

# 2045 Long Range Transportation Plan

Approved May 18, 2023



**Harrisonburg  
Rockingham**  
Metropolitan Planning  
Organization

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# Harrisonburg-Rockingham Metropolitan Planning Organization

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## Plan Documentation

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### Title:

2045 Long Range Transportation Plan

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## Disclaimer

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This report has been prepared in cooperation with, and financed in part, by the U.S. Department of Transportation - Federal Highway Administration, the Federal Transit Administration, the Virginia Department of Transportation, and the Virginia Department of Rail and Public Transportation. The contents of this report reflect the views of the Central Shenandoah Planning District Commission (CSPDC) and Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO), which are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration, Federal Transit Administration, the Virginia Department of Transportation, or the Virginia Department of Rail and Public Transportation. This report is not a legal document, and does not constitute a standard, specification, or regulation. Although much care was taken to ensure the accuracy of information presented in this document, CSPDC does not guarantee the accuracy of this information.

Acceptance of this report as evidence of fulfillment of the objectives of this planning study does not constitute endorsement/approval of the need for any recommended improvement, nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

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**RESOLUTION APPROVING THE HARRISONBURG-ROCKINGHAM  
METROPOLITAN PLANNING ORGANIZATION (HRMPO)  
2045 LONG RANGE TRANSPORTATION PLAN (LRTP)**

**WHEREAS**, the Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) Policy Board has developed the 2045 Long Range Transportation Plan (LRTP) in accordance with federal and state planning guidelines and requirements; and

**WHEREAS**, the 2045 LRTP was developed by HRMPO staff, consultants, and the Technical Advisory Committee (TAC), and reviewed by the TAC and Policy Board; and

**WHEREAS**, the 2045 LRTP included early stakeholder and public outreach, and was released for presentation to the public for comment at the Policy Board meeting, and duly advertised in the local media; and

**WHEREAS**, the HRMPO has documented all public comments, and all agency comments received have been addressed;

**NOW, THEREFORE, BE IT RESOLVED**, by the Harrisonburg-Rockingham Metropolitan Planning Organization Policy Board, that it does hereby approve for final adoption the 2045 LRTP on this 18<sup>th</sup> day of May 2023.

**SIGNED:**

Rick Chandler  
Chairman  
Harrisonburg-Rockingham  
Metropolitan Planning Organization

**ATTEST:**

Bonnie Riedesel  
Administrator  
Harrisonburg-Rockingham  
Metropolitan Planning Organization

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## Glossary

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### **23 CFR, Part 450**

Title 23 Code of Federal Regulations, Part 450 is Federal regulations pertaining to statewide and metropolitan transportation planning.

### **23 USC 134**

23 United States Code (USC) 134 is the part of the USC that governs the metropolitan transportation planning process.

### **3C**

Employing a Continuing, Cooperative and Comprehensive (3C) planning process is a requirement for all MPOs as specified in 23 CFR 450.300.

### **ADT**

Average Annual Daily Traffic is a measure used primarily in transportation planning and transportation engineering. It is the total volume of vehicle traffic of a highway or road for a year divided by 365 days.

### **Accessibility**

Accessibility is the extent to which facilities are barrier-free and useable by persons with disabilities, including wheelchair users.

### **ADA**

The Americans with Disabilities Act is a Federal law that requires public facilities, including transportation services, to be accessible to persons with disabilities, temporary disabilities and the conditions related to substance abuse.

### **BIL**

The Bipartisan Infrastructure Law provides the basis for FHWA programs and activities through September 30, 2026. It makes a once-in-a-generation investment of \$350 billion in highway programs. This includes the largest dedicated bridge investment since the construction of the Interstate Highway System.

**CLRP**

Developed and approved by the HRMPO, the Financially-Constrained Long Range Transportation Plan (CLRP) is a regional plan that includes all transportation projects and programs that the MPO realistically anticipates can be implemented over the next 25 years. In order to receive federal funding, transportation projects must be included in the CLRTP and the TIP.

**CTB**

The 17-member Commonwealth Transportation Board, appointed by the governor, establishes the administrative policies for Virginia's transportation system. The CTB allocates highway funding to specific projects, locates and provides funding for airports, seaports and public transportation.

**Environmental Justice**

The 1994 Presidential Executive Order directs Federal agencies to identify and address the needs of minority and low-income populations in all programs, policies and activities.

**Executive Order 12898**

Executive Order 12898 mandates that federal agencies address equity and fairness or Environmental Justice toward low-income and minority populations.

**Executive Order 13166**

Executive Order 13166 mandates that federal agencies ensure that people who have Limited English Proficiency (LEP) have meaningful access to federally-conducted and/or funded programs and activities.

**FHWA**

Within the U.S. Department of Transportation, the Federal Highway Administration is responsible for highway issues, including federal laws and regulations related to metropolitan transportation planning.

**Fiscal Constraint**

Ensuring that a given program or project can reasonably expect to receive funding within the time allotted for its implementation.

**FTA**

Within the U.S. Department of Transportation, the Federal Transit Administration is responsible for public transit issues, including federal laws and regulations related to metropolitan transportation planning.

**MAP-21**

Moving Ahead for Progress in the 21<sup>st</sup> Century Act was signed into law in 2012 and provides Federal funding authority for surface transportation programs at over \$105 billion for fiscal years (FY) 2013 and 2014. MAP-21 was the first long-term highway authorization enacted since 2005.

### **MPO**

Federal transportation laws and regulations require the establishment of a Metropolitan Planning Organization in every urbanized area of the U.S. with a population over 50,000. MPOs are responsible for meeting the federal metropolitan planning regulations for transportation.

### **Multimodal**

A multimodal transportation system has the availability of multiple transportation options. A multimodal approach to transportation planning focuses on the most efficient way of getting people or goods from place to place, be it by truck, train, bicycle, automobile, airplane, bus, boat, foot and including telecommuting.

### **NHS**

The National Highway System is an approximately 160,000 mile network consisting of the 42,500 miles of the Interstate system, plus other key roads and arterials through the United States. Designated by Congress in 1995 pursuant to a requirement of the Intermodal Surface Transportation Efficiency Act, the NHS is designed to provide an interconnected system of principal routes to serve major travel destinations and population centers.

### **Paratransit**

Paratransit is defined as comparable transportation service required by the ADA of 1990 for individuals with disabilities who are unable to use fixed-route transportation systems.

### **Performance Measures**

Indicators of how well the transportation system is performing with regard to such things as average speed, reliability of travel and accident rates. Used as feedback in the decision making process.

### **Section 504 of the Rehabilitation Act of 1973**

Section 504 of the Rehabilitation Act of 1973 states that no qualified disabled person shall, solely by reason of his disability, be excluded from participation in, be denied the benefits of or be subjected to discrimination under any program or activity that receives or benefits from federal financial assistance. This Act protects qualified individuals from discrimination based on their disability.

### **TAC**

The Transportation Advisory Committee is a committee of elected officials within the local MPO responsible for communication and coordination between various policy boards and that takes action on issues in the transportation planning process.

**TAP**

MAP-21 created a funding category for projects that enhance the compatibility of transportation facilities with their surroundings. Examples of Transportation Alternatives projects include bicycle and pedestrian paths, restoration of rail depots or other historic transportation facilities, and acquisition of scenic or open space lands next to travel corridors.

**TDP**

The Transit Development Plan is an intermediate-range transit plan (usually five years) that examines service, markets and funding to make specific recommendations for transit improvements.

**TIP**

The Transportation Improvement Program is a list of projects and programs that will be implemented over the next six years. In order to receive federal funding, transportation projects must be included in the CLRP and the TIP.

**Title VI Civil Rights Act of 1964**

Ensures that no person shall, on the grounds of race, color, sex, national origin, or physical handicap, be excluded from participation in, be denied benefits of, or be otherwise subjected to discrimination under any program receiving Federal assistance from the United States Department of Transportation.

**Transportation Disadvantaged**

Transportation disadvantaged are people who are unable to transport themselves or to purchase transportation due to disability, income status or age.

**VDOT**

Virginia Department of Transportation is the agency responsible for statewide transportation facility planning, construction and maintenance. VDOT is separate from the Virginia Department of Rail and Public Transportation (DRPT).

**DRPT**

Virginia Department of Rail and Public Transportation is an agency under the Virginia Secretary of Transportation (as is VDOT) providing technical and financial assistance to Virginia's public transit.

**VMT**

Vehicle Miles Traveled is the total number of miles driven by all vehicles within a given time period and geographic area, and it is used by regional transportation and environmental agencies for planning purposes. Since 1970, vehicle emissions have decreased even as vehicle miles traveled have increased.

**V/C**

Volume/Capacity ratio: A ratio  $>1$  indicates the facility is carrying more traffic than it can handle and improvements may be needed.

# Executive Summary

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## E – 1 Transportation Plan Context, Purpose and Federal Requirements

As a result of the 2000 U.S. Census, the City of Harrisonburg, the towns of Bridgewater, Dayton and Mt. Crawford, and portions of the County of Rockingham, met the criteria to be defined as an urbanized area (UZA), which requires the formation of a Metropolitan Planning Organization (MPO) under federal law. The purpose of the 2045 Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) LRTP is to satisfy the metropolitan planning requirements of the federal transportation planning process and to establish an informed program for implementing priority transportation investments in the region. The 2045 LRTP replaces the 2040 LRTP, which was approved on March 15, 2016.

### Overview of Federal Laws & the Transportation Planning Process

The LRTP for the HRMPO was developed in accordance with the current federal transportation law known as the Bipartisan Infrastructure Law (BIL). In 2021, the BIL replaced the previous federal transportation law, Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21). Together these two federal laws have shaped the way transportation investments are conceived, planned, funded, and implemented at the state and regional levels of government.

### Compliance with Federal Regulations

A primary purpose of the LRTP is to establish compliance with all current federal laws and regulations. These regulations require all MPO's to develop a Unified Planning Work Program (UPWP), a Transportation Improvement Program (TIP), and the LRTP. The LRTP's goals as outlined in Chapter 6 are shaped by the involvement of the region's citizens and stakeholders. Chapter 2 describes specific stakeholder and community outreach.

### *Federal Planning Factors*

The BIL identifies ten planning factors ([23 CFR 450.306<sup>1</sup>](https://www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450/subpart-C/section-450.306#p-450.306(b))) which must be considered as part of the transportation planning process for all metropolitan areas. The HRMPO LRTP addresses these factors in the plan goals, existing conditions inventory, alternatives/scenario analysis, and the CLRP.

### *Title VI of the Civil Rights Act of 1964*

The HRMPO is a sub-recipient of federal financial assistance, and is required to comply with Title VI and other federal non-discrimination laws. It is also required to provide an overview of how the HRMPO addresses Executive Order 12898 on Environmental Justice, as well as Executive Order 13166 on Limited

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<sup>1</sup> [https://www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450/subpart-C/section-450.306#p-450.306\(b\)](https://www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450/subpart-C/section-450.306#p-450.306(b))



English Proficiency (LEP), and how it complies with the Title VI plan. As part of addressing Environmental Justice, a Benefits and Burdens Analysis is included in **Chapter 7**, where the plan's fiscally constrained projects are identified with respect to the location of underserved or potentially vulnerable population segments.

#### *Americans with Disabilities Act (ADA)*

Enacted in 1990, the Americans with Disabilities Act (ADA) prohibits discrimination on the basis of disability by public entities. A primary function of transportation is to deliver opportunities for basic mobility to society. The greatest challenge of the LRTP is to prioritize and implement a transportation network that is multimodal and inclusive of all users. Transportation facilities should be accessible to all users allowing full participation in society – including employment, school, commerce and recreation activities. It is vital that government strive to ensure that transportation systems are not only safe and efficient, but usable by all.

## E – 2 Public Outreach, Stakeholder Involvement and Agency Consultations

The 2045 LRTP included a three-phase public engagement process. Phase 1 outreach centered on a visioning survey, conducted online via Metroquest, and in print. Phase 2 presented a draft Universe of Projects reflective on the priorities shared in the Visioning Process. The TAC and Board took public input on the draft project into account in scoring and prioritizing projects in the CLRP and Vision Lists. Phase 3 presented the draft LRTP to the public for final review. Each phase included multiple virtual and in-person events and outreach opportunities.

The outreach process for the LRTP also includes consulting with state and federal resource management agencies on the selection of projects, which may affect the programs, lands, or policies over which they administer. **Appendix B** contains the letter used to contact each agency and the responses to the request for comment on the project evaluation and selection processes.

## E – 3 Existing Conditions and Deficiencies

Existing conditions with regard to population, demographics, existing infrastructure, and transportation system performance helps identify existing deficiencies within the HRMPO planning area. The maps and tables in **Chapter 3** show demographic trends including higher-than-state average disabled, aging, and low-income populations that contrast with infrequent transit service and an incomplete non-motorized transportation network, and indicate deficiencies in the transportation system that future investments should address. Analysis of existing roadway and traffic conditions reveals adequate capacity on the region's roadways, but heavy truck freight movement on the interstate system. Network gaps and deficiencies exist where key new connections need to be made, where growth will require reconstruction of an existing facility, and where transit service and bike and pedestrian facilities are missing.

## E – 4 Multi-Modal Transportation Needs

Transportation needs are defined as the gap between existing deficiencies in the system and the 2045 vision for the region. **Chapter 4** reviews how needs were identified by the public, and by the members of the LRTP Working Group, who applied their professional knowledge and reviewed data from multiple sources, including the regional travel demand model, crash trends, freight activity, and needs identified from prior planning documents.

### Safety

Safety deficiencies were based on VTRANS 2045 needs, 2017–2021 Potential for Safety Improvement (PSI) segments and intersections for the region, and regional crash trends for fatalities and serious injuries.

### Multi-Modal Needs

The Harrisonburg Department of Public Transportation (HDPT) is in the process of updating its own planning document, the Transit Strategic Plan (TSP). The TSP will be adopted by reference as the transit plan for the MPO. Bicycle and Pedestrian needs were drawn from the **2016 HRMPO Bicycle and Pedestrian Plan**, the City and County Bicycle and Pedestrian Plans, and the statewide Pedestrian Safety Action Plan.

## E – 5 Revenue Projections and Project Cost Estimates

As a condition of receiving federal funding for transportation projects, MPOs are required to demonstrate that projects in the Long Range Transportation Plan (LRTP) are reasonably expected to be funded over the life of the plan.

Projects are prioritized, and the highest priorities are included in the Constrained Long Range Plan (CLRP). If additional funding becomes available during the life of the LRTP, projects included on the Vision (unfunded) List could be eligible to receive funding. The combined \$122,568,907 in anticipated surface transportation funding, juxtaposed against the \$284,946,701 in surface transportation needs over the next 25 years, represents a \$162,377,794 shortfall for the MPO region. Revenue and cost estimating methodologies are detailed in **Chapter 5**.

## E – 6 Evaluating Transportation Investments

The HRMPO evaluated regional transportation investments using the following tools and methodologies:

- Performance Evaluation
- Public Input

With the passage of Moving Ahead for Progress in the 21st Century (MAP-21) in 2012, the subsequent Fixing America's Surface Transportation (FAST) Act in 2016, and the BIL in 2021, the FHWA and FTA

mandated that States and MPOs establish performance measures to integrate system-performance management into the transportation and transit planning process.

The 2045 LRTP updates the 2040 LRTP's goals to meet current federal and state performance-based planning requirements. The region's goals are informed by MAP-21 goals, the BIL, VTrans goals, and regional priorities.

The LRTP Working Group developed a project scoring methodology that reflects the needs of each locality and provides an objective scoring framework to evaluate projects in the region. The methodology includes the Plan's goals, and SMART SCALE goal areas weighted to reflect the region's priorities, and planning-level cost estimates.

Prior to evaluating and scoring projects, the MPO sought public input on the Universe of Projects to be scored to understand if the public supported the projects and their ability to address regional needs.

## E – 7 Definition of the Constrained Long Range Plan (CLRP)

The final requirement of the LRTP is a fiscally constrained list of projects. The list illustrates what the MPO can finance over the life of the plan, and provides a realistic set of expectations for the public. Of the 55 projects identified, 30 are fully funded in the current VDOT Six Year Improvement Program (SYIP). These projects represent \$314.74 million in anticipated revenues. The 25 unprogrammed projects in the CLRP reflect the additional funding that the MPO is estimating to receive over the life of the Plan. These 25 projects received the highest benefit/cost scores in the performance evaluation exercise documented in Chapter 6.

As part of the LRTP's compliance with the Title VI Act, the project team performed a "Benefits and Burdens" analysis on the projects in the CLRP. Project locations were overlaid with U.S. Census data on the locations of underserved or minority populations in order to evaluate if projects would either unduly burden a certain population, or conversely underserve a population. The analysis revealed that projects in the CLRP are equitably distributed across the MPO Planning Area, and proposed new construction, or capacity-adding projects seem unlikely to burden minority or underserved populations in their proposed alignments.

# Chapter 1 : Long-Range Transportation Plan Context

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## Introduction

As a result of the 2000 U.S. Census, the City of Harrisonburg and the towns of Bridgewater, Dayton and Mt. Crawford, and portions of the County of Rockingham, met the criteria to be defined as an urbanized area (UZA), which requires the formation of a Metropolitan Planning Organization (MPO) under federal law. UZA's are defined as densely developed residential, commercial, and other nonresidential areas of 50,000 people or greater. The Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) was formed in April 2003. Similar to other MPOs in Virginia, the HRMPO is housed with the Central Shenandoah Planning District Commission (CSPDC) to act as the fiscal and administrative agent.

The MPO is governed by a Policy Board comprised of elected and appointed officials representing the respective jurisdictions. The Policy Board appoints members to a Technical Advisory Committee that is charged with making recommendations to the Policy Board and providing assistance in reviewing issues related to regional transportation priorities and key technical or procedural matters in updating planning documents. Both bodies operate under a set of by-laws that define leadership responsibilities and terms.

The HRMPO's partner agencies include the Federal Highway Administration (FHWA) and the Virginia Department of Transportation (VDOT), along with the Federal Transit Administration (FTA), the Virginia Department of Rail and Public Transportation (DRPT), and the Virginia Department of Aviation.

## 1 – 1 Purpose of the Plan

The 2045 Long Range Transportation Plan (LRTP) for the HRMPO outlines the goals, objectives, policies and improvements that are needed to maintain a safe and efficient multimodal transportation system for the movement of people and goods throughout the area in a manner that will enhance the economic, social and environmental qualities of the community.

## 1 – 2 Federal Laws and the Transportation Planning Process

The LRTP for the HRMPO has been developed in accordance with the current federal transportation law, the Bipartisan Infrastructure Law (BIL). The BIL replaced the previous Federal transportation, the FAST Act, in 2021. This federal law shapes the way transportation investments are conceived, planned, funded, and implemented at the state and regional levels of government.

## The Federal Transportation Planning Framework



As a part of requirements through the BIL, the MPO must meet the requirements of the federally-mandated transportation planning processes. These processes include the development of several documents:

- The Unified Planning Work Program (UPWP) that serves as an annual work program that defines specific MPO planning activities and updated each year;
- The Transportation Improvement Program (TIP) that identifies transportation projects to be funded within the next six years; and
- The Long Range Transportation Plan that defines the long-range (at least 20 years) transportation needs and includes a fiscally-constrained list of projects that will be eligible for inclusion in the TIP. Through the LRTP, the MPO establishes the investment priorities of federal transportation. The LRTP is reviewed and updated every 5 years, and must cover at least a 20-year planning horizon. This plan uses a 25-year planning horizon.

### Federal Transportation Planning Factors and the 3-C Agreement

#### *Planning Factors*

The BIL Act identifies ten planning factors ([23 CFR 450.306<sup>2</sup>](#)) which must be considered as part of the transportation planning process for all metropolitan areas. These planning factors were integrated into the development of the LRTP, and include the following:

- Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- Increase the safety of the transportation system for motorized and non-motorized users;
- Increase the security of the transportation system for motorized and non-motorized users;
- Increase accessibility and mobility of people and freight;
- Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- Promote efficient system management and operation;
- Emphasize the preservation of the existing transportation system;
- Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; and
- Enhance travel and tourism.

In compliance with BIL, the LRTP addresses these factors in the Plan goals, existing conditions inventory, alternatives/scenario analysis, project screening, and the CLRP. Strategic planning concepts were integrated throughout development of the LRTP to support development of a sustainable, multimodal, and cost-effective transportation plan. These concepts include bicycle and pedestrian mobility, travel demand management, safety and security, and intermodal considerations, as well as the financial limitations for investing in these strategies. These comprehensive planning strategies align with the HRMPO planning goals and objectives and have shaped development of the CLRP.

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<sup>2</sup> [https://www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450/subpart-C/section-450.306#p-450.306\(b\)](https://www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-450/subpart-C/section-450.306#p-450.306(b))

### 3-C Agreement

Regional long-range transportation planning, by legislative definition must be:

- Comprehensive (including all modes)
- Cooperative (involving a broad array of stakeholders and other interested parties)
- Continuous (ever improving and evolving)

Planning efforts must reflect an overall purpose to efficiently move people and goods, while supporting regional land use and economic development plans and policies. This process directs cooperation with all levels of government to develop a plan which addresses long- and short-range multimodal goals and strategies for transportation improvements and priorities for the implementation of projects to fulfill those goals.

## 1 – 3 Compliance with Federal Regulation

A primary purpose of the LRTP is to establish the MPO's compliance with all current federal laws and regulations.

### Title VI of the Civil Rights Act of 1964

The HRMPO is a sub-recipient of federal financial assistance and is required to comply with Title VI and other federal non-discrimination laws as well as provide an overview of how the HRMPO addresses Executive Order 12898 on Environmental Justice as well as Executive Order 13166 on Limited English Proficiency (LEP) and complies with the Title VI plan. Detailed Environmental Justice guidelines and outreach strategies for protected classes are included in the HRMPO's Public Participation Program. As part of addressing Environmental Justice, a Benefits and Burdens Analysis is included in Chapter 7, where the Plan's fiscally constrained projects are identified with respect to the location of underserved or potentially vulnerable population segments. This analysis provides a tool for decision makers to gauge how projects and programs may impact social equity and environmental justice.

### Americans with Disabilities Act (ADA)

Enacted in 1990, The Americans with Disabilities Act (ADA) prohibits discrimination by public entities on the basis of disability. A primary function of transportation is to deliver opportunities for basic mobility to society. The greatest challenge of the LRTP is to prioritize and implement a transportation network that is multimodal and inclusive of all users. Transportation facilities should be accessible to all users allowing full participation in society – including employment, school, commerce and recreation activities. It is vital that governments strive to ensure that transportation systems are not only safe and efficient, but usable by all. Projects identified in the LRTP go through a subsequent, detailed ADA-compliance review process during the design and engineering stage of implementation.

# Chapter 2 : Public Outreach and Consultation

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## Introduction

This chapter covers the public outreach and resource agency consultation processes for the LRTP. Seeking input from a diverse range of community members is integral to the long-range planning process. For the 2045 Update, the HRMPO enhanced its public engagement efforts for the LRTP with three phases of public engagement. The enhanced engagement process allowed the MPO to gain feedback on the draft list of projects before MPO staff scored and prioritized them to create the CLRP.

This chapter addresses:

- 2 – 1 Public Involvement Activities
- 2 – 2 Resource Agency Consultations

## 2 – 1 Public Involvement Activities

This section summarizes the public meetings and outreach activities in the three engagement phases. The Policy Board released the draft Plan for public comment on April 20, 2023. Comments on the 2045 LRTP are included in **Appendix A**.

### Avid Core

To bolster public involvement strategies and to add additional resources for the HRMPO, the MPO contracted with Avid Core, a communications consulting firm that specializes in strategic communications, public outreach, digital marketing, and project management. Avid Core assisted the HRMPO in designing a range of print and digital outreach materials that staff distributed to email lists and businesses in the HRMPO area.

### Phase 1

Phase 1—Visioning—sought input on the community’s vision for the transportation system, transportation needs, and priorities in order to develop an informed list of projects and studies for consideration in the LRTP.

### *Visioning Survey*

Between February 1, 2022 – March 2, 2022 the MPO sought public input through an online survey. The Visioning Survey gave members of the public an opportunity to provide input on their vision for the transportation system, as well as their transportation needs and priorities. To encourage broad participation the MPO published the survey in both English and Spanish, and distributed print copies on City Bus routes and in over a dozen locations throughout the MPO.

638 people took the survey, and their responses highlighted a desire for more walkable and bikeable travel opportunities. The highest priorities for new transportation investments centered on expanding bicycle and pedestrian infrastructure, adding transit service, and improving transportation safety.

HRMPO staff organized the survey responses in a [Transportation Visioning Survey Report](#)<sup>3</sup> and published it to the HRMPO's website.

### *February 2022 Community Webinar*

On February 16<sup>th</sup> MPO staff held a webinar to explain the LRTP process and describe how results from the Visioning Survey would be used to inform the selection of projects for the LRTP. A recording of the webinar is posted on the [LRTP update website](#)<sup>4</sup>.

### *Local Elected Official Briefings*

As part of Phase 1, staff briefed the five elected bodies for the MPO member jurisdictions on the LRTP update process and Phase 1 activities. Presentations included Harrisonburg City Council on January 25<sup>th</sup>, Bridgewater Town Council on February 8<sup>th</sup>, the Rockingham County Board of Supervisors on February 9<sup>th</sup>, and Dayton Town Council and Mt. Crawford Town Council on February 14<sup>th</sup>.

## Phase 2

HRMPO implemented Phase 2 to solicit feedback on a list and map of potential regional projects, known as the Universe of Projects. Using an online survey, Phase 2 gathered feedback on the draft list of projects reflective of the priorities identified in Phase 1.

### *Phase 2 Survey*

Building on the visioning process in Phase I, MPO staff developed a list of projects and studies to form an online survey for public comment. The survey provided an interactive map where participants could review specific projects and studies. Each project and study on the interactive maps included an image of the location of the project or study and a written description. To encourage engagement from as broad an audience as possible MPO staff published the online survey in English, Spanish, and Arabic. The duration of the online survey was from August 1<sup>st</sup> until September 16<sup>th</sup> 2022. Survey takers could provide written feedback on as many of the projects and studies as they wished, and had the option to select “Like” or “Dislike” for the project or study. A total of 685 people responded.

HRMPO staff organized the survey responses into a [LRTP Phase 2 Engagement Report](#)<sup>5</sup> and published it to the HRMPO's website.

<sup>3</sup>[https://hrvampo.org/sites/hrvampo.org/files/HRMPO%20LRTP%20Report%20Final\\_rs%20.pdf](https://hrvampo.org/sites/hrvampo.org/files/HRMPO%20LRTP%20Report%20Final_rs%20.pdf)

<sup>4</sup> <https://www.hrvampo.org/long-range-transportation-plan-lrtp>



*August 2022 Community Webinar*

HRMPO hosted a webinar on August 16<sup>th</sup> to explain the Long Range Transportation Planning process and demonstrate how to respond to the Phase 2 Survey. After the demonstration, webinar attendees had the opportunity to ask questions about the survey or the LRTP process.

*August 2022 Public Open Houses*

<b>August 18, 2022</b>	<b>Lucy F. Simms Continuing Education Center</b>
<b>August 31, 2022</b>	<b>Turner Ashby High School</b>

On August 18<sup>th</sup> and August 31<sup>st</sup>, HRMPO staff hosted public open houses from 4pm to 6pm in two different sub-areas of the HRMPO region. At each open house members of the public had the opportunity to speak with HRMPO and VDOT staff and view posters highlighting the public engagement timeline, a project list development flow chart, and the MPO Planning Area. Staff distributed QR code postcards linking to the online survey and provided two laptops where members of the public could take the Phase 2 Survey with assistance if needed.

*August 2022 Community Event Outreach*

<b>August 6, 2022</b>	<b>Harrisonburg Hispanic Festival</b>
<b>August 18, 2022</b>	<b>Gen Park After Dark, Bridgewater</b>
<b>August 19, 2022</b>	<b>Rockingham County Fair</b>

On August 6<sup>th</sup>, 18<sup>th</sup>, and 19<sup>th</sup>, HRMPO staff attended community events in the City of Harrisonburg, the Town of Bridgewater, and Rockingham County to promote the Phase 2 survey. At each event, HRMPO staff set up a booth with a map showing proposed projects and a list of project descriptions. Attendees had the opportunity to ask questions about the LRTP process and to take the Survey and leave their feedback. Staff also distributed QR code postcards in English and Spanish with links to the English and Spanish surveys respectively.

*Local Elected Official Briefings*

Staff presented to the five elected bodies of the MPO member jurisdictions in August and September 2022. On August 8<sup>th</sup> staff presented to the Town Councils of the Town of Dayton and the Town of Mt. Crawford. On August 9<sup>th</sup> staff presented to the Harrisonburg City Council. On August 24<sup>th</sup> staff presented to the Rockingham County Board of Supervisors, and Bridgewater Town Council on September 13<sup>th</sup>. At the briefings, staff reminded local elected bodies about the importance of engagement in the LRTP update process and to encourage participation in the Phase 2 survey.

## 2 – 2 Resource Agency Consultations

The outreach process for the LRTP also includes consulting with state and federal resource management agencies on the draft list of projects which may affect the programs, lands, or policies which they administer.

FHWA provided the MPO with the following list of relevant resource agencies to contact during the consultation process.

*Table 2-1 State and Federal Resource Agencies*

<b>Federal Resource Agencies</b>	<b>State Resource Agencies</b>
United States Environmental Protection Agency (USEPA)	Virginia Department of Environmental Quality (VDEQ)
United States Army Corps of Engineers (USACE)	Virginia Marine Resources Commission (VMRC)
United States Department of Agriculture (USDA)	Virginia Clean Cities (VCC)
National Park Service (NPS)	Virginia Department of Conservation and Recreation (VDCR)
United States Fish and Wildlife (USFWS)	Virginia Department of Forestry (VDOP)
United States Geological Survey (USGS)	Virginia Department of Historic Resources (VDHR)
Federal Highway Administration (FHWA)	Virginia Department of Game and Inland Fisheries (VDGIF)
Federal Transit Administration (FTA)	Virginia Council of Indians (VCI)

**Appendix B** includes the Resource Agency Consultation letter and responses the agencies sent to the HRMPO.

## Chapter 3 : Existing Conditions

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### Introduction

The purpose of this chapter is to summarize the existing population, demographics, infrastructure, and transportation conditions within the HRMPO planning area. The HRMPO's transportation system is an integral part of the lives of residents, employees, business operators, and visitors to the area. How safely and efficiently the transportation system moves people and goods is directly related to quality of life. The physical transportation network comprises roads, public transportation (bus and rail), pedestrian and bicycle facilities, air transportation, and freight/passenger rail service.

Transportation networks function well when all travelers using a variety of modes can reach their destinations safely, with minimal travel delay, and when goods can be efficiently transported. Examining and understanding safety, roadway capacity, congestion, and heavy vehicle distribution provides an understanding of how well the region's transportation network performs.

This chapter contains a regional profile, including the following components:

3 – 1 Regional Context

3 – 2 Socio-Demographic Profile

3 – 3 Existing Transportation Network

Unless otherwise noted, all data and maps are based on data from the U.S. Census Bureau's 2014-2019 ACS Five-Year Estimates. Because some census block groups extend beyond the HRMPO boundary, the data for these block groups does not perfectly reflect the demographic characteristics of the HRMPO. For those census block groups the data has been extrapolated relative to their size.

The 2020 Decennial Census data was not included due to the survey being conducted during the COVID-19 pandemic. In the City of Harrisonburg, it is possible a significant portion of the population comprising the university students was not counted in the Decennial Count. The population total for the 2020 decennial count was 2.8% points fewer than the 2019 5-year ACS estimates, and 4.3% less than Weldon Cooper projections for Harrisonburg. Concurrently, population assessments in the three Towns of Bridgewater, Dayton, and Mount Crawford suggest the population for each locality was overcounted.

### 3 – 1 Regional Context

The HRMPO planning area includes the city of Harrisonburg, Towns of Bridgewater, Dayton, and Mt. Crawford, and the surrounding portions of Rockingham County that are expected to urbanize in the next 25 years (**see Map 3-1**). Unless otherwise noted, reference to Rockingham County refers to the area

within the HRMPO's planning area. The HRMPO is situated in the scenic Shenandoah Valley, near destinations such as Skyline Drive, Blue Ridge Parkway, and Shenandoah National Park.

Harrisonburg is the county seat of Rockingham County. Harrisonburg is a vibrant community with a diverse population. Harrisonburg's walkable and bikeable downtown district showcases the City's rich history, art, and culture. It is home to James Madison University (JMU), a public research university founded in 1908 with a total enrollment of 21,496 students (Fall 2021). Eastern Mennonite University (EMU), a private liberal arts university, is also located within Harrisonburg and has a total enrollment of 1,435 students (Fall 2021).

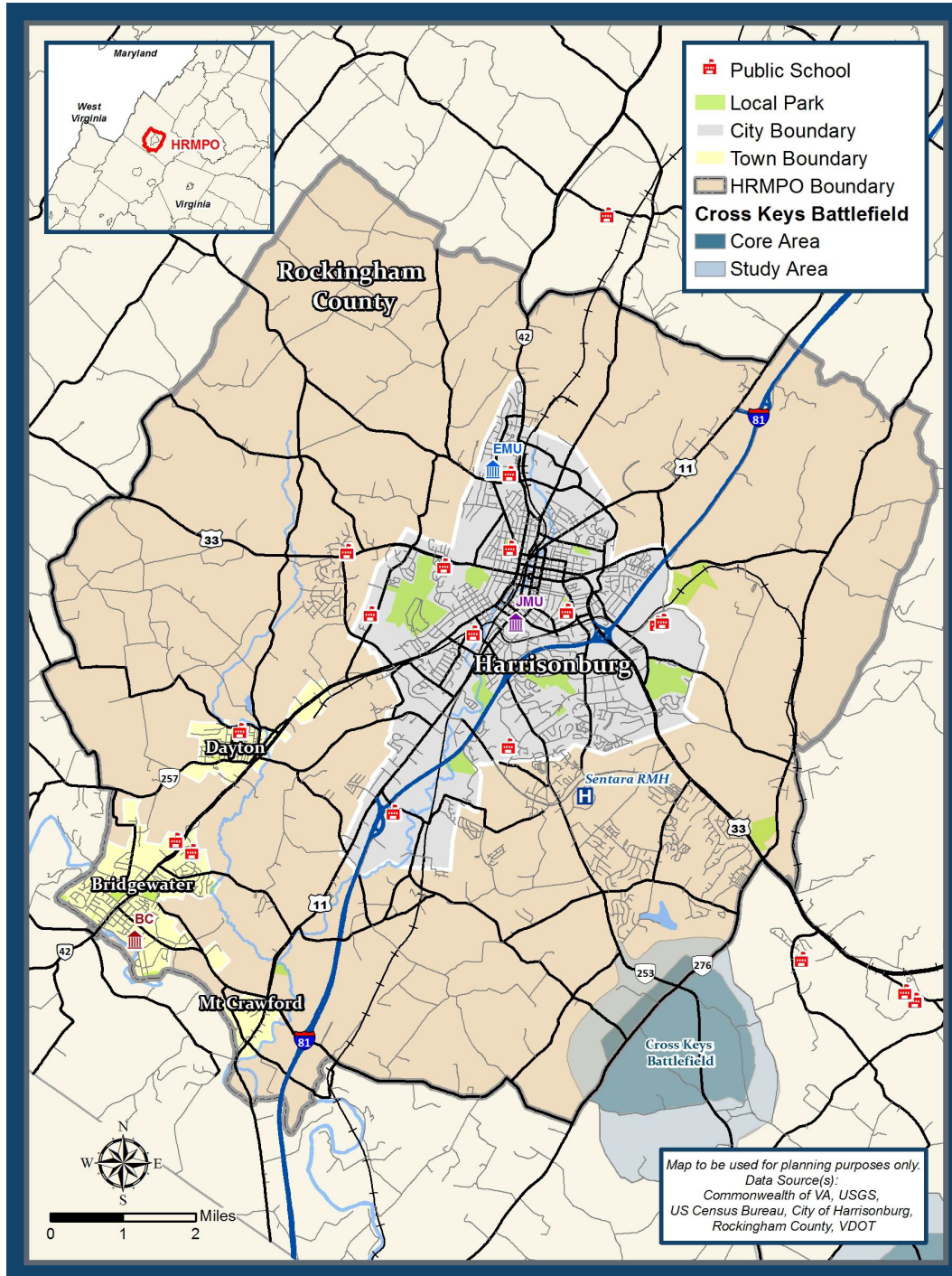
The Town of Bridgewater is located along the northern edge of the North River near the southern border of Rockingham County. It is home to Bridgewater College, a private liberal arts college with an undergraduate enrollment of 1,552 (Fall 2021).

The Town of Dayton is situated two miles south of Harrisonburg along Route 42 and is surrounded by prime agricultural farmland. Dayton's rich history and proximity to other metropolitan areas make the Town an attractive location in which to live, work, and to visit.

The Town of Mount Crawford, established in 1831, is the oldest chartered and smallest Town in Rockingham County. Situated along US 11, the Town was historically a popular stopping point for settlers heading south and west in the 18th and 19th centuries along what was then referred to as the "Great Wagon Road," and today retains a small-town character and historic streetscape.

Located in the heart of Shenandoah Valley, Rockingham County is nestled between the Blue Ridge Mountains on the east and the Allegheny Mountains on the west. It is the third largest county in Virginia and the largest agricultural producing county in the state. The County is easily accessible via I-81 and is situated 128 miles from Washington DC, 144 miles from Richmond, and approximately 60 miles from Virginia Inland Port.

Map 3-1: HRMPO Region



Population<sup>6</sup>

**Table 3-1** shows the population trends for the HRMPO planning region. In 2019, the estimated total population for the entire area, including non-MPO planning areas, was 85,020 people, a 13.2% increase from 2010. Overall, the highest population growth increase since 2010 was in Rockingham County’s portion in the MPO and the city of Harrisonburg. While the county and the city have seen more population growth between 2010-2019 as compared to 2000-2010, the towns of Dayton and Mt. Crawford saw a decline in their population over the same period. Bridgewater’s population grew between 2010-2019; however, the rate of growth is slower than 2000-2010.

While population of the Shenandoah Valley may be impacted by rising sea levels on Virginia’s coast the scale of climate refugees is not yet known, making it difficult to factor into population projections.2020 Weldon Cooper population estimates show more growth in Rockingham County and City of Harrisonburg than ACS Estimates.

