



Tri-Cities Area Multimodal Mobility Plan

Chesterfield County • Colonial Heights • Dinwiddie County
Hopewell • Petersburg • Prince George County



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INTERNATIONAL

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The Appomattox River and Appomattox River Trail pass between the VSU campus and Petersburg.



Executive Summary

The Multimodal Planning Process

The **Tri-Cities Area Multimodal Mobility Plan** is the Tri-Cities Area Metropolitan Planning Organization's (TCAMPO) multimodal guidance document. The document looks at the transportation goals and objectives of both the regional organization and its constituent members with an intentional focus on alternative modes of transportation such as walking, bicycling, and transit. The planning process further folds in the Commonwealth of Virginia's **Multimodal System Design Guidelines** (MMSDG), developed by the Virginia Department of Rail and Public Transportation (DRPT) and adopted by the Virginia Department of Transportation (VDOT), to examine the mobility landscape of the Tri-Cities region and to recommend a comprehensive approach to connecting its communities: the counties of Chesterfield, Dinwiddie, and Prince George and the cities of Colonial Heights, Hopewell, and Petersburg.

The goal of this plan is to create a regional strategy for multimodal transportation planning that would assist planners in evaluating existing connections and conditions across multiple modes and assist local decision makers in weighing the impacts of a balanced approach to transportation planning. Through this rebalancing, there is a purposeful inclusion of other modes of transportation that were historically forgotten or value-engineered out of projects. Multimodal planning is not intended

to be at the expense of the automobile, however. The goal is to not necessarily change how people move about a community but to change the overall attractiveness of other options, either by introducing safer corridors, specific infrastructure, or changes in policy.

When planning for local and regional transportation systems, automobiles and other transportation modes can frequently appear to be in competition with each other for the same roadway space (and sometimes the same funding). Multimodal planning takes a more holistic approach, framing the region's streets and trails as a single, comprehensive network designed to serve all modes as equally as possible. The multimodal planning process considers where people travel, how they travel, and how the network can best serve their needs with efficient and safe infrastructure and amenities. This is broken into six analysis steps:

1. Evaluation of the existing transportation conditions;
2. Identification and analysis of region's activity density;
3. Definition of multimodal districts;
4. Identification of multimodal centers within those districts;
5. Classification of the corridor network to pinpoint how travel occurs or will occur; and
6. Documentation and creation of the multimodal plan.



Bike racks at Hopewell's City Park.



Petersburg Area Transit service in Chesterfield County.

The process for developing a multimodal plan is well-documented in the MMSDG. This includes an assessment of the existing multimodal system and review of existing plans for the six jurisdictions that make up TCAMPO (see Figure 1). Next, there is a data-driven process of identifying multimodal districts and multimodal centers within the region and further identifying the corridors that connect those districts and centers. Stakeholder and public meetings were conducted to gauge the needs of the community and to refine the findings of the previous steps. Finally, the multimodal plan concludes with a set of representative cross-sections based on feedback that show how the system can be developed contextually and used in practice. These projects are planning-level exercises and would require further planning and design beyond this planning document. Fundamentally, this plan is intended to be a step-by-step guidebook on how to use the MMSDG at a regional level.

Part of the approach, however, is adapting general multimodal planning guidance to account for the region's goals and objectives. In this case, additional work was put into defining the economic contribution of multimodal systems, from the tourism impacts from trail expansion to the benefits of public transportation within the community.

A key aspect of this plan is the reframing of local transportation issues as having regional impacts. As Virginia continues to develop its trail network with the addition of the Fall Line Trail between Ashland and Petersburg, the Tri-Cities region's Appomattox River Trail will be connected via bicycle and pedestrian infrastructure to both the Richmond region and the Tidewater area as well, via the Virginia Capital Trail. Eventually, that connection will grow to include Hampton Roads via Trail 757. When looking at networks at this systemic level, it becomes clear how each locality plays a unique and potentially impactful role in the mobility of people, from commercial traffic all the way down to residents on an evening stroll around the neighborhood.

The Tri-Cities Area Multimodal Mobility Plan is designed to function as a tool for the MPO, localities, and other decision-makers. The plan is not intended to prescribe a solution for every issue but to create a standard methodology for addressing planning issues when these issues arise. It also serves to coordinate other plans internally or regionally. The following sections will lay out the reasoning and methods used to create the updated multimodal system and recommendations.

Moving Forward

Fundamentally, this plan is intended to function as a guidance document for both TCAMPO and its jurisdictions. The process by which the multimodal system plan for the Tri-Cities region was developed is a data-driven, repeatable process that takes into account both changes in the distribution of population and employment. While the example projects in this plan are intended to show how the multimodal design guidelines can be applied in a variety of contexts, they are not intended to represent full-fledged projects. TCAMPO and its constituent members can use the cross-sections and high-level cost estimates to move forward with similar projects, understanding that the templates in the corresponding statewide document represent best practices and what is required or necessarily what is possible in every situation.



Boulevard through Colonial Heights is the key commercial corridor and the city's primary regional (non-interstate) north-south connection.

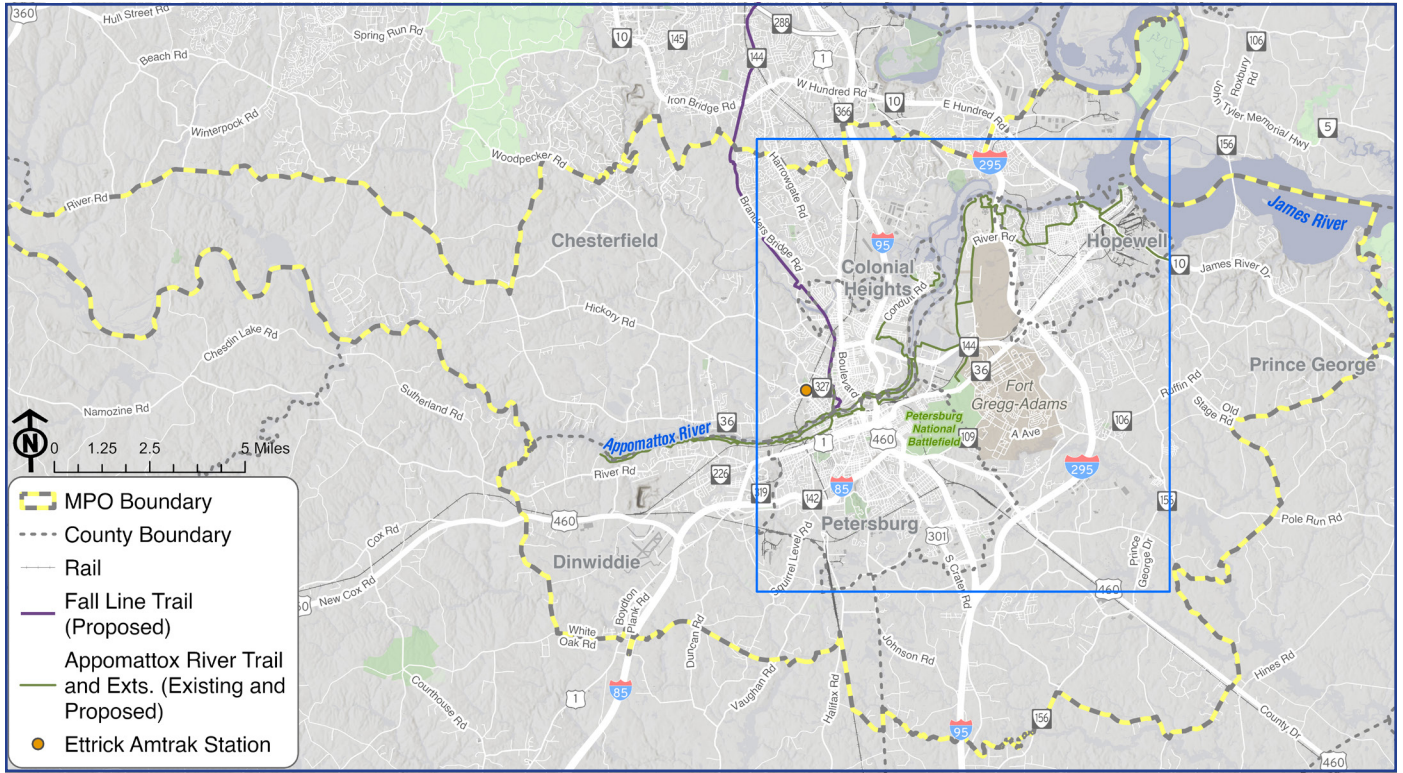


Figure 1: The Tri-Cities Study Area (above) and the inset showing greater detail of the cities of Colonial Heights, Hopewell, and Petersburg (left).

Introduction

Purpose

The purpose of creating a multimodal system plan for the Tri-Cities area, encompassing the cities of Colonial Heights, Petersburg, Hopewell, and parts of Chesterfield, Dinwiddie, and Prince George Counties, is to develop a comprehensive and integrated transportation network that accommodates various modes of travel, including walking, biking, transit, and automobiles. This plan aims to enhance connectivity, improve safety, and promote sustainable urban development by addressing the diverse transportation needs of residents, workers, and visitors in the Tri-Cities area. The process involves a thorough analysis of existing conditions, identification of key focus areas, and the development of targeted improvements to create a seamless and efficient multimodal network.

The Tri-Cities area stands at a pivotal juncture in its transportation evolution, characterized by a combination of historical significance, economic diversity, and a growing population. The existing transportation system, a complex network of over 1,300 miles of interstates, arterials, and local roads, supports not only the daily commute of residents but also the thriving logistics and distribution centers that leverage the region's strategic location at the crossroads of major shipping routes. The system's multimodal nature extends from roads to rail, transit, pedestrian, and bicycle facilities. Each playing a crucial role in the overall functionality and accessibility of the transportation ecosystem.

Goals

Improving Real Multimodal Connectivity

Multimodal networks enhance the connectivity and convenience of travel options for all residents, including those in under-served areas. This involves creating continuous and well-connected pedestrian and bicycle networks, enhancing transit services, and optimizing roadways for vehicular traffic. It also involves the reduction or mitigation of obstacles that impede movement, including railroad corridors, heavy-volume streets, and waterways. The goal is to ensure that all users, regardless of their mode of travel, can move efficiently and safely throughout the region not just on paper but on the ground. The aim is to demonstrate how any transportation

corridor can be re-evaluated through planning to be more inclusive.

Promote Environmental Sustainability

Multimodal planning encourages the use of non-motorized and public transportation modes to reduce greenhouse gas emissions and improve air quality, but the planning team also considered newer metrics like urban heat islands and opportunities to introduce landscape infrastructure that would improve both urban heat outcomes and the experience of multimodal users. While this project's focus on improving the overall multimodal system of the region will not reverse the impact of climate change, mitigation strategies can be included in multimodal projects of all scales.

Reinforce Complete Streets Planning Efforts

VDOT and DRPT's philosophy for comprehensive roadway planning is summarized by "complete streets": the systematic improvement and implementation of infrastructure and policy changes with an eye toward safety for all road users not just those in cars. This is not a short-term planning goal, but the project team looked for opportunities that would accomplish complete streets planning goals by evaluating corridor needs while also demonstrating how the multimodal planning process can be applied directly to various examples across the Tri-Cities region.

Using Community Perspectives

This plan would not have been possible without consistent feedback from the public and stakeholders throughout the planning process. The Multimodal System Design Guidelines provide a technical basis for analyzing multimodal data in a prescriptive sense, but stakeholders and community members provided insight into issues they deal with daily. Engagement events were held throughout each phase of the process to turn comprehensive input into specific actions. Recommendations were in large part directly taken from feedback and each locality was represented in the example project recommendations. Community input was critical to identifying where multimodal improvements could make the biggest difference, but continual education throughout the implementation is key.

The Multimodal Planning Process

What is Multimodal Planning?

Multimodal planning is a systematic approach to accounting for the changing nature of mobility in urban areas. There has been a gradual increase in the share of trips being taken in modes other than automobiles, especially to more personalized mobility options, but the former still dominates the landscape, both literally and figuratively. Bicycling and walking are always popular alternatives; public transportation is always an important element of the modal choices; and there has been a sharp uptick in trips by e-bike and scooters.

Multimodal planning is rooted in the idea that these modes are not competitors but parts of a complete system. The goal is to make the system more accessible, more efficient, more equitable, and safer by approaching the design of corridors in a different way. There are four guiding principles for multimodal corridor design:

1. Streets should be safe for everyone.
2. Streets should be measured by how many people they move instead of how many cars they move.
3. Streets should be accessible to all people regardless of their physical ability, income, gender, and culture.
4. Streets can change.

Multimodal planning is both a descriptive and prescriptive process. It defines what is on the ground so people can see their environment in a new way and make decisions based on this new point-of-view. Multimodal planning also provides direction on how to make changes to the environment to accommodate different modes and plan for a more holistic transportation system. There are four basic steps (see Figure 2).

Step 1. What's the context?

In short, the process begins by asking, What does the system and built environment look like? These factors impact how people move around the environment, so knowing what the existing network looks like and what sort of land use policies and adopted planning documents guide development is critical. Multimodal planning can apply to a variety of contexts, from densely-populated urban centers to sparser development in rural environments.

Within Tri-Cities, the range is narrower, but the development differences between downtown Petersburg and Dinwiddie County can significantly change how people choose to travel.

Step 2. What's being connected?

The next step is to identify where people want to go. The best indicator is a measure called activity density, which is a union of population and job densities. There are other types of centers though—recreation facilities, trailheads, campus buildings, and schools, for example—that may not be fully accounted for in an activity density analysis but serve as destinations, nonetheless. Determining activity density is just a piece of the puzzle.

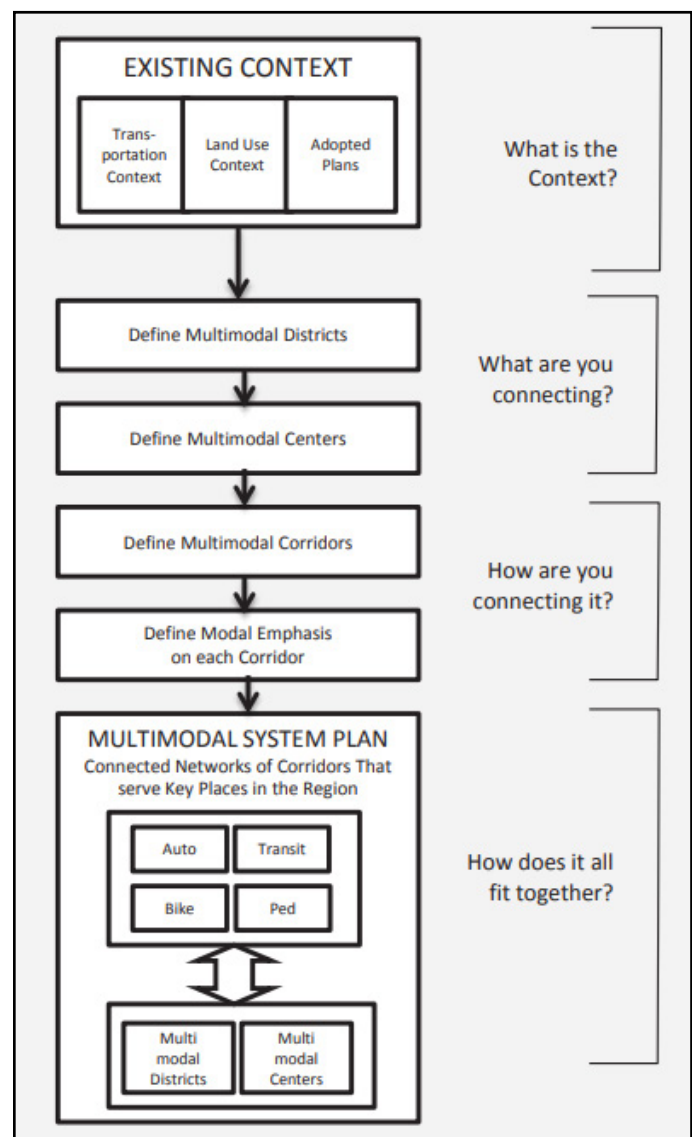


Figure 2: The Multimodal Planning Process as defined by DRPT.

Next, multimodal districts are identified, these districts are large scale areas recognized by localities as having a moderate level of connectivity. They tend to be defined through shared land use policies or regulations, such as small area plans or special zoning designations.

Finally, looking deeper into multimodal districts, one can identify specific multimodal activity centers. This can be done through data analysis or it can be done through subjective analysis of the districts. Areas that have large activity footprints tend to have specific uses within those footprints to explain the activity. These are the multimodal centers. These are smaller areas, generally defined by how far people can walk in a short period of time; multimodal centers are often anchored at intersections, on blocks, or at parks. However, they can often be larger in nature depending on the context. Origin/destination and commuter surveys, usually done regionally, provide great data for developing a hierarchy of districts and centers.

3. How is it being connected?

This is where multimodal corridors are identified. Roads, trails, or other rights-of-way between two districts or centers are mapped and given a “modal emphasis”. In other words, a corridor with a significant bus route has a transit modal emphasis while a multi-use path would have a bicycle and pedestrian modal emphasis. Streets can have an automobile emphasis, but the goal is to describe a potential system for where the automobile does not dominate every corridor.

Once the corridors have been identified, they can also be assigned a designation of either a through corridor or a placemaking corridor. Through corridors are the corridors that connect districts to one another while placemaking corridors are internal to multimodal districts. In practice, both types of corridors can traverse multimodal centers depending on the mode and the purpose of the street. The Virginia Capital Trail between Richmond and Williamsburg is a through corridor with a bicycle and pedestrian modal emphasis that connects not both centers and districts in different regions together.

