3.0	1	45	2
	Jessica Lane	Rest Church Road	NB	25,600	25	0.105	72	2,400	2.0%	0.92	0	0	0	0	8	0	0	0	0	0	0	0	8	0	0	0	0	16	0	0	3.0	1	45	0
Rest Church Road	Welltown Road	I-81 SB Ramp	NB	10,010	70	0.100	60	1,700	3.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	45	0
Payne Road	Welltown Road	Glendobbin Road	WB	2,780	40	0.100	60	1,100	3.0%	0.92	0	0	0	0	9	0	0	0	0	0	0	0	9	0	0	0	0	18	0	0	3.0	1	25	0
Glendobbin Road	Payne Road	Apple Pie Ridge Road	WB	9,900	45	0.100	60	550	3.0%	0.92	0	0	0	0	9	0	0	0	0	0	0	0	9	0	0	0	0	18	0	0	3.0	1	25	0
Hopewell Road	Martinsburg Pike	Welltown Road	WB	10,820	50	0.127	55	2,700	16.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	40	0
Brucetown Road	Martinsburg Pike	Clarke County Line	EB	17,360	20	0.096	54	1,900	4.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	35	0
Cedar Hill Road	Martinsburg Pike	Welltown Road	WB	11,250	40	0.113	65	480	3.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	25	0
Woodside Road	Martinsburg Pike	West Virginia State Line	NB	12,500	20	0.100	60	150	3.0%	0.92	0	0	0	0	8	0	0	0	0	0	0	0	8	0	0	0	0	16	0	0	3.0	1	25	0
Old Charles Town Road	Martinsburg Pike	Clarke County Line	EB	16,800	20	0.105	61	1,900	3.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	40	0
Redbud Road	Martinsburg Pike	Woods Mill Road	EB	17,000	40	0.100	60	1,100	3.0%	0.92	0	0	0	0	11	0	0	0	0	0	0	0	11	0	0	0	0	22	0	0	3.0	1	40	0
Milburn Road	Redbud Road	Old Charles Road	NB	8,600	35	0.100	60	60	3.0%	0.92	0	0	0	0	8	0	0	0	0	0	0	0	8	0	0	0	0	16	0	0	3.0	1	25	0
Woods Mill Road	Berryville Pike	MacKenzie Lane	NB	695	45	0.101	67	1,300	1.0%	0.92	6	4	0	0	12	0	0	0	12	0	0	0	12	0	0	4	6	56	28	0	3.0	1	45	2
	MacKenzie Lane	Jordan Springs Road	NB	10,300	40	0.101	67	1,300	1.0%	0.92	0	0	0	0	12	0	0	0	0	0	0	0	12	0	0	0	0	24	0	0	3.0	1	45	0
Jordan Springs Road	Woods Mill Road	Old Charles Road	NB	6,470	30	0.110	63	1,600	2.0%	0.92	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	0	0	20	0	0	3.0	1	40	0
Hiatt Road	Welltown Road	Apple Pie Ridge Road	WB	9,800	50	0.100	60	820	3.0%	0.92	0	0	0	0	9	0	0	0	0	0	0	0	9	0	0	0	0	18	0	0	3.0	1	25	0

Appendix B Second Public Meeting, Questions and Map Guidance

INTERSECTION COMMENT SHEET FINDINGS SUMMARIES:

Braddock Street & Boscawen Street

Figure 1. Braddock Street & Boscawen Street

Like many of the intersections in downtown Winchester, and near the pedestrian mall, this intersection appears to have been designed with pedestrians in mind. This four-approach signalized intersection has detectable warnings at all curb cuts, push-button actuated shared pedestrian cycles, clearly marked crosswalks and relatively low speeds on the approaches. The signal infrastructure (mast arms) is quite new, and well maintained. All pedestrian signals function, and provide adequate time for crossing.

From a pedestrian perspective, the team's only questions were whether the actuated pedestrian signals were necessary (as opposed to an automatically included pedestrian cycle) and whether leading pedestrian intervals are possible to implement. There are also some possible ADA compliance with the presence of trash cans and utility/traffic signal infrastructure encroaching on curb cuts.

Table 1. Pedestrian Quality Assessment: Braddock Street & Boscawen Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.95	
The pedestrian light is present and lasts long enough	0.95	
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.90	
Traffic moves through this intersection at a safe speed	0.80	
Drivers stay out of the crosswalk as much as possible	0.85	
It's easy to see oncoming and crossing traffic	0.90	
The amount of time I have to wait to cross the intersection is appropriate	0.90	

This intersection was assessed to be less suitable for bicycling. There is no shoulder or bike lane, and the only options for a bicyclist crossing the intersection are to take the center of the through lane in the manner of an automobile or utilize the pedestrian facilities. The team was unable to determine whether a bicycle is detected, when trying to make a left turn. The right of way is sufficiently constrained that the most feasible option for a bike facility appears to be a sharrow. Additionally, the pedestrian mall lacks a bicycle cut through and isolates the eastbound/westbound bicycle traffic through this intersection from other important parts of the transportation network.

Table 2. Bicycling Quality Assessment: Braddock Street & Boscawen Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.85	
The bike lane or shoulder is present and wide enough	0.35	No bike lane or shoulder, but some team members felt comfortable taking the lane
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.40	
Traffic moves through this intersection at a safe speed	0.75	
If there is a bicycle facility, drivers and parked cars stay out	0.10	n/a; no facility
It's easy to see oncoming and crossing traffic	0.80	
The amount of time I have to wait to cross the intersection is appropriate	0.80	

North Braddock Street & Amherst Street

Figure 2. North Braddock Street & Amherst Street

This stop-controlled intersection has clearly visible crosswalks, and is generally a good facility for pedestrians, at least under the observed low-traffic-volume conditions. There were some observed instances of crosswalk-encroachment by vehicles, and of distracted drivers failing to yield for pedestrians. The speed limit appears to be observed near this intersection. The east approach, which is the entrance and exit of a parking garage, does have some unclear lane demarcations, which could confuse drivers during periods of high volume. If this is an intersection with periods of very high pedestrian demand, pedestrian signals could help eliminate the observed failure to yield issues.

Table 3. Pedestrian Quality Assessment: North Braddock Street & Amherst Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.90	
The pedestrian light is present and lasts long enough	0.25	No pedestrian signals
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.80	
Traffic moves through this intersection at a safe speed	0.90	
Drivers stay out of the crosswalk as much as possible	0.95	
It's easy to see oncoming and crossing traffic	0.80	
The amount of time I have to wait to cross the intersection is appropriate	0.90	

This intersection has no dedicated bike facility. At points, the parking on each side of the street was so lightly used that team members rode in the parking area to let queued vehicles pass. If a parking study has been conducted for this area, it could help advise whether removing parking on one side of the street could be an opportunity to re-assign right of way to create a dedicated bike facility. If this is possible, Braddock Street could be a useful north-south connection to improve the area's network connectivity for bicyclists (and runs parallel to the bicycle-exclusive pedestrian mall).

Table 4. Bicycling Quality Assessment: North Braddock Street & Amherst Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.90	
The bike lane or shoulder is present and wide enough	0.10	No bicycle facility, though the empty parking lane was sometimes used to let cars pass
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.60	
Traffic moves through this intersection at a safe speed	0.85	
If there is a bicycle facility, drivers and parked cars stay out	0.10	n/a, no facility
It's easy to see oncoming and crossing traffic	0.87	
The amount of time I have to wait to cross the intersection is appropriate	0.90	

North Braddock Street & West Piccadilly Street

Figure 3. North Braddock Street & West Piccadilly Street

This downtown signalized intersection also had new signal infrastructure, push button pedestrian signals and clearly marked crosswalks on which drivers generally did not encroach (except for, primarily, northbound right turns). The traffic speeds and volumes are higher here, making the few observed failures to yield to pedestrians potentially more dangerous. Left turn signal phases occurred before the pedestrian phase even when the buttons were pushed.

The generally long crossing distances for pedestrians could possibly be addressed with the addition of curb extensions, into the parking lane. This intersection also has the possibly ADA problematic clutter of hardware around the pedestrian ramps. The stop bars at this intersection are set relatively far back, which is helpful to avoid encroachment on the crosswalk, but could be limiting driver visibility.

Table 5. Pedestrian Quality Assessment: North Braddock Street & West Piccadilly Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.80	
The pedestrian light is present and lasts long enough	0.90	
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.60	
Traffic moves through this intersection at a safe speed	0.73	
Drivers stay out of the crosswalk as much as possible	0.70	
It's easy to see oncoming and crossing traffic	0.80	
The amount of time I have to wait to cross the intersection is appropriate	0.70	

The segment leading to the northbound approach should also be the subject of the assessment of parking needs in this area due to the lack of bicycle facilities and presence of possibly-underutilized parking on both sides of the street. The intersection itself has higher volumes and speeds, and forces a cyclist to take the automobile lane. This may be suitable for experienced cyclists or with high driver awareness of bicycles in the roadway, but a sharrow may help legitimize bicycle presence on the road, if a dedicated facility is not feasible.

Table 6. Bicycling Quality Assessment: North Braddock Street & West Piccadilly Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.75	
The bike lane or shoulder is present and wide enough	0.15	No facility present
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.55	
Traffic moves through this intersection at a safe speed	0.80	
If there is a bicycle facility, drivers and parked cars stay out	0.10	n/a, no facility
It's easy to see oncoming and crossing traffic	0.80	
The amount of time I have to wait to cross the intersection is appropriate	0.87	

Fairmont Avenue & West Commercial Street

Figure 4. Fairmont Avenue & West Commercial Street

This three-approach intersection has a stop-controlled westbound movement and a free north-south movement. There are no pedestrian facilities approaching or crossing the intersection. The surrounding area is industrial with a narrow grassy area between the road and the train tracks to the east. This is not an inviting pedestrian environment, but constituents at public meetings mentioned that there is pedestrian demand in this area, due to the proximity of employment centers and laborer homes.

Table 7. Pedestrian Quality Assessment: Fairmont Avenue & West Commercial Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.35	
The pedestrian light is present and lasts long enough	0.25	n/a, no light
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.25	
Traffic moves through this intersection at a safe speed	0.45	
Drivers stay out of the crosswalk as much as possible	0.10	n/a, no crosswalk
It's easy to see oncoming and crossing traffic	0.85	
The amount of time I have to wait to cross the intersection is appropriate	0.55	

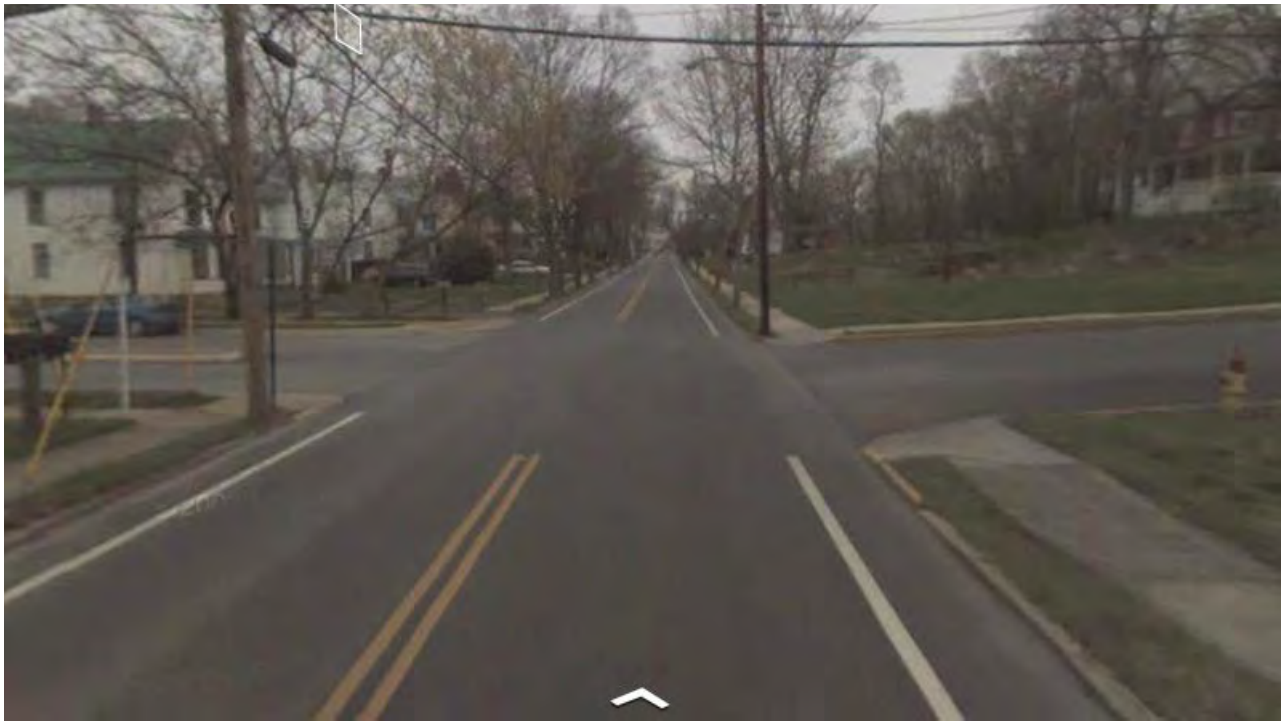
The segments approaching this intersection have a narrow shoulder, which does provide a place for bicyclists to ride. However, the feeling of separation between vehicles and cyclists may lead to close passing and high vehicle speeds, which can be dangerous. The team did observe a recreational cyclist using this facility.

Table 8. Bicycling Quality Assessment: Fairmont Avenue & West Commercial Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.50	
The bike lane or shoulder is present and wide enough	0.50	
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.30	
Traffic moves through this intersection at a safe speed	0.40	
If there is a bicycle facility, drivers and parked cars stay out	0.10	There is no bicycle facility through the intersection
It's easy to see oncoming and crossing traffic	0.85	
The amount of time I have to wait to cross the intersection is appropriate	0.60	

Fairmont Avenue & North Avenue

Figure 5. Fairmont Avenue & North Avenue



This intersection is two-way stop controlled, with the north-south movement operating as a free movement. There are intermittent sidewalks approaching the intersection, some with significant upheaval from tree roots, to the extent that they would be ADA non-compliant. There are no dedicated pedestrian facilities through the intersection. Crossing Fairmont Avenue requires identifying a suitable gap in traffic, which can be especially difficult for children. A resident collecting his mail noted that he does not feel that this street is safe, and that cars violate the posted 25 mile per hour speed limit.

Table 9. Pedestrian Quality Assessment: Fairmont Avenue & North Avenue

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.55	
The pedestrian light is present and lasts long enough	0.25	n/a, no light
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.45	
Traffic moves through this intersection at a safe speed	0.35	
Drivers stay out of the crosswalk as much as possible	0.10	n/a, no crosswalk present
It's easy to see oncoming and crossing traffic	0.90	
The amount of time I have to wait to cross the intersection is appropriate	0.65	

There is a shoulder on Fairmont Avenue, but it may be too narrow to be a safe facility, while still making drivers feel comfortable going faster than the posted speed limit, even past bicyclists. Several team members expressed discomfort riding this segment. The intersection itself is easy to cross on a bicycle while traveling on Fairmont Avenue, but will require identification of an acceptable gap if crossing on North Avenue.

Table 10. Bicycling Quality Assessment: Fairmont Avenue & West Commercial Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.80	
The bike lane or shoulder is present and wide enough	0.35	
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.55	
Traffic moves through this intersection at a safe speed	0.35	
If there is a bicycle facility, drivers and parked cars stay out	0.10	There is no bicycle facility through the intersection
It's easy to see oncoming and crossing traffic	0.80	
The amount of time I have to wait to cross the intersection is appropriate	0.90	

Amherst Street & West Boscawen Street

Figure 6. Amherst Street & West Boscawen Street

This intersection also has new signal infrastructure and push button actuated pedestrian crossings. It is a signal controlled intersection where one approach is a parking lot entrance/exit, and has a rather complicated layout with a significant skew angle. Some of the pedestrian crossings are quite long, though there does appear to be adequate time in the pedestrian phase to complete most crossings. In all, the pedestrian facilities work quite well considering the relatively high speeds and heavy volumes.

There can be considerable waits for a pedestrian signal. Team members also noted some visibility issues from commercial signage along the north part of the intersection.

Table 11. Pedestrian Quality Assessment: West Boscawen Street & Amherst Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.65	
The pedestrian light is present and lasts long enough	0.75	
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.60	
Traffic moves through this intersection at a safe speed	0.70	
Drivers stay out of the crosswalk as much as possible	0.90	
It's easy to see oncoming and crossing traffic	0.80	
The amount of time I have to wait to cross the intersection is appropriate	0.55	

There is no designated cycling facility approaching or through this intersection. While there should be sufficient time for cyclists to cross with traffic, sharing a lane depends on cooperative drivers, and the high speeds and volumes could cause difficulty for cyclists.

Table 12. Bicycling Quality Assessment: West Boscawen Street & Amherst Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.50	
The bike lane or shoulder is present and wide enough	0.25	
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.40	
Traffic moves through this intersection at a safe speed	0.60	
If there is a bicycle facility, drivers and parked cars stay out	0.10	There is no bicycle facility through the intersection
It's easy to see oncoming and crossing traffic	0.85	
The amount of time I have to wait to cross the intersection is appropriate	0.75	

South Braddock Street & West Handley Boulevard

Figure 7. South Braddock Street & West Handley Boulevard

This intersection is adjacent to a high school, and has the same new signal infrastructure and push button activated pedestrian signals seen at other study intersections; there are continuous sidewalks approaching the intersection on both sides, from all directions. There are significant waits for some of pedestrian crossings, which can cause pedestrians to attempt to cross against the signal, which may be especially true next to a high school. In general, though, the pedestrian facilities are clearly marked, and provide dedicated signalized phases of adequate length for pedestrian crossings. Most drivers did not encroach on the crosswalk, though some did not stop before continuing through the intersection to make a right turn on a red light.

