

Harrisonburg

Bicycle & Pedestrian Plan | 2017

*Department of Public Works
Department of Planning & Community Development*

DRAFT | November 1, 2016



Acknowledgements

This Bicycle and Pedestrian Plan for the City of Harrisonburg has been prepared by staff of the Department of Public Works, staff of the Department of Planning and Community Development, and the Bicycle and Pedestrian Subcommittee. This plan would not have been possible without the dedicated efforts of these participants, as well as the many citizens and community advocates who participated in public workshops and offered their insight and opinions.

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I. Introduction

Purpose

As the City of Harrisonburg strives to be inclusive of all transportation modes, the purpose of this plan is to provide a vision and framework for developing an interconnected bicycle and pedestrian network throughout the community. This plan builds upon the work of the 2010 Bicycle and Pedestrian Plan and prior plans.

Background

As a response to continued growth in Harrisonburg, the City's Bicycle and Pedestrian Plan is meant to encourage a balanced and interconnected transportation system for all modes. Do facilities have logical termini that are safe and accessible? Are we serving the greatest needs with the infrastructure choices we make? How do we phase projects over time and still ensure safety and community goals are met? Who should be investing in the transportation network – public agencies or private development? Whether new construction, retrofitting existing infrastructure, or maintenance, it is important to approach planning for these facilities in a holistic manner; a concept sometimes referred to as "Complete Streets".

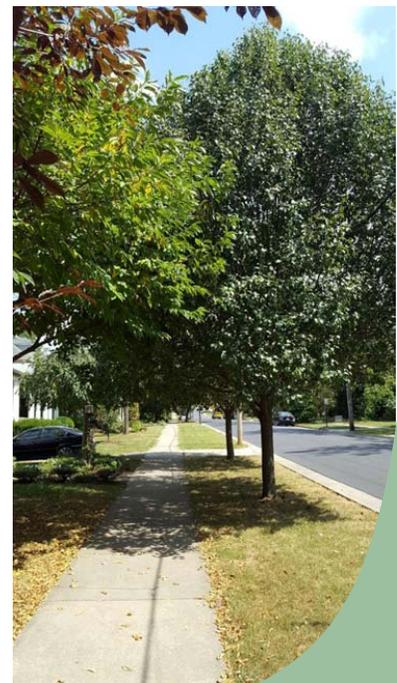


Complete Streets

Complete streets serve communities so that all residents regardless of age, race, culture, ability, and socioeconomic status have access to safe and pleasant means of transportation to residences, places of work, and places of leisure. Complete streets improve street design so that pedestrians, bicyclists, buses, automobiles, and other modes can be adequately accommodated. *(adapted from Smart Growth America)*

The guiding principles of Complete Streets are:

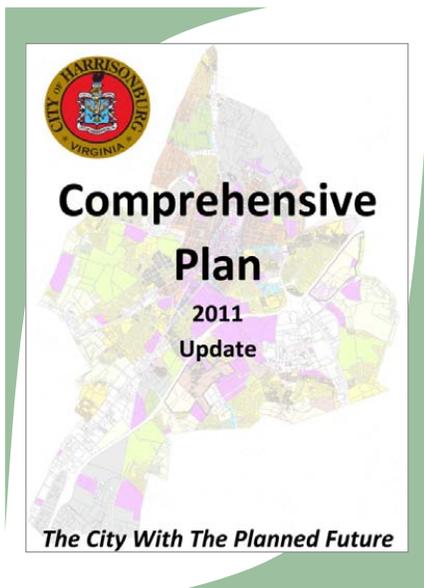
1. *Equitable Access*
2. *Economic Prosperity*
3. *Safety*
4. *Incorporating Best Practices*



Bicycle and pedestrian facilities have historically been overlooked as part of the overall transportation network. Many older neighborhoods throughout the city have wide streets, but either lack or have substandard sidewalks and minimal bicycle facilities. Not until recently have biking and walking been viewed as anything other than recreational activities. Efforts began in the early-1990s to consider integration and planning for bicycle facilities. The city's first Bicycle Plan was adopted in 1994, with updates in 1999 and 2005. In the early 2000s, city staff recognized the need to plan for pedestrian facilities in a similar fashion which led to the adoption of the first Pedestrian Plan in 2005. These planning documents were initially separate tools and focused not only on community need, but implementation. In Fiscal Year 2006, City Council made a commitment to begin translating the plans into reality by appropriating general fund dollars towards bicycle and pedestrian capital infrastructure improvements.

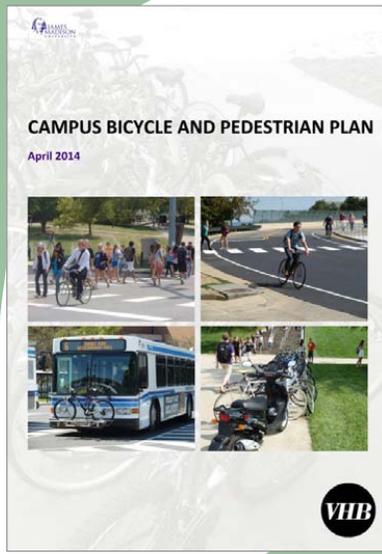
City Council was interested in understanding how the plan was being implemented and as such, Public Works staff began facilitating meetings starting in 2007 with stakeholders and citizens which became the Bicycle and Pedestrian Advisory Group. As the interest in maintaining a closer dialog between city staff, citizen groups, and City Council, the Transportation Safety Commission was charged with advising Council on bicycle and pedestrian matters. The Commission was renamed the Transportation Safety and Advisory Commission and a Bicycle and Pedestrian Subcommittee was formed and tasked with reviewing policies, projects, and recommendations from staff on implementing components of the 2010 Bicycle and Pedestrian Plan.

Relationship to Other Plans



The Bicycle and Pedestrian Plan is referenced as part of the City's Master Transportation Plan – itself a component of the Comprehensive Plan. Annually, the city develops a five-year Capital Improvement Program (CIP) which fiscally constrains the capital needs identified in planning documents. There are many other planning documents that overlap with this particular effort and this plan has attempted to integrate those as best as possible. These include:

- *Harrisonburg Downtown Streetscape Plan*: identifies how sidewalks and streets should be redeveloped in the downtown area to better serve the needs of all users as well as defining hardscape appearance for aesthetic continuity.
- *James Madison University Bicycle and Pedestrian Master Plan*: a campus-wide planning initiative was completed in 2014 to provide tactical planning and develop a strategic blueprint for the development of an interconnected network on campus but also throughout the



greater community.

- *Rockingham County and Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) Bicycle Plans:* the City of Harrisonburg is surrounded by Rockingham County and is part of the HRMPO, covering a region including Harrisonburg, Rockingham County and the Towns of Bridgewater, Dayton, and Mount Crawford. The County has made efforts to develop a countywide bicycle and pedestrian plan and the HRMPO is developing a bicycle and pedestrian plan within its urbanized area. Ensuring continuity in bicycle facilities across jurisdictional boundaries better serves the community at-large and provides alternative transportation options to the entire region.

As the community's needs continue to change and evolve, it is recommended that this Plan be reviewed every 5 years to ensure it is achieving the vision, and make adjustments where necessary, if needed.

Accomplishments Since 2010

Since adoption of the 2010 Bicycle and Pedestrian Plan, 22 pedestrian projects, 17 bicycle projects, and 3 shared use path or trail projects have been completed. The City has leveraged \$1.5 million dollars to receive over \$14.5 million in non-locality funding which includes grants and private developer contributions. Many vital connections were incorporated with larger transportation projects, including the completion of Phase II and Phase III of Erickson Avenue-Stone Spring Road – the City's major east to west connector bypassing the urban core of the city – and the reconstruction of Port Republic Road Phase III, which includes a multiuse path on one side from Neff Avenue eastward into Rockingham County. Safe Routes to Schools grants have been utilized to provide greater connectivity at two elementary schools – Waterman Elementary and Stone Spring Elementary. During this time period, Phase I-A and I-B of the Bluestone Trail were completed, which is not the first off-road multi-use path in the city, but serves not only recreational users at Purcell Park, which it passes through, but provides an alternative to vehicular traffic connecting Stone Spring Road with the James Madison University campus. Additional bicycle and pedestrian projects are included in the city's Capital Improvement Program or other planning documents for future construction. A complete list of accomplishments since 2010 can be found in the Appendix.

II: Vision, Goals, & Objectives

The City of Harrisonburg has made great strides to become a renowned bicycle and pedestrian community thanks to the efforts of city governments, advocacy organizations, individual citizens, and others. These efforts to expand transportation choice in the city come with a variety of benefits:

- Bicycle tourism is an economic generator responsible for \$13.6 million in annual revenue and 184 jobs within the Central Shenandoah Valley. (*Central Shenandoah PDC, 2015*)
- Greater mobility can enhance workforce development by allowing low income and other households without cars access to employment.
- Bicycling and walking can give greater independence to children and teenagers who cannot drive, helping them get to school or other activities without help from a parent.
- Walking and bicycling are active methods of transportation that can have a variety of health benefits.
- Active lifestyles that includes bicycling and walking can attract investment from certain population segments, including many Millennials and Baby Boomers.

To continue to advance as a cycling and pedestrian friendly community, the city, working together with citizens and the Bicycle and Pedestrian Subcommittee, proposes the following vision, goals, and objectives to guide future decision making. While many of the following goals and objectives apply to various city departments, these goals are shared by a host of city citizens and groups who can also work to advance the cause of pedestrian and bicycle safety and convenience in Harrisonburg. These are goals for all.

Vision Statement:

The City of Harrisonburg will be a place where pedestrians and cyclists can access a connected network of sidewalks, bike lanes, and shared use paths to safely and conveniently reach all areas of the city for school, work, play, and other daily needs.

Goal 1 To develop and maintain streets and paths that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities.

Objective 1.1. Develop and improve the City's bicycle and pedestrian transportation system.

Objective 1.2. Develop a bicycle and pedestrian network that is convenient and comfortable to encourage citizens to bike and walk more frequently.

Objective 1.3. Implement operational safety measures for all modes of travel.

Goal 2 To use education and encouragement to promote safe walking and bicycling as a regular form of transportation and recreation.

Objective 2.1. Promote and encourage bicycling and walking as a healthy, safe, and sustainable form of transportation and recreation.

Objective 2.2. Educate city staff and citizens on bicycle and pedestrian laws, etiquette, and safe practices.

Objective 2.3. Recognize the efforts of the City, local businesses, and local organizations for their efforts to promote bicycling and walking in the City.

Objective 2.4. Continually evaluate the state of the city's bicycle and pedestrian infrastructure and programs, and plan for ongoing improvement in the future.

III: Plan Process

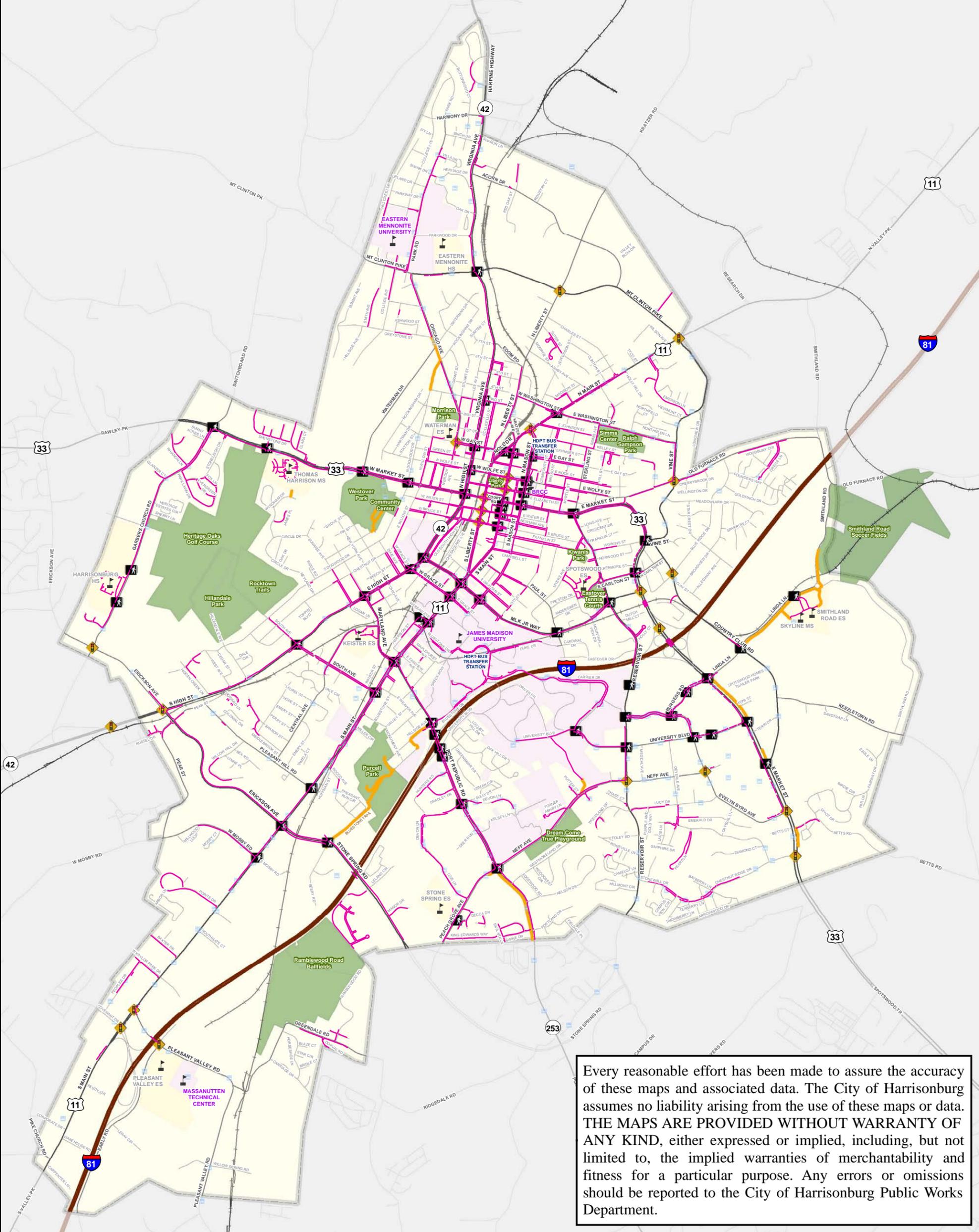
Existing Facilities

The City of Harrisonburg's existing bicycle and pedestrian networks are shown on the following maps. The bicycle network consists of on-road bicycle lanes, shared use paths, streets marked with sharrows, and neighborhood streets with low vehicle speeds and volumes. The pedestrian network consists of sidewalks and shared use paths. Signalized intersections include crosswalks and pedestrian signals in many cases.

Existing System Observations:

- As road projects incorporating bicycle and pedestrian improvements in recent years have occurred largely toward the fringe of the city, segments are missing from the traditional urban core where it is more difficult to integrate and develop dedicated bicycle and pedestrian infrastructure.
- Interstate 81 presents a barrier running through the middle of the city, with minimal opportunities to cross.
- At-grade rail crossings can pose a challenge for bicyclists, particularly those who are less experienced.
- Older neighborhoods tend to lack sidewalks on one or both sides of the street.
- Wider streets/highways that have greater distances between traffic signals pose challenges for pedestrians that may desire to cross.