Placemaking corridors come in different types based on their size, function, and location in a multimodal center: boulevards, major avenues, avenues, and local streets. Boulevards are more

common in larger, denser centers and are designed for a number of different modes. Major avenues are designed to serve centers with a large number of origins and destinations while also limiting the speed of traffic. They are ideal for transit and also cater to pedestrians, necessitating large sidewalks, crosswalks, and other similar infrastructure. Avenues are smaller still, serving as links between larger corridors for all modes of traffic. Avenues tend to have fewer lanes and more access points to businesses and residences than boulevards and major avenues thus leading to lower speeds. Local streets are primarily residential although they can accommodate small commercial and office activity. Local streets are connections between larger corridors and modes tends to share the same space (for instance, bicyclists are allowed to use the full lane of traffic when there is a bicycle designation).

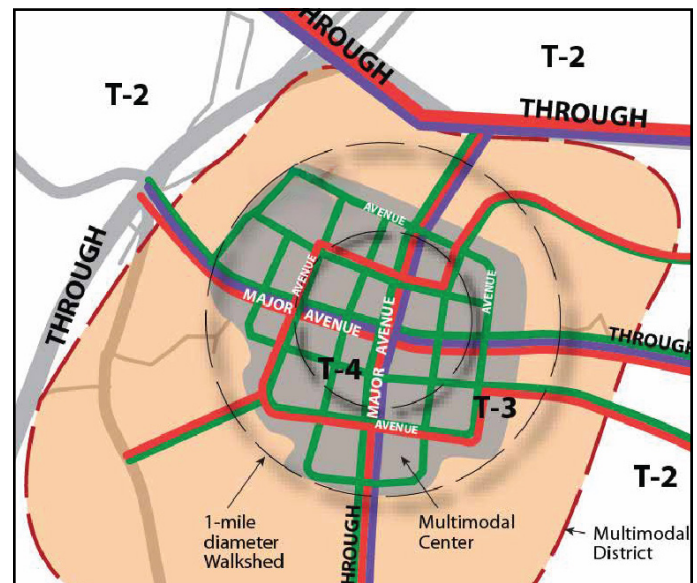


Figure 3: Example of how a multimodal system comes together.

4. How does it all fit together?

Now that all the pieces have been defined and mapped, the strengths and disconnects in the system become clear. Regional and local officials and planners can begin to identify ways to improve the safety and efficiency of existing corridors or make the system itself more accessible by improving multimodal connections across the region (see Figure 3).

Districts are relatively amorphous, and they are not always beholden to jurisdictional boundaries, streets, or other obstacles. It is important to note that the districts can follow these obstacles if

warranted. The boundaries they do have more typically relate to topography, major highways, or planning policies. Tri-Cities' districts have some of those boundaries in the form of the Appomattox River, I-95, I-85, and, of course, the jurisdictional boundaries which may not be visible on the ground but may have impacts on how the land is utilized on either side of the border.

Multimodal centers are more localized than districts. They also have a more specific definition in how they are determined but their borders are no less fluid than a district's. The emergence of a center can come in several forms—an intersection of two streets, a park or trailhead, historic importance, or a specific building or group of buildings. From there the boundaries are drawn either by a distance-based buffer around the point or by determining the walkshed—how far someone can typically walk in a certain period of time. Traditionally, a 15 minute walk or a quarter-mile buffer is used.

Transect Zones

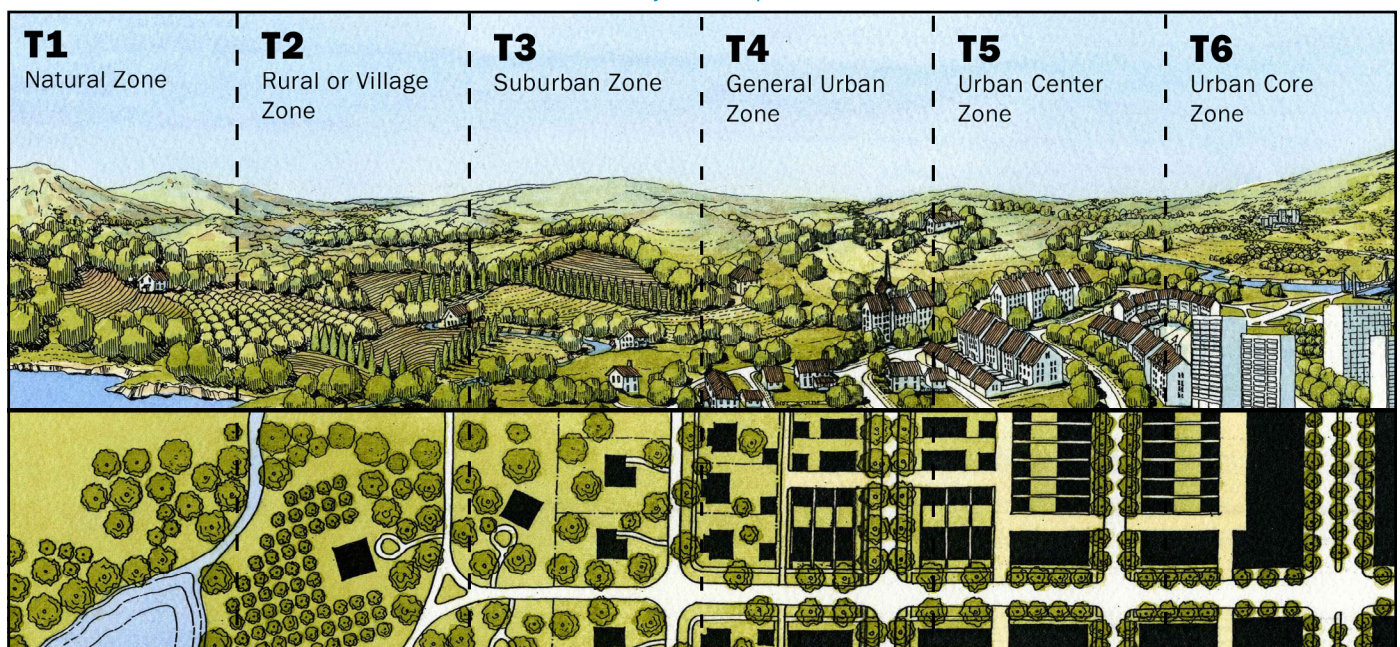
The final step in developing the plan is effectively connecting the dots: define the roads, pathways, and other corridors between each center or district based on two characteristics. One is the mode used, whether it is automobile, transit, bicycle, or something else. The more modes present, the more multimodal the corridor is. The other characteristic is its function. Corridors can either

be placemaking corridors or through corridors based on how they are typically used. Corridors are particularly important because many of them, specifically regional ones, traverse multiple patterns of development. A good way of looking at how development changes is a tool called transects. In simple terms, transects are a system of top-down guidelines of the way development changes from the densest areas (the largest cities) to very rural or natural spaces (see Figure 4).

Development across a region like the Tri-Cities will run from rural to urban with various shades in-between. These “shades” can be called transects for the purposes of multimodal planning. They are a handy shortcut for encapsulating an area's development pattern—the density and height of development, for example—along a spectrum. Transect zones are descriptive in that they provide guidelines to development patterns. Real urban environments do not traditionally follow neat lines; hundreds of years of development, changing zoning ordinances and policies, planning developments, and other zoning exceptions make what is on the ground a bit more chaotic.

The first transect (T1) is defined as an area that is sparsely populated with little in the way of constructed infrastructure. The last (T6) is a densely packed urban core like a city with high-rise office and residential buildings and large boulevards. Nothing in the Tri-Cities region falls into a T5 or T6

*Figure 4: Visualization of a spectrum of transect zones in profile and plan views.
Note that there can be a variety of actual possibilities within each zone.*



transect. Petersburg and Hopewell are both densely built cities in their cores but are considered small urban communities—what we would traditionally consider T3 zones. T3 zones tend to capture the small downtown development as well as suburban development because suburban development is not always uniformly built out. While the transect zones do have a general definition, such as “Rural Zone” or “Suburban Zone”, the activity density tends to be the primary driver of the label.

The outlying areas of the region, including most of the study area within the three counties, runs a range from rural (T2) to suburban or small city (T3) settings. Areas like Southpark Mall might operate more like a T3 zone while the neighborhoods in what is traditionally considered “suburbs” (such as the Ettrick neighborhood in Chesterfield) are much more similar to a rural T2 zone. The transect system is descriptive, however, and the real world variation in each transect should be reflected in the planning process.

Applying Transects

As multimodal districts and corridors are connected, planners can define templates or best practices for redevelopment of corridors. For example, avenues, which are defined in the DRPT Multimodal System Design Guidelines as corridors providing “a balance between access to the businesses and residences that front upon them and the collection of vehicular and pedestrian traffic,” are a common corridor type

in most urban areas. The major streets of Colonial Heights, Hopewell, and Petersburg are typically avenues. Avenues in a T2 transect are designed for 25 mile per-hour traffic and can consist of two travel lanes, sidewalks on both sides of the street, on-street parking, and a bicycle lane. As you move further up the spectrum, the corridor can have more elements: a T4 avenue could have a median and an additional travel lane in each direction.

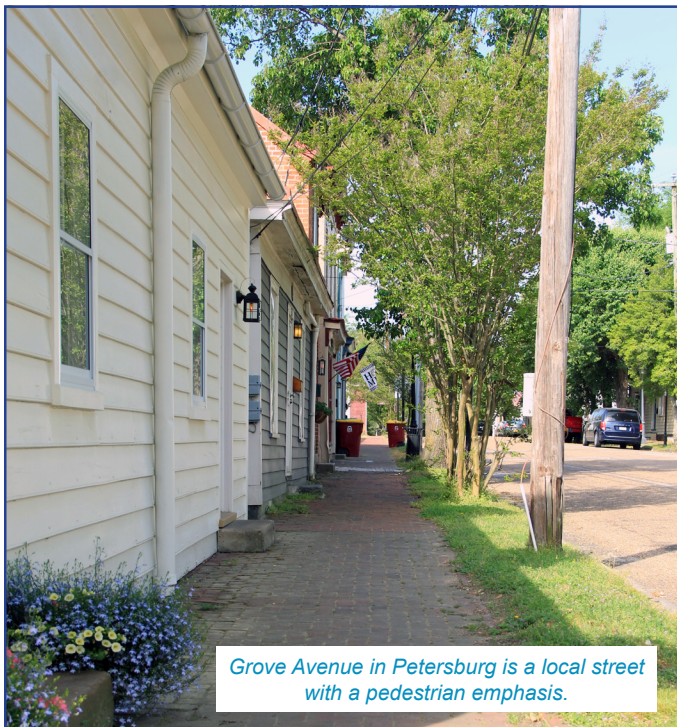
Modal Emphasis

What often dictates the presence and size of different elements is the modal emphasis. A T4 avenue with a transit modal emphasis may not have on-street parking or bicycle lanes because that space is dedicated to bus-only lanes. Reconfiguring rights-of-way to accommodate new modes requires this modal emphasis because the work is often done in a constrained space where no additional right-of-way is available. The reason a modal emphasis is assigned to a corridor is because the goal is to move people from one place to another and not just move vehicles. There are a variety of reasons people choose other means of transportation such as the cost of owning an automobile, desiring active transportation, and environmental concerns. When corridors are designated as cycling, pedestrian, or transit corridors, they are designed (or can be designed) to safely and equitably move everyone.

Using a Multimodal Plan

A multimodal plan, once developed, can be used in a variety of ways by both regional and local organizations. It provides templates for either the establishment of a new roadways or the reconstitution of existing rights-of-way. Developing the plan consists of a systematic review of relevant planning documents that guide development and transportation. As a result, a multimodal plan can guide policy or ordinance development and assist with public outreach when projects are being proposed or developed.

At its core, multimodal planning is about connecting places and moving people. Since the process requires a more holistic look at a community’s development patterns and its transportation network, it can not only highlight gaps in the system, but provide potential opportunities for rectifying inequities, improving safety, and improving public health.



Grove Avenue in Petersburg is a local street with a pedestrian emphasis.

Planning Methodology

Planning Process and Approach

The methodology for this plan is informed by the Virginia Department of Rail and Public Transportation (DRPT) Multimodal System Design Guidelines (MMSDG). The Multimodal System Design Guidelines offer a detailed framework for creating integrated land use and transportation plans that cater to various travel modes, including walking, biking, transit, and automobiles. The methodology begins with mapping land use density and intensity, which involves creating a map of existing and future population and employment densities. This map uses a heat map format to illustrate density levels and designates transect zones, ranging from T-1 (lowest) to T-6 (highest). This step is crucial as it sets the foundation for understanding the spatial distribution of activities and how they influence transportation needs.

Next, the guidelines focus on mapping multimodal districts and centers. Multimodal districts are broad areas characterized by moderate to high-density development, mixed uses, and well-connected road networks, offering good multimodal connectivity. Within these districts, multimodal centers are smaller areas with even higher connectivity and activity intensity, like downtowns or malls. This distinction helps planners identify areas that require more intensive multimodal infrastructure and services.

The methodology then moves to mapping multimodal corridors with modal emphasis. These corridors connect areas within and between multimodal centers and districts. They are classified into six types, divided into through corridors and placemaking corridors. Each corridor is assigned a modal emphasis, such as transit, bicycle, pedestrian, auto, green, or parking, based on existing regional plans. This classification ensures that each corridor is designed to prioritize specific modes of travel, enhancing the overall efficiency and usability of the transportation network.

Integrating all these elements into a unified plan is the next step. The final multimodal system plan combines multimodal districts, centers, corridors, and their respective classifications and modal emphases into a single map. This comprehensive plan highlights potential gaps in the multimodal

network and provides a blueprint for future improvements. It serves as a strategic tool for planners to ensure that all multimodal networks in a region are part of a continuous and connected system, offering diverse travel choices and facilitating the transformation of auto-oriented areas into pedestrian-, bicycle-, and transit-friendly places.

Finally, the guidelines recommend developing typical cross-sections for corridors based on their designations. This can be done comprehensively for all corridors at once or individually as needed over time. These cross-sections provide detailed design specifications that help implement the multimodal plan effectively, ensuring that each corridor meets the needs of its designated modal emphasis.

Data Collection and Analysis

The data sources and analysis process in ESRI's ArcGIS Pro, a geographic information system, are fundamental to the development of the multimodal system design guidelines. The primary data sources include demographic data, land use data, transportation network data, and environmental data. Demographic data, such as population and employment figures, are obtained from census databases and regional planning agencies. Land use data, detailing residential, commercial, industrial, and mixed-use areas, are sourced from local government planning departments. Transportation network data, including road networks, transit routes, bicycle paths, and pedestrian walkways, are collected from transportation agencies and geographic information system (GIS) databases. Environmental data, such as topography, water bodies, and green spaces, are gathered from environmental agencies and GIS repositories.

These data sources were integrated and analyzed using a variety of geospatial analysis tools. The process began with geocoding the demographic and land use data to create a spatial representation of population densities and land use intensities as reflected by demographic data from the U.S. Census including income, distribution of vulnerable communities, population with access to vehicles, and proportion of the population already using resources like transit or walking to get around

or get to work. Land use data was combined and reclassified by broad categories (high-, medium-, and low-density residential; mixed-use; commercial, etc.) to mitigate differences in land use categorization used by reporting jurisdictions.

Community Engagement Strategies

The community engagement plan for this project (Appendix A) describes the plan for community engagement events and surveys before they were executed, while this section discusses the community engagement strategies after the fact. Public meetings, field outreach, and surveys were conducted early and often throughout the study process to promote transparency, relevance, and collaboration with the community.

Informal Engagement

Field-based, informal community engagement was another critical component of the early plan outreach strategy. Informal engagement was conducted in targeted locations such as Appomattox Regional Library, Appomattox River Trail, Virginia State University, the Colonial Height Public Library, and the Petersburg YMCA.

Public Meetings and Pop-Ups

The study team organized nine public meetings or pop-ups in sets of three, scattered throughout

the week and at different times of day to capture a wide range of participants. These meetings were held in familiar locations with high transit accessibility and geographic diversity within the MPO area, usually making use of farmers' markets and other pop-up events to enhance participation. The first set of meetings focused on the project background and preliminary feedback, the second set discussed early project recommendations and prioritization, and the third set presented final project recommendations and the project drafts created using the plan framework.

First Round of Public Engagement

The initial series of public meetings took place at the Petersburg Public Library on July 18th, the Colonial Heights Public Library on July 25th, and the Appomattox Regional Library in Hopewell on July 30th, 2024. These events presented a board with information on the process for developing a regional multimodal system plan and a board showing the activity density map for the region. Participants discussed their priorities with the planning team and MPO staff, and they were encouraged to submit comments via post-it notes on the map board to denote geographic proximity. These three events struggled with attendance due to their purpose-specific nature, while others aimed to catch people's attention at popups for the final report; nonetheless,



Trunk-or-treat in Petersburg (October 2024).

the feedback was insightful and activity density discussions were recapped for participants in later rounds of engagement who could not attend. Common themes across all events included observations about the condition of pedestrian infrastructure where existing and lack of multimodal connection between urban areas in the three cities.

Second Round of Public Engagement

The second round of public engagement events took the form of pop-ups at the Hopewell Farmer's Market on October 17th, the Colonial Heights Farmer's Market on October 19th, and a Trunk-or-Treat event for younger Petersburg City Public Schools students and their families on October 26th, 2024. These events relied on traffic from people attending each of these events for reasons other than to engage on multimodal issues, and this approach generally worked better than turnout for purpose-specific meetings. At both farmer's market events, around 10-15 people stopped to discuss the plan and give their thoughts. Among all the events, few people wanted to provide feedback via the paper survey, but survey topics were used to guide verbal discussion. Common themes in Hopewell included failure of previous bicycle and pedestrian planning efforts in the city due to problems with awareness and enforcement of new facilities. Community members in Colonial Heights identified sections of U.S. Route 1 (the Boulevard) that were difficult to navigate or dangerous for pedestrians. Community members in Petersburg highlighted the need for improving multimodal access to schools and access to downtown from suburban areas.