Table 13. Pedestrian Quality Assessment: South Braddock Street & West Handley Boulevard

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.75	
The pedestrian light is present and lasts long enough	0.93	
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.60	
Traffic moves through this intersection at a safe speed	0.80	
Drivers stay out of the crosswalk as much as possible	0.87	
It's easy to see oncoming and crossing traffic	0.80	
The amount of time I have to wait to cross the intersection is appropriate	0.70	

There is no dedicated bicycle facility approaching or through this intersection. Motorists were forced to adopt the speed of team members on bicycles, because the only practicable option for cycling the southbound approaching segment was to take the single automobile lane. This situation can cause conflicts between motorists and bicyclists. The parking on each side of the street did seem to be well utilized; again, a sharrow may help provide legitimacy to cyclists using this route. The intersection was easy to use to the extent that a bicyclist is comfortable with vehicular cycling, or behaving in traffic as an automobile. When bicyclists and drivers must share space in this way, driver populations that are used to interacting with cyclists and aware of their presence are better at avoiding car-bicycle accidents.

While bicyclists must use the intersection like an automobile, the camera detection to trigger left turn signal phases is not sensitive enough to pick up bicycles.

Table 14. Bicycling Quality Assessment: South Braddock Street & West Handley Boulevard

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.65	
The bike lane or shoulder is present and wide enough	0.25	The southbound approaching segment was uncomfortable to share with motorists
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.40	
Traffic moves through this intersection at a safe speed	0.67	
If there is a bicycle facility, drivers and parked cars stay out	0.10	There is no bicycle facility through the intersection
It's easy to see oncoming and crossing traffic	0.85	
The amount of time I have to wait to cross the intersection is appropriate	0.80	

East Handley Boulevard & South Cameron Street

Figure 8. East Handley Boulevard & South Cameron Street

This signalized intersection has significant grade at some approaches, and a fifth approach with unclear signage and direction as to how it interacts with the rest of the intersection. This intersection had notably more encroachment by drivers into the crosswalk than other, probably due to the lower sight distance caused by the grade. The pedestrian phase of the signal cycle is push-button actuated, and lasts long enough for a pedestrian to cross.

Some of the utility poles around the intersection have damage indicating that they are hit by trucks attempting to make the turn. There are also truck tire marks near these locations.

Table 15. Pedestrian Quality Assessment: South Cameron Street and East Gerrard Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.50	The truck encroachment on the sidewalk could be especially dangerous for a disabled or inattentive pedestrian
The pedestrian light is present and lasts long enough	0.90	
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.55	
Traffic moves through this intersection at a safe speed	0.85	
Drivers stay out of the crosswalk as much as possible	0.55	More crosswalk encroachment here than observed at most other intersections
It's easy to see oncoming and crossing traffic	0.55	
The amount of time I have to wait to cross the intersection is appropriate	0.70	

There is no bicycle facility through or approaching this intersection and the best option is to take the lane like an automobile. Under certain volume conditions this may work well, but could be dangerous in higher traffic conditions, especially give this intersection's reduced sight distance and confusing fifth approach. The team observed a bicyclist using the sidewalk to approach and cross through this intersection.

Table 16. Bicycling Quality Assessment: South Cameron Street and East Gerrard Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.55	
The bike lane or shoulder is present and wide enough	0.10	n/a, no bicycle facility
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.45	
Traffic moves through this intersection at a safe speed	0.55	
If there is a bicycle facility, drivers and parked cars stay out	0.10	n/a
It's easy to see oncoming and crossing traffic	0.60	Varies by approach
The amount of time I have to wait to cross the intersection is appropriate	0.67	

National Avenue & North Pleasant Valley Road

Figure 9. National Avenue & North Pleasant Valley Road

The team observed some issues with pedestrians attempting to use this intersection; the north/south crossing on the east side of the intersection is currently not working. There are drainage issues causing a puddle to collect at the southwest corner's pedestrian ramp. There are high volumes and high speeds through this intersection. Some of the waits for a pedestrian signal were quite long, and even when the pedestrian phase button is pushed, left turns occur before the pedestrian phase.

Table 17. Pedestrian Quality Assessment: National Avenue & North Pleasant Valley Road

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.50	
The pedestrian light is present and lasts long enough	0.60	Pedestrian light is present for all crossings, but some seem short
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.50	
Traffic moves through this intersection at a safe speed	0.60	
Drivers stay out of the crosswalk as much as possible	0.50	Right turning vehicles often failed to yield
It's easy to see oncoming and crossing traffic	0.90	
The amount of time I have to wait to cross the intersection is appropriate	0.40	Long waits for some crossings

The high volumes and speeds, as well as the lack of bicycle facilities and wide crossing distance make this intersection feel unsafe as a bicyclist. It may be more productive to focus on routes that enhance network connectivity for bicyclists while avoiding this intersection. The road segments and sidewalks approaching this intersection from the south were very difficult to bicycle.

Table 18. Bicycling Quality Assessment: National Avenue & North Pleasant Valley Road

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.60	
The bike lane or shoulder is present and wide enough	0.10	n/a, no facility
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.20	
Traffic moves through this intersection at a safe speed	0.40	
If there is a bicycle facility, drivers and parked cars stay out	0.10	n/a, no facility
It's easy to see oncoming and crossing traffic	1.00	Sight distance is good, but the high speeds necessitate this
The amount of time I have to wait to cross the intersection is appropriate	0.90	

South Pleasant Valley Road and East Cork Street

Figure 10. South Pleasant Valley Road and East Cork Street

This intersection has the same new signal infrastructure with push-button actuated pedestrian signals, as seen at most of the other visited intersections. The pedestrian crossing intervals are long enough. There are incomplete sidewalks approaching this intersection, and some crossings are very long. There is some crosswalk encroachment by vehicles, mostly due to inhibited sight distance for drivers, caused by grade and the fence along the northwest corner.

Table 19. Pedestrian Quality Assessment: South Pleasant Valley Road & East Cork Street

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable walking through this intersection	0.55	
The pedestrian light is present and lasts long enough	0.87	
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.45	
Traffic moves through this intersection at a safe speed	0.53	The posted speed limit is quite high
Drivers stay out of the crosswalk as much as possible	0.73	
It's easy to see oncoming and crossing traffic	0.60	Sight distance is inhibited by grade and obstacles at some approaches
The amount of time I have to wait to cross the intersection is appropriate	0.75	

There is no specific bicycle facility approaching or crossing this intersection. There is a shoulder approaching the intersection from the West on Cork Street, but it widens and narrows and abruptly disappears. This segment is also hilly, which could reduce visibility for both drivers and bicyclists. Pleasant Valley Road has high volume, high speeds and on street parking. It is a difficult segment to travel on a bicycle.

Table 20. Bicycling Quality Assessment: National Avenue & North Pleasant Valley Road

Assessment Questions:	Assessment (out of 1.00)	Notes?
I feel safe and comfortable biking through this intersection	0.50	
The bike lane or shoulder is present and wide enough	0.33	The shoulder on Cork widens, narrows and disappears
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.35	
Traffic moves through this intersection at a safe speed	0.35	This is a high speed location
If there is a bicycle facility, drivers and parked cars stay out	0.10	n/a, no facility
It's easy to see oncoming and crossing traffic	0.67	
The amount of time I have to wait to cross the intersection is appropriate	0.80	

CLOSING DISCUSSION AND GENERAL OBSERVATIONS

Intersection Comparison:

Table 21, below, shows all of the intersections in a single table for comparison.

Table 21. Intersection Feedback Comparison

Bicyclist Assessment	Braddock & Boscawen	Braddock & Amherst	Braddock & Piccadilly	Fairmont & Commercial	Fairmont & North	Boscawen & Amherst	Braddock & Handley	Cameron & Gerrard	National & Pleasant Valley	Pleasant Valley & Cork
I feel safe and comfortable biking through this intersection	0.85	0.90	0.75	0.50	0.80	0.50	0.65	0.55	0.60	0.50
The bike lane or shoulder is present and wide enough	0.35	0.10	0.15	0.50	0.35	0.25	0.25	0.10	0.10	0.33
I am comfortable with a middle school aged child biking through this intersection unsupervised	0.40	0.60	0.55	0.30	0.55	0.40	0.40	0.45	0.20	0.35
Traffic moves through this intersection at a safe speed	0.75	0.85	0.80	0.40	0.35	0.60	0.67	0.55	0.40	0.35
If there is a bicycle facility, drivers and parked cars stay out	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
It's easy to see oncoming and crossing traffic	0.80	0.87	0.80	0.85	0.80	0.85	0.85	0.60	1.00	0.67
The amount of time I have to wait to cross the intersection is appropriate	0.80	0.90	0.87	0.60	0.90	0.75	0.80	0.67	0.90	0.80
Pedestrian Assessment										
I feel safe and comfortable walking through this intersection	0.95	0.90	0.80	0.35	0.55	0.65	0.75	0.50	0.50	0.55
The pedestrian light is present and lasts long enough	0.95	0.25	0.90	0.35	0.25	0.75	0.93	0.90	0.60	0.87
I am comfortable with a middle school aged child walking through this intersection unsupervised	0.90	0.80	0.60	0.25	0.45	0.60	0.60	0.55	0.50	0.45
Traffic moves through this intersection at a safe speed	0.80	0.90	0.73	0.45	0.35	0.70	0.80	0.85	0.60	0.53
Drivers stay out of the crosswalk as much as possible	0.85	0.95	0.70	0.10	0.10	0.90	0.87	0.55	0.50	0.73
It's easy to see oncoming and crossing traffic	0.90	0.80	0.80	0.85	0.90	0.80	0.80	0.55	0.90	0.60
The amount of time I have to wait to cross the intersection is appropriate	0.90	0.90	0.70	0.55	0.65	0.55	0.70	0.70	0.40	0.75

Appendix C Project Maps

Legend

Facility Type, Term

- Bicycle Only, Long
- Bicycle Only, Medium
- Bicycle Only, Short
- Multi-use, Long
- Multi-use, Medium
- Multi-use, Short
- Pedestrian Only, Long
- Pedestrian Only, Medium
- * Neighborhood Collector

N

Rt. 11 Valley Pike, Heritage Route B

Rt. 11 Valley Pike, Heritage Route C

AJ*

Clearbrook Connector H

Rt. 11 Valley Pike, Heritage Route E

Clearbrook Connector F

Old Charles Town Road A

Rt. 11 Valley Pike, Heritage Route D

Clearbrook Connector D

Clearbrook Connector B

Stephenson Road

Old Charles Town Road C

AK*

BU*

Clearbrook Connector C

Clearbrook Connector I

Clearbrook Connector G

Rt. 37 Circle L

Rt. 37 Circle K

Rt. 37 Circle I

BY*

Rt. 37 Circle H

Old Charles Town Road B

0 0.25 0.5 1 1.5 2 Miles

North

Legend

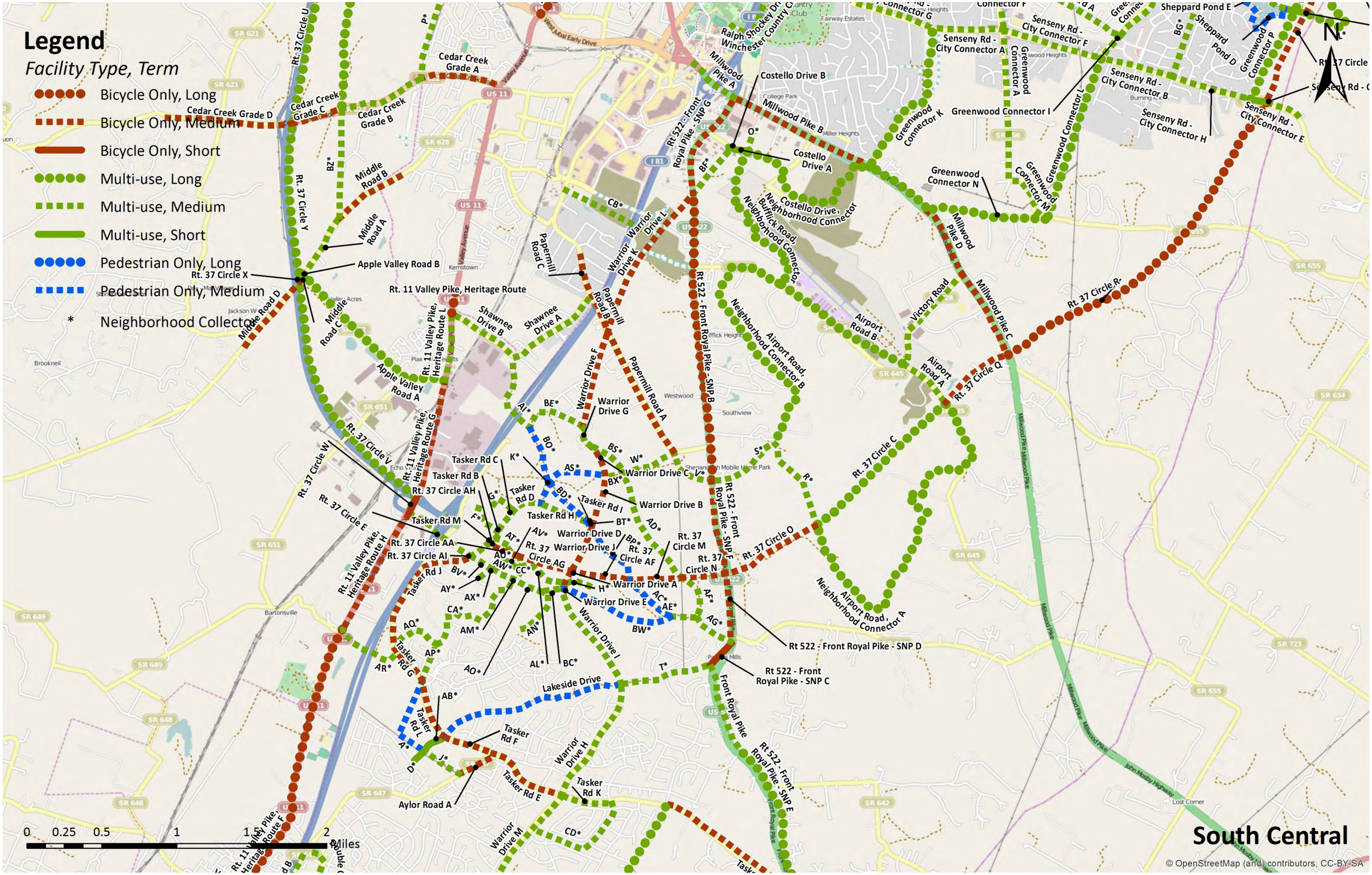
Facility Type, Term

- Bicycle Only, Long
- Bicycle Only, Medium
- Bicycle Only, Short
- Multi-use, Long
- Multi-use, Medium
- Multi-use, Short
- Pedestrian Only, Long
- Pedestrian Only, Medium
- * Neighborhood Collector

N

0 0.25 0.5 1 1.5 2 Miles

North Central


Legend
Facility Type, Term
Bicycle Only, Long
Bicycle Only, Medium
Bicycle Only, Short
Multi-use, Long
Multi-use, Medium
Multi-use, Short
Pedestrian Only, Long
Pedestrian Only, Medium
* Neighborhood Collector
Rt. 37 Circle U
Cedar Creek Grade D
Cedar Creek Grade C
Cedar Creek Grade B
Cedar Creek Grade A
P*
BZ*
Middle Road B
Middle Road A
Rt. 37 Circle Y
Apple Valley Road B
Rt. 37 Circle X
Middle Road D
Middle Road C
Apple Valley Road A
Rt. 11 Valley Pike, Heritage Route L
Rt. 11 Valley Pike, Heritage Route G
Rt. 37 Circle W
Rt. 37 Circle V
Rt. 37 Circle F
Rt. 11 Valley Pike, Heritage Route H
Rt. 11 Valley Pike, Heritage Route F
Rt. 11 Valley Pike, Heritage Route
Shawnee Drive B
Shawnee Drive A
Papermill Road C
Papermill Road B
Papermill Road A
CB*
Warrior Drive L
Warrior Drive K
Warrior Drive F
Warrior Drive G
Warrior Drive C
Warrior Drive B
Warrior Drive D
Warrior Drive J
Warrior Drive A
Warrior Drive E
Warrior Drive I
Warrior Drive H
Warrior Drive M
Tasker Rd C
Tasker Rd B
Tasker Rd D
Tasker Rd H
Tasker Rd I
Tasker Rd M
Tasker Rd J
Tasker Rd G
Tasker Rd L
Tasker Rd F
Tasker Rd E
Tasker Rd K
Aylor Road A
Rt. 37 Circle AH
Rt. 37 Circle AA
Rt. 37 Circle AI
Rt. 37 Circle AG
Rt. 37 Circle AF
Rt. 37 Circle M
Rt. 37 Circle N
Rt. 37 Circle O
Rt. 37 Circle C
Rt. 37 Circle Q
Rt. 37 Circle R
Rt. 522 - Front Royal Pike - SNP G
Rt. 522 - Front Royal Pike - SNP B
Rt. 522 - Front Royal Pike - SNP F
Rt. 522 - Front Royal Pike - SNP D
Rt. 522 - Front Royal Pike - SNP C
Rt. 522 - Front Royal Pike - SNP E
Front Royal Pike
Millwood Pike A
Millwood Pike B
Millwood Pike C
Millwood Pike D
Costello Drive B
Costello Drive A
Costello Drive, Neighborhood Connector
Buffalo Road, Neighborhood Connector
Airport Road, Neighborhood Connector B
Airport Road, Neighborhood Connector A
Airport Road B
Airport Road A
Victory Road
Greenwood Connector K
Greenwood Connector I
Greenwood Connector A
Greenwood Connector N
Greenwood Connector M
Greenwood Connector L
Greenwood Connector P
Senseny Rd - City Connector G
Senseny Rd - City Connector F
Senseny Rd - City Connector A
Senseny Rd - City Connector B
Senseny Rd - City Connector H
Senseny Rd - City Connector E
Sheppard Pond E
Sheppard Pond D
BG*
Ralph Shockey Winchester Country Club
Fairway Estates
College Park
Miller Heights
Kernstown
Valley Acres
Jackson Heights
Brookneil
Plaisance Heights
Buffalo Heights
Westwood
Southview
Shenandoah Mobile Home Park
Bartonsville
Pleasant Mills
Burning Tree
Lost Corner
SR 621
SR 628
SR 651
SR 649
SR 648
SR 647
SR 645
SR 642
SR 655
SR 634
SR 723
US 11
I 81
West Jubal Early Drive
Valley Avenue
0 0.25 0.5 1 1.5 2 Miles
South Central
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Legend