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Existing Pedestrian Facilities

Facility Type

- Sidewalk
- Shared Use Path
-  Traffic Signal with Crosswalk Signal
-  Traffic Signal without Crosswalk Signal
-  School
-  Transit Bus Stop

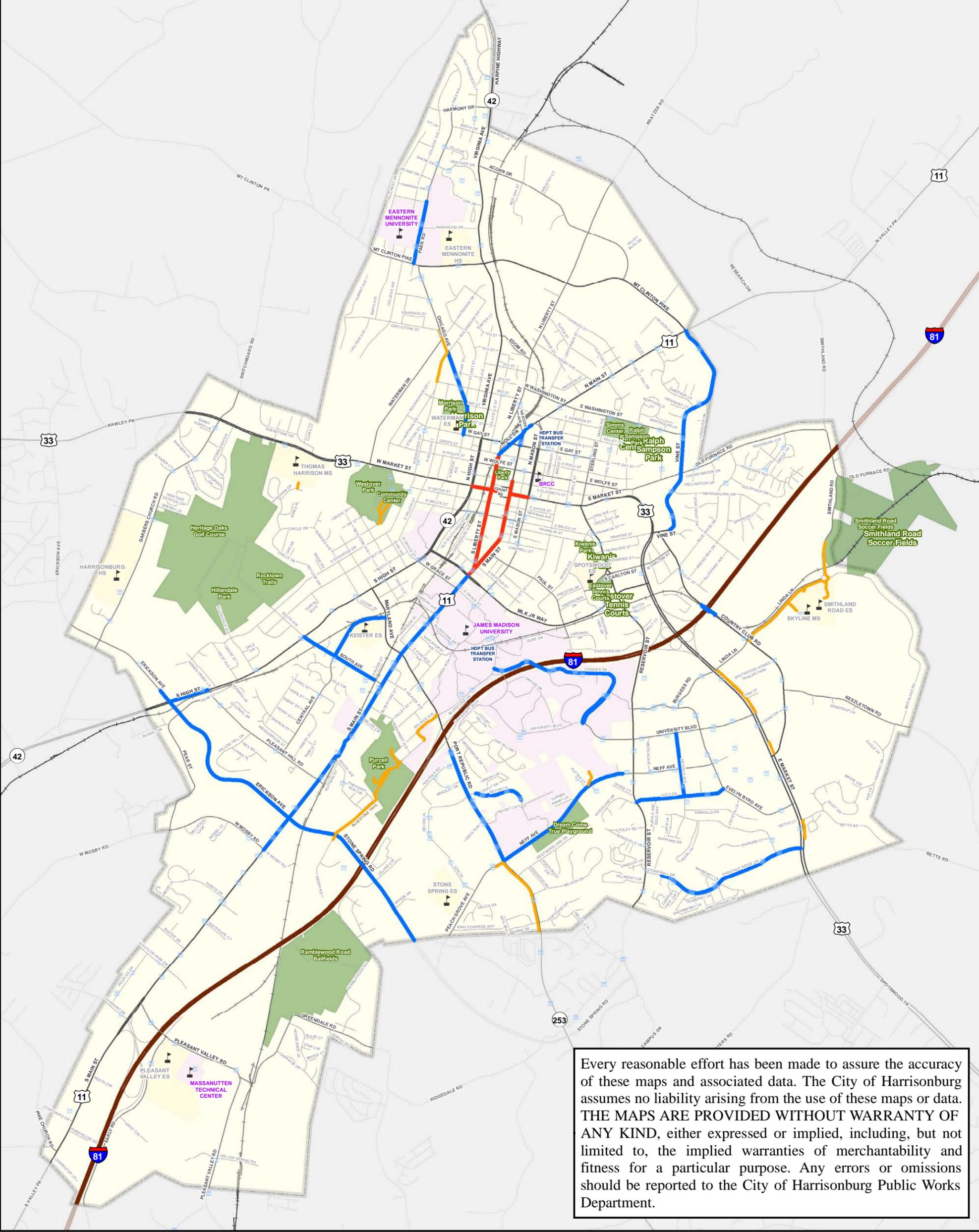


0 0.25 0.5
Miles

1 in = 1 miles



BIKE WALK
HARRISONBURG

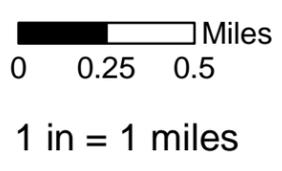


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Existing Bicycle Facilities

Facility Type

- Bicycle Lanes
- Shared Lane Markings
- Shared Use Path
- Transit Bus Stop



Public Involvement

The process of updating Harrisonburg's Bicycle and Pedestrian Plan has relied on a host of participants whose opinions and expertise inform this plan to continue to promote and plan for walking and bicycling in the city. While the primary responsibility for creating and updating the Bicycle and Pedestrian Plan resides with the city's Department of Public Works, the development of this update has been steered by an appointed group of citizens, the Bicycle and Pedestrian Subcommittee, to represent the needs, desires, and opinions of Harrisonburg residents. The Subcommittee acts as an advisory panel to the Transportation Safety and Advisory Commission which is a City Council appointed body.

Throughout the update process, the input of citizens has been of primary importance. Not only should citizen input determine what visions or projects are pursued by the city, but citizens and community groups can also work to meet the goals of a more pedestrian and bicycle friendly Harrisonburg.

Stakeholders

The Harrisonburg community has been wonderfully active in its advocacy and outreach for cyclists and pedestrians. City agencies, along with community organizations and citizens, collaborate on bicycle and pedestrian education, promotion, and planning efforts. A sample of the many departments and organizations who participated in the forums and focus groups leading up to this plan are listed below. Many of these groups offer ways for citizens to become more involved in bicycle and pedestrian issues and advocacy in the city.

Participating Agencies and Organizations:

<i>Central Shenandoah Planning District Commission</i>	<i>Harrisonburg-Rockingham Community</i>
<i>Church World Service Harrisonburg</i>	<i>Services Board</i>
<i>Eastern Mennonite University</i>	<i>Harrisonburg-Rockingham Chamber of Commerce</i>
<i>Funkhouser Realty</i>	<i>The Hills of Harrisonburg Management</i>
<i>Harrisonburg City Public Schools</i>	<i>James Madison University</i>
<i>Harrisonburg Department of Economic Development</i>	<i>Matchbox Realty</i>
<i>Harrisonburg Department of Public Transportation</i>	<i>Pheasant Run Townhomes Management</i>
<i>Harrisonburg Fire Department</i>	<i>Sentara RMH Community Health</i>
<i>Harrisonburg Parks & Recreation Department</i>	<i>Shenandoah Bicycle Company</i>
<i>Harrisonburg Planning & Community</i>	<i>Shenandoah Valley Partnership</i>
<i>Development Department</i>	<i>Valley Associates for Independent Living</i>
<i>Harrisonburg Police Department</i>	<i>Valley Mall Management</i>
<i>Harrisonburg Public Works Department</i>	<i>Virginia Mennonite Retirement Community</i>
	<i>Valley Program for Aging Services</i>

Public Input

The City of Harrisonburg has made great strides to become a top bicycle and pedestrian community thanks to the efforts of city governments, advocacy organizations, students, citizens, and others. For this reason, the city has incorporated steps to be sure that a variety of voices had the opportunity to shape this plan.

- **2013:** The Harrisonburg Rockingham Metropolitan Planning Organization conducted an online mapping exercise (Wikimap), allowing residents to pinpoint areas of opportunity and concern for pedestrians and cyclists. This mapping exercise received 361 unique entries for Harrisonburg and Rockingham County.
- **December 2014 – April 2015:** James Madison University students conducted a series of 10 forums with community organizations, gathering community input on walking and bicycling routes, safety issues, and desirable walking and bicycling destinations.
- **May 19th, 2015:** The Department of Public Works hosted a bicycle and pedestrian forum at Thomas Harrison Middle School. The forum was attended by community members, city staff, and members of the Bicycle and Pedestrian Subcommittee, and focused on participants’ vision for biking and walking in general, and for specific areas of the city.
- **Fall 2015:** The Department of Public Works held a series of focus group work sessions, organized around individual topics and sets of knowledgeable citizens, to discuss the future of Harrisonburg’s bicycle and pedestrian network in greater detail. Focus groups included:
 - ◇ Safe Routes to School, Youth and Families
 - ◇ Transportation Disadvantaged and Traditionally Underrepresented
 - ◇ Institutions: Higher Education and Retirement Communities
 - ◇ Business and Economic Vitality
 - ◇ Housing Providers: Real Estate Development and Property Management



Crosswalk and Pedestrian Signal.



Workshop Notes and Ideas.

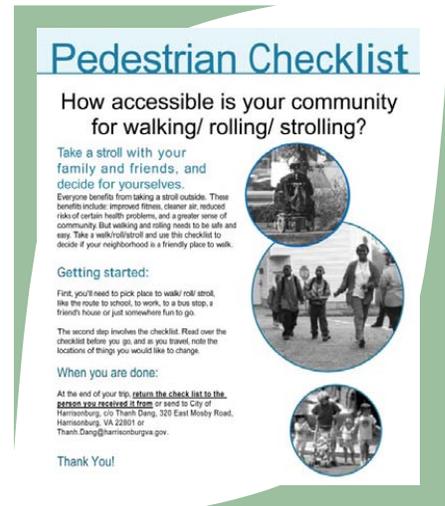
- A Pedestrian Checklist survey was circulated to allow pedestrians to rate individual walking trips, offering feedback on safety, crossings, facilities, and connections to transit. This feedback was delivered directly to the Department of Public Works.
- Other public comments were received throughout the input period, and were cataloged for inclusion in this plan and other city efforts.

Many public comments touched on similar themes; the need for connectivity throughout the whole city, the importance of safety in encouraging people to walk or bicycle, accessibility for all users, and special importance of serving children and schools. (More information about the public events and focus groups can be found in the appendix of this plan.)

The Process of Creating This Plan

The process of creating the 2017 Bicycle and Pedestrian Plan involves a series of inputs, drafts, reviews, and approvals by city staff, citizens, and elected leaders. This process was designed to ensure that the plan faithfully represents the vision of the community, and has the full support of city leadership. The plan process has included:

- Public input period to establish vision and propose infrastructure projects
- Analysis and prioritization of proposed projects using the ActiveTrans Priority Tool
- Initial draft of the 2017 Bicycle and Pedestrian Plan
- Review and update of the draft plan by city staff and the Bicycle and Pedestrian Subcommittee
- Open house and public comment on the draft plan
- Staff update of plan to incorporate public comments
- Consideration of the plan by the Planning Commission and Transportation Safety Advisory Commission



IV. Types of Facilities

A variety of physical improvements can be built to help enable movement by bicycling or walking. As the city continues to provide new and updated transportation infrastructure, it can, and should, provide facilities that serve a variety of transportation network users, including bicyclists and pedestrians in addition to motorists. This is the concept of Complete Streets that serve all users. This section outlines the specific types of facilities and infrastructure, from very simple to more complex, which can continue being built in Harrisonburg to achieve our bicycle and pedestrian goals.

Bicycle Segments

Bicycle Lanes

A bicycle lane marks out an on-street travel lane for the exclusive use of bicyclists, with pavement striping and signage. Striped bicycle lanes should be a minimum of four feet wide (excluding the gutter) on streets with a curb and gutter, or five feet wide on streets without a curb and gutter. A designated buffer space may also be striped on the pavement to further separate the bike lane from adjacent traffic if space allows. Bicycle lanes should be designed to avoid obstructions such as storm drains, and should function with the acknowledgement that bicyclists may leave the bicycle lane to make left turns, pass other cyclists, or avoid obstacles or debris in the lane.

Generally, bicycle lanes carry bicyclists in the same direction as adjacent vehicle traffic along both sides of the street, although contra-flow lanes are sometimes used, allowing two-way bicycle traffic on streets that are one-way for automobile traffic. Bicycle lanes are typically necessary on streets with a posted speed limit over 25 miles per hour, or with Average Daily Traffic (ADT) greater than 3,000 vehicles per day. On quieter streets, bicycle lanes may not be necessary at all.

Shared Lane Markings

While marked bicycle lanes are best, in some locations there is simply no room. In these places, shared lane markings, known as “sharrows”, may be used to notify drivers that a high volume of bicyclists in the roadway should be anticipated. Sharrows are typically appropriate for streets with speed limits of 35 mph or less.



Bicycle Lane.



Buffered bicycle lane.



Sharrow.



Sidewalk.



Continental style crosswalk.

While routes where bicyclists share space with automobiles may not be comfortable for some novice bicyclists, such routes can serve more advanced bicyclists and can make important connections within the overall bicycle network.

Climbing Lanes

For roads with a steep hill and only enough width for a bicycle lane on one side of the street, a climbing lane may be appropriate. Climbing lanes are bicycle lanes for the uphill direction only, with a shared lane marking for the downhill direction. This treatment allows vehicles to pass safely in the travel lane while allowing bicyclists safe clearance as their speeds slow going up the hill.

Other Bicycle Treatments

Additional treatments can be found in the National Association of City Transportation Officials' (NACTO) Urban Bikeway Design Guide, and may be considered as when and where they are warranted.

Pedestrian Segments

Sidewalks

Sidewalks are the city's main form of pedestrian access, and exist along many city streets. Harrisonburg maintains approximately 84 miles of sidewalks. Since 2009, the City's Design and Construction Standards Manual (DCSM) requires that sidewalks be built on both sides of all new public streets and along the street frontage of all developing properties. New sidewalks should have a minimum width of 5 feet to allow two people to walk side by side and convenient access for all users, including those using wheelchairs or other mobility aids. The city's standard sidewalk design calls for a landscaped buffer strip of 2 to 5 feet between the street and sidewalk. These buffers provide additional safety and comfort for pedestrians, and where a buffer of 4 feet or more is available, can allow for tree planting. Approval for sidewalks without a buffer strip is available in certain conditions. Sidewalks should be constructed according to the guidance of this Plan, the City's DCSM, AASHTO guides, and ADA standards. These guidelines and standards should also be followed when constructing all sidewalk elements, including curb ramps and street crossings.

Pedestrian Intersections

Intersections are the greatest safety risk within the transportation network. In order to protect pedestrians, as well as motorists and bicyclists, intersection facilities should be designed for safety, visibility, and efficiency for users of all abilities. At every intersection in the city, pedestrians have a legal right to cross, whether or not crosswalks or signals are present, unless specifically signed otherwise.

Crosswalks

Crosswalk markings are added to intersections to clearly identify to pedestrians where they should cross, and identify to motorists where pedestrians will cross. Increased visibility and awareness provide greater pedestrian safety. Crossings in the city are to be marked with “continental-style” crosswalks featuring a series of large, bold stripes perpendicular to the path of crossing pedestrians. Crosswalks placed mid-block rather than at street intersections are not the norm, but may be used in special conditions, and with adequate study.

Pedestrian Signals

Electronic signals can be installed at signalized intersections to organize safe crossing for pedestrians. All existing Harrisonburg pedestrian signals are actuated signals, where pedestrians must press a button to activate a pedestrian signal sequence. Pedestrian signals in the City are typically concurrent, meaning motorists may turn across pedestrians’ paths after yielding to pedestrians. In this scenario, pedestrians usually have more crossing opportunities and less time to wait for a signal.

Curb Extensions

Curb extensions are physical extensions of a sidewalk that increase the visibility of pedestrians for motorists and shorten the pedestrian crossing distance. Curb extensions also serve to slow vehicle speeds, further improving pedestrian safety. Curb extensions are appropriate at crossing locations along areas with on-street parking. They can also include landscaping such as grass, trees, or small plants.

Pedestrian Refuge Islands

Refuge islands are raised islands in the center of the street, at intersections or midblock, to help protect crossing pedestrians from



Continental style crosswalk with Pedestrian Signal.



Curb Extension (photo rendering).



Pedestrian Refuge Island.