Third Round of Public Engagement

The third round of public engagement events took place at Demolition Coffee in Petersburg on February 14th, the Colonial Heights Farmer's Market on February 22nd, and the Hopewell Family Resource Gala on March 15th, 2025. These events were aimed at discussing draft plans and cross-sections, and the public were offered fact sheets about each of the 10 project drafts to take home if they were of particular interest. Many people opted to take fact sheets about projects that were close to where they live or work. These events were awareness-focused and paper surveys were not offered to participants. Rather, the planning team took input on the project cross-sections and made changes if they were possible given existing features and right-of-way. On the whole, participants seemed generally excited about new multimodal

features in their respective communities, with most discussions focusing on bicycle and pedestrians improvements connecting suburban residential with commercial areas.



Hopewell Family Resource Gala (March 2025)

Surveys

In addition to public meetings, a survey was administered both virtually and by paper to ensure accessibility for those unable to attend the meetings. During the first round of events on July 22nd, 2024, the Metroquest online survey, which allowed for spatial integration of survey data with geographical features, was launched and concluded at the end of August. The survey remained open for at least one month, aligning with the first set of community meetings addressing the Needs Assessment phase. Feedback from the survey has been incorporated into the plan's recommendations and project shortlist. At later engagement events, participants were offered paper surveys serving as a condensed version of the Metroquest survey and without direct geographic input.

Road safety improvements and pedestrian infrastructure were the two most commonly top-ranked priorities on the surveys (showing up as the first or second choice on two-thirds of the surveys). They were distantly followed by bicycle infrastructure and public transportation, which were typically third and fourth in the ranking of priorities.

However, for the specific geographic locations identified on maps, survey respondents were more likely to identify pedestrian infrastructure needs than they were road safety needs. The survey received 71 specific locations for pedestrian needs (with 61 comments). Road safety netted 56 specific locations and 41 comments.

Existing Planning Efforts

Contributing Efforts

Across the six jurisdictions in the Tri-Cities region and multiple regional and community organizations, there have been a number of efforts that have broadly touched upon multimodal planning, through either the comprehensive planning process, bicycle and pedestrian planning, or complete streets planning. Below is a summary of applicable planning efforts that are described in more details in Appendix B.

Tri-Cities Area MPO

The *TCAMPO Bikeway Plan (2003)* updated the 1979 bikeway plan, recognizing bicycling as a viable transportation alternative and integrating it with pedestrian infrastructure. The *2045 Tri-Cities Area Long Range Transportation Plan (2022)* outlines goals and projects for improving the transportation system through 2045, including highway, bicycle, pedestrian, and rail projects. Recent public transportation initiatives include new Petersburg Area Transit (PAT) service from Petersburg to Emporia and a feasibility study for a new maintenance facility.

Chesterfield County

The *Chesterfield County Comprehensive Plan (2014)* focuses on enhancing the community's quality of life through well-planned development and preserving existing land rights. The plan supports higher density mixed-use activity centers linked by various transit options and emphasizes a safe and accessible non-motorized network.

City of Colonial Heights

The *Colonial Heights Trail Plan (2014)* provides for recreation and trail surfaces along the Appomattox River Greenway Trail, including hard-surface trails, trailheads, and recreational facilities. The *Colonial Heights Comprehensive Plan (2021)* emphasizes pedestrian walkways and the integration of Complete Streets concepts into new and redeveloped areas to enhance pedestrian and bicycle infrastructure.

Dinwiddie County

The *Dinwiddie County Comprehensive Plan (2023)*, titled "Dinwiddie Forward," outlines the vision and strategies for the county's development over the next twenty years, emphasizing preserving rural

character and enhancing community facilities. The plan also emphasizes a multimodal transportation system that connects residents to essential services and economic opportunities.

City of Hopewell

The *Hopewell Comprehensive Plan 2028 (2018)* guides the city's future action plans, capital improvements, and land use decisions, focusing on enhancing bicycle and pedestrian connectivity. The *Active Connections in Hopewell Plan (2018)* aims to revitalize the city by developing shared-use paths and bicycle lanes to link neighborhoods with key destinations.

City of Petersburg

PetersburgNEXT, the city's 2044 Comprehensive Plan, adopted in 2024, outlines a strategic vision for the city's development, emphasizing equitable growth, public health, and environmental stewardship. There is targeted look at equity in transportation and the adherence to Complete Streets principles.

Prince George County

The *Prince George County Comprehensive Plan (2022)* identifies community goals and strategies to guide decision-making and public investments, focusing on improving future land use recommendations related to public utility infrastructure. The plan also includes measures to enhance the transportation system, such as boosting mass transit and rail options and advocating for bike lanes in VDOT road projects.

Petersburg Area Transit (PAT)

The PAT Transit Strategic Plan (TSP) of 2021 provides an overview of the transit system,



Petersburg Area Transit bus in Hopewell.

goals, and planned improvements, focusing on increasing mobility and improving efficiency. It provides a strategic framework for growth and sustainability of the agency by prioritizing service improvements, such as increased frequency and extended hours, and includes a financial plan for operating and maintenance costs.

Richmond Regional Transportation Planning Organization

The BikePedRVA 2045 Plan (2022) outlines a comprehensive strategy to enhance biking, walking, and rolling as modes of transportation in the Richmond region (inclusive of some parts of the Tri-Cities region), emphasizing safety, equity, and climate.

Friends of the Lower Appomattox River (FOLAR)

The *Appomattox River Trail Master Plan* (2017), coordinated by FOLAR, aims to enhance regional quality of life, promote health and active living, and boost economic vitality through the development of trails, river access, and signage. It serves as a comprehensive guide for the coordinated placement and prioritization of shared-use infrastructure and

a signage system across six municipalities along the lower Appomattox River. This master plan also emphasizes the conservation and protection of the river's natural environment. The plan has been adopted by all six regional localities and supported by both local National Park Service (NPS) and Fort Gregg-Adams leadership.

Virginia Department of Transportation

The *Ashland to Petersburg Trail Study* (2020) aimed to identify a preferred corridor for a multi-use trail spanning approximately 40 miles between Ashland and Petersburg, enhancing safety and connectivity. This study culminated in design of the Fall Line Trail, for which construction is underway.

Virginia State University

VSU's *Campus Master Plan* (2022) focuses on increasing enrollment, fostering a campus culture that supports student success, and enhancing the campus community with projects like the construction of a Pedestrian Walkway on University Avenue.



Existing Conditions

The existing transportation system of the Tri-Cities area includes over 1,300 miles of interstates, arterials, and local roads. This section describes the existing conditions of different features of the area's transportation system by category. A detailed analysis of the existing conditions of the TCAMPO region is found in Appendix C.

Existing Land Use

The Tri-Cities area features a variety of land uses reflecting its rich history and strategic economic positioning. Urban centers like Petersburg, Colonial Heights, and Hopewell offer dense residential and commercial districts, while Prince George County and Dinwiddie County serve as hubs for agricultural, industrial, and rural residential uses. Southern Chesterfield County, only partially contained within the Tri-Cities area, holds a wide variety of uses ranging from agricultural to rural residential to multifamily and industrial. Surrounding counties provide agricultural lands, forested areas, and sparsely populated residential zones. Industrial activities are strategically placed near transportation corridors, supporting logistics operations and regional mobility for industrial goods. Public and semi-public lands, including government facilities, schools, and parks, are interspersed throughout.



River in the region, connecting James River Drive (Route 10) with the John Tyler Memorial Highway (Virginia Route 5) in Charles City County. Functional class, which is the system by which VDOT groups roadways, serves as a baseline for defining the most of the multimodal network (see Figure 5).

Public Transportation and Rail Service

Local transit in the Tri-Cities area is integral to regional connectivity but faces challenges such as limited coverage, frequency, aging infrastructure, and financial constraints. Petersburg Area Transit (PAT) offers twelve routes serving various destinations. The GRTC Transit Company adds express service between Petersburg and Richmond. Blackstone Transit also has service between Tri-Cities destinations and its rural service area.

The Ettrick Station in Chesterfield County serves as a vital intercity passenger rail hub, connecting to Amtrak's Northeast and Southeast Rail corridors.

Multimodal Facilities

The Tri-Cities area features a growing network of bicycle and pedestrian infrastructure. This plan is intended to provide guidance for future development of multimodal facilities to support that growing network of connectivity. Urban centers have moderate to good sidewalk coverage and the beginnings of a strong multimodal network, while rural counties have significantly more limited facilities, as expected. The Appomattox River Trail, when completed, will connect rural and urban areas, offering amenities for passive and active users.

Transportation Network

Road Network

Driving remains the predominant mode of transportation in the Tri-Cities area, with a network of highways and roads facilitating intra- and inter-city travel. Major thoroughfares include Interstates 95, 85, and 295, U.S. Routes 1, 301, and 460, and various state routes. Bridge crossings over the Appomattox River include the Ferndale Road, Campbells Bridge at Chesterfield Avenue/ University Boulevard, the Martin Luther King Jr. Bridge on U.S. Route 301, I-95, and I-295, Temple Avenue, and the Charles Hardaway Marks Bridge between Chesterfield County and Hopewell that carries Virginia Route 10. The Benjamin Harrison Memorial Bridge is the only bridge over the James

The future Fall Line Trail is a notable forthcoming multimodal development that will impact future transportation in the region.

Demographics & Mobility

The Existing Conditions memo (Appendix C) provides a demographic analysis of the region, highlighting growth trends, population distribution, and mobility needs. Key demographic factors include black, indigenous, and people of color (BIPOC) populations, populations with disabilities, zero vehicle households, populations living in poverty, and population density, in addition to the more detailed measures. Two of the most important demographic calculations are population density and employment (job) density, both of which factor equally into the calculation of activity density and provide the underpinning of the multimodal system (see Figures 6 and 7). Understanding these factors helps tailor transportation solutions to enhance accessibility and connectivity. The National Walkability Index created by the Environmental Protection Agency (EPA) informed the planning team of areas that already has a strong pedestrian network.

Job Distribution

Urban centers in the Tri-Cities area serve as primary employment hubs, with job densities reflecting service industries, government employment, and retail sectors. Surrounding areas have more dispersed employment influenced by industrial parks, agricultural activities, and smaller business

clusters. The presence of Fort Gregg-Adams contributes to job density in Prince George County. Dinwiddie's job distribution tips heavily toward industrial occupations in the northeast part of the county near Petersburg, while urban areas like Hopewell and Petersburg have a mix of jobs at all levels.

Existing Activity Centers

Activity centers are existing hubs of economic, social, and cultural activities that attract significant trips. Efficient access to these centers is crucial for regional vitality. Key activity centers include schools, higher education institutions, hospitals, commercial hubs, recreation facilities, and historical sites. These are different from activity centers identified in the planning process for the multimodal system.

Environment

For multimodal users, the planning team identified the Urban Heat Island effect as the most significant environmental factor for existing conditions review. The Urban Heat Island (UHI) effect is a phenomenon where urban areas experience higher temperatures than rural surroundings. Addressing the UHI effect in multimodal planning can improve comfort for pedestrians and cyclists, reduce demand on public utilities, and contribute to urban sustainability. From this information, the planning team could identify which projects would benefit from street trees or where multimodal users might be adversely impacted by surface heat (see Figure 8).



Landscaped medians, such as this one on Appomattox Street in Hopewell, can help reduce the urban heat island effect.

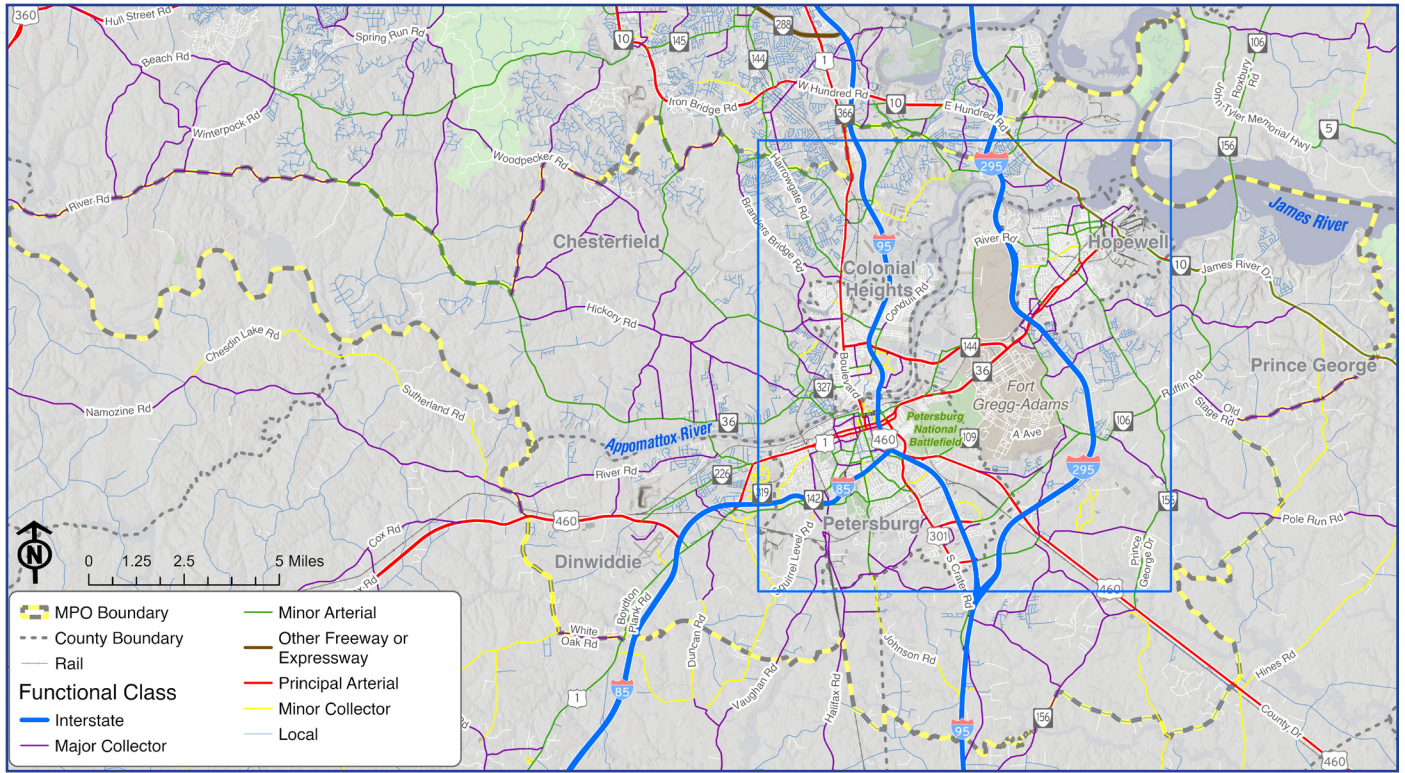


Figure 5: A regional map (top) and inset (left) of the cities of Colonial Heights, Hopewell, and Petersburg, showing the functional class network as defined by VDOT.

Functional class designations of the roadway network help establish a baseline for current and future recommendations that result from the multimodal planning process.