*Table 3-1: Historic Population Growth*

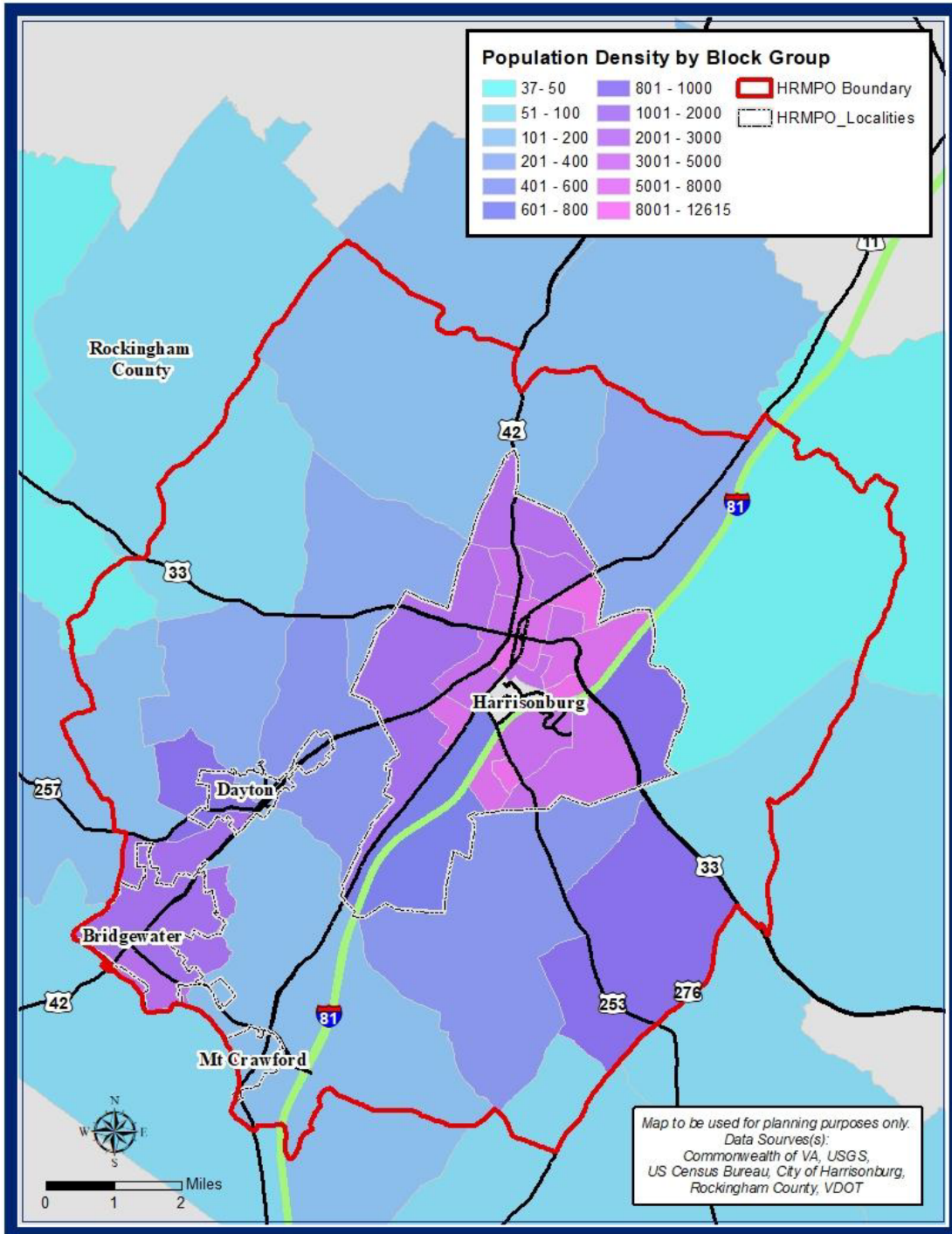
Area	2000 (Census)	2010 (Census)	2019 (ACS Estimates)	Population change (2010 – 2019)	Weldon Cooper Center Estimate (2020)	Population change (2010 – 2020)
Rockingham County	67,725	76,314	80,284	3,970	82,809	6,495
Rockingham County within the MPO <sup>7</sup>	13,932	17,851	23,024	5,173	N/A	N/A
Harrisonburg	40,439	48,914	53,273	4,259	54,049	5,135
Bridgewater	5,203	5,644	6,032	388	N/A	N/A
Dayton	1,344	1,530	1,501	-29	N/A	N/A
Mt. Crawford	254	433	393	-40	N/A	N/A
HRMPO Area	61,172	74,372	84,223	9,851	N/A	N/A

**Map 3-2** on the following page illustrates the population density by block group for the HRMPO planning area.

<sup>6</sup> The U.S. Census is the primary data source. The HRMPO boundary is not contiguous with census block group limits, requiring that data be extrapolated relative to the size of the census block groups that intersect the boundary.

<sup>7</sup> Portion of Rockingham County within the MPO that does not include towns.

Map 3-2: Population Density



## Employment

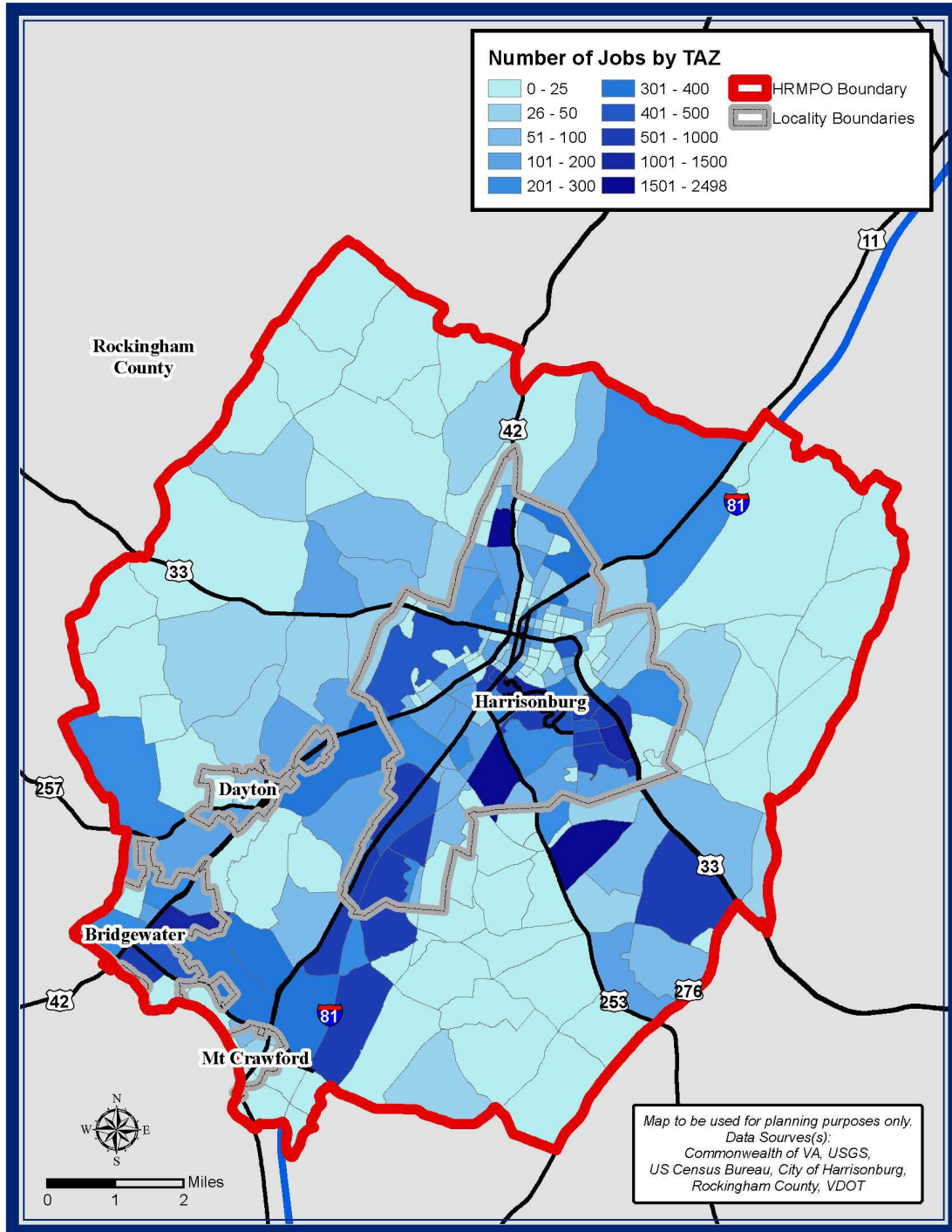
Travel generated by employers and employees contributes significantly to peak-time trips on a transportation network. That may include impacts on traffic volumes and traffic congestion, demands for new or upgraded access or infrastructure, or an opportunity for targeted investments in public transit.

**Map 3-3** illustrates the number of jobs in the MPO area by traffic analysis zone (TAZ). TAZs, which are described in detail in **Chapter 4**, measure regional socioeconomic variables. The TAZs are largely based on U.S. Census tracts, and on population distribution, existing roads, and natural borders.

Employment density is highest in the City of Harrisonburg and the Town of Bridgewater, and along the I-81 corridor in the MPO. The other areas with higher employment density are in Rockingham County near Sentara RMH Medical Center, and along US Route 33 east of the City of Harrisonburg.



Map 3-3: Number of Jobs by TAZ



### 3 – 2 Socio-Demographic Profile

Environmental Justice (EJ) is the overarching policy adopted in the United States for the “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” As a result of such policies, there has been an increased need to incorporate EJ principles into transportation planning.

The following three federal acts and two executive orders define the principles of EJ, including the specific populations that are to be considered:

- The *Civil Rights Act of 1964, Title VI*, which prohibits discrimination on the basis of race, color, or national origin;
- The *Age Discrimination Act of 1975*, which prohibits discrimination on the basis of age;
- The *Americans with Disabilities Act of 1990*, along with the *Americans with Disabilities Act Amendment Act of 2008*, which prohibit discrimination on the basis of disabilities;
- *Executive Order 12898 on Environmental Justice (1994)*, which protects minority and low income populations from disproportionately high and adverse impacts;
- *Executive Order 13166 on Improving Access to Services for Persons with Limited English Proficiency (2000)*, which aims to improve access to services for persons who have limited English proficiency.

*Title VI of the Civil Rights Act of 1964* established the foundation of EJ by stating: “No person in the United States shall on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.”

All recipients of federal aid are required to certify and the U.S Department of Transportation (USDOT) must ensure non-discrimination under Title VI of the Civil Rights Act of 1964. MPOs must specifically address EJ while developing and advancing transportation programs and projects.

In 1997, the USDOT issued its Order on Environmental Justice which expanded upon the EJ requirements of Executive Order 12898 and provided direction on implementation. Shortly thereafter, the FHWA issued Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which highlight the three primary EJ objectives:

- To identify, address, minimize, mitigate, and (preferably) avoid disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations;
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process by providing public involvement opportunities and dissemination of information, including meaningful access to public information concerning the human health or environmental impacts, when soliciting input from affected minority and low-

income populations when considering alternatives during the planning and development of transportation infrastructure investments;

- To ensure that no person – particularly those of minority or low income populations – is excluded from participating in, denied the benefits of, or in any other way subjected to discrimination under any program or activity receiving federal assistance.

Additionally, the federal government has defined Minority and Low-Income populations as follows:

- Low-Income means a person whose median household income is at or below the Department of Labor poverty guidelines.
- Low-Income Population means any readily identifiable group of low-income persons who live in geographic proximity and, if circumstances warrant, geographically dispersed/transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy or activity.
- Minority means a person who is:
  - Black or African American: a person having origins in any of the black racial groups of Africa;
  - Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish culture or origin, regardless of race;
  - Asian: a person having origins in any of the original people from the Far East, Southeast Asia, or the Indian subcontinent;
  - American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition;
  - Native Hawaiian and Other Pacific Islander: people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
  - Minority Population means any readily identifiable group of minority persons who live in geographic proximity, and if circumstances warrant, geographically dispersed transient persons (such as migrant workers or Native Americans) who will be similarly affected by a proposed DOT program, policy, or activity.

In consideration of the EJ policies identified above, a geographic analysis was conducted to identify the locations and concentrations of minority, low-income, and other traditionally underserved populations in the HRMPO planning area. For the purposes of this Plan, traditionally underserved also includes senior, non-English speaking, and zero-car household populations.

Datasets and mapping were assembled as a baseline inventory of demographic attributes for the following:

- Low-Income (below poverty level)
- Minority
- Senior (Elderly)
- Limited English proficiency
- Zero-car households

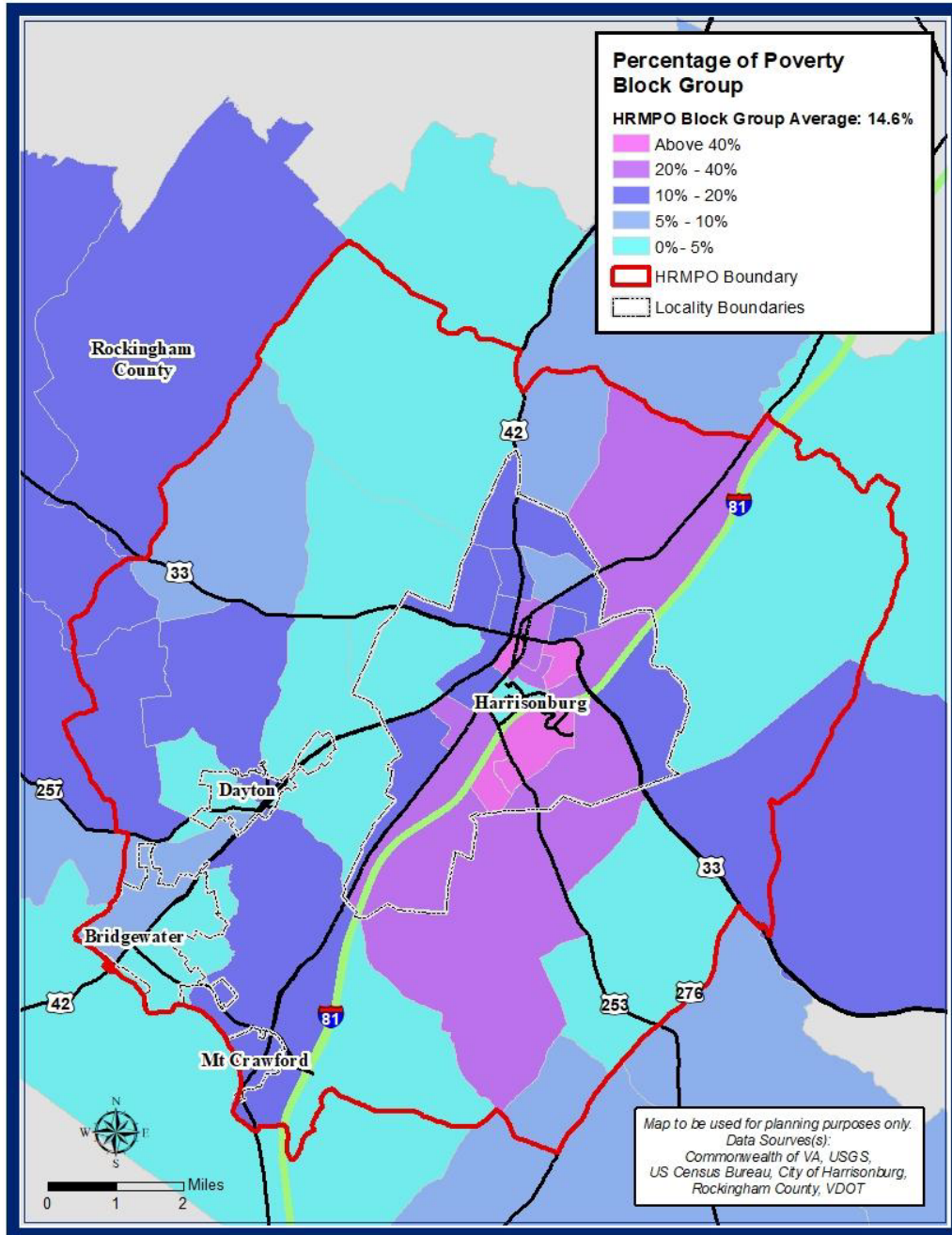
The primary data source we have used for these populations is the U.S Census Bureau's 2019 ACS five-year estimates at the census block group level. However, a census tract with a large land area may report demographic results based on a limited population sample. Refer to the text of each map for the population percentiles for each demographic based on U.S. census data.

### Poverty

**Map 3-4** shows the percent of the population living below the poverty level. The percentage of the population below the poverty level was calculated by dividing the number of individuals living below the poverty level by the total population per block group. According to 2019 ACS estimates, the percentage of persons living below the poverty level was 28.3% in Harrisonburg, and 7.1% in Rockingham County. The HRMPO regional average is 14.6% By comparison, according to 2019 ACS estimates, the statewide poverty average was 9.9%.

In the HRMPO, the areas with the greatest percentage of the population below the poverty level are concentrated in census block groups near downtown Harrisonburg, with more than 40% of the population below the poverty level. The other block groups with high poverty rates (20-40%) extend from downtown to the south of Harrisonburg in to Rockingham County. These block groups include James Madison University, and the presence of the student population contributes to the higher poverty percentage. The Block Groups with the lowest poverty rate are located on the northeastern and northwestern side of Rockingham County and in the Towns of Bridgewater and Dayton.

Map 3-4: Percentage of Poverty



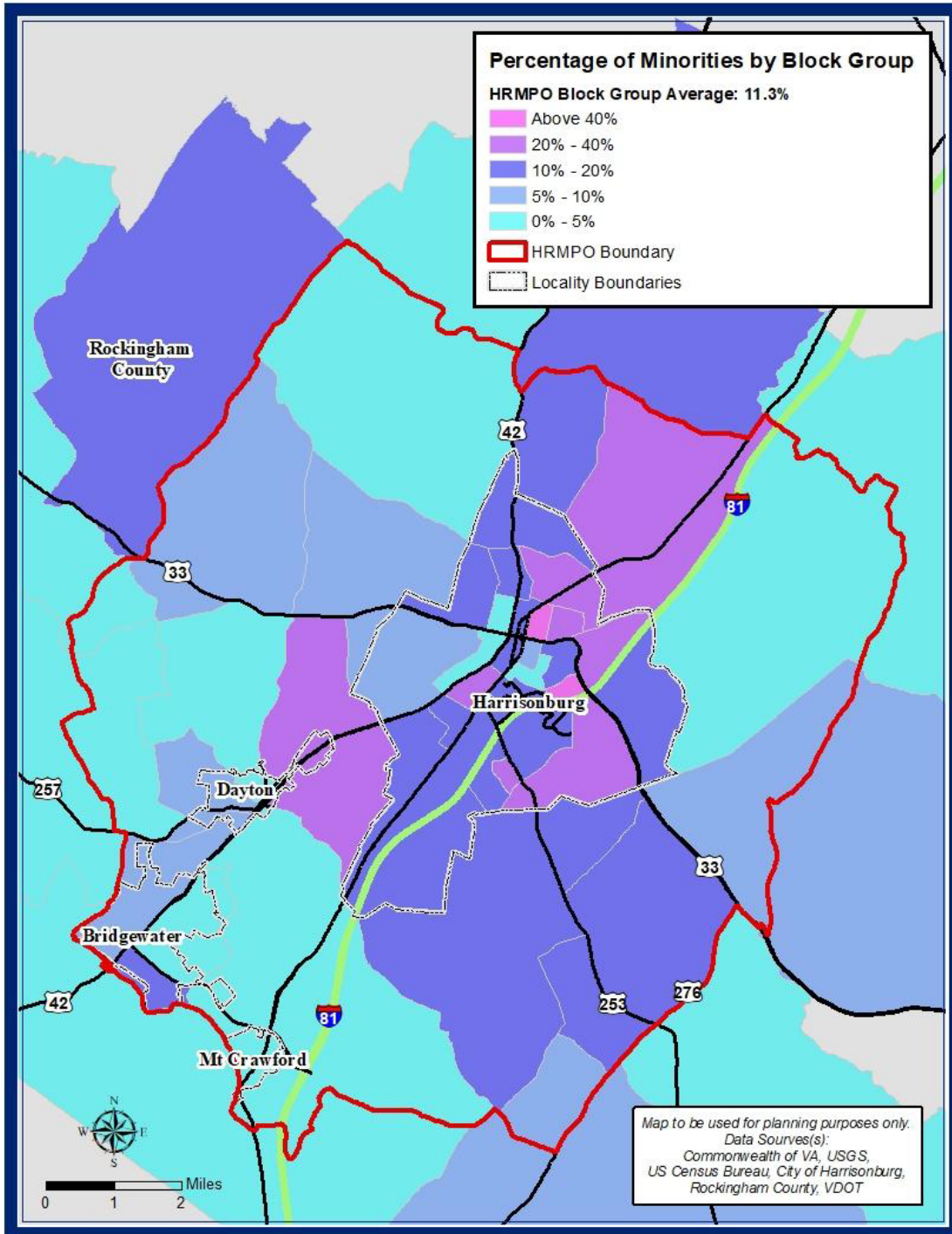
### Minority Populations

**Map 3-5** illustrates the concentrations of minority populations within the HRMPO region by census block groups by 2019 estimates. The racial/ethnic minority percentage of the population was calculated by subtracting the White Alone (non-Hispanic/Latino) from the total population per block group and then dividing that number by the total population. The HRMPO regional average is 11.3%.

Harrisonburg is the most diverse jurisdiction in the HRMPO area, and has the highest percentage of African Americans (8.1%) in the region, but that percentage is lower than the state average (18.6%). The City has a higher percentage of Hispanic or Latino (23.2%) populations than the state average (10.5%). Comparatively, Rockingham County is 2.2% African American and 8.4% Hispanic or Latino. Harrisonburg also has a thriving community of resettled refugees from countries like Afghanistan, Azerbaijan, Belarus, Bosnia, Burma, Colombia, Congo (Kinshasa), Croatia, Cuba, Eritrea, Iran, Iraq, Kazakhstan, Kosovo, Russia, Rwanda, Serbia, Sierra Leone, Sudan, Tajikistan, Ukraine, and Uzbekistan. As of January 2019, Harrisonburg City Public Schools are attended by students from 46 countries speaking more than 70 languages.

Non-white persons primarily live in or near Downtown, northern, and eastern Harrisonburg. The most diverse census block groups in Rockingham County within the MPO are located in the north along the I-81 corridor, and in the census block groups between Harrisonburg and Dayton.

Map 3-5: Percentage of Minorities



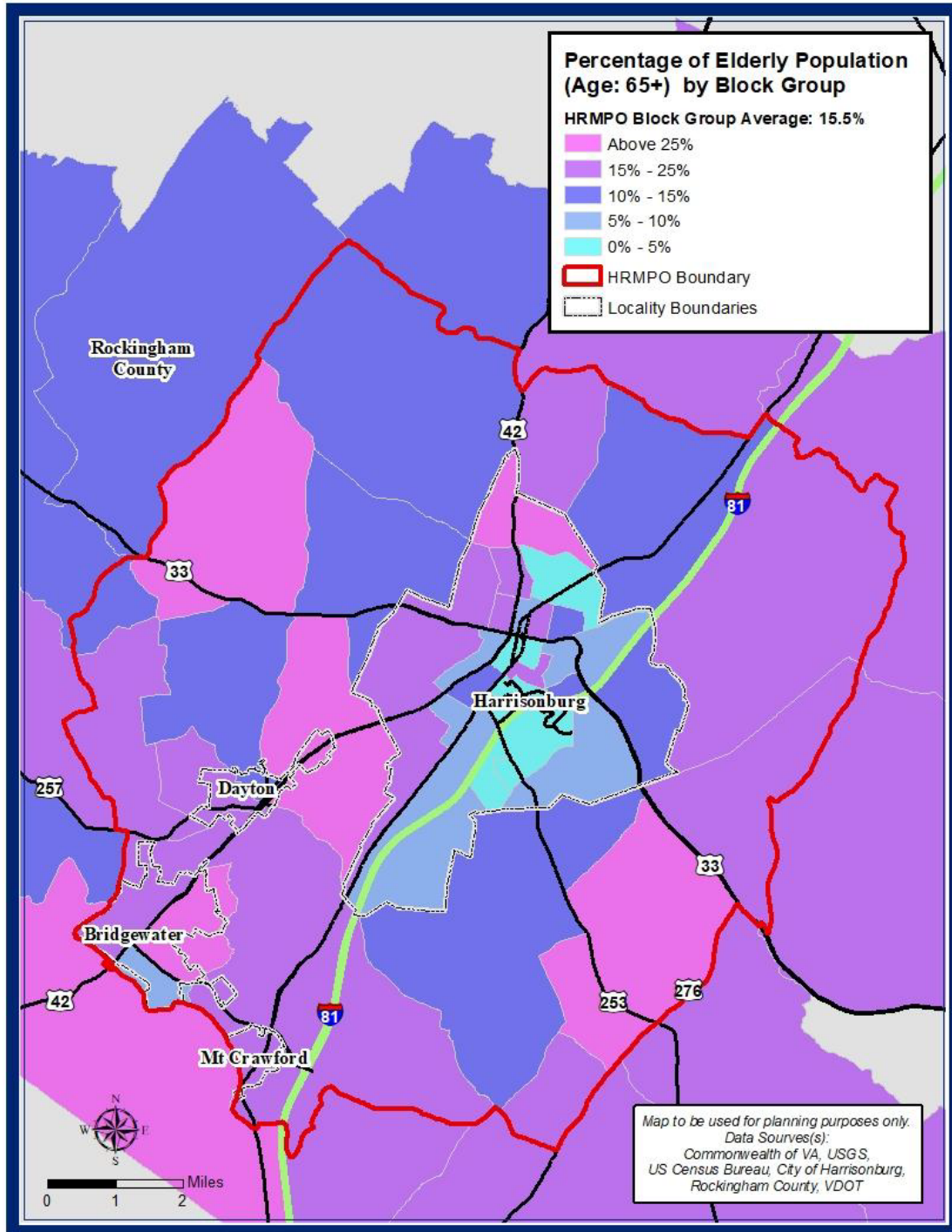
### Elderly Population

The elderly population is defined as persons aged 65 and older. The HRMPO average percentage of elderly persons (65 years of age and over) is 20.3%, which is higher than the 2019 state average of 15.9%. **Map 3-6** highlights areas with higher concentrations of the population over 65 years old. Areas in the northern end of Harrisonburg near Eastern Mennonite University, block groups in Rockingham County between Dayton and Harrisonburg, and on the eastern and western edges of the MPO along US 33 have the highest percentage of elderly persons. The other areas that have high concentration (15-25%) of elderly persons are located around the towns of Dayton, Bridgewater, and Mt. Crawford.

Aging populations have unique transportation needs that include a decreased reliance on vehicles and an increasing need for alternative modes of travel. Many seniors do not drive due to health, economic, or personal preferences. Other seniors do drive, but would prefer not to, if a convenient and frequent transit service were available to them. Age-restricted and assisted living communities are located throughout the region, many of which provide limited private transportation options for their residents. For communities located outside the City of Harrisonburg, public transportation options are limited.



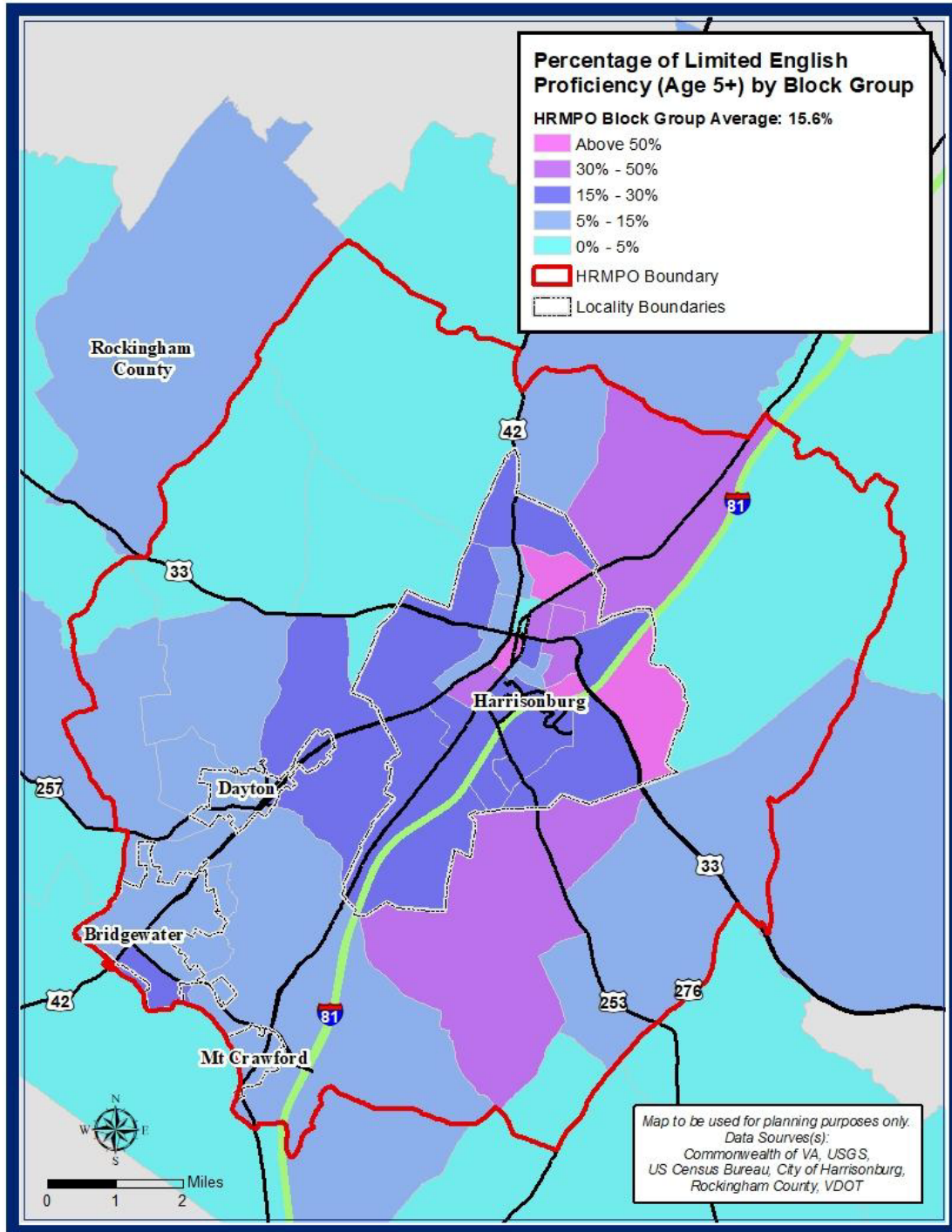
Map 3-6: Percentage Elderly Population



### Limited English Proficiency

**Map 3-7** displays U.S. Census data on the percentage of the population over the age of 5 that speaks English less than “very well, and have at least some difficulties speaking the language.” Overall, the HRMPO area’s limited English-speaking population is 15.6% of the total population. This is lower than the state average of 16.3%. Some census block groups in the MPO have a much higher percentage of the population with limited English proficiency than the regional average. Most of these block groups are near Downtown Harrisonburg, or in western Harrisonburg. More than 50% of the population in these block groups have limited English proficiency.

Map 3-7: Percentage of LEP Population

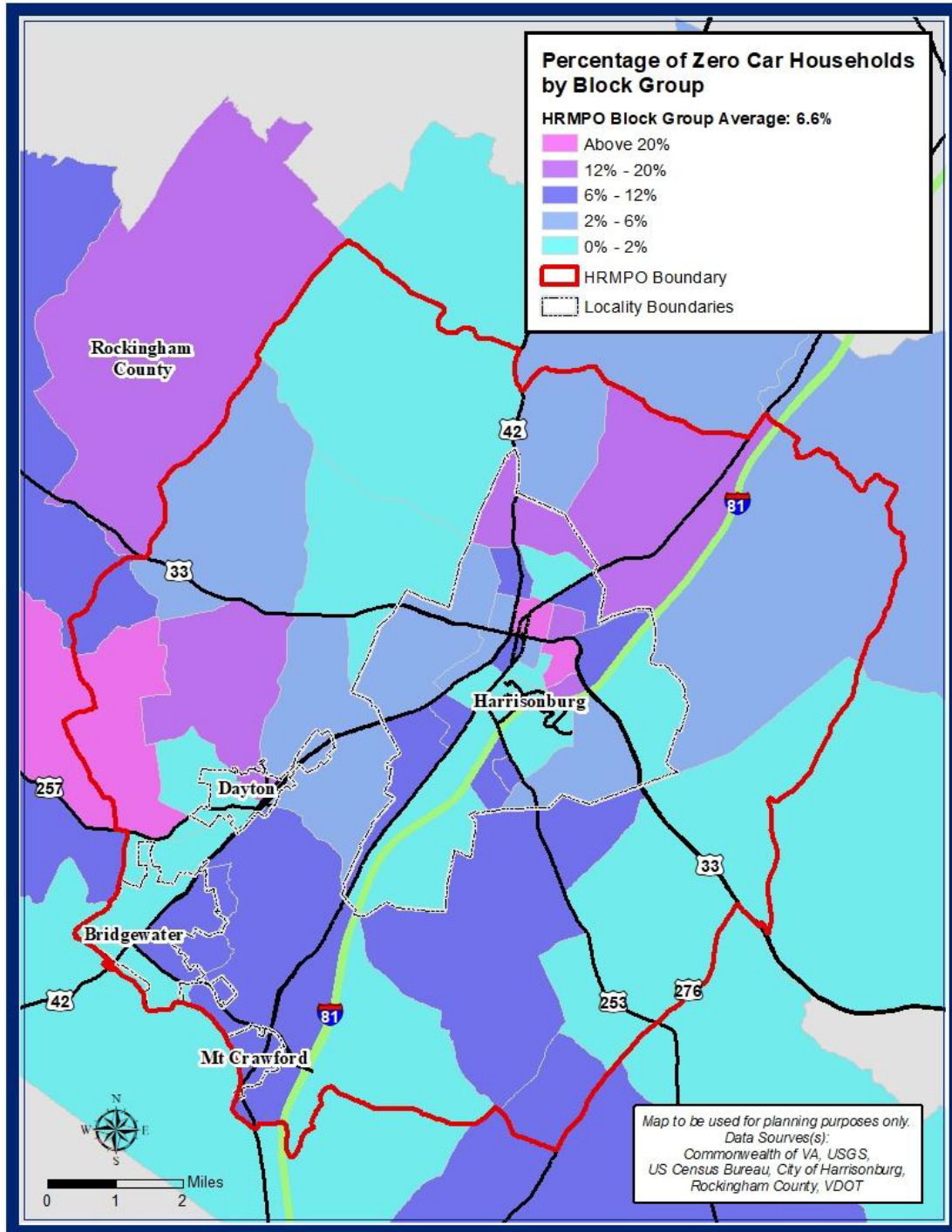


### Zero-Car Households

On average, 6.6% of households in the HRMPO area do not own a vehicle, which is more than the state average at 6.1%. In Harrisonburg, 8.5% of occupied housing units do not own a car, and 5.4% of occupied housing units in Rockingham County do not own a car. The highest percentage of zero-car households is in or near Downtown Harrisonburg, with two census block groups where more than 20% of households do not own cars and two block groups where more than 12% of households do not own cars. In the census block group west of Dayton, more than 20% of the population do not own cars. This block group has a high population of Old Order Mennonites who do not drive cars. James Madison University contributes to the high concentration of Zero-Car Households in Harrisonburg. Bridgewater College contributes a higher proportion of zero-car households in census block groups located north and southeast of Bridgewater. Zero-car households often experience job access challenges and rely heavily on transit service to meet their travel needs.

**Map 3-8** on the following page illustrates the number of zero car households by census block group within the HRMPO planning area. The percentage of zero car households was calculated by dividing the sum of zero car households by the total number of households per block group.

Map 3-8: Percentage of Zero-Car Households



### 3 – 3 Existing Transportation Network

#### Roadway System

The transportation network within the HRMPO planning area includes a mix of road types, a public transportation system, and bicycle and pedestrian facilities. The efficiency and connectivity of the entire network has been evaluated in the document based on the coverage of roads, transit services, bicycle facilities, and sidewalks. The City of Harrisonburg and the Town of Bridgewater maintain their own roadway networks, while VDOT maintains all public roads within the County's jurisdiction, and the Towns of Dayton and Mt. Crawford.

One major interstate crosses the HRMPO planning area. Interstate 81 (I-81) runs generally south-north from east-central Tennessee to the Canadian border in New York. I-81 provides important connections to the City of Harrisonburg and nearby cities such as Staunton. Additionally, I-81 is a significant north-south corridor for freight and other travel between states up and down the East Coast.

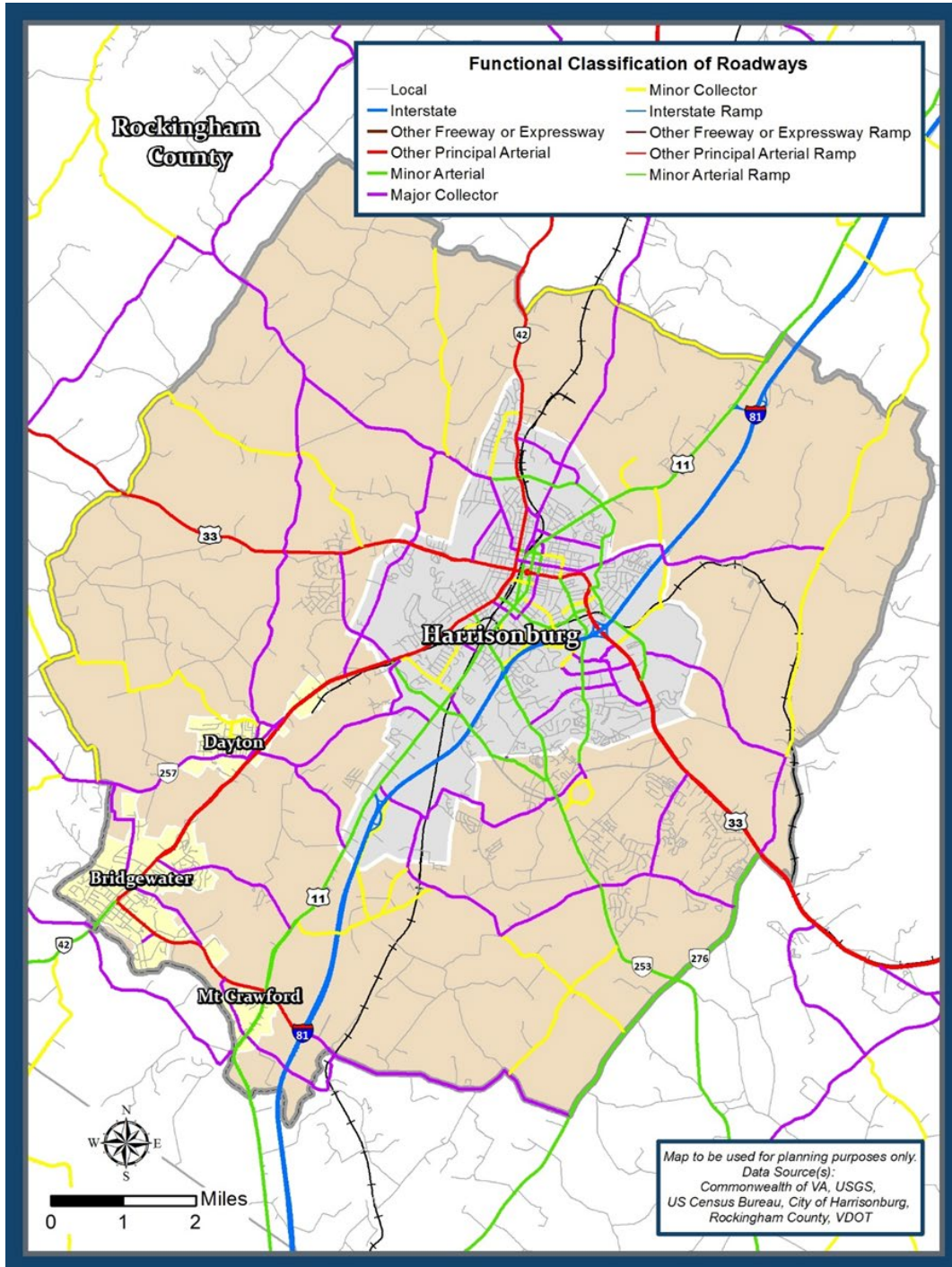
Within the HRMPO planning area, there are seven distinct functional classifications of roads: Interstate, Other Freeways and Expressways, Other Principal Arterial, Minor Arterial, Major Collector, Minor Collector, and Local. Each road is assigned a functional classification based on the road's intended purpose, or role it plays in serving the flow of trips through a transportation network. Criteria used to assign a functional class to a road include types of trips being served, expected volumes, network characteristics, population center thresholds, and interval spacing<sup>8</sup>. VDOT uses the functional classification to obtain funding for Highway Performance Monitoring System federal reporting and to prioritize construction.

**Map 3-9** depicts the MPO roadway functional classification.

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<sup>8</sup> [Virginia Statewide Functional Classification System](#)

Map 3-9: Functional Classification



VDOT defines the functional classes as follows:

***Interstate***

- Highest traffic volume corridors
- Roads serving the longest trip desires
- Carry significant amounts of intra-area travel
- Does not provide land access and interconnects primarily with other classification routes

***Other Principal Arterials***

- Serve corridor movements of substantial state or interstate travel
- Provides an integrated network without stub connections

***Minor Arterial***

- Links cities and large towns (and other generators, such as major resorts)
- Spaces at such intervals so that all developed areas of the State are within a reasonable distance of an arterial highway
- Provide service to corridors with trip lengths and travel density greater than those served by collectors or local systems.
- Design should be expected to provide for relatively high overall speeds, with minimum interference to through movement

***Major Collector***

- Provide service to any county seat not on an arterial system, to larger towns not directly served by higher systems
- Link the above to nearby larger towns or routes of higher classification
- Serve the more important intra-county travel corridors

***Minor Collector***

- Spaced at intervals, consistent with population density
- To collect traffic from local roads and bring all developed areas within a reasonable distance of a collector road
- Provide service to the remaining smaller communities
- Link local traffic generators with their rural hinterland

***Local***

- Serves primarily to provide direct access to adjacent land
- Provide service to travel over relatively short distance as compared to collectors or other higher systems

**Transit**

The Harrisonburg Department of Public Transportation (HDPT) 2018 Transit Development Plan (TDP) outlines the Department's transit needs, services and improvement, and funding over a six-year period. DRPT requires large public transportation agencies to develop Transit Strategic Plans (TSPs) to replace the previously required TDPs. HDPT is developing a TSP, which is scheduled for adoption by 2024, to establish strategies for improving transit service. An assessment and update of HDPT's JMU routes was completed in 2019.