Facility Type, Term

- Bicycle Only, Long
- Bicycle Only, Medium
- Bicycle Only, Short
- Multi-use, Long
- Multi-use, Medium
- Multi-use, Short
- Pedestrian Only, Long
- Pedestrian Only, Medium
- * Neighborhood Collector

N

Rt. 11 Valley Pike, Heritage Route A

Rt. 11 Valley Pike, Heritage Route F

VA 277 - Fairfax Pike A

Aylor Road A

Aylor Road B

Double Church Road B

VA 277 - Fairfax Pike B

VA 277 - Fairfax Pike D

VA 277 - Fairfax Pike C

VA 277 - Fairfax Pike F

VA 277 - Fairfax Pike G

Town Run Lane

Garden Gate Drive

Town Run Ln, Hayvenhurst Ct, Neighborhood Connector

Double Church Road C

Double Church Road A

E*

Brandy Lane

Sherando Lane G

Double Church Road, Sherando Lane

Whiteoak Rd A

Whiteoak Rd B

Whiteoak Rd C

Tasker Rd L

Tasker Rd F

Tasker Rd E

Tasker Rd K

Tasker Rd A

AB*

A*

D*

J*

CD*

Warrior Drive H

Warrior Drive M

Lakeside Drive

Royal Pike - SNP C

Front Royal Pike

Rt 522 - Front Royal Pike - SNP E

Rt 522 - Front Royal Pike - SNP A

VA 277 - Fairfax Pike E

BB*

AZ*

BA*

BR*

I*

Lake Frederick B

Lake Frederick A

Lake Frederick C

Double Toll Gate

Gun Barrel Lane Estat

Stonewall Jackson Highway

Front Royal Pike

Ridings Hill

Klines Mill

Canterbury

Tulip

Ridings Mill

Middletown

Main Stre

SR 625

SR 629

SR 631

SR 638

SR 634

SR 635

SR 648

SR 647

SR 642

SR 643

SR 646

SR 726

SR 735

SR 636

SR 640

SR 641

SR 644

SR 854

US 11

VA 277

VA 7

302

307

0 0.25 0.5 1 1.5 2 Miles

South

Appendix D Final Project Rankings

All Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	Term	FID
1	Bicycle Only Sharrow	Proposed	Historic	3873.52	0.73	Clearbrook Connector A	0	1	0	3	0	0	0	0	2	1	3	1	0	0	0	11	12	$ 11,600	$ 967	Short	3
2	Multi-use	Proposed	Utilitarian	136.912	0.03	Costello Drive B	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 14,900	$ 1,146	Short	150
3	Pedestrian Only	Proposed	Utilitarian	301.925	0.06	BT*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 18,700	$ 1,438	Medium	219
4	Multi-use	Proposed	Utilitarian	200.489	0.04	Tasker Rd I	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 21,900	$ 1,460	Medium	206
5	Multi-use	Proposed	Utilitarian	176.153	0.03	Apple Valley Road B	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 19,200	$ 1,477	Short	183
6	Multi-use	Proposed	Utilitarian	195.706	0.04	Warrior Drive E	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 21,300	$ 1,638	Medium	142
7	Multi-use	Proffered	Utilitarian	263.123	0.05	Tasker Rd B	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 28,700	$ 1,913	Medium	33
8	Multi-use	Proffered	Utilitarian	230.407	0.04	AU*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 25,100	$ 1,931	Medium	132
9	Multi-use	Proposed	Utilitarian	237.967	0.05	Rt. 37 Circle X	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 25,900	$ 1,992	Short	182
10	Multi-use	Proposed	Utilitarian	249.115	0.05	Middle Road C	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 27,200	$ 2,092	Short	106
11	Multi-use	Proposed	Utilitarian	308.452	0.06	Merrimans Lane B	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 33,600	$ 2,240	Short	187
12	Multi-use	Proffered	Utilitarian	318.751	0.06	Tasker Rd M	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 34,700	$ 2,313	Medium	258
13	Bicycle Only	Proffered	Utilitarian	226.227	0.04	Warrior Drive D	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 18,600	$ 2,657	Medium	131
14	Multi-use	Proposed	Scenic	322.117	0.06	Rt. 37 Circle D	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 35,100	$ 2,925	Short	43
15	Multi-use	Proffered	Scenic	363.582	0.07	BB*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 39,600	$ 3,300	Short	141
16	Multi-use	Proposed	Utilitarian	546.987	0.1	AZ*	3	2	0	0	0	3	0	0	2	0	3	2	0	0	0	15	17	$ 59,600	$ 3,506	Short	139
17	Multi-use	Proposed	Utilitarian	561.124	0.11	AJ*	3	0	0	3	0	3	3	0	0	0	3	1	0	0	0	16	17	$ 61,200	$ 3,654	Short	111
18	Multi-use	Proffered	Utilitarian	442.9	0.08	CC*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 48,300	$ 3,715	Medium	254
19	Pedestrian Only	Proposed	Utilitarian	796.132	0.15	K*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 49,400	$ 3,800	Medium	36
20	Multi-use	Proposed	Utilitarian	571.339	0.11	Q*	3	0	0	3	0	3	0	0	2	1	3	1	0	0	0	16	16	$ 62,300	$ 3,894	Short	55
21	Multi-use	Proffered	Utilitarian	481.291	0.09	AM*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 52,500	$ 4,038	Medium	119
22	Multi-use	Proposed	Utilitarian	557.554	0.65	Senseny Rd - City Connector I	3	0	0	0	0	3	0	0	2	0	1	3	0	0	3	15	15	$ 60,800	$ 4,053	Short	268
23	Multi-use	Proffered	Utilitarian	498.07	0.09	AY*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 54,300	$ 4,177	Medium	136
24	Multi-use	Proposed	Utilitarian	723.324	0.14	Sherando Lane G	3	0	0	3	0	3	0	0	2	0	3	1	3	0	0	18	18	$ 78,800	$ 4,378	Short	27
25	Multi-use	Proposed	Utilitarian	694.268	0.13	Rt. 37 Circle T	3	3	0	0	0	3	0	0	0	0	3	2	0	0	0	14	17	$ 75,700	$ 4,453	Short	163
26	Multi-use	Proposed	Historic	478.47	0.09	D*	3	0	0	0	0	3	0	0	0	1	1	3	0	0	0	11	11	$ 52,200	$ 4,745	Short	6
27	Multi-use	Proposed	Scenic	758.503	0.14	Greenwood Connector B	3	2	0	0	0	3	0	0	2	1	1	3	0	0	0	15	17	$ 82,700	$ 4,865	Short	78
28	Multi-use	Proposed	Utilitarian	586.486	0.11	Costello Drive A	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 63,900	$ 4,915	Short	149
29	Multi-use	Proposed	Utilitarian	564.174	0.11	M*	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 61,500	$ 5,125	Short	42
30	Multi-use	Proposed	Utilitarian	639.338	0.12	BX*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 69,700	$ 5,362	Medium	231
31	Multi-use	Proffered	Utilitarian	641.032	0.12	AX*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 69,900	$ 5,377	Medium	135
32	Multi-use	Proposed	Utilitarian	729.302	0.14	Clearbrook Connector B	3	0	0	0	0	3	3	0	0	0	3	1	0	0	0	13	14	$ 79,500	$ 5,782	Short	18
33	Bicycle Only	Proposed	Utilitarian	659.253	0.12	Rt. 37 Circle W	0	1	0	0	0	0	0	0	2	1	3	1	0	0	0	8	9	$ 54,100	$ 6,011	Short	181
34	Bicycle Only	Proffered	Utilitarian	520.862	0.1	Warrior Drive A	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 42,700	$ 6,100	Medium	95
35	Bicycle Only	Proposed	Utilitarian	1125.129	0.21	Rt 522 - Front Royal Pike - SNP C	0	3	0	0	0	0	0	0	2	1	3	3	0	0	0	12	15	$ 92,300	$ 6,153	Short	101
36	Bicycle Only	Proposed	Utilitarian	1405.384	0.27	Aylor Road A	0	2	0	0	0	0	0	0	2	1	1	3	3	3	0	15	19	$ 115,200	$ 6,227	Medium	14
37	Multi-use	Proffered	Utilitarian	744.502	0.14	Rt. 37 Circle AI	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 81,200	$ 6,246	Medium	257
38	Multi-use	Proposed	Utilitarian	585.174	0.11	Clearbrook Connector C	3	0	0	0	0	3	0	0	0	0	3	1	0	0	0	10	10	$ 63,800	$ 6,380	Short	44
39	Multi-use	Proffered	Utilitarian	763.951	0.14	AV*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 83,300	$ 6,408	Medium	133

All Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	Term	FID
40	Multi-use	Proposed	Utilitarian	774.304	0.15	Warrior Drive G	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 84,400	$ 6,492	Medium	209
41	Bicycle Only	Proffered	Utilitarian	554.86	0.1	Rt. 37 Circle AA	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 45,500	$ 6,500	Medium	190
42	Multi-use	Proffered	Utilitarian	921.662	0.18	Tasker Rd C	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 100,500	$ 6,700	Medium	34
43	Multi-use	Proposed	Utilitarian	803.6	0.15	BC*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 87,600	$ 6,738	Medium	143
44	Multi-use	Proposed	Historic	1118.432	0.21	Clearbrook Connector E	3	1	0	3	0	3	0	0	2	1	3	1	0	0	0	17	18	$ 121,900	$ 6,772	Medium	88
45	Multi-use	Proffered	Utilitarian	829.747	0.16	Lake Frederick A	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 90,400	$ 6,954	Short	177
46	Multi-use	Proposed	Utilitarian	836.99	0.16	BV*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 91,200	$ 7,015	Medium	228
47	Multi-use	Proposed	Utilitarian	849.807	0.16	James Wood High School	3	0	0	0	0	3	3	0	0	0	2	1	0	0	0	12	13	$ 92,600	$ 7,263	Short	164
48	Multi-use	Proposed	Utilitarian	802.747	0.15	Sheppard Pond C	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 87,500	$ 7,292	Short	40
49	Multi-use	Proposed	Utilitarian	880.465	0.17	AW*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 96,000	$ 7,385	Medium	134
50	Multi-use	Proposed	Utilitarian	890.924	0.17	AE*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 97,100	$ 7,469	Medium	99
51	Multi-use	Proposed	Utilitarian	1042.833	0.2	AO*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 113,700	$ 7,580	Medium	121
52	Bicycle Only	Proffered	Utilitarian	651.676	0.12	Rt. 37 Circle AH	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 53,400	$ 7,629	Medium	256
53	Multi-use	Proffered	Utilitarian	1064.661	0.2	Tasker Rd D	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 116,000	$ 7,733	Medium	35
54	Multi-use	Proffered	Utilitarian	943.427	0.18	AT*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 102,800	$ 7,908	Medium	130
55	Multi-use	Proposed	Utilitarian	1033.648	0.2	Greenwood Connector I	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 112,700	$ 8,050	Medium	194
57	Multi-use	Proposed	Utilitarian	971.046	0.18	O*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 105,800	$ 8,138	Medium	52
58	Multi-use	Proffered	Utilitarian	1013.418	0.19	H*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 110,500	$ 8,500	Medium	21
58	Multi-use	Proposed	Historic	858.216	0.16	AB*	3	0	0	0	0	3	0	0	0	1	1	3	0	0	0	11	11	$ 93,500	$ 8,500	Short	93
60	Multi-use	Proposed	Utilitarian	948.168	0.18	Sheppard Pond F	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 103,400	$ 8,617	Medium	158
61	Pedestrian Only	Proposed	Scenic	3128.498	0.59	B*	3	0	0	3	0	3	0	0	2	1	2	1	3	3	0	21	23	$ 194,000	$ 8,622	Medium	1
62	Multi-use	Proposed	Utilitarian	732.31	0.14	Frederick Pike C	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 79,800	$ 8,867	Short	173
63	Pedestrian Only	Proposed	Utilitarian	1919.982	0.36	BD*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 119,000	$ 9,154	Medium	145
64	Multi-use	Proposed	Utilitarian	1261.303	0.24	Senseny Rd - City Connector E	3	0	0	0	0	3	0	0	2	0	1	3	0	0	3	15	15	$ 137,500	$ 9,167	Medium	60
65	Multi-use	Proffered	Utilitarian	1113.072	0.21	G*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 121,300	$ 9,331	Medium	20
66	Pedestrian Only	Proposed	Utilitarian	2014.804	0.38	AC*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 124,900	$ 9,608	Medium	96
67	Bicycle Only	Proposed	Utilitarian	1406.12	0.27	VA 277 - Fairfax Pike A	0	2	0	0	0	0	0	0	2	1	3	2	0	0	0	10	12	$ 115,300	$ 9,608	Medium	11
68	Pedestrian Only	Proffered	Utilitarian	2353.224	0.45	BY*	3	1	0	3	0	3	0	0	0	0	3	1	0	0	0	14	15	$ 145,900	$ 9,727	Medium	232
69	Bicycle Only	Proposed	Utilitarian	830.283	0.16	Rt. 37 Circle J	0	0	0	3	0	0	0	0	0	0	3	1	0	0	0	7	7	$ 68,100	$ 9,729	Short	89
70	Pedestrian Only	Proposed	Utilitarian	2086.809	0.4	BO*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 129,400	$ 9,954	Medium	204
71	Multi-use	Proposed	Utilitarian	1296.115	0.25	VA 277 - Fairfax Pike F	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 141,300	$ 10,093	Medium	32
72	Pedestrian Only	Proposed	Utilitarian	2120.079	0.4	AS*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 131,400	$ 10,108	Medium	129
73	Multi-use	Proposed	Utilitarian	1438.765	0.27	Double Church Road C	3	0	0	3	0	3	0	0	2	0	3	1	0	0	0	15	15	$ 156,800	$ 10,453	Medium	31
74	Bicycle Only	Proposed	Utilitarian	1404.174	0.27	Tasker Rd G	0	0	0	0	0	0	0	0	2	1	3	3	0	0	2	11	11	$ 115,100	$ 10,464	Medium	124
75	Multi-use	Proposed	Utilitarian	1363.28	0.26	BH*	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 148,600	$ 10,614	Medium	155
76	Pedestrian Only	Proposed	Utilitarian	2261.603	0.43	AK*	3	0	0	3	0	3	0	0	0	0	3	1	0	0	0	13	13	$ 140,200	$ 10,785	Medium	112
77	Multi-use	Proposed	Utilitarian	1887.291	0.36	Millwood Pike A	3	2	0	0	0	3	0	0	2	1	3	3	0	0	0	17	19	$ 205,700	$ 10,826	Medium	15
78	Multi-use	Proffered	Utilitarian	1299.932	0.23	F*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 141,700	$ 10,900	Medium	19
79	Multi-use	Proposed	Utilitarian	1501.133	0.28	AG*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 163,600	$ 10,907	Medium	102

All Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	Term	FID
80	Multi-use	Proposed	Utilitarian	1581.668	0.3	Clearbrook Connector D	3	1	0	0	0	3	3	0	0	0	3	1	0	0	0	14	16	$ 172,400	$ 10,946	Medium	45
81	Pedestrian Only	Proposed	Utilitarian	2328.646	0.44	BP*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 144,400	$ 11,108	Medium	205
82	Multi-use	Proposed	Utilitarian	1954.343	0.37	Senseny Rd - City Connector C	3	2	0	0	0	3	0	0	2	1	1	2	0	0	3	17	19	$ 213,000	$ 11,211	Medium	58
83	Bicycle Only	Proposed	Utilitarian	1641.595	0.31	Papermill Road C	0	2	3	0	0	0	0	0	0	1	1	3	0	0	0	10	12	$ 134,600	$ 11,217	Medium	77
84	Multi-use	Proposed	Utilitarian	1622.884	0.31	Old Charles Town Road C	3	1	0	0	0	3	3	0	0	0	3	1	0	0	0	14	16	$ 176,900	$ 11,232	Medium	253
85	Pedestrian Only	Proposed	Utilitarian	2924.947	0.55	CE*	3	0	0	0	0	3	0	0	2	1	3	1	3	0	0	16	16	$ 181,300	$ 11,331	Medium	279
86	Multi-use	Proposed	Historic	1483.609	0.28	J*	3	0	0	0	0	3	0	0	0	1	1	3	3	0	0	14	14	$ 161,700	$ 11,550	Medium	28
87	Multi-use	Proposed	Utilitarian	1598.462	0.3	Clearbrook Connector I	3	1	0	3	0	3	0	0	0	0	3	1	0	0	0	14	15	$ 174,200	$ 11,613	Medium	236
88	Bicycle Only	Proposed	Utilitarian	1842.244	0.35	Tasker Rd F	0	2	0	0	0	0	0	0	2	1	1	3	0	0	2	11	13	$ 151,100	$ 11,623	Medium	92
89	Multi-use	Proposed	Utilitarian	1190.205	0.23	Rt. 37 Circle P	3	0	0	0	0	3	0	0	0	0	3	2	0	0	0	11	11	$ 129,700	$ 11,791	Medium	117
90	Multi-use	Proposed	Utilitarian	1514.942	0.29	Stephenson Road	3	0	0	0	0	3	3	0	0	0	3	1	0	0	0	13	14	$ 165,100	$ 12,007	Medium	252
91	Multi-use	Proposed	Utilitarian	1814.756	0.33	Tasker Rd K	3	0	0	0	0	3	0	0	2	0	1	2	3	0	2	16	16	$ 197,800	$ 12,363	Medium	233
92	Multi-use	Proposed	Utilitarian	1591.275	0.3	Greenwood Connector J	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 173,400	$ 12,386	Medium	224
93	Bicycle Only	Proposed	Utilitarian	2873.972	0.54	VA 277 - Fairfax Pike D	0	3	0	3	0	0	0	0	2	0	3	2	3	0	0	16	19	$ 235,700	$ 12,405	Medium	23
94	Bicycle Only	Proposed	Utilitarian	2890.374	0.55	Cedar Creek Grade A	0	2	3	0	0	0	0	0	2	1	3	3	3	0	0	17	19	$ 237,000	$ 12,474	Medium	47
95	Bicycle Only	Proposed	Utilitarian	2715.595	0.51	Rt. 11 Valley Pike, Heritage Route C	0	2	0	3	0	0	3	0	0	0	3	1	0	0	3	15	18	$ 222,700	$ 12,546	Medium	110
96	Multi-use	Proposed	Utilitarian	1730.664	0.33	N*	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 188,600	$ 12,573	Medium	49
97	Multi-use	Proffered	Utilitarian	1739.928	0.33	Tasker Rd H	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 189,700	$ 12,647	Medium	144
98	Multi-use	Proposed	Historic	2110.369	0.4	Clearbrook Connector G	3	1	0	3	0	3	0	0	2	1	3	1	0	0	0	17	18	$ 230,000	$ 12,778	Medium	226
99	Multi-use	Proposed	Utilitarian	1528.061	0.29	BS*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 166,600	$ 12,815	Medium	218
100	Pedestrian Only	Proposed	Historic	3155.825	0.6	A*	3	2	0	0	0	3	0	0	0	1	1	3	0	0	0	13	15	$ 195,700	$ 13,047	Medium	0
100	Multi-use	Proposed	Scenic	1436.092	0.27	Greenwood Connector H	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 156,500	$ 13,042	Medium	185
102	Bicycle Only	Proposed	Utilitarian	1439.088	0.27	Papermill Road B	0	0	0	0	0	0	0	0	2	1	3	3	0	0	0	9	9	$ 118,000	$ 13,111	Medium	76
103	Multi-use	Proposed	Utilitarian	1088.214	0.21	Rt. 37 Circle B	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 118,600	$ 13,178	Medium	10
104	Multi-use	Proposed	Utilitarian	1092.554	0.21	Rt. 37 Circle Z	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 119,100	$ 13,233	Medium	189
105	Multi-use	Proposed	Utilitarian	1219.324	0.23	US 50 A	3	0	0	0	0	3	0	0	0	1	2	1	0	0	0	10	10	$ 132,900	$ 13,290	Medium	2
106	Bicycle Only	Proposed	Utilitarian	1784.203	0.34	Cedar Creek Grade C	0	2	0	0	0	0	0	0	2	1	3	1	0	0	0	9	11	$ 146,300	$ 13,300	Medium	222
107	Multi-use	Proposed	Utilitarian	1380.054	0.26	AP*	3	0	0	0	0	3	0	0	0	1	1	3	0	0	0	11	11	$ 150,400	$ 13,673	Medium	123
108	Multi-use	Proposed	Utilitarian	2524.958	0.48	Senseny Rd - City Connector A	3	2	0	0	0	3	0	0	2	1	1	3	0	0	3	18	20	$ 275,200	$ 13,760	Medium	56
109	Multi-use	Proposed	Utilitarian	2164.587	0.41	Greenwood Connector E	3	2	0	0	0	3	0	0	2	1	1	3	0	0	0	15	17	$ 235,900	$ 13,876	Medium	160
110	Pedestrian Only	Proffered	Scenic	2918.577	0.55	Z*	3	0	0	3	0	3	0	0	0	0	3	1	0	0	0	13	13	$ 181,000	$ 13,923	Medium	84
111	Bicycle Only	Proposed	Utilitarian	2973.508	0.56	Tasker Rd E	0	2	0	0	0	0	0	0	2	1	1	3	0	3	2	14	18	$ 243,800	$ 13,931	Medium	65
112	Multi-use	Proposed	Utilitarian	1927.097	0.36	AN*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 210,100	$ 14,007	Medium	120
113	Multi-use	Proposed	Utilitarian	1673.808	0.32	Indian Hollow Road	3	2	0	0	0	3	0	0	0	0	2	1	0	0	0	11	13	$ 182,400	$ 14,031	Medium	172
114	Multi-use	Proposed	Utilitarian	3329.219	0.63	Front Royal Pike	3	3	0	0	0	3	3	0	2	1	1	3	3	0	0	22	26	$ 362,900	$ 14,093	Medium	195
115	Multi-use	Proposed	Utilitarian	1681.627	0.32	BL*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 183,300	$ 14,100	Medium	188
116	Multi-use	Proposed	Utilitarian	1170.573	0.22	Rt. 37 Circle AB	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 127,600	$ 14,178	Medium	191
117	Multi-use	Proposed	Utilitarian	1951.799	0.37	AQ*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 212,700	$ 14,180	Medium	125
118	Multi-use	Proposed	Utilitarian	2486.248	0.47	AR*	3	2	0	0	0	3	0	0	2	1	3	3	0	0	0	17	19	$ 271,000	$ 14,263	Medium	126

All Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	Term	FID
119	Multi-use	Proposed	Utilitarian	2371.735	0.96	Rt. 11 Valley Pike, Heritage Route L	3	1	0	0	0	3	0	0	2	1	3	1	0	0	3	17	18	$ 258,500	$ 14,361	Medium	262
120	Bicycle Only	Proposed	Utilitarian	1230.131	0.23	Warrior Drive C	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 100,900	$ 14,414	Medium	128
121	Multi-use	Proposed	Utilitarian	1719.826	0.33	AF*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 187,500	$ 14,423	Medium	100
122	Multi-use	Proposed	Utilitarian	3159.927	0.6	Aylor Road B	3	2	0	0	0	3	3	0	2	0	3	2	3	0	0	21	24	$ 344,400	$ 14,501	Medium	203
123	Multi-use	Proposed	Utilitarian	2018.465	0.38	Airport Road A	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 220,000	$ 14,667	Medium	38
124	Multi-use	Proposed	Utilitarian	1349.582	0.26	AA*	3	0	0	0	0	3	0	0	0	0	3	1	0	0	0	10	10	$ 147,100	$ 14,710	Medium	85
125	Bicycle Only	Proposed	Utilitarian	1978.348	0.37	Warrior Drive L	0	2	0	0	0	0	0	0	2	1	3	1	0	0	0	9	11	$ 162,200	$ 14,745	Medium	251
126	Multi-use	Proposed	Utilitarian	2710.701	0.96	Shawnee Drive B	3	2	3	0	0	3	0	0	2	1	3	1	0	0	0	18	20	$ 295,500	$ 14,775	Medium	263
127	Multi-use	Proposed	Utilitarian	1629.75	0.31	Town Run Lane	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 177,600	$ 14,800	Medium	70
128	Multi-use	Proposed	Utilitarian	2185.231	0.41	Senseny Rd - City Connector D	3	0	0	0	0	3	0	0	2	1	1	3	0	0	3	16	16	$ 238,200	$ 14,888	Medium	59
129	Multi-use	Proffered	Utilitarian	1807.482	0.34	AL*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 197,000	$ 15,154	Medium	118
130	Multi-use	Proposed	Utilitarian	1545.044	0.9	Warrior Drive M	3	0	0	0	0	3	0	0	2	0	1	2	0	0	0	11	11	$ 168,400	$ 15,309	Medium	276
131	Multi-use	Proposed	Utilitarian	1827.593	0.35	V*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 199,200	$ 15,323	Medium	73
132	Multi-use	Proposed	Utilitarian	2677.621	0.51	S*	3	3	0	0	0	3	0	0	2	1	3	1	0	0	0	16	19	$ 291,900	$ 15,363	Medium	63
133	Multi-use	Proposed	Utilitarian	3241.976	0.61	Greenwood Connector G	3	3	0	0	0	3	3	0	2	1	1	3	0	0	0	19	23	$ 353,400	$ 15,534	Medium	165
134	Bicycle Only	Proposed	Utilitarian	2980.239	0.56	VA 277 - Fairfax Pike C	0	0	0	3	0	0	0	0	2	0	1	2	3	3	0	14	16	$ 244,400	$ 15,768	Medium	22
135	Multi-use	Proposed	Utilitarian	1628.06	0.31	Whiteoak Rd C	3	0	0	0	0	3	0	0	2	0	1	2	0	0	0	11	11	$ 177,500	$ 16,136	Medium	138
136	Bicycle Only	Proposed	Utilitarian	2189.5	0.41	Tasker Rd L	0	2	0	0	0	0	0	0	0	1	1	3	0	0	2	9	11	$ 179,500	$ 16,318	Medium	243
137	Multi-use	Proposed	Utilitarian	1348.272	0.25	U*	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 147,000	$ 16,333	Medium	67
138	Multi-use	Proposed	Utilitarian	1363.515	0.26	US 50 B	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 148,600	$ 16,511	Medium	174
139	Bicycle Only	Proposed	Scenic	1208.788	0.59	Rt. 37 Circle AJ	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	6	6	$ 99,100	$ 16,517	Short	265
140	Multi-use	Proposed	Utilitarian	1984.712	0.38	W*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 216,300	$ 16,638	Medium	74
141	Multi-use	Proposed	Utilitarian	2331.068	0.44	Merrimans Lane A	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 254,100	$ 16,940	Medium	186
142	Multi-use	Proposed	Utilitarian	2337.106	0.44	Middle Road A	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 254,700	$ 16,980	Medium	46
143	Pedestrian Only	Proposed	Utilitarian	4122.249	0.78	BW*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 255,600	$ 17,040	Medium	230
144	Multi-use	Proposed	Utilitarian	2688.912	0.51	Rt. 37 Circle E	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 293,100	$ 17,241	Medium	68
145	Pedestrian Only	Proposed	Utilitarian	3354.583	0.63	Sheppard Pond D	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 208,000	$ 17,333	Medium	156
146	Multi-use	Proposed	Utilitarian	3535.895	0.67	Shawnee Drive A	3	2	3	0	0	3	0	0	2	1	3	3	0	0	0	20	22	$ 385,400	$ 17,518	Medium	108
147	Multi-use	Proposed	Utilitarian	2111.574	0.4	BF*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 230,200	$ 17,708	Medium	148
148	Multi-use	Proposed	Utilitarian	3582.477	0.68	Double Church Road B	3	3	0	0	0	3	0	0	2	0	3	2	3	0	0	19	22	$ 390,500	$ 17,750	Medium	29
149	Multi-use	Proposed	Utilitarian	1967.706	0.37	BM*	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 214,500	$ 17,875	Medium	200
150	Bicycle Only	Proposed	Utilitarian	1544.852	0.29	Rt. 37 Circle N	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 126,700	$ 18,100	Medium	103
151	Multi-use	Proposed	Utilitarian	2172.807	0.41	Campus Boulevard	3	0	3	0	0	3	0	0	0	1	2	1	0	0	0	13	13	$ 236,800	$ 18,215	Medium	66
152	Multi-use	Proposed	Utilitarian	2007.447	0.38	BA*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 218,800	$ 18,233	Medium	140
153	Multi-use	Proposed	Utilitarian	2899.576	0.55	Greenwood Connector A	3	2	0	0	0	3	0	0	2	1	1	3	0	0	0	15	17	$ 316,100	$ 18,594	Medium	5
154	Multi-use	Proposed	Utilitarian	2914.188	0.55	Double Church Road A	3	1	0	3	0	3	0	0	2	0	3	1	0	0	0	16	17	$ 317,600	$ 18,682	Medium	7
155	Bicycle Only	Proffered	Utilitarian	1596.482	0.3	Warrior Drive J	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 130,900	$ 18,700	Medium	245
156	Multi-use	Proposed	Utilitarian	2584.681	0.49	Senseny Rd - City Connector B	3	0	0	0	0	3	0	0	2	0	1	3	0	0	3	15	15	$ 281,700	$ 18,780	Medium	57
157	Multi-use	Proposed	Utilitarian	2793.424	0.53	BI*	3	0	0	3	0	3	0	0	2	1	3	1	0	0	0	16	16	$ 304,500	$ 19,031	Medium	169

All Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	Term	FID
158	Pedestrian Only	Proposed	Utilitarian	6540.854	1.24	BQ*	3	3	0	0	0	3	0	0	2	1	3	3	0	0	0	18	21	$ 405,500	$ 19,310	Medium	214
159	Bicycle Only	Proposed	Utilitarian	2125.493	0.4	Old Charles Town Road A	0	1	0	3	0	0	0	0	0	0	3	1	0	0	0	8	9	$ 174,300	$ 19,367	Medium	113
160	Multi-use	Proposed	Utilitarian	2512.168	0.48	Greenwood Connector D	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 273,800	$ 19,557	Medium	154
161	Multi-use	Proposed	Utilitarian	2335.44	0.44	BE*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 254,600	$ 19,585	Medium	146
162	Multi-use	Proposed	Utilitarian	2168.953	0.41	Sheppard Pond E	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 236,400	$ 19,700	Medium	157
162	Multi-use	Proposed	Utilitarian	3072.078	0.58	Cedar Creek Grade B	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 334,900	$ 19,700	Medium	168
164	Bicycle Only	Proposed	Utilitarian	3175.455	0.6	VA 277 - Fairfax Pike B	0	2	0	3	0	0	0	0	2	0	3	1	0	0	0	11	13	$ 260,400	$ 20,031	Medium	13
165	Bicycle Only	Proposed	Utilitarian	1746.204	0.33	Warrior Drive B	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 143,200	$ 20,457	Medium	127
166	Multi-use	Proposed	Utilitarian	2257.146	0.43	Greenwood Connector F	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 246,000	$ 20,500	Medium	161
167	Bicycle Only	Proposed	Utilitarian	3268.128	0.62	Millwood Pike C	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 268,000	$ 20,615	Medium	248
168	Bicycle Only	Proposed	Utilitarian	4303.009	0.81	Rt. 11 Valley Pike, Heritage Route D	0	2	0	3	0	0	0	0	2	1	3	1	0	0	3	15	17	$ 352,800	$ 20,753	Medium	114
169	Multi-use	Proposed	Utilitarian	2858.911	0.65	Senseny Rd - City Connector H	3	0	0	0	0	3	0	0	2	0	1	3	0	0	3	15	15	$ 311,600	$ 20,773	Medium	267
170	Multi-use	Proposed	Utilitarian	4209.009	4.22	Rt. 11 Valley Pike, Heritage Route K	3	2	0	0	0	3	0	0	3	2	2	2	0	0	3	20	22	$ 458,800	$ 20,855	Medium	261
171	Bicycle Only	Proposed	Utilitarian	3323.448	0.63	Rt 522 - Front Royal Pike - SNP F	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 272,500	$ 20,962	Medium	208
172	Multi-use	Proposed	Utilitarian	2315.005	0.44	Greenwood Connector Q	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 252,300	$ 21,025	Medium	274
173	Multi-use	Proposed	Utilitarian	2915.465	0.55	AI*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 317,800	$ 21,187	Medium	107
174	Bicycle Only	Proposed	Utilitarian	3677.789	0.7	Rt. 37 Circle K	0	2	0	3	0	0	0	0	2	1	3	1	0	0	0	12	14	$ 301,600	$ 21,543	Medium	90
175	Bicycle Only	Proposed	Utilitarian	2905.119	0.55	Middle Road B	0	1	0	0	0	0	0	0	2	1	3	3	0	0	0	10	11	$ 238,200	$ 21,655	Medium	48
176	Bicycle Only	Proposed	Utilitarian	1875.392	0.36	Rt. 37 Circle M	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 153,800	$ 21,971	Medium	98
177	Multi-use	Proposed	Utilitarian	2436.591	0.46	Greenwood Connector O	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 265,600	$ 22,133	Medium	272
178	Multi-use	Proposed	Utilitarian	2439.146	0.46	I*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 265,900	$ 22,158	Medium	26
179	Multi-use	Proposed	Utilitarian	3418.218	0.65	R*	3	0	0	0	0	3	3	0	2	1	3	1	0	0	0	16	17	$ 372,600	$ 22,245	Medium	62
180	Bicycle Only	Proffered	Utilitarian	1901.719	0.36	Rt. 37 Circle AG	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 155,900	$ 22,271	Medium	255
181	Multi-use	Proposed	Utilitarian	2503.694	0.47	Garden Gate Drive	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 272,900	$ 22,742	Medium	69
182	Multi-use	Proposed	Utilitarian	3990.007	0.76	Victory Road	3	3	0	0	0	3	0	0	2	1	3	1	0	0	0	16	19	$ 434,900	$ 22,889	Medium	247
183	Multi-use	Proposed	Utilitarian	3574.487	0.68	Senseny Rd - City Connector F	3	1	0	0	0	3	0	0	2	0	1	3	0	0	3	16	17	$ 389,600	$ 22,918	Medium	197
184	Bicycle Only	Proposed	Utilitarian	3683.446	0.7	Rt. 37 Circle O	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 302,000	$ 23,231	Medium	104
185	Multi-use	Proposed	Utilitarian	2799.051	0.53	Rt. 37 Circle A	3	2	0	0	0	3	0	0	0	0	2	1	0	0	0	11	13	$ 305,100	$ 23,469	Medium	9
186	Bicycle Only	Proffered	Utilitarian	2043.051	0.39	Rt. 37 Circle AF	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 167,500	$ 23,929	Medium	227
187	Bicycle Only	Proposed	Utilitarian	5307.119	1.01	Tasker Rd A	0	3	0	0	0	0	0	0	2	1	1	3	3	0	2	15	18	$ 435,200	$ 24,178	Medium	24
188	Multi-use	Proposed	Utilitarian	4229.605	0.8	BU*	3	1	0	3	0	3	3	0	0	0	3	1	0	0	0	17	19	$ 461,000	$ 24,587	Medium	221
189	Bicycle Only	Proposed	Utilitarian	3917.925	0.74	Rt 522 - Front Royal Pike - SNP G	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 321,300	$ 24,715	Medium	244
190	Bicycle Only	Proposed	Utilitarian	4231.651	0.8	Rt. 11 Valley Pike, Heritage Route G	0	2	0	0	0	0	0	0	2	1	3	1	0	0	3	12	14	$ 347,000	$ 24,786	Medium	180
191	Multi-use	Proposed	Utilitarian	3881.122	0.74	BZ*	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 423,000	$ 24,882	Medium	235
192	Multi-use	Proposed	Utilitarian	3209.633	0.9	Warrior Drive M	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 349,800	$ 24,986	Medium	277
193	Multi-use	Proposed	Utilitarian	3490.664	0.66	Senseny Rd - City Connector G	3	0	0	0	0	3	0	0	2	1	1	2	0	0	3	15	15	$ 380,500	$ 25,367	Medium	220
194	Bicycle Only	Proposed	Utilitarian	2817.177	0.53	Rt. 37 Circle Q	0	1	0	0	0	0	0	0	2	1	3	1	0	0	0	8	9	$ 231,000	$ 25,667	Medium	151
195	Bicycle Only	Proposed	Utilitarian	3472.238	0.66	Warrior Drive F	0	2	0	0	0	0	0	0	2	1	3	1	0	0	0	9	11	$ 284,700	$ 25,882	Medium	147
196	Bicycle Only	Proposed	Scenic	1904.05	0.59	Rt. 37 Circle AK	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	6	6	$ 156,100	$ 26,017	Medium	266

All Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	Term	FID
197	Multi-use	Proposed	Utilitarian	3591.022	0.68	CB*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 391,400	$ 26,093	Medium	249
198	Multi-use	Proposed	Utilitarian	3672.415	0.7	C*	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 400,300	$ 26,687	Medium	4
199	Multi-use	Proposed	Utilitarian	4417.324	0.84	Greenwood Connector M	3	2	0	0	0	3	0	0	2	1	3	2	0	0	0	16	18	$ 481,500	$ 26,750	Medium	270
200	Bicycle Only	Proposed	Utilitarian	2325.326	0.44	Rt. 37 Circle I	0	0	0	3	0	0	0	0	0	0	3	1	0	0	0	7	7	$ 190,700	$ 27,243	Medium	87
201	Bicycle Only	Proposed	Utilitarian	4030.767	0.76	Rt. 37 Circle F	0	3	0	0	0	0	0	0	2	0	1	3	0	0	0	9	12	$ 330,500	$ 27,542	Medium	81
202	Multi-use	Proposed	Utilitarian	3803.253	0.72	Brandy Lane	3	0	0	3	0	3	0	0	2	0	3	1	0	0	0	15	15	$ 414,600	$ 27,640	Medium	30
203	Pedestrian Only	Proposed	Scenic	6740.713	1.28	Lakeside Drive	3	2	0	0	0	3	0	0	0	1	1	3	0	0	0	13	15	$ 417,900	$ 27,860	Medium	94
204	Bicycle Only	Proposed	Utilitarian	2411.47	0.46	Rt 522 - Front Royal Pike - SNP D	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 197,700	$ 28,243	Medium	105
205	Multi-use	Proposed	Utilitarian	4148.928	0.79	P*	3	0	0	3	0	3	0	0	2	1	3	1	0	0	0	16	16	$ 452,200	$ 28,263	Medium	54
206	Multi-use	Proposed	Utilitarian	3919.809	0.74	Rt. 37 Circle AE	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 427,300	$ 28,487	Medium	216
207	Multi-use	Proposed	Utilitarian	2385.547	0.45	BN*	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 260,000	$ 28,889	Medium	202
208	Multi-use	Proposed	Utilitarian	3981.079	0.75	Warrior Drive I	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 433,900	$ 28,927	Medium	239
209	Multi-use	Proposed	Utilitarian	6916.8	1.31	Meadow Branch Avenue	3	2	3	0	0	3	0	0	2	1	3	1	3	0	3	24	26	$ 753,900	$ 28,996	Long	199
210	Multi-use	Proposed	Utilitarian	4585.649	0.87	Warrior Drive H	3	2	0	0	0	3	0	0	2	1	1	3	0	0	0	15	17	$ 499,800	$ 29,400	Medium	212
211	Pedestrian Only	Proffered	Scenic	4807.776	0.91	Y*	3	0	0	0	0	3	0	0	0	0	3	1	0	0	0	10	10	$ 298,100	$ 29,810	Medium	82
212	Bicycle Only	Proposed	Utilitarian	3271.568	0.62	Middle Road D	0	1	0	0	0	0	0	0	2	1	3	1	0	0	0	8	9	$ 268,300	$ 29,811	Medium	238
213	Multi-use	Proposed	Utilitarian	3285.769	0.62	E*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 358,100	$ 29,842	Medium	8
214	Multi-use	Proposed	Utilitarian	4413.368	0.84	Ralph Shockey Drive, Winchester Country Club	3	0	0	0	3	3	0	0	2	1	1	3	0	0	0	16	16	$ 481,100	$ 30,069	Medium	225
215	Bicycle Only	Proposed	Utilitarian	2592.52	0.98	Millwood Pike D	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 212,600	$ 30,371	Medium	264
216	Multi-use	Proposed	Utilitarian	3955.976	0.75	CD*	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 431,200	$ 30,800	Medium	278
217	Pedestrian Only	Proffered	Scenic	7957.509	1.49	Old Charles Town Road B	3	1	0	0	0	3	3	0	0	0	3	1	0	0	0	14	16	$ 493,400	$ 31,327	Medium	241
218	Bicycle Only	Proposed	Utilitarian	5355.464	1.01	Millwood Pike B	0	3	0	0	0	0	0	0	2	1	3	2	0	0	0	11	14	$ 439,100	$ 31,364	Medium	16
219	Multi-use	Proposed	Utilitarian	3463.036	0.66	BG*	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 377,500	$ 31,458	Medium	153
220	Multi-use	Proposed	Utilitarian	4337.432	0.82	CA*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 472,800	$ 31,520	Medium	237
221	Bicycle Only	Proposed	Utilitarian	5003.194	0.95	Tasker Rd J	0	2	0	0	0	0	0	0	2	1	3	1	0	0	2	11	13	$ 410,300	$ 31,562	Medium	210
222	Bicycle Only	Proposed	Utilitarian	4641.683	0.88	Rt. 11 Valley Pike, Heritage Route H	0	1	0	0	0	0	0	0	2	1	3	1	0	0	3	11	12	$ 380,600	$ 31,717	Medium	223
223	Multi-use	Proposed	Utilitarian	3240.283	0.61	T*	3	0	0	0	0	3	0	0	0	1	1	3	0	0	0	11	11	$ 353,200	$ 32,109	Medium	64
224	Bicycle Only	Proposed	Utilitarian	3547.411	0.67	Frederick Pike B	0	3	0	0	0	0	0	0	0	0	2	1	0	0	0	6	9	$ 290,900	$ 32,322	Medium	171
225	Multi-use	Proposed	Utilitarian	2680.782	0.51	BK*	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 292,200	$ 32,467	Medium	175
226	Pedestrian Only	Proposed	Scenic	13668.774	2.59	X*	3	1	0	3	0	3	3	0	2	1	2	3	3	0	0	24	26	$ 847,500	$ 32,913	Long	80
227	Multi-use	Proposed	Utilitarian	4590.847	0.87	L*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 500,400	$ 33,360	Long	41
228	Multi-use	Proposed	Utilitarian	6238.863	1.18	Costello Drive, Neighborhood Connector	3	3	0	0	0	3	0	0	2	1	3	2	0	0	0	17	20	$ 680,000	$ 34,000	Long	207
229	Bicycle Only	Proposed	Utilitarian	4608.611	0.87	VA 277 - Fairfax Pike E	0	2	0	0	0	0	0	0	2	0	3	2	0	0	0	9	11	$ 377,900	$ 34,355	Medium	25
230	Multi-use	Proposed	Utilitarian	5994.904	1.14	Greenwood Connector L	3	2	0	0	0	3	0	0	2	1	3	3	0	0	0	17	19	$ 653,400	$ 34,389	Long	269
231	Multi-use	Proposed	Utilitarian	3792.967	0.72	BR*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 413,400	$ 34,450	Medium	215
232	Bicycle Only	Proposed	Utilitarian	4845.968	0.92	Papermill Road A	0	2	0	0	0	0	0	0	2	1	3	1	0	0	0	9	11	$ 397,400	$ 36,127	Medium	75
233	Multi-use	Proposed	Utilitarian	4350.692	0.82	AD*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 474,200	$ 36,477	Medium	97
234	Bicycle Only	Proposed	Utilitarian	8081.561	1.53	Rt. 11 Valley Pike, Heritage Route E	0	2	0	3	0	0	3	0	0	0	3	1	0	0	3	15	18	$ 662,700	$ 37,335	Long	115
235	Multi-use	Proposed	Utilitarian	4827.134	0.91	Rt 522 - Front Royal Pike - SNP E	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 526,200	$ 37,586	Long	196

All Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	Term	FID
236	Multi-use	Proposed	Utilitarian	5868.009	1.11	Double Church Road, Sherando Lane	3	1	0	3	0	3	0	0	2	0	3	1	0	0	0	16	17	$ 639,600	$ 37,624	Long	217
237	Multi-use	Proposed	Scenic	4843.397	0.92	Greenwood Connector C	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 527,900	$ 37,707	Long	79
238	Multi-use	Proposed	Utilitarian	5220.086	0.99	Airport Road B	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 569,000	$ 37,933	Long	71
239	Multi-use	Proposed	Utilitarian	5615.725	1.06	BJ*	3	0	0	3	0	3	0	0	2	1	3	1	0	0	0	16	16	$ 612,100	$ 38,256	Long	170
240	Multi-use	Proposed	Utilitarian	4574.523	0.87	Clearbrook Connector H	3	0	0	3	0	3	0	0	0	0	3	1	0	0	0	13	13	$ 498,600	$ 38,354	Medium	234
241	Multi-use	Proposed	Utilitarian	5746.949	1.09	Greenwood Connector K	3	2	0	0	0	3	0	0	2	1	1	2	0	0	0	14	16	$ 626,400	$ 39,150	Long	242
242	Multi-use	Proposed	Utilitarian	4322.158	0.82	Farmington Boulevard A	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 471,100	$ 39,258	Medium	159
243	Multi-use	Proposed	Utilitarian	5848.669	1.11	Rt. 37, Cives Lane	3	1	0	0	0	3	0	0	2	1	3	2	0	0	0	15	16	$ 637,500	$ 39,844	Long	198
244	Multi-use	Proposed	Utilitarian	6872.581	1.3	Greenwood Connector N	3	2	0	0	0	3	0	0	2	1	3	2	0	0	0	16	18	$ 749,100	$ 41,617	Long	271
245	Multi-use	Proposed	Utilitarian	6499.295	1.23	Apple Valley Road A	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 708,400	$ 41,671	Long	166
246	Multi-use	Proposed	Utilitarian	8485.545	1.61	Redbud Road	3	2	0	3	0	3	0	0	2	1	2	1	3	0	0	20	22	$ 924,900	$ 42,041	Long	213
247	Bicycle Only	Proposed	Utilitarian	7868.154	1.49	Rt. 11 Valley Pike, Heritage Route I	0	3	0	0	0	0	0	0	2	1	2	1	0	0	3	12	15	$ 645,200	$ 43,013	Long	246
248	Multi-use	Proposed	Utilitarian	9196.155	1.74	Frederick Pike A	3	3	3	0	0	3	0	0	2	1	3	2	0	0	0	20	23	$ 1,002,400	$ 43,583	Long	116
249	Multi-use	Proposed	Utilitarian	6080.729	1.15	Rt. 37 Circle U	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 662,800	$ 44,187	Long	167
250	Multi-use	Proposed	Utilitarian	6104.489	1.16	US 50 D	3	0	3	0	0	3	0	0	0	1	2	0	3	0	0	15	15	$ 665,400	$ 44,360	Long	281
251	Multi-use	Proposed	Utilitarian	6128.758	1.16	Bufflick Road, Neighborhood Connector	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 668,000	$ 44,533	Long	240
252	Bicycle Only	Proposed	Utilitarian	3811.106	0.72	Warrior Drive K	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 312,500	$ 44,643	Medium	250
253	Multi-use	Proposed	Utilitarian	5343.272	1.01	Rt. 37 Circle Y	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 582,400	$ 44,800	Long	184
254	Multi-use	Proposed	Utilitarian	5765.899	1.09	Whiteoak Rd B	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 628,500	$ 44,893	Long	137
255	Pedestrian Only	Proposed	Utilitarian	8934.896	1.69	Town Run Ln, Hayvenhurst Ct, Neighborhood Connecto	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 554,000	$ 46,167	Long	211
256	Bicycle Only	Proposed	Utilitarian	3444.972	0.65	Rt. 37 Circle AD	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	6	6	$ 282,500	$ 47,083	Medium	193
257	Multi-use	Proposed	Utilitarian	5713.95	1.08	Rt. 37 Circle S	3	1	0	0	0	3	0	0	0	0	3	2	0	0	0	12	13	$ 622,800	$ 47,908	Long	162
258	Multi-use	Proposed	Utilitarian	5543.174	1.05	Greenwood Connector P	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 604,200	$ 50,350	Long	273
259	Multi-use	Proposed	Utilitarian	6242.948	1.18	Rt. 37 Circle C	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 680,500	$ 52,346	Long	37
260	Bicycle Only	Proposed	Utilitarian	4473.795	0.85	Cedar Creek Grade D	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 366,900	$ 52,414	Medium	229
261	Multi-use	Proposed	Utilitarian	8636.516	1.64	Whiteoak Rd A	3	2	0	0	0	3	0	0	2	0	3	2	0	0	0	15	17	$ 941,400	$ 55,376	Long	50
262	Bicycle Only	Proposed	Utilitarian	7604.109	1.44	VA 277 - Fairfax Pike G	0	2	0	0	0	0	0	0	2	0	3	2	0	0	0	9	11	$ 623,500	$ 56,682	Long	201
263	Multi-use	Proposed	Utilitarian	9102.503	1.72	Rt. 37 Circle V	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 992,200	$ 58,365	Long	179
264	Multi-use	Proposed	Utilitarian	9448.644	1.79	Airport Road, Neighborhood Connector B	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 1,029,900	$ 60,582	Long	72
265	Bicycle Only	Proposed	Utilitarian	10139.044	1.92	Rt 522 - Front Royal Pike - SNP B	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 831,400	$ 63,954	Long	61
266	Bicycle Only	Proposed	Utilitarian	10739.285	2.03	Rt. 11 Valley Pike, Heritage Route F	0	1	0	0	0	0	0	0	2	1	3	2	0	0	3	12	13	$ 880,600	$ 67,738	Long	122
267	Multi-use	Proposed	Utilitarian	18079.426	4.22	Brooke Road, Fort Collier Road, and Berryville Ave	3	3	3	0	0	3	3	0	3	2	2	2	0	0	0	24	28	$ 1,970,700	$ 71,016	Long	260
268	Bicycle Only	Proposed	Utilitarian	13134.46	2.49	Rt. 37 Circle R	0	3	0	0	0	0	0	0	2	1	3	3	0	0	0	12	15	$ 1,077,000	$ 71,800	Long	152
269	Multi-use	Proposed	Scenic	8097.619	1.53	Abrams Creek	3	0	0	0	0	3	0	0	2	1	1	2	0	0	0	12	12	$ 882,600	$ 73,550	Long	53
270	Bicycle Only	Proposed	Utilitarian	25181.636	4.77	Rt. 11 Valley Pike, Heritage Route J	0	3	3	0	0	0	0	0	3	2	3	3	3	0	3	23	26	$ 2,064,900	$ 79,419	Long	259
271	Multi-use	Proposed	Utilitarian	14099.22	2.67	Airport Road, Neighborhood Connector A	3	1	0	0	3	3	0	0	2	1	3	1	0	0	0	17	18	$ 1,536,800	$ 85,378	Long	39
272	Bicycle Only	Proposed	Utilitarian	10434.056	1.98	Rt. 37 Circle G	0	1	0	0	0	0	0	0	2	0	3	3	0	0	0	9	10	$ 855,600	$ 85,560	Long	83
273	Multi-use	Proposed	Utilitarian	7910.866	1.5	Clearbrook Connector F	3	0	0	0	0	3	0	0	0	0	3	1	0	0	0	10	10	$ 862,300	$ 86,230	Long	109
274	Bicycle Only	Proposed	Utilitarian	3232.347	0.61	US 50 C	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	3	$ 265,100	$ 88,367	Medium	176

All Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	Term	FID
275	Multi-use	Proposed	Utilitarian	7681.585	1.45	Rt. 37 Circle AC	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 837,300	$ 93,033	Long	192
276	Bicycle Only	Proposed	Utilitarian	4933.775	0.93	Rt. 37 Circle H	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4	4	$ 404,600	$ 101,150	Medium	86
277	Multi-use	Proffered	Scenic	11498.375	2.18	Lake Frederick C	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 1,253,300	$ 104,442	Long	275
278	Bicycle Only	Proposed	Utilitarian	15946.362	3.02	Rt. 37 Circle L	0	2	0	0	0	0	0	0	2	1	3	2	0	0	0	10	12	$ 1,307,600	$ 108,967	Long	91
279	Bicycle Only	Proposed	Utilitarian	14717.825	2.79	Rt. 11 Valley Pike, Heritage Route B	0	2	0	0	0	0	0	0	0	0	3	1	0	0	3	9	11	$ 1,206,900	$ 109,718	Long	17
280	Multi-use	Proffered	Scenic	12619.209	2.39	Lake Frederick B	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 1,375,500	$ 114,625	Long	178
281	Bicycle Only	Proposed	Utilitarian	25181.636	4.77	Rt. 11 Valley Pike, Heritage Route	0	1	0	0	0	0	0	0	2	1	3	3	3	0	3	16	17	$ 2,064,900	$ 121,465	Long	280
282	Bicycle Only	Proposed	Utilitarian	8564.406	1.62	Rt 522 - Front Royal Pike - SNP A	0	0	0	0	0	0	0	0	2	0	1	2	0	0	0	5	5	$ 702,300	$ 140,460	Long	51
283	Bicycle Only	Proposed	Utilitarian	25699.656	4.87	Rt. 11 Valley Pike, Heritage Route A	0	2	0	0	0	0	0	0	0	1	3	2	0	0	3	11	13	$ 2,107,400	$ 162,108	Long	12

Short Term Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	FID
1	Bicycle Only Sharrow	Proposed	Historic	3873.52	0.73	Clearbrook Connector A	0	1	0	3	0	0	0	0	2	1	3	1	0	0	0	11	12	$ 11,600	$ 967	3
2	Multi-use	Proposed	Utilitarian	136.912	0.03	Costello Drive B	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 14,900	$ 1,146	150
5	Multi-use	Proposed	Utilitarian	176.153	0.03	Apple Valley Road B	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 19,200	$ 1,477	183
9	Multi-use	Proposed	Utilitarian	237.967	0.05	Rt. 37 Circle X	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 25,900	$ 1,992	182
10	Multi-use	Proposed	Utilitarian	249.115	0.05	Middle Road C	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 27,200	$ 2,092	106
11	Multi-use	Proposed	Utilitarian	308.452	0.06	Merrimans Lane B	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 33,600	$ 2,240	187
14	Multi-use	Proposed	Scenic	322.117	0.06	Rt. 37 Circle D	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 35,100	$ 2,925	43
15	Multi-use	Proffered	Scenic	363.582	0.07	BB*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 39,600	$ 3,300	141
16	Multi-use	Proposed	Utilitarian	546.987	0.1	AZ*	3	2	0	0	0	3	0	0	2	0	3	2	0	0	0	15	17	$ 59,600	$ 3,506	139
17	Multi-use	Proposed	Utilitarian	561.124	0.11	AJ*	3	0	0	3	0	3	3	0	0	0	3	1	0	0	0	16	17	$ 61,200	$ 3,654	111
20	Multi-use	Proposed	Utilitarian	571.339	0.11	Q*	3	0	0	3	0	3	0	0	2	1	3	1	0	0	0	16	16	$ 62,300	$ 3,894	55
22	Multi-use	Proposed	Utilitarian	557.554	0.65	Senseny Rd - City Connector I	3	0	0	0	0	3	0	0	2	0	1	3	0	0	3	15	15	$ 60,800	$ 4,053	268
24	Multi-use	Proposed	Utilitarian	723.324	0.14	Sherando Lane G	3	0	0	3	0	3	0	0	2	0	3	1	3	0	0	18	18	$ 78,800	$ 4,378	27
25	Multi-use	Proposed	Utilitarian	694.268	0.13	Rt. 37 Circle T	3	3	0	0	0	3	0	0	0	0	3	2	0	0	0	14	17	$ 75,700	$ 4,453	163
26	Multi-use	Proposed	Historic	478.47	0.09	D*	3	0	0	0	0	3	0	0	0	1	1	3	0	0	0	11	11	$ 52,200	$ 4,745	6
27	Multi-use	Proposed	Scenic	758.503	0.14	Greenwood Connector B	3	2	0	0	0	3	0	0	2	1	1	3	0	0	0	15	17	$ 82,700	$ 4,865	78
28	Multi-use	Proposed	Utilitarian	586.486	0.11	Costello Drive A	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 63,900	$ 4,915	149
29	Multi-use	Proposed	Utilitarian	564.174	0.11	M*	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 61,500	$ 5,125	42
32	Multi-use	Proposed	Utilitarian	729.302	0.14	Clearbrook Connector B	3	0	0	0	0	3	3	0	0	0	3	1	0	0	0	13	14	$ 79,500	$ 5,782	18
33	Bicycle Only	Proposed	Utilitarian	659.253	0.12	Rt. 37 Circle W	0	1	0	0	0	0	0	0	2	1	3	1	0	0	0	8	9	$ 54,100	$ 6,011	181
35	Bicycle Only	Proposed	Utilitarian	1125.129	0.21	Rt 522 - Front Royal Pike - SNP C	0	3	0	0	0	0	0	0	2	1	3	3	0	0	0	12	15	$ 92,300	$ 6,153	101
38	Multi-use	Proposed	Utilitarian	585.174	0.11	Clearbrook Connector C	3	0	0	0	0	3	0	0	0	0	3	1	0	0	0	10	10	$ 63,800	$ 6,380	44
45	Multi-use	Proffered	Utilitarian	829.747	0.16	Lake Frederick A	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 90,400	$ 6,954	177
47	Multi-use	Proposed	Utilitarian	849.807	0.16	James Wood High School	3	0	0	0	0	3	3	0	0	0	2	1	0	0	0	12	13	$ 92,600	$ 7,263	164
48	Multi-use	Proposed	Utilitarian	802.747	0.15	Sheppard Pond C	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 87,500	$ 7,292	40
58	Multi-use	Proposed	Historic	858.216	0.16	AB*	3	0	0	0	0	3	0	0	0	1	1	3	0	0	0	11	11	$ 93,500	$ 8,500	93
62	Multi-use	Proposed	Utilitarian	732.31	0.14	Frederick Pike C	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 79,800	$ 8,867	173
69	Bicycle Only	Proposed	Utilitarian	830.283	0.16	Rt. 37 Circle J	0	0	0	3	0	0	0	0	0	0	3	1	0	0	0	7	7	$ 68,100	$ 9,729	89
139	Bicycle Only	Proposed	Scenic	1208.788	0.59	Rt. 37 Circle AJ	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	6	6	$ 99,100	$ 16,517	265

Medium Term Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	FID
3	Pedestrian Only	Proposed	Utilitarian	301.925	0.06	BT*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 18,700	$ 1,438	219
4	Multi-use	Proposed	Utilitarian	200.489	0.04	Tasker Rd I	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 21,900	$ 1,460	206
6	Multi-use	Proposed	Utilitarian	195.706	0.04	Warrior Drive E	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 21,300	$ 1,638	142
7	Multi-use	Proffered	Utilitarian	263.123	0.05	Tasker Rd B	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 28,700	$ 1,913	33
8	Multi-use	Proffered	Utilitarian	230.407	0.04	AU*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 25,100	$ 1,931	132
12	Multi-use	Proffered	Utilitarian	318.751	0.06	Tasker Rd M	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 34,700	$ 2,313	258
13	Bicycle Only	Proffered	Utilitarian	226.227	0.04	Warrior Drive D	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 18,600	$ 2,657	131
18	Multi-use	Proffered	Utilitarian	442.9	0.08	CC*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 48,300	$ 3,715	254
19	Pedestrian Only	Proposed	Utilitarian	796.132	0.15	K*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 49,400	$ 3,800	36
21	Multi-use	Proffered	Utilitarian	481.291	0.09	AM*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 52,500	$ 4,038	119
23	Multi-use	Proffered	Utilitarian	498.07	0.09	AY*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 54,300	$ 4,177	136
30	Multi-use	Proposed	Utilitarian	639.338	0.12	BX*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 69,700	$ 5,362	231
31	Multi-use	Proffered	Utilitarian	641.032	0.12	AX*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 69,900	$ 5,377	135
34	Bicycle Only	Proffered	Utilitarian	520.862	0.1	Warrior Drive A	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 42,700	$ 6,100	95
36	Bicycle Only	Proposed	Utilitarian	1405.384	0.27	Aylor Road A	0	2	0	0	0	0	0	0	2	1	1	3	3	3	0	15	19	$ 115,200	$ 6,227	14
37	Multi-use	Proffered	Utilitarian	744.502	0.14	Rt. 37 Circle AI	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 81,200	$ 6,246	257
39	Multi-use	Proffered	Utilitarian	763.951	0.14	AV*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 83,300	$ 6,408	133
40	Multi-use	Proposed	Utilitarian	774.304	0.15	Warrior Drive G	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 84,400	$ 6,492	209
41	Bicycle Only	Proffered	Utilitarian	554.86	0.1	Rt. 37 Circle AA	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 45,500	$ 6,500	190
42	Multi-use	Proffered	Utilitarian	921.662	0.18	Tasker Rd C	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 100,500	$ 6,700	34
43	Multi-use	Proposed	Utilitarian	803.6	0.15	BC*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 87,600	$ 6,738	143
44	Multi-use	Proposed	Historic	1118.432	0.21	Clearbrook Connector E	3	1	0	3	0	3	0	0	2	1	3	1	0	0	0	17	18	$ 121,900	$ 6,772	88
46	Multi-use	Proposed	Utilitarian	836.99	0.16	BV*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 91,200	$ 7,015	228
49	Multi-use	Proposed	Utilitarian	880.465	0.17	AW*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 96,000	$ 7,385	134
50	Multi-use	Proposed	Utilitarian	890.924	0.17	AE*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 97,100	$ 7,469	99
51	Multi-use	Proposed	Utilitarian	1042.833	0.2	AO*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 113,700	$ 7,580	121
52	Bicycle Only	Proffered	Utilitarian	651.676	0.12	Rt. 37 Circle AH	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 53,400	$ 7,629	256
53	Multi-use	Proffered	Utilitarian	1064.661	0.2	Tasker Rd D	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 116,000	$ 7,733	35
54	Multi-use	Proffered	Utilitarian	943.427	0.18	AT*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 102,800	$ 7,908	130
55	Multi-use	Proposed	Utilitarian	1033.648	0.2	Greenwood Connector I	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 112,700	$ 8,050	194
57	Multi-use	Proposed	Utilitarian	971.046	0.18	O*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 105,800	$ 8,138	52
58	Multi-use	Proffered	Utilitarian	1013.418	0.19	H*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 110,500	$ 8,500	21
60	Multi-use	Proposed	Utilitarian	948.168	0.18	Sheppard Pond F	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 103,400	$ 8,617	158
61	Pedestrian Only	Proposed	Scenic	3128.498	0.59	B*	3	0	0	3	0	3	0	0	2	1	2	1	3	3	0	21	23	$ 194,000	$ 8,622	1
63	Pedestrian Only	Proposed	Utilitarian	1919.982	0.36	BD*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 119,000	$ 9,154	145
64	Multi-use	Proposed	Utilitarian	1261.303	0.24	Senseny Rd - City Connector E	3	0	0	0	0	3	0	0	2	0	1	3	0	0	3	15	15	$ 137,500	$ 9,167	60
65	Multi-use	Proffered	Utilitarian	1113.072	0.21	G*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 121,300	$ 9,331	20
66	Pedestrian Only	Proposed	Utilitarian	2014.804	0.38	AC*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 124,900	$ 9,608	96
67	Bicycle Only	Proposed	Utilitarian	1406.12	0.27	VA 277 - Fairfax Pike A	0	2	0	0	0	0	0	0	2	1	3	2	0	0	0	10	12	$ 115,300	$ 9,608	11
68	Pedestrian Only	Proffered	Utilitarian	2353.224	0.45	BY*	3	1	0	3	0	3	0	0	0	0	3	1	0	0	0	14	15	$ 145,900	$ 9,727	232
70	Pedestrian Only	Proposed	Utilitarian	2086.809	0.4	BO*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 129,400	$ 9,954	204
71	Multi-use	Proposed	Utilitarian	1296.115	0.25	VA 277 - Fairfax Pike F	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 141,300	$ 10,093	32
72	Pedestrian Only	Proposed	Utilitarian	2120.079	0.4	AS*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 131,400	$ 10,108	129
73	Multi-use	Proposed	Utilitarian	1438.765	0.27	Double Church Road C	3	0	0	3	0	3	0	0	2	0	3	1	0	0	0	15	15	$ 156,800	$ 10,453	31
74	Bicycle Only	Proposed	Utilitarian	1404.174	0.27	Tasker Rd G	0	0	0	0	0	0	0	0	2	1	3	3	0	0	2	11	11	$ 115,100	$ 10,464	124
75	Multi-use	Proposed	Utilitarian	1363.28	0.26	BH*	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 148,600	$ 10,614	155
76	Pedestrian Only	Proposed	Utilitarian	2261.603	0.43	AK*	3	0	0	3	0	3	0	0	0	0	3	1	0	0	0	13	13	$ 140,200	$ 10,785	112
77	Multi-use	Proposed	Utilitarian	1887.291	0.36	Millwood Pike A	3	2	0	0	0	3	0	0	2	1	3	3	0	0	0	17	19	$ 205,700	$ 10,826	15
78	Multi-use	Proffered	Utilitarian	1299.932	0.23	F*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 141,700	$ 10,900	19