Source: VDOT

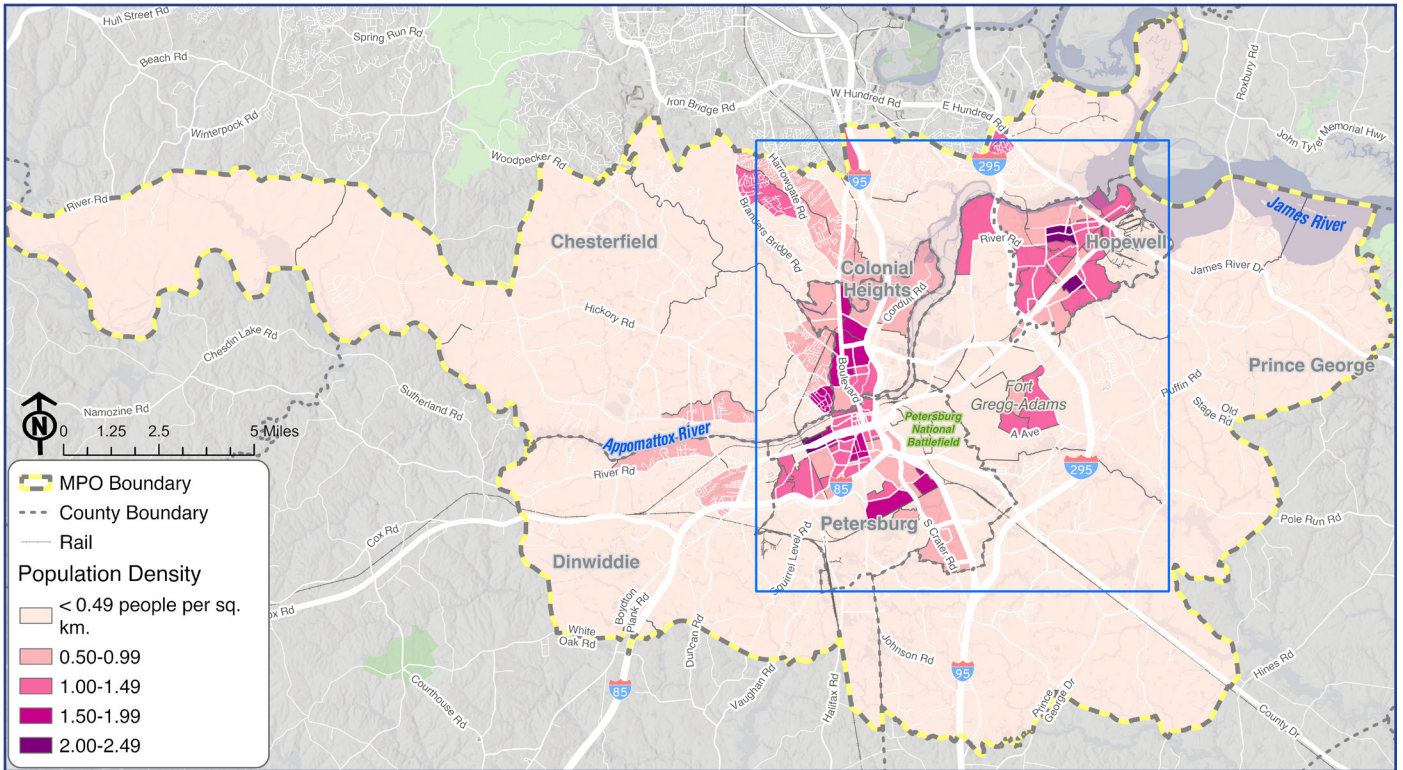
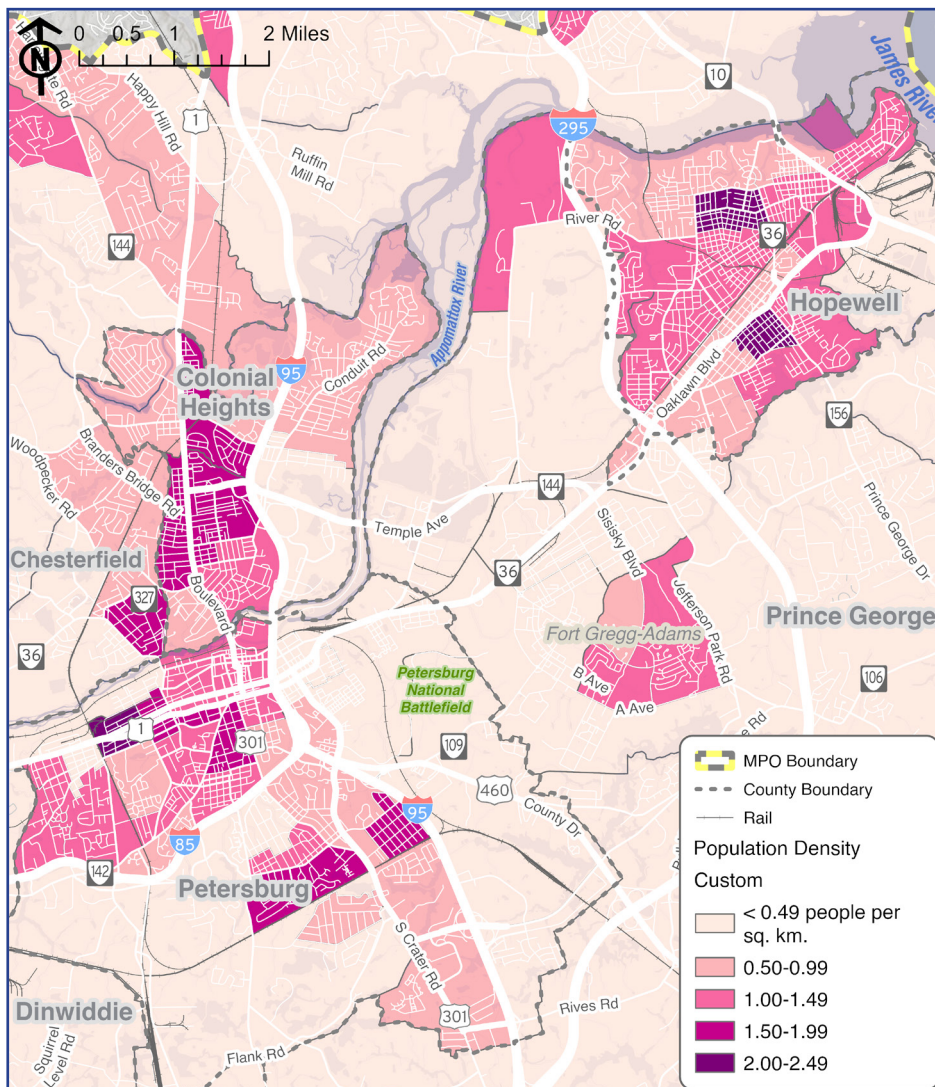


Figure 6: A regional map (top) and inset (left) of the cities of Colonial Heights, Hopewell, and Petersburg, showing population density as of 2021.

Population density makes up one-half of the activity density calculation on which parts of the multimodal planning process are derived.

Source: EPA Smart Location Database



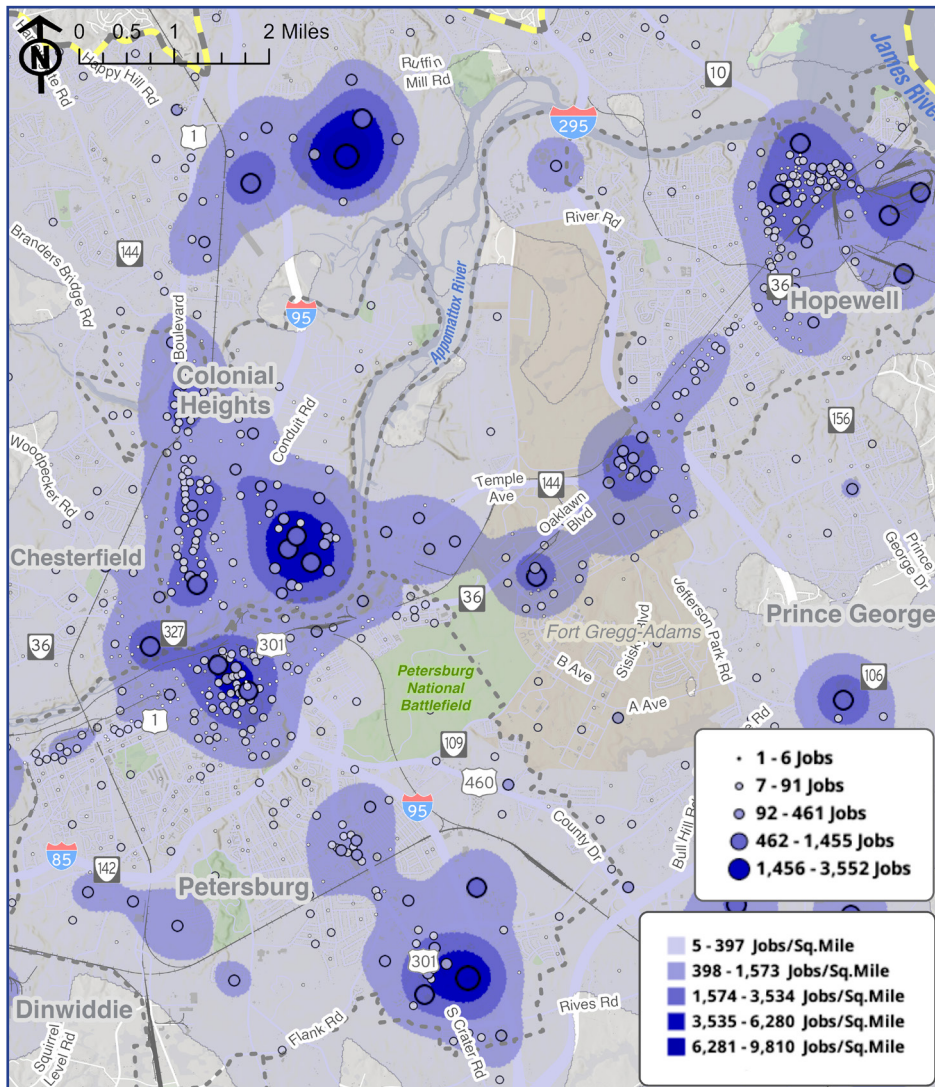
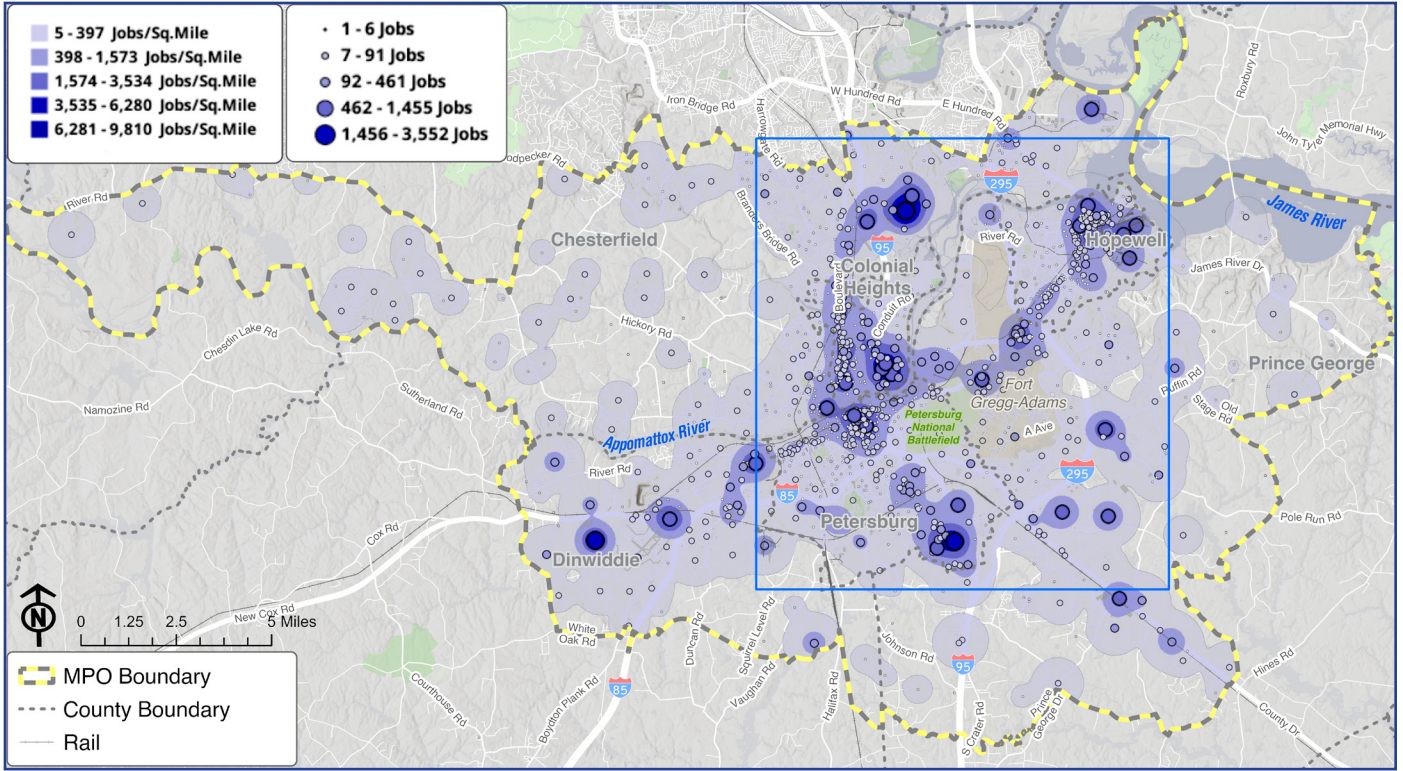


Figure 7: A regional map (top) and inset (left) of the cities of Colonial Heights, Hopewell, and Petersburg, showing employment density as of 2021.

Employment density makes up one-half of the activity density calculation on which parts of the multimodal planning process are derived.

Source: EPA Smart Location Database

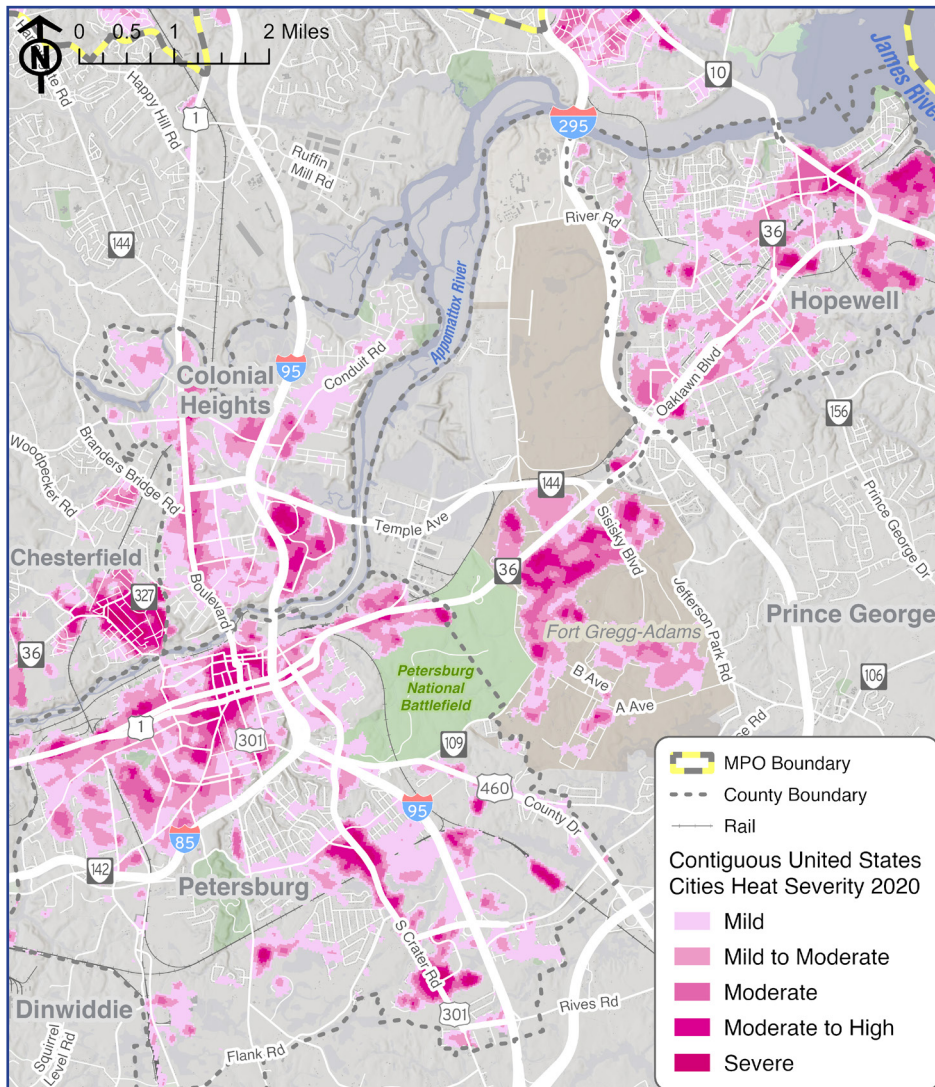
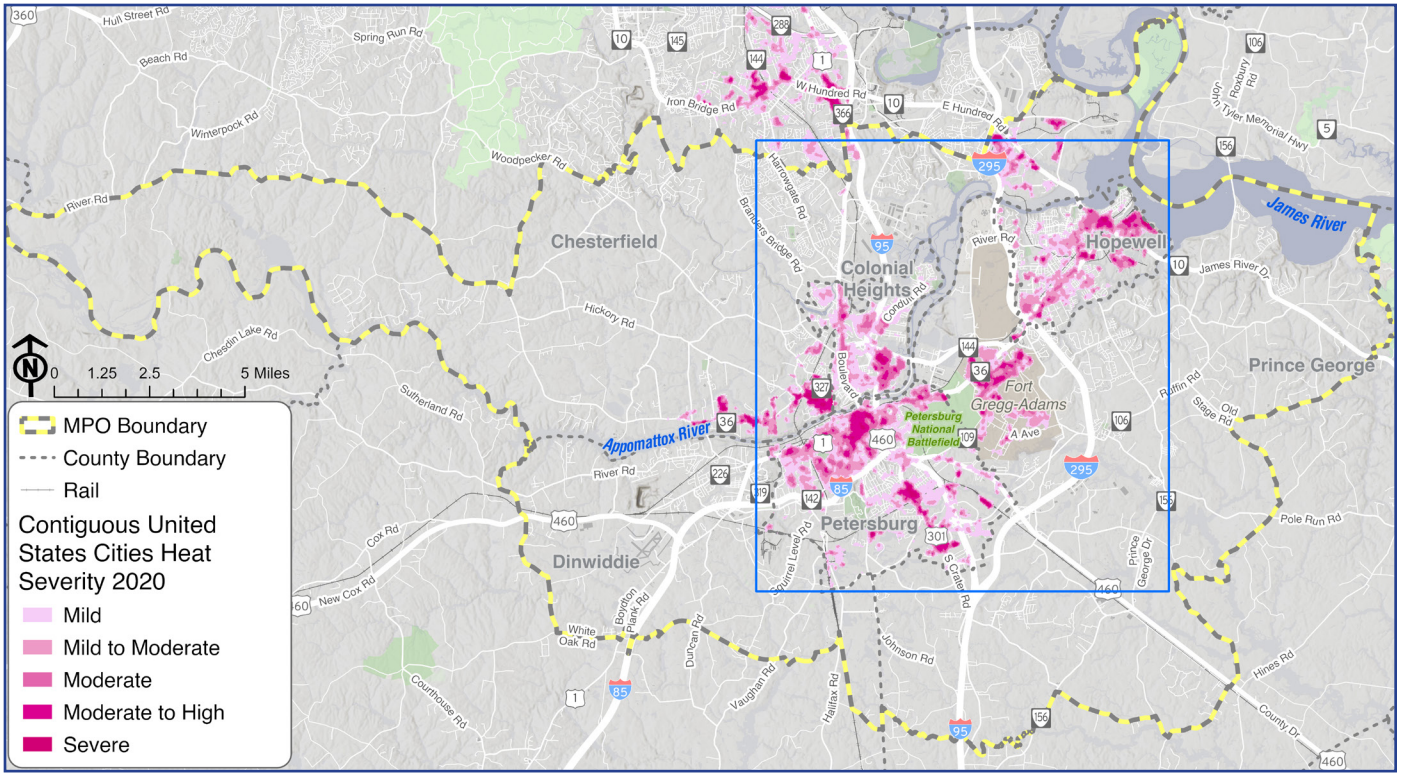


Figure 8: A regional map (top) and inset (left) of the cities of Colonial Heights, Hopewell, and Petersburg, showing the Urban Heat Island (UHI) impacts.