HDPT provides public transportation services via fixed bus routes, para-transit, and coordination with JMU and EMU. A majority of transit service serves the universities, but several other City routes enable residents, workers, and visitors to reach other major destinations throughout the City. HDPT provides the following services:

- City Routes – There are six routes which operate year-round and are focused on serving residential and commercial areas. These routes operate Monday through Saturday from early morning to evening.
- JMU Focused Routes – There are 25 routes serving the JMU community and operating daily while JMU is in session. A JMU night campus shuttle runs during the evenings while classes are in session.
- Bridgewater/Dayton Shuttle – This shuttle operates Tuesdays and Thursdays and provides service between Harrisonburg, Bridgewater, and Dayton. The shuttle runs in the morning, mid-day, and by-demand in the early evening.
- Special Shuttles – HDPT operates three special routes that only operate while JMU is in session. The football shuttle provides service for all home games from the housing complexes and hotels within the City. Two Sunday shuttles operate mid-day until Sunday night.

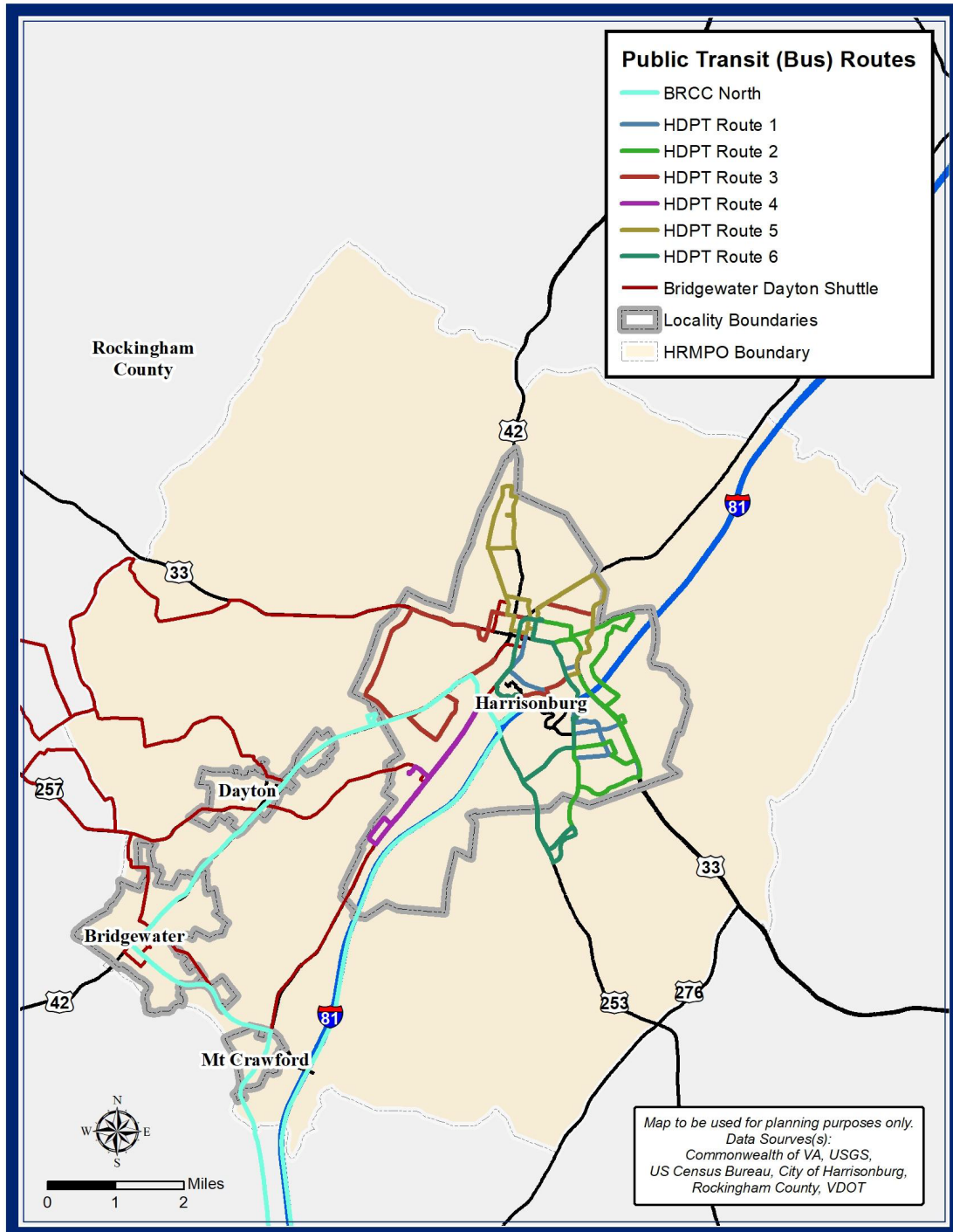
The BRITE bus system also provides service from BRCC and JMU northbound via I-81, and southbound through Bridgewater, Dayton, and Mt. Crawford. **Map 3-10** illustrates the six HDPT transit routes and BRCC north route. **Map 3-11** illustrates the 12 JMU routes. Due to COVID-19, the number of routes was reduced because of the lack of bus operators. Blue & Purple routes were combined, and Green & Red routes were combined. The goal is to add routes back to the schedule as staffing levels permit. Public transportation service within the HRMPO planning area is limited primarily to urbanized areas.

### Commuter Services

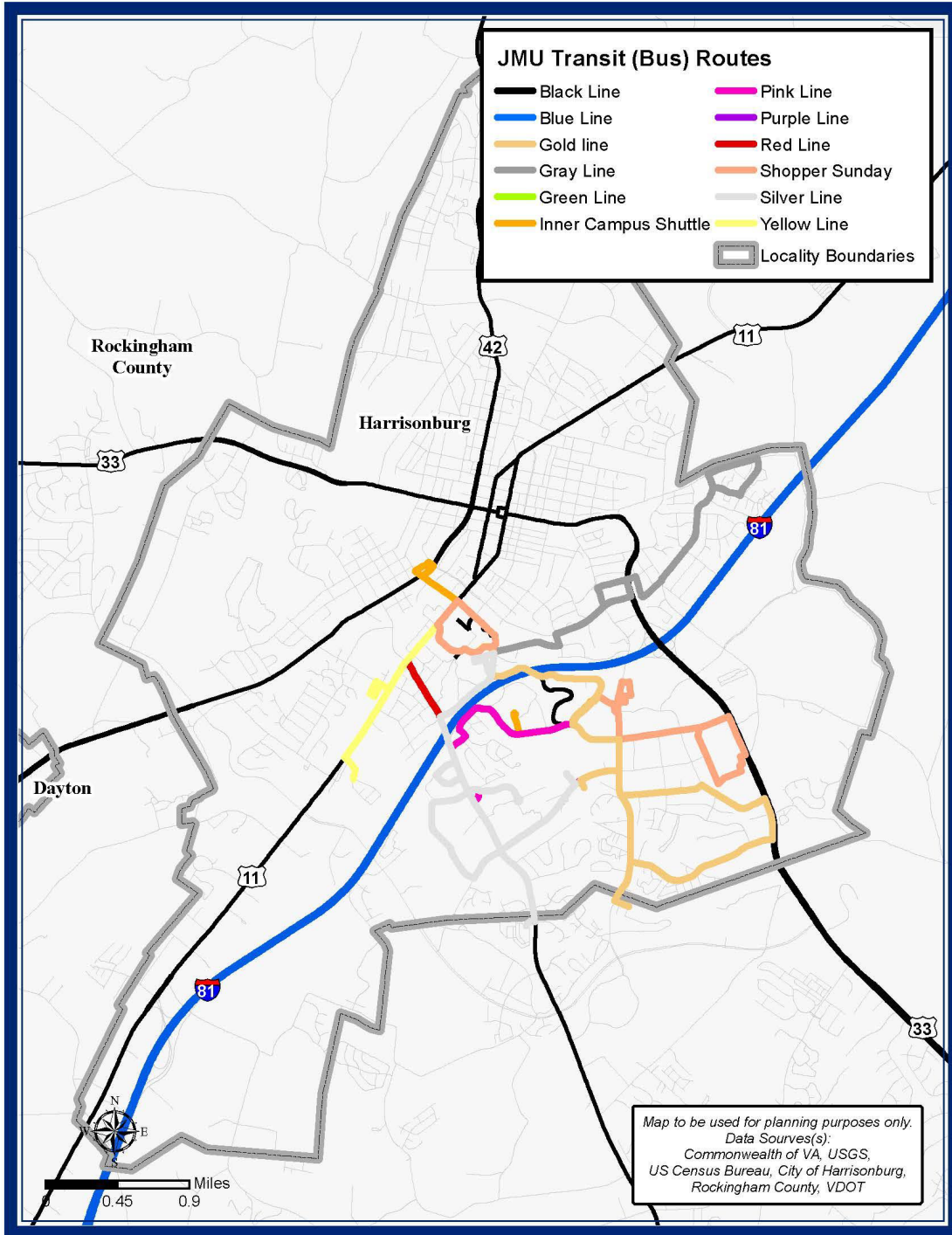
The CSPDC offers coordination assistance for ride sharing through its DRPT-funded Rideshare program. CSPDC offers free carpool and vanpool coordination and operates a Guaranteed Ride Home Program. Six rideshare Park and Ride lots service the HRMPO planning area, although the Mt Crawford facility is the only lot located within the HRMPO boundary. Paratransit service is also provided within the HRMPO by HDPT, the Valley Program for Aging Services (VPAS), Friendship Industries, Arc of Harrisonburg/Rockingham, and Pleasant View.

**Map 3-12** illustrates the six rideshare Park and Ride lots serving the HRMPO planning area.

Map 3-10: HDPT and Regional Transit Routes

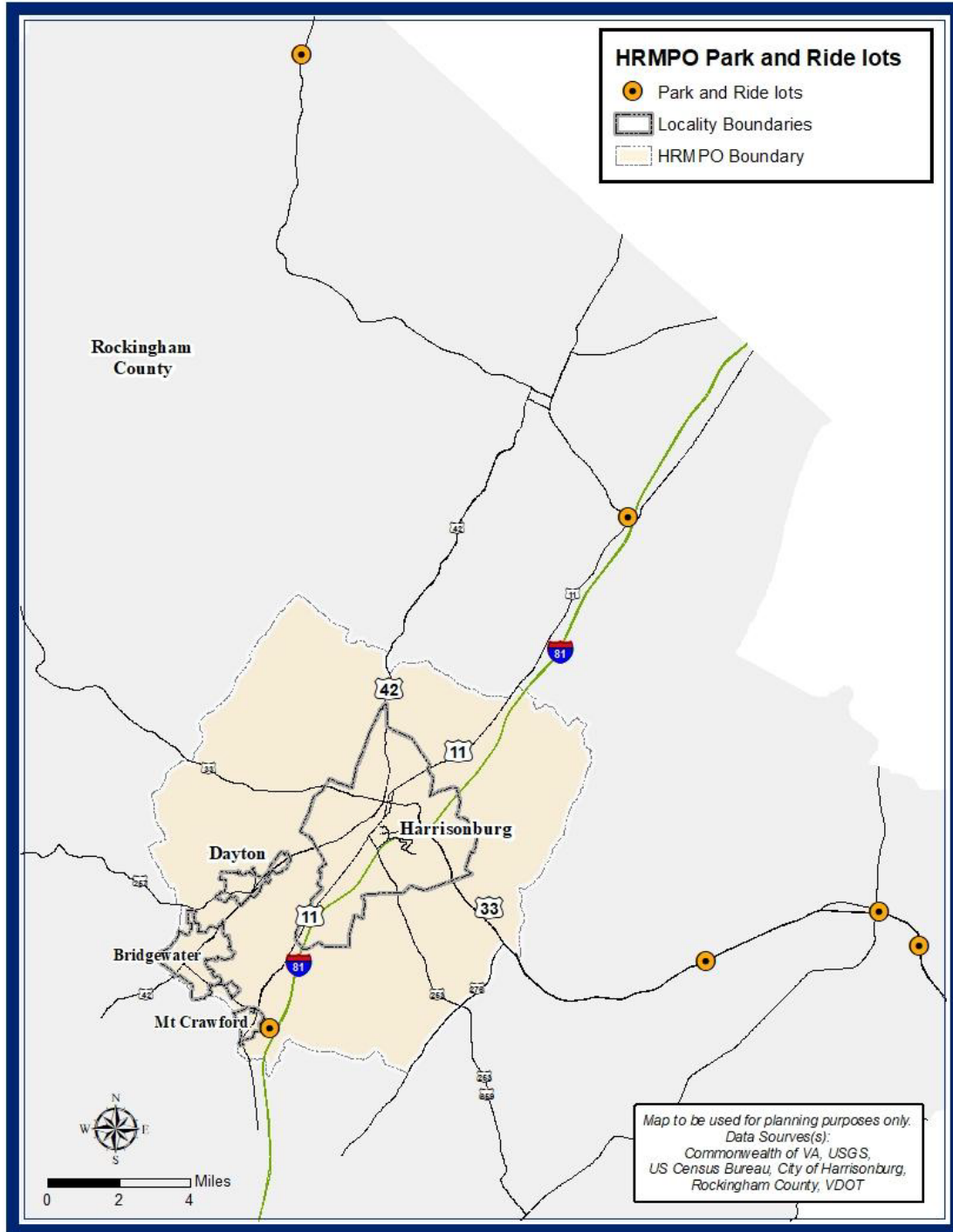


Map 3-11: JMU Transit Routes



For the most up to date schedules and individual JMU route maps, please visit <https://www.harrisonburgva.gov/bus-routes#jmu>.

Map 3-12: Park and Ride Lots



### Bicycle Facilities

Existing bicycle facilities in the HRMPO are primarily in Harrisonburg. **Map 3-13** depicts the existing bicycle facilities in the MPO area. The Harrisonburg 2017 Bicycle and Pedestrian Plan provides a vision and framework for developing an interconnected bicycle and pedestrian network throughout the City. Rockingham County adopted a countywide bicycle and pedestrian plan in October 2016, and the urbanized areas of the MPO are covered under the HRMPO Bicycle and Pedestrian Plan.

The initiatives of the City, County, and the Towns to create new facilities and modify existing ones to better accommodate cyclists is a response to overall growth in the HRMPO and a changing approach to mobility. Current facility types include shared use paths, bike lanes, and shared lane markings. Harrisonburg provides routes to cyclists with a combination of shared use paths around downtown and JMU and bicycle lanes connecting the City to Rockingham County.

The Towns of Bridgewater and Dayton are connected to just south of the Harrisonburg city limits by an eight foot-wide bike/buggy lane on John Wayland Highway (VA 42). Bridgewater has further extended the route by building dedicated bicycle lanes on both sides of Dry River Road. Providing continuity of bicycle facilities across jurisdictional boundaries better serves the region. As the network grows, it can serve cyclists for commuting to work, school, recreation and other personal trips.

### Pedestrian Facilities

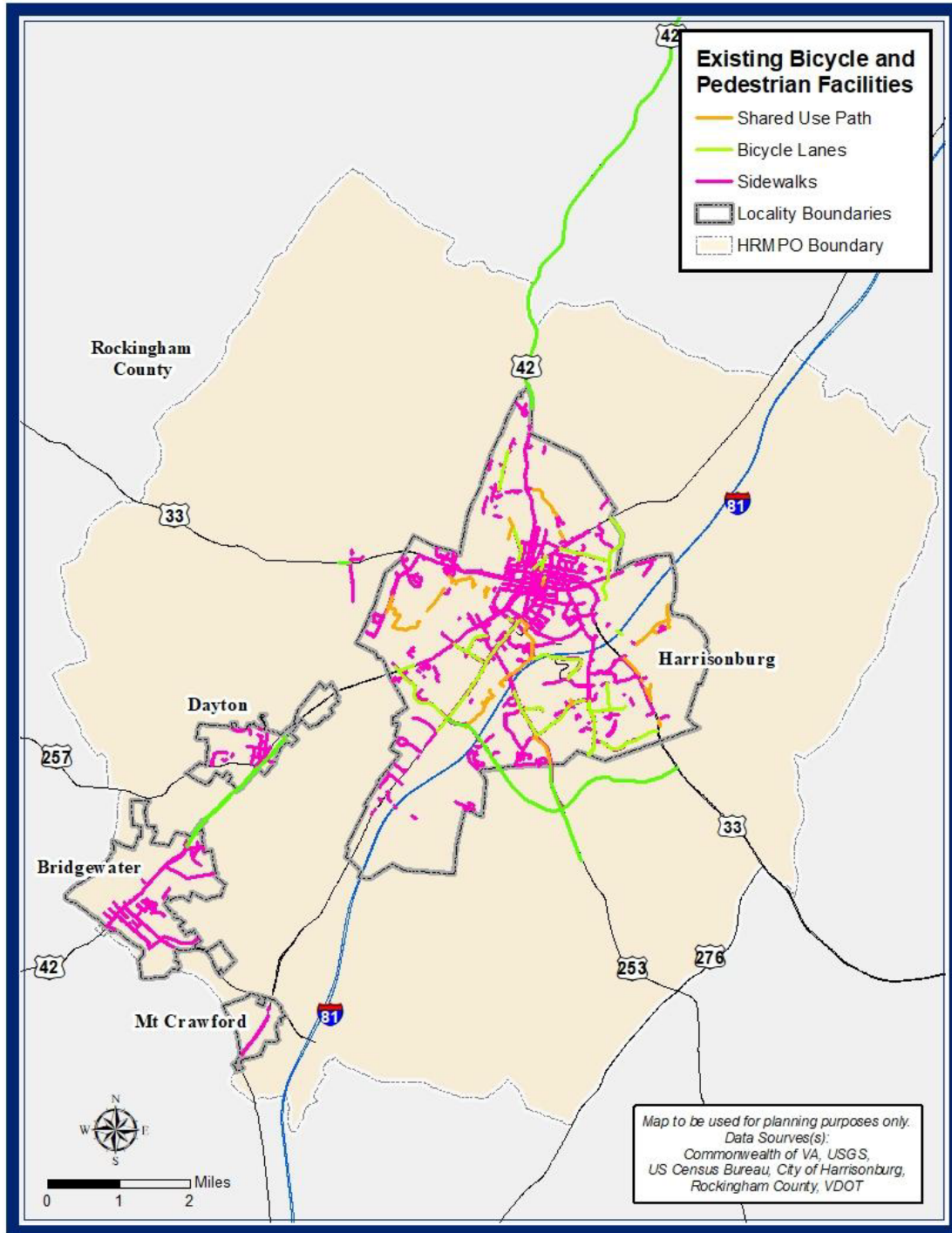
As the primary pedestrian center in the HRMPO, downtown Harrisonburg has a sidewalk network that covers most of its streets. Streets with sidewalks decrease outside of Downtown where they are associated with specific developments. This pattern is consistent with regional, state, and national trends, with historic urban centers having streets with sidewalks.

Sidewalk facilities are now widely regarded as being a desirable and necessary part of mobility and accessibility. The localities have worked to extend sidewalk and pedestrian facilities through grant programs offered through the Transportation Alternative Program (TAP) including traditional enhancement projects, and Safe Routes To Schools projects.

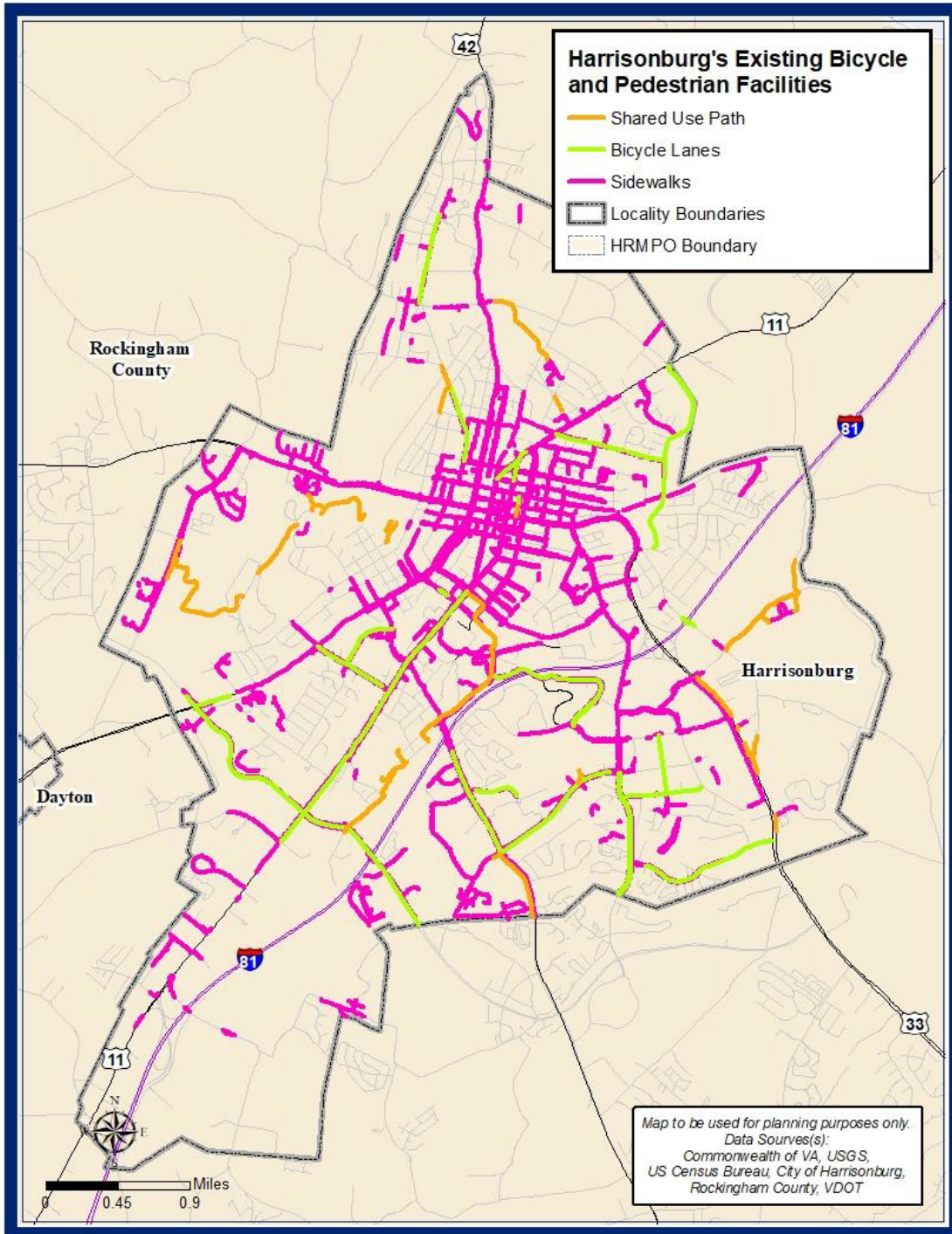
Newer residential and commercial developments in the HRMPO usually include sidewalks. While sidewalks are proffered with most developments requiring a rezoning, the City currently requires sidewalks for by-right development only when there is sidewalk on the adjacent parcel, or when a new public street is constructed. The City intends to revise its subdivision ordinance to require sidewalks more broadly in accord with §15.2-2242. Rockingham County also requires sidewalks for new construction and reconstruction projects in all areas within the urban growth boundaries designated by the Comprehensive Plan or any other plan adopted by the County. Topography is challenging for many locations in the urbanized area where bicycle or pedestrian facilities may not be easily accommodated in conjunction with the existing roadway network.

**Map 3-13** shows existing Bicycle and Pedestrian Facilities in the MPO region. **Map 3-14** shows a detailed view of the Bicycle and Pedestrian Facilities in Harrisonburg.

*Map 3-13: Existing Bicycle and Pedestrian Facilities*



Map 3-14: Existing Bicycle and Pedestrian Facilities in Harrisonburg



## Air and Rail Service

### Airports

The Shenandoah Valley Regional Airport (SHD), located in Weyers Cave, offers scheduled air service through Contour Airlines, which provides direct access to Charlotte Douglas International Airport (CLT).

The Charlottesville Albemarle Airport (CHO) is located 45 minutes from Harrisonburg and has scheduled service from five commercial carriers. CHO offers daily nonstop flights to Washington-Dulles, Charlotte, Atlanta, Philadelphia, New York LaGuardia, and Chicago. The airport has car rentals and hotel shuttles, but no other ground transportation. The Virginia Breeze, a bus line throughout the Commonwealth, connects Harrisonburg to Dulles International Airport, West Falls Church Metro in Fairfax County, and Union Station in Washington DC through the Valley Flyer Route.

In the MPO, there are two private aviation airports: Frank Field Airport located northwest of Harrisonburg, and the Bridgewater Airpark located south of Bridgewater.

### Passenger Rail Service

The HRMPO is not served by passenger rail service; however, passenger rail service is available in nearby Staunton. Amtrak operates in downtown Staunton, but the frequency of service is limited. The Virginia Breeze Valley Flyer Route connects Amtrak rail passengers in Harrisonburg from JMU's Godwin Transit Center to Martins Parking Lot in Staunton.

### Freight Rail Service

Class 1 freight rail service is provided by Norfolk Southern over its own rails. The Shenandoah Valley Railroad runs on its own tracks southeast of Harrisonburg in Pleasant Valley to Staunton, and interchanges with Norfolk Southern on the north end of the line. The Chesapeake Western Branch of Norfolk Southern is a Class III short-line, which provides service from Elkton to Harrisonburg.

The HRMPO region has many opportunities to access rail facilities. There are two transloading facilities in the City of Harrisonburg. Transloading facilities are used to transfer freight from one mode of transport to another and are critical to maintaining the intermodal freight network. Freight transported via semi-truck relies on local roadway networks to access inter-regional transportation networks –interstates and railroads. To maintain or expand the opportunities for intermodal freight connections, it is critical to maintain industrial zoning on parcels adjacent to the railroads. These sites provide additional opportunities for developing transloading facilities, or sidings, and the ability to move more freight via rail.

Norfolk Southern runs along the entire length of the Crescent Corridor and provides access to the Virginia Inland Port in Front Royal, as well as multiple junction points to other Norfolk Southern lines. The Crescent Corridor runs along the Appalachian Mountains in the western part of Virginia and is generally defined by Interstate 81. The Crescent Corridor serves as a major trucking and freight corridor along the east coast. Norfolk Southern has invested \$2.5 billion throughout the Crescent Corridor across 11 states. It



completed six projects in Virginia to ease congestion on Interstate 81 by displacing long distance freight carried by truck, including a speed improvement project at Elkton by constructing a passing siding. The project was completed in 2015 and included adding passing tracks, as well as signal system work.

### Goods and Freight Movement

The HRMPO region supports large manufacturing and industrial concentrations in the Shenandoah Valley, and truck freight is the region's most utilized method of goods movement by a significant margin. Within the HRMPO region, I-81 is the primary north-south truck route, transporting goods within Virginia and beyond, with over three-quarters of the truck tonnage being pass-through freight per an Office of Intermodal Planning and Investment (OIPI) Multimodal Freight Study.

In 2019, I-81 carried approximately 58,000 trips per day, with 25% of that being truck traffic. Paralleling I-81, Route 11 serves as a backup to the interstate, particularly when incidents occur. Route 11 supports 3-6% of truck trips throughout the urbanized area, mainly providing connectivity for local goods movement. Route 33, the region's main east-west corridor, supports approximately 6% of truck traffic. While much of the City's street network has minimal truck traffic, the industrial area along Pleasant Valley Road in southern Harrisonburg supports approximately 10% truck trips per day.

*Table 3-2 Roadway Segments with the Highest Percentage of Heavy Truck Trips*

Facility	2021 AADT	% Truck Traffic
<b>Interstate 81</b>	990,000	52%
<b>Pleasant Valley Road (SCL Harrisonburg to Rt 710)</b>	8,300	14%
<b>Route 42 (5th St to Mt Clinton Pike)</b>	20,000	5%
<b>Route 11 (Rt 257 to Rt 704)</b>	24,000	4%
<b>Route 42 (Mason St to )</b>	2,500	3%
<b>Route 42 (Mt Crawford Ave to North River Rd)</b>	22,000	4%
<b>Route 42 (Rt 290 to NCL Dayton)</b>	2,600	1%
<b>Route 42 (Augusta County Line to SCL Bridgewater)</b>	3,900	4%
<b>Mosby Road (Pike Church Rd to WCL Harrisonburg)</b>	6,100	4%
<b>Route 11 (I-81 to Pleasant Hill Rd)</b>	35,000	4%
<b>Route 11 (Pleasant Hill Rd to Port Republic Rd)</b>	29,000	4%
<b>Route 11 (Port Republic Rd to S. Liberty St)</b>	34,000	4%

Route 42 (Sunrise Ave to Grace St)	19,000	2%
Route 33 (WCL Harrisonburg to Waterman Dr)	13,000	3%
Route 33 (University Blvd to ECL Harrisonburg)	27,000	4%
Old Furnace Rd (ECL Harrisonburg to Layman Trestle Rd)	3,300	2%

Maintaining roadways to accommodate truck traffic is critical to efficient goods movement and the region's economic development success. Interstate highways are typically graded on several factors that affect goods movement within a particular area. For example, VDOT continuously monitors pavement condition on all state-maintained public roadways, and routinely upgrades deteriorating pavement sections on critical freight corridors like I-81.

### Improve I-81 Program

In December 2018, the Commonwealth Transportation Board (CTB) approved the I-81 Corridor Improvement Plan. The Study identified a \$2 billion package of projects for the corridor. In April 2019, the General Assembly passed I-81 Improvement Program legislation amendments related to funding mechanisms for improvements to the corridor. Most of the new revenues will come from increased registration fees for trucks, based on their weight and wear on roadways, as well as higher taxes on diesel fuel.

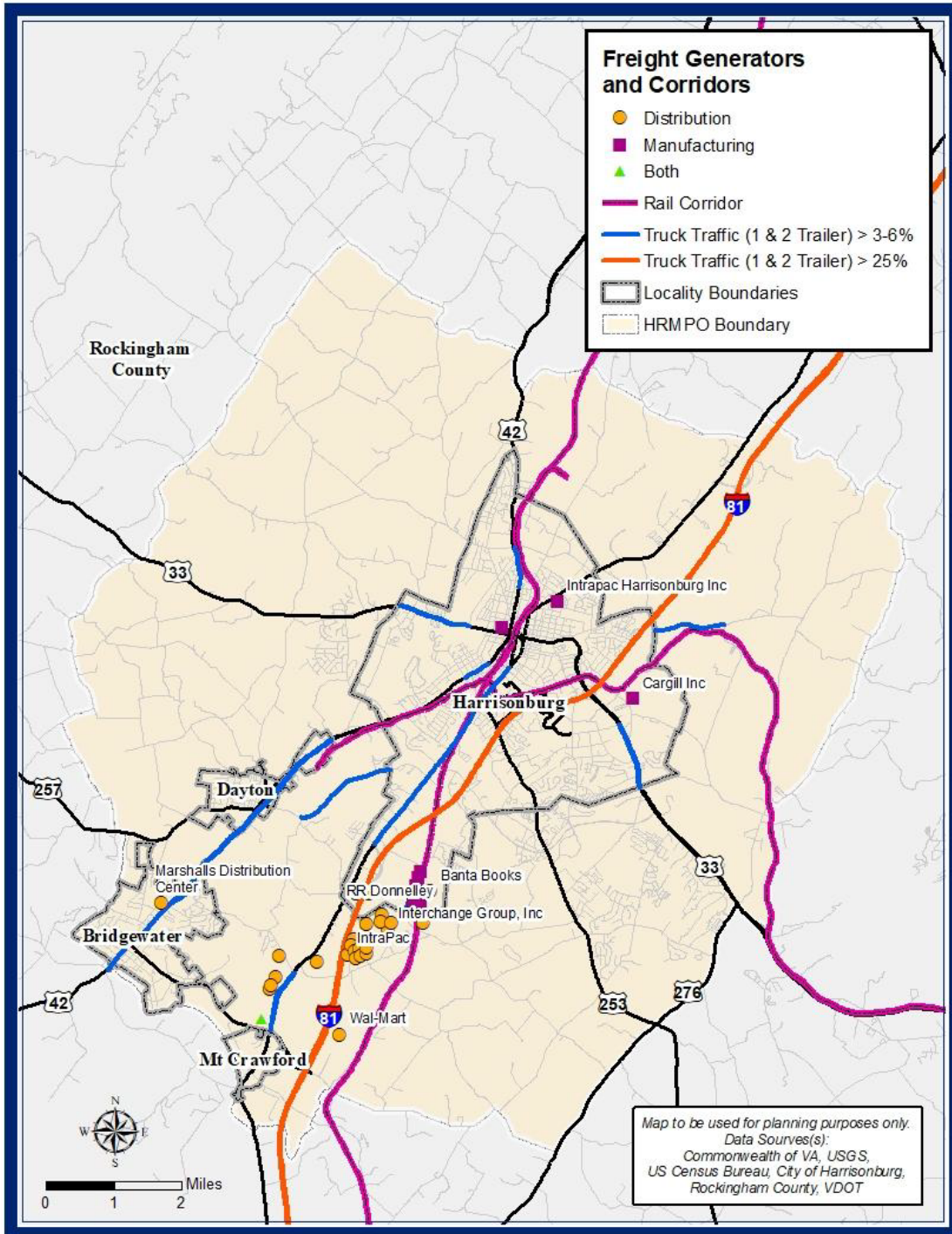
The plan includes widening of Exit 243 – 247 on the I-81 in Harrisonburg. The project will add one additional lane northbound and southbound from approximately one mile south of the Exit 243 (Route 11) interchange near Pleasant Valley Road to approximately one mile north of the exit 247 (Route 33/East Market Street) interchange. The project is expected to begin construction in 2024.

### Distribution Centers

Virginia continues to experience significant growth in large-scale warehousing development which is often associated with high-volume or “big box” importers. These importers rely upon uninterrupted flows of cargo through Virginia's ports and then onto highway and rail connections. Nearly 20 major distribution centers are located along the I-81 Corridor from Bristol, VA to Winchester, VA. Four large distribution centers are located in the HRMPO area, the Walmart distribution center in Rockingham County, Marshall's Distribution Center in Bridgewater, and LSC Communications Book LLC/Lakeside Book Company, and Interchange Group in Harrisonburg. There are also several smaller distribution centers that are located on-site for larger manufacturing facilities in Rockingham County that only serve those particular facilities.

**Map 3-15** shows the Distribution and Manufacturing Centers in the MPO region, along with rail and highway freight corridors.

Map 3-15: Freight Generators and Corridors



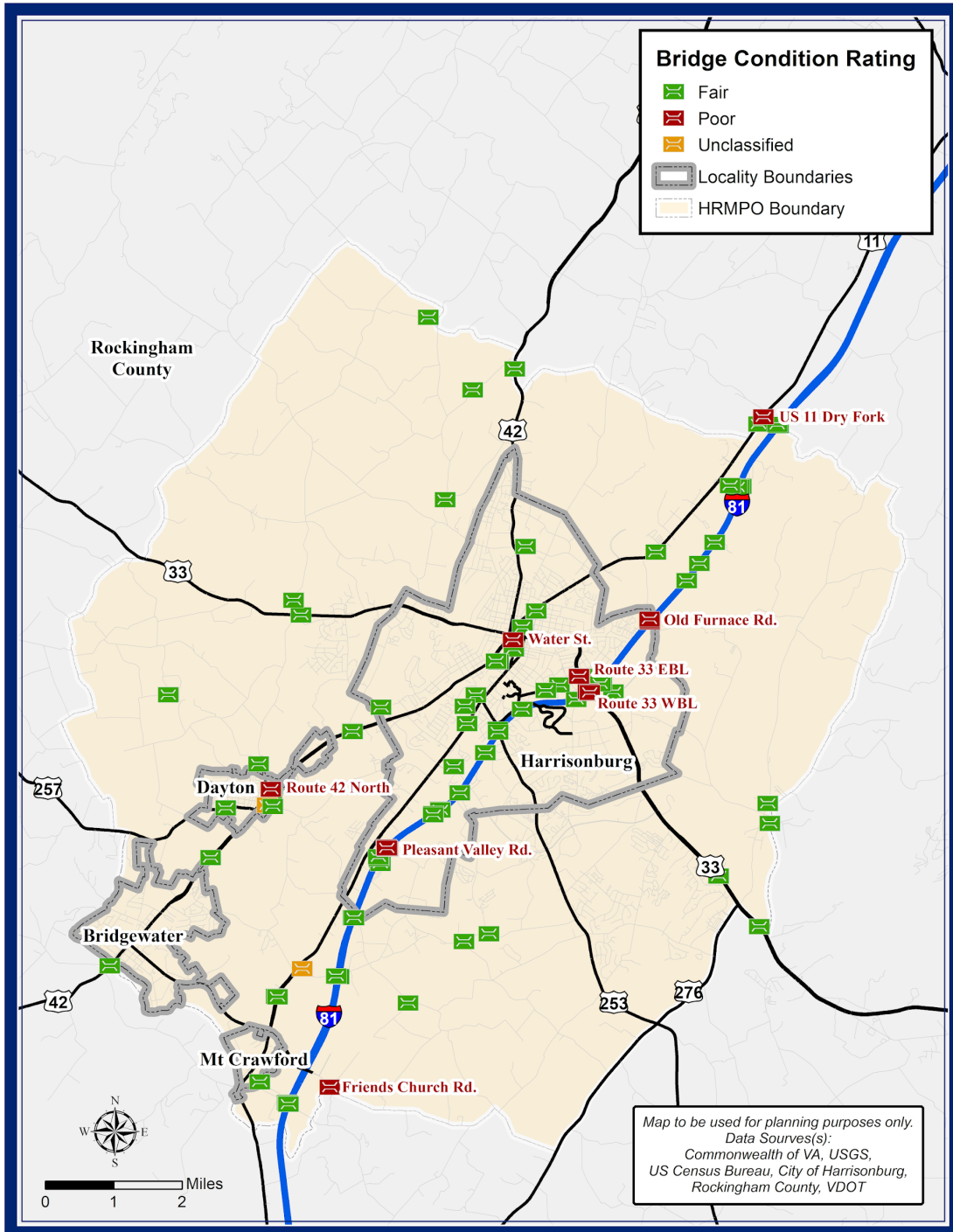
## Bridges

Inspection and maintenance of bridges is handled by either VDOT and Harrisonburg City Public Works depending on their location. Bridges inside the city limits of Harrisonburg are inspected and maintained by City Public Works, whereas bridges outside of city limits are inspected and maintained by the VDOT Bridge Division. Bridge repair and reconstruction outside of the city is funded with dedicated maintenance dollars and capital programs. Bridge sufficiency is included in the LRTP for informational purposes, or if a bridge project is included in the Six Year Improvement Program. Bridge projects, and VDOT maintenance activities in general, are not included in the LRTP's universe of potential transportation projects.

Bridge sufficiency ratings are based on the FHWA rating system, on a scale ranging from Good, Fair, Poor, and Unclassified. VDOT follows national standards in performing safety inspections and determining general condition of the structures. Of the bridges in poor condition in the MPO, one is in Rockingham County, seven are in Harrisonburg and one is in Dayton; however, most of these will be replaced in the next five years. The replacement of the VA 42 Business bridge over Cooks Creek in Dayton is not yet funded.