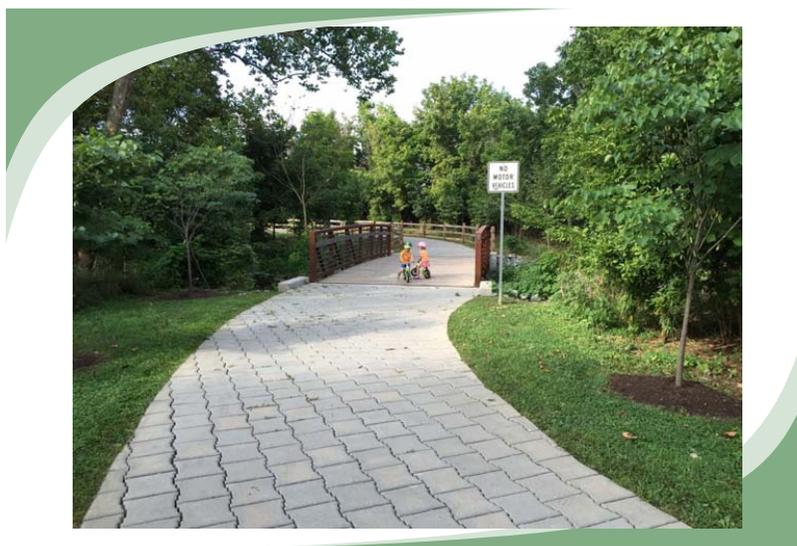
motor vehicles. Pedestrian refuge islands allow pedestrians an opportunity to deal with one direction of traffic at a time. They also enable pedestrians to stop halfway across the street to wait for a gap in traffic before crossing the second half of the street.

Right-Turn Slip-Lanes

At many arterial street intersections, pedestrians have difficulty crossing due to right-turn vehicular movements and long crossing distances. Well-designed right-turn slip lanes provide pedestrian crossing islands within the intersection and a right-turn lane that is designed to optimize the right-turning motorist's view of pedestrians and other vehicles. The triangular island should have a "tail" pointing to approaching traffic. Pedestrians are able to cross the right-turn lane and wait on the crossing island for their walk signal. An additional advantage to the right-turn slip-lane is the crosswalk is located in an area where the driver is still looking ahead.

Shared Use Paths

Shared use paths are wide, paved routes for the exclusive use of bicyclists and pedestrians, and are completely separate from regular city streets and automobile routes, though they may run parallel to streets. These paths can provide recreational opportunities as well as serve as important connections and commuting routes. Shared use paths are sometimes located along utility easements or former railroad rights-of-way, and offer a measure of quiet and safety that is often very popular, especially with novice users and children who may be uncomfortable sharing space with vehicle traffic. Shared use paths should be between 10 and 12 feet in width, should be paved, and should be separated by at least 5 feet when parallel to any roadway. Where space and right-of-way are available, shared use paths have the greatest potential to increase the number of pedestrian and bicycle trips in the city. The safety benefits of shared use paths go far beyond those offered by any other potential improvement type and should be seen as a major focus of the bicycle and pedestrian system.



The Bluestone Trail is a successful 1-mile shared-use path connecting JMU, Port Republic Road, Purcell Park, and Stone Spring Road.



HDPT bus with bicycle rack.



Bus stop shelter.



HDPT transit bus.

Other Facilities

Public Transit

Although not specifically bicycle or pedestrian facilities, public transit routes and facilities must be considered when planning the bicycle and pedestrian network. The Harrisonburg Department of Public Transportation (HDPT) operates a system of transit buses, school buses, and paratransit operations for persons with disabilities. The system also serves the transit needs of James Madison University.

All HDPT transit buses are equipped with bicycle racks, and HDPT and the Department of Public Works continue to coordinate the installation of bus shelters, benches and other amenities with new road and sidewalk projects. HDPT has also been working to identify suitable locations in or around downtown on which to construct a dedicated transit transfer location. This transfer location could contain bicycle and pedestrian accommodations, a taxi stand, and a location for the launching of intercity bus operations that may serve Harrisonburg at a future date. In effect, it could serve as a hub for a wide variety of transportation operations.

Bicycle Parking

Bicyclists will need safe and secure places to leave their bikes when they reach their destination. This will usually mean securely mounted bicycle racks to which riders can lock or chain their bikes. Where possible, bicycle parking should also be covered to protect bicycles and riders from the elements.

Currently, the city's Design and Construction Standards Manual (DCSM) requires bike racks to be installed at new developments with 15 or greater car parking spaces at a rate of one bicycle space per 25 car parking spaces, with a minimum of 4 bicycle spaces. These requirements should be further reviewed and revised to account for urban areas where bicycle parking is needed, but where little or no car parking will be provided, and to develop specifications for the exact design and placement of bicycle parking. The city itself can present a positive example for the provision of bicycle parking by providing ample bicycle parking at its many buildings, parks, schools, and other public facilities.

Bike Boxes

Bike boxes are designated areas at the front of a traffic lane at a signalized intersection that provide bicyclists with a way to get ahead of queuing traffic during the red signal phase. The area is painted on the pavement, and works as an extension of the bicycle lane to enhance bicyclist visibility and safety at the intersection.

Bicycle Repair Stations

Bicycle repair stations include air pumps and common bicycle repair tools included in a compact pylon to be mounted in public places. They may be installed in public parks, along shared use paths, or in coordination with bicycle parking to allow bicyclists a convenient way to make repairs or adjustments during their journey.



Covered bicycle parking.



Bike box.



Bicycle repair station.

Wayfinding

Wayfinding refers to signs, maps, pavement markings, and other methods that help users of the transportation system find their way. Signs are a key component of the bicycle and pedestrian system. Bicycle route signs point bicyclists to major regional or cross-city routes which may or may not always include bicycle lanes. Directional signage helps point bicyclists or pedestrians to important destinations such as the downtown. The city’s previous bicycle plans have committed to following the guidance of AASHTO’s Bicycle Guide for route signage, which encourages the use of directional signage with a description of frequented destinations.



Directional signs point out important destinations.



Bike lane signs complement pavement markings.

The Importance of Shade

Sidewalks, shared use paths, and bicycle lanes that are shaded by trees can provide much more comfortable and attractive conditions for users. Trees provide beauty as well as relief from sun and hot Virginia summers. As the city considers future projects of all types, efforts should be made to incorporate trees that can provide a shade canopy, among other benefits.



V. Network and Facility Recommendations

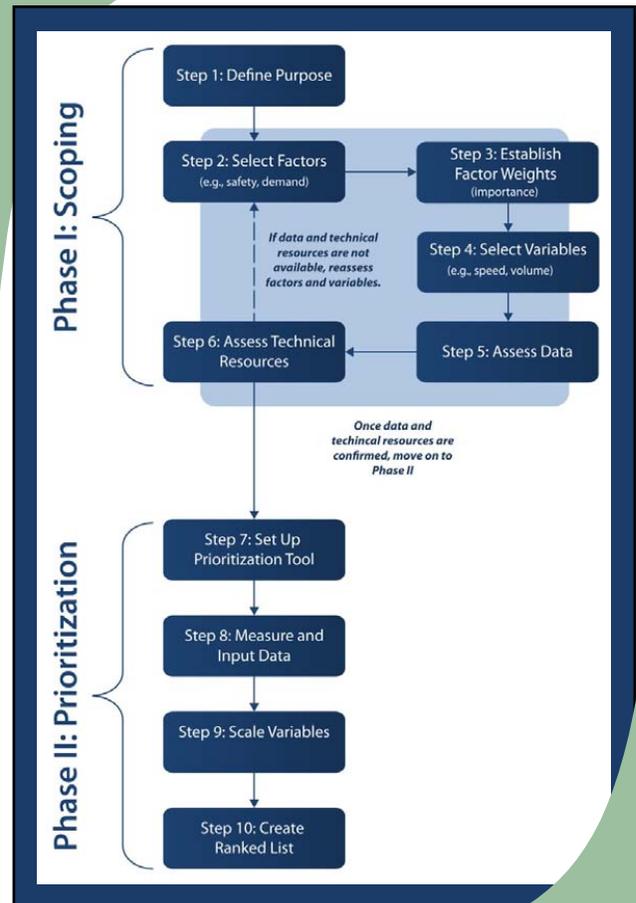
The ActiveTrans Priority Tool

The ActiveTrans Priority Tool was used to prioritize the individual bicycle and pedestrian projects contained in the 2017 Bicycle and Pedestrian Plan. With many needs and limited resources, this method provided an impartial and data-driven way to rank potential projects, raising low-impact projects, urgent safety priorities, and proposals of greatest community need to the top of the list. (for more information about the ActiveTrans Priority Tool, see www.pedbikeinfo.org/planning/tools_apt.cfm)

The ActiveTrans model has been used successfully in a number of communities, and is customizable to fit the unique characteristics of a community and the priorities of its residents and leaders. The model was calibrated for use in Harrisonburg based on input from the Bicycle and Pedestrian Subcommittee and city staff.

The model considered four types of proposed projects:

- **Pedestrian Segments**
These are sidewalks.
- **Pedestrian Intersections**
Where new or existing segments cross streets with vehicular traffic.
- **Bicycle Segments**
These are on-road bicycle facilities like bike lanes.
- **Shared Use Paths**
Off-street paths and trails for both pedestrians and bicyclists.



ActiveTrans Priority Tool: Major Factors

The variables included in the ActiveTrans analysis were divided into five main factors, containing variables from public desires to physical measurements and assessments of safety. Because these variables can be so different, each category was weighted differently. Each category started with a weight from 1 to 10 to determine how much impact on the final results each group of variables had.

- **Stakeholder Input**

Ideas for new potential bicycle or pedestrian infrastructure projects based on public input about needs, desires, and existing problem areas, as well as projects already proposed in the 2010 Bicycle and Pedestrian Plan, the 2011 Comprehensive Plan, or the city's Capital Improvements Program.

Category Weight: 3

- **Constraints**

Physical and other issues that will determine how complex or expensive a proposed project would be to build, including the need to move utilities or purchase land, and whether a project could be divided into several phases to help ease constraints.

Category Weight: 10

- **Existing Conditions**

Conditions on the ground at the location of potential projects that can help determine both the complexity of projects and how vital the need for them is. Variables include speed, road width, traffic volumes, and intersection features.

Category Weight: 10

- **Connectivity**

With the goal of building up a city-wide network of bicycle and pedestrian facilities that make it possible to travel anywhere in the city without the need for a car, assessing projects based on the importance of their place within the overall network.

Category Weight: 6

- **Equity**

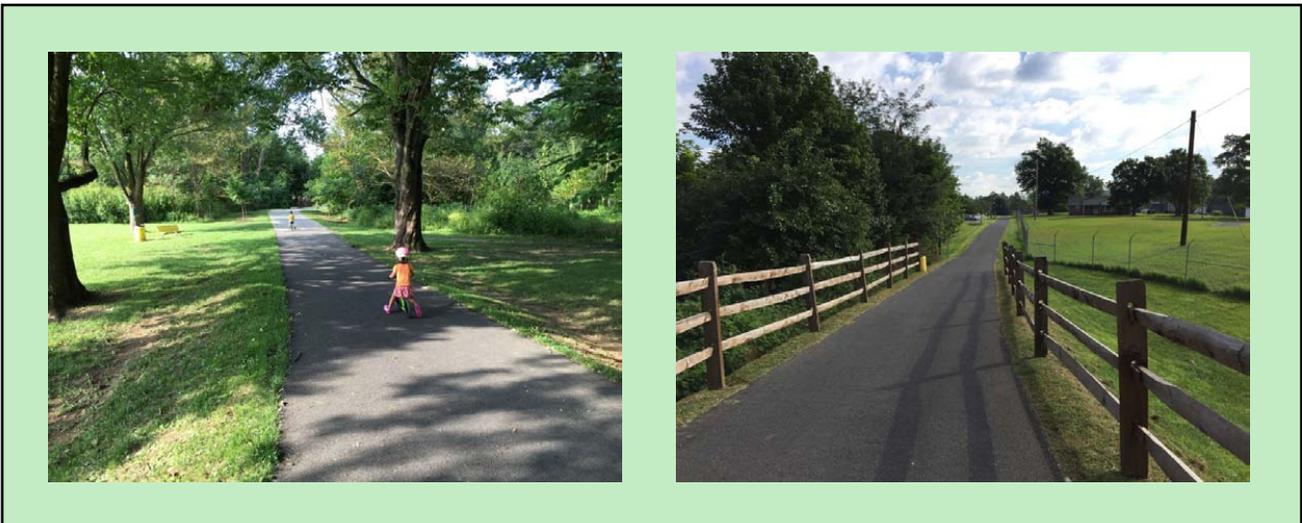
Assessing areas of highest activity and highest needs to promote improvements where they will be useful to the greatest number of city residents, especially for underserved population segments for whom driving may not be an option.

Category Weight: 6

Network and Facility Recommendations

Using the broad range of projects and improvements suggested by staff, citizens, and groups during the public input process, the ActiveTrans Priority Tool was used to prioritize these projects based on the factors discussed in this document. The results of this ActiveTrans analysis in each of the four infrastructure categories - Pedestrian Segments, Pedestrian Intersections, Bicycle Segments, and Shared Use Paths – are included in the following charts.

In reviewing these tables, it is important to note that the ActiveTrans analysis is only one factor in determining what projects the city should undertake, and when.



PEDESTRIAN SEGMENTS - *ActiveTrans* Priority Rank

Map ID	Project Name / Location	Score
PS-1	Virginia Ave-Mt Clinton Pk-NCL	242.2
PS-2	Erickson Ave-Garbers Church Rd-Erickson Ave Phase I Terminus	238.1
PS-3	E Market St-MLK Jr Way-Linda Ln	227.8
PS-4	S Main St-Mosby Rd-SCL	220.1
PS-5	Peach Gove Ave-King Edwards Way-Stone Spring Rd	216.5
PS-6	N Main St- Charles St-North City Limits	208.1
PS-7	Reservoir St-MLK Jr Way-Evelyn Byrd Ave	195.4
PS-8	Port Republic rd-Forest Hill Rd-Bluestone Dr	192.8
PS-9	Port Republic Rd-S Main st-Bluestone Dr	183.4
PS-10	Country Club Rd-Vine St-E Market St	179.1
PS-11	S High St-Maryland Ave-Erickson Ave	167.2
PS-12	Garbers Church Rd-Heritage Center Way-Park Lawn	164.8
PS-13	Reservoir St- Holly Ct-S Carlton St	163.3
PS-14	Portland Dr-Port Republic-End	162.2
PS-15	Chicago Ave-Mt. clinton Pike-Rockingham Dr	158.8
PS-16	University Blvd-Reservoir St-E Market St	157.7
PS-17	W Rock St-N High St-Green Street	155.3
PS-18	Ramblewood Rd-East of Mineral Springs Rd to South of Stone Spring Road	153.7
PS-19	Mt. Clinton Pike-CollegeAve-Virginia Ave	150.8
PS-20	Reservoir St-Myers Ave-S Carlton St	141.3
PS-21	E Gay St-Myrtle St-Summit St	137.7
PS-22	W Gay St-Rockingham Dr-Chicago Ave	137.6
PS-23	Sterlign St-E Elizabeth St-Effinger St	136.4
PS-24	Maryland Ave-S High St-Central Ave	135.2
PS-25	Lee Ave-W Gay St-7th St	134.4
PS-26	Reservoir St-Neff Ave-South City Limits	132.2
PS-27	Evelyn Byrd Ave-University Blvd-E Market St	131.0
PS-28	Vine St-N main St-E Market St	130.7
PS-29	MLK Jr Way-Mountain View Dr-Ott St	130.4
PS-30	S High St-Rockingham Square Shopping Center-Erickson Ave	128.2
PS-31	Central Ave-Pleasant Hill Rd- South Ave	127.7
PS-32	Rockingham Dr-Chicago Ave-Taliaferro Dr	127.2
PS-34	Pleasant Valley road-S Main St-South City Limits	126.0
PS-35	Norwood St-Reservoir St-Hawkins-St	124.4
PS-36	Hillside Ave-Greystone St-End	124.4
PS-37	Maryland Ave-Chesnut Dr-S Dogwood Dr	120.0
PS-38	Neff Ave-Reservoir St-Valley Mall	115.4
PS-39	Blue Ridge Dr-Old Furnace Rd-Country Club Rd	114.3