UHI is a phenomenon where urban areas experience higher temperatures than surrounding rural areas due to the presence of heat-absorbing surfaces, reduced vegetation, and other human-generated heat.

Source: Trust for Public Lands

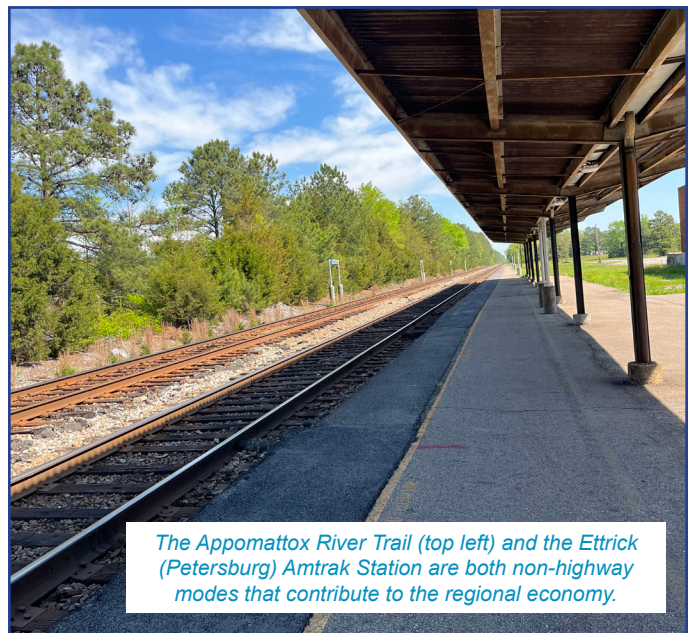
Estimated Economic Impact of Multimodal System Improvements

The availability of varying modes of transportation not only contribute to increased resident quality of life but also offer the region several economic benefits. Transit- and trail-oriented development concepts illustrate the potential for development patterns to follow or coincide with alternative modes of transportation and increased density, while roadway-oriented improvements maximize benefit to multimodal travel within existing right-of-way.

Public transportation, primarily provided by PAT, offers significant cost savings for residents, reducing the burden of car ownership and providing affordable access to essential destinations. A DRPT study indicates that each dollar invested in public transit stimulates \$2.86 in economic activity and \$2.11 in economic benefits across the state. For the Tri-Cities area, this translates to \$2.51 in economic activity and \$1.83 in economic benefits for every dollar of public transportation investment. PAT's annual operating expense of \$4,331,398 in FY24, supported by local, state, and federal contributions, generates \$10,180,053 in economic activity and \$7,422,110 in economic benefits. PAT's annual operating expense in FY24, supported by local, state, and federal contributions, generates additional economic activity and benefits.

The Ettrick station, served by five Amtrak routes, plays a crucial role in connecting the region to other urban areas. The station's planned upgrades, funded by a Federal Railroad Administration (FRA) grant, are expected to attract over 10,000 new passengers. As of FY 2023, Amtrak had over 46,000 trips out of Ettrick, making it busier than the Ashland or Manassas stations. The development of regional trails, such as the Appomattox River Trail and the Fall Line trail, will enhance physical and mental well-being while contributing to local economies. The Virginia Capital Trail, the expanding Appomattox Regional Trail, and forthcoming Fall Line Trail serve as examples of the economic benefits of regional trails, generating significant state and local tax revenues and visitor spending.

Walkability is a high priority for residents, and investments in pedestrian infrastructure, such as sidewalks and tree canopies, enhance urban development and quality of life. While some areas like urban Petersburg have a near-comprehensive sidewalk network, there are gaps, variations in quality, and missing ADA infrastructure. Improvements can still be made to increase viability of pedestrian movement along existing corridors and introduction of new corridors entirely. Overall, the multimodal transportation system in the Tri-Cities area provides substantial economic benefits, improving resident quality of life and stimulating local and regional economies.



The Appomattox River Trail (top left) and the Ettrick (Petersburg) Amtrak Station are both non-highway modes that contribute to the regional economy.

Regional Multimodal Needs Assessment

The needs assessment process is a critical component of this plan, ensuring that the transportation system effectively addresses current and future demands. This chapter provides a detailed overview of the needs assessment process, tailored specifically to the Tri-Cities Area, encompassing Petersburg, Colonial Heights, and Hopewell. The chapter's narrative organizes the steps of the needs assessment into headings under which there are descriptions and examples of the work conducted and summary of standout findings.

Steering Committee, Public Engagement, and Ongoing Input

Community engagement is the starting point of the needs assessment process and continued throughout the project timeline. The Tri-Cities Area Multimodal Plan prioritized early and continuous involvement of the public and stakeholders to ensure the plan reflects community needs and preferences. This involvement took the form of input from the steering committee (SC) and the Tri-Cities MPO Technical Advisory Committee (TAC); informal engagement in public places; formal engagement through public meetings and pop-up events at each stage of the plan development process; and a needs identification survey. Special attention was given to engaging under-served demographics, primarily in the form of location or pop-up event choices. Focus demographics included active multimodal users, young people or parents of young people, people living in poverty, people with limited vehicular access, and transit users, among other groups. The feedback collected helped identify key destinations, travel patterns, and existing issues, forming the basis for subsequent analysis of specific areas at request and in addition to procedurally identified locations.

Analyzing Existing and Future Population and Employment

The analysis phase involved a comprehensive examination of current and projected population and employment data. The broader existing conditions analysis included reviewing local comprehensive plans, existing and future land use trends, demographic studies, economic forecasts for the

region, census trends for different demographic groups, and review of a wide variety of travel data sources from VDOT, DRPT's transit use data, the Environmental Protection Agency's (EPA) Smart Location Database, and Federal Highway Administration's (FHWA) Areas of Persistent Poverty designations within the MPO area. Using the activity density methodology outlined in the DRPT's Multimodal System Design Guidelines, the project team assessed the distribution of jobs and residents across the Tri-Cities Area in addition to other existing conditions data (see Figure 9). Some of the data sources, like the Smart Location Database, provided better data resolution and insight than other data sources, like Strava Metro, but the activity density methodology ultimately distinguishes areas of multimodal focus along lines of combined job and residential density, obtained from U.S. Census data by block group and calculated in ArcGIS Pro. However, the goal was to understand regional growth trends, land use changes, and travel behavior, providing a clear picture of future transportation needs. This data is crucial for identifying areas with high activity density that require enhanced multimodal connectivity.

Designating Multimodal Districts and Centers

Based on the activity density analysis, the planning team designated multimodal districts and centers within the Tri-Cities Area (see Figure 10). These designations were guided by the MMSDG's definitions and criteria for jobs and residential placement. Multimodal districts are broad areas with moderate to high multimodal connectivity, while multimodal centers are smaller, high-density nodes within these districts. The designation process involved mapping existing and future growth areas, considering factors such as land use, street network connectivity, and accessibility to transit. This step resulted in a detailed map of multimodal districts and centers, seen below, highlighting priority locations within the region for multimodal improvements. Multimodal districts in the region tended to fall around major urban areas like Petersburg, Hopewell, and Colonial Heights, and their surrounding suburban areas. Multimodal centers were generally areas within those districts

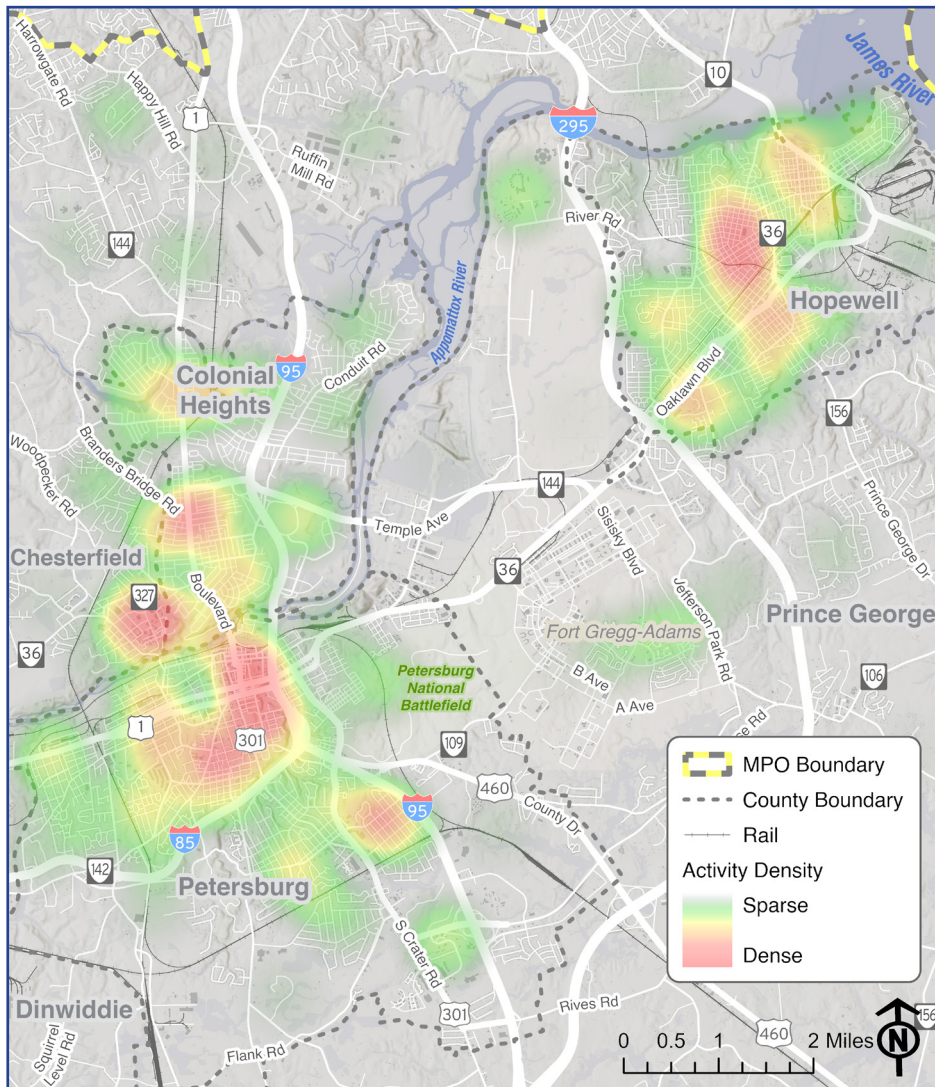
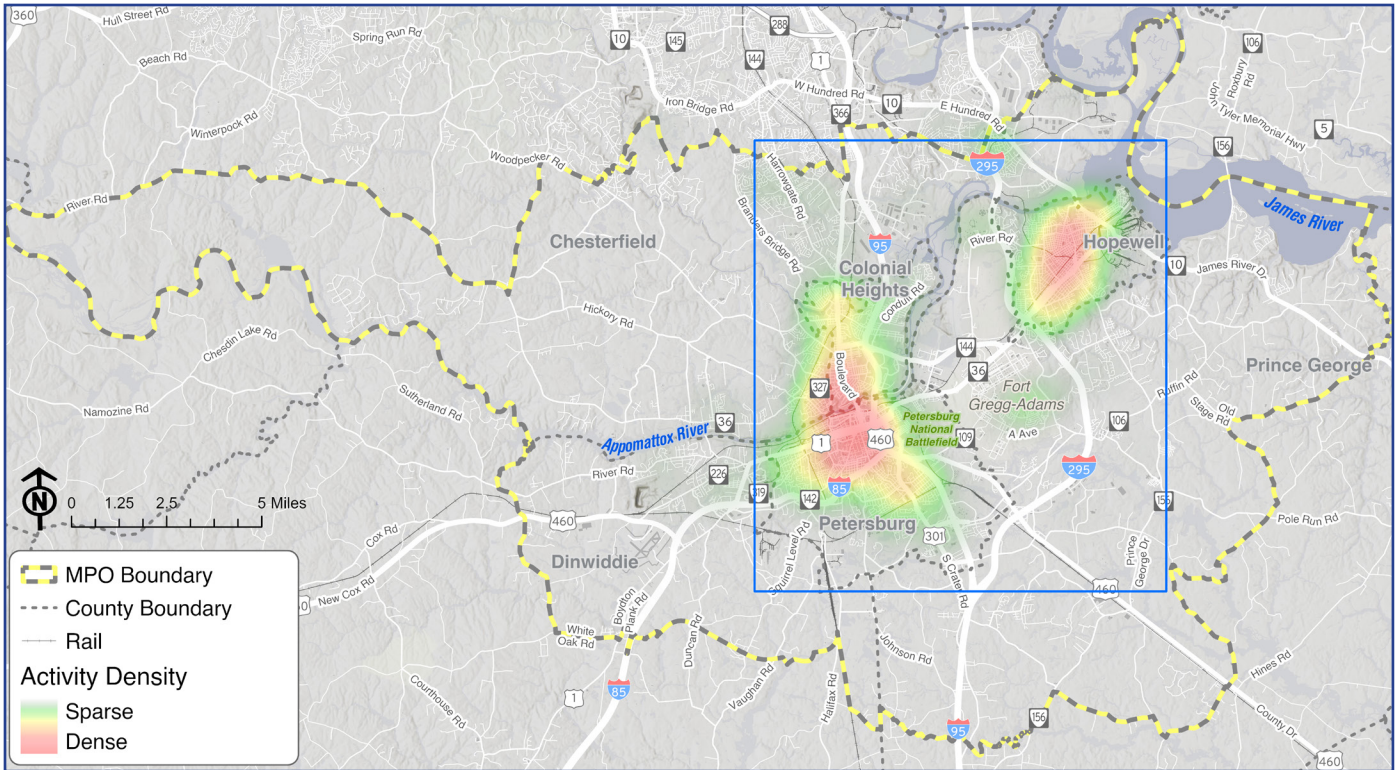


Figure 9: Activity density across the Tri-Cities MPO region (above) and zoomed in on the cities of Colonial Heights, Hopewell, and Petersburg. The inset provides additional detail on distribution of activity density.

Activity density is defined as people plus jobs per acre, with the highest activity densities found in downtown Hopewell, downtown Petersburg, and the VSU campus.