**Map 3-16** shows the bridges in the MPO region according to their 2021 ratings.

Map 3-16: HRMPO 2021 Bridge Condition Ratings



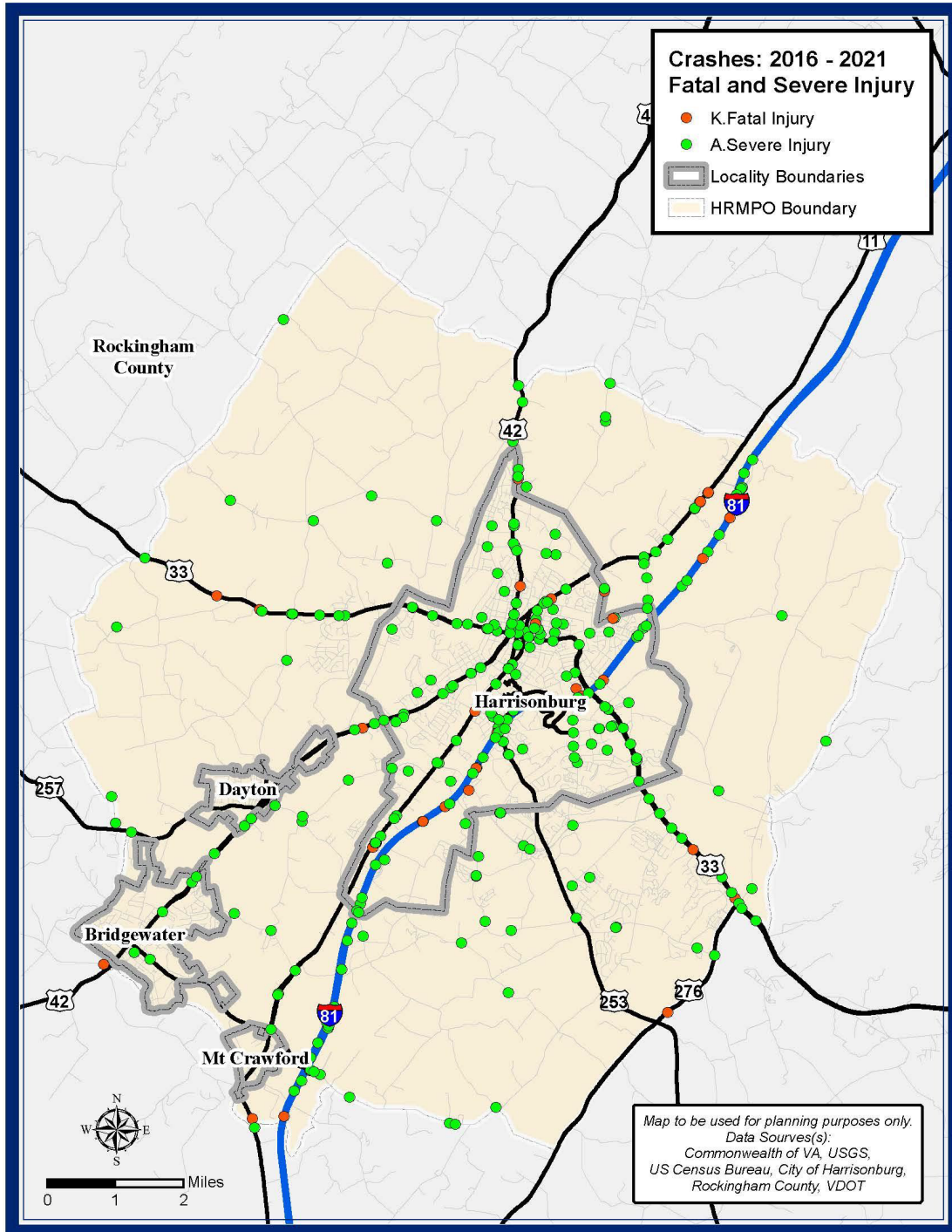
## Safety

The number of crashes involving pedestrians, cyclists, and motorists is an indicator of the safety of the roadways and intersections in the HRMPO. Crash data specifying the type, location, and severity of the crashes can be used to identify the corridors and intersections in need of further study and improvements. More in depth examination of safety needs in the HRMPO is found in Chapter 4.

Crashes between 2016 and 2021 in **Map 3-17** show fatal and severe injuries from vehicular crashes clustered along the interstate, and major and minor arterial roads. The minor arterial roads in the MPO that have a large number of severe crashes have been the subject of small area studies to identify operational movements to address the crashes.

There have been several small area studies carried out since the HRMPO's 2040 LRTP Update. In 2017 the MPO conducted a small area study on Bridgewater's Main Street. In 2018, a small area study was conducted at the intersection of VA-42 and Garbers Church Road, and along portions of Market Street (US-33). 2019 and 2020 also had small area studies, with the Port Republic Road Safety and Operations Study in 2019, and the Mt. Crawford Park and Ride Lot Improvements and the Downtown Harrisonburg Operations Study in 2020.

Map 3-17: Crashes 2016-2021



# Chapter 4 : Multi-Modal Transportation Needs

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## Introduction

This chapter describes the identification of transportation needs for the HRMPO region. Transportation needs are the gap between existing deficiencies and the 2045 vision for the region. During the 2045 update, the LRTP working group identified needs based on data on system performance and public input from Phases 1 and 2.

This chapter addresses:

- 4 – 1 Network Operating Deficiencies
- 4 – 2 Transit, Bicycle and Pedestrian, and Transportation Demand Management Need
- 4 – 3 Potential Future Studies
- 4 – 4 Emerging Technologies – Electric Vehicle Charging Infrastructure

## 4 – 1 Network Operating Deficiencies

### Capacity Needs and the Travel Demand Model

A travel demand model is a computer-based forecasting tool used to estimate travel behavior and travel demand on the transportation network on a large scale given a set of regional land use and transportation related assumptions. The HRMPO model inputs were calibrated to local traffic data, sociodemographic factors, travel behavior (such as the amount of travel and mode of transportation chosen), and other variables for the 2015 base year and 2045 plan year.

#### *2015 Network*

The 2015 base year scenario results from the travel demand model identified roadway segments that are over capacity, or with a Volume to Capacity (V/C) ratio greater than one (1). A V/C ratio greater than or equal to 1 indicates that the roadway is carrying a daily volume of traffic that equals or exceeds its daily capacity (see **Table 4-1**).

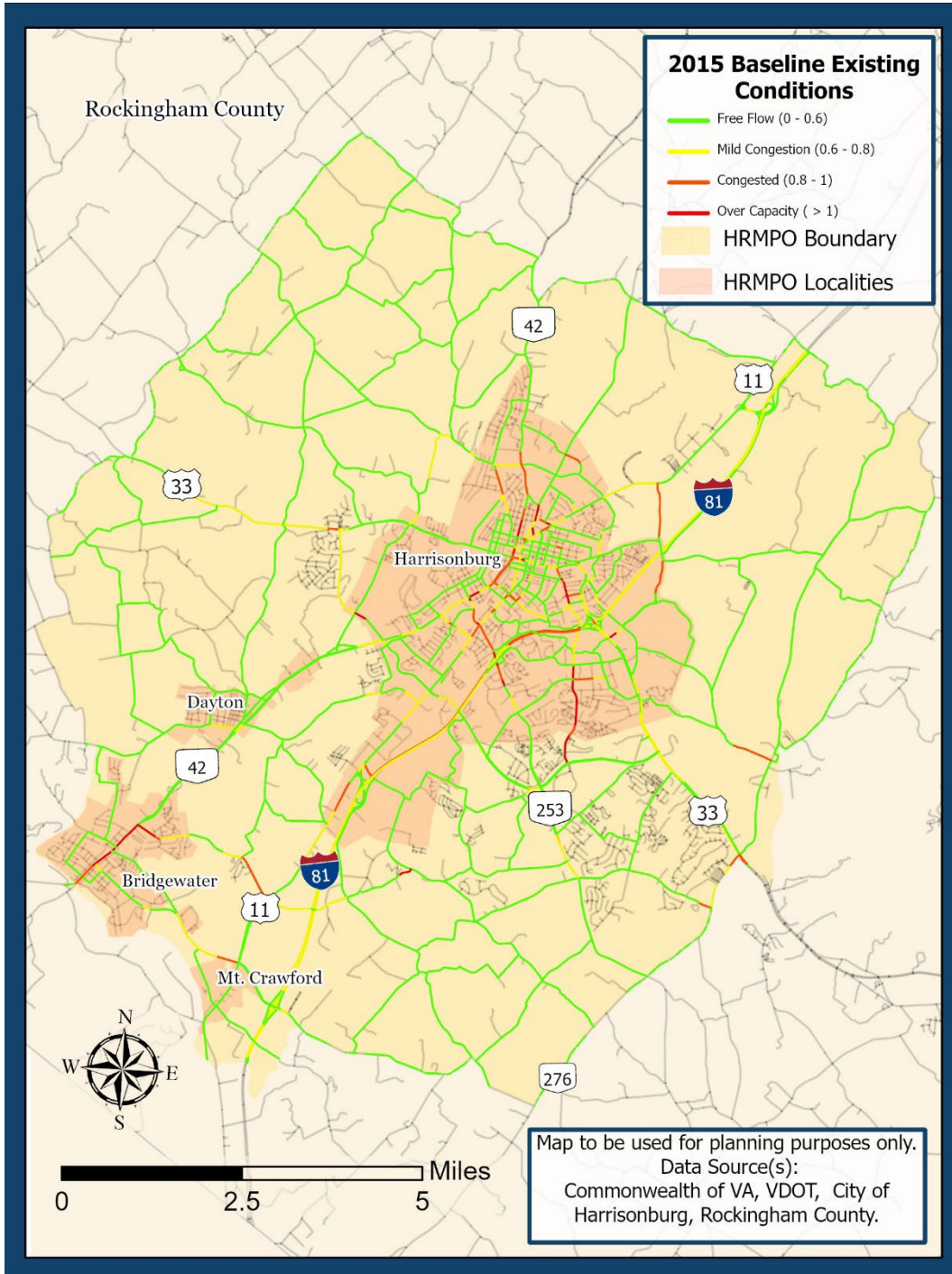


Table 4-1: Corridors Over Capacity in 2015

City of Harrisonburg	
Location	Functional Classification
Reservoir St. between University Blvd and Stone Spring Rd.	Major Collector
Reservoir St. between Martin Luther King, Jr. Way and Myers Ave.	Major Collector
Port Republic Road from Neff Ave. to Crawford Ave.	Minor Arterial
Maryland Ave. from the crossing over Blacks Run to S. Main St.	Major Collector
Maryland Ave. from Central Ave. to S. High St.	Major Collector
S. High St. from Maryland Ave. to Ohio Ave.	Minor Arterial
S. High St. from W. Grace St. to W. Bruce St.	Minor Arterial
S. High St. from W. Water St. to W. Wolfe St.	Minor Arterial
N. High St. from W. Gay St. to 5 <sup>th</sup> St.	Minor Arterial
Edom Rd. from Virginia Ave. to N. Liberty St.	Minor Arterial
N. Liberty St. from Edom Rd. to Kratzer Ave.	Minor Arterial
Kratzer Ave. from N. Liberty St. to N. Main St.	Local
Washington St. from Jefferson St. to N. Main St.	Major Collector
W. Market St. from N. High St. to Court Sq.	Major Collector
E. Wolfe St. from Sterling St. to Hill St.	Major Collector
Linda Ln. from US-33 to Country Club Rd.	Major Collector
Erickson Ave. from Garbers Church Rd. to .3 miles East of Garbers Church Rd.	Major Collector
Town of Bridgewater	
Location	Functional Classification
N. Main St. from W. Bank St. to Oakwood Dr.	Major Collector
Oakwood Dr. from N. Main St. to Chesters Way	Minor Collector
Dry River Rd. from S. SandStone Ln. to N. River Rd.	Major Collector

Map 4-1 illustrates the estimated Volume to Capacity ratio for the 2015 network.

Map 4-1 : 2015 Baseline Volume to Capacity



**2045 Existing + Committed Network**

To understand future capacity needs, the LRTP Working Group, made up of HRMPO staff and members of the HRMPO Technical Advisory Committee, developed 2045 socio-economic and employment data and assigned it to specific areas of the MPO based on where growth is expected to occur. Assigning projected growth to specific zones allows the model to estimate where people will live and work, and daily trip generation.

The 2045 transportation network includes existing facilities and projects for which funding is currently committed and a construction start date tentatively identified. This future year “Existing + Committed” scenario identifies system-wide capacity issues and specific over-capacity corridors in a scenario where population and job growth continues as projected, but no capacity-adding projects other than what is currently funded are built in the next 25 years.

The 2045 Existing + Committed scenario shows an increase in segments operating at or over capacity compared to 2015. The segments projected to be over capacity in the HRMPO by 2045 include:

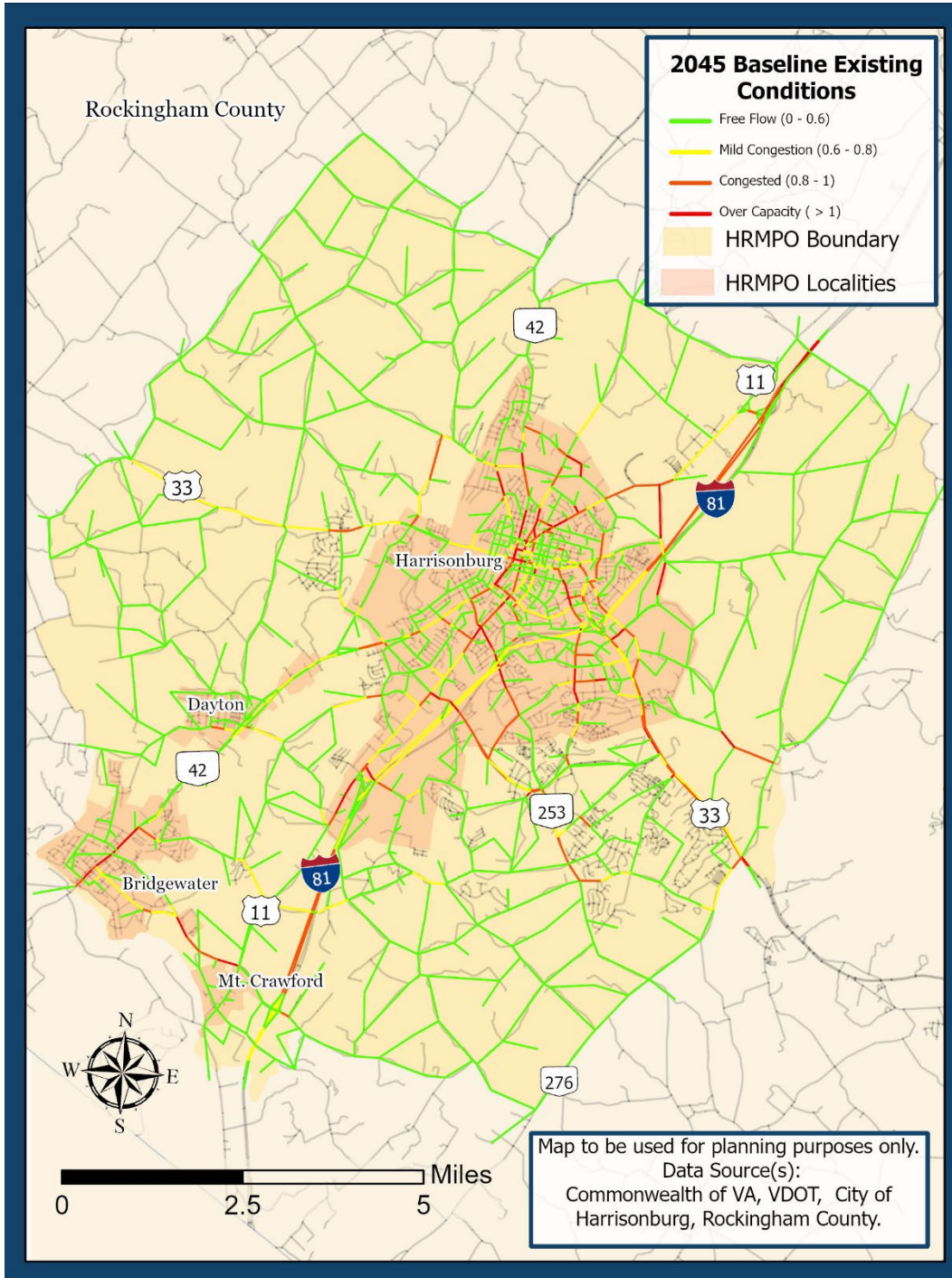
*Table 4-2: Corridors Over Capacity in 2045*

Rockingham County	
Location	Functional Classification
Massanetta Springs Rd. from Forest Oaks Ln. to US-33	Major Collector
I-81 North from Exit 251 to the MPO boundary	Interstate
Smithland Rd. from Old Furnace Rd. to N Valley Pike	Minor Arterial
E Market St. from Harrisonburg City Line to Stone Spring Rd.	Principal Arterial
Port Republic Rd. from Boyers Rd. to Osceola Springs Rd.	Minor Arterial
Keezletown Rd. from 2155 State Rte 925 to Betts Rd.	Major Collector
Ridgedale Rd. from M and N Dr. to Stone Spring Rd.	Minor Arterial
Cecil Wampler Rd. from I-81 to US-11	Major Collector
Dinkel Ave. from Mt. Crawford Ave. to Old Bridgewater Rd.	Minor Arterial
Dinkel Ave. from the Western Mt. Crawford town limit to US-11	Minor Arterial
City of Harrisonburg	
Location	Functional Classification
Linda Ln. from US-33 to Country Club Rd.	Major Collector
Port Republic Rd. from US-11 to Devon Ln.	Minor Arterial
Reservoir St. from University Blvd. to Foley Rd.	Major Collector
Reservoir St. bridge crossing I-81	Major Collector
Country Club Rd. from Linda Ln. to Spotswood Homes TLPK	Major Collector
Maryland Ave. from the railroad tracks to the intersection with US-11	Major Collector

US-11 from Edgelawn Dr. to the intersection with Port Republic Rd.	Major Arterial
Stone Spring Rd. from US-11 to the bridge over the railroad tracks	Minor Arterial
Stone Spring Rd. from Berry Rd. to the bridge over I-81	Minor Arterial
Neff Ave. from Reservoir St. to Evelyn Byrd Ave.	Major Collector
University Blvd. at the intersection with US-33	Minor Arterial
US-33 from Evelyn Byrd Ave. to Betts Ct.	Principal Arterial
US-11 from Corporate Dr. to the On-Ramp for I-81 North	Major Arterial
Off-Ramp for I-81 South at exit 243 to US-11	Local
Pleasant Valley Rd. from US-11 to Early Rd.	Minor Arterial
US-11 from JMU's Quad to MLK Jr. Way	Major Arterial
W. Grace St. from Walnut Ln. to US-11	Major Collector
N. Liberty St. from W. Water St. to W. Bruce St.	Minor Arterial
S. Mason St. from E. Water St. to E. Bruce St.	Major Collector
Reservoir St. from Myers Ave. to MLK Jr. Way	Major Collector
Intersection of S. and N. Carlton Streets and US-33	Major Collector
Country Club Rd. from Vine St. to N. Carlton St.	Major Collector
Vine St. from US-33 to Country Club Rd.	Local
E. Wolfe St. From Sterling St. to Hill St.	Major Collector
Old Furnace Rd. From US-33 to Tower St.	Major Collector
Vine St. from Old Furnace Rd. to E. Washington St.	Local
<b>Town of Bridgewater</b>	
Location	Functional Classification
N. Main St. from W. Bank St. to Oakwood Dr.	Major Arterial
Oakwood Dr. from N. Main St. to Chesters Way	Minor Collector

Map 4-2 illustrates the estimated Volume to Capacity ratio for the 2045 network.

Map 4-2: Volume to Capacity for 2045 Existing + Committed Scenario



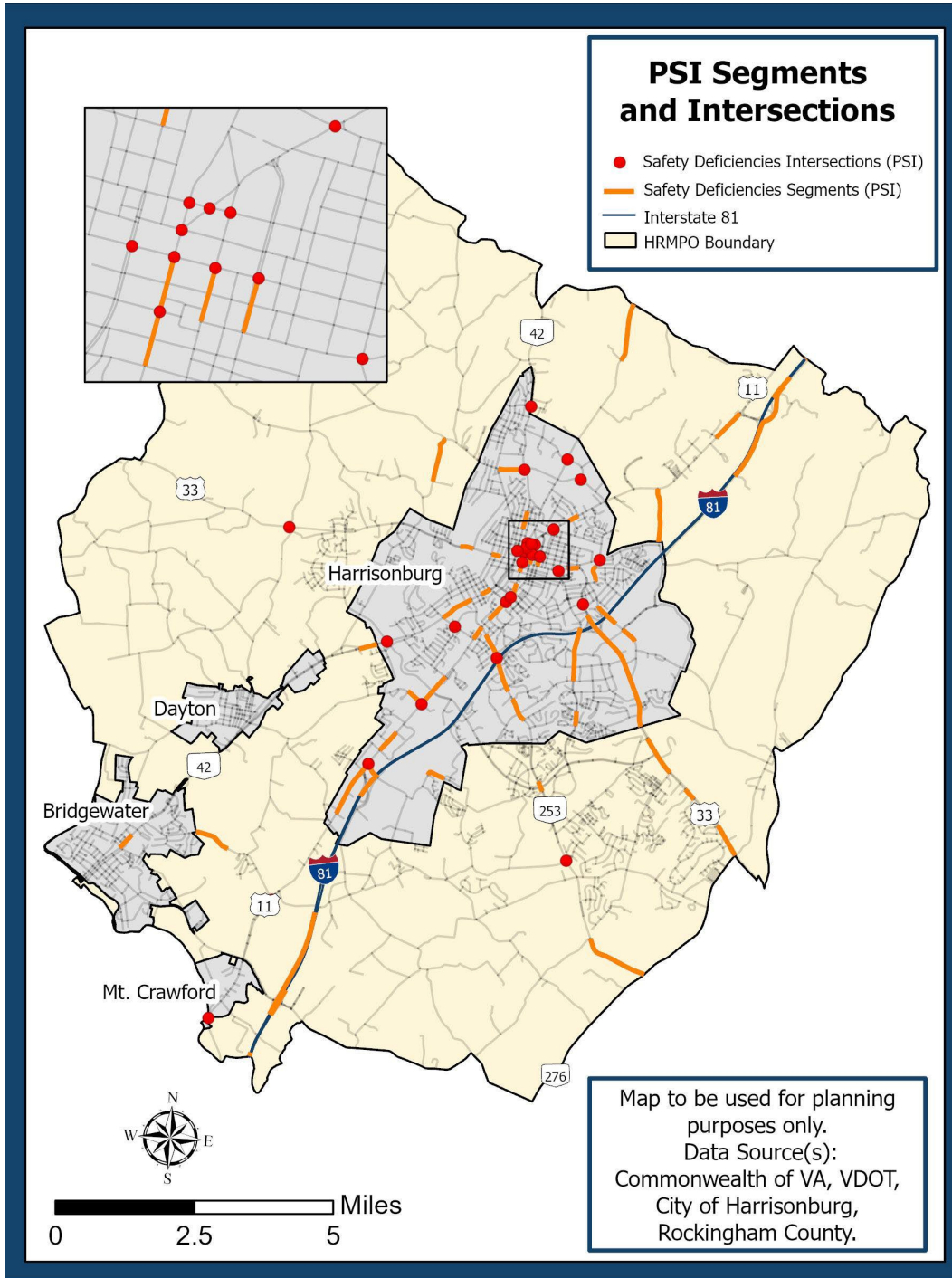
## Safety

Safety deficiencies were identified through VTRANS, the statewide transportation plan. The plan considers serious injury and fatal crash sites between 2016 and 2020, as well as the top 100 intersections and corridors based on Potential for Safety Improvement (PSI). PSI is a VDOT methodology for screening safety hot spots. It compares the predicted crash rate for the roadway type and volume to the actual number of all crashes to identify intersections and segments with the highest need for engineering and operational improvements.

Of the top 171 crash intersections and top 351 segments in the VDOT Staunton Construction District, 28 of the intersections and 71 of the segments are located in the HRMPO, including the second worst segment in the VDOT Staunton District located along Reservoir Street. The intersection with the highest PSI score in the MPO is West Market Street and Liberty Street. PSI intersections and segments are shown in **Map 4-3**. Fatalities and serious injuries from vehicle and pedestrian crashes are increasing in the HRMPO area. Between 2018 and 2022 there were 219 total crashes resulting in fatal (28 crashes) or severe injury (191 crashes). The year with the most crashes was 2021 with 62 crashes, accounting for 28% of all crashes resulting in death or severe injury for the MPO between 2018 and 2022. Of the 219 total crashes resulting in death or severe injury, 24 (11%) were pedestrian crashes.

When examining the increased crash trend in 2021, it is important to keep in mind that 2021 was the second year of the COVID-19 pandemic. The COVID-19 pandemic saw an increase in national and statewide crashes. We will need the benefit of hindsight to further investigate the increased crash trends and how the global pandemic has influenced traffic safety.

Map 4-3: Top PSI Intersections and Segments in the HRMPO



## 4 – 2 Transit, Bicycle and Pedestrian, and Transportation Demand Management Needs

Planning for a multimodal transportation system requires consideration of needs related to public transit, bicycle and pedestrian facilities, and physical infrastructure such as Park and Ride lots to support Transportation Demand Management (TDM) programs like ridesharing and other commuter services.

Transit, bicycle/pedestrian and TDM needs and projects are addressed comprehensively in other local and regional planning documents. A summary of those needs is included here.

### Transit Needs

The HDPT is in the process of creating its first Transit Strategic Plan, due in 2024, to replace the agency's 2017 TDP. The 2017 TDP identifies the following MPO-area transit needs:

- Service to university students and transit-dependent populations will continue to be a primary need within the HRMPO area in order to maintain circulation on and around the JMU campus, and to provide access to jobs; however, job access needs in the County are not currently being met with fixed route transit service.
- Service to Rockingham County and the Towns of Dayton, Bridgewater and Mt. Crawford with populations continuing to age. With an aging population comes new mobility needs, including paratransit service beyond the City limits.
- With continued residential growth in the County, especially southeast of the City of Harrisonburg, there is and will continue to be a need for transit service for work and personal trips, especially along corridors such as Port Republic Road and Spotswood Trail, which currently experience some capacity issues that will also be prevalent in the year 2045.
- Rider service needs related to expanded hours of service, on-time performance, frequency, and neighborhoods served by HDPT.



In addition to the needs identified, HDPT's TDP outlined the following six goals for the HDPT (see **Table 4-3**).

*Table 4-3: HDPT TDP Goals*

HDPT TDP Goals	
Goal 1	Strategic Investment to Provide Connectivity and Accessibility Throughout the HRMPO Area
Goal 2	Optimize Utilization of Existing Infrastructure for the Safe and Efficient Movement of People and Goods
Goal 3	Accommodate User Mobility without the Use of Automobiles
Goal 4	Provide a Range of Mobility Options
Goal 5	Provide a Connection Between Land Use and Transportation Decisions
Goal 6	Enhance the Quality of Life for All Residents

To meet the TDP goals and address rider needs, HDPT is advancing two major initiatives in the coming five years: microtransit service and construction of a new multimodal transportation hub.

Microtransit is a cost-effective way to increase hours of service, and would provide HDPT with the ability to offer on-demand scheduling and the smaller sized vehicles. Building a microtransit fleet is more cost effective than purchasing full-sized buses, which have long lead times.

Building a Multimodal Transfer Hub in Harrisonburg will serve riders by providing a centralized location for transfers between buses, microtransit, and other modes, including walking, bicycling, intercity bus service, as well as Park and Ride spaces. Transfer Hubs can spur economic development around them as places of high commercial activity and turnover.

A key goal of transit is to increase access to jobs throughout the localities it serves. Having a robust transit system that can move the workforce throughout the MPO enhances efforts for equity within the MPO and serves the goals outlined in HDPT's TDP.

### Bicycle and Pedestrian Needs

The 2016 HRMPO Bicycle and Pedestrian Plan identifies a comprehensive list of regional non-automobile transportation needs and specific projects, while the City of Harrisonburg and Rockingham County each have their own Bicycle and Pedestrian Plans that address municipality-specific needs in greater detail. Bicycle and pedestrian needs in the 2045 LRTP are drawn directly from the 2016 HRMPO Bicycle and Pedestrian Plan, the Statewide Pedestrian Safety Action Plan, and public input from Phases 1 and 2. The

HRMPO Bicycle and Pedestrian Plan is available on the [HRMPO website](#)<sup>9</sup>, and is incorporated here by reference.

The highest priority needs and associated projects from the 2016 HRMPO Bicycle and Pedestrian Plan are:

- Connections from communities west of Harrisonburg to major corridors within the City
- Connections along or adjacent to the US 33 Corridor from downtown Harrisonburg to the eastern HRMPO boundary
- Development of the Cooks Creek and Blacks Run Greenway Trails from the Belmont neighborhood through Dayton and Bridgewater and along Blacks Run to connect to the Bluestone Trail
- Connections along US 11 north of downtown Harrisonburg to the Research Park

**Bike and Pedestrian Gaps**

The MPO partnered with planning and design firm Kimley-Horn to conduct analysis of safety gaps, congestion and/or freight gaps, transit gaps, and bicycle and/or pedestrian gaps. The results of the gap analysis from Kimley-Horn identified the safety, congestion/freight, transit, and bicycle/pedestrian needs that are not addressed by the projects in the draft Universe of Projects. More information about the draft Universe of Projects can be found on page 6-4.

Kimley-Horn utilized results from Phase 1 public input mapping, and deficiencies identified from GIS data provided by VDOT and the CSPDC. GIS data compared to Phase 1 public input included the top 100 statewide segments and intersections in the PSI and Highway Safety Improvement Program (HSIP); the top 1% and 5% of statewide and district specific segments; statewide bicycle and pedestrian crash locations from the Pedestrian Safety Action Plan (PSAP); a list of Potential Projects for the 2045 LRTP; comments from the 2045 LRTP Public Survey; and the location of distribution centers, freight generators, and roadways with greater than 7% truck volume.

The bicycle and pedestrian portion of the gap analysis determined two roadways that lacked both sufficient pedestrian or bicycle facilities and did not already have a project to address them. These two gap locations (see **Table 4-4**) are High Street from Erickson Avenue to Hidden Creek Lane, and Neff Avenue from Reservoir Street to Valley Mall.

*Table 4-4: Bike and Pedestrian Gap Locations*

Bicycle and Pedestrian Gaps	
High Street	Erickson Avenue to Hidden Creek Lane
Neff Avenue	Reservoir Street to Valley Mall

<sup>9</sup> <http://www.hrvampo.org/bicycle-pedestrian-program>

## 4 – 3 Potential Future Studies

HRMPO staff screened potential LRTP projects to determine if they meet a VTrans Need and a Regional Need related to safety, congestion, bike and pedestrian connectivity, or freight access. Projects that met a need, but lack a defined scope of work from a recent study or plan, were documented on a “future studies” list and map, both included in **Appendix D**. This list of potential future studies acknowledges roadway segments that the Travel Demand Model identifies as being over capacity in 2045, or other deficiencies related to safety, freight access and non-motorized networks.

HRMPO, its member jurisdictions and VDOT will use this list to fund studies and advance capacity solutions for the region that are context-sensitive and cost-effective. This list represents opportunities for the HRMPO, state agencies or localities to evaluate potential solutions select those with demonstrated benefits, cost effectiveness, and public support.

**Chapter 7** details projects that meet regional needs and have a defined scope.

## 4 – 4 Climate Mitigation Needs and Strategies

The transportation sector contributes 26% of all greenhouse gas emissions in the United States. Reducing emissions is a priority for the nation and a critical goal of the Bipartisan Infrastructure Law (BIL) through multiple funding programs. The HRMPO addresses carbon emissions reduction through travel demand management and prioritizing multi-modal infrastructure, but there are many other strategies that the region can pursue toward the goal of greater environmental sustainability, including:

### Efficiency & Alternative Fuels:

- Alternative fueling/charging infrastructure
- Truck stop electrification
- Diesel engine retrofits
- Energy efficient lighting and traffic control devices

### Congestion Mitigation

- Intelligent transportation systems
- Traffic flow improvements

### Low Emissions Construction

- Zero-emission construction equipment and vehicles
- Sustainable pavements and construction materials

These strategies are eligible for funding through the BIL's [Carbon Reduction Program](#), which funds state Department of Transportation activities, but which can also guide local and regional carbon reduction planning and implementation activities.

Specific needs for the HRMPO region in addition to expanding bicycle and pedestrian networks and transit service focus on additional park and ride facilities and building out a regional Electric Vehicle (EV) charging network.

## Transportation Demand Management Needs

TDM provides carpool, vanpool or transit trip facilities and services for longer distance commuters. DRPT encourages strategic TDM planning by requiring agencies operating a Commuter Assistance Program (CAP) to develop a Commuter Assistance Program Strategic Plan (CAPSP). The CSPDC's CAP is developing a strategic plan to identify regional TDM needs for RideShare, Park and Ride lots, and other TDM services, and the plan is anticipated to be adopted in 2024. The needs identified in the CAPSP should be considered in future HRMPO TDM planning efforts.

### *Park and Ride Lots*

An important component of TDM services is a system of safe and convenient Park and Ride lots throughout the region that facilitate carpooling and inter-regional transit routes.

Although there are six Park and Ride lots in Rockingham County, only one is in the MPO, just outside of Mount Crawford. The Mount Crawford Park and Ride serves the southern HRMPO area, but no Park and Ride facilities exist in the City of Harrisonburg to serve JMU or the northern HRMPO area. Utilization and demand for the Mt. Crawford Park and Ride lot is consistently high, and demand could grow with proposed development in the area, even after the funded improvements to the lot are completed in 2026.

As demand for Park and Ride options continues, it is important to consider how a Park and Ride lot could benefit Rockingham County's Urban Development Area along US 33. Knowing growth will be concentrated in a specific area, strategic location of a lot could provide transportation options and access to greater number of opportunities across the county. It is also important to consider how the location of future Park and Ride lots can be used to increase accessibility to intra-regional transit such as the Virginia Breeze.

In addition to considerations about Park and Ride lot locations any future Park and Ride lots in the HRMPO should carefully consider their lighting and landscape design to provide a environmentally responsible and safe lot. Park and Ride lots should balance providing adequate lighting with the importance of decreasing light pollution. Park and Ride lots should also consider providing facilities for alternative fuel connections such as EV charging stations to further encourage emission reduction vehicles.

Carpool participants and transit riders need access to safe and convenient Park and Ride lots across the MPO. Having additional Park and Ride lots in the northern and southeastern portions of Harrisonburg is critical to supporting inter-city transit, carpooling, and other commuting alternatives throughout the MPO.

### Electric Vehicle Charging Infrastructure

The FHWA created the National Electric Vehicle Infrastructure (NEVI) Program through the 2021 Bipartisan Infrastructure Bill (BIL) to address the growing demand for EVs and encourage EV charging infrastructure development. NEVI required states to develop statewide charging station plans to become eligible for federal EV charging funding.

The FHWA approved Virginia's statewide EV plan in September 2022. Over a 5-year period, the Virginia NEVI program will provide \$100 million for the installation and upgrade of publicly accessible direct current fast chargers. The direct current fast chargers must be 1 mile from the interstate in 50 mile intervals, have 4 ports with 150 kW per port, have enough power to host the charging stations, and have on-site distributed energy resources. The program funds up to five years of EV charging station operations and maintenance, and requires third parties to acquire, own, install, operate, and maintain the charging stations, while providing a 20% match on the NEVI grant funds.

The HRMPO currently does not have a public direct current fast (DCFast) charging station, however there is a single paid Tesla DCFast Station and many level 2 charging stations available throughout the MPO including 2 free chargers in Bridgewater and 10 in Harrisonburg. As Virginia continues to build out its EV charging infrastructure, the HRMPO region will need to evaluate site feasibility of hosting charging stations both in the localities and county. Evaluating a potential site's existing electric grid capacity,

potential user base, and location will be valuable to developing a larger network of EV charging stations throughout the state and the HRMPO. Continuing to monitor funding assistance for competitive grant programs and considering future strategies to incorporate EV charging infrastructure into local ordinances will be critical as the HRMPO works to address the growing demand for EV charging facilities.

# Chapter 5 : Revenue and Cost Analysis

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## Introduction

This chapter explains the methodology for developing project cost estimates and revenue projections. Since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991, MPOs have been required to demonstrate that estimated project costs do not exceed projected revenues. This federal requirement is complicated by Virginia's adoption of a performance-based funding process through the SMART SCALE program. Despite this challenge, the LRTP includes a financial plan that estimates revenues for identified transportation improvements.

The HRMPO region has transportation needs that exceed revenue projections. Unfunded projects included on the Vision List (see **Appendix C**) could be added to the fiscally-constrained project list pending new additional funding.

This chapter addresses:

5-1 Project Cost Estimate Development

5-2 Funding Sources

5-3 Anticipated Revenues

## 5 – 1 Project Cost Estimates

HRMPO and VDOT staff developed planning level cost estimates for projects in the HRMPO Constrained and Vision Lists using VDOT's Statewide Planning Level Cost Estimating System tool. This tool provides a high-level estimate based on the type of facility being constructed/reconstructed, and includes an overall percentage for Preliminary Engineering (PE) costs. Right of way (ROW) costs are also included based upon an overall percentage of project cost.

## 5 – 2 Funding Sources

Transportation funding is available through federal, state, and local government entities for roadway, bike and pedestrian, and transit projects.

### Surface Transportation: Federal Funds

The 2021 Bipartisan Infrastructure Bill (BIL), which funded and reauthorized federal transportation funding, funds the following four major surface transportation programs.

#### *National Highway Performance Program (NHPP)*

MAP-21 and the FAST Act expanded the National Highway System (NHS) to include principal arterial roadways that were not originally part of the NHS. The Enhanced National Highway System comprises the interstate system, all principal arterials, and bridges on the NHS. The NHPP provides funding for improving highway, bicycle and pedestrian facilities, bus terminals, bridges, environmental restoration, and intelligent transportation system (ITS) servicing the NHS.

#### *Surface Transportation Program (STP)*

Projects eligible for funding include construction, reconstruction, or operational improvement for highways and local access roads; bridge projects on public roads and construction of bridges on federal-aid highways; highway and transit safety infrastructure improvements; bicycle and pedestrian infrastructure including recreational trails; and environmental restoration.

#### *Highway Safety Improvement Program (HSIP)*

The HSIP allocates funds to reduce traffic fatalities and injuries on public roads. Eligible projects for this funding include public surface transportation projects or projects that align with the State Strategic Highway Safety Plan (SHSP) to mitigate hazardous roads or resolve highway safety challenges.

#### *Transportation Alternatives (TAP) Program*

MAP-21 created and the BIL maintained the Transportation Alternatives Program to encompass preceding programs including Transportation Enhancements, Safe Routes to School, and Recreational Trails. Projects eligible for this funding are focused on improving on- and off-road non-motorized transportation.

#### *Surface Transportation: State Funding*

Virginia matches federally funded programs with state gas tax revenues along with maintenance programs received by urban localities by means of a formula-based system. The Commonwealth also supports a Revenue Sharing (RS) program where local funds are matched 50/50. Eligible projects must be identified in local Capital Improvement Programs (CIPs) or adopted Comprehensive Plans to be eligible for RS.

#### *Surface Transportation: Local Funding*

Localities fund transportation projects primarily through general obligation bonds and general funds. Bond funds dedicate funding for long-term capital roadway projects. Local funding is also used to match federal and state funding sources. Local funding commitments are not accounted for in the LRTP.



## Public Transportation: Federal Funding

### *Urbanized Area Formula Program (FTA Section 5307)*

Section 5307 is a formula-based grant program that is available to designated public bodies to address transit capital improvements, operating, and planning assistance for mass transit services. Section 5307 covers a wide-range of eligible activities from bus replacement to constructing maintenance facilities.

### *FTA Section 5339*

Section 5339 provides funding to states and transit agencies through a statutory formula to replace, rehabilitate and purchase buses and related equipment and to construct bus-related facilities.

## Local Transit Funds

The City of Harrisonburg and JMU contribute to the local transit system. Transit fares between general ridership and paratransit ridership contribute approximately \$115,000 in revenue to the transit system annually. James Madison University contributes approximately \$1.5 million annually.