PEDESTRIAN SEGMENTS (*continued*) - ActiveTrans Priority Rank

Map ID	Project Name / Location	Score
PS-40	E Bruce St-S Mason St-Federal St	113.9
PS-41	N Main St-N Mason St-Charles St	113.5
PS-42	Pleasant Hill Rd (Complete)	108.1
PS-43	W Rock St-N High St-N Liberty St	107.8
PS-44	W Mosby Rd-S Main St-Millwood Loop	105.2
PS-45	S Dogwood Dr-W Market St-Hidden Creek Ln	104.6
PS-46	E Wolfe St-Sterling St-Vine St	104.3
PS-47	Ott St-Franklin St-E Water St	104.1
PS-48	South Ave-RR Tracks Closest to S High St	100.8
PS-49	Park Rd-Mt Clinton Pk-Harmony Dr	98.9
PS-50	Waterman Dr-W Market St-Chicago Ave	97.1
PS-51	Mountain View dr-S Carlton St-Myers Ave	96.5
PS-52	Myers Ave-Paul St-Mountain View Dr	94.9
PS-53	Harkins St-Reservoir St-E Market St	94.4
PS-54	Paul St-MLK Jr Way-Duke Dr	93.2
PS-55	Mountain View Dr-MLK Jr Way-S Carlton St	93.1
PS-56	W Wolfe St-N High St-N liberty St	90.7
PS-57	Reservoir St- Long Ave-Myers Ave	89.9
PS-58	Greystone St-Smith Ave-Chicago Ave	88.8
PS-59	Ott St- E Grattan St-Franklin St	88.2
PS-60	Sterling St-E Market St-E Elizabeth St	85.8
PS-61	Pear St-Erikson Ave-Pleasant Hill Rd	80.5
PS-62	Paul St-Myers Ave-MLK Jr Way	80.1
PS-63	Stuart St-Taliaferro Dr-3rd St	78.2
PS-64	N Willow St-W Gay St-2nd St	75.6
PS-65	3rd St-Stuart St-N Dogwood Dr	75.5
PS-66	Smith Ave-Existing Sidewalk-Mt. Clinton Pike	74.4
PS-67	Greystone St (Complete)	73.8
PS-68	Jefferson St-Charles St-W Washington St	69.4
PS-69	Pear St-W Mosby Rd-Ruby Dr	66.9
PS-70	Central Ave-Greystone St-Shenandoah St	62.1
PS-71	Shenandoah St-College Ave-Chicago Ave	62.1
PS-72	S Willow St-W Market St-JMU Entrance	60.5
PS-73	Effinger St-Sterling St-Broad St	59.4
PS-74	Myrtle St-E Washington St-Kelley St	57.2
PS-75	Mt Clinton Pk-West City Limits-Chicago ave	48.8
PS-76	Kelley St-Simms Ave-Hill St	41.7
PS-77	Parkwood Dr-Virginia Ave-Park Rd	34.0

PEDESTRIAN INTERSECTIONS - *ActiveTrans* Priority Rank

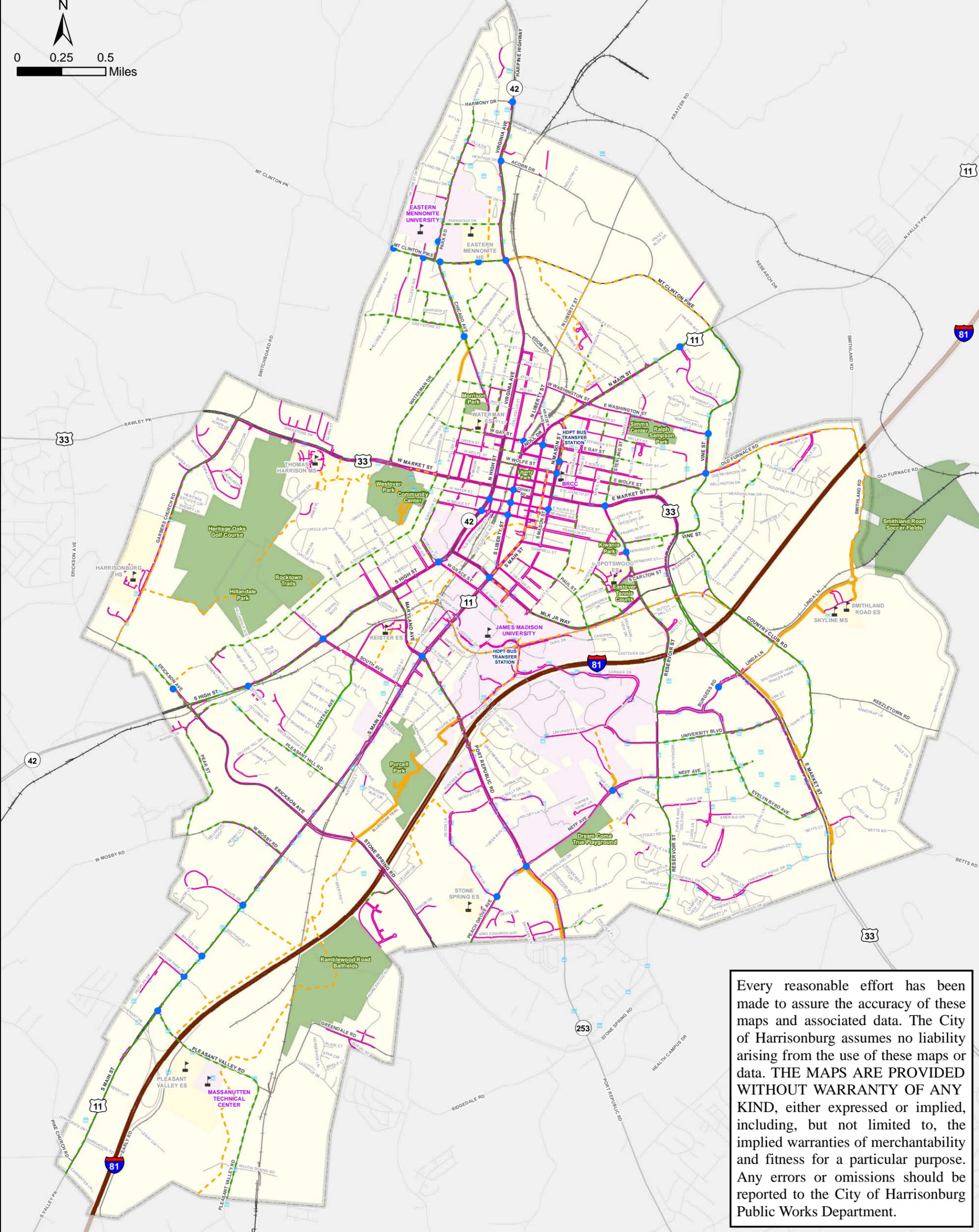
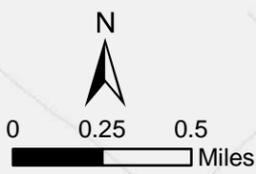
Map ID	Project Name / Location	Score
PI-1	Port Republic Rd & S Main St	240.5
PI-2	N Main St & Gay St	209.9
PI-3	Peach Grove Ave & Lois Ln	196.2
PI-4	S Main St & Pointe Dr	190.8
PI-5	S High St & W Water St	185.1
PI-6	S High St & Pear St	184.0
PI-7	S Liberty St & W Water St	181.5
PI-8	S Main St & Pleasant Valley Rd	179.2
PI-9	S High St & W Bruce St	177.5
PI-10	N Mason St & E Wolfe St	177.2
PI-11	N Mason St & E Rock St	174.6
PI-12	S Liberty St & W Bruce St	172.9
PI-13	S Mason St & E Water St	170.7
PI-14	Virginia Ave & Mt Clinton Pk	164.3
PI-15	N Liberty St & W Market St	158.7
PI-16	E Market St & Reservoir St/Sterling St	158.3
PI-17	Port Republic Rd & Neff Ave	158.2
PI-18	Chicago Ave & Waterman Dr	153.8
PI-19	N Main St & Emerson Ln	148.3
PI-20	S High St & W Grace St	147.8
PI-21	N Liberty St & W Gay St	145.0
PI-22	Reservoir St & Norwood St	142.0
PI-23	S High St & South Ave	140.8
PI-24	S Main St & Baxter Dr	134.8
PI-25	S Main St & W Kaylor Park Dr	129.2
PI-26	S Main St & MLK Jr Way	126.1
PI-27	Virginia Ave & Harmony Dr	124.7
PI-28	Mt. Clinton Pike at Gift & Thirft	124.2
PI-29	Vine St & E Washington St	121.5
PI-30	Virginia Ave & Acorn Drive	120.6
PI-31	Park Rd & EMU Science Center	117.0
PI-32	Mt Clinton Pk & College Ave	106.0
PI-33	Vine St & Old Furnace Rd	101.0
PI-34	Erickson Ave at Bus Stop for Garbers Crossing	97.6
PI-35	Mt Clinton Pk & Chicago Ave	97.3
PI-36	Neff Ave & Arboretum Trail	96.6
PI-37	Burgess Rd & Harrisonburg Crossing	96.0
PI-38	Mt Clinton Pk & Summit Ave	35.1

BICYCLE SEGMENTS - *ActiveTrans Priority Rank*

Map ID	Project Name / Location	Score
BS-1	Early Rd (Pleasant Valley Rd to SCL)	239.4
BS-2	Erickson Ave (Garbers Church Rd to Erickson Ave Phase I)	236.4
BS-3	E Market St (Mason St to Reservoir St)	235.0
BS-4	Res. St (Neff Ave to E Market St)	234.3
BS-5	MLK (Mason St to East Market St)	229.7
BS-6	Waterman Dr (W Market St to Chicago Ave)	223.2
BS-7	University Blvd (Carrier Dr to E Market St)	222.4
BS-8	Reservoir St (Neff Ave to SCL)	220.3
BS-9	S High (Rockingham Square Shopping Center to Hidden Creek Ln)	220.0
BS-10	N Main St (Wash St to NCL)	219.4
BS-11	Erickson Ave (WCL to Garbers Church Rd)	217.2
BS-12	E Market St (Reservoir St to Vine St)	216.7
BS-13	S High St (Erickson Ave to SCL)	215.5
BS-14	Greendale Rd (Complete road)	213.9
BS-15	Evelyn Byrd Ave (Res. St to E Market St)	211.5
BS-16	MLK extended (E Market to Country Club)	196.7
BS-17	Port Republic (Forest Hill to Bluestone Dr)	193.1
BS-18	N Liberty St (Harrisonburg City Limit to Mt Clinton Pike)	187.2
BS-19	N Liberty St (Rock St to W Market St)	182.7
BS-20	Keezletown Rd (Country Club Rd to ECL)	182.2
BS-21	Pleasant Valley Rd (Complete road)	181.6
BS-22	Pear St (Erickson Ave to Pleasant Hill Road)	178.3
BS-23	S Liberty St (West Market to MLK)	169.9
BS-24	Peach Grove Ave (Complete road)	166.0
BS-25	Maryland Ave (S High St to S Main St)	166.0
BS-26	Switchboard Rd (W Market St to NCL)	163.9
BS-27	Chicago Ave (Mt. Clinton Pike to Rock. Dr)	163.5
BS-28	Devon Ln/Lois Ln (Peach Grove Ave to east of Squire Hill)	150.0
BS-29	Mason St (N Main St to MLK)	139.3
BS-30	Mt Clinton (WCL to Chicago Ave/Park Rd)	137.8
BS-31	N Main St (Wolfe St to Gay St)	128.3
BS-32	Pleasant Hill Rd (Complete road)	116.5
BS-33	W Grace St (S High St to S Main St)	115.9
BS-34	S Main St (MLK to Campbell St)	112.8
BS-35	Gay St (Chicago Ave to Broad St)	108.9
BS-36	E Wash St (N Main St to Vine St)	108.9
BS-37	Ramblewood Rd (Complete road)	93.3

SHARED USE PATHS - ActiveTrans Priority Rank

Map ID	Project Name / Location	Score
SU-1	Norfolk Southern Rail Line (Country Club-S. Main St.)	229.3
SU-2	Trail Connection: Walnut Ln-MLK Jr Way	195.5
SU-3	Bluestone Trail/Northend Greenway Connection/Mt Clinton Pk: Park Rd-Virginia Ave	187.9
SU-4	Bluestone Trail/Northend Greenway Connection: Downtown (N Main St-Downtown Farmers Market)	185.4
SU-5	Bluestone Trail/Northend Greenway Connection: Downtown (Downtown Farmers Market-MLK Jr Way)	182.7
SU-6	Market St: ECL-Univeristy Blvd	180.7
SU-7	Country Club Rd: Vine St-E Market St	180.5
SU-8	Trail Connection: Mt Clinton Pk-Parkwood Dr-VMRC	176.3
SU-9	Old Furnance Rd: Vine St-Smithland Rd	175.2
SU-10	Trail Connection: Devon Ln-Stone Spring Rd	167.3
SU-11	Trail Connection: Roosevelt St-Cheapeake Ave	163.5
SU-12	Bluestone Trail/Northend Greenway Connection: JMU (MLK Jr Way-Port Republic Rd)	162.9
SU-13	Bluestone Trail/Northend Greenway Connection: North End Greenway (Virginia Ave-N Main St)	160.1
SU-14	Trail Connection: S Dogwood Dr-Erickson Ave	160.0
SU-15	Trail Connection: Garbers Church Rd-Hillandale Park	155.4
SU-16	Trail Connection: Devon Ln-Hunters Rd	152.9
SU-17	Mt Clinton Pk: Virginia Ave-N Main St	151.7
SU-18	THMS-Wyndham Dr	151.3
SU-19	Garbers Church Rd: Erickson Ave-heritage Center Way	150.7
SU-20	Trail Connection: Neff Ave-Arboretum Trail-University Blvd	149.7
SU-21	Trail Connection: Chesapeake Ave-Farmers Market	147.7
SU-22	Trail Connection: Maryland Ave-W Fairview Ave	147.7
SU-23	Trail Connection: Warsaw Ave-Ohio Ave/New York Ave	147.1
SU-24	Trail Connection: South Ave- Keister ES	144.3
SU-25	Linda Ln: E Market St-Country Club Rd	139.3
SU-26	Smithland Rd: Old Furnance Rd-SUP at Smithland Soccer Fields	138.4
SU-27	Trail Connection: Bluestone Trail-Boxwood Ct	136.9
SU-28	Trail Connection: Maryland Ave-W Grace St	136.8
SU-29	Trail Connection: Neyland Dr-Cale Trail	136.3
SU-30	W Market St: Dogwood Dr-Westover Park Entrance	134.7
SU-31	Trail Connection: Hunters Rd-Rockingham Hall (JMU)	131.9
SU-32	Trail Connection: Woodleigh Ct Terminus-Mt Clinton Pk	131.9
SU-33	Forest hill Rd: University Blvd-Port Republic Rd	130.1
SU-34	Bluestone Trail/Northend Greenway Connection: Stone Spring Rd - SCL (multiple possible alignments)	127.9
SU-35	Trail Connection: W Market St-THMS	124.6
SU-36	N Liberty St: Edom Rd-Acorn Dr	117.7
SU-37	Trail Connection: S Dogwood Dr-Rocktown Trails/hillandale Park	117.5
SU-38	Trail Connection: Bluestone Trail-Keylor Park Dr	116.9
SU-39	Trail Connection: Hillandale Park-THMS	109.7
SU-40	Trail Connection: A Dream Come True Playground-Surrounding Neighborhoods	102.5
SU-41	Trail Connection: Bluestone Trail-Ramblewood Park/Greendale Rd	101.9
SU-42	Trail Connection(Cale Trail):Westover Park-THMS	101.9
SU-43	Trail Connection: Ott St-Myers Ave	79.9