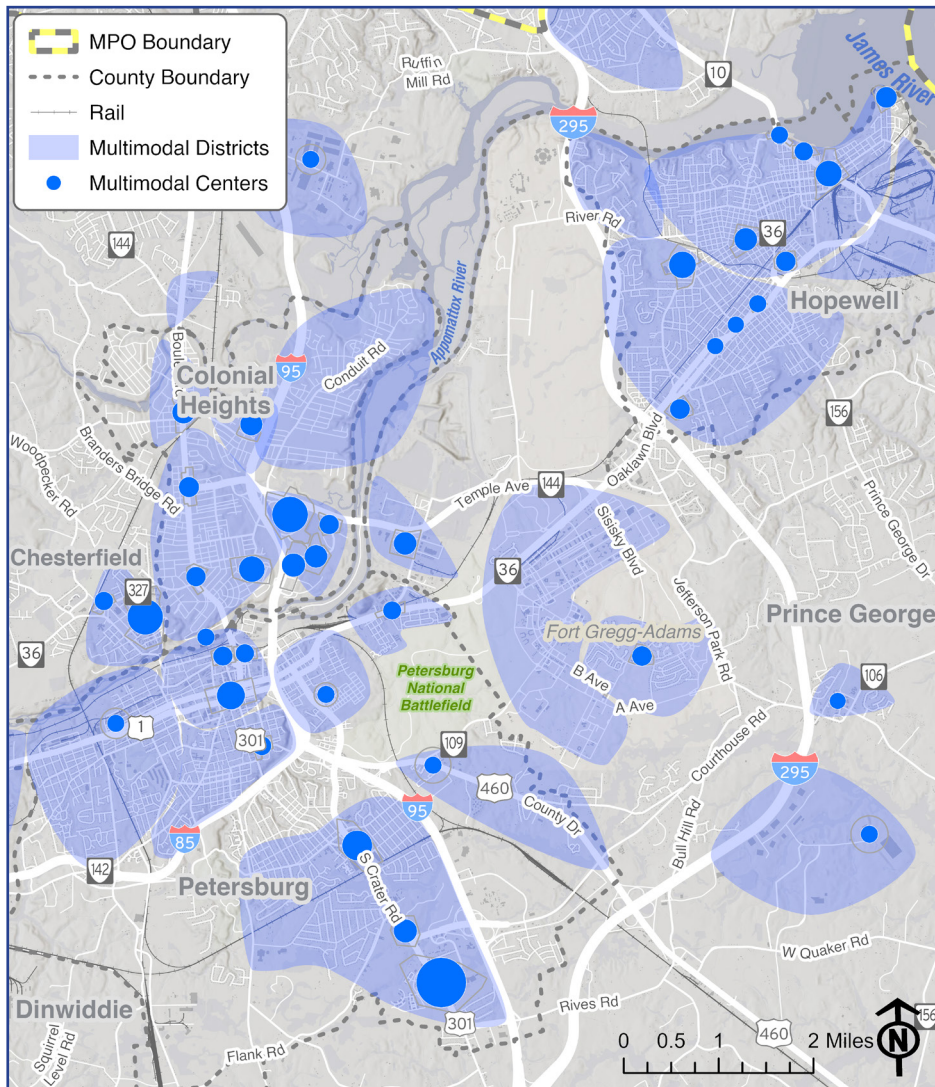
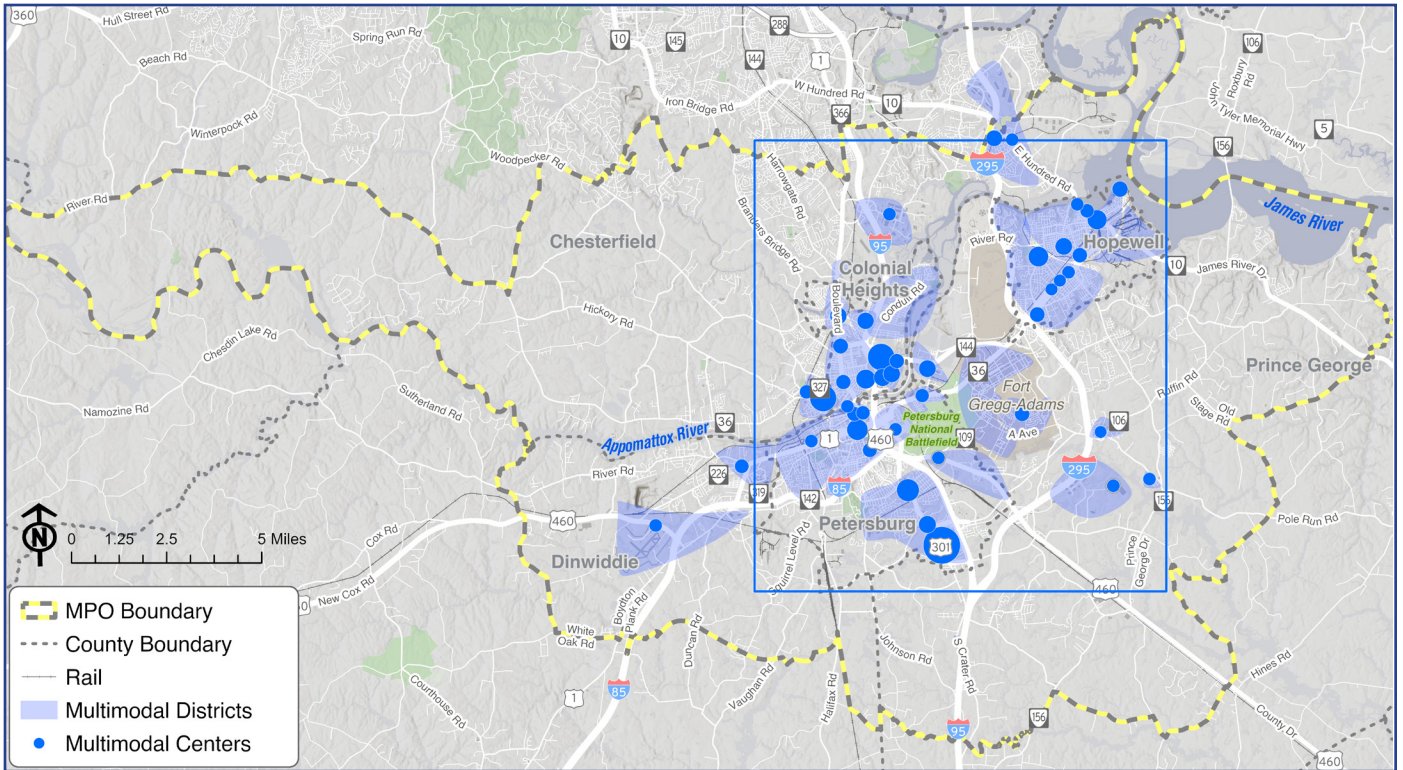


Figure 10: Identification of the multimodal districts and multimodal centers, which are based on the distribution of both people and jobs across the region.

Multimodal districts are broad areas that share common activity trends and some moderate to high multimodal connectivity. Regional examples include Multimodal centers, on the other hand, are more concentrated areas of activity with high multimodal connectivity. Individual multimodal districts can have multiple multimodal centers.

that were already considered “downtowns” or significant commercial areas like larger strip malls or office parks. The multimodal districts and centers helped distinguish transect zones in the region.

Designating Multimodal Corridors

With Multimodal Districts and Centers identified, the next step is to designate Multimodal Corridors that connect these areas. First, considering the priorities of the region and origin-destination information, the planning team categorized significant regional corridors into either placemaking or through corridors (see Figure 11).

Placemaking corridors and through corridors have different roles within a region (see Table 1). Placemaking corridors are designed to enhance the local environment within multimodal centers and districts. These corridors prioritize pedestrian safety, social interaction, and neighborhood identity. They are characterized by lower traffic speeds, frequent pedestrian crossings, and pedestrian-oriented buildings. Placemaking corridors are integral parts of public spaces, offering opportunities for community engagement and street life.

Multimodal through corridors, on the other hand, are designed to facilitate efficient movement between

multimodal centers and districts. These corridors are higher-speed facilities that connect major destinations across the region. Through corridors are intended for longer-distance travel and typically have limited at-grade intersections to maintain traffic flow. They accommodate multiple modes of transportation, including automobiles, buses, and sometimes rail, but provide separated facilities for pedestrians and bicyclists due to the higher speed when conditions and right-of-way allows. Through corridors are located exclusively outside of multimodal centers but may traverse multimodal districts. When entering a multimodal center, through corridors transition to placemaking corridors (unless they are grade-separated or otherwise access-restricted), marked by slower speeds and more frequent pedestrian crossings. In the interest of regional connectivity, some projects suggested in later sections of this document straddle the line between addressing the needs of through and placemaking corridors, like improvements to S. Crater Road in Prince George County or part of U.S. 1 in Dinwiddie County.

To further differentiate corridors beyond “placemaking” and “through,” planners used existing information on roadway volume, speed, and functional class from VDOT as well as the context of surrounding development to align local

Corridor Type	Description	Features	Regional Examples	Design Speed
Placemaking Corridor: Boulevard	Highest capacity multimodal corridors, accommodating multiple motorized and non-motorized modes.	Typically have four to six lanes of traffic, a median, landscaped elements, street trees, and wide sidewalks.	US Route 1 in Chesterfield and Colonial Heights; Oaklawn Boulevard in Hopewell	25 - 35 mph
Placemaking Corridor: Major Avenue	Characterized by high density of destinations and intense activity, making them vibrant and bustling.	Wide sidewalks to accommodate high pedestrian volumes, outdoor activities like sidewalk cafes, and typically four or fewer lanes for motor vehicle travel.	Randolph Road in Hopewell; S. Crater Road in Petersburg; Temple Avenue in Colonial Heights	25 - 35 mph
Placemaking Corridor: Avenue	Balances access to businesses and residences with the movement of vehicular and pedestrian traffic.	Typically have three or fewer travel lanes, adequate bicycle facilities or plans for their creation, and may include roadway space dedicated to curbside activities.	Sycamore Street in Petersburg; River Road in Chesterfield	25 - 30 mph
Placemaking Corridor: Local Road	Low-activity corridors primarily found in residential areas or as downtown side-streets, emphasizing access.	Slow speeds, wider setbacks, on-street parking, and shared road space for bicycles and vehicles.	Mesa Drive in Hopewell; Wakefield Street in Petersburg	25 mph
Through Corridor	Moderate-speed corridors that connect multiple activity centers, facilitating longer-distance travel.	Typically have limited at-grade intersections, separated facilities for pedestrians and bicyclists when possible, and higher traffic speeds.	Crater Road in Prince George; US Route 460 in Petersburg; W. Hundred Road in Chesterfield; I-95 and I-85	35+ mph

Table 1. Multimodal corridor definitions and parameters.

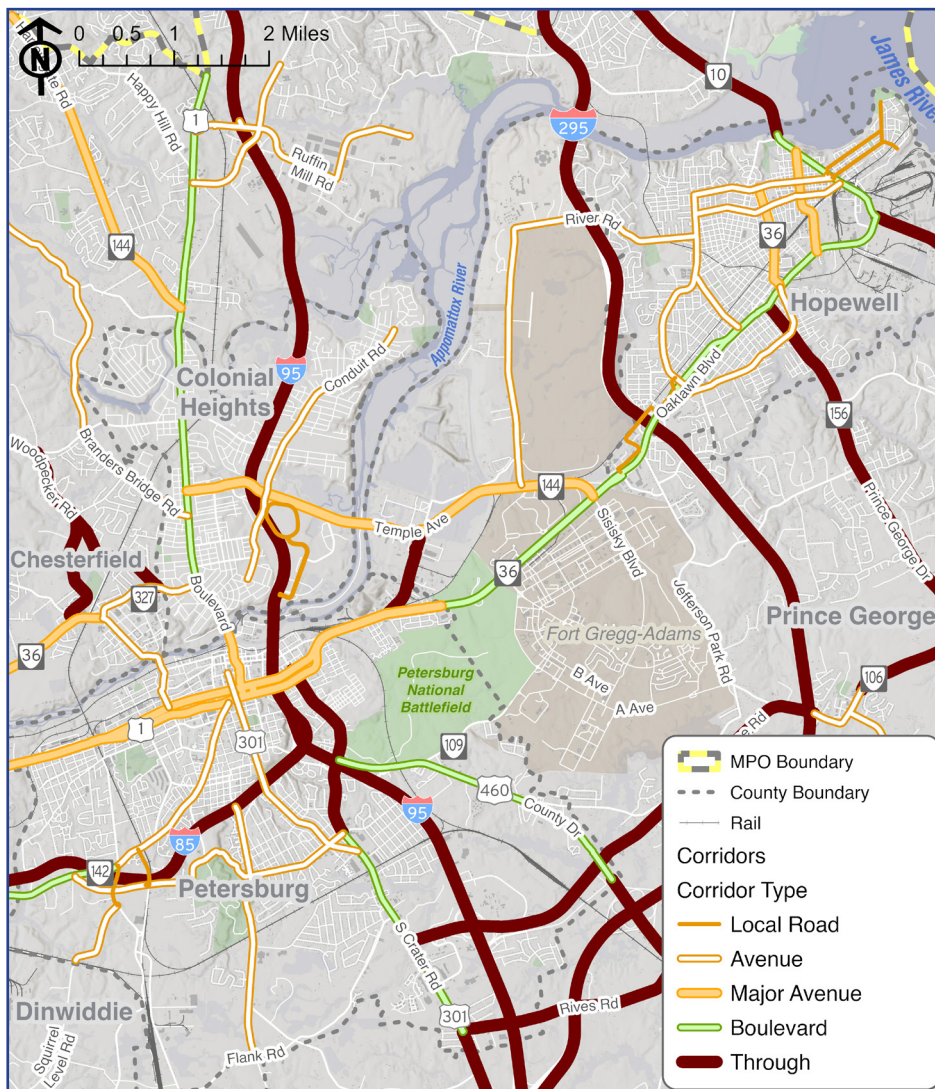
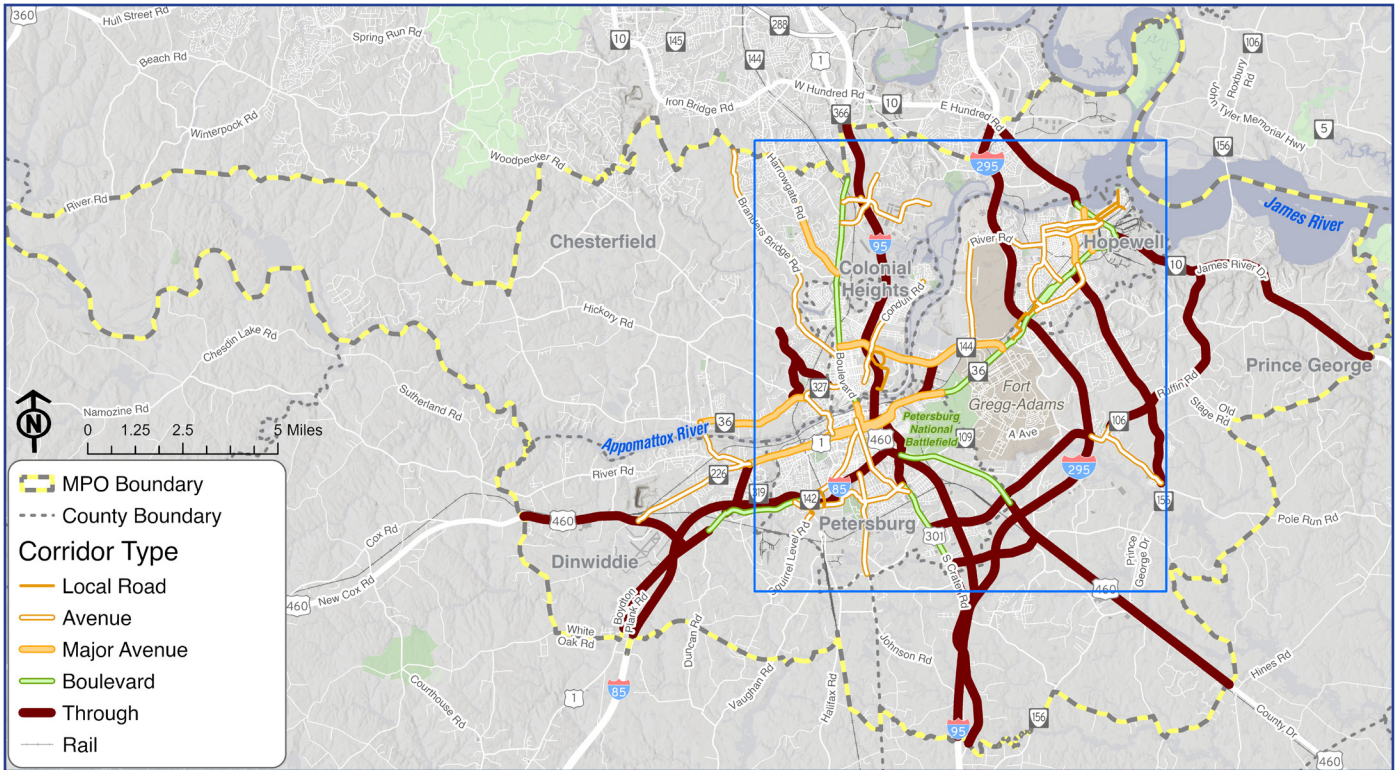


Figure 11: Identification of the multimodal placemaking and through corridors in the Tri-Cities region with inset of Colonial Heights, Hopewell, and Petersburg.

Placemaking corridors are multimodal corridors where enhancement of the local environment and development of a sense of “place” are as significant a priority as moving people. They still connect districts and centers but they can be designed to facilitate social interactions, define neighborhoods, and enhance aesthetics. Placemaking corridors are further separated based on the classification of the roadway, ranging from local roads to major avenues.

Through corridors are multimodal corridors where efficient movement of traffic is the priority. They can still cater to multiple modes of transportation, but are intentionally designed for higher speeds and larger volumes. Modes are sometimes located within separated facilities for safety purposes.