## Transportation for Elderly Persons and Persons with Disabilities (Section 5310)

This program provides formula funding to States and other eligible recipients including non-profit organizations and governmental authorities to assist non-profit groups assisting the transportation needs of the elderly and persons with disabilities when the transportation services are unavailable or insufficient.

Funds are obligated based on the annual program of projects included in a DRPT statewide grant application. Funding is apportioned by formula based upon the number of elderly persons and persons with disabilities in each state according to the latest U.S. Census data.

## 5 – 3 Projected Revenues

### Highway Revenues

The federal transportation planning process requires projected revenues to ensure that investments are based on realistic anticipated revenues. Revenue projections are high-level, and are based on VDOT's four primary funding sources – sales tax on motor fuels, motor vehicles sales and use tax, motor vehicle license fee, and state sales and use tax. Projections do not consider any combination of private funding such as proffers or Public Private Partnerships (P3s). The MPO defers to the respective jurisdictions to work with the development community and VDOT on these financing options.

VDOT provided projected revenues based on planning assumptions for past revenue trends for localities and similar-sized MPOs, the I-81 Improvement Program funding, discretionary programs receiving at least \$1 million annually, and no Bipartisan Infrastructure Bill (BIL) funding impact.

The HRMPO is projected to receive \$359,089,907 million for surface transportation projects between 2023 and 2045 for I-81 Improvements, SMART SCALE funding, other discretionary programs (TAP, HSIP, RS), and State of Good Repair. The HRMPO is projected to receive over \$1.3 billion in assistance when including local and state maintenance figures (see **Table 5-1**). SYIP allocations for 2023 - 2028 on active projects are also included in Table 1 below to reflect the total value of investments being made in the HRMPO during the planning period. The full projection table is provided in **Appendix D**.

*Table 5-1 Projected Total Highway Revenues, 2023 - 2045*

Anticipated Revenues Category	Prior SYIP Allocations (2023 – 2028)*	Projected Revenues	Totals
Interstate 81 Improvement Program*	\$215,562,000	\$0.00	<b>\$215,562,000</b>
SMART SCALE Funding Prioritization Programs (District Grant Program and High Priority Projects Program)	\$45,139,000	\$111,829,352	<b>\$156,968,352</b>
Other Discretionary Programs (TAP, HSIP, RS)	\$18,099,000	\$20,000,000	<b>\$38,099,000</b>
State of Good Repair	\$23,862,000	\$68,703,624	<b>\$92,057,566</b>
Maintenance – Localities	\$38,908,035	\$158,149,532	\$197,057,566
Maintenance – VDOT	\$139,124,327	\$512,018,289	<b>\$651,142,616</b>
*I-81 Improvement Program Funding allocated for years 2023-2028		<b>Total</b>	<b>\$1,351,395,158</b>

### Transit Revenues

HDPT's revenue is derived from federal, state, local contributions, and from James Madison University and local fares. HDPT is creating a new Transit Strategic Plan for 2024, but based on the 2018 TDP, HDPT's budget comprises 26% federal, 18% state, 31% local, 21% JMU, and 4% fares. Before the COVID-19 pandemic, the HDPT system offset federal and state operating fund requests with fare revenues, which were \$1.00 each way. Bus fares were suspended in Spring of 2020 and as of April 2023, they have not been reinstated.

Based on HDPT's FY 2022 actual budget allocations of FTA 5307 and 5339, and a projected 3% increase annual allocation increase based on past funding trends, HDPT is projected to receive over \$162 million between 2023 and 2045 in revenues (see **Table 5-2**).

*Table 5-2: Estimated Annual Federal Transit Revenues, 2021-2045*

Estimated Annual Federal Transit Revenues			
	FTA 5307/5340	FTA 5339	Total
FY 2022	\$3,797,790	\$928,820	<b>\$4,726,610</b>
FY 2023	\$3,911,723.70	\$956,684.42	<b>\$4,868,408</b>
FY 2024	\$4,029,075.41	\$985,384.95	<b>\$5,014,460</b>
FY 2025	\$4,149,947.67	\$1,014,946.50	<b>\$5,164,894</b>
FY 2026	\$4,274,446.10	\$1,045,394.89	<b>\$5,319,841</b>
FY 2027	\$4,402,679.49	\$1,076,756.74	<b>\$5,479,436</b>
FY 2028	\$4,534,759.87	\$1,109,059.44	<b>\$5,643,819</b>
FY 2029	\$4,670,802.67	\$1,142,331.22	<b>\$5,813,134</b>
FY 2030	\$4,810,926.75	\$1,176,601.16	<b>\$5,987,528</b>
FY 2031	\$4,955,254.55	\$1,211,899.20	<b>\$6,167,154</b>
FY 2032	\$5,103,912.19	\$1,248,256.17	<b>\$6,352,168</b>
FY 2033	\$5,257,029.55	\$1,285,703.86	<b>\$6,542,733</b>
FY 2034	\$5,414,740.44	\$1,324,274.97	<b>\$6,739,015</b>
FY 2035	\$5,577,182.65	\$1,364,003.22	<b>\$6,941,186</b>
FY 2036	\$5,744,498.13	\$1,404,923.32	<b>\$7,149,421</b>
FY 2037	\$5,916,833.08	\$1,447,071.02	<b>\$7,363,904</b>
FY 2038	\$6,094,338.07	\$1,490,483.15	<b>\$7,584,821</b>
FY 2039	\$6,277,168.21	\$1,535,197.64	<b>\$7,812,366</b>

Estimated Annual Federal Transit Revenues			
FY 2040	\$6,465,483.26	\$1,581,253.57	<b>\$8,046,737</b>
FY 2041	\$6,659,447.75	\$1,628,691.18	<b>\$8,288,139</b>
FY 2042	\$6,859,231.19	\$1,677,551.91	<b>\$8,536,783</b>
FY 2043	\$7,065,008.12	\$1,727,878.47	<b>\$8,792,887</b>
FY 2044	\$7,276,958.37	\$1,779,714.83	<b>\$9,056,673</b>
FY 2045	\$7,495,267.12	\$1,833,106.27	<b>\$9,328,373</b>
<b>Total</b>	<b>\$130,744,504</b>	<b>\$31,975,988</b>	<b>\$162,720,491</b>

DRPT provided operating and capital projections from 2024 to 2045 (see **Table 5-2**). FY24 - FY28 projections are from state revenue estimates. Amounts are calculated based on a three-year average (FY19-FY21) of HDPT's share of state revenue, and projections increase 2% annually from FY29 through FY45.

These amounts are subject to change based on HDPT's relative share of operating expenses, ridership, and other performance factors compared to the rest of the state transit entities.

*Table 5-3: Projected Total Transit Operating and Capital Revenues, 2024 - 2045*

Estimated Operating and Capital Revenues			
	Operating	Capital	Total
FY 2024	\$1,479,160	\$1,950,939	<b>\$3,430,098</b>
FY 2025	\$1,502,904	\$1,982,678	<b>\$3,485,581</b>
FY 2026	\$1,512,323	\$2,003,190	<b>\$3,515,513</b>
FY 2027	\$1,525,218	\$2,037,658	<b>\$3,562,877</b>
FY 2028	\$1,540,797	\$2,058,472	<b>\$3,599,270</b>
FY 2029	\$1,571,613	\$2,099,642	<b>\$3,671,255</b>
FY 2030	\$1,603,046	\$2,141,634	<b>\$3,744,680</b>
FY 2031	\$1,635,107	\$2,184,467	<b>\$3,819,574</b>
FY 2032	\$1,667,809	\$2,228,156	<b>\$3,895,965</b>
FY 2033	\$1,701,165	\$2,272,720	<b>\$3,973,884</b>
FY 2034	\$1,735,188	\$2,318,174	<b>\$4,053,362</b>
FY 2035	\$1,769,892	\$2,364,537	<b>\$4,134,429</b>

FY 2036	\$1,805,290	\$2,411,828	<b>\$4,217,118</b>
FY 2037	\$1,841,396	\$2,460,065	<b>\$4,301,460</b>
FY 2038	\$1,878,223	\$2,509,266	<b>\$4,387,489</b>
FY 2039	\$1,915,788	\$2,559,451	<b>\$4,475,239</b>
FY 2040	\$1,954,104	\$2,610,640	<b>\$4,564,744</b>
FY 2041	\$1,993,186	\$2,662,853	<b>\$4,656,039</b>
FY 2042	\$2,033,049	\$2,716,110	<b>\$4,749,160</b>
FY 2043	\$2,073,710	\$2,770,432	<b>\$4,844,143</b>
FY 2044	\$2,115,185	\$2,825,841	<b>\$4,941,026</b>
FY 2045	\$2,157,488	\$2,882,358	<b>\$5,039,846</b>
<b>Total</b>	<b>\$39,011,640</b>	<b>\$52,051,112</b>	<b>\$91,062,753</b>

# Chapter 6 : Performance-Based Programming and Project Evaluation

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## Introduction

The HRMPO project identification, screening, and evaluation process aligns with local, regional, state, and national transportation performance goals, and is based on objective, data-driven measures. The FHWA and FTA require that States and MPOs establish performance measures to integrate system-performance management into the transportation and transit planning process based on the passage of Moving Ahead for Progress in the 21st Century (MAP-21) in 2012. Transportation projects in Virginia must also meet statewide goals identified in VTrans.

This chapter addresses:

- 6 – 1 Performance-Based Programming
- 6 – 2 LRTP Goals
- 6 – 3 2045 Travel Demand Model
- 6 – 4 Universe of Projects List Development
- 6 – 5 Project Evaluation

## 6 – 1 Performance-Based Planning

Performance-based planning establishes performance measures to evaluate how transportation projects address needs and to inform investment decisions. MAP-21 outlines seven national performance goals to facilitate performance-based planning, which informed the Plan's goals and project evaluation metrics:

1. Safety - To achieve a significant reduction in traffic fatalities and serious injuries on all public roads
2. Infrastructure Condition - To maintain the highway infrastructure asset system in a state of good repair
3. Congestion Reduction - To achieve a significant reduction in congestion on the National Highway System
4. System Reliability - To improve the efficiency of the surface transportation system
5. Freight Movement and Economic Vitality - To improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development
6. Environmental Sustainability - To enhance the performance of the transportation system while protecting and enhancing the natural environment

- 7. Reduce Project Delivery Delays - To reduce project costs, promote jobs and the economy, and expedite the movement of people and goods by accelerating project completion through eliminating delays in the project development and delivery process, including reducing regulatory burdens and improving agencies' work practices.

Consistency with Other Planning Documents

In addition to the seven federal performance goals, the 2045 LRTP also considers transportation-related goals from state and local plans such as local comprehensive plans. Federal regulations require that the LRTP is consistent with the performance measures and implementation schedule included in the HRMPO's short-range planning document, the Transportation Improvement Plan (TIP). The HRMPO adopts a set of performance measures in coordination with VDOT and DRPT and documents the measures in the TIP appendices.

6 – 2 LRTP Goals

The LRTP goals provide a basis for evaluating transportation projects and reflect the priorities of the HRMPO jurisdictions. HRMPO staff and the LRTP Working Group reviewed the 2040 LRTP Goals in relation to current federal MAP-21 goals, statewide VTrans goals, SMART SCALE factors, and public input from LRTP Public Engagement Phase 1 to develop goals for the 2045 LRTP (see **Table 6-1**).

The 2045 LRTP goals align with both federal performance goals and statewide goals. VTrans (see **Chapter 4**) establishes goals to guide long-term statewide transportation planning and policy. The VTrans Mid-term Needs, which are organized around the VTrans goals, were released in 2019 and identify transportation needs over a 10-year period. Any potential transportation projects submitted to SMART SCALE must first meet VTrans 2045 need.

The 2045 LRTP goals informed the HRMPO Travel Demand Model (see **Chapter 4**) project screening process for the draft Universe of Projects list, and the project evaluation process. The Working Group, TAC, and Policy Board approved weights for each goal to determine how projects would be measured for project evaluation. The goal weights were based on public input from Public Engagement Phase 1 and locality needs (see **Section 6 – 5 Project Evaluation**).

Table 6-1: 2045 LRTP Goals in Relation to Federal and State Program Goals

HRMPO 2045 LRTP Goal	MAP-21	VTrans 2045	SMART SCALE
<b>Goal 1 – Safety</b> Increase the safety and security of the transportation system for all users.	Safety	Safety for all users	Safety
<b>Goal 2 – Accessibility</b> Provide an efficient, reliable transportation system for pedestrians, bicyclists and transit users, including traditionally underserved populations.	System Reliability	Accessible and Connected Places	Accessibility

HRMPO 2045 LRTP Goal	MAP-21	VTrans 2045	SMART SCALE
<p><b>Goal 3 – Economy</b></p> <p>Support and improve the economic vitality of the region by encouraging a transportation system that provides access to jobs, and education, and attracts businesses and entrepreneurs to the region. Ensure connectivity of the transportation system across modes for the transport of both people and goods.</p>	Freight Movement and Economic Vitality	Economic Competitiveness and Prosperity	Economic Development
<p><b>Goal 4 – Environment</b></p> <p>Improve quality of life by protecting and enhancing historic and natural resources, promoting energy conservation, maintaining air quality, and expanding regional recreation networks.</p>	Environmental Sustainability	Healthy Communities and Sustainable Transportation Communities	Environment
<p><b>Goal 5 – Land use coordination</b></p> <p>Encourage the coordination of land use and transportation planning for transportation improvements to support future growth.</p>	Reduce Project Delivery Delays	Proactive System Management	Land Use
<p><b>Goal 6 – Congestion Mitigation</b></p> <p>Maintain existing transportation systems and facilities and promote efficient system management.</p>	Infrastructure Condition, System Reliability, and Congestion	Proactive System Management	Congestion

### 6 – 3 2045 Travel Demand Model

HRMPO’s performance-based planning program used the Travel Demand Model and project evaluation based on the LRTP goals to screen and evaluate projects. The Existing + Committed scenario, also referred to as the “No Build” scenario, and the 2045 Volume to Capacity (V/C) ratio for the 2045 network, are described in **Chapter 4**. Roadway segments with a V/C ratio over 1 in the Existing + Committed Scenario were not advanced to the Universe of Projects due to the lack of evaluated solutions to the capacity issues. They are instead addressed through the list of Proposed Studies in **Chapter 4**.

HRMPO contracted with Kimley-Horn to score the Universe of Projects based on evaluation measures for each LRTP Goal Area: Safety, Accessibility, Land Use, Economy, Environment, and Congestion Mitigation. While Congestion Mitigation is an LRTP Goal Area, none of the projects in the Universe of Projects could be evaluated individually for congestion mitigation benefits via the Travel Demand Model. Kimley-Horn thus did not score projects on Congestion Mitigation benefits, and this goal is omitted from the project evaluation process (see **Section 6 – 5 Project Evaluation**).



## 6 – 4 Universe of Projects List

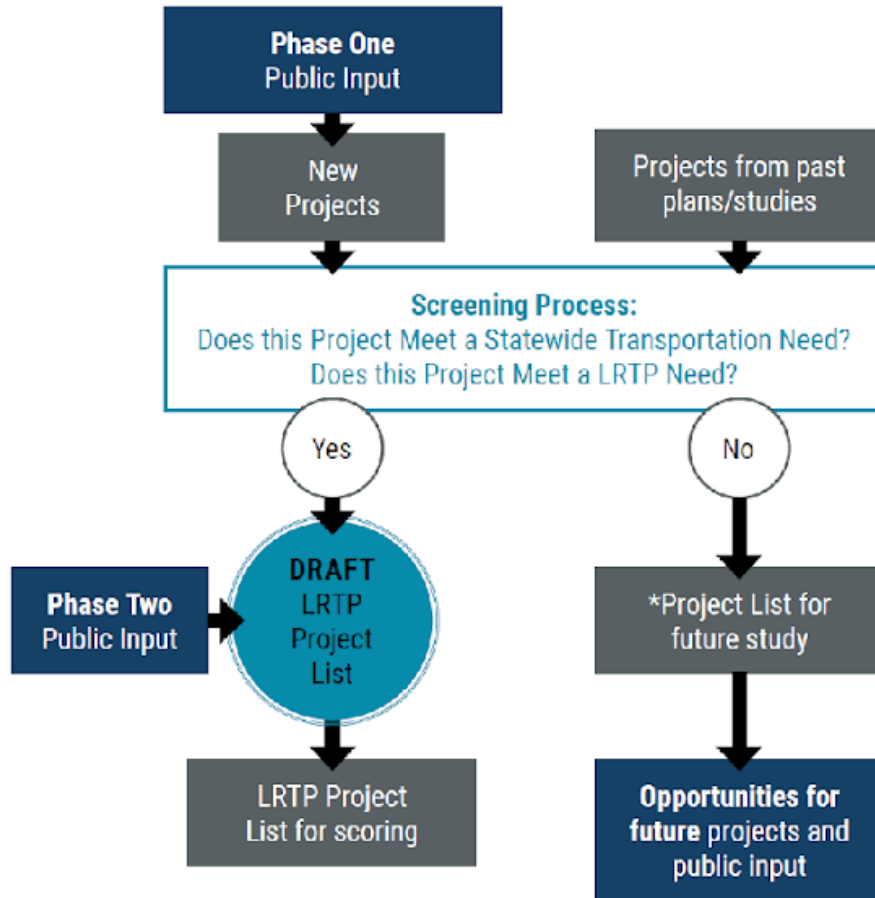
### Project Identification

The LRTP project identification and evaluation process established a methodology for identifying projects for inclusion and prioritization in the LRTP for the fiscally-constrained project list (CLRP) (see **Chapter 7**), the Vision (unfunded) project list (see **Appendix C**), and Projects for Future Study list (see **Chapter 4**). The framework was based on project identification, pre-screening, screening, and scoring to create a final LRTP project scoring list (see **Figure 6-1**) with an emphasis on providing the public with opportunities to review and provide comments on each identified project, and an objective, data-driven evaluation process.

The project list, referred to as the Universe of Projects list, was developed from the 2040 CLRP, regional transportation studies from the past 10 years, locality comprehensive plans, and Phase 1 public input.

The draft Universe of Projects also incorporated results from the HRMPO LRTP Gap Analysis (see **Chapter 4**), which identified safety, congestion and freight, transit, and bicycle and pedestrian needs that were not being addressed by the projects included in the initial draft Universe of Projects list. The LRTP Gap Analysis analyzed Phase 1 public engagement comments, and safety and congestion data to identify the additional needs, which resulted in two additional bicycle and pedestrian projects being added to the draft Universe of Projects list.

Figure 6-1: 2045 LRTP Universe of Projects Screening Process



\*list will guide the activities of HRMPO for the next five years.

**Project Screening Process**

The Working Group screened each project in the draft Universe of Projects list to determine whether a candidate project 1) met a VTrans need, and 2) aligned with 2045 LRTP Goals and addressed identified needs. LRTP needs were analyzed by evaluating safety needs at VDOT Potential for Safety Improvement and Pedestrian Safety Action Plan (PSAP) locations; capacity issues related to current or future Volume to Capacity ratio over 1 in the 2045 Travel Demand Model; geometric and capacity-related deficiencies for heavy vehicles accessing freight-intensive land uses; and locations from the Phase I Public Input Survey not addressed by other datasets.

Projects not meeting screening criteria, and not advancing to the Universe of Projects list, were placed on the concepts for Further Study list (see **Chapter 4**), which will be used to inform future HRMPO studies. A total of 19 different projects were placed on the Concepts for Further Study list.

Phase 2 of the Public Engagement Plan provided the public an opportunity to review and comment on each project in the draft Universe of Project list, and the Concepts of Further Study list. A MetroQuest survey provided a mapped location of each project and project description. The public input assisted with finalizing both lists.

## 6 – 5 Project Evaluation

The Working Group members ranked the 2045 LRTP goals in alignment with each jurisdiction’s planning values and priorities. The rankings were used to establish percentage weights for the goals in project scoring. The goals are based on the SMART SCALE project ranking methodology, and projects were evaluated by the following six Goal areas and percentage weights: Safety (27%), Accessibility (24%), Economic Development (23%), Environment (12%), and Land Use (14%). See Table 1: Project Performance Evaluation Matrix for more detail. (see **Table 6-2**).

As noted earlier in this chapter, while the Working Group identified Congestion Mitigation as a goal, the Travel Demand Model was unable to analyze the congestion mitigation effects of individual projects because the projects in the Universe of Projects do not individually add enough capacity to effect a change in the model outputs. As a result congestion mitigation was not considered for the evaluation process. Travel Demand Models are inherently macro-scale and, with respect to roadway capacity, they are designed to consider regional-scale changes such as major widening and new roadway connection projects.

### Summary

The 2045 LRTP updates the 2040 LRTP goals to meet current federal and state performance-based planning requirements. The project scoring evaluation metrics are informed by MAP-21 goals, VTrans goals, and SMART SCALE factors, and the Travel Demand Model measured specific projects to further ensure projects meet the Plan’s goals. The LRTP Working Group developed a methodology that reflects the needs of each locality and provides an objective project scoring framework.

Table 6-2: Project Performance Evaluation Matrix

SMART SCALE Factor and HRMPO LRTP Goal Weight	HRMPO LRTP Goal	SMART SCALE Measure	HRMPO Project Performance Metric & Average Weight
Safety (27%)	Increase the safety and security of the transportation system for all users.	Equivalent property damage only (EPDO) of fatal and injury crashes expected to be reduced (50%)	Equivalent property damage only (EPDO) of fatal and injury crashes expected to be reduced (50%)
		Equivalent property damage only (EPDO) of fatal and injury crash rate expected to be reduced (50%)	Equivalent property damage only (EPDO) of fatal and injury crash rate expected to be reduced (50%)
Accessibility (24%)	Provide an efficient, reliable transportation system for pedestrians, bicyclists and transit users, including traditionally underserved populations. Increase mobility options through expansion of transit service and bicycle and pedestrian facilities.	Increase access to jobs (60%)	Evaluation of roadway characteristics in terms of importance in the regional network (60%)
		Increase access to jobs for disadvantaged populations (20%)	Move into Access to Multimodal Travel Choices
		Increase access to multimodal travel choices (20%)	Project includes transit, bicycle and/or pedestrian improvements (40%)
Economic Development (23%)	Support and improve the economic vitality of the region by encouraging a transportation system that provides access to jobs and education, and attracts businesses and entrepreneurs to the region.	Project support for Economic Development (70%)	Decay weighted job growth adjacent to project (70%)
	Ensure connectivity of the transportation system across modes for the transport of both people and goods.	Intermodal Access and Efficiency/ Tons of goods impacted (30%)	Intermodal access and efficiency/tons of goods impacted (30%)
Environment (12%)	Improve quality of life by protecting and enhancing historic and natural resources, promoting energy conservation, maintaining air quality, and expanding regional recreation networks.	Air Quality and Environmental Effect (50%)	Air quality and environmental effect (50%)
		Impact to Natural and Cultural Resources (50%)	Amount of potentially impacted natural and cultural resource acres within the 1/4 mile buffer area in acres (50%)
Land Use (14%)	Encourage the coordination of land use and transportation planning for transportation improvements to support future growth.	Support of transportation-efficient land development (100%)	Screen out projects that do not have a bicycle or pedestrian component. EPA Guide to Sustainable Transportation Performance Measures Employment to Dwelling Ratio (100%)

# Chapter 7 : Constrained Long-Range Plan

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## Introduction

The LRTP must include a fiscally-constrained list of projects referred to as the Constrained Long Range Plan (CLRP). The CLRP includes projects with funding committed through the State's Six Year Improvement Program (SYIP), and projects not yet funded, but which the MPO and its members intend to fund through 2045 based on projected revenue over the 25-year period.

Projects funded in the FY23-28 SYIP and projects recommended for funding in SMART SCALE are considered "Committed," and were not part of the fiscal constraint exercise. Projects not included in the CLRP are identified as Vision List projects, which are projects that address important needs, but project costs exceed future projected funding availability (see Appendix A).

In the spirit of full compliance with Title VI, CLRP projects should neither unduly burden, nor underserve the region's minority and underserved populations identified in Chapter 3: Existing Conditions.

This chapter addresses:

7 – 1 Constrained Long Range Plan

7 – 2 Social Equity and Environmental Justice Benefits and Burdens Analysis

7 – 3 Environmental Mitigation Measures

## 7 – 1 Constrained Long Range Plan

The LRTP includes a list of fiscally-constrained projects, the CLRP. To create the CLRP, projects were screened for state funding eligibility and to confirm they address a regional transportation deficiency. Any projects that did not meet the screening criteria were added to the Potential Future Studies List (**Appendix D**).

The MPO sought public input on remaining projects during Phase 2 Public Engagement. No projects received a majority of "No" votes or negative comments, and the MPO Policy Board voted to advance the projects for performance evaluation and scoring.

The MPO and its consultant developed a performance evaluation methodology detailed in **Chapter 6**. The projects with the highest benefit-cost scores were matched with projected available revenues to create the CLRP.

The 2045 CLRP includes 48 total projects. Thirty projects are funded in the current VDOT Six Year Improvement Program (SYIP), and the remaining 17 projects are newly committed. In total, these projects represent over \$400 million in committed and projected funding. The CLRP projects are listed in **Table 7-2** and **Table 7-3**.

**Transit Projects**

Transit revenues are formula funds for capital and operating costs (see Chapter 6). HDPT’s future transit operating and capital needs are documented in Chapter 4 and the 2017 HDPT TDP. HDPT’s Transit Strategic Plan, which is scheduled for completion in 2024, will identify updated needs and projected transit revenues. Projected HDPT spending from FY24 – 31 for operating expenses, and capital, vehicle capital, infrastructure capital, and other capital expenses from the 2017 TDP are included in **Table 7-1**.

The projected operating expenses include adding earlier and later service, and Sunday service over the eight-year period. The capital expenses include purchasing 17 heavy duty replacement vehicles over fiscal years FY25, FY26, and FY28, and four paratransit replacement vehicles over fiscal years FY24 and FY27. HDPT is scheduled to expand the number of vehicles by purchasing two heavy duty transit vehicles in FY29, and five heavy duty paratransit vehicles over fiscal years FY 28, FY30, and FY31. The eight-year projections anticipate one Infrastructure Capital investment in FY28 for additional shelters and benches planned, and over \$2.4 million in Other Capital investments.

*Table 7-1: Transit Investments FY 2024 – 2031 (in thousands)*

	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31
Operating	\$9,451	\$10,452	\$10,766	\$11,089	\$11,421	\$11,764	\$12,117	\$12,480
Vehicle Capital	\$300,000	\$2,625	\$2,215	\$240,000	\$4,904	\$1,196	\$300,000	\$300,000
Infrastructure Capital	\$-	\$-	\$-	\$-	\$85	\$-	\$-	\$-
Other Capital	\$55	\$56	\$58	\$1,799	\$262	\$64	\$66	\$68
<b>Total Capital</b>	<b>\$355,258</b>	<b>\$2,625</b>	<b>\$2,215</b>	<b>\$1,979</b>	<b>\$5,189</b>	<b>\$1,100</b>	<b>\$1,100</b>	<b>\$1,100</b>



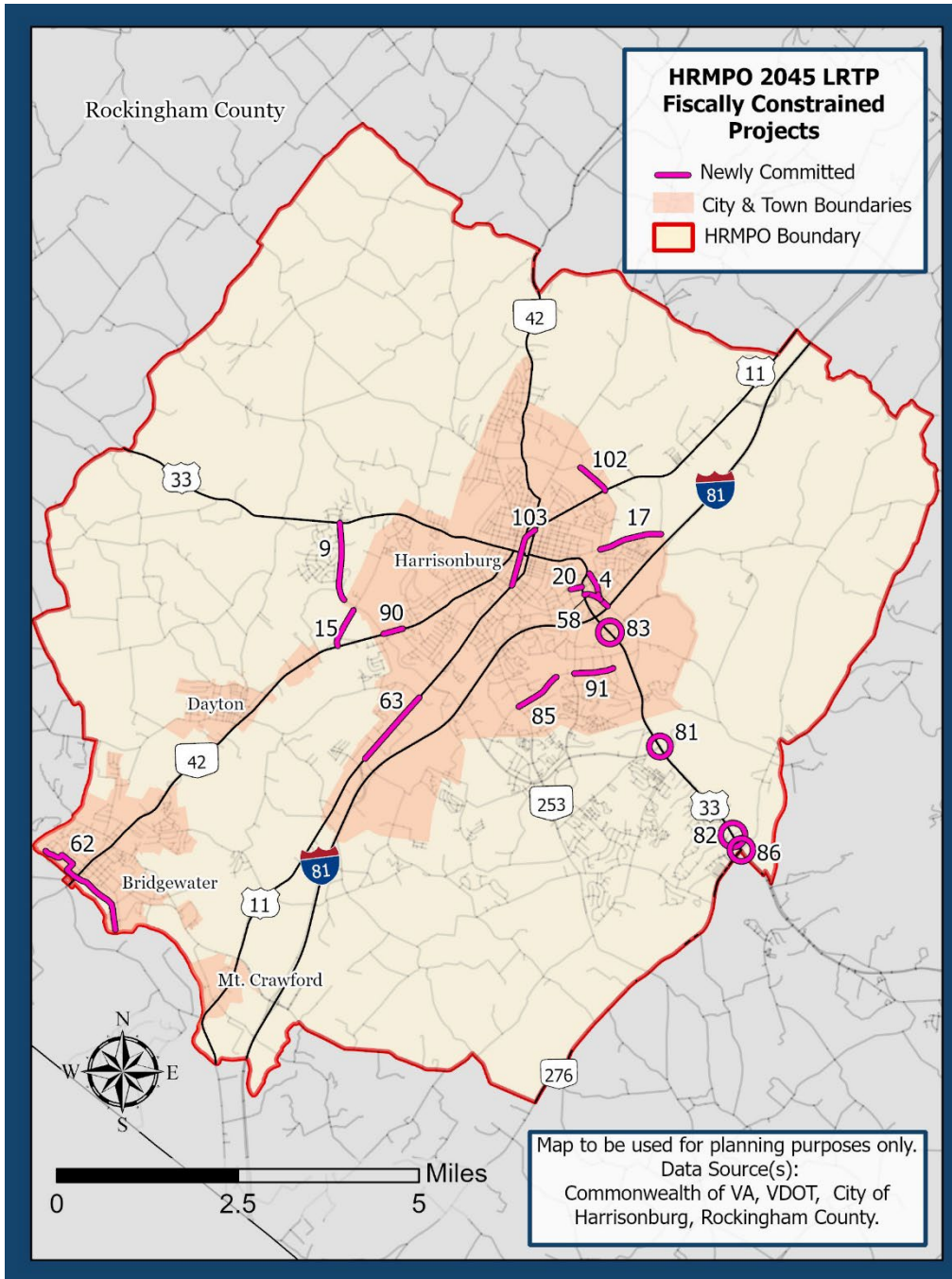
Table 7-2: CLRP Newly Committed Projects

Project ID	Score Ranking	Jurisdiction	Project Name	Project Description	Term (SYIP, Mid, Long)	2022 Cost Estimate	YOE Cost Estimate
<b>SMART SCALE PROGRAM</b>							
83	4	Harrisonburg	Burgess Rd./Linda Ln. Reconfigurations	Reconfigurations of Burgess Rd. median and Linda Ln./Frontage Rd. intersection with removal of Traffic signal.	Long	\$800,000	\$1,380,000
20	6	Harrisonburg	S. Carlton St. Improvements	Improve to a three-lane facility including center turn lanes, sidewalks and storm drain facilities.	Mid	\$1,000,000	\$1,480,000
63	9	Harrisonburg	S. Main St. Corridor–Northern Scope	S. Main St. – Install raised median, sidewalk from Mosby Rd. to Pleasant Valley Rd.	Mid	\$5,391,741	\$7,979,777
91	12	Harrisonburg	Neff Ave. Sidewalks	Add sidewalks from Reservoir St. to Valley Mall entrance	Mid	\$2,000,000	\$2,960,000
102	13	Harrisonburg	Mt. Clinton Pike Corridor Safety	Install sidewalk on north side from Acorn Dr. to N. Main St. Install pedestrian crossing for Northend Greenway at railroad crossing near VA-42 (Virginia Ave.). Install roundabout at Acorn Dr.	Mid	\$6,800,000	\$10,064,000
82	15	Rockingham	US-33(Spotswood Trail) at Rockingham Park Way R-CUT	US-33(Spotswood Trail) at Rockingham Park Way Restricted Crossing U-Turn	Mid	\$3,600,000	\$5,328,000
15	16	Rockingham	Garbers Church Rd. Improvements	Provide wide shoulders (buggy lanes) and add turn lanes at appropriate locations from Erickson Ave to VA-42 (John Wayland Hwy).	Mid	\$2,500,000	\$3,700,000
4	22	Harrisonburg	Country Club Rd. (west) Improvements	Create center turn lane with sidewalk and shared use path Country Club Rd. from Vine St. to the I-81 bridge.	Mid	\$10,000,000	\$14,800,000
103	23	Harrisonburg	Liberty St.- Downtown Harrisonburg	Reconfigure Liberty St. between N. Main/Noll Dr. and Main St. to convert one travel lane to a buffered cycle track.	Mid	\$12,200,000	\$18,056,000
86	24	Rockingham	US-33(Spotswood Trail) at VA-276(Cross Keys Road) R-CUT	US-33(Spotswood Trail) at VA-276(Cross Keys Road) Restricted Crossing U-Turn.	Mid	\$7,700,000	\$11,396,000
58	25	Harrisonburg	Martin Luther King Jr Way Extension	Extend Martin Luther King Jr Way from E. Market St. into Country Club Rd. Create new intersection with Country Club Rd. Add sidewalk and bike facilities to Martin Luther King Jr Way and Country Club Rd.	Mid	\$13,600,000	\$20,128,000

Project ID	Score Ranking	Jurisdiction	Project Name	Project Description	Term (SYIP, Mid, Long)	2022 Cost Estimate	YOE Cost Estimate
62	26	Bridgewater	Riverwalk	Extend Riverwalk shared use path and bike lane from Wildwood Park to Sandy Bottom Park.	Mid	\$4,000,000	\$5,920,000
<b>DISCRETIONARY PROGRAMS</b>							
90	5	Harrisonburg	VA-42 (High St.)	Add sidewalk on west side of road from Hidden Creek Ln. to Erickson Ave.	Mid	\$500,000	\$740,000
9	7	Rockingham	Erickson Ave. Improvements	Pending a study to identify a preferred alternative, construct non-motorized facilities	Mid	\$1,000,000	\$1,480,000
17	8	Harrisonburg	Old Furnace Rd. Sidewalks	Construct sidewalk to fill gaps and add pedestrian infrastructure at intersections to create continuous pedestrian route between Summit St. and Oriole Ln.	Mid	\$1,500,000	\$2,220,000
81	11	Rockingham	US-33(Spotswood Trail) at VA-280(Stone Spring Rd.) Turn Lane Improvements	Install additional northbound approach lane on VA-280 (Stone Spring Rd.).	Mid	\$3,076,300	\$4,552,924
85	19	Harrisonburg	Neff Ave. Shared Use Path	Construct a Shared Use Path along the south side of Neff Ave. Between Port Republic Rd. and Carrier Arboretum Trail at Sunchase Drive.	Mid	\$4,000,000	\$5,920,000



Map 7-1: Newly Committed CLRP Projects



Map 7-2: Newly Committed CLRP Projects Detail

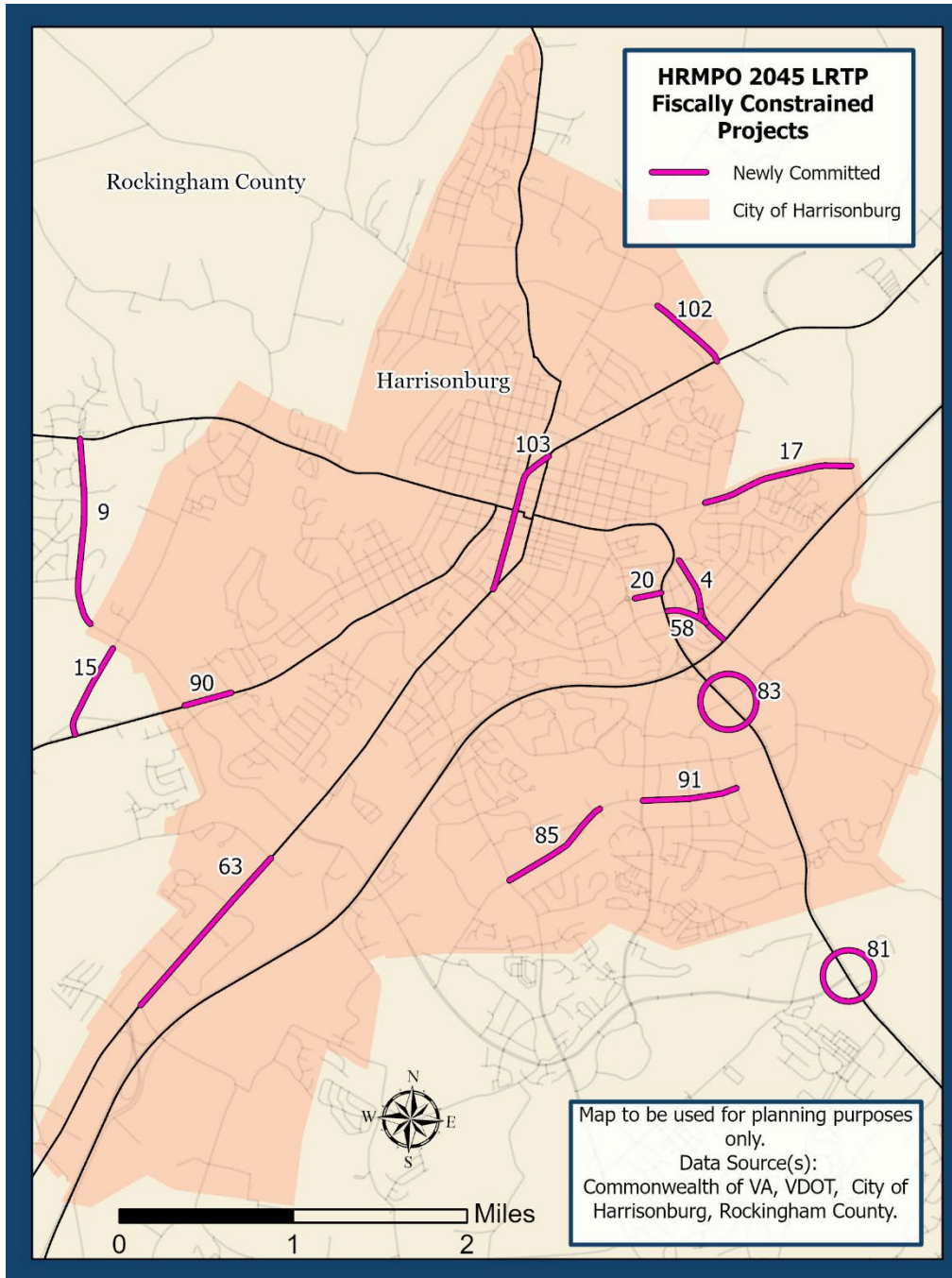


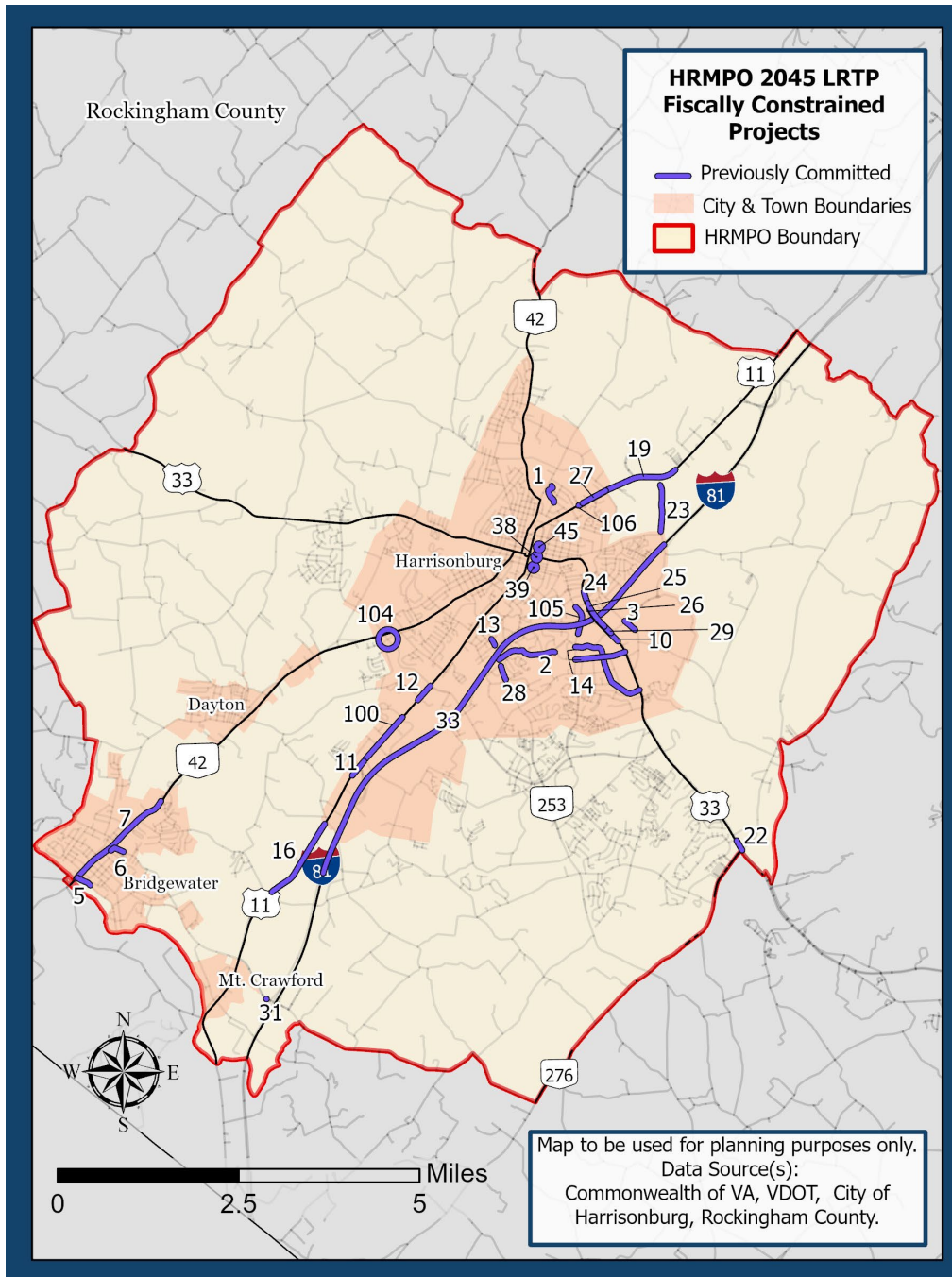
Table 7-3: CLRP Previously Committed Projects