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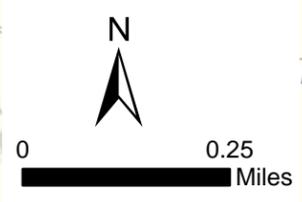
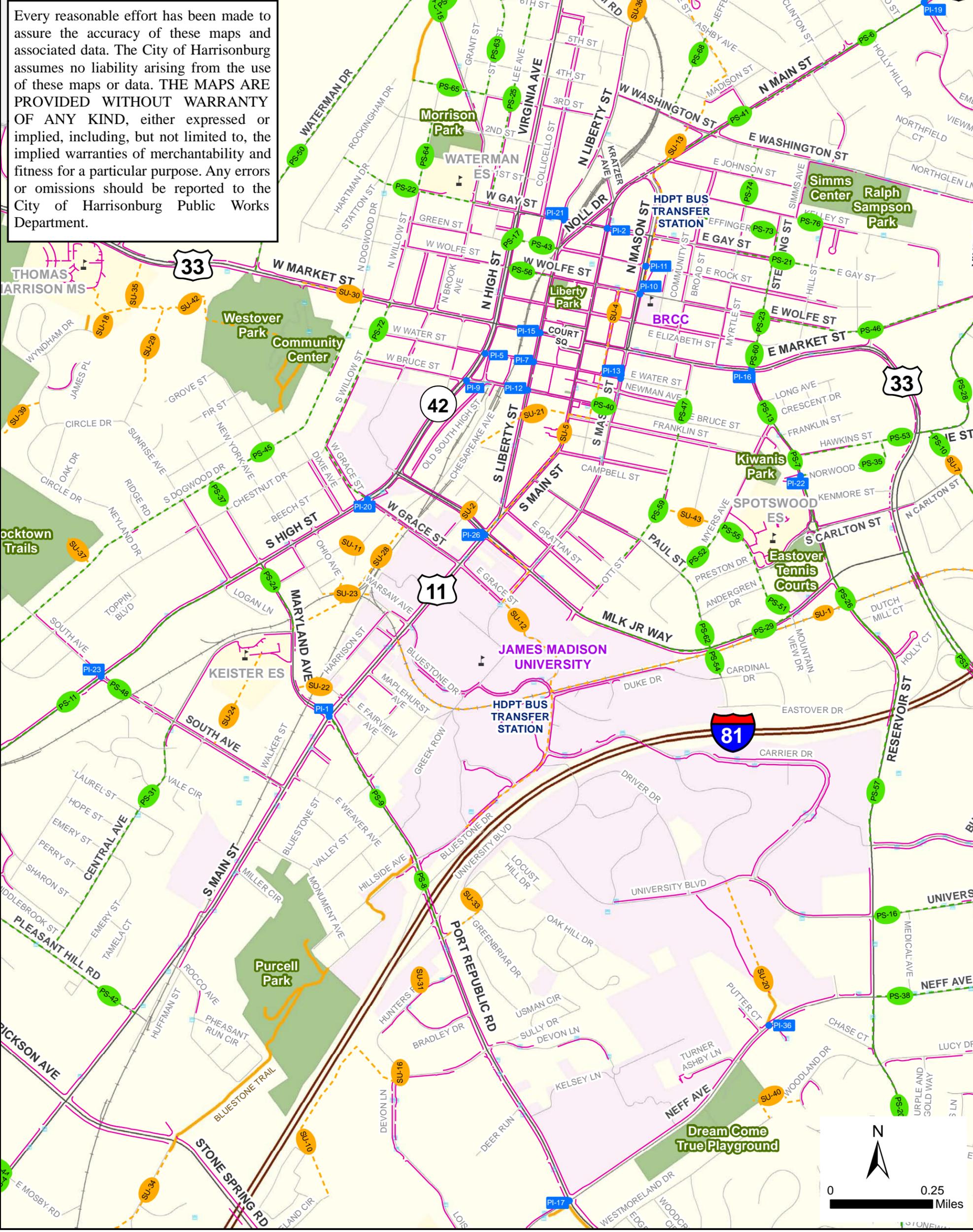
Recommended Pedestrian Facilities

Facility Type

- - - Proposed Pedestrian Improvement Segment
- - - Proposed Shared Use Path
- Proposed Intersection Improvements
- Existing Traffic Signal with Crosswalk Signal
- Existing Traffic Signal without Crosswalk Signal
- Existing Sidewalk
- Existing Shared Use Path
- School
- Transit Bus Stop



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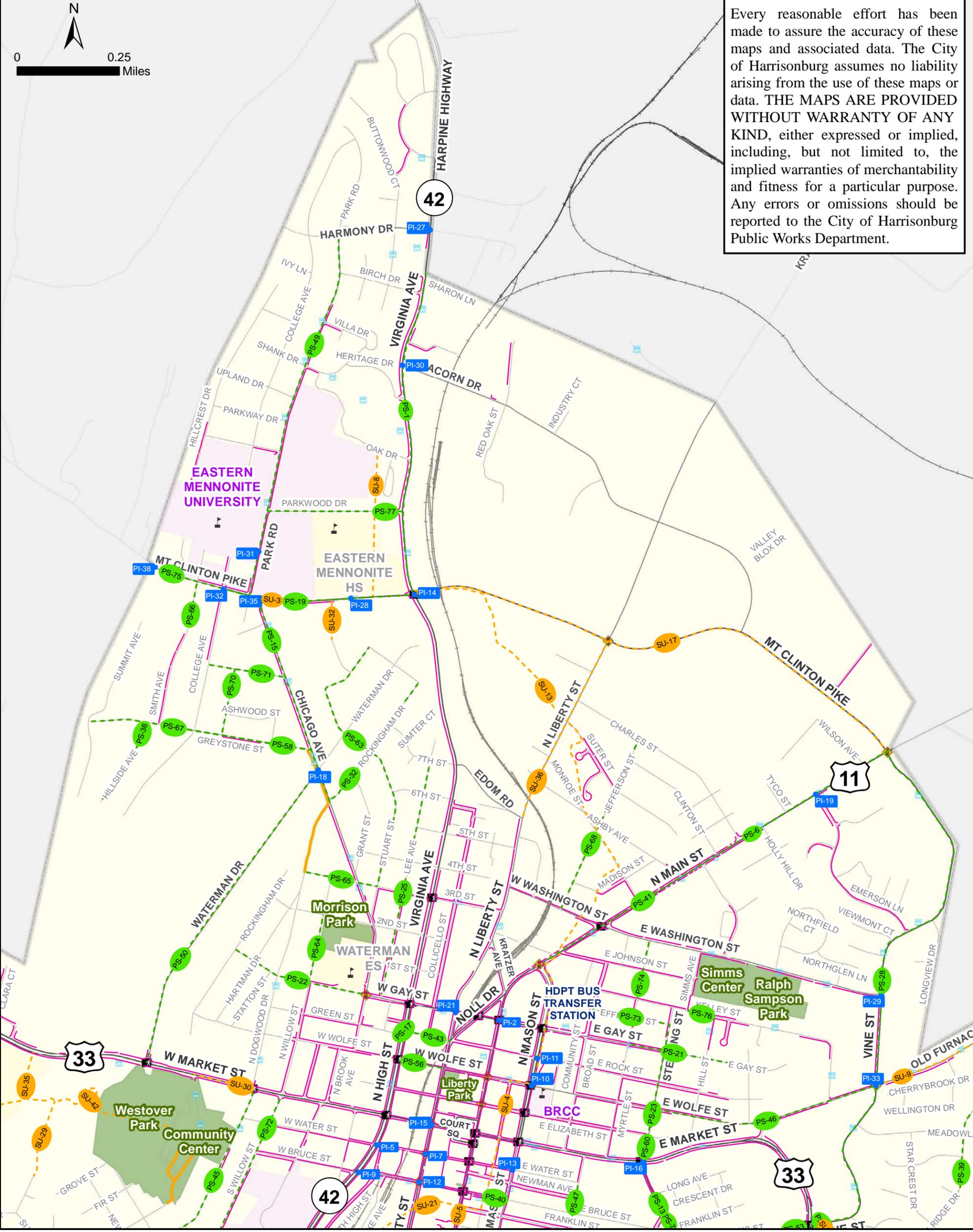
Recommended Pedestrian Facilities: JMU & Downtown

Facility Type

- - - Proposed Pedestrian Improvement Segment
- - - Proposed Shared Use Path
- Proposed Intersection Improvements
- Existing Traffic Signal with Crosswalk Signal
- Existing Traffic Signal without Crosswalk Signal
- Existing Sidewalk
- Existing Shared Use Path
- School
- Transit Bus Stop



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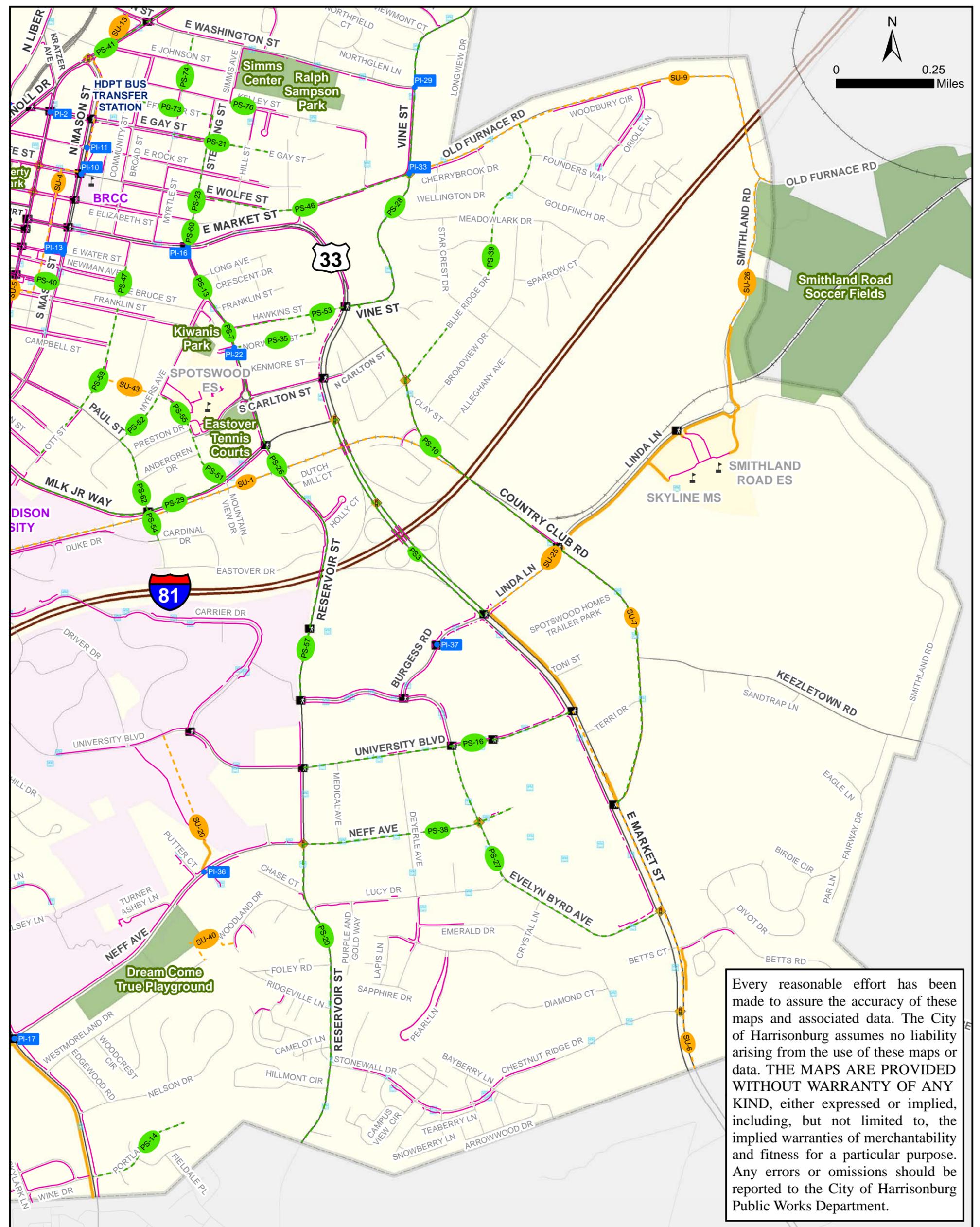


Recommended Pedestrian Facilities: North

Facility Type

- - - Proposed Pedestrian Improvement Segment
- - - Proposed Shared Use Path
- Proposed Intersection Improvements
- Existing Traffic Signal with Crosswalk Signal
- Existing Traffic Signal without Crosswalk Signal
- Existing Sidewalk
- Existing Shared Use Path
- School
- Transit Bus Stop





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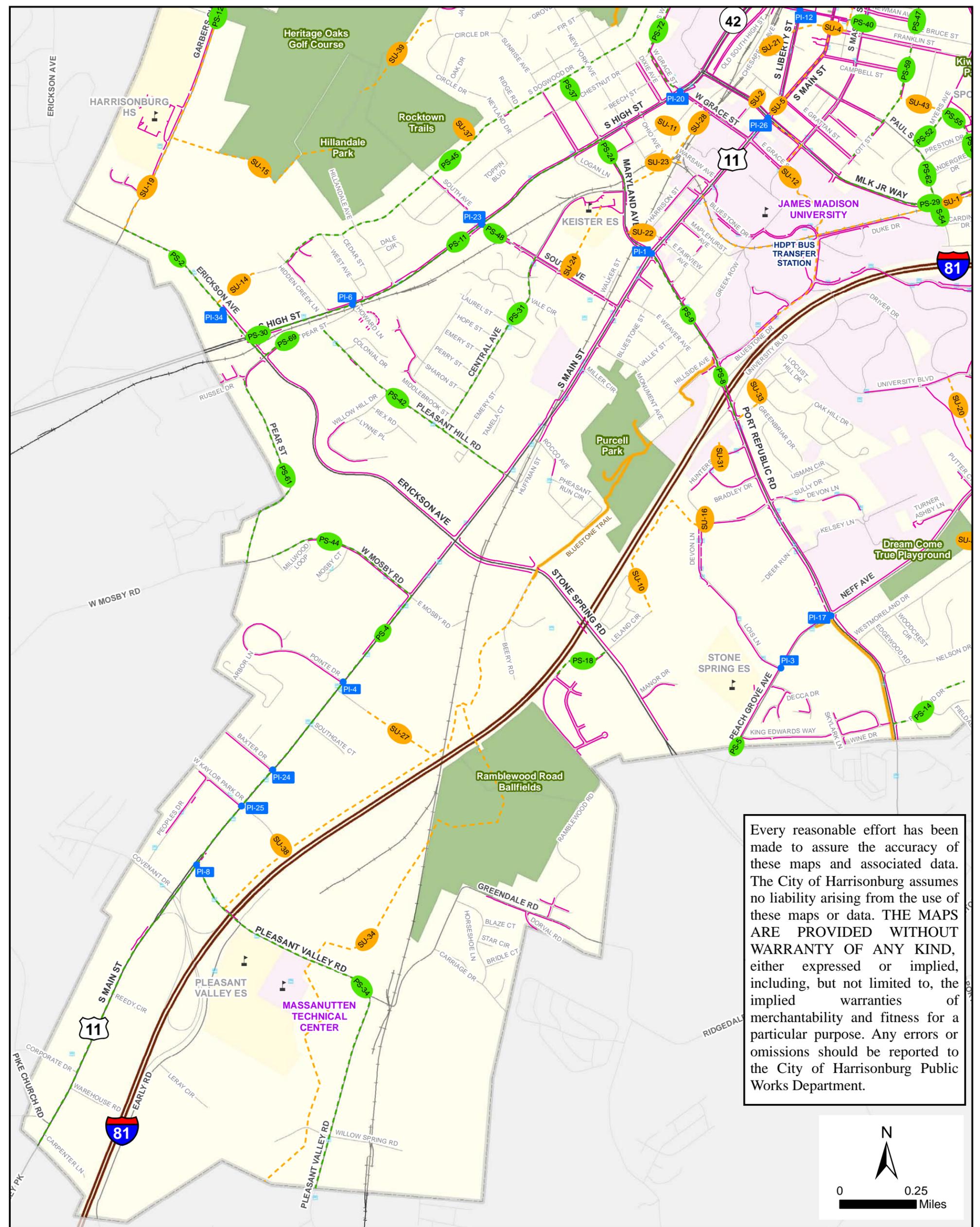
Recommended Pedestrian Facilities: East