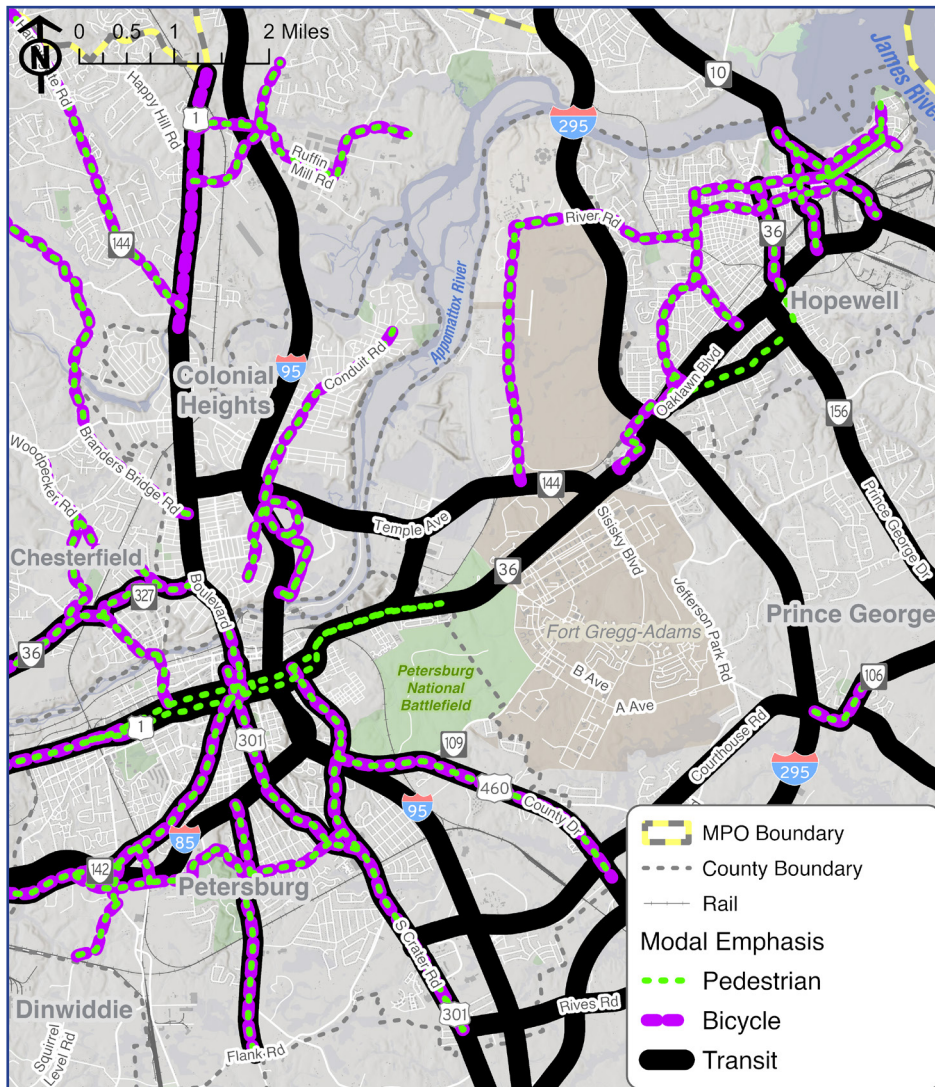
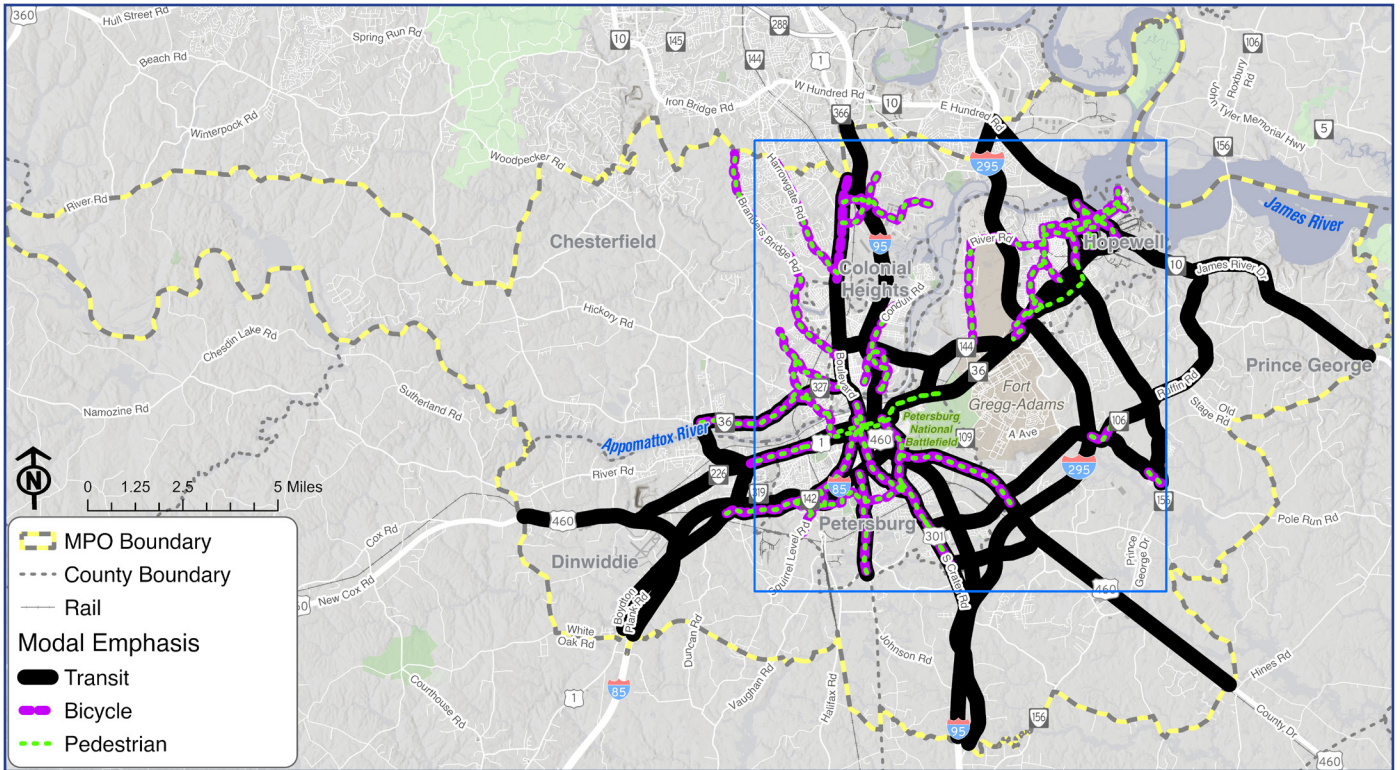


Figure 12: Identification of the modal emphasis of multimodal corridors in the Tri-Cities region with inset of Colonial Heights, Hopewell, and Petersburg.

Traditionally, with the exception of trails and shared-use paths, multimodal corridors have a default modal emphasis on vehicles. The goal in remapping the network with additional modes is to ensure that future modifications to or construction in the corridor accommodates safe parallel usage by transit riders, cyclists, and pedestrians.

classifications with the MMSDG’s multimodal corridor types (local road, avenue, major avenue, etc.). These corridor type classifications were assigned to corridors designated as “placemaking,” with exception for some examples of through corridors adapted for placemaking uses within the context of this plan. This alignment ensures that corridors are designed to accommodate multiple modes of transportation, including pedestrians, bicyclists, transit users, and motorists. Where roadway speed limits and contexts change throughout a corridor, the planning team approximated which category the roadway would fall into based on general features and intended use based on the transect zone. More broadly, the design process involved analyzing existing transportation networks, identifying gaps, and proposing new connections to create a more seamless multimodal system.

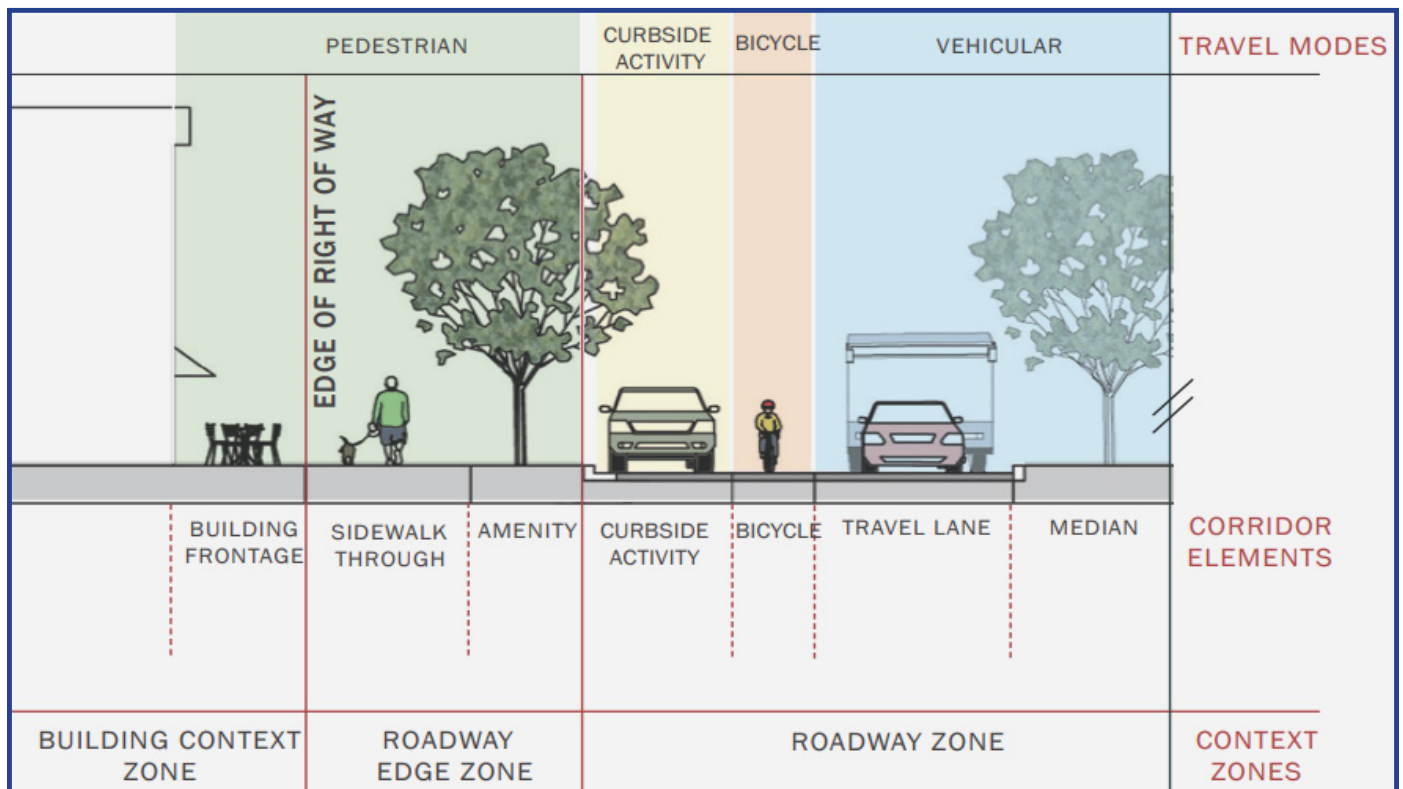
Defining Modal Priority and Creating Corridor Cross-Sections

Once multimodal corridors are designated, planners defined the modal priority for each corridor, determining which modes should be emphasized based on the area’s needs (see Figure 12). At early stages, the planning team determined modal

priority by reviewing possible connection points for multimodal travel. This involved desktop review of overall network connections with some in-person review of specific sites or corridors, discussion with residents to obtain local knowledge of issues and concerns, consultation with the steering committee to identify future interventions currently in development, and working with all stakeholder groups to clarify the viability of any prospective project sites. This process culminated in creating detailed cross-sections of each corridor, adhering to the minimum dimensions and design standards specified in the MMSDG by relative transect zone and the available right-of-way.

The cross-sections illustrate how space within the right-of-way is allocated to different modes but reflect planning-level project outlines for how multimodal improvements can be made and what form they might take in their respective contexts (see Figure 13). For example, corridors with high pedestrian activity prioritized wider sidewalks and pedestrian amenities, while transit corridors may include bus infrastructure and the important pedestrian infrastructure to connect those two modes, including sidewalks, bus stop pads, and shelters where applicable. Example cross-sections are found later in the plan.

Figure 13. Elements of a typical right-of-way cross-section.




Transect Zones

Transect zones play a crucial role in the multimodal system design process by providing a structured framework to classify and understand the varying densities and intensities of development across different areas. After the creation of districts and centers, transect zones help further refine these areas by categorizing them into distinct zones based on their activity density, which includes both population and employment densities. In this region, the transect zones were particularly important as they needed to be distinguished into high and low zones for T2 and T3 transects (see Figures 14 and 15). This distinction was necessary because the highest job and residential densities observed were consistent with T3 categories, indicating a moderate level of dense development. No areas exhibited


densities higher than those found in T3, making it essential to differentiate within the T2 and T3 zones to accurately reflect the region’s development patterns between centers, districts, suburban areas and rural areas (see Figure 16). This nuanced approach ensures that the multimodal system plan is tailored to the specific characteristics of the Tri-Cities region. The map below shows transect zones for the MPO area based on distribution of jobs and residential; the shapes of the zones are generalized based on the center point of block groups because the data resolution is limited by block group. Nonetheless, the general trend of where the zones fall is reflective of the region’s development massing.

T2



MIXED USE INTENSITY	Low
ACTIVITY DENSITY (jobs + people/ac)	1-10/ac
AVG. BLDG. HEIGHT	1.5 Stories
TYPICAL MAX BLDG. HEIGHT	3 Stories
TYPICAL NET FAR	0.02-0.23
SUPPORTED TRANSIT TECHNOLOGY	Demand Response

T3



MIXED USE INTENSITY	Medium/Low
ACTIVITY DENSITY (jobs + people/ac)	10-25/ac
AVG. BLDG. HEIGHT	3 Stories
TYPICAL MAX BLDG. HEIGHT	5 Stories
TYPICAL NET FAR	0.23-0.57
SUPPORTED TRANSIT TECHNOLOGY	Fixed Route Bus

Figures 14 and 15. General guidelines for the type of development that can be expected in the T2 Village (left) and T3 Suburban (right) transect zones. Example parameters include activity density, average building height, maximum building height, floor-to-area ratio (FAR), and support transit modes. These are general representations and can vary significantly based on the historical development patterns of a community or region. In the Tri-Cities MPO region, the range of transect zones runs from T1 (Rural/Natural) to T3; for ease in reading the map, the T2 and T3 zones were broken down into arbitrary “Low” and “High” tiers based on their relative activity density and development styles.

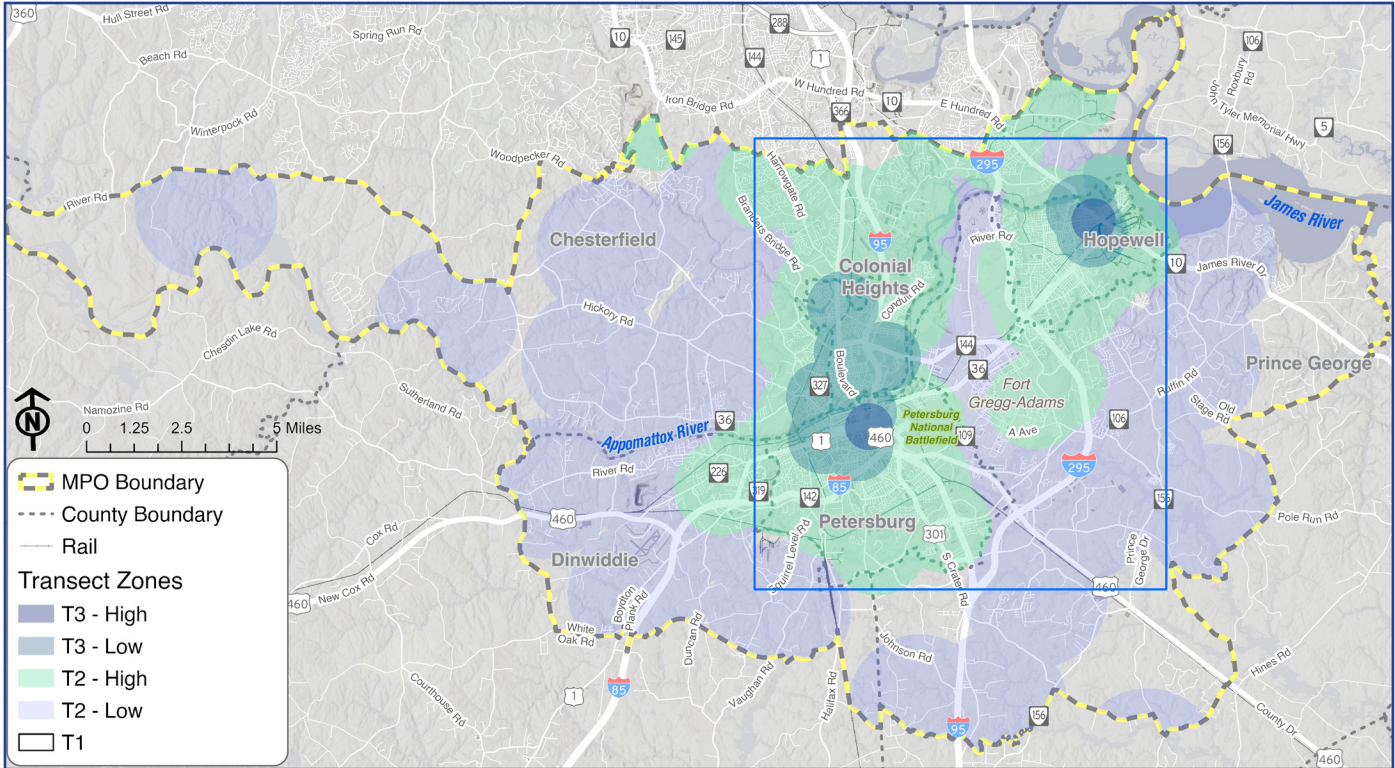
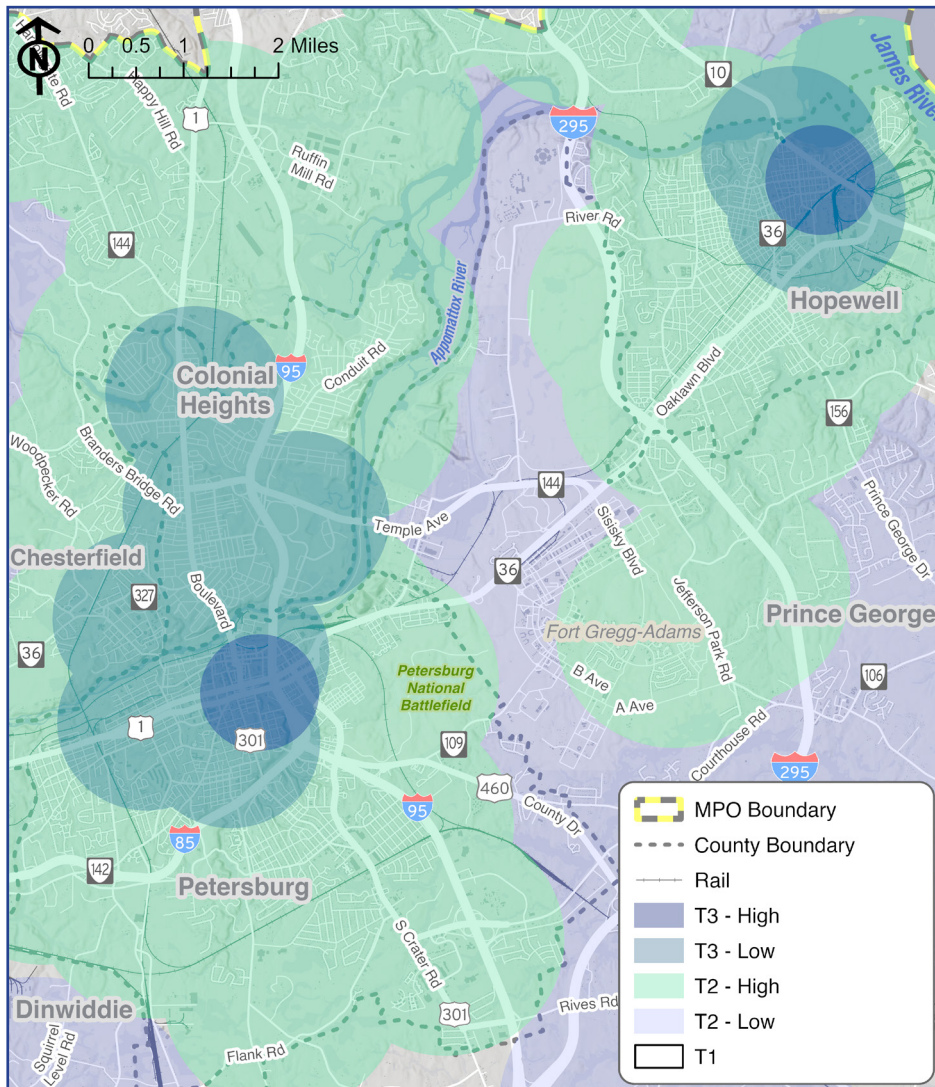


Figure 16: Identification of the transect zones in the Tri-Cities region with inset of Colonial Heights, Hopewell, and Petersburg.