Medium Term Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	FID
79	Multi-use	Proposed	Utilitarian	1501.133	0.28	AG*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 163,600	$ 10,907	102
80	Multi-use	Proposed	Utilitarian	1581.668	0.3	Clearbrook Connector D	3	1	0	0	0	3	3	0	0	0	3	1	0	0	0	14	16	$ 172,400	$ 10,946	45
81	Pedestrian Only	Proposed	Utilitarian	2328.646	0.44	BP*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 144,400	$ 11,108	205
82	Multi-use	Proposed	Utilitarian	1954.343	0.37	Senseny Rd - City Connector C	3	2	0	0	0	3	0	0	2	1	1	2	0	0	3	17	19	$ 213,000	$ 11,211	58
83	Bicycle Only	Proposed	Utilitarian	1641.595	0.31	Papermill Road C	0	2	3	0	0	0	0	0	0	1	1	3	0	0	0	10	12	$ 134,600	$ 11,217	77
84	Multi-use	Proposed	Utilitarian	1622.884	0.31	Old Charles Town Road C	3	1	0	0	0	3	3	0	0	0	3	1	0	0	0	14	16	$ 176,900	$ 11,232	253
85	Pedestrian Only	Proposed	Utilitarian	2924.947	0.55	CE*	3	0	0	0	0	3	0	0	2	1	3	1	3	0	0	16	16	$ 181,300	$ 11,331	279
86	Multi-use	Proposed	Historic	1483.609	0.28	J*	3	0	0	0	0	3	0	0	0	1	1	3	3	0	0	14	14	$ 161,700	$ 11,550	28
87	Multi-use	Proposed	Utilitarian	1598.462	0.3	Clearbrook Connector I	3	1	0	3	0	3	0	0	0	0	3	1	0	0	0	14	15	$ 174,200	$ 11,613	236
88	Bicycle Only	Proposed	Utilitarian	1842.244	0.35	Tasker Rd F	0	2	0	0	0	0	0	0	2	1	1	3	0	0	2	11	13	$ 151,100	$ 11,623	92
89	Multi-use	Proposed	Utilitarian	1190.205	0.23	Rt. 37 Circle P	3	0	0	0	0	3	0	0	0	0	3	2	0	0	0	11	11	$ 129,700	$ 11,791	117
90	Multi-use	Proposed	Utilitarian	1514.942	0.29	Stephenson Road	3	0	0	0	0	3	3	0	0	0	3	1	0	0	0	13	14	$ 165,100	$ 12,007	252
91	Multi-use	Proposed	Utilitarian	1814.756	0.33	Tasker Rd K	3	0	0	0	0	3	0	0	2	0	1	2	3	0	2	16	16	$ 197,800	$ 12,363	233
92	Multi-use	Proposed	Utilitarian	1591.275	0.3	Greenwood Connector J	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 173,400	$ 12,386	224
93	Bicycle Only	Proposed	Utilitarian	2873.972	0.54	VA 277 - Fairfax Pike D	0	3	0	3	0	0	0	0	2	0	3	2	3	0	0	16	19	$ 235,700	$ 12,405	23
94	Bicycle Only	Proposed	Utilitarian	2890.374	0.55	Cedar Creek Grade A	0	2	3	0	0	0	0	0	2	1	3	3	3	0	0	17	19	$ 237,000	$ 12,474	47
95	Bicycle Only	Proposed	Utilitarian	2715.595	0.51	Rt. 11 Valley Pike, Heritage Route C	0	2	0	3	0	0	3	0	0	0	3	1	0	0	3	15	18	$ 222,700	$ 12,546	110
96	Multi-use	Proposed	Utilitarian	1730.664	0.33	N*	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 188,600	$ 12,573	49
97	Multi-use	Proffered	Utilitarian	1739.928	0.33	Tasker Rd H	3	0	0	0	0	3	0	0	2	1	3	1	0	0	2	15	15	$ 189,700	$ 12,647	144
98	Multi-use	Proposed	Historic	2110.369	0.4	Clearbrook Connector G	3	1	0	3	0	3	0	0	2	1	3	1	0	0	0	17	18	$ 230,000	$ 12,778	226
99	Multi-use	Proposed	Utilitarian	1528.061	0.29	BS*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 166,600	$ 12,815	218
100	Pedestrian Only	Proposed	Historic	3155.825	0.6	A*	3	2	0	0	0	3	0	0	0	1	1	3	0	0	0	13	15	$ 195,700	$ 13,047	0
100	Multi-use	Proposed	Scenic	1436.092	0.27	Greenwood Connector H	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 156,500	$ 13,042	185
102	Bicycle Only	Proposed	Utilitarian	1439.088	0.27	Papermill Road B	0	0	0	0	0	0	0	0	2	1	3	3	0	0	0	9	9	$ 118,000	$ 13,111	76
103	Multi-use	Proposed	Utilitarian	1088.214	0.21	Rt. 37 Circle B	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 118,600	$ 13,178	10
104	Multi-use	Proposed	Utilitarian	1092.554	0.21	Rt. 37 Circle Z	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 119,100	$ 13,233	189
105	Multi-use	Proposed	Utilitarian	1219.324	0.23	US 50 A	3	0	0	0	0	3	0	0	0	1	2	1	0	0	0	10	10	$ 132,900	$ 13,290	2
106	Bicycle Only	Proposed	Utilitarian	1784.203	0.34	Cedar Creek Grade C	0	2	0	0	0	0	0	0	2	1	3	1	0	0	0	9	11	$ 146,300	$ 13,300	222
107	Multi-use	Proposed	Utilitarian	1380.054	0.26	AP*	3	0	0	0	0	3	0	0	0	1	1	3	0	0	0	11	11	$ 150,400	$ 13,673	123
108	Multi-use	Proposed	Utilitarian	2524.958	0.48	Senseny Rd - City Connector A	3	2	0	0	0	3	0	0	2	1	1	3	0	0	3	18	20	$ 275,200	$ 13,760	56
109	Multi-use	Proposed	Utilitarian	2164.587	0.41	Greenwood Connector E	3	2	0	0	0	3	0	0	2	1	1	3	0	0	0	15	17	$ 235,900	$ 13,876	160
110	Pedestrian Only	Proffered	Scenic	2918.577	0.55	Z*	3	0	0	3	0	3	0	0	0	0	3	1	0	0	0	13	13	$ 181,000	$ 13,923	84
111	Bicycle Only	Proposed	Utilitarian	2973.508	0.56	Tasker Rd E	0	2	0	0	0	0	0	0	2	1	1	3	0	3	2	14	18	$ 243,800	$ 13,931	65
112	Multi-use	Proposed	Utilitarian	1927.097	0.36	AN*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 210,100	$ 14,007	120
113	Multi-use	Proposed	Utilitarian	1673.808	0.32	Indian Hollow Road	3	2	0	0	0	3	0	0	0	0	2	1	0	0	0	11	13	$ 182,400	$ 14,031	172
114	Multi-use	Proposed	Utilitarian	3329.219	0.63	Front Royal Pike	3	3	0	0	0	3	3	0	2	1	1	3	3	0	0	22	26	$ 362,900	$ 14,093	195
115	Multi-use	Proposed	Utilitarian	1681.627	0.32	BL*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 183,300	$ 14,100	188
116	Multi-use	Proposed	Utilitarian	1170.573	0.22	Rt. 37 Circle AB	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 127,600	$ 14,178	191
117	Multi-use	Proposed	Utilitarian	1951.799	0.37	AQ*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 212,700	$ 14,180	125
118	Multi-use	Proposed	Utilitarian	2486.248	0.47	AR*	3	2	0	0	0	3	0	0	2	1	3	3	0	0	0	17	19	$ 271,000	$ 14,263	126
119	Multi-use	Proposed	Utilitarian	2371.735	0.96	Rt. 11 Valley Pike, Heritage Route L	3	1	0	0	0	3	0	0	2	1	3	1	0	0	3	17	18	$ 258,500	$ 14,361	262
120	Bicycle Only	Proposed	Utilitarian	1230.131	0.23	Warrior Drive C	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 100,900	$ 14,414	128
121	Multi-use	Proposed	Utilitarian	1719.826	0.33	AF*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 187,500	$ 14,423	100
122	Multi-use	Proposed	Utilitarian	3159.927	0.6	Aylor Road B	3	2	0	0	0	3	3	0	2	0	3	2	3	0	0	21	24	$ 344,400	$ 14,501	203
123	Multi-use	Proposed	Utilitarian	2018.465	0.38	Airport Road A	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 220,000	$ 14,667	38
124	Multi-use	Proposed	Utilitarian	1349.582	0.26	AA*	3	0	0	0	0	3	0	0	0	0	3	1	0	0	0	10	10	$ 147,100	$ 14,710	85
125	Bicycle Only	Proposed	Utilitarian	1978.348	0.37	Warrior Drive L	0	2	0	0	0	0	0	0	2	1	3	1	0	0	0	9	11	$ 162,200	$ 14,745	251
126	Multi-use	Proposed	Utilitarian	2710.701	0.96	Shawnee Drive B	3	2	3	0	0	3	0	0	2	1	3	1	0	0	0	18	20	$ 295,500	$ 14,775	263
127	Multi-use	Proposed	Utilitarian	1629.75	0.31	Town Run Lane	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 177,600	$ 14,800	70

Medium Term Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	FID
128	Multi-use	Proposed	Utilitarian	2185.231	0.41	Senseny Rd - City Connector D	3	0	0	0	0	3	0	0	2	1	1	3	0	0	3	16	16	$ 238,200	$ 14,888	59
129	Multi-use	Proffered	Utilitarian	1807.482	0.34	AL*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 197,000	$ 15,154	118
130	Multi-use	Proposed	Utilitarian	1545.044	0.9	Warrior Drive M	3	0	0	0	0	3	0	0	2	0	1	2	0	0	0	11	11	$ 168,400	$ 15,309	276
131	Multi-use	Proposed	Utilitarian	1827.593	0.35	V*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 199,200	$ 15,323	73
132	Multi-use	Proposed	Utilitarian	2677.621	0.51	S*	3	3	0	0	0	3	0	0	2	1	3	1	0	0	0	16	19	$ 291,900	$ 15,363	63
133	Multi-use	Proposed	Utilitarian	3241.976	0.61	Greenwood Connector G	3	3	0	0	0	3	3	0	2	1	1	3	0	0	0	19	23	$ 353,400	$ 15,534	165
134	Bicycle Only	Proposed	Utilitarian	2980.239	0.56	VA 277 - Fairfax Pike C	0	0	0	3	0	0	0	0	2	0	1	2	3	3	0	14	16	$ 244,400	$ 15,768	22
135	Multi-use	Proposed	Utilitarian	1628.06	0.31	Whiteoak Rd C	3	0	0	0	0	3	0	0	2	0	1	2	0	0	0	11	11	$ 177,500	$ 16,136	138
136	Bicycle Only	Proposed	Utilitarian	2189.5	0.41	Tasker Rd L	0	2	0	0	0	0	0	0	0	1	1	3	0	0	2	9	11	$ 179,500	$ 16,318	243
137	Multi-use	Proposed	Utilitarian	1348.272	0.25	U*	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 147,000	$ 16,333	67
138	Multi-use	Proposed	Utilitarian	1363.515	0.26	US 50 B	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 148,600	$ 16,511	174
140	Multi-use	Proposed	Utilitarian	1984.712	0.38	W*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 216,300	$ 16,638	74
141	Multi-use	Proposed	Utilitarian	2331.068	0.44	Merrimans Lane A	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 254,100	$ 16,940	186
142	Multi-use	Proposed	Utilitarian	2337.106	0.44	Middle Road A	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 254,700	$ 16,980	46
143	Pedestrian Only	Proposed	Utilitarian	4122.249	0.78	BW*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 255,600	$ 17,040	230
144	Multi-use	Proposed	Utilitarian	2688.912	0.51	Rt. 37 Circle E	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 293,100	$ 17,241	68
145	Pedestrian Only	Proposed	Utilitarian	3354.583	0.63	Sheppard Pond D	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 208,000	$ 17,333	156
146	Multi-use	Proposed	Utilitarian	3535.895	0.67	Shawnee Drive A	3	2	3	0	0	3	0	0	2	1	3	3	0	0	0	20	22	$ 385,400	$ 17,518	108
147	Multi-use	Proposed	Utilitarian	2111.574	0.4	BF*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 230,200	$ 17,708	148
148	Multi-use	Proposed	Utilitarian	3582.477	0.68	Double Church Road B	3	3	0	0	0	3	0	0	2	0	3	2	3	0	0	19	22	$ 390,500	$ 17,750	29
149	Multi-use	Proposed	Utilitarian	1967.706	0.37	BM*	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 214,500	$ 17,875	200
150	Bicycle Only	Proposed	Utilitarian	1544.852	0.29	Rt. 37 Circle N	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 126,700	$ 18,100	103
151	Multi-use	Proposed	Utilitarian	2172.807	0.41	Campus Boulevard	3	0	3	0	0	3	0	0	0	1	2	1	0	0	0	13	13	$ 236,800	$ 18,215	66
152	Multi-use	Proposed	Utilitarian	2007.447	0.38	BA*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 218,800	$ 18,233	140
153	Multi-use	Proposed	Utilitarian	2899.576	0.55	Greenwood Connector A	3	2	0	0	0	3	0	0	2	1	1	3	0	0	0	15	17	$ 316,100	$ 18,594	5
154	Multi-use	Proposed	Utilitarian	2914.188	0.55	Double Church Road A	3	1	0	3	0	3	0	0	2	0	3	1	0	0	0	16	17	$ 317,600	$ 18,682	7
155	Bicycle Only	Proffered	Utilitarian	1596.482	0.3	Warrior Drive J	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 130,900	$ 18,700	245
156	Multi-use	Proposed	Utilitarian	2584.681	0.49	Senseny Rd - City Connector B	3	0	0	0	0	3	0	0	2	0	1	3	0	0	3	15	15	$ 281,700	$ 18,780	57
157	Multi-use	Proposed	Utilitarian	2793.424	0.53	BI*	3	0	0	3	0	3	0	0	2	1	3	1	0	0	0	16	16	$ 304,500	$ 19,031	169
158	Pedestrian Only	Proposed	Utilitarian	6540.854	1.24	BQ*	3	3	0	0	0	3	0	0	2	1	3	3	0	0	0	18	21	$ 405,500	$ 19,310	214
159	Bicycle Only	Proposed	Utilitarian	2125.493	0.4	Old Charles Town Road A	0	1	0	3	0	0	0	0	0	0	3	1	0	0	0	8	9	$ 174,300	$ 19,367	113
160	Multi-use	Proposed	Utilitarian	2512.168	0.48	Greenwood Connector D	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 273,800	$ 19,557	154
161	Multi-use	Proposed	Utilitarian	2335.44	0.44	BE*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 254,600	$ 19,585	146
162	Multi-use	Proposed	Utilitarian	2168.953	0.41	Sheppard Pond E	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 236,400	$ 19,700	157
162	Multi-use	Proposed	Utilitarian	3072.078	0.58	Cedar Creek Grade B	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 334,900	$ 19,700	168
164	Bicycle Only	Proposed	Utilitarian	3175.455	0.6	VA 277 - Fairfax Pike B	0	2	0	3	0	0	0	0	2	0	3	1	0	0	0	11	13	$ 260,400	$ 20,031	13
165	Bicycle Only	Proposed	Utilitarian	1746.204	0.33	Warrior Drive B	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 143,200	$ 20,457	127
166	Multi-use	Proposed	Utilitarian	2257.146	0.43	Greenwood Connector F	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 246,000	$ 20,500	161
167	Bicycle Only	Proposed	Utilitarian	3268.128	0.62	Millwood Pike C	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 268,000	$ 20,615	248
168	Bicycle Only	Proposed	Utilitarian	4303.009	0.81	Rt. 11 Valley Pike, Heritage Route D	0	2	0	3	0	0	0	0	2	1	3	1	0	0	3	15	17	$ 352,800	$ 20,753	114
169	Multi-use	Proposed	Utilitarian	2858.911	0.65	Senseny Rd - City Connector H	3	0	0	0	0	3	0	0	2	0	1	3	0	0	3	15	15	$ 311,600	$ 20,773	267
170	Multi-use	Proposed	Utilitarian	4209.009	4.22	Rt. 11 Valley Pike, Heritage Route K	3	2	0	0	0	3	0	0	3	2	2	2	0	0	3	20	22	$ 458,800	$ 20,855	261
171	Bicycle Only	Proposed	Utilitarian	3323.448	0.63	Rt 522 - Front Royal Pike - SNP F	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 272,500	$ 20,962	208
172	Multi-use	Proposed	Utilitarian	2315.005	0.44	Greenwood Connector Q	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 252,300	$ 21,025	274
173	Multi-use	Proposed	Utilitarian	2915.465	0.55	AI*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 317,800	$ 21,187	107
174	Bicycle Only	Proposed	Utilitarian	3677.789	0.7	Rt. 37 Circle K	0	2	0	3	0	0	0	0	2	1	3	1	0	0	0	12	14	$ 301,600	$ 21,543	90
175	Bicycle Only	Proposed	Utilitarian	2905.119	0.55	Middle Road B	0	1	0	0	0	0	0	0	2	1	3	3	0	0	0	10	11	$ 238,200	$ 21,655	48
176	Bicycle Only	Proposed	Utilitarian	1875.392	0.36	Rt. 37 Circle M	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 153,800	$ 21,971	98
177	Multi-use	Proposed	Utilitarian	2436.591	0.46	Greenwood Connector O	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 265,600	$ 22,133	272