Facility Type

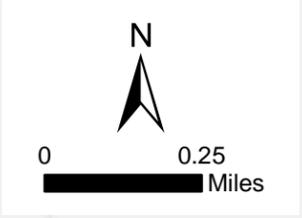
- - - Proposed Pedestrian Improvement Segment
- - - Proposed Shared Use Path
- Proposed Intersection Improvements
- Existing Traffic Signal with Crosswalk Signal
- Existing Traffic Signal without Crosswalk Signal
- Existing Sidewalk
- Existing Shared Use Path
- School
- Transit Bus Stop



BIKE WALK
HARRISONBURG



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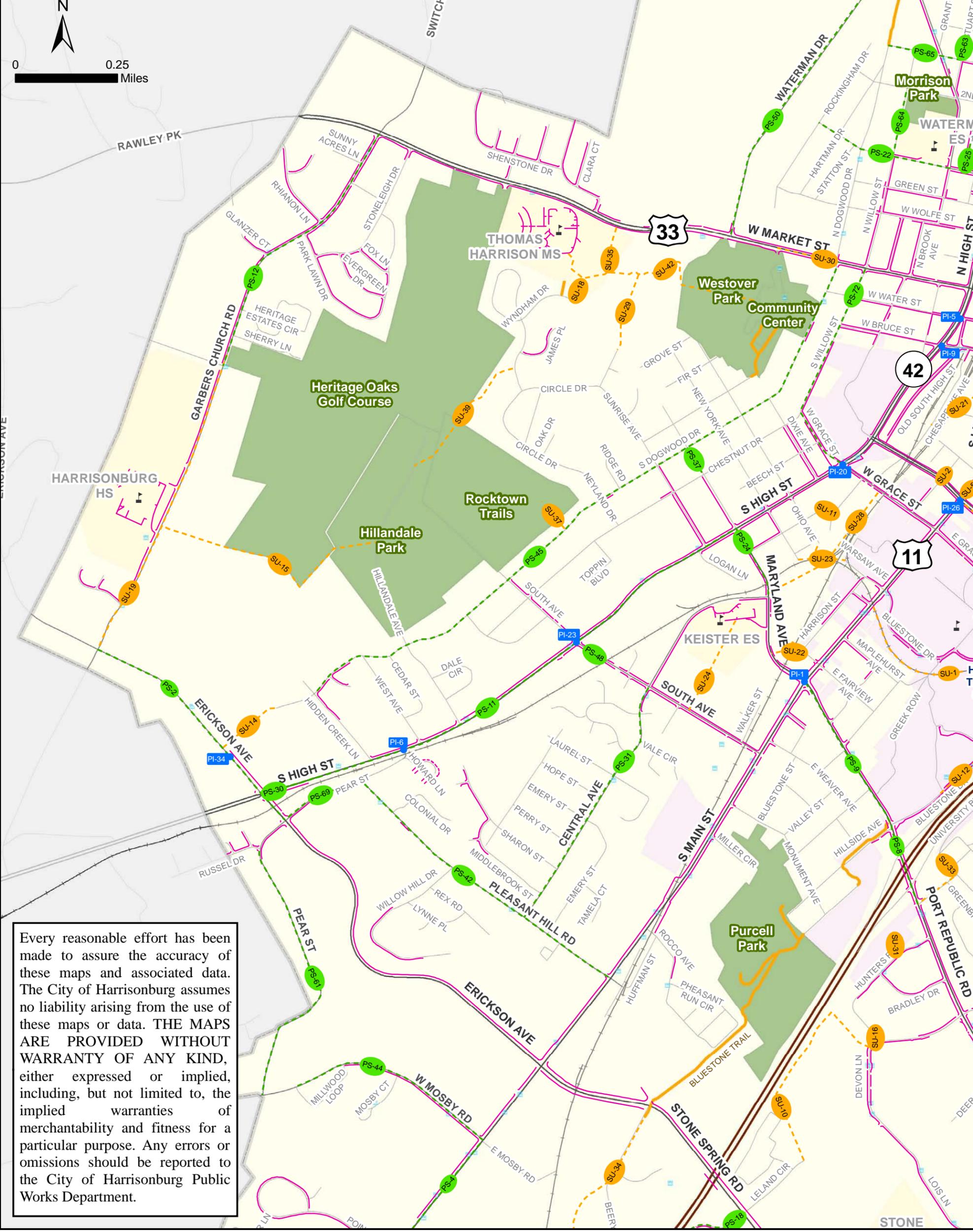


Recommended Pedestrian Facilities: South

Facility Type

- - - Proposed Pedestrian Improvement Segment
- - - Proposed Shared Use Path
- Proposed Intersection Improvements
- Existing Traffic Signal with Crosswalk Signal
- Existing Traffic Signal without Crosswalk Signal
- Existing Sidewalk
- Existing Shared Use Path
- School
- Transit Bus Stop





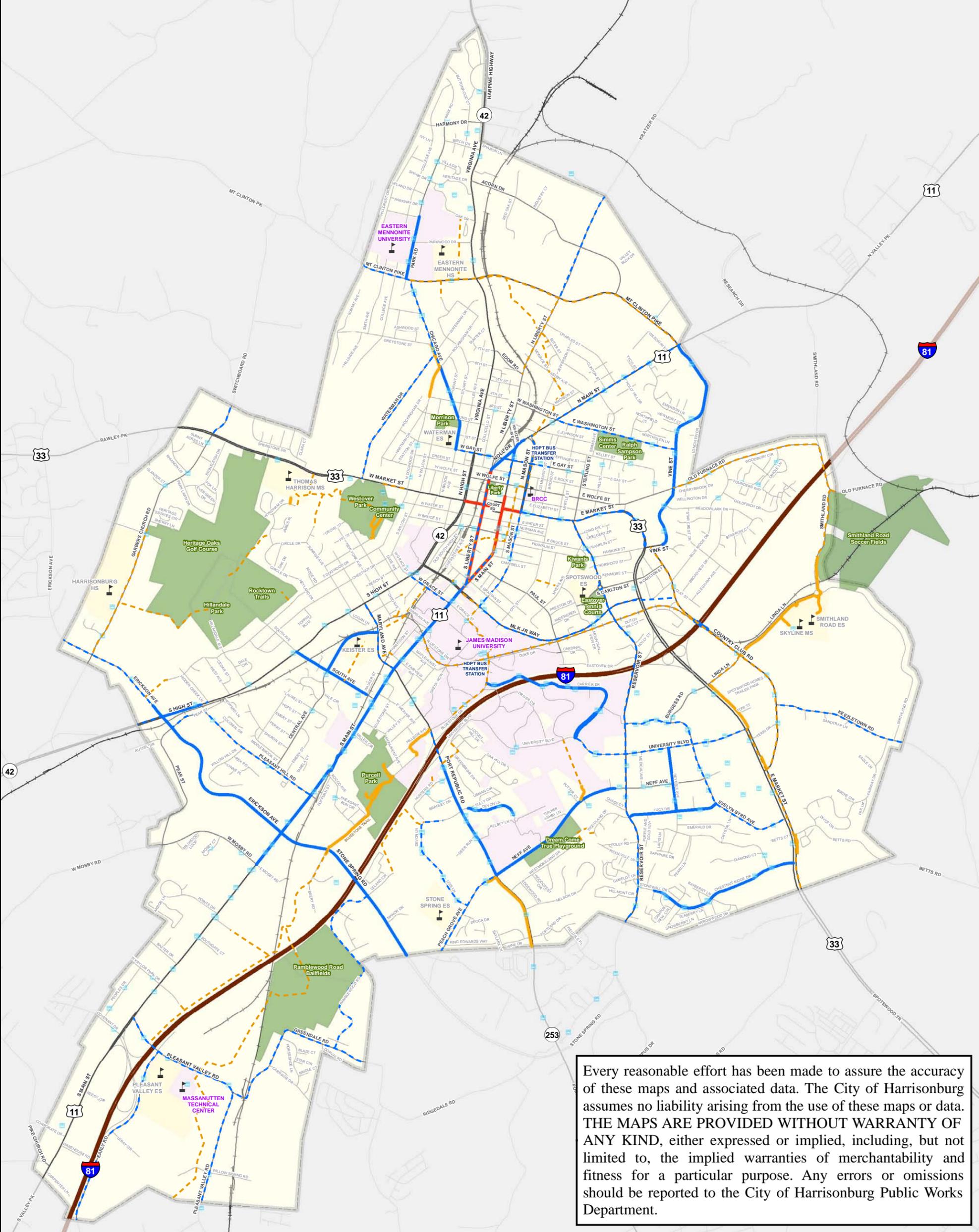
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Recommended Pedestrian Facilities: West

Facility Type

- - - Proposed Pedestrian Improvement Segment
- - - Proposed Shared Use Path
- Proposed Intersection Improvements
- Existing Traffic Signal with Crosswalk Signal
- Existing Traffic Signal without Crosswalk Signal
- Existing Sidewalk
- Existing Shared Use Path
- School
- Transit Bus Stop





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Recommended Bicycle Facilities

Facility Type

- Proposed Bike Segments
- Proposed Shared Use Path
- Existing Shared Use Path
- Existing Bicycle Lanes
- Existing Shared Lane Markings
- School
- Transit Bus Stop