Project ID	Jurisdiction	Project Name	Project Description	Funding Program	2022 Cost Estimate
104	Harrisonburg	Erickson Ave. and Pear St. R-CUT	Construct Restricted Crossing U-Turn intersection to relocate northbound Pear St. left turns to U-turns on Erickson Ave.	SS	\$3,500,000
105	Harrisonburg	Reservoir St. Sidewalk	Install sidewalk on the eastern side of Reservoir St. from Dutch Mill Ct. to Harrisonburg Crossing entrance.	SS	\$4,900,000
100	Harrisonburg	S. Main St. Corridor- Southern	Construct median, dual left and thru-cut at Pleasant Valley Rd, and sidewalk between Pleasant Valley Rd. and Pointe Dr.	SS	\$6,165,499
106	Harrisonburg	N. Main St. Sidewalk	Install bike lanes on both sides of N. Main From Charles St. to Mt. Clinton Pike, and sidewalk on the west side. Install a sidewalk on the south side of Vine St. from N. Main St. to Harris Gardens Apts.	SS	\$6,000,000
39	Harrisonburg	Mason St. Improvements (N. Mason St. & E. Bruce St.)	Add bulb-outs and realign the north leg crosswalk, narrow eastbound approach to one lane and install sidewalk on the south side.	Maintenance	\$40,000
45	Harrisonburg	Mason St. Improvements (N. Mason St. & E. Wolfe St.)	Add crosswalks on the northern and eastern legs and create an eastbound right turn lane.	Maintenance	\$100,000
38	Harrisonburg	Mason St. Improvements (N. Mason St. & E. Market St.)	Add a westbound right turn lane with right turn overlap.	Maintenance	\$100,000
1	Harrisonburg	Northend Greenway Brookside Phase	Construct shared use path between Roberts Court and the existing path at Jefferson St.	TAP/HSIP/RS	\$386,000
2	Harrisonburg	University Blvd Extension	Reconstruct University Blvd with added capacity from Port Republic Rd to Carrier Dr.	TAP/HSIP/RS	\$16,508,000
3	Harrisonburg	Country Club Rd. Sidewalk- Safe Routes To School enhancement	Construct facilities for pedestrians and cyclists from Linda Ln to the Spotswood Trailer Park.	TAP/HSIP/RS	\$610,000
5	Bridgewater	Riverwalk Phase III	Construct facilities for pedestrians and cyclists along E. Riverside Dr. from Edgebrier Park to Hatcher Dr.	TAP/HSIP/RS	\$481,000
6	Bridgewater	Gen Oak Connector	Construct facilities for pedestrians and cyclists from N. Liberty St. to Naomi Ln connecting Generations Park to Oakdale Park.	TAP/HSIP/RS	\$22,000
7	Bridgewater	Main Street Pedestrian Improvements	Construct facilities for pedestrians and cyclists from East Riverside Dr. to Turner Ashby Dr.	TAP/HSIP/RS	\$92,000
10	Harrisonburg	I-81 exit 247 interchange improvements (#SMART18 - ID 1327)	Relocate northbound on/off ramps and add a lane to the NB off ramp. Extend the left turn lane on US-33 to Linda Ln, and construct a median between the left turn lane and thru lanes.	SS	\$3,260,000

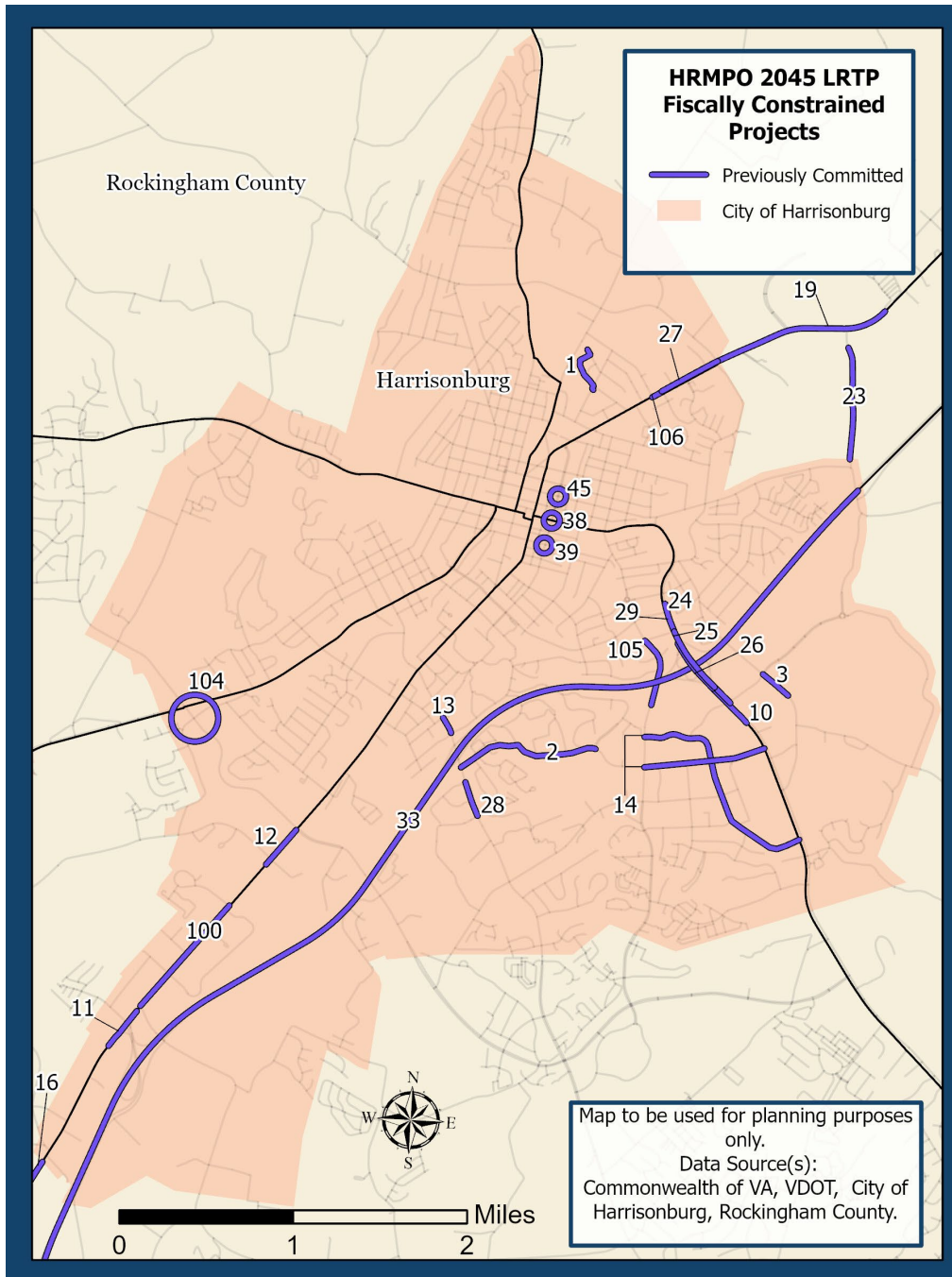
Project ID	Jurisdiction	Project Name	Project Description	Funding Program	2022 Cost Estimate
11	Harrisonburg	S. Main St. & I-81 Exit 243 Interchange Improvements (#SMART22 - ID 7141)	At Covenant Dr, widen the southbound approach and on-ramp for dual left turn lanes and more storage. Widen the westbound approach for dual left turn lanes onto US-11 S, clarify yield conditions and extend westbound left turn lane storage. Offset the northbound left turn lane to maintain permissive movement. On US-11 add overhead wayfinding signage for I-81, signalized crosswalks at Covenant Dr. and Pleasant Valley Rd, and close the 0.26 mile sidewalk gap.	SS	\$4,619,000
12	Harrisonburg	S. Main St. Safety Improvements (#SMART22 - ID 7139)	Remove existing bike lanes and add a concrete median between Mosby Rd. and Stone Spring Rd./Erickson Ave to prevent left turns with a break to maintain access to Dukes Plaza. Add sidewalk on the east side of South Main St. and bus shelters at three stops.	SS	\$2,208,000
13	Harrisonburg	Port Republic Rd. Turn Lane and Sidewalk (#SMART22 - ID 6831)	Extend the eastbound Port Republic Rd. left turn lane onto Bluestone Dr. Widen the north side of the road for an extended turn lane, and reconstruct the sidewalk. Construct 5-ft sidewalk and a retaining wall on the southern side of the project. Construct a median in the functional area of the intersection.	SS	\$2,243,000
14	Harrisonburg	University Blvd./Evelyn Byrd Ave. road reconfigurations & Sidewalk (#SMART20 - ID 3588)	Convert University Blvd and Evelyn Byrd Avenue between Reservoir St. and E. Market S to 2 lanes with a center turn lane, bike lanes, sidewalks, crosswalks, and bus shelters.	SS	\$2,723,000
16	Rockingham	S. Valley Pike Roadway Improvements (#HB2. FY17 - ID 561)	Widen US 11 from Cecil Wampler Rd. to the City SCL to a 4-lane divided highway with wide shoulders for bicycle lanes. Install signals at the County Fairgrounds entrance and at Cecil Wampler Rd synchronized Oakwood Dr. signal. Install turn lanes here engineering analysis deems necessary.	SS	\$183,000
19	Rockingham	US-11 N. North Valley Pike Sidewalk (#SMART20 - ID 3962)	Install 5-ft sidewalks and footbridge between Mt. Clinton Pike to Jewell St.	SS	\$1,799,000
22	Rockingham	US-33 & Rte-620 turn lanes (#SMART20 - ID 3979)	Extend the US 33 eastbound left turn lane and install a right turn lane on Indian Trail Rd.	SS	\$452,000
23	Rockingham	Smithland Road Shoulder Widening (#SMART22 - ID 7125)	Widen Smithland Rd to add 4' shoulders on both sides beginning 300 ft from US-11 , and add a right turn lane onto US 11.	SS	\$3,227,000
24	Rockingham	US-33 Replace bridges over NSRR (#SGR17VB)	Replace the bridges without added capacity.	SGR	\$3,689,000
25	Harrisonburg	US-33 Over I-81 Exit 247 Improve Eastbound lane (STR NO. 20443, #SGR18VB)	Reconstruct eastbound lane from southbound I-81 on-ramp to I-81 southbound off-ramp.	SGR	\$7,053,000

Project ID	Jurisdiction	Project Name	Project Description	Funding Program	2022 Cost Estimate
26	Rockingham	US-33 Over I-81 Exit 247 Improve Westbound lane (STR 20441, #SGR19VB)	Reconstruct westbound lane from southbound I-81 on-ramp to I-81 southbound off-ramp.	SGR	\$13,120,000
27	Harrisonburg	N. Main St. Sidewalk (#SMART22 - ID 7098)	Construct a 5-ft wide sidewalk with a 2-ft grass buffer, curb and gutter between Holly Hill Dr. to Vine St. Reconstruct 10 entrances with ADA accessibility, and signalized crosswalks at the intersection with Vine St.	SS	\$2,061,000
28	Harrisonburg	Port Republic Rd. Corridor Improvements (#SMART22 - ID 7099)	Add a traffic signal with signalized crosswalks and westbound left turn lane at Bradley Dr. with reconstructed bike lane and sidewalk. Add a 3-ft wide median between Bradley Dr. and Devon Ln, and a channelizing island to prohibit left turns at the Hunters Rd. intersection.	SS	\$3,539,000
29	Harrisonburg	US-33 and I-81 Improvements (#SMART20 - ID 4027)	Realign I-81 Exit 247 southbound offramp and add acceleration merge lane. In the median of US-33, construct a 10' shared use path with pedestrian signals and crossing improvements at intersections from MLK Way to Burgess Rd./Linda Lane.	SS	\$7,375,000
31	Rockingham	Mt. Crawford Park and Ride lot improvements (#SMART22 - ID 6703)	Improve existing Park and Ride lot by resurfacing, restriping, and reconfiguring the lot with 32 additional spaces, curbing, and excavation. Add a bus stop and shelter, lighting, bike racks, and an electric vehicle charging station. Stormwater BMP expansion.	SS	\$2,725,000
33	MPO	North bound & South bound MM 242 to 248, 3-lane widening (#I81CIP - ID #62)	Widen both sides of I-81 to 3 lanes between mile marker 242 to 248.8.	I-81	\$215,562,000

Map 7-3: CLRP Previously Committed Projects



Map 7-4: CLRP Previously Committed Projects Detail



## 7 – 2 Environmental Justice Benefits and Burdens Analysis

The social equity and environmental justice benefits and burdens analysis examines the potential for positive or negative impact (benefits and burdens) that transportation investments could have on people and places, with an emphasis on identifying the potential for disproportionate negative impacts on disadvantaged populations.

Benefits are the positive impacts from transportation investment such as enhancements in transportation services, increases in public safety, congestion relief, and increased economic vitality. Burdens are the adverse effects of investment such as pollution, displacement of persons or businesses, decreased economic vitality, and congestion.

The US DOT does not have a standardized methodology for assessing benefits and burdens, but MPOs must establish a thoughtful process for assessing the social equity and environmental justice measures. Additionally, in 2021, the Federal Government created the Justice40 Initiative to address underinvestment and environmental justice issues related to climate change, pollution, and environmental hazards in disadvantaged communities by establishing the goal that at least 40% of certain federal government initiatives benefit disadvantaged communities.

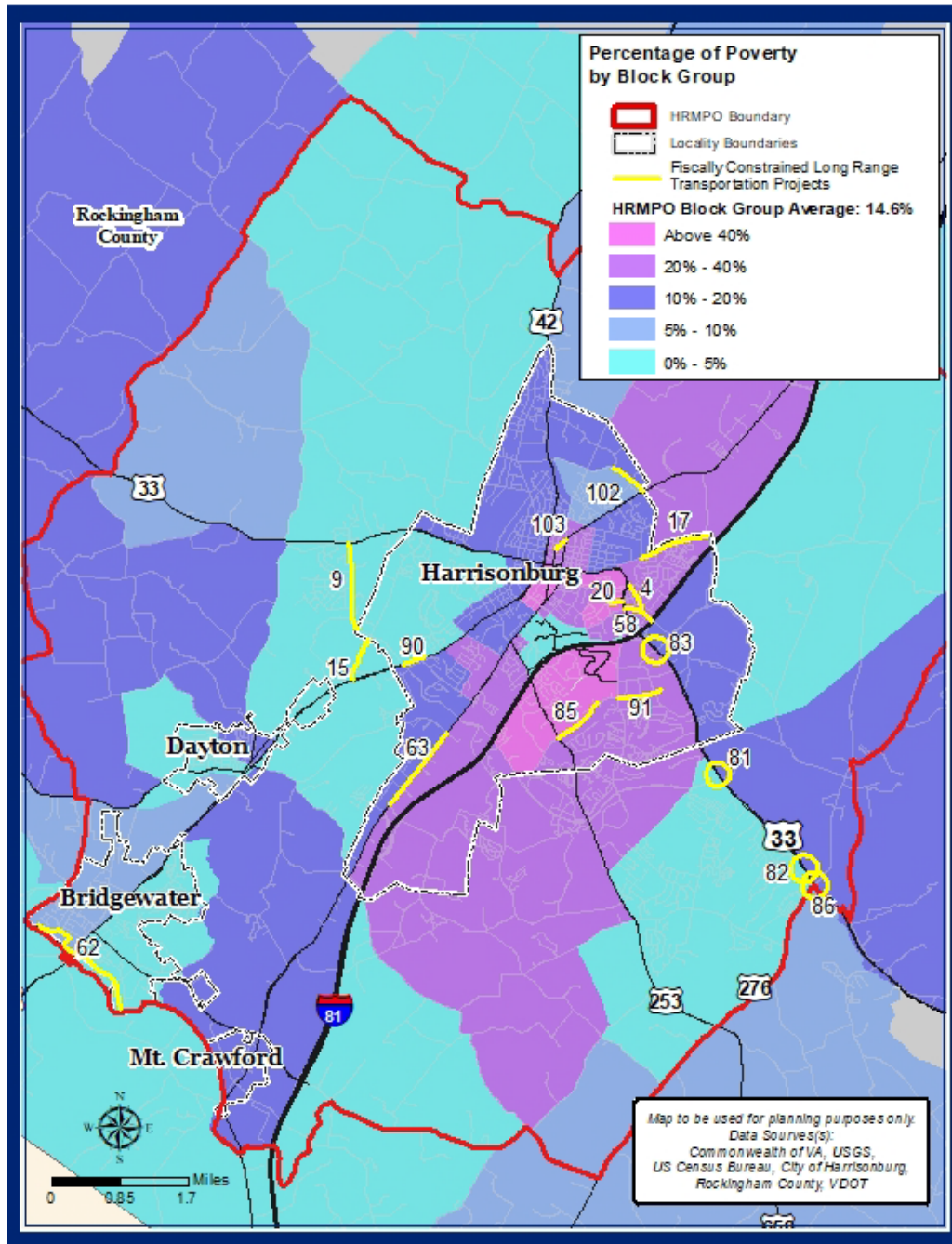
US DOT's Justice40 initiative includes Equitable Transportation Community Explorer (Explorer) is an interactive web application that maps disadvantage communities resulting from underinvestment in transportation in the areas of Transportation Insecurity, Climate and Disaster Risk Burden, Environmental Burden, Health Vulnerability, and Social Vulnerability. The HRMPO supports the EJ and Justice 40 principles by utilizing the Explorer tool in discretionary grant programs, developing the TIP, and the CLRP project mapping exercise below.

### Newly Committed CLRP Projects In Relation to Disadvantaged Populations

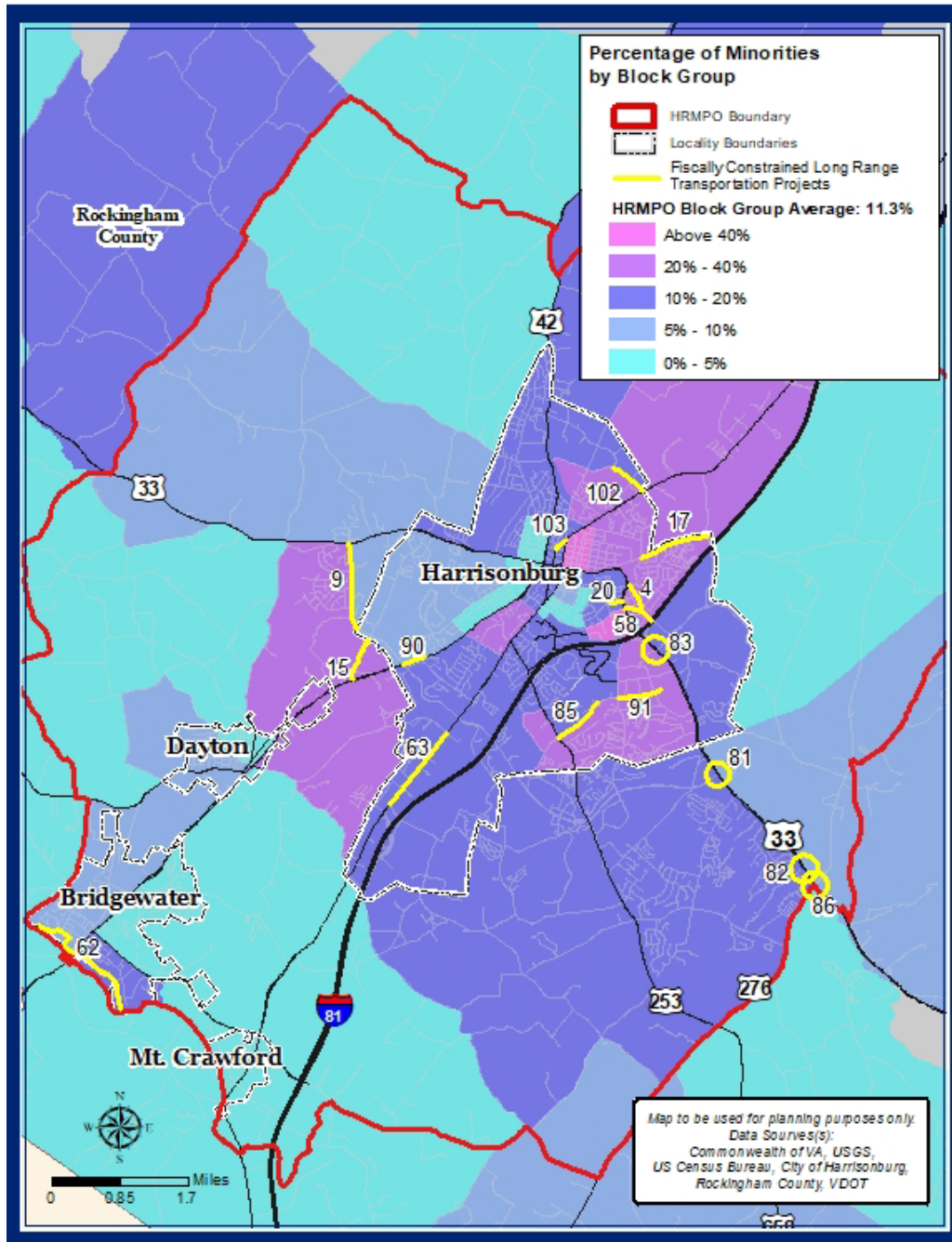
The newly committed CLRP projects were mapped in relation to the six disadvantaged population categories detailed in Chapter 3 to provide insight about the potential for positive and negative impacts on each population group. **Maps 7-5 through 7-9** show each project's location compared to the geographic distribution of each demographic group. Based on the geographic analysis, the newly committed CLRP projects are not expected to result in a disproportionate impact on any disadvantaged population.



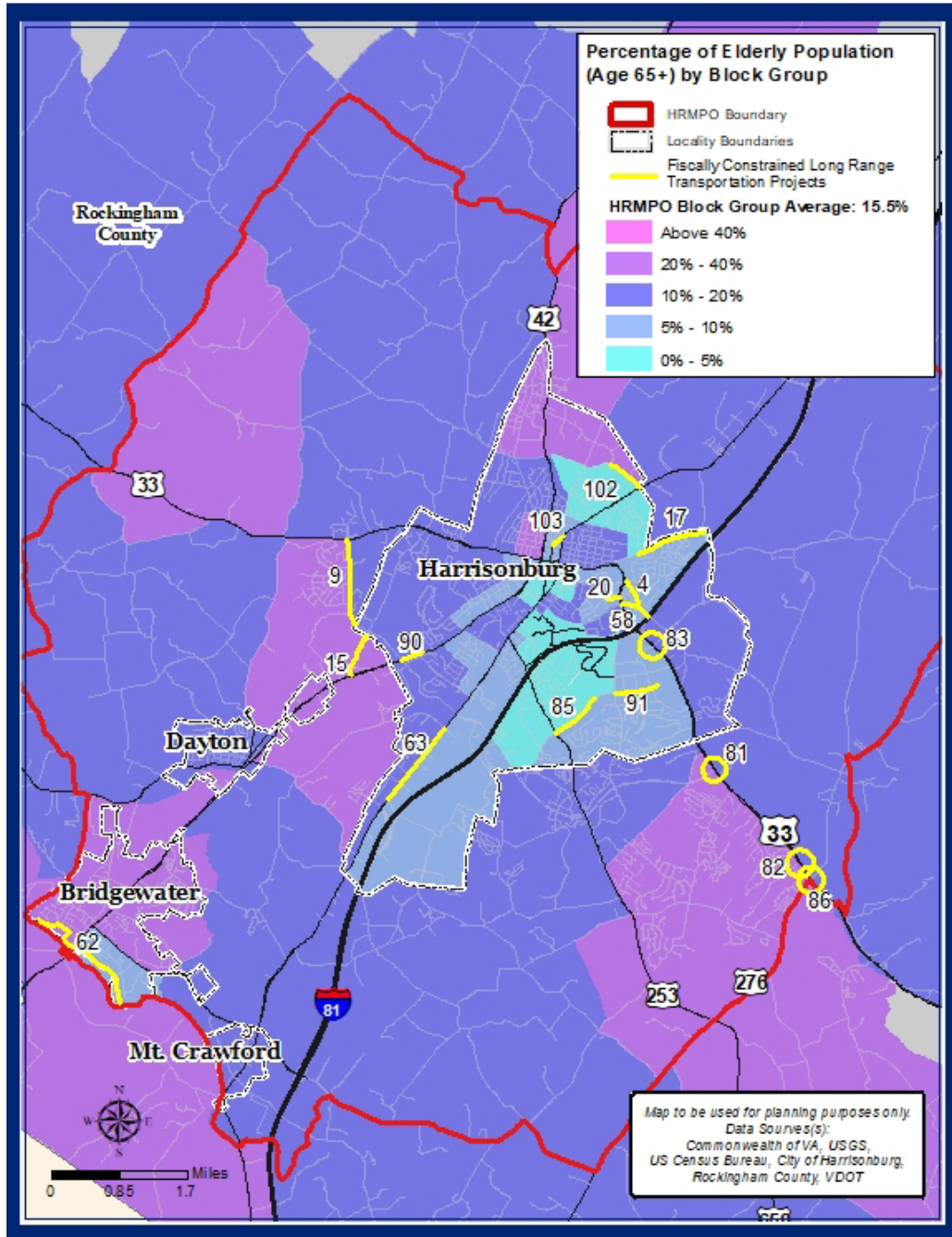
Map 7-5: Percentage of Poverty by Block Group



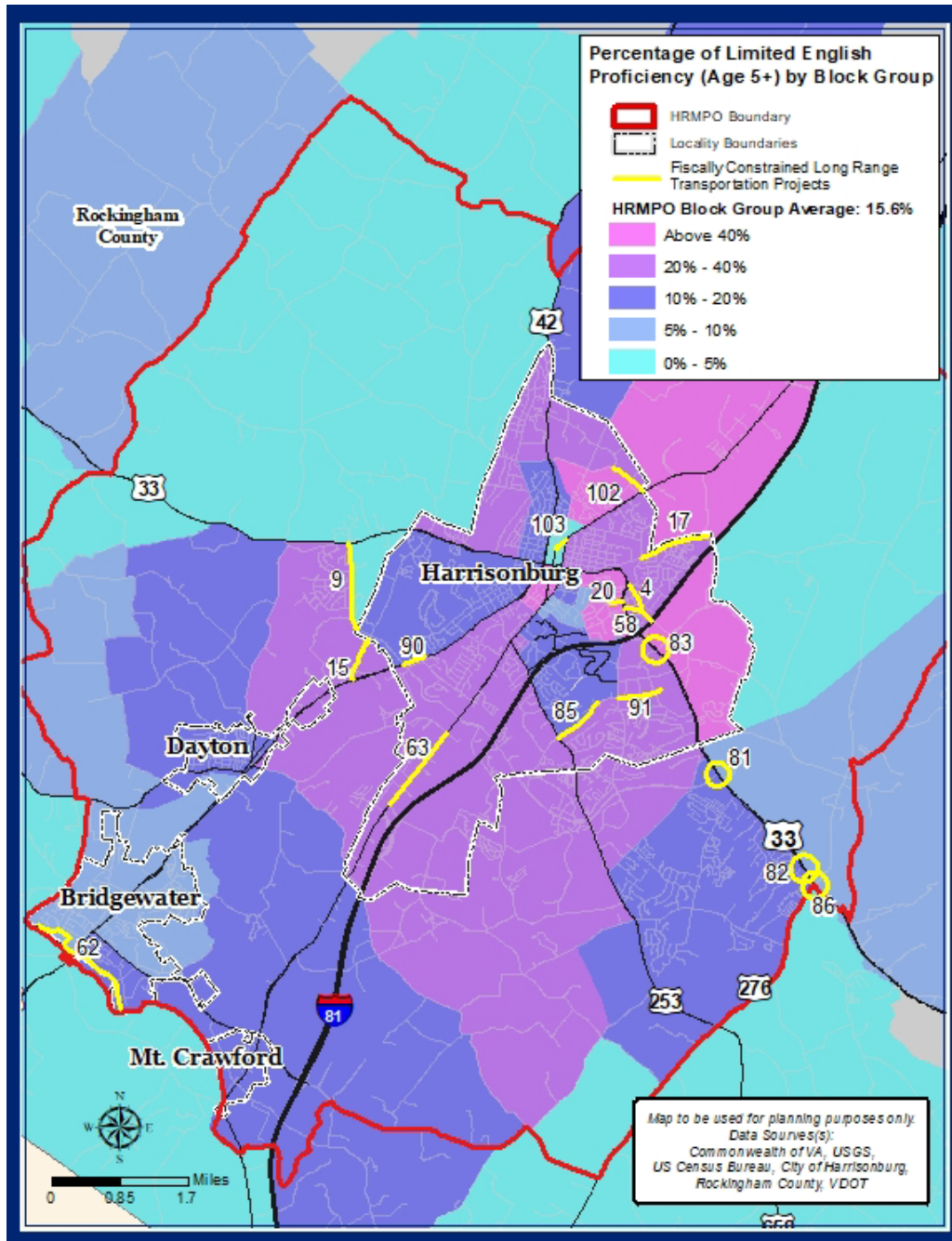
Map 7-6: Percentage of Minorities by Block Group



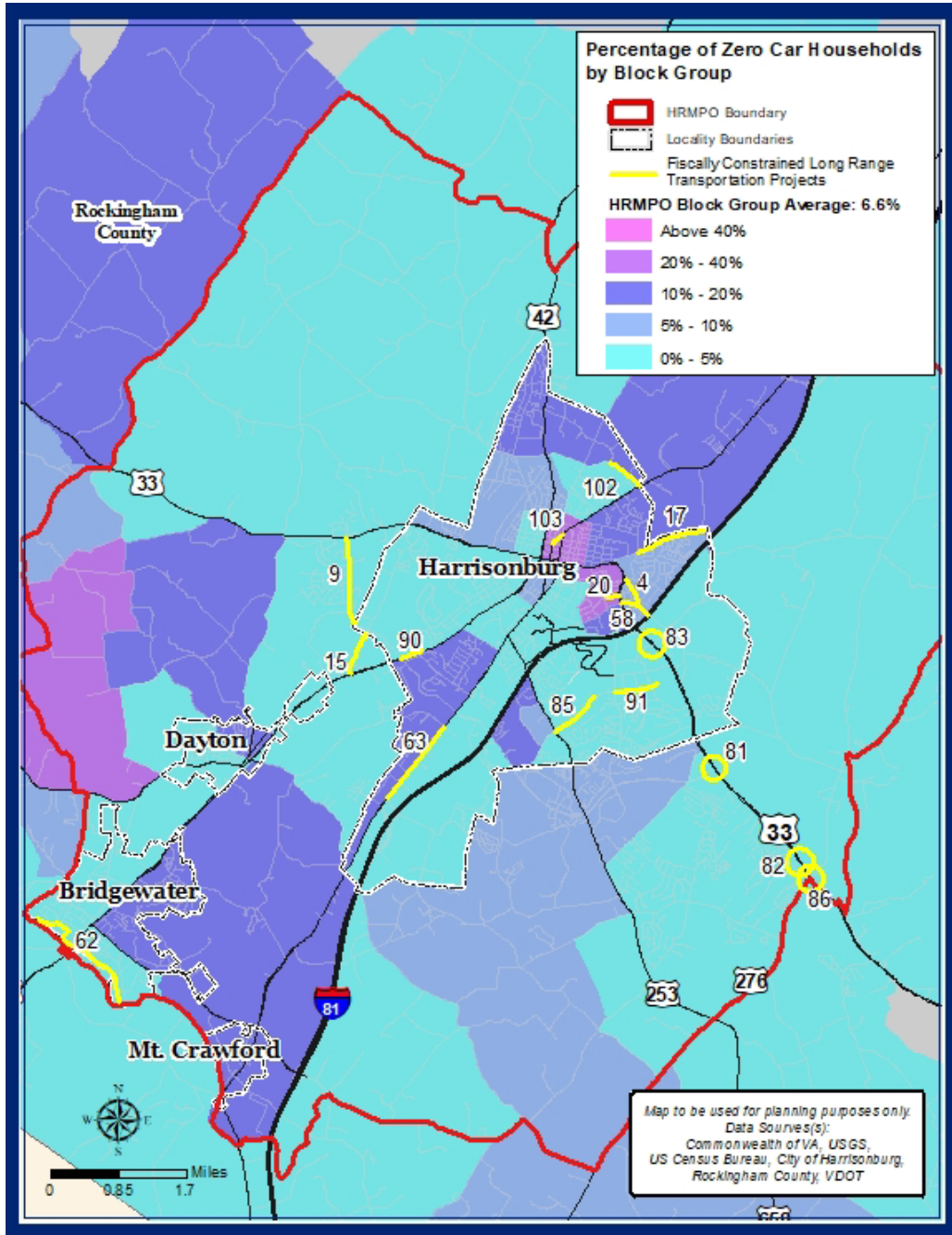
Map 7-7: Percentage of Elderly Population by Block Group



Map 7-8: Percentage of Limited English Proficiency by Block Group



Map 7-9: Percentage of Zero Car Households by Block Group



## 7 – 3 Environmental Mitigation Measures

The LRTP planning process considered the proximity of the proposed transportation projects to cultural and environmental resources. All projects were evaluated during the preliminary planning stage for the potential to impact private property, historic/archaeological resources, threatened and endangered species, farmland, public recreational facilities, jurisdictional waters, land use, contaminated sites, and noise levels as required by federal, state and local laws/regulations.

Mitigation measures can address the potential adverse impacts resulting from a transportation project. Mitigation measures include limiting project scope, rehabilitating and restoration of the impacted area, or avoiding the sensitive area. Programmatic mitigation measures include the following elements:

**Historic/Archaeologic Resources:** mitigation for impacts is accomplished through avoidance or scientific excavation and documentation. Surveys, including deep testing and evaluations on a case-by-case basis are developed in consultation with key stakeholders.

**Wetlands:** where unavoidable, consultation occurs with various resource agencies to develop replacement wetlands within the affected watershed. There are also wetland banking programs where projects commit funding to offset impacts.

**Floodplains:** transportation projects must accommodate impacted floodplains through either avoidance, or designing highway elements (e.g., bridge/culvert openings, etc.) that allow water to flow without increasing the regulated floodplain level. Any adjustments to the floodplain level must conform to requirements set forth by the Army Corps of Engineers that may result in requiring adjustments to FEMA-regulated flood maps.

**Threatened & Endangered (T&E) Species:** transportation projects must review and consider the presence of T&E species in consultation with the US Fish and Wildlife Service (FWS), Virginia Department of Game and Inland Fisheries (DGIF), and the Division of Natural Heritage (DNH) within the Virginia Department of Conservation and Recreation (DCR). Biological and habitat assessments must be conducted to determine if T&E species are present. The project must either avoid the impact or consider mitigation to include relocation of species, time of year restrictions for construction, etc.

**Marine Resources:** when impacts to fish and aquatic resources cannot be avoided, transportation projects are required to protect resources by effectively managing storm water runoff, incorporating design features that minimize impacts to fisheries or minimize disruption to natural cycles such as not working within waters during periods of spawning activities.

**Surface and Ground Water:** projects that impact waters are required to obtain all necessary regulatory approvals, permits, and licenses for each project. Where avoidance is not available, mitigation measures are required to be addressed through design and construction. VDOT requires completion of the Natural Resources Due Diligence Checklist (Form EQ-555) early in the design process.

**Noise:** federal regulations require that VDOT determine and analyze anticipated noise impacts and alternative noise abatement measures for those impacts for specific types of highway construction projects. Noise impact studies are conducted to consider options for reducing noise levels along proposed federally funded highway improvement projects. FHWA has set forth project types that require noise abatement studies, but typically, these are projects where a new highway is constructed on a new location, or an existing highway's alignment is adjusted substantially either horizontally or vertically.

**Air Quality:** the Clean Air Act requires that transportation projects not result in or contribute to violation of the National Ambient Air Quality Standards, or delay timely attainment of them. NEPA requires that each federally funded transportation project be evaluated for its potential impact on air quality in the immediate vicinity of the project, known as a "hot spot" analysis. Each applicable project must demonstrate that sensitive populations will not be exposed to pollutant concentrations above an applicable air quality standard.

**Hazardous Materials:** due diligence must be performed to determine any "recognized environmental conditions" (REC's) on properties that will be acquired for the transportation project. REC's can indicate a continuing release, past release, or a material threat of a release of a hazardous substance into the soil, groundwater, or surface water. When REC's are determined to be present, the project is responsible for coordinating with appropriate environmental agencies to determine what regulatory requirements must be met or followed ahead of or during construction.

**Public Recreational Resources (Section 4(f) properties):** the Department of Transportation Act of 1966 included a special provision stipulating that the FHWA and state DOTs cannot approve the use of land from publicly owned parks, recreational areas, wildlife refuges or public/private historical sites unless there is no feasible and prudent alternative to the use of the land and the action includes all possible planning to minimize harm to the property resulting from the use.

**Right of Way Acquisition:** mitigation measures for impacted property owners, including minority and low-income populations should be considered, which may include avoidance, minimizing project scope, compensation and/or relocation. The Uniform Act must be adhered to for all federally-funded transportation projects.

Depending on complexity, size, and potential impacts, transportation projects with federal funding must be evaluated to determine three "classes of action" to determine how compliance with NEPA is implemented and documented. These include:

Categorical Exclusions (CE's), which are issued for transportation project actions that do not individually or cumulatively have a significant impact on the environment.

Environmental Assessments (EA), which are prepared for transportation project actions in which the environmental impact is not clearly understood or established. Should environmental analysis at the interagency review process result in a finding of no significant impact to the quality of the environment, a Finding of No Significant Impact (FONSI) is issued.

Environmental Impact Statements (EIS), which are prepared for projects where it is known and evident that a transportation project action will have a significant impact to the environment.