Medium Term Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	FID
178	Multi-use	Proposed	Utilitarian	2439.146	0.46	I*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 265,900	$ 22,158	26
179	Multi-use	Proposed	Utilitarian	3418.218	0.65	R*	3	0	0	0	0	3	3	0	2	1	3	1	0	0	0	16	17	$ 372,600	$ 22,245	62
180	Bicycle Only	Proffered	Utilitarian	1901.719	0.36	Rt. 37 Circle AG	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 155,900	$ 22,271	255
181	Multi-use	Proposed	Utilitarian	2503.694	0.47	Garden Gate Drive	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 272,900	$ 22,742	69
182	Multi-use	Proposed	Utilitarian	3990.007	0.76	Victory Road	3	3	0	0	0	3	0	0	2	1	3	1	0	0	0	16	19	$ 434,900	$ 22,889	247
183	Multi-use	Proposed	Utilitarian	3574.487	0.68	Senseny Rd - City Connector F	3	1	0	0	0	3	0	0	2	0	1	3	0	0	3	16	17	$ 389,600	$ 22,918	197
184	Bicycle Only	Proposed	Utilitarian	3683.446	0.7	Rt. 37 Circle O	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 302,000	$ 23,231	104
185	Multi-use	Proposed	Utilitarian	2799.051	0.53	Rt. 37 Circle A	3	2	0	0	0	3	0	0	0	0	2	1	0	0	0	11	13	$ 305,100	$ 23,469	9
186	Bicycle Only	Proffered	Utilitarian	2043.051	0.39	Rt. 37 Circle AF	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 167,500	$ 23,929	227
187	Bicycle Only	Proposed	Utilitarian	5307.119	1.01	Tasker Rd A	0	3	0	0	0	0	0	0	2	1	1	3	3	0	2	15	18	$ 435,200	$ 24,178	24
188	Multi-use	Proposed	Utilitarian	4229.605	0.8	BU*	3	1	0	3	0	3	3	0	0	0	3	1	0	0	0	17	19	$ 461,000	$ 24,587	221
189	Bicycle Only	Proposed	Utilitarian	3917.925	0.74	Rt 522 - Front Royal Pike - SNP G	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 321,300	$ 24,715	244
190	Bicycle Only	Proposed	Utilitarian	4231.651	0.8	Rt. 11 Valley Pike, Heritage Route G	0	2	0	0	0	0	0	0	2	1	3	1	0	0	3	12	14	$ 347,000	$ 24,786	180
191	Multi-use	Proposed	Utilitarian	3881.122	0.74	BZ*	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 423,000	$ 24,882	235
192	Multi-use	Proposed	Utilitarian	3209.633	0.9	Warrior Drive M	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 349,800	$ 24,986	277
193	Multi-use	Proposed	Utilitarian	3490.664	0.66	Senseny Rd - City Connector G	3	0	0	0	0	3	0	0	2	1	1	2	0	0	3	15	15	$ 380,500	$ 25,367	220
194	Bicycle Only	Proposed	Utilitarian	2817.177	0.53	Rt. 37 Circle Q	0	1	0	0	0	0	0	0	2	1	3	1	0	0	0	8	9	$ 231,000	$ 25,667	151
195	Bicycle Only	Proposed	Utilitarian	3472.238	0.66	Warrior Drive F	0	2	0	0	0	0	0	0	2	1	3	1	0	0	0	9	11	$ 284,700	$ 25,882	147
196	Bicycle Only	Proposed	Scenic	1904.05	0.59	Rt. 37 Circle AK	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	6	6	$ 156,100	$ 26,017	266
197	Multi-use	Proposed	Utilitarian	3591.022	0.68	CB*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 391,400	$ 26,093	249
198	Multi-use	Proposed	Utilitarian	3672.415	0.7	C*	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 400,300	$ 26,687	4
199	Multi-use	Proposed	Utilitarian	4417.324	0.84	Greenwood Connector M	3	2	0	0	0	3	0	0	2	1	3	2	0	0	0	16	18	$ 481,500	$ 26,750	270
200	Bicycle Only	Proposed	Utilitarian	2325.326	0.44	Rt. 37 Circle I	0	0	0	3	0	0	0	0	0	0	3	1	0	0	0	7	7	$ 190,700	$ 27,243	87
201	Bicycle Only	Proposed	Utilitarian	4030.767	0.76	Rt. 37 Circle F	0	3	0	0	0	0	0	0	2	0	1	3	0	0	0	9	12	$ 330,500	$ 27,542	81
202	Multi-use	Proposed	Utilitarian	3803.253	0.72	Brandy Lane	3	0	0	3	0	3	0	0	2	0	3	1	0	0	0	15	15	$ 414,600	$ 27,640	30
203	Pedestrian Only	Proposed	Scenic	6740.713	1.28	Lakeside Drive	3	2	0	0	0	3	0	0	0	1	1	3	0	0	0	13	15	$ 417,900	$ 27,860	94
204	Bicycle Only	Proposed	Utilitarian	2411.47	0.46	Rt 522 - Front Royal Pike - SNP D	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 197,700	$ 28,243	105
205	Multi-use	Proposed	Utilitarian	4148.928	0.79	P*	3	0	0	3	0	3	0	0	2	1	3	1	0	0	0	16	16	$ 452,200	$ 28,263	54
206	Multi-use	Proposed	Utilitarian	3919.809	0.74	Rt. 37 Circle AE	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 427,300	$ 28,487	216
207	Multi-use	Proposed	Utilitarian	2385.547	0.45	BN*	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 260,000	$ 28,889	202
208	Multi-use	Proposed	Utilitarian	3981.079	0.75	Warrior Drive I	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 433,900	$ 28,927	239
210	Multi-use	Proposed	Utilitarian	4585.649	0.87	Warrior Drive H	3	2	0	0	0	3	0	0	2	1	1	3	0	0	0	15	17	$ 499,800	$ 29,400	212
211	Pedestrian Only	Proffered	Scenic	4807.776	0.91	Y*	3	0	0	0	0	3	0	0	0	0	3	1	0	0	0	10	10	$ 298,100	$ 29,810	82
212	Bicycle Only	Proposed	Utilitarian	3271.568	0.62	Middle Road D	0	1	0	0	0	0	0	0	2	1	3	1	0	0	0	8	9	$ 268,300	$ 29,811	238
213	Multi-use	Proposed	Utilitarian	3285.769	0.62	E*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 358,100	$ 29,842	8
214	Multi-use	Proposed	Utilitarian	4413.368	0.84	Ralph Shockey Drive, Winchester Country Club	3	0	0	0	3	3	0	0	2	1	1	3	0	0	0	16	16	$ 481,100	$ 30,069	225
215	Bicycle Only	Proposed	Utilitarian	2592.52	0.98	Millwood Pike D	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 212,600	$ 30,371	264
216	Multi-use	Proposed	Utilitarian	3955.976	0.75	CD*	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 431,200	$ 30,800	278
217	Pedestrian Only	Proffered	Scenic	7957.509	1.49	Old Charles Town Road B	3	1	0	0	0	3	3	0	0	0	3	1	0	0	0	14	16	$ 493,400	$ 31,327	241
218	Bicycle Only	Proposed	Utilitarian	5355.464	1.01	Millwood Pike B	0	3	0	0	0	0	0	0	2	1	3	2	0	0	0	11	14	$ 439,100	$ 31,364	16
219	Multi-use	Proposed	Utilitarian	3463.036	0.66	BG*	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 377,500	$ 31,458	153
220	Multi-use	Proposed	Utilitarian	4337.432	0.82	CA*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 472,800	$ 31,520	237
221	Bicycle Only	Proposed	Utilitarian	5003.194	0.95	Tasker Rd J	0	2	0	0	0	0	0	0	2	1	3	1	0	0	2	11	13	$ 410,300	$ 31,562	210
222	Bicycle Only	Proposed	Utilitarian	4641.683	0.88	Rt. 11 Valley Pike, Heritage Route H	0	1	0	0	0	0	0	0	2	1	3	1	0	0	3	11	12	$ 380,600	$ 31,717	223
223	Multi-use	Proposed	Utilitarian	3240.283	0.61	T*	3	0	0	0	0	3	0	0	0	1	1	3	0	0	0	11	11	$ 353,200	$ 32,109	64
224	Bicycle Only	Proposed	Utilitarian	3547.411	0.67	Frederick Pike B	0	3	0	0	0	0	0	0	0	0	2	1	0	0	0	6	9	$ 290,900	$ 32,322	171
225	Multi-use	Proposed	Utilitarian	2680.782	0.51	BK*	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 292,200	$ 32,467	175
229	Bicycle Only	Proposed	Utilitarian	4608.611	0.87	VA 277 - Fairfax Pike E	0	2	0	0	0	0	0	0	2	0	3	2	0	0	0	9	11	$ 377,900	$ 34,355	25
231	Multi-use	Proposed	Utilitarian	3792.967	0.72	BR*	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 413,400	$ 34,450	215

Medium Term Projects

Cost Per Point Rank	Facility	Status	Use	Length (Feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	FID
232	Bicycle Only	Proposed	Utilitarian	4845.968	0.92	Papermill Road A	0	2	0	0	0	0	0	0	2	1	3	1	0	0	0	9	11	$ 397,400	$ 36,127	75
233	Multi-use	Proposed	Utilitarian	4350.692	0.82	AD*	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 474,200	$ 36,477	97
240	Multi-use	Proposed	Utilitarian	4574.523	0.87	Clearbrook Connector H	3	0	0	3	0	3	0	0	0	0	3	1	0	0	0	13	13	$ 498,600	$ 38,354	234
242	Multi-use	Proposed	Utilitarian	4322.158	0.82	Farmington Boulevard A	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 471,100	$ 39,258	159
252	Bicycle Only	Proposed	Utilitarian	3811.106	0.72	Warrior Drive K	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 312,500	$ 44,643	250
256	Bicycle Only	Proposed	Utilitarian	3444.972	0.65	Rt. 37 Circle AD	0	0	0	0	0	0	0	0	2	0	1	3	0	0	0	6	6	$ 282,500	$ 47,083	193
260	Bicycle Only	Proposed	Utilitarian	4473.795	0.85	Cedar Creek Grade D	0	0	0	0	0	0	0	0	2	1	3	1	0	0	0	7	7	$ 366,900	$ 52,414	229
274	Bicycle Only	Proposed	Utilitarian	3232.347	0.61	US 50 C	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	3	$ 265,100	$ 88,367	176
276	Bicycle Only	Proposed	Utilitarian	4933.775	0.93	Rt. 37 Circle H	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4	4	$ 404,600	$ 101,150	86

Long Term Projects

Cost Per Point Rank	Facility	Status	Use	Length (feet)	Length (Miles)	Route Name	Protected Path	MMLOS Before Project	Transit Accessibility	Downtown or Historic Area	Recreation Access	Crash Modification Factor	School Connection	Activity Center	Population Density	Minority Population	Senior Population	Children Population	Extends Existing Facility	Closes Gap	Community Identification	Total Points	Weighted Total Points	Estimated Cost	Cost per Point	FID
209	Multi-use	Proposed	Utilitarian	6916.8	1.31	Meadow Branch Avenue	3	2	3	0	0	3	0	0	2	1	3	1	3	0	3	24	26	$ 753,900	$ 28,996	199
226	Pedestrian Only	Proposed	Scenic	13668.774	2.59	X*	3	1	0	3	0	3	3	0	2	1	2	3	3	0	0	24	26	$ 847,500	$ 32,913	80
227	Multi-use	Proposed	Utilitarian	4590.847	0.87	L*	3	0	0	0	0	3	0	0	2	1	3	3	0	0	0	15	15	$ 500,400	$ 33,360	41
228	Multi-use	Proposed	Utilitarian	6238.863	1.18	Costello Drive, Neighborhood Connector	3	3	0	0	0	3	0	0	2	1	3	2	0	0	0	17	20	$ 680,000	$ 34,000	207
230	Multi-use	Proposed	Utilitarian	5994.904	1.14	Greenwood Connector L	3	2	0	0	0	3	0	0	2	1	3	3	0	0	0	17	19	$ 653,400	$ 34,389	269
234	Bicycle Only	Proposed	Utilitarian	8081.561	1.53	Rt. 11 Valley Pike, Heritage Route E	0	2	0	3	0	0	3	0	0	0	3	1	0	0	3	15	18	$ 662,700	$ 37,335	115
235	Multi-use	Proposed	Utilitarian	4827.134	0.91	Rt 522 - Front Royal Pike - SNP E	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 526,200	$ 37,586	196
236	Multi-use	Proposed	Utilitarian	5868.009	1.11	Double Church Road, Sherando Lane	3	1	0	3	0	3	0	0	2	0	3	1	0	0	0	16	17	$ 639,600	$ 37,624	217
237	Multi-use	Proposed	Scenic	4843.397	0.92	Greenwood Connector C	3	1	0	0	0	3	0	0	2	0	1	3	0	0	0	13	14	$ 527,900	$ 37,707	79
238	Multi-use	Proposed	Utilitarian	5220.086	0.99	Airport Road B	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 569,000	$ 37,933	71
239	Multi-use	Proposed	Utilitarian	5615.725	1.06	BJ*	3	0	0	3	0	3	0	0	2	1	3	1	0	0	0	16	16	$ 612,100	$ 38,256	170
241	Multi-use	Proposed	Utilitarian	5746.949	1.09	Greenwood Connector K	3	2	0	0	0	3	0	0	2	1	1	2	0	0	0	14	16	$ 626,400	$ 39,150	242
243	Multi-use	Proposed	Utilitarian	5848.669	1.11	Rt. 37, Cives Lane	3	1	0	0	0	3	0	0	2	1	3	2	0	0	0	15	16	$ 637,500	$ 39,844	198
244	Multi-use	Proposed	Utilitarian	6872.581	1.3	Greenwood Connector N	3	2	0	0	0	3	0	0	2	1	3	2	0	0	0	16	18	$ 749,100	$ 41,617	271
245	Multi-use	Proposed	Utilitarian	6499.295	1.23	Apple Valley Road A	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 708,400	$ 41,671	166
246	Multi-use	Proposed	Utilitarian	8485.545	1.61	Redbud Road	3	2	0	3	0	3	0	0	2	1	2	1	3	0	0	20	22	$ 924,900	$ 42,041	213
247	Bicycle Only	Proposed	Utilitarian	7868.154	1.49	Rt. 11 Valley Pike, Heritage Route I	0	3	0	0	0	0	0	0	2	1	2	1	0	0	3	12	15	$ 645,200	$ 43,013	246
248	Multi-use	Proposed	Utilitarian	9196.155	1.74	Frederick Pike A	3	3	3	0	0	3	0	0	2	1	3	2	0	0	0	20	23	$ 1,002,400	$ 43,583	116
249	Multi-use	Proposed	Utilitarian	6080.729	1.15	Rt. 37 Circle U	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 662,800	$ 44,187	167
250	Multi-use	Proposed	Utilitarian	6104.489	1.16	US 50 D	3	0	3	0	0	3	0	0	0	1	2	0	3	0	0	15	15	$ 665,400	$ 44,360	281
251	Multi-use	Proposed	Utilitarian	6128.758	1.16	Bufflick Road, Neighborhood Connector	3	1	0	0	0	3	0	0	2	1	3	1	0	0	0	14	15	$ 668,000	$ 44,533	240
253	Multi-use	Proposed	Utilitarian	5343.272	1.01	Rt. 37 Circle Y	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 582,400	$ 44,800	184
254	Multi-use	Proposed	Utilitarian	5765.899	1.09	Whiteoak Rd B	3	0	0	0	0	3	0	0	2	0	1	2	3	0	0	14	14	$ 628,500	$ 44,893	137
255	Pedestrian Only	Proposed	Utilitarian	8934.896	1.69	Town Run Ln, Hayvenhurst Ct, Neighborhood Connecto	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 554,000	$ 46,167	211
257	Multi-use	Proposed	Utilitarian	5713.95	1.08	Rt. 37 Circle S	3	1	0	0	0	3	0	0	0	0	3	2	0	0	0	12	13	$ 622,800	$ 47,908	162
258	Multi-use	Proposed	Utilitarian	5543.174	1.05	Greenwood Connector P	3	0	0	0	0	3	0	0	2	0	1	3	0	0	0	12	12	$ 604,200	$ 50,350	273
259	Multi-use	Proposed	Utilitarian	6242.948	1.18	Rt. 37 Circle C	3	0	0	0	0	3	0	0	2	1	3	1	0	0	0	13	13	$ 680,500	$ 52,346	37
261	Multi-use	Proposed	Utilitarian	8636.516	1.64	Whiteoak Rd A	3	2	0	0	0	3	0	0	2	0	3	2	0	0	0	15	17	$ 941,400	$ 55,376	50
262	Bicycle Only	Proposed	Utilitarian	7604.109	1.44	VA 277 - Fairfax Pike G	0	2	0	0	0	0	0	0	2	0	3	2	0	0	0	9	11	$ 623,500	$ 56,682	201
263	Multi-use	Proposed	Utilitarian	9102.503	1.72	Rt. 37 Circle V	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 992,200	$ 58,365	179
264	Multi-use	Proposed	Utilitarian	9448.644	1.79	Airport Road, Neighborhood Connector B	3	2	0	0	0	3	0	0	2	1	3	1	0	0	0	15	17	$ 1,029,900	$ 60,582	72
265	Bicycle Only	Proposed	Utilitarian	10139.044	1.92	Rt 522 - Front Royal Pike - SNP B	0	3	0	0	0	0	0	0	2	1	3	1	0	0	0	10	13	$ 831,400	$ 63,954	61
266	Bicycle Only	Proposed	Utilitarian	10739.285	2.03	Rt. 11 Valley Pike, Heritage Route F	0	1	0	0	0	0	0	0	2	1	3	2	0	0	3	12	13	$ 880,600	$ 67,738	122
267	Multi-use	Proposed	Utilitarian	18079.426	4.22	Brooke Road, Fort Collier Road, and Berryville Ave	3	3	3	0	0	3	3	0	3	2	2	2	0	0	0	24	28	$ 1,970,700	$ 71,016	260
268	Bicycle Only	Proposed	Utilitarian	13134.46	2.49	Rt. 37 Circle R	0	3	0	0	0	0	0	0	2	1	3	3	0	0	0	12	15	$ 1,077,000	$ 71,800	152
269	Multi-use	Proposed	Scenic	8097.619	1.53	Abrams Creek	3	0	0	0	0	3	0	0	2	1	1	2	0	0	0	12	12	$ 882,600	$ 73,550	53
270	Bicycle Only	Proposed	Utilitarian	25181.636	4.77	Rt. 11 Valley Pike, Heritage Route J	0	3	3	0	0	0	0	0	3	2	3	3	3	0	3	23	26	$ 2,064,900	$ 79,419	259
271	Multi-use	Proposed	Utilitarian	14099.22	2.67	Airport Road, Neighborhood Connector A	3	1	0	0	3	3	0	0	2	1	3	1	0	0	0	17	18	$ 1,536,800	$ 85,378	39
272	Bicycle Only	Proposed	Utilitarian	10434.056	1.98	Rt. 37 Circle G	0	1	0	0	0	0	0	0	2	0	3	3	0	0	0	9	10	$ 855,600	$ 85,560	83
273	Multi-use	Proposed	Utilitarian	7910.866	1.5	Clearbrook Connector F	3	0	0	0	0	3	0	0	0	0	3	1	0	0	0	10	10	$ 862,300	$ 86,230	109
275	Multi-use	Proposed	Utilitarian	7681.585	1.45	Rt. 37 Circle AC	3	0	0	0	0	3	0	0	0	0	2	1	0	0	0	9	9	$ 837,300	$ 93,033	192
277	Multi-use	Proffered	Scenic	11498.375	2.18	Lake Frederick C	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 1,253,300	$ 104,442	275
278	Bicycle Only	Proposed	Utilitarian	15946.362	3.02	Rt. 37 Circle L	0	2	0	0	0	0	0	0	2	1	3	2	0	0	0	10	12	$ 1,307,600	$ 108,967	91
279	Bicycle Only	Proposed	Utilitarian	14717.825	2.79	Rt. 11 Valley Pike, Heritage Route B	0	2	0	0	0	0	0	0	0	0	3	1	0	0	3	9	11	$ 1,206,900	$ 109,718	17
280	Multi-use	Proffered	Scenic	12619.209	2.39	Lake Frederick B	3	0	0	0	0	3	0	0	2	0	3	1	0	0	0	12	12	$ 1,375,500	$ 114,625	178
281	Bicycle Only	Proposed	Utilitarian	25181.636	4.77	Rt. 11 Valley Pike, Heritage Route	0	1	0	0	0	0	0	0	2	1	3	3	3	0	3	16	17	$ 2,064,900	$ 121,465	280
282	Bicycle Only	Proposed	Utilitarian	8564.406	1.62	Rt 522 - Front Royal Pike - SNP A	0	0	0	0	0	0	0	0	2	0	1	2	0	0	0	5	5	$ 702,300	$ 140,460	51
283	Bicycle Only	Proposed	Utilitarian	25699.656	4.87	Rt. 11 Valley Pike, Heritage Route A	0	2	0	0	0	0	0	0	0	1	3	2	0	0	3	11	13	$ 2,107,400	$ 162,108	12