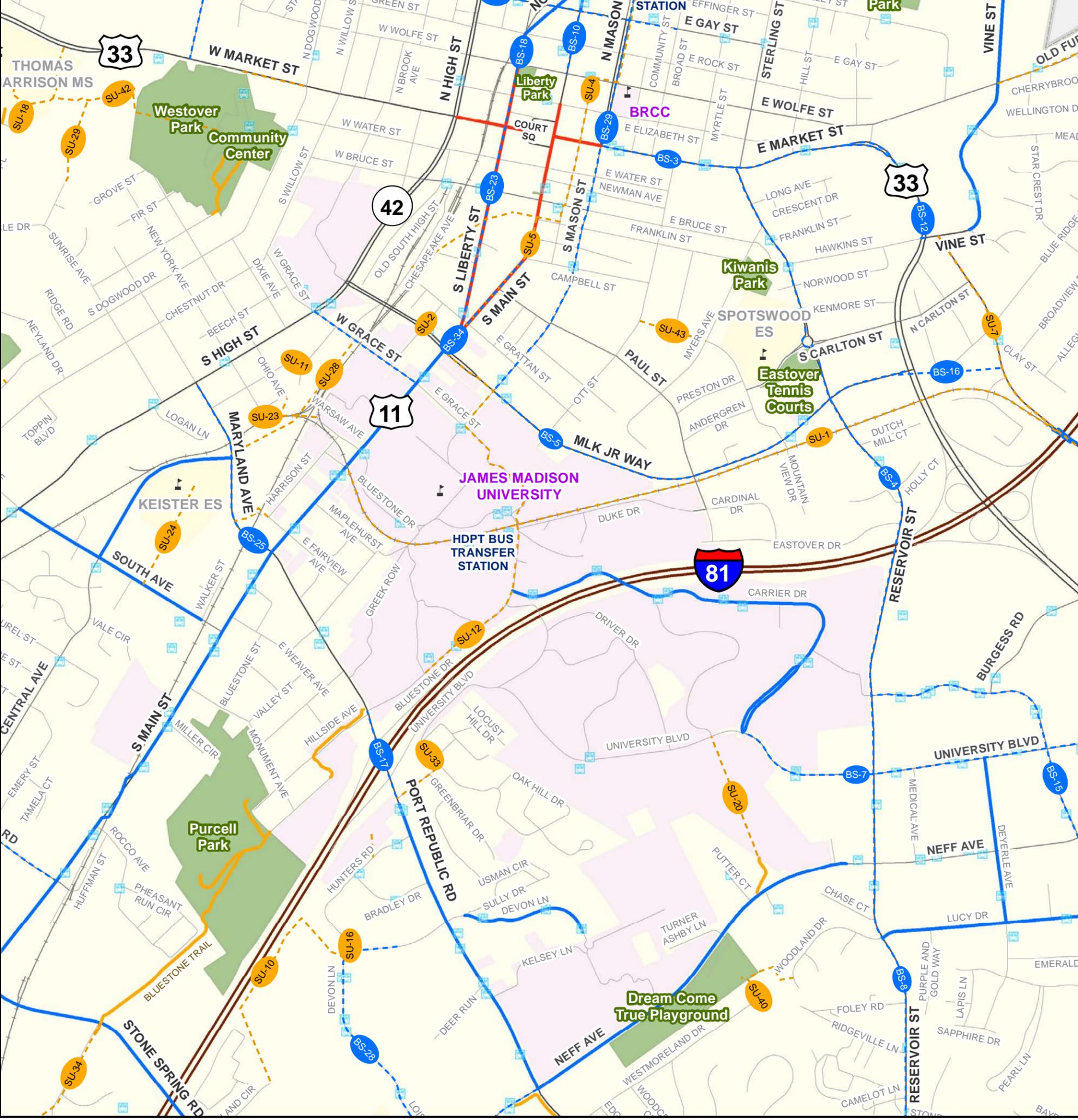
0 0.25 0.5
Miles

1 in = 1 miles



BIKE WALK
HARRISONBURG

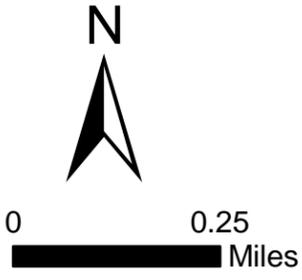
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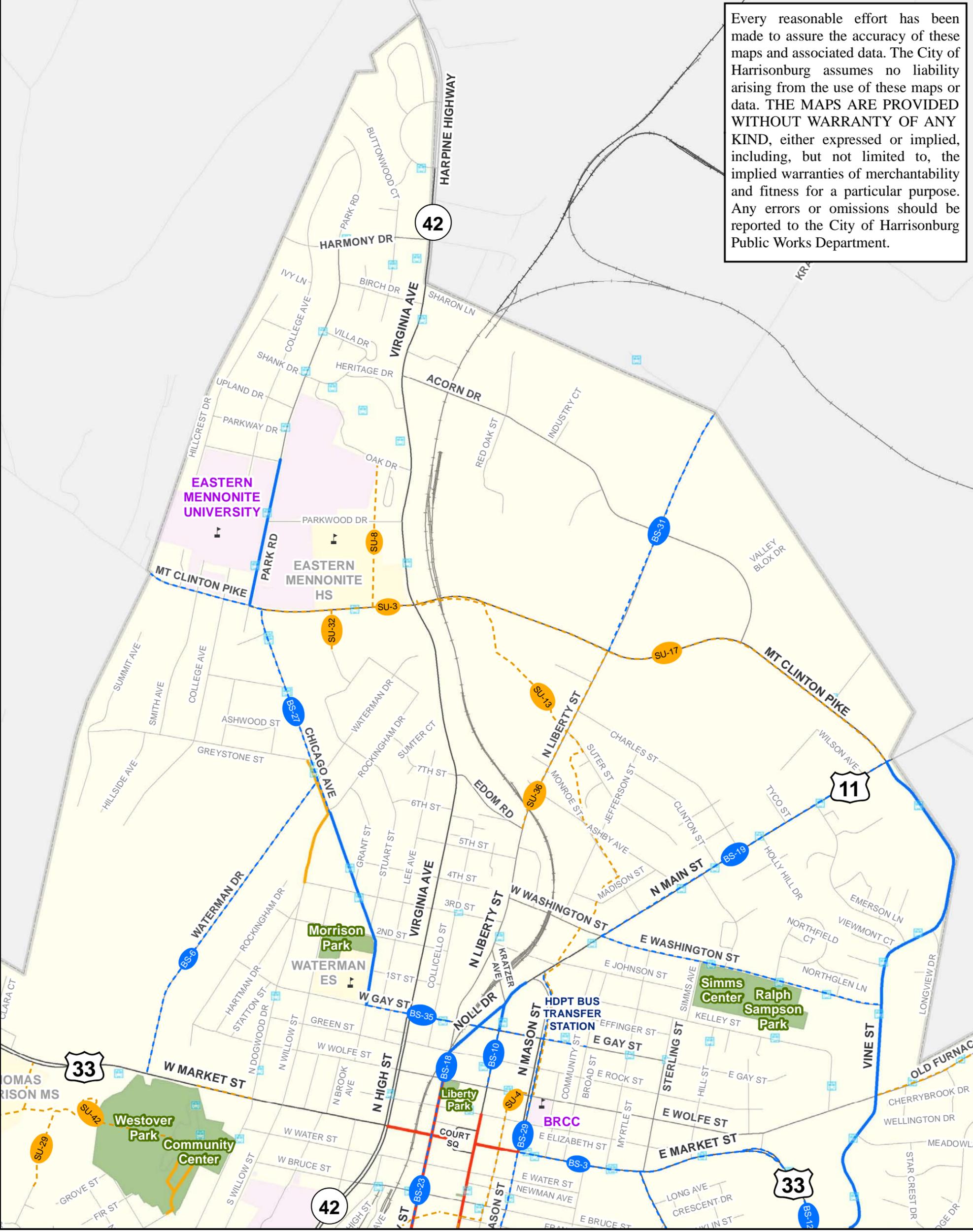
Recommended Bicycle Facilities: JMU & Downtown

Facility Type

- - - - Proposed Bike Segments
- - - - Proposed Shared Use Path
- Existing Shared Use Path
- Existing Bicycle Lanes
- Existing Shared Lane Markings
- School
- Transit Bus Stop

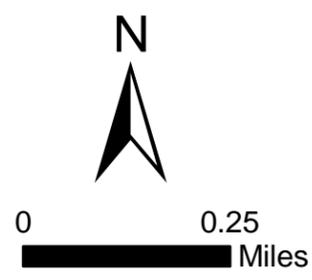


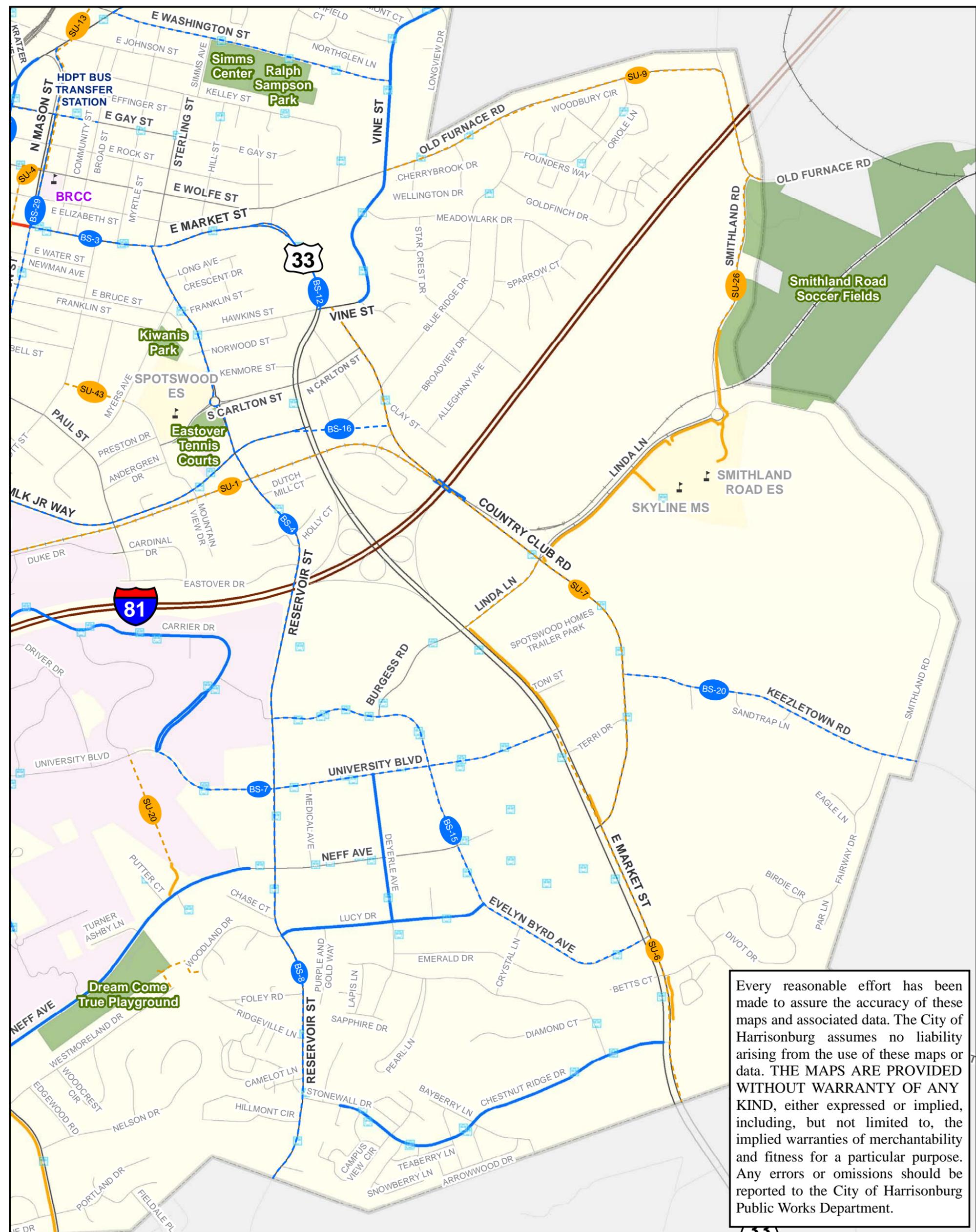
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Recommended Bicycle Facilities: North

- Facility Type**
- - - - Proposed Bike Segments
 - - - - Proposed Shared Use Path
 - Existing Shared Use Path
 - Existing Bicycle Lanes
 - Existing Shared Lane Markings
 - School
 - Transit Bus Stop



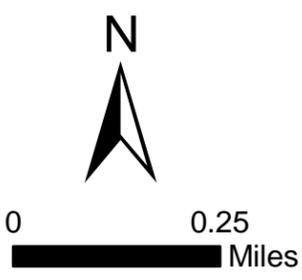


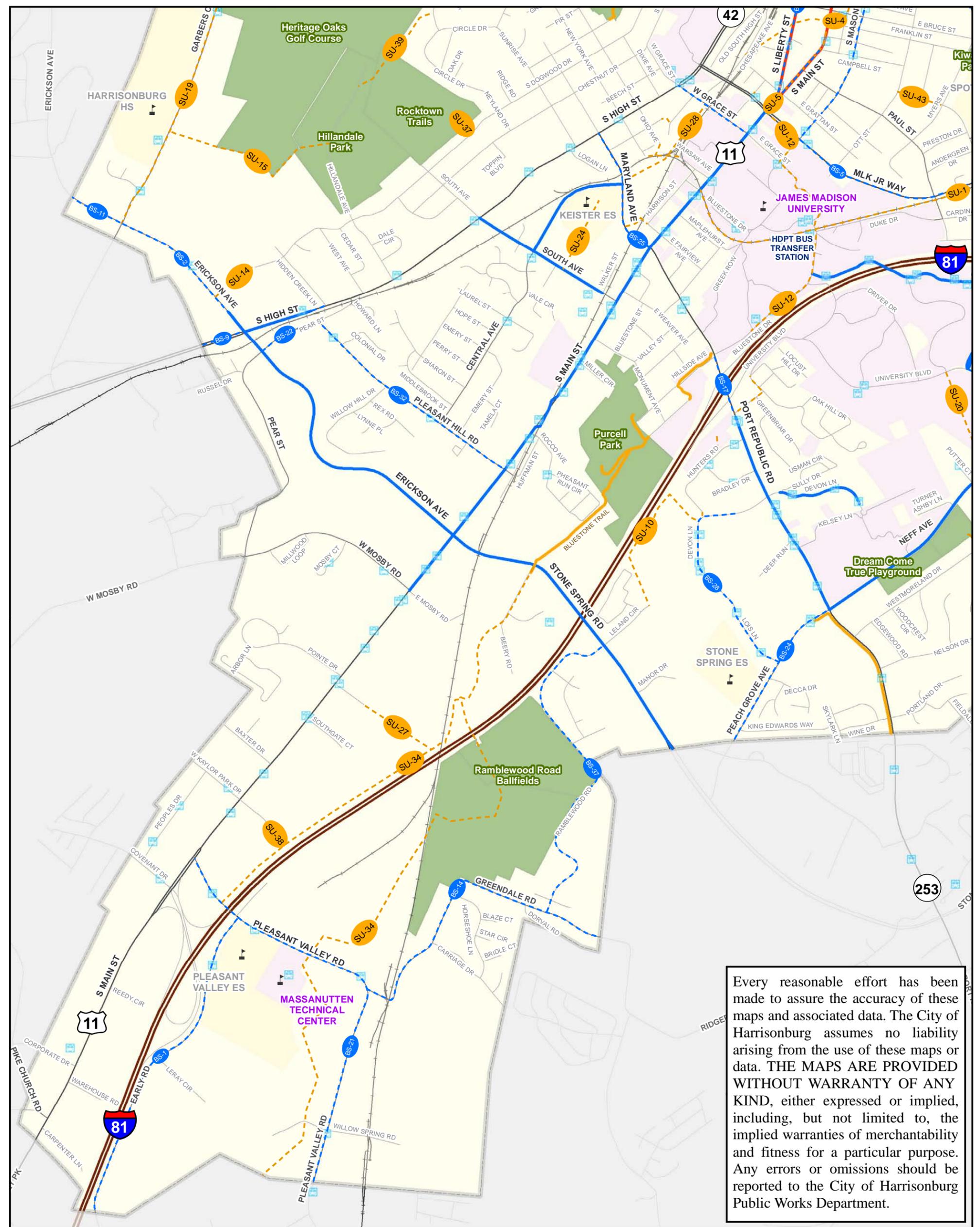
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Recommended Bicycle Facilities: East

Facility Type

- - - Proposed Bike Segments
- - - Proposed Shared Use Path
- Existing Shared Use Path
- Existing Bicycle Lanes
- Existing Shared Lane Markings
- School
- Transit Bus Stop



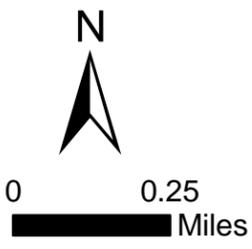


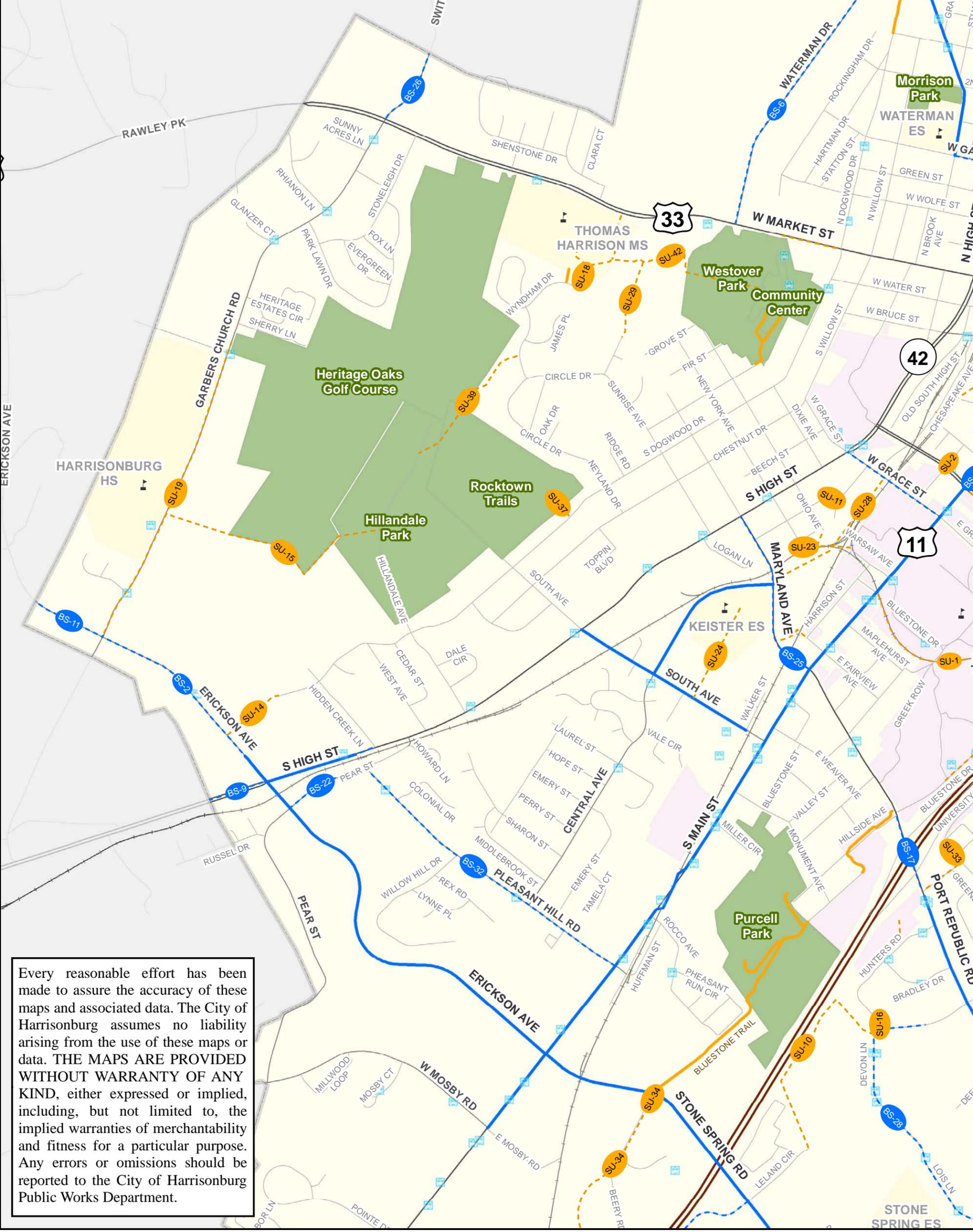
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Recommended Bicycle Facilities: South

Facility Type

- - - - Proposed Bike Segments
- - - - Proposed Shared Use Path
- Existing Shared Use Path
- Existing Bicycle Lanes
- Existing Shared Lane Markings
- School
- Transit Bus Stop



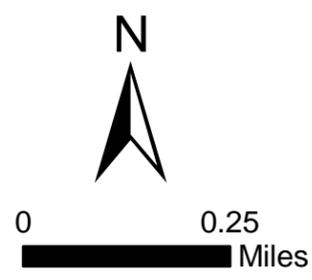


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Recommended Bicycle Facilities: West

Facility Type

- - - - Proposed Bike Segments
- - - - Proposed Shared Use Path
- Existing Shared Use Path
- Existing Bicycle Lanes
- Existing Shared Lane Markings
- School
- Transit Bus Stop



VI. Implementation

The 5 E's

The League of American Bicyclists has developed the following “5 E’s” of great bicycle friendly communities. However, these elements can easily apply to pedestrian transportation as well. While Engineering and infrastructure projects often take center stage in local and regional planning discussions, Education, Encouragement, Enforcement, and Evaluation can all play major roles in advancing the cause of bicyclists and pedestrians, improving Harrisonburg and the mobility of its residents.