## Appendix A: Public Comment

Example of comment structure in Filestage

### User's Initials

#### User's Name

Date posted, Page #

#### 'X' number of likes

Comment Posted- Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna. Nunc viverra imperdiet enim.

### Reply user's initials

#### User's Name

Date posted

#### 'X' number of likes

Comment Posted- Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa. Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna. Nunc viverra imperdiet enim.

Public comments received on Filestage between 4/20/2023 and 5/18/2023

### AH

#### Ansley Heller

4/28/23, General document comment

Hello, and thank you for taking the time to review and comment on the Harrisonburg Rockingham County Metropolitan Planning Organization's LRTP. As we continue to get input from the public, edits and changes will be made in a stand alone document so as to not disrupt the Filestage document. MPO staff will continue to monitor feedback and incorporate changes throughout the comment period.

### W

#### Westst@jmu.edu

5/4/23, General document comment

#### 3 likes

So great to see a plan that highlights the need to invest in our current streets in a way that makes them safer for everyone, especially those folks walking and biking

### B

#### Brent

5/4/23, Page E-3

#### 2 likes

I primarily get around the city by bike, and I strongly support robust investments in bike infrastructure. However, much of what's considered bike infrastructure (e.g. narrow bike lanes on high-speed roads) is not useful to most cyclists. A good question to ask is "would I feel comfortable using this bike lane?" If the answer is no, don't build it. It's not good enough to create a narrow bike lane on a high-speed road and consider it "multi-modal."

**NH****Nathan Horst**

5/9/23, Page E-3

**2 likes**

This is now the better part of a decade old, while we race ever faster towards climate catastrophe. Would it be possible to update the inputs so we could hope for a plan that reflects anticipatory action that is intentional about being climate-friendly? Shouldn't we have a different plan now than we did in 2016? We know so much more about the urgency of the shift away from fossil-fuel based transportation.

**LÅ****Lars Åkeron**

5-4-23, Page 1-2

**3 likes**

How have you integrated the findings of the latest IPCC reports (e.g., AR6) into your consideration of these planning factors?

**AH****Ansley Heller**

5/11/23

**1 like**

We have not integrated the latest Intergovernmental Panel on Climate Change report into this document, however we have added stronger language to specifically address emission mitigation strategies.

**LÅ****Lars Åkeron**

5/4/23, Page 2-2

**1 like**

Beyond translating surveys and offering interpretation at events, what measures have the MPO and its consultants taken to ensure representative participation in this review process from area residents in the working class and those who prefer to speak a language other than English? (Regarding the stated efforts to provide language access, I notice that social media posts written in Spanish to solicit input on this plan link to webpages entirely in English, with no obvious translation available.)

**AH**

5/11/23

**Ansley Heller**

MPO staff delivered translated materials explaining the LRTP process and asking for input to multiple local businesses that were determined to have connections with the linguistic groups we were hoping to engage with.

**NH****Nathan Horst**

5/9/23, Page 3-2

Is it possible to contemplate passenger rail service returning to Harrisonburg?

**B****Brent**

5/9/23

While it's "pie in the sky" for most people, I think it is a far preferable alternative to I-81 expansion.  
<https://www.drpt.virginia.gov/media/fbfnmwq3/2017-virginia-statewide-rail-plan-executive-summary.pdf>

**AH****Ansley Heller**

5/11/23

The latest DRPT 2022 Virginia Statewide Rail Plan does not have any passenger rail plans that go through Rockingham County at this time.  
<https://storymaps.arcgis.com/collections/f83c1618157b45388bc794dde93dof81?item=4>

**NH****Nathan Horst**

5/12/23

**1 like**

Well, this is sad. We're so close to being connected, but not. I grew up in Newton KS. It is tiny compared to Wichita (just 30 miles south). But back in the day, Newton lobbied hard for the railroad to 'come to town' (donating the land for the rail, etc., etc.) - meanwhile, Wichita just assumed that because they were the big city, the rail would obviously connect to their town. Nope. Newton became a bustling strip of bars, brothels, barbershops, and banks . . . bursting with cash from the cattle trade (you drive your herd up from Texas, get them on the train in Newton, then go spend lots of cash on 'new boots' let's say). My point is that Wichita had to just go ahead and finance the link from Newton if they wanted to be connected to the rail. Better late than never I say. Even if not in the State plan, it should be in the HRMPO that we aspire with determination to connect with the thriving Virginia rail network (and all it's economic, cultural, and environmental benefits) that is at our doorstep (quite literally . . . the rail is there . . . even the old station is still there . . . this is some classic governmental low-hanging fruit). Maybe just a short fast passenger train . . . a 'local' . . . the "Harrisonburg Special", "Rock-town Comet" . . . ? We're SO CLOSE . . . nobody at state level thought to connect us? I'm sure there is a reason, and I don't pretend to know anything about the passenger rail industry . . . but, I love low-hanging fruit!

**J****JAL**

5/8/23, Page 3-1

**1 like**

While it may be good news that the area where I live will not urbanize during the next 25 years, it appears this is bad news for residents who cannot expect the benefit of enhanced transportation services until after 2050. Does this projection take into account the likelihood of increased population as more people leave areas at risk from climate change (e.g., coastal VA) and move to the Central Shenandoah Valley?

**B****Brent**

5/4/23, Page 3-18

**2 likes**

Whether these households are willingly or unwillingly zero-car households, they need other ways to get around town. This 2022 Community Bike Map identifies "low comfort" and "extremely low comfort" (i.e. "extremely dangerous for the cyclist") roads in Harrisonburg.  
<https://harrisonburg.maps.arcgis.com/apps/webappviewer/index.html?id=b9f96541b23348f2b2fab6e3c4>

**b87ecb** This should be analyzed to determine where alternate routes (shared use paths) should go to allow the car-free people of Harrisonburg to safely access all quadrants of the city.

**RH**

**Rich Harris**

5/14/23

**2 likes**

I second this recommendation. Safe biking and walking improvements is greatly needed in our region.

**EZ**

**Earl Zimmerman**

5/5/23, Page 3-18

**2 likes**

How does the Long Range Transportation Plan seek to address the transportation needs of households that do not own a car? You should consider some form of demand-response public transit?

**AH**

**Ansley Heller**

**1 like**

HDPT is currently in the process of conducting a Microtransit study that could provide more on demand options.

**EZ**

**Earl Zimmerman**

about 1 hour ago

**1 like**

DRPT is also planning to do a feasibility study (beginning later this year) on public transit in Rockingham County. This was initiated by Valley Interfaith Action and the county supervisors sent a letter of support.

**J**

**Jared**

4/26/23, Page 3-23

**1 like**

Does this figure count each Inner Campus Shuttle (ICS) as running its own route or does it group them all together as one? Some clarification may be warranted.

**AC**

**Ann Cundy**

5/8/23

**1 like**

Jared, many of these routes follow the same roads and are difficult to show in a single map. HDPT's website has maps for each route.

**S**

**Stacie**

5/5/23, Page 3-27

**1 like**

This map really shows how disconnected our bike and sidewalks are. Additionally pedestrians cannot safely navigate areas where sidewalks switch sides of the roads, or become too narrow because of light post, mail boxes or signs obstructing. Usable sidewalks are far fewer than shown. Bicycle lanes on high speed roads (42, StoneSprings) are not sufficient to ensure safety. There needs to be a physical barrier between cars and non cars on roads over 35 mph.

**B****Brent**

5/4/23, Page 3-27

**6 likes**

I know that good work is being done on this by folks at Public Works. I am grateful for that work, and also want to reiterate that adding narrow, unprotected bike lanes on high-speed roads is not going to allow or encourage more people to bike on those roads. My hope is that shared use paths and protected bike lanes (using Jersey barriers or something similar, not flex posts) is under consideration.

**B****Brent**

5/4/23, Page 3-29

**1 like**

Many of the bike lanes identified here are identified on the Harrisonburg Community Bike Map 2022 as "low comfort" and "extremely low comfort" roads for cyclists. <https://harrisonburg.maps.arcgis.com/apps/webappviewer/index.html?id=b9f96541b23348f2b2fab6e3c4b87ecb>

**B****Brent**

5/11/23, Page 4-10

**1 like**

Suggest changing this to "non-car" as e-bikes and powered wheelchairs are motorized.

**J****JAL**

5/8/23, Page 4-12

**1 like**

Location of any future park and ride lots needs to take into consideration the inter-regional transit routes currently available, but, more important, likely to go online within the next 25 years. The Breeze bus doesn't have convenient park and ride lots and thus is not easily accessed for regional trips (e.g., to Dulles Airport).

**K****Kim**

4/24/23, Page 4-12

**4 likes**

Community input to comp plan update and Keezletown community vision project have included quite a few comments on the importance of dark skies. Language should be added to emphasize lighting for PR projects will have to be carefully designed.

**V****Vawhitehouse6**

4/30/23

**1 like**

I absolutely agree that Keezletown should be protected from light pollution. This is a wonderful community with many long term residents that have family roots in this area.

**J****JAL**

5/8/23, Page 4-12

**1 like**

Need for these is clear if we want to enable greater use of EVs. While ranges for future EVs may increase, at this time the number of available EV charging stations limits use of EVs for trips above 300 miles. One important incentive is to reduce vehicle emissions through transition to cars/trucks that don't use carbon fuels.

**J****JAL**

5/8/23, Page 4-12

**1 like**

South Harrisonburg as well for those in the southeastern part of Rham county.

**TJ****Tim Jost**

4/24/23, Page 4-14

**2 likes**

In Rockingham County comprehensive plan discussions, a major focus has been developing the County as a tourist destination. If this is our goal, EV charging capacity is essential. People aren't going to drive here from elsewhere in the country, or even in Virginia, unless they can recharge their EVs when they get here.

**J****Jared**

4/27/23, Page 4-14

**1 like**

This is correct, but perhaps does not tell the entire story. There are lower-powered charging stations available for public use throughout the HRMPO and some private Tesla-branded Superchargers. Perhaps I am misunderstanding, however, and these are outside of the scope of this section.

**J****JAL**

5/8/23, Page 4-14

**1 like**

Suggest revising to "evaluate". Time for considering is past.

**J****JAL**

5/8/23, Page 4-14

**1 like**

The county needs to work with the 3 utilities that serve it, especially around grid capacity issues as EVs in the county increase and we add EV charging capability.

**J**

**JAL**

5/8/23, Page 5-3

**1 like**

VA's reliance on motor fuels and use tax may mean significant reductions in revenue as we move more and more toward EVs. Though likely outside the scope of HRMPO authority, the entities that make it up need to actively work with area legislators to ensure future funding will be less inadequate than currently.

**NH**

**Nathan Horst**

2 days ago

Re: the funding issue, I suggest installing speed cameras. Generate money, hopefully curb bad behavior, AND reduce dangerous interactions with law enforcement (save money, and possibly lives!).

**J**

**Jared**

4/27/23, Page 5-5

**1 like**

This is generally correct, but it should be noted that these \$1.00 fares have been suspended since spring of 2020 at the onset of the COVID-19 pandemic and have not yet been reinstated as of April 2023. In prior years, JMU students, faculty, staff, and affiliates could also have these fares waived by showing their JMU ID cards (JACards).

**J**

**JAL**

5/8/23, Page 6-1

**1 like**

Hopefully this will be a priority. We need fewer carbon-emitting vehicles on the roads and fewer vehicles generally. This means more public transportation.

**B**

**Brent**

5/4/23, Page 6-3

**2 likes**

Odd to me there's no language in here about carbon reduction, only "promoting energy conservation." Suggest adding "lowering carbon emissions" to this goal. Nowhere in this document is the word carbon or CO2 mentioned.

**AC**

**Ann Cundy**

5/8/23

**2 likes**

Thank you, Brent. Noted. We're adding content in Chapter 4.

**NH**

**Nathan Horst**

5/9/23

**2 likes**

Proactive anticipatory efforts to lower carbon emissions that appropriately respond to the urgency of the climate crisis should be jumping out of this document. Consider the value and utility of 'branding' the whole LRTP as "Climate-friendly" and including a lot of additional references to how the plan supports our survival.

**S**

**Stacie**

5/6/23, Page 7-3

**1 like**

This is another area that desperately need walking and bike access. A buggy lane helps, but the whole road should be widened, with shared use paths or sidewalks on both sides!

**K**

**Kath**

5/1/23, Page 7-3

**1 like**

If #86 on 7-3 is the "No left turn onto Rt. 33" scenario, I think it will be counterproductive at best. I see 10 cars in a row turning west onto Rt.33 from Cross Keys Road at the light - and now they will all have to turn east instead (large poultry trucks, farm implements, cars, etc), juggle the U-turn (or will that be another light?) and add to the traffic coming west through the light. Makes no sense to me!

**S**

**Stacie**

5/6/23, Page 7-4

**1 like**

Why sidewalk on only one side of High Street? It is difficult/impossible to access neighborhoods or business on east side of the road by foot or bike.

**AH**

**Ansley Heller**

5/11/23

The proximity to the railroad makes adding sidewalks on both sides of High Street difficult and costly.

**A**

**Andrew**

5/24/23, Page 7-4

Is this an error? Should it just be "from US-33 to WCL" ?

**A**

**Andrew**

5/24/23, Page 7-4



**5 likes**

Please consider amending this project to a Shared Use Path. As noted elsewhere in the document, Erickson is a congested road with significant truck traffic. Even with bike lanes, I would not ride with my children on this road. Add a SUP with a small buffer here, and run it all the way to Garbers Church, connecting to sidewalks and a SUP that takes users to Hillandale Park. Then, families from Monte Vista, Belmont Estates, and staff commuting to Mountain View Elementary have a safe path, separate from traffic, that can be ridden or walked from the heart of Harrisonburg to major neighborhoods on the outskirts.

**B****Brent**

5/4/23

**1 like**

Agreed. I have ridden my bike on the Erickson bike lanes and would never do it again. While they are wider than the bike lanes on S. Main (which I would never feel safe enough to use) the car traffic whizzes by very close to bikes. An extremely unpleasant and nerve-wracking experience I don't intend to have again.

**S****Stacie**

5/6/23

**1 like**

Yes, the the traffic type and speed make a bike lane inadequate. Additionally the trucks rounding the corner on Erickson do not remain in their lane. A separate space is needed.

**NH****Nathan Horst**

5/9/23

**1 like**

I wonder if it would help to talk about "child-friendly bike lanes" - it seems that the planning assumption is that we are talking about adult commuters, when, in fact, we are creating a space for children to be on the road. Does this perspective help to shift the mind-set? Once bikes are on the road, now we're talking about how to make the city safe for children to bike all around town. This feels like a different perspective than considering what is tolerable for adults (even if still not safe for adults either). Harrisonburg: child-friendly, climate-friendly, friendly.

**J****JAL**

5/8/23, Page 7-4

**1 like**

Endorse Alliance for the Shenandoah Valley positions on need for strategic design of pedestrian/cyclist space and for dark sky lighting. <https://shenandoahalliance.org/final-input-for-harrisonburg-rockingham-transportation-projects/>

**EZ****Earl Zimmerman**

5/2/23, Page 7-4

**1 like**

This will greatly improve safe biking on Erickson Ave. and connect with other bike corridors on this side of Harrisonburg.

**EZ**

**Earl Zimmerman**

5/15/23

**1 like**

This will greatly improve safe biking on Erickson Ave. and connect with other bike corridors on this side of Harrisonburg.

**S****Stacie**

5/6/23, Page 7-4

**1 like**

There is already sidewalk on both sides of Neff Ave. Lets use the money for a shared used path to improve an area that has not safety measures first, then improve areas with sidewalks later.

**B****Brent**

5/4/23, Page 7-7

**1 like**

This has been a dire need for the safety of residents for many years. There is a particularly dangerous spot where the sidewalk on the overpass ends and a guardrail forces pedestrians into oncoming traffic. See photo of desire path attached.

**NH****Nathan Horst**

5/9/23

**1 like**

I agree, this situation needs to be fixed, very silly and I always feel like I'm in Haiti or something when I see the dirt paths on Reservoir. It is sobering to see the price-tag that goes along with this fix.

**S****Stacie**

5/6/23, Page 7-8

**2 likes**

With traffic at 55 mph more than a bicycle lane is needed. A shared use path, separate from the road or with a physical barrier between is needed for safety.

**K**

**Kevin**

5/7/23

**2 likes**

A wide shoulder similar to the buggy shoulder on Rt. 42 would be welcome

**K****Kevin**

5/7/23

**2 likes**

We need an east and west bicycle corridor to connect with in place north and south corridor

**S****Stacie**

5/6/23, Page 7-9

**2 likes**

Are there no plans for bike or walking access on Spotswood Trail (US-33)? Currently there is no non-car access to Rockingham park or the several neighborhoods east of Harrisonburg City.

**K****Kevin**

5/7/23

**2 likes**

Agree

**S****Stacie**

5/6/23, Page 7-9

**1 like**

Yes! This is the sort of sidewalk needed for safety. Thank you! Can all of the new sidewalks include a grass buffer?

**K****Kim**

4/24/23, Page 7-12

**1 like**

Is this a typo? Should it say HRMPO instead?

**J****Jared**

5/3/23

I believe you are correct. The SAWMPO is the Staunton Augusta Waynesboro Metropolitan Planning Organization. If this section is adapted from their documents, it should be double-checked for accuracy as it pertains to the HRMPO as well.

**J****Jared**

4/27/23, Page A-11

**1 like**

For context, this is the portion of the road which runs through JMU-owned property and one for which the (primarily student) pedestrian traffic is much higher than average.

**J****Jared**

4/27/23, Page A-27

For context, this is the portion of the road which runs through JMU-owned property and one for which the (primarily student) pedestrian traffic is much higher than average.

Example of public comments received on LRTP feedback survey

***Date received.***

***Name:*** Lorem Ipsum.

***Zip Code:*** 12345

***Question 1: Does the draft 2045 Long Range Transportation Plan capture our regional transportation needs?*** Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas porttitor congue massa.

***Additional Information:*** Fusce posuere, magna sed pulvinar ultricies, purus lectus malesuada libero, sit amet commodo magna eros quis urna. Nunc viverra imperdiet enim.

***Question 2: Do the projects and proposed studies in the draft Plan help meet those needs?*** Pellentesque habitant morbi tristique senectus et netus et malesuada fames ac turpis egestas.

***Additional Information:*** Vivamus a tellus.

***Question 3: The draft Plan is accessible and easy to read.*** Aenean nec lorem. In porttitor. Donec laoreet nonummy augue.

***Question 4: Is there anything that would make the Plan more accessible for you?*** Consectetur adipiscing elit.

***Question 5: The content in the draft Plan makes sense and the level of detail is sufficient.*** Ut nonummy.

***Question 6: Is there anything we missed in the draft 2045 LRTP?*** Mauris et orci. Aenean nec lorem. In porttitor.

Public comments received on LRTP feedback survey

***5/12/2023***

***Name:*** N/A

***Zip Code:*** 22801



**Question 1: Does the draft 2045 Long Range Transportation Plan capture our regional transportation needs?** Not Sure.

**Additional Information:** I would say it captures some needs but not all. I think adding a light on Port Republic will make traffic even worse. None of the lights line up, so the traffic gets backed up through intersections. I also think there need to be more bike lanes added all over town, however there are only bike lanes being added in some places. I am trying to run a marathon in the fall, but I don't know how to run long runs because there are not safe places to run.

**Question 2: Do the projects and proposed studies in the draft Plan help meet those needs?**

No

**Additional Information:** See above. Again, I am excited that some bike lanes are being added, and lots of things will change to make traffic better. However, there are many ways it can be improved.

**Question 3: The draft Plan is accessible and easy to read.** Agree

**Question 4: Is there anything that would make the Plan more accessible for you?** N/A

**Question 5: The content in the draft Plan makes sense and the level of detail is sufficient.**

Agree

**Question 6: Is there anything we missed in the draft 2045 LRTP?** See above

5/17/2023

**Name:** Sarah Showalter

**Zip Code:** 22801

**Question 1: Does the draft 2045 Long Range Transportation Plan capture our regional transportation needs?** Not Sure.

**Additional Information:** N/A

**Question 2: Do the projects and proposed studies in the draft Plan help meet those needs?**

N/A

**Additional Information:** N/A

**Question 3: The draft Plan is accessible and easy to read.** Disagree

**Question 4: Is there anything that would make the Plan more accessible for you?** Summary version of 10 pages or less with highlights - sections could refer to page numbers in the larger document for elaboration. Hard to sift through 140+ pages.

**Question 5: The content in the draft Plan makes sense and the level of detail is sufficient.**

N/A

**Question 6: Is there anything we missed in the draft 2045 LRTP?** Would love to see more/improved sidewalks in the area of Norwood, Hawkins, Franklin, and Reservoir. This is a dense population area with folks who do a lot of walking, and improvements could help make a much safer walking experience.

# Appendix B: Resource Agency Consultation

## Letter Sent to Resource Agencies

**From:** [Ansley Heller](#)  
**To:** ---  
**Cc:** [Ann Cundy](#)  
**Subject:** Project Review- HRMPO LRTP Tuesday,  
**Date:** January 24, 2023 9:52:26 AM  
**Attachments:** [ResourceAgencyReviewPacket.pdf](#)  
[image001.png](#)

Good morning,

The Harrisonburg-Rockingham Metropolitan Planning Organization (HRMPO) – the regional transportation planning organization for the city of Harrisonburg, the towns of Dayton, Bridgewater, and Mt. Crawford and the urbanized portion of Rockingham County – is updating the 25-year Long Range Transportation Plan (LRTP) for all surface transportation investments in the region.

An important part of the update is identifying transportation projects that meet the region's travel needs, and consulting with state and federal resource agencies on the draft project lists. We invite you to review and share your comments on the attached map and project list with regards to the planning process and proposed projects in general, and also the potential impacts on other transportation modes, and natural and cultural resources as well.

The attached letter provides further detail, and hard copies of each document are attached. Please submit your comments no later than **March, 16 2023** to ensure your input is included in the final draft of the plan, and let me know if you have any questions.

Thank you,  
Ansley Heller

**Ansley Heller**

Transportation Planner  
Central Shenandoah Planning District Commission  
112 MacTanly Place  
Staunton, VA 24401  
540-885-5174 ext 115



## Agency Responses

### Virginia Department of Environmental Quality

January 26, 2023

Hi Ansley and Ann – Here is general information we provide for projects like this that are in the DEQ Valley Region. Please review the general information provided below and contact me with any questions you may have at any time. We are happy to assist you in any way we can to determine what environmental permits you may need and to help you understand any other requirements associated with Virginia's environmental laws and regulations. If you happen to need any environmental permits you should know that some can be processed in a matter of days or weeks, but others may take several months or more due to coordination with other agencies and public notice requirements, and we want to make sure you can get started as soon as you desire.

Below is general information related to DEQ programs which should be considered for this project. In addition, we encourage you to refer to DEQ's Environmental Impact Reviews web site, <https://www.deq.virginia.gov/permits-regulations/environmental-impact-review>, and our Pollution Prevention / Environmental Excellence pages, <https://www.deq.virginia.gov/get-involved/pollution-prevention>, for other general information. We are glad to discuss specifics for any aspects of this project with you as it relates to any DEQ programs. Please let me know if you have any questions or need any additional information regarding environmental matters.

**1. Water Quality and Wetlands.** Measures must be taken to avoid and minimize impacts to surface waters and wetlands during construction activities. The disturbance of surface waters or wetlands may require prior approval by DEQ and/or the U.S. Army Corps of Engineers. The Army Corps of Engineers is the final authority for an official confirmation of whether there are federal jurisdictional wetlands or other surface waters that may be impacted by the proposed project. DEQ may confirm additional waters as jurisdictional beyond those under federal authority. Review of National Wetland Inventory maps or topographic maps for locating wetlands or streams may not be sufficient; there may need to be a site-specific review of the site by a qualified professional. Even if there will be no intentional placement of fill material in jurisdictional waters, potential water quality impacts resulting from construction site surface runoff must be minimized. This can be achieved by using Best Management Practices (BMPs). If construction activities will occur in or along any streams (perennial, intermittent, or ephemeral), open water or wetlands, the applicant should contact Eric Millard at DEQ-VRO (540-217-7483, [Eric.Millard@deq.virginia.gov](mailto:Eric.Millard@deq.virginia.gov)) to determine the need for any permits prior to commencing work that could impact surface waters or wetlands.

**2. Erosion and Sediment Control and Storm Water Management.** DEQ has regulatory authority for the Virginia Pollutant Discharge Elimination System (VPDES) programs related to municipal separate storm sewer systems (MS4s) and construction activities. Erosion and sediment control measures are addressed in local



ordinances and State regulations. Additional information is available at <https://www.deq.virginia.gov/water/stormwater>. Non-point source pollution resulting from this project should be minimized by using effective erosion and sediment control practices and structures. Consideration should also be given to using permeable paving for parking areas and walkways where appropriate, and denuded areas should be promptly revegetated following construction work. If the total land disturbance exceeds 10,000 square feet, an erosion and sediment control plan will be required. Some localities also require an E&S plan for disturbances less than 10,000 square feet. A stormwater management plan may also be required. For any land disturbing activities equal to one acre or more, you are required to apply for coverage under the VPDES General Permit for Discharges of Storm Water from Construction Activities. The Virginia Stormwater Management Permit Authority may be DEQ or the locality. Specific questions regarding the Stormwater Management Program requirements should be directed to Eric Millard at DEQ-VRO (540-217-7483, [Eric.Millard@deq.virginia.gov](mailto:Eric.Millard@deq.virginia.gov)).

**3. Other Site Development Considerations.** Fugitive dust generated during construction should be controlled by using measures such as the prompt removal of spilled or tracked dirt or other materials from paved streets, limited application of water to suppress dust, and washing of construction vehicles and paved roadways immediately adjacent to construction sites. Do not use water for dust control to the extent that it results in runoff to surface waters or wetlands. Land clearing wastes (vegetative debris) generated during construction should be properly managed in accordance with applicable regulations and local ordinances. Shredding/chipping of vegetative debris and reuse on-site is usually recommended over open burning. Any open burning of vegetative debris must be performed in accordance with the Open Burning Regulation and coordinated with the local fire official to ensure that all local ordinances are met. A copy of DEQ's open burning regulation and related information are accessible from <https://www.deq.virginia.gov/permits-regulations/laws-regulations/air>. Also, no open burning should take place in violation of the Virginia Waste Management Regulations, <https://www.deq.virginia.gov/land-waste/solid-hazardous-waste>. Contact Keith Fowler at DEQ-VRO (540-217-7480, [Keith.Fowler@deq.virginia.gov](mailto:Keith.Fowler@deq.virginia.gov)) for any questions related to the proper control of fugitive dust, or open burning requirements and prohibitions.

**4. Potable Water.** Installation of potable water lines and appurtenances must comply with the State's Waterworks Regulations. The Virginia Department of Health (VDH), <https://www.vdh.virginia.gov/drinking-water/>, administers both federal and state laws governing waterworks operation. For more information, contact the VDH's Lexington Office of Water Programs at (540) 463-7136.

**5. Wastewaters.** DEQ has approval authority over wastewater discharges per the State Water Control Law and corresponding regulations. This includes discharges or land application of any wastewaters generated from washing of materials, products, or vehicles, or other practices relevant to this project, including water contaminated by chemicals used on-site. DEQ also has approval authority over plans and specifications for

sewage collection systems and treatment works (except drainfields and other on-site systems approved by the local health department), per the Sewage Collection and Treatment (SCAT) Regulations, <http://law.lis.virginia.gov/admincode/title9/agency25/chapter790/>. Any wastewaters generated by this project must be properly managed and disposed. For additional information and assistance, contact Brandon Kiracofe at DEQ-VRO (540-217-7479, [Brandon.Kiracofe@deq.virginia.gov](mailto:Brandon.Kiracofe@deq.virginia.gov)).

**6. Air Quality.** Installation / operation / modification / replacement of stationary or portable fuel burning equipment (e.g., generators, wood chippers/grinders, boilers, etc.) or other sources of air pollutants, including dust, may be subject to registration and/or air permitting requirements (<https://www.deq.virginia.gov/permits-regulations/permits/air>); for questions regarding this, please contact Trevor Wallace at DEQ-VRO (540-217-7185, [Trevor.Wallace@deq.virginia.gov](mailto:Trevor.Wallace@deq.virginia.gov)).

**7. Petroleum Storage Tanks.** Installation / operation / modification of tanks used for the storage of petroleum and CERCLA substances may be subject to registration and/or other regulatory requirements (<https://www.deq.virginia.gov/land-waste/petroleum-tanks>). If petroleum-contaminated soils or water are encountered during excavation work, or if old petroleum tanks need to be removed or replaced, contact DEQ. For questions regarding any of this, please contact Todd Pitsenberger at DEQ-VRO (540-830-8857, [Todd.Pitsenberger@deq.virginia.gov](mailto:Todd.Pitsenberger@deq.virginia.gov)).

**8. Solid and Hazardous Wastes, and Hazardous Substances.** DEQ administers the Virginia Waste Management Regulations, <http://law.lis.virginia.gov/admincode/title9/agency20/>. All solid wastes, hazardous wastes, and hazardous materials, including construction and demolition (C&D) wastes and universal wastes (batteries, fluorescent lights, refrigerants, mercury switches, mercury thermostats, etc.), must be managed in accordance with all applicable federal, state, and local environmental regulations. The generation of hazardous wastes should be minimized and solid wastes generated at the site should be reduced at the source, reused, or recycled. DEQ encourages the management of certain organic wastes by on-site composting or reuse as animal feed or soil amendment. Also, if you encounter any improperly disposed solid or hazardous wastes, or petroleum contaminated soils, you should contact DEQ-VRO. You may wish to refer to the web link for "What's in My Back Yard?", <https://geohub-vadeq.hub.arcgis.com/>, to help you determine areas where residual contamination may be more likely. Contact Graham Simmerman at DEQ-VRO (540-830-8786, [Graham.Simmerman@deq.virginia.gov](mailto:Graham.Simmerman@deq.virginia.gov)) for any questions related to waste management / disposal, including any questions related to open burning requirements and prohibitions. Manage / dispose of any asbestos-containing materials (ACMs) in accordance with Virginia Department of Labor and Industry (DOLI) regulations. Contact Doug Wiggins at DOLI ([Richard.Wiggins@doli.virginia.gov](mailto:Richard.Wiggins@doli.virginia.gov), 540-562-3580, ext. 131) for any questions related to management / disposal of ACMs.

**9. Pesticides and Herbicides.** DEQ recommends that herbicides or pesticides for construction or landscape maintenance, when necessary, be used in accordance with the principles of integrated pest management, and

that the least toxic pesticides that are effective in controlling the target species be used. Please contact the Department of Agriculture and Consumer Services at (804) 786-3501 for more information. If applying aquatic pesticides to surface waters, the applicant must comply with the DEQ's Pesticide General Permit, <https://law.lis.virginia.gov/admincode/title9/agency25/chapter800/>.

**10. Natural Heritage Resources.** The Virginia Department of Conservation and Recreation (DCR) Division of Natural Heritage (DNH) can search its Biotics Data System for occurrences of natural heritage resources from the area indicated on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered animal and plant species, unique or exemplary natural communities, and significant geologic communities. We recommend that the DNH be contacted at (804) 786-7951 to secure updated information on natural heritage resources before commencing the project.

**11. Wildlife Resources.** The Virginia Department of Wildlife Resources (DWR) exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state or federally listed endangered or threatened species. DWR determines likely impacts on fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce, or compensate for those impacts. For more information, see the DWR website at <https://dwr.virginia.gov/wies/contact-wies/> or contact Ray Fernald at (804) 367-8364.

**12. Historic and Archaeological Resources.** *Section 106 of the National Historic and Preservation Act of 1966*, as amended, requires that activities that receive federal funding must consider effects to properties that are listed or eligible for listing on the National Register of Historic Places. The Department of Historic Resources (DHR) conducts reviews of projects to determine their effect on historic structures or cultural resources. If applicable, contact DHR, <https://www.dhr.virginia.gov/environmental-review/>. In the event that archaeological resources are encountered during construction, immediately contact the appropriate staff from <https://www.dhr.virginia.gov/environmental-review/staff-directory/>.

**13. Pollution Prevention.** DEQ recommends that construction projects incorporate the principles of pollution prevention including the following recommendations:

- Consider environmental attributes when purchasing materials. For example, the extent of recycled material content and toxicity level should be considered.
- Consider contractors' commitment to the environment when choosing contractors. Also, specifications regarding raw material selection (alternative fuels and energy sources) and construction practices can be included in contract documents and requests for proposals.
- Choose sustainable practices and materials in infrastructure and construction and design. These could include asphalt and concrete containing recycled materials and integrated pest management in landscaping.
- Integrate pollution prevention techniques into maintenance and operation activities to include source reduction (fixing leaks, energy efficient products).

Pollution prevention measures are likely to reduce potential environmental impacts and reduce costs for material purchasing and waste disposal. DEQ's [Office of Pollution of Prevention](#) hosts a number of programs and initiatives that provide non-regulatory assistance to businesses, institutions, and communities including the

Virginia Environmental Excellence Program and Virginia Green. For more information, please visit our web site at <https://www.deq.virginia.gov/get-involved/pollution-prevention>.

**14. Energy Conservation.** Any structures should be planned and designed to comply with state and federal guidelines and industry standards for energy conservation and efficiency. For example, energy efficiency of the structures can be enhanced by maximizing the use of the following:

- thermally-efficient building shell components (roof, wall, floor, and insulation);
- high efficiency heating, ventilation, air conditioning systems; and
- high efficiency lighting systems.

Matt Heller at the Department of Mines, Minerals and Energy, (434) 951-6351, may be contacted for assistance in meeting this challenge.

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B. Keith Fowler | Deputy Regional Director | DEQ-Valley Regional Office | 4411 Early Road | P. O. Box 3000 | Harrisonburg, VA 22801 | 540-217-7480 | [Keith.Fowler@deq.virginia.gov](mailto:Keith.Fowler@deq.virginia.gov)

### Virginia Clean Cities

January 31, 2023

Ansley and Ann,

This email is to present our review of the Long Range Transportation Plan.

**This plan reflects numerous needed areas of improvement ranging additional transportation methods. All of this is wonderful!**

Further: VCC's office is on Mt. Clinton Pike **and I wanted to express local and regional appreciation for the lane choices enabling save bicycle use and for the traffic circle in this plan.** These changes will enable active transportation on this facility!

**I finally submit this note in the form of a two page flier from DOT, DOE, and other agencies related to the energy transition ahead.** This cut sheet of the larger Joint Strategy to Transform Transportation links back to the larger detailed plan and reflects key area of Active Mobility addressed in numerous facilities improvement in the plan.

Thank you for your great work. These projects are urgent and welcome.

--

-Alleyn Harned  
Virginia Clean Cities  
Executive Director  
Desk: (540) 568-8896  
Cell: (804) 539-9425

**From:** Arnold, Zachary (DOF) <Zachary.Arnold@dof.virginia.gov>

**Sent:** Tuesday, March 07, 2023 4:24 PM

**To:** Ansley Heller <ansley@cspdc.org>

**Subject:** Re: VDOF Project Review- HRMPO LRTP

Good afternoon Ansley,

One comment I would have in relation to building more sidewalk, I would encourage you all to make sure to add adequate greenspace into your projects. Trees add so many benefits especially to urban environments some of these benefits include enhanced air quality, reduced levels of stress, wildlife habitat, stormwater interception, energy conservation, increased property values and increased retail revenues according to the USDA Forest service researches. In colleges across Virginia last year, there were doing testing looking at heat island comparing areas with limited greenery versus areas with more urban canopy and according to these studies in highly developed urban areas can sometimes get as much as 15-20 degrees warmer compared to their urban forest counter parts.

More information can be found

at <https://www.heat.gov/pages/urban-heat-islands>. When adding greenspaces with the sidewalk ideally there should be at least 3 feet of space. With less space, trees don't grow as well as the root systems can get restricted and it's not ideal for good tree growth. When choosing trees to plant in the greenspace it's important to the right tree for the right place for the right purpose. Let me know if you have any questions.