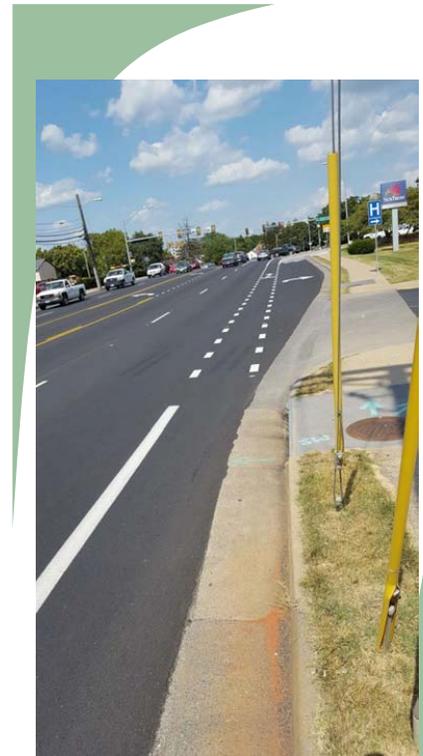
Engineering

The most visible element of Harrisonburg’s bicycle and pedestrian network is the physical infrastructure that makes non-car travel possible, from sidewalks and curb ramps, to bike lanes and shared use paths. Physical facilities are a key determinant in whether people will walk or bicycle. People want a connected network of routes that can get them all the way to their destination safely, conveniently, and comfortably.

It will ultimately fall to city government to construct infrastructure improvements, most of which fall within the right of way of public streets. The city maintains a Design and Construction Standards Manual (DCSM) that details the engineering specifications for public infrastructure projects. These standards apply to sidewalks, curb ramps, signals, and variety of other improvements. At this time, the city requires sidewalks to be included on all newly constructed streets, sidewalks to be constructed in conjunction with new development or redevelopment with public street frontage, and for development along a proposed shared use path to dedicate right of way. The city should also encourage traffic calming techniques residential streets as an additional way of supporting bicycle and pedestrian safety. In the future design and engineering of improvements, the city should consider not only those infrastructure elements in this plan, but a full range of new and innovative elements included in the resources of the National Association of City Transportation Officials (www.nacto.org).

Education

In many cases, a lack of skills, or confidence may keep potential bicyclists and pedestrians from using the city’s alternative transportation network. Much of the work of educating potential



Sidewalk and Bicycle Lane.



Bike Rodeo - Waterman Elementary.



Zagster Bike Share.



Bike Blast.

bicyclists and pedestrians happens at the community level, with bicycle and pedestrian safety education for school children and adults. Communities, businesses and campuses can offer options for adults looking to improve their biking skills with online tips, presentations, and on-bike training opportunities. Education campaigns should also be used to reinforce traffic laws and teach motorists how to drive safely when bicyclists and pedestrians are present.

Encouragement

Automobiles are the dominant form of transportation in Harrisonburg, and in most parts of the country. This means that walking or riding a bike are a major change for most people. City government, community organizations, businesses, universities, and citizens can all play a role in encouraging people to give walking or bicycling a try. This can be done through the celebration of events like National Bike Month or Bike to Work Day, by producing community bike maps to point out safe and convenient routes, or a variety of other measures. Community bike sharing programs may also be used to make bicycles temporarily available to those who don't already own one.

Enforcement

Title 46.2, Chapter 8 of the Code of Virginia contains laws covering motorists, bicyclists, and pedestrians in Virginia. All road users should read the Virginia Driver's Manual and be familiar with their rights and responsibilities, and how to safely and courteously walk, bike and drive. After education and encouragement campaigns, the city police department should follow up with targeted enforcement. A focus on positive enforcement can encourage safe and legal walking and cycling practices.

Evaluation

The city and its citizens will want to know how successful its investments in bicycle and pedestrian infrastructure and programs have been. As we add routes to the bicycle and pedestrian network, as well as add program and policy tools, the city should continue to monitor the network for numbers

of riders and walkers, and continue to accept the concerns and suggestions of citizens who have first-hand experience using the city's streets, sidewalks, bike lanes, and paths. In this effort, the city should be comparing its current levels of bicycle and pedestrian participation to previous levels, as well as to other communities who have successfully implemented bicycle and pedestrian infrastructure and programs.



National Walk to School Day.



Bike to Work Day in Harrisonburg.

Implementation Strategies

In order to implement the goals of this bicycle and pedestrian plan, and to continue to advance Harrisonburg as a top bicycle and pedestrian friendly community, Engineering, Education, Encouragement, Enforcement, and Evaluation efforts will all have to work together, including efforts by city government, citizens, community groups, and others.

Goal 1 To develop and maintain streets and paths that are designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists, and transit riders of all ages and abilities.

Objective 1.1 Develop and improve the City's bicycle and pedestrian transportation system.

- Strategy 1.1.1. Adopt, implement, and maintain the City's Bicycle and Pedestrian Plan for bicycle and pedestrian improvements.
- Strategy 1.1.2. Consider adopting a Complete Streets strategy to inform the planning, design, and implementation of transportation projects that serve all users, and consider neighborhood character and context.
- Strategy 1.1.3. Continue to complete infrastructure projects and utilize the Recommended Facilities Lists found in Section V of this plan to guide planning and construction.
- Strategy 1.1.4. Coordinate bicycle and pedestrian facility improvements with the City's Comprehensive Plan, Master Transportation Plan, Downtown Streetscape Plan, Comprehensive Parks and Recreation Master Plan, Harrisonburg-Rockingham Metropolitan Planning Organization's Bicycle and Pedestrian Plan and other local and regional plans.
- Strategy 1.1.5. Secure sidewalk and shared use path improvements, easements, and on-site bicycle parking and storage consistent with the Bicycle and Pedestrian Plan through the development review process.
- Strategy 1.1.6. Coordinate bicycle and pedestrian facility improvements with Rockingham County, the Virginia Department of Transportation, the Harrisonburg-Rockingham Metropolitan Planning Organization, James Madison University, Eastern Mennonite University, and other appropriate organizations.
- Strategy 1.1.7. Collaborate with City departments, agencies, and citizen organizations to identify grant opportunities and submit applications to fund improvement projects.
- Strategy 1.1.8. Appropriate public funding through the city's Capital Improvement Program to support new bicycle and pedestrian infrastructure projects.

Objective 1.2. Develop a bicycle and pedestrian network that is convenient and comfortable to encourage citizens to bike and walk more frequently.

- Strategy 1.2.1. Develop bicycle and pedestrian linkages between neighborhoods, shopping centers, recreation facilities, and education centers.
- Strategy 1.2.2. Continue to update the city’s Design and Construction Standards Manual (DCSM) to reflect best practices for the design and installation of pedestrian and bicycle infrastructure elements, including sidewalks, bicycle lanes, shared use paths, and associated elements such as bicycle parking.
- Strategy 1.2.3. Install way-finding and route signs and provide maps and internet-based information to guide users through the City’s pedestrian and bicycle systems.
- Strategy 1.2.4. Engage partners in planning for sidewalks, walkways, and shared use path amenities, where deemed appropriate.

Objective 1.3. Implement operational safety measures for all modes of travel.

- Strategy 1.3.1. Minimize the number of driveways on arterial streets to reduce the potential for bicycle, pedestrian, and vehicle collisions.
- Strategy 1.3.2. Promote the City’s Neighborhood Traffic Calming Program and utilize traffic calming measures in planning and construction to reduce speeds on city streets.
- Strategy 1.3.3. Continue to enforce traffic laws, for all modes of travel, such as speeding, failing to make a full stop at red lights and stop signs, failing to yield to pedestrians in crosswalks, failing to use bike lights at night, etc.
- Strategy 1.3.4. Consider surrounding land uses and desired travel patterns for all road users, including bicyclists and pedestrians, when designing new street improvement projects.
- Strategy 1.3.5. Review existing city streets and consider “rightsizing” them, where appropriate, to improve operational safety for all modes of transportation.

Goal 2 To use education and encouragement to promote safe walking and bicycling as a regular form of transportation and recreation.

Objective 2.1. Promote and encourage bicycling and walking as a healthy, safe, and sustainable form of transportation and recreation.

- Strategy 2.1.1. Collaborate with local organizations, schools, and agencies to promote International Walk to School Week/Day, Virginia Bicyclist and Pedestrian Awareness Week, and National Bike to Work Month/Week/Day.
- Strategy 2.1.2. Continue to collaborate with community organizations on bicycle and pedestrian events, education, and outreach opportunities.
- Strategy 2.1.3. Continue positive enforcement strategies to encourage safe and legal practices.
- Strategy 2.1.4. Promote and distribute the Harrisonburg Community Bike Map (www.harrisonburgva.gov/bike-map) as a resource for cyclists.
- Strategy 2.1.5. Create and publish maps of the city's pedestrian paths and shared use paths, as well as update wayfinding signage that points bicyclists and pedestrians to safe routes and destinations of interest.

Objective 2.2. Educate city staff and citizens on bicycle and pedestrian laws, etiquette, and safe practices.

- Strategy 2.2.1. Encourage local schools to continue teaching bicycle, pedestrian, and motorist safety as part of the curriculum.
- Strategy 2.2.2. Encourage bicyclists and pedestrians to follow safety guidelines as recommended by transportation safety campaigns created by federal, state, and/or local agencies.
- Strategy 2.2.3. Provide training to city staff and law enforcement on bicycle and pedestrian laws and safe practices to keep up with changing laws and new best practices for infrastructure.
- Strategy 2.2.4. Promote a "Share the Road" campaign to make motorists more aware of the presence and rights of bicyclists and pedestrians, and share safe driving tips.
- Strategy 2.2.5. Continue to include the police department in bicycle and pedestrian planning initiatives and educational programs. The police have intimate knowledge of city streets and can be a resource for identifying trouble spots and suggesting important upgrades.

Objective 2.3. Recognize the efforts of the City, local businesses, and local organizations for their efforts to promote bicycling and walking in the City.

- Strategy 2.3.1. Continue to apply for the League of American Bicyclists' Bicycle Friendly Community designation and improve award from Bronze (2012 and 2015) to Silver.
- Strategy 2.3.2. Encourage local businesses and universities to also apply for Bicycle Friendly Business and University awards from the League of American Bicyclists.
- Strategy 2.3.3. Apply for a Walk Friendly Communities designation for the city.

Objective 2.4. Continually evaluate the state of the city's bicycle and pedestrian infrastructure and programs, and plan for ongoing improvement in the future.

- Strategy 2.4.1. Conduct bicycle and pedestrian traffic counts in key locations , either as an effort of city staff, or in partnership with community organizations or students. Make this data publicly available, and compare to previous years to examine growth and change.
- Strategy 2.4.2. Review this Bicycle and Pedestrian plan every 5 years, reevaluating proposed projects and adding new projects as necessary.

Funding

The largest obstacle to many infrastructure projects is funding. While the city desires a complete and connected network of bicycle and pedestrian infrastructure, planning, engineering, and construction of these projects can be surprisingly costly. The funding of transportation projects can involve a complex mix of state transportation funds, grant funds, and local capital improvement funds, and privately raised funds, all working together to accomplish the project. Citizens and community organizations are also encouraged to partner with the City to apply for grants for new bicycle and pedestrian infrastructure.

City Capital Improvement Program

The City's Capital Improvement Program (CIP) is its long-range effort to fund and construct necessary improvements of all types. The plan is developed by the Planning Commission and approved annually by City Council. It includes all types of public facilities, equipment, and utilities, not just those that involve transportation. The CIP includes only those projects with an estimated cost over \$50,000, which will include many, but not necessarily all, pedestrian and bicycle infrastructure projects.

State Transportation Funding

As a Virginia city, Harrisonburg maintains its own street system, but is eligible to receive funding from various state sources. Highway Maintenance Account Funds are provided for maintenance activities on existing facilities, while the state Revenue Sharing Program can fund construction and improvement projects. While these funds typically focus on automobile infrastructure, sidewalks, intersection improvements, or bike lanes may also be included in these projects. The city requires that sidewalks be included on both sides of any new street, and that sidewalks be built as part of the frontage of any new development or redevelopment project.

State Smart Scale Program

This state program provides funding for projects that incorporate bicycle and pedestrian facilities as well as those that construct these facilities as stand-alone projects. Smart Scale is used to distribute more than half of all federal and state transportation construction funds in the Commonwealth through a performance-based scoring system. Projects involving bicycle and pedestrian facilities are awarded points through the prioritization process not available to projects that do not include them. This effectively results in bicycle and pedestrian facility based projects scoring well and having higher probability of being funded.

Other Sources

Aside from direct city funding and state transportation funding, a variety of grant programs from federal, state, local, and non-profit sources can help with the city's bicycle and pedestrian efforts. The Transportation Alternatives Program (TAP) is a federally-funded effort to combine several programs that used to be considered separate stand-alone programs, including the Transportation Enhancement (TE) program and Safe Routes to Schools program. The TAP program funding is available for a wide variety of projects. With respect to bicycle and pedestrian infrastructure, it can be used to fund the development of safe routes to schools bicycle/

pedestrian network improvements or other types of improvements to the bicycle and pedestrian network. State Recreational Access grants are available to help improve access to state or locally owned recreation and historic sites. Other grants and funding opportunities are also available from non-profit groups that value pedestrian and bicycle transportation, or from groups simply dedicated to improving Harrisonburg.

Private Development

New bicycle and pedestrian infrastructure need not only come from government channels. In many cases, new developments and real estate projects can build sidewalks, shared use paths, bicycle parking, or other improvements, either as a part of the city's approval process, or simply because developers feel that this infrastructure will appeal to their customers. Existing businesses and corporations may also agree to sponsor infrastructure projects such as paths or transit stops in exchange for recognition such as signage.

Non-Profit Fundraising

Local community groups or other organizations with an interest in promoting bicycling and walking, or simply with an interest in improving the city, may be willing to raise and donate funds to support local projects. Grants may also be available from larger non-profit foundations or organizations.