Best,

Zachary Arnold Area

Forester

Virginia Department of Forestry Shenandoah

District

90 Forestry Center Lane Cell:

(540) 333-3039

Crimora, VA 24431

<https://dof.virginia.gov/>

VDOF: Protecting and Serving since 1914

## Appendix C: 2045 Vision (Unfunded) Project List

PROJECT ID	SCORE	JURISDICTION	PROJECT NAME	PROJECT DESCRIPTION	Funding Program	Term (SYIP, Mid, Long)	2022 Cost Estimate	YOE Cost Estimate
8	27	Rockingham	Oakwood Dr. Improvements	Improve to 2-lane rural collector from US-11 to Bridgewater Town limits. Include shared use path.	SS	Long	\$10,500,000	\$18,112,500
84	28	Harrisonburg	Bluestone Trail Extension	Extend the Bluestone Trail from Stone Spring Rd. to Rocktown High School and S. Main St.	SS	Mid	\$10,000,000	\$17,250,000
18	29	Harrisonburg	Country Club Rd. (east) Improvements	Construct a three-lane facility including a center turn lane with sidewalk and shared use path on Country Club Rd. from the I-81 bridge to E. Market St.	SS	Mid	\$17,000,000	\$25,160,000
30	30	Harrisonburg	Smithland Rd. Improvements	Widen Smithland Rd. to a 3-lane urban median arterial facility. Realign the intersection of Smithland Rd. and Old Furnace Rd. to make Smithland Rd. the through movement and Old Furnace (from the County) the stop condition. Construct a shared use path from this intersection to connect to the existing shared use path located along Smithland Rd. near Smithland Fields.	SS	Long	\$15,000,000	\$25,875,000
21	31	Harrisonburg	Pleasant Valley Rd. Improvements	Improve Pleasant Valley Rd. to a three-lane facility including a center turn lanes and shared use path from S. Main St. to SCL	SS	Long	\$25,700,000	\$44,332,500
35	18	Rockingham	US-33 Improvements	Implement corridor-wide safety and operational improvements from US-33 Arterial Management Plan from ECL to MPO Boundary, to include crossover modification, updated signs and markings, and rumble strips	TAP/HSIP	Mid	\$11,000,000	\$16,280,000
37	20	Harrisonburg	E. Market St. and Reservoir St. Intersection Improvements	Widen Reservoir St. at the intersection, rebuild the signal, and improve crosswalks to improve safety and operations	RS	Mid	\$7,000,000	\$10,360,000
59	21	Harrisonburg	Erickson Ave. Multimodal Improvements	Add bike and pedestrian facilities between VA-42 (John Wayland Hwy) and the City/County line to connect with the County Project	TAP	Mid	\$6,400,000	\$9,472,000

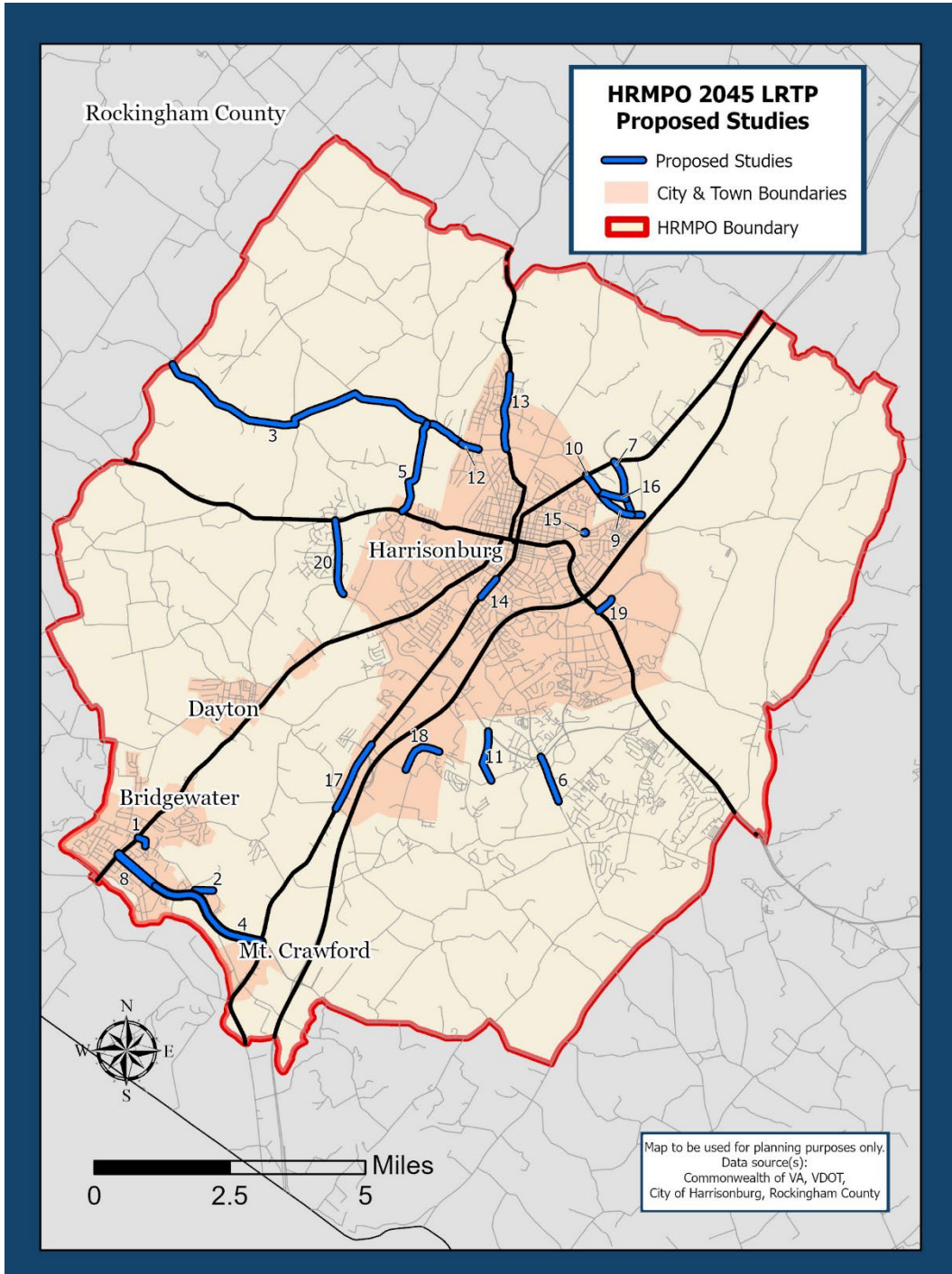
## Appendix D: Proposed Studies

Project ID	Project Name	Jurisdiction	Problem Statement	Source
4	Dinkel Ave. Corridor Study	Rockingham	Evaluate potential future corridor capacity, operational, and safety needs from College View Dr. to US-11, including intersection with Mt. Crawford Ave.	2040 LRTP Vision List
7	Research Dr. Extension	Rockingham	Evaluate feasibility and location of a new limited access major collector with center median and bike-ped shared use path between US-11(N. Valley Pike) intersection and Smithland Rd/Old Furnace Rd.	2040 LRTP Vision List
19	Linda Ln. Capacity study	Harrisonburg	Evaluate solutions to potential future capacity deficiencies on Linda Ln. from E. Market St. to Country Club Rd.	2040 LRTP Vision List
18	Greendale Rd. Extension	Harrisonburg	Evaluate feasibility and location of a new three-lane roadway with shared use path from 0.20 miles west of Ramblewood Rd. to Pleasant Valley Rd. on new alignment that crosses Blacks Run and the railroad.	2040 LRTP Vision List
17	S. Main St. Widening	Harrisonburg	Evaluate widening to a 4-lane divided highway with bicycle and pedestrian facilities as potential solutions to safety and operations issues between Covenant Dr. and Heritage Dr.	2040 LRTP Vision List/2022 Project Pipeline Study
5	Switchboard Rd. Improvements	Rockingham	Evaluate solutions to safety deficiencies between US-33(W. Market St.) and Mt. Clinton Pike.	2040 LRTP Vision List
3	Mt. Clinton Pike Improvements	Rockingham	Evaluate solutions to safety deficiencies, including vertical curves and lack of non-motorized facilities along Mt. Clinton Pike.	2040 LRTP Vision List
12	Mt. Clinton Pike Corridor Improvements	Harrisonburg	Engineering study for the location and cost estimate for a Shared Use Path and lane improvements between Park Rd. and WCL.	2040 LRTP Vision List
16	Mt. Clinton Pike/Vine St. Reconstruction	Harrisonburg	Evaluate the feasibility and location of an extension of Mt. Clinton Pike as an urban minor arterial with bike lanes between US-11(N. Valley Pike) and the ECL	2040 LRTP Vision List
10	Vine St. Extension	Rockingham	Evaluate the feasibility and location of an extension of Vine St. as an urban minor arterial and add bicycle facilities from city limits to intersection of Project 45/Research Rd. Extension	2040 LRTP Vision List
9	Mt. Clinton Pike Extension 2 Alternate	Rockingham	Evaluate the feasibility and location of an extension of a limited access major collector with center median and bike-ped shared use path from Vine St. to Smithland Road/Old Furnace Rd.	2040 LRTP Vision List

Project ID	Project Name	Jurisdiction	Problem Statement	Source
6	Port Republic Rd. Corridor Improvements	Rockingham	Evaluate potential future capacity deficiencies and safety deficiencies from Boyers Rd. to Stone Spring Rd.	2040 LRTP Vision List
11	Peach Grove Ave. Extension	Rockingham	Evaluate feasibility and location of a new 4 lane roadway with wide shoulders between Ridgedale/Greendale Rd. and Stone Spring Rd.	2040 LRTP CLRP
13	VA-42(Virginia Ave) between Mt. Clinton Pike and Old Windmill Circle	Harrisonburg	Traffic volumes and speeds on Virginia Ave. have led to multiple concerns from residents, primarily related to ability to safely turn left onto Virginia Ave. from intersecting roads including Parkwoods Dr., Acorn Dr., the VMRC entrance, and Birch Dr. A study would identify measures to encourage lower speeds and improve safety for turning movements. Additionally, the intersection with Mt. Clinton Pike is a PSI location that would benefit from evaluation to identify ways to reduce crashes and potentially improve operations.	2045 Update Process
15	Vine St. & Old Furnace Rd. Roundabout Evaluation	Harrisonburg	Evaluate PSI location for a roundabout to improve both safety and operations.	2045 Update Process
1	Mt. Washington Connector	Bridgewater	Evaluate feasibility of aligning Mt. Crawford Ave. with N. River Rd. at N. Main St. intersection, including provision of bike/ped improvements and bus stop.	Bridgewater Comp Plan Update (2022)
2	Mt. Crawford Connector	Bridgewater	Evaluate feasibility and location of rerouting Mt. Crawford Ave. to align with Volunteer Dr. at intersection with Don Litten Parkway.	Bridgewater Comp Plan Update (2022)
8	Bridgewater Bypass (Don Litten Parkway)	Rockingham	Evaluate solutions to potential future capacity deficiencies between US-11 and VA-42(John Wayland HWY) via VA-257 S.(Bridgewater Eastern Bypass)	2040 LRTP Vision List
20	Erickson Ave. Improvements	Rockingham	Evaluate the location and preferred type of non-motorized facilities on Erikson Avenue between the WCL and US 33	2045 LRTP Update
14	Main St.	Harrisonburg	Future study to identify safety improvements from Grace St. to Maplehurst Ave.	Gap Analysis Operations



Map A-1: Potential Future Studies



## Appendix E: Revenue Projections

HRMPO 2045 LRTP Projected Revenues - Highway												
Funding Program	FY2023	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	FY2030	FY2031	FY2032	FY2033	FY2034
Interstate 81 Improvement Program	\$15,749,000	\$95,355,000	\$11,119,000	\$38,269,000	\$55,070,000	\$0	\$0	\$0	\$0	\$0	\$0	\$0
SMART SCALE (DGP and SHPP)	\$8,038,000	\$14,293,000	\$13,100,000	\$4,281,000	\$2,401,000	\$3,026,000	\$5,260,445	\$5,418,780	\$5,517,006	\$5,689,053	\$5,900,636	\$6,070,126
Discretionary Programs (TAP, HSIP, RS)	\$9,194,000	\$6,378,000	\$2,527,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
State of Good Repair	\$9,666,000	\$7,737,000	\$5,813,000	\$646,000	\$0	\$0	\$3,053,075	\$3,171,827	\$3,245,496	\$3,374,531	\$3,533,218	\$3,660,336
Maintenance – Localities	\$6,000,000	\$6,186,000	\$6,377,766	\$6,575,477	\$6,779,317	\$6,989,475	\$7,206,149	\$7,429,540	\$7,659,855	\$7,897,311	\$8,142,128	\$8,394,534
Maintenance – VDOT	\$22,121,646	\$22,188,278	\$22,707,159	\$23,217,256	\$24,184,263	\$24,705,725	\$25,238,722	\$25,783,510	\$26,340,351	\$26,909,510	\$27,491,260	\$28,085,882
Funding Program	FY2035	FY2036	FY2037	FY2038	FY2039	FY2040	FY2041	FY2042	FY2043	FY2044	FY2045	Total
Interstate 81 Improvement Program	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$215,562,000
SMART SCALE (DGP and SHPP)	\$6,214,931	\$6,380,017	\$6,547,890	\$6,717,488	\$6,894,709	\$7,086,202	\$7,272,319	\$7,471,944	\$7,642,924	\$7,796,357	\$7,948,525	\$156,968,352
Discretionary Programs (TAP, HSIP, RS)	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$38,099,000
State of Good Repair	\$3,768,940	\$3,892,754	\$4,018,659	\$4,145,858	\$4,278,774	\$4,422,393	\$4,561,981	\$4,711,700	\$4,839,935	\$4,955,009	\$5,069,135	\$92,565,624
Maintenance – Localities	\$8,654,764	\$8,923,062	\$9,199,677	\$9,484,867	\$9,778,898	\$10,082,043	\$10,394,587	\$10,716,819	\$11,049,040	\$11,391,561	\$11,744,699	\$197,057,566
Maintenance – VDOT	\$28,693,658	\$29,314,882	\$29,949,850	\$30,598,868	\$31,262,245	\$31,940,301	\$32,633,360	\$33,341,755	\$34,065,826	\$34,805,919	\$35,562,390	\$651,142,616
<b>Assumptions:</b>												
Average \$1 mil each year in TAP/RS/HSIP												
Improve 81 Phase 2 unknown, so no revenue past what's in the SYIP												
No increases based on ILJA. Only a 5-year bill.												
Maintenance - Localities Based on Harrisonburg FY23 and historic maintenance payments annual increase of 3.1%/year												

## Appendix F: Project Evaluation and Scoring

Description			Scoring				Safety	Accessibility	Economic Development	Environment	Land Use
PROJECT ID	JURISDICTION	PROJECT NAME	Rank	Project Score	Project Cost	Project Benefit	Weighted Factor Value	Weighted Factor Value	Weighted Factor Value	Weighted Factor Value	Weighted Factor Value
39	Harrisonburg	Mason St. Improvements	1	5142.33	\$40,000.00	20.6	0.1	2.6	7.6	2	8.3
45	Harrisonburg	Mason St. Improvements	2	3248.46	\$100,000.00	32.5	7.4	3.6	7.2	5.5	8.8
38	Harrisonburg	Mason St. Improvements	3	1868.41	\$100,000.00	18.7	0.3	6.9	7.1	4.3	0
83	Harrisonburg	Burgess Rd./Linda Ln. Reconfigurations	4	527.46	\$800,000.00	42.2	16.4	12.1	6.7	7	0
90	Harrisonburg	VA-42 (High St.)	5	394.21	\$500,000.00	19.7	0	10.7	1.1	7.9	0
20	Harrisonburg	S. Carlton St. Improvements	6	256.04	\$1,000,000.00	25.6	0.8	2.5	8	9	5.3
9	Rockingham	Erickson Ave. Improvements	7	180.08	\$1,000,000.00	18	0	5.4	0	8	4.6
17	Harrisonburg	Old Furnace Rd. Sidewalks	8	125.34	\$1,500,000.00	18.8	0	4.3	3	7.9	3.6
63	Harrisonburg	S. Main Corridor Improvements (Northern Scope)	9	108.53	\$5,391,741.00	58.5	0.9	16.3	18.9	8.7	13.7
104	Harrisonburg	Erickson Ave. and Pear St. R-CUT	10	99.81	\$3,500,000.00	34.9	12.4	7.6	2.4	5.9	6.5
81	Rockingham	US-33(Spotswood Trail) at VA-280(Stone Spring Rd.) Turn Lane Improvements	11	91.5	\$3,076,300.00	28.1	0.4	16	1.9	6.9	2.8
91	Harrisonburg	Neff Ave.	12	73.53	\$2,000,000.00	14.7	0	2.1	4.6	7.9	0
102	Harrisonburg	Mt. Clinton Pike Corridor Safety	13	64.91	\$6,800,000.00	44.1	4.4	9.7	11.9	8	10.2
105	Harrisonburg	Reservoir St. Sidewalk	14	62.92	\$4,900,000.00	30.8	0	9.6	2	8	11.3
82	Rockingham	US-33(Spotswood Trail) at Rockingham Park Way R-CUT	15	62.24	\$3,600,000.00	22.4	1	15.2	0.2	5.9	0
15	Rockingham	Garbers Church Rd. Improvements	16	50.2	\$2,500,000.00	12.6	0.2	6.4	0.1	6	0
106	Harrisonburg	N.Main St. Sidewalk	17	49.66	\$6,000,000.00	29.8	0	6.4	7.4	10	6.1
35	Rockingham	US-33 Improvements	18	47.32	\$11,000,000.00	52	27	6.6	4.4	10	4.1
85	Harrisonburg	Neff Ave. Shared Use Path	19	46.22	\$4,000,000.00	18.5	5.3	1.1	2.2	9.9	0

Description			Scoring				Safety	Accessibility	Economic Development	Environment	Land Use
PROJECT ID	JURISDICTION	PROJECT NAME	Rank	Project Score	Project Cost	Project Benefit	Weighted Factor Value	Weighted Factor Value	Weighted Factor Value	Weighted Factor Value	Weighted Factor Value
37	Harrisonburg	E. Market St. and Reservoir St. Intersection Improvements	20	45.2	\$7,000,000.00	31.6	1.6	12.1	9.6	8.3	0
59	Harrisonburg	Erickson Ave. Multimodal Improvements	21	42.72	\$6,400,000.00	27.3	0	9.9	1	9.9	6.6
4	Harrisonburg	Country Club Rd. (west) Improvements	22	39.96	\$10,000,000.00	40	0.7	12.3	9.1	11	6.9
103	Harrisonburg	Liberty St.- Downtown Harrisonburg	23	38.83	\$12,200,000.00	47.4	16.3	7.8	6.7	7.8	8.8
86	Rockingham	US-33(Spotswood Trail) at VA-276(Cross Keys Road) R-CUT	24	36.14	\$7,700,000.00	27.8	2.9	12.7	0.3	5.9	6
58	Harrisonburg	Martin Luther King Jr Way Extension	25	31.82	\$13,600,000.00	43.3	0	8.2	16.1	12	7
62	Bridgewater	Riverwalk	26	29.73	\$4,000,000.00	11.9	2.2	1	0	8.8	0
8	Rockingham	Oakwood Dr. Improvements	27	29.5	\$10,500,000.00	31	0	4.5	3	9.5	14
84	Harrisonburg	Bluestone Trail Extension	28	28.27	\$10,000,000.00	28.3	10.2	3.4	5.5	9.1	0
18	Harrisonburg	Country Club Rd. (east) Improvements	29	27.73	\$17,000,000.00	47.1	2	13.2	8.1	11	12.9
30	Harrisonburg	Smithland Rd. Improvements	30	16.38	\$15,000,000.00	24.6	0.7	6.7	4.1	9.7	3.3
21	Harrisonburg	Pleasant Valley Rd. Improvements	31	15.24	\$25,700,000.00	39.2	1.1	8.7	10.5	10.8	8.1

## Appendix G: Performance-Based Planning and Programming

The Federal Highway Administration (FHWA) established Performance-based Planning as a part of the Moving Ahead for Progress in the 21st Century (MAP- 21) Act and the Fixing America's Surface Transportation (FAST) Act to measure progress toward achieving national transportation goals and uses performance outcomes to inform transportation decision making. State departments of transportation and MPOs are required to establish performance-based targets related to safety, bridge and pavement condition, air quality, freight movement, and performance of the National Highway System, and to use performance measures to track their progress toward meeting those targets.

HRMPO has implemented performance-based planning systems across multiple phases of the transportation planning process: project evaluation and scoring for the CLRP, through application to the statewide competitive funding programs, and in the programming of projects in the HRMPO Transportation Improvement Program (TIP). At each of these phases, the MPO's process aligns with the federal performance measures in MAP-21, and with VTrans, the statewide long range plan.

### Federal Performance Measures and Targets

Virginia and its MPOs recognize the following federal performance measures implemented as of the adoption of this Plan:

- System Performance
- Pavement and Bridge Condition
- Safety
- Public Transit Safety
- Public Transit Asset Management

The HRMPO concurs with and follows VDOT's targets for System Performance, Asset Management, and Safety Targets. Transit in the HRMPO is provided by HDPT, a small urban system included in the statewide Public Transit Safety Asset Plan and the statewide Transit Asset Management Plan.

### Pavement and Bridge Condition

In accordance with the requirements of MAP-21 and the FAST Act, Virginia has established pavement and bridge condition performance targets as reported in Virginia's Baseline Performance Period Report for 2022-

2025. This report, submitted to FHWA in October 2022, satisfies the federal requirement that State DOTs submit a Baseline Performance Period Report to FHWA by October 1<sup>st</sup> of the first year in a performance period. Performance measures for pavement condition are required for the National Highway System (NHS), while bridge condition requirements relate to structures identified as part of the National Bridge Inventory on the NHS. The pavement condition measures and established performance targets for the 2022 - 2025 performance period are indicated in **Table A-1** below.

*Table A-1 Pavement Condition Measures and Performance Targets*

Interstate Pavement Condition Measures	CY 2022-2023 Two Year Target	CY 2022-2025 Four Year Target
Percentage of Pavement in Good Condition	45%	45%
Percentage of Pavement in Poor Condition	3%	3%
Non-Interstate NHS Pavement Condition Measures	CY 2022-2023 Two Year Target	CY 2022-2025 Four Year Target
Percentage of Non-Interstate Pavements in Good Condition	25%	25%
Percentage of Non-Interstate Pavements in Poor Condition	5%	5%

Bridge condition measures and established performance targets for the 2022-2025 performance period are indicated in Table A-2 below.

*Table A-2 NHS Bridge Condition Measures and Performance Targets*

NHS Bridge Condition Measures	CY 2022-2023 Two Year Target	CY 2022-2025 Four Year Target
Percentage of Deck Area of NBI Bridges on the NHS in Good Condition	27.2%	25.1%
Percentage of Deck Area of NBI Bridges on the NHS in Poor Condition	3.3%	3.6%

**Background/History**

Virginia’s history of monitoring asset conditions and utilizing performance information to determine investment strategies based on available funding levels spans over 10 years for pavements and bridges. VDOT maintains a comprehensive inventory of all pavement and bridges on the state-maintained network. This inventory, which includes location, maintenance responsibility, ownership, and current condition or

inspection information, serves as the foundation for life cycle planning, performance forecasting, maintenance and rehabilitation needs estimation, as well as prioritization of work to maximize asset life given available funding. Condition information is also important for communicating with external stakeholders, including the general public.

V DOT's commitment to responsible Transportation Asset Management (TAM) practice is demonstrated through V DOT's annual condition data collection programs and its establishment and publication of network level pavement and bridge performance goals. V DOT's current condition measures and performance goals have been in place for many years and are fully integrated into V DOT's budgeting process and investment strategies.

The federal pavement and bridge performance measures apply to a limited portion of the network for which V DOT is responsible (less than 15% of all lane miles and 18% of the bridge inventory).

#### *Connection to Other Performance Based Planning Documents*

VTrans, the state's long-range multimodal plan, provides the overarching vision and goals for transportation in the Commonwealth. The long-range plan provides a vision for Virginia's future transportation system and defines goals, objectives, and guiding principles to achieve the vision. It also provides direction to state and regional transportation agencies on strategies and policies to be incorporated into their plans and programs. The most recent approved long-range multimodal plan is VTrans2040.

Performance management, specifically as it relates to pavements and bridges, is included in the VTrans2040 Vision, Goals & Objectives, and Guiding Principles as noted below:

#### *Guiding Principle 5:*

Ensure Transparency and Accountability, and Promote Performance Management - Work openly with partners and engage stakeholders in project development and implementation, and establish performance targets that consider the needs of all communities, measure progress towards targets, and to adjust programs and policies as necessary to achieve the established targets.

- Goal D: Proactive System Management - maintain the transportation system in good condition and leverage technology to optimize existing and new infrastructure.
  - Objectives:
    - Improve the condition of all bridges based on deck area.
    - Increase the lane miles of pavement in good or fair condition.

Virginia's federally required Transportation Asset Management Plan (TAMP) presents pavement and bridge inventory and conditions, along with the Commonwealth's performance objectives, measures, and associated risks as they relate to the federal requirements. Asset funding, investment strategies, forecasts, goals, and gaps are also included. The TAMP is specific to the NHS and provides the Commonwealth's Transportation Asset Management (TAM) processes and methodology to meet federal requirements.

Pavement and bridge projects included in the STIP are consistent with Virginia’s reported TAM processes and methodology.

The program of projects in the STIP are directly linked to the pavement and bridge objectives outlined in VTrans2040 and the TAMP through the strategies and actions that are priorities in Virginia.

**System Performance**

In 2018, in accordance with the requirements of MAP-21 and the FAST Act, Virginia’s Office of Intermodal Planning and Investment (OIPI) and the Commonwealth Transportation Board (CTB) established a set of baseline performance targets for three reliability performance measures to assess the Highway System Performance. These targets are updated every four years with the last update happening in September 2022.

Performance of the NHS is measured by the level of travel time reliability. The travel time reliability performance measures and performance targets for the 2022-2025 performance period are indicated in Table A-3 below.

*Table A-3 National Highway System Travel Time Reliability Performance Measures and Targets*

NHS Travel Time Reliability Performance	CY 2022-2023 Two Year Target	CY 2022-2025 Four Year Target
Percent of Person Miles Traveled on the Interstate That Are Reliable	85%	85%
Percent of Person Miles Traveled on the Non-Interstate NHS That Are Reliable	88%	88%

The assessment for freight reliability is based on the truck travel time reliability index. The truck travel time reliability performance measure and performance targets for the 2022-2025 performance period are indicated in Table A-4 below.

*Table A-4: Truck Time Reliability Performance Measure and Targets*

Truck Travel Time Reliability Performance	CY 2022-2023 Two Year Target	CY 2022-2025 Four Year Target
Truck Travel Time Reliability Index	1.64	1.64

The Commonwealth Transportation Board (CTB) approves the performance measures and targets developed for Virginia’s surface transportation network. Such targets, including those for Highway System Performance, are linked to the goals and objectives in Virginia’s long-range transportation plan, or VTrans.



### *Connection to Other Performance Based Planning Documents*

VTrans, the state's long-range multimodal plan, provides the overarching vision and goals for transportation in the Commonwealth. The long-range plan provides a vision for Virginia's future transportation system and defines goals, objectives, and guiding principles to achieve the vision. It also provides direction to state and regional transportation agencies on strategies and policies to be incorporated into their plans and programs. The most recent approved long range multimodal plan is VTrans.

VTrans identifies the most critical transportation needs in Virginia to ensure the overall goals in the long-range plan are achieved. The screening process was informed by a data-driven approach that considers highway system performance measures and targets in addition to other performance indicators.

Performance management, as it relates to the reliability of the NHS and freight, is included in the VTrans2040Vision, Goals & Objectives, and Guiding Principles as noted below:

- **Guiding Principle 4:** Consider Operational Improvements and Demand Management First
  - Maximize capacity of the transportation network through increased use of technology and operational improvements as well as managing demand for the system before investing in major capacity expansions.
- **Goal A – Economic Competitiveness and Prosperity:** invest in a transportation system that supports a robust, diverse, and competitive economy.
  - Objectives:
    - Reduce the amount of travel that takes place in severe congestion.
    - Reduce the number and severity of freight bottlenecks.
    - Improve reliability on key corridors for all modes.
- **Goal B – Accessible and Connected Places:** increase the opportunities for people and businesses to efficiently access jobs, services, activity centers, and distribution hubs.
  - Objectives:
    - Reduce average peak-period travel times in metropolitan areas.
    - Reduce average daily trip lengths in metropolitan areas.
    - Increase the accessibility to jobs via transit, walking and driving in metropolitan areas.

Additionally, the Virginia Freight Element (VFE), a component of VTrans, discusses freight system trends, needs, and issues. The VFE also includes freight policies, strategies, and performance measures that guide Virginia's freight-related investment decisions.

Projects included in the STIP are directly linked to the Highway System Performance objectives outlined in VTrans and associated needs analysis, and the VFE through the strategies and actions that are priorities in Virginia.

### Safety

In accordance with the requirements of MAP-21 and the FAST Act, Virginia has established updated the safety performance objectives as published in Virginia’s 2022 – 2026 Strategic Highway Safety Plan (SHSP), and updated annual targets in the Highway Safety Improvement Program (HSIP) Annual Report. Due to increased crash and injury trends across the Commonwealth and the nation, statewide safety targets approved by the Commonwealth Transportation Board (CTB) forecast an increase in motorized fatalities. Finding it unacceptable to have targets calling for an increase in fatalities, the CTB created [HRVAMPO.org](http://HRVAMPO.org) safety performance goals along with the statewide safety targets. The 2023 Statewide Approved Safety Targets and Aspirational Safety Performance Goals can be found below in table A-5.

*Table A-5 2023 Approved Safety Targets and Aspirational Goals*

	Performance Target	Approved Statewide Safety Targets	Aspirational Safety Performance Goals
1	Number of Fatalities	1,012	930
2	Rate of Fatalities per 100-Million Vehicle Miles Traveled	1.216	1.117
3	Number of Serious Injuries	7,465	7,104
4	Rate Serious Injury Million Vehicle Miles Traveled	8.971	8.537
5	Number of Non-Motorized Fatalities & Non-Motorized Serious Injuries	662	658

For safety performance measures 1, 2 and 3, annual targets are developed collaboratively by the Department of Motor Vehicles (DMV) Highway Safety Office (HSO) and VDOT HSIP staff. The DMV HSO includes these measures in their Highway Traffic Safety Administration (NHTSA) every June.

The Commonwealth Transportation Board (CTB) approves all five annual targets and VDOT includes these in the HSIP Annual Report submitted to FHWA each August. Within 180 days of VDOT’s annual report submission to FHWA, MPOs must indicate their support of the state targets or submit their own regional targets for one or more of the safety measures.

**Connection to Other Performance Based Planning Documents**

The federally required SHSP, a five-year multi-agency comprehensive plan focused on reducing fatalities and serious injuries on all public roads serves as the coordinating document for other plans and programs that

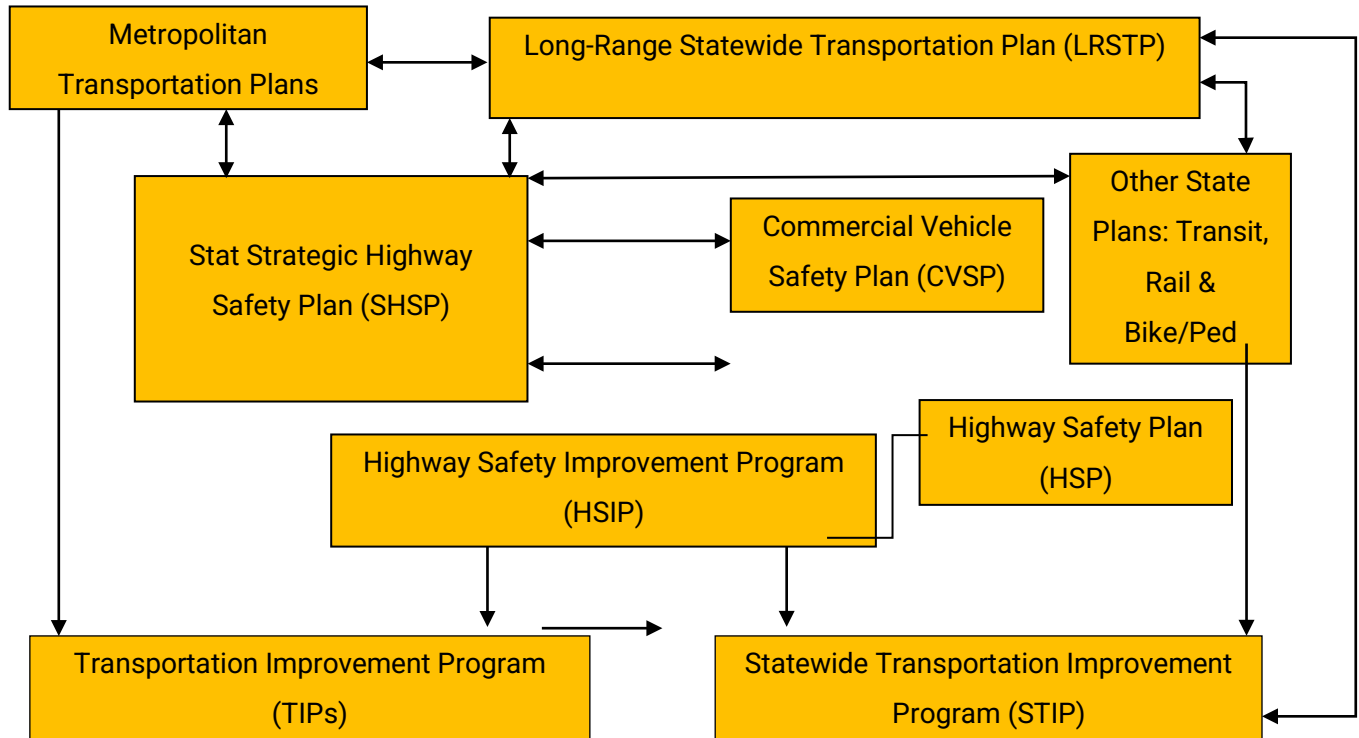
involve traffic safety. This coordination involves the long-range statewide transportation plan (LRSTP), the metropolitan transportation plans (MTP), and three plans that implement parts of the SHSP- the Highway Safety Plan (HSP), and the Commercial Vehicle Safety Plan (CVSP). This integration is important for improving overall safety coordination amongst various partners and leads to more comprehensive transportation safety planning.

The LRSTP, VTrans guides the state's investment decisions for transportation improvements. Safety and performance management is included in the VTrans Vision, Goals & Objectives, and Guiding Principles:

- **Guiding Principle 2:** Ensure Safety, Security, and Resiliency – Provide a transportation system that is safe for all users, responds immediately to short-term shocks such as weather events or security emergencies, and adapts effectively to long-term stressors such as sea level rise.
- **Guiding Principle 5:** Ensure Transparency and Accountability and Promote Performance Management – work openly with partners and engage stakeholders in project development and implementation; and establish performance targets that consider the needs of all communities, measure progress towards targets, and to adjust programs and policies as necessary to achieve the established targets.
- **Goal C:** Safety of All Users – Provide a safe transportation system for passengers and goods on all travel mode.
  - Objectives:
    - Reduce the number and rate of motorized fatalities and serious injuries.
    - Reduce the number of non-motorized fatalities and injuries.

MTPs are similar to the LRSTP, however an MTP covers a specific metropolitan planning area. MTPs include goals and objectives for their respective areas/regions and identify strategies for advancing long-term transportation investments in a specific region.

The HSIP is an annual plan to address highway user behaviors that will improve safety through education and enforcement campaigns. The HSP and associated NHTSA grant are administered through the DMV's HSO. Furthermore, each year the Virginia State Police (VSP) submits a Commercial Vehicles Safety Plan (CVSP) to the Federal Motor Carrier Safety Administration as a requirement of obtaining related enforcement grants. The relationship between the various plans and programs is shown below:



Projects in the STIP are directly linked to the safety objectives outlined in the SHSP through the strategies and actions that are priorities in Virginia.

**Public Transit Asset Management**

MAP-21 established and the FAST Act and the BIL maintain performance measure requirements to ensure states and MPOs are investing transportation funds in projects that collectively will contribute towards the achievement of national goals. The USDOT recently published new rules for states and MPOs to collect data and establish performance targets that will support performance and outcome-based investment decisions. The new federal performance measurement requirement for transit agencies focuses on one area: transit asset management (TAM). The measures look specifically at the percentage of revenue vehicles that have exceeded their Useful Life Benchmark (ULB), the percentage of non-revenue and service vehicles that have exceeded their ULB, and percentage of facilities with a condition below 3.0 on the Federal Transit Administrator’s TERM Scale. All transit agencies receiving grants from the FTA are required to complete a TAM plan. The FTA has established two tiers of agencies based on size parameters. A Tier I agency operates rail, or has 101 vehicles or more all fixed route modes, or has 101 vehicles or more in one non-fixed route mode. A Tier II agency is a subrecipient of FTA 5311 funds, or is an American Indian Tribe, OR has 100 or less vehicles across all fixed route modes, or has 100 vehicles or less in one non-fixed route mode.

The second completed TAM plan was sent to the National Transit Database (NTD) in October 1, 2022. Other required deadlines are found in the table below.

*Table A-6 Transit agency deadlines for TAM Rulemaking for June-July fiscal year*

Reporting Activity	Reporting Deadline
-Complete updated TAM Plan -Share TAM Plan with planning partners	October 2022
-Report FY22 asset data to NTD -Submit FY23 targets to NTD -Submit narrative report to NTD	October 2022
-Report FY23 asset data to NTD -Submit FY24 targets to NTD -Submit narrative report to NTD	October 2023
-Report FY24 asset data to NTD -Submit FY25 targets to NTD -Submit narrative report to NTD	October 2024
-Report FY25 asset data to NTD -Submit FY26 targets to NTD -Submit narrative report to NTD	October 2025
-Complete updated TAM Plan -Share TAM Plan with planning partners	October 2026

The Department of Rail and Public Transportation (DRPT) has opted to sponsor a group TAM plan for Tier II providers. Tier I providers are not eligible for group plans.

For Tier II providers under the DRPT Group Plan, any Transportation Improvement Program (TIP) document or Metropolitan Transportation Plan (MTP) adopted after October 1, 2018 will be in compliance with the TAM Plans developed by DRPT and adopted by the Tier II transit providers within the MPO as well as the regional performance measures adopted by the MPO as a whole.

The HRMPO programs federal transportation funds for BRITE Transit Service. BRITE is a Tier II agency participating in the DRPT sponsored group TAM Plan. The MPO has integrated the goals measures and targets described in the [Federal Fiscal Year 2018 Group Transit Asset Management Plan and 2020 plan Addendum](#) into the MPO’s planning and programming process specific targets for the Tier II Group TAM Plan are included in the table below.

*Table A-7 TAM Targets for rolling stock and facilities: Percentage of Revenue Vehicles that have met or exceeded their ULB by Asset Type.*

Asset Category - Performance Measure	Asset Class	2022 Target*
<b>Revenue Vehicles</b>		
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	AB - Articulated Bus	5%
	BU - Bus	15%
	CU - Cutaway	10%
	MB - Minibus	10%
	BR - Over-the-Road Bus	20%
	TB - Trolley Bus	15%
	VN - Van	20%
<b>Equipment</b>		
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue/Service Automobile	30%
	Trucks and other Rubber Tire Vehicles	30%
<b>Facilities</b>		
Condition - % of facilities with a condition rating below 3.0 on the FTA TERM Scale	Administrative and Maintenance Facility	10%
	Administrative Office	10%
	Maintenance Facility	10%
	Passenger Facilities	15%

**Public Transit Safety**

The Department of Rail and Public Transportation (DRPT) is the sponsor for the Statewide Tier II Group Public Transportation Agency Safety Plan (PTASP). The HRMPO programs federal transportation funds for BRITE Transit. BRITE is a Tier II agency participating in the DRPT sponsored group PTASP. The MPO has adopted the [Tier II PTASP](#) into its TIP by reference and integrated the goals measures and targets described in the 2022 Commonwealth of Virginia Tier II Group Transit Asset Management Plan, August 11, 2022 into the MPO’s planning and programming process. Specific targets for the Tier II Group PTASP are below.

Table A-8 Tier II Transit Agency PTASP Performance Targets by Mode

Performance Measures	Targets by Mode	
	Fixed Route	Paratransit/ Demand Response
Fatalities (total number of reportable fatalities per year)	0	0
Fatalities (rate per total vehicle revenue miles by mode)	0	0
Injuries (total number of reportable injuries per year)	3	0
Injuries (rate per total vehicle revenue miles by mode)	Less than 0.5 injuries per 100,000 vehicle revenue miles	Less than 0.5 injuries per 100,000 vehicle revenue miles
Safety events (total number of safety events per year)	5	2
Safety events (rate per total vehicle revenue miles by mode)	Less than 1 reportable event per 100,000 vehicle revenues miles	Less than 1 reportable event per 100,000 vehicle revenues miles
Distance between Major Failures	10,000 miles	10,000 miles
Distance between Minor Failures	3,200 miles	3,2000 miles

## System Performance Report

### System Performance, Pavement, and Bridge Targets

Transportation system performance and asset management on the National Highway System (NHS), and funding for many safety projects are largely overseen by VDOT. The MPO’s CLRP does not address pavement preservation and bridge projects, and documents – rather than prioritizes – the state’s own projects like those on I-81, which improve system performance on the NHS. The HRMPO maintains current system performance and asset management targets in the HRMPO TIP.

### Safety Targets

At the level of the MPO CLRP, the MPO can prioritize projects that address safety targets for reducing the number and rate of fatal, serious injury, and bicycle and pedestrian crashes. In accordance with MAP-21, the FHWA established final rulemakings for National Performance Measures for Safety Performance in 2016. The annual statewide safety targets, which were established in 2018, must be updated every year by the State and MPOs. Based on the crash trends, VDOT uses percent reductions for the number and rate of fatal crashes, serious injury crashes, and bicycle and pedestrian crashes. The targets for future years are based on the most recent five-year averages, goal percent reductions, and changes to vehicle miles traveled (VMT).

The HRMPO must set its own safety targets or concur with the State’s targets. The HRMPO has concurred with the statewide targets every year. While the HRMPO’s five-year average fatality and severe injury rate is lower than the statewide targets – with rates for both decreasing since 2017 – the number of non-motorized fatal and severe injuries is slightly higher. The average increase in non-motorized crashes is mostly due to an increase in 2019; previously, the MPO was below the annual targets (see **Table A-9**).

*Table A-9 Projected Safety Targets and Actual Numbers, 2021 – 2022*

	2021 Target	2021 Actual	2022 Target	2022 Actual	2023 Target
Fatalities	4	7	4	9	4
Rate of Fatalities per 100M VMT	0.633	0.591	0.621	N/A	0.626
Serious Injuries	41	55	37	39	38
Rate Serious Injury Per 100M VMT	6.119	6.121	5.799	N/A	5.582



Non-Motorized Fatalities & Serious Injuries	5	5	6	4	6
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## Appendix H: Port of Virginia

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The Port of Virginia is an asset of the Commonwealth that promotes economic growth within the MPO and across the state. The region's freight transportation system is dependent on an interconnected system of rail, highways, and local roads for the movement of goods.

HRMPO's network of transportation systems is critical for the growth of the region and the projected growth of The Port of Virginia and other private terminals in the Commonwealth. The construction projects between 2016-2020 at Virginia International Gateway and Norfolk International Terminals added an additional 1 million annual TEU capacity to The Port of Virginia, and therefore, on the transportation system across the Commonwealth. After those improvements and amidst the surge in cargo seen around the world during 2020-2022, The Port of Virginia was ranked the most efficient Port in North America by the World Bank in its Annual Container Port Performance Index released in May of 2022. It is in the middle of a \$1.4 billion capital investment expansion program over the next ten years. These improvements will coincide with the widening and deepening of the Norfolk Harbor which will make Virginia the deepest port on the East Coast along with further optimization of on-terminal infrastructure. All of these will continue to contribute to the Port's growth and its impact on the transportation system.

In summary, it is important to consider the growth of freight within the transportation system for long-range planning of the region due to the positive contribution to the communities. Economic growth is paramount for a thriving region; however, addressing externalities of freight movements, including consideration of the health impacts of air pollution, noise, and vibration impacts of heavy trucks and trains must be part of the planning process.

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