Transect zones are general tiers of development that are used to provide direction on how to apply the Multimodal Design Guidelines. They help differentiate the intensity levels of similar Multimodal Corridor types across different types of development. For example, a Major Avenue in Downtown Petersburg will have a different look and feel than a Major Avenue in Disputanta but they will have the same primary role within the multimodal transportation network.



Multimodal Recommendations

The Regional Multimodal System Plan

The final step in the needs assessment process was compilation of the data, designations, and cross-sections into this comprehensive multimodal system plan document for the Tri-Cities area. This plan integrates public input, demographic analysis, and multimodal design principles to create a cohesive and actionable planning-level strategy for improving multimodal connectivity in the region. Recommendations from this process, including cross-sections.

Project Evaluation

A list of potential projects was compiled through discussions with the steering committee and ongoing engagement with the community. Some potential projects came directly from existing plans or ideas being pursued by jurisdictions, while others were identified through conversations with the public about specific roads or intersections in their community. After developing a list of projects, they were scored through a multi-factor evaluation matrix. Those criteria were related to VTrans needs, safety, equity, feasibility, context-appropriateness, environmental factors, modal choice, and finally, public interest.

VTrans: Does the Project Meet a VTrans Need?

VTrans is Virginia's statewide transportation plan that outlines the vision and goals for transportation in the Commonwealth. VTrans identifies mid-term (zero to ten years) and long term (20+ years) planning needs, and projects must meet a VTrans need to be eligible for SMART SCALE funding. VTrans needs are also used to prioritize VDOT Revenue Sharing funding requests. Follow the steps below to identify if the project meets a VTrans Need:

Safety: Does the Project Address a Safety Need?

The safety evaluation criteria will assess whether the project addresses an identified safety need to support a safer, more reliable transportation system.

Equity: Does the Project Address Equity Needs?

Equity is measured by the potential project's proximity to an area of persistent poverty (AOPP) or historically disadvantaged community, as defined by the Bipartisan Infrastructure Law and U.S. Census.

A project is located in an AOPP if the county in which the project is located consistently had greater than or equal to 20 percent of the population living in poverty in all three of the following datasets: (a) the 1990 decennial census; (b) the 2000 decennial census; and (c) the most recent (2022) Small Area Income Poverty Estimates; or the Census Tract in which the project is located has a poverty rate of at least 20 percent as measured by the 2014 to 2018 five-year data series available from the American Community Survey of the Bureau of the Census.

Feasibility: Is the Project Actually Feasible?

Project concept feasibility will be assessed by determining at a high level if the project would be viable. This was mostly a qualitative, desktop judgment measure performed by looking at available rights-of-way, costs for similar projects in other places, potential for displacement of residents, and potential impact to traffic.

Context Appropriate: Does the Project Fit the Context of the Area?

The Federal Highway Administration defines context sensitivity as a transportation facility that "fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining safety and mobility." This is mostly a qualitative, desktop judgment measure, but certain design features might not be appropriate for types of corridors.

Environment: Is the Project in Proximity to Publicly Observable Natural Sites?

The environmental evaluation criteria will assess the potential project's proximity to natural sites using satellite imagery and other spatial resources. This is a qualitative measure designed to determine whether proximity to certain areas might negatively impact the project's feasibility.

Modal Choice: Does the Project Improve Modal Choice?

Modal choice refers to the availability of multiple transportation options for individuals to select from for their travel needs. Improving modal choice in the context of a regional Multimodal Plan would be a project that provides or expands access to public transportation, bicycling, and/or walking.

Public Interest: Is the Project’s Popularity Illustrated by Public Comments?

The MPO and its localities receive public comments when undergoing various planning processes. The public interest criteria will seek to identify if a project concept has previously been mentioned at public meetings or within public comments, illustrating community desire and support for the concept.

Project Selection

During the evaluation process, the steering committee provided insight and recommendations on modifications to the projects to better develop them as multimodal concepts. After a final evaluation process, ten projects were selected based on their scores. Due to the regional nature of the plan, it was important to ensure a wide range of project types and needs, and to ensure comprehensive representation across all of the Tri-Cities Area MPO’s jurisdictions. The two highest scoring projects from Colonial Heights, Hopewell, Petersburg, and Chesterfield County were selected. The highest scoring project from each Dinwiddie and Prince George County were added to the list as well. All ten projects selected to use as examples were within the top 12 scoring projects.

Project Profiles

The following section presents detailed profiles and cross-sections for ten draft projects identified throughout the multimodal system planning process. These projects have been collaboratively selected based on their potential to enhance multimodal connectivity, improve safety, and support sustainable development across the region. The projects were selected from a wider group of projects identified by the planning team,

the public, stakeholders, the steering committee, and technical advisory committee throughout the planning process. The planning team narrowed the field of potential projects to focus on these ten by reviewing priority based on VTrans needs, potential for safety improvement, historically disadvantaged communities and areas of persistent poverty, feasibility, planning context, high-level environmental impact, potential to increase modal choice, and public interest in the form of targeted comments.

Each project profile includes essential information such as jurisdiction, functional classification, termini, average daily traffic, multimodal transect zone, project length, and corridor type. Additionally, typical cross-section elements are outlined, providing a comprehensive view of the proposed modifications and their associated costs. A referential image of the corridor is provided as they appeared as of early 2025.

The project profiles serve as planning-level exercises, offering direction and high-level cost estimates to guide further planning and design efforts. By integrating multimodal design principles and stakeholder feedback, these profiles aim to address the diverse transportation needs of residents, workers, and visitors in the Tri-Cities area. The proposed cross-sections illustrate how space within the right-of-way is allocated to different modes, ensuring that each corridor meets the needs of its designated modal emphasis. This approach not only enhances the overall efficiency and usability of the transportation network but also promotes transportation equity, environmental sustainability, economic development, and community engagement.

Tri-Cities Area Multimodal Project Examples

Colonial Heights

Boulevard (US 1)
Southpark Boulevard

Hopewell

6th Avenue
Oaklawn Boulevard

Petersburg

Sycamore Street
Johnson Road

Dinwiddie County

Cox Road




Chesterfield County

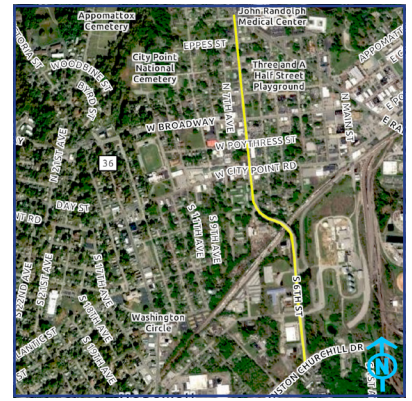
Happy Hill Road
Route 1

Prince George County

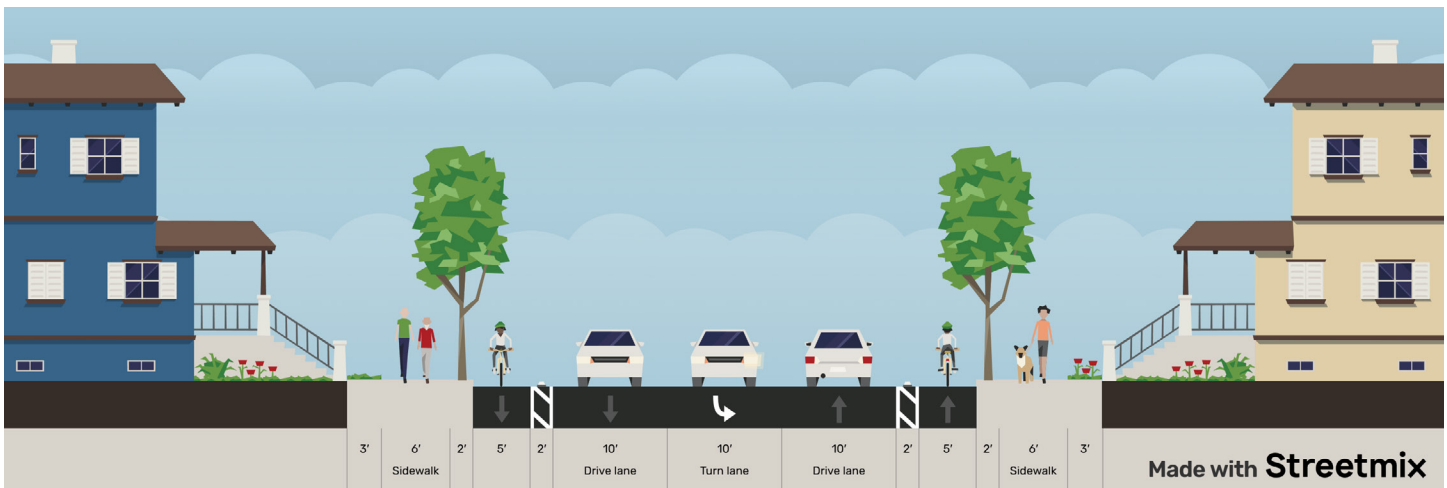
S. Crater Road

PROJECT PROFILE

6th Avenue 			
Jurisdiction:	Hopewell	Functional Classification:	Minor Arterial
North Terminus:	Randolph Road	Average Daily Traffic (2023):	8,796
South Terminus:	Winston Churchill Drive	Multimodal Transect:	T3 Suburban Zone 
Project Length (ft.):	5,800	Corridor Type:	Placemaking Major Avenue 



6th Avenue could be rebuilt with a reduced number of lanes complemented with buffered bicycle facilities in both directions to improve connectivity between Hopewell’s residential neighborhoods and W. Randolph Road leading into Downtown Hopewell. Introduction of street trees and pedestrian-scale lighting to accompany standardized sidewalks.



Typical Cross-Section Elements		
Cross Section Element	Total Width	Element Linear Foot Cost
Landscaping	10'	\$170 - \$195
Sidewalks	12'	\$300 - \$325
Bicycle Lanes and Buffers	14'	\$110 - \$135
Travel Lanes	30'	\$225 - \$250
Total Cross-Section Width and Linear Foot Cost	66'	\$805 - \$905
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$4,669,000 - \$5,249,000
Utilities Estimate (25%)		\$1,167,250 - \$1,312,250
Contingency (35%)		\$1,634,150 - \$1,837,150
Estimated Project Total (Range)		\$7,470,400 - \$8,398,400



Potential Funding Sources: State funding through Transportation Alternatives Program (TAP) and Virginia Highway Safety Improvement Program (HSIP) in short-term; SMART SCALE in long-term.

Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

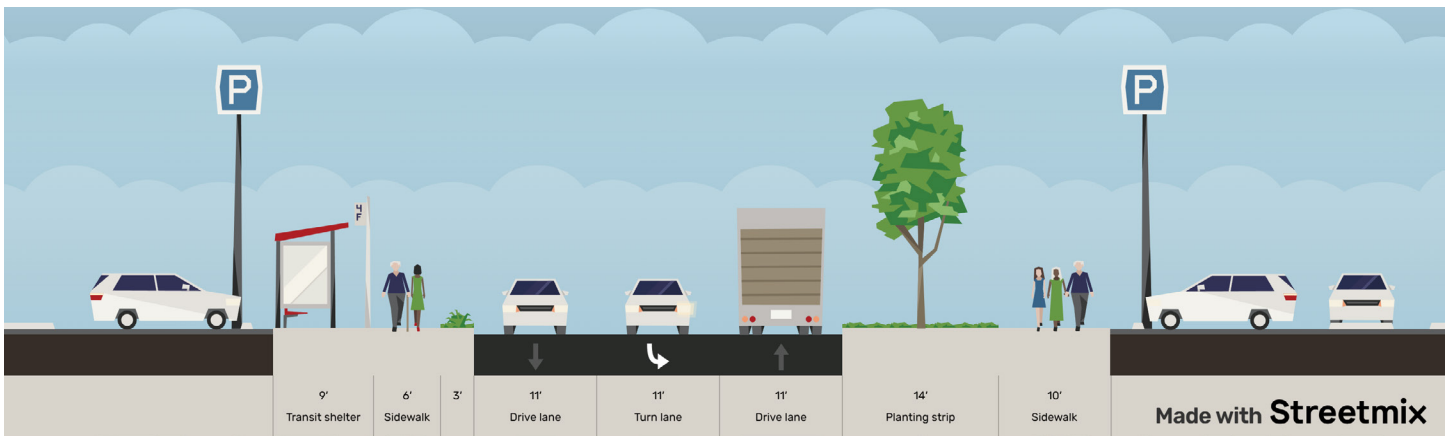
S. Crater Road



Jurisdiction:	Prince George County	Functional Classification:	Minor Arterial
North Terminus:	Clary Road	Average Daily Traffic (2023):	5,853
South Terminus:	Gravelbrook Road	Multimodal Transect:	T2 Rural/Village Zone
Project Length (ft.):	2,300	Corridor Type:	Through



This small activity center along Crater Road at its junction with I-95 could be modified to expand pedestrian facilities to the west side of the road and provide a more permanent interface between pedestrians and the only available transit in this area. Moderate changes recognize the transient nature of the commercial activity and the proximity to high-speed traffic.



Typical Cross-Section Elements		
Cross Section Element	Total Width	Element Linear Foot Cost
Landscaping (including transit amenities)	26'	\$450 - \$475
Sidewalks	16'	\$350 - \$375
Travel Lanes	33'	\$250 - \$275
Total Cross-Section Width and Linear Foot Cost	75'	\$1,050 - \$1,125
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$2,415,000 - \$2,587,500
Utilities Estimate (25%)		\$603,750 - \$646,875
Contingency (35%)		\$845,250 - \$905,625
Estimated Project Total (Range)		\$3,864,000 - \$4,140,000



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term. Transit-related funding opportunities for technical assistance and capital grants through DRPT’s MERIT program. Federal opportunities may include FTA capital funding via PAT.

Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

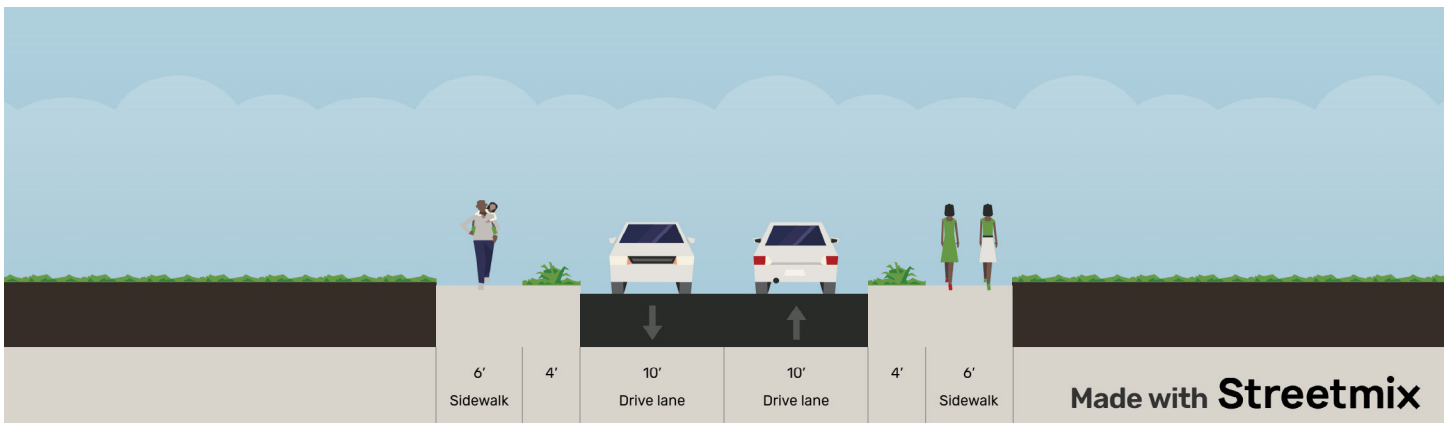
Cox Road



Jurisdiction:	Dinwiddie County	Functional Classification:	Minor Arterial
West Terminus:	Sterling Road	Average Daily Traffic (2023):	10,311
East Terminus:	Westgate Drive	Multimodal Transect:	T2 Rural/Village Zone
Project Length (ft.):	7,800	Corridor Type:	Placemaking Avenue



This corridor provides a transition between rural and suburban development while also transitioning from a through corridor at the western end to a placemaking corridor closer to Petersburg. The modifications envisioned for Cox Road would expand the safe range of modes to include sidewalks with separation from vehicular traffic.






Typical Cross-Section Elements		
Cross Section Element	Total Width	Element Linear Foot Cost
Landscaping	8'	\$125 - \$150
Sidewalks	12'	\$300 - \$325
Travel Lanes	20'	\$150 - \$175
Total Cross-Section Width and Linear Foot Cost	40'	\$575 - \$650
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$4,485,000 - \$5,070,000
Utilities Estimate (25%)		\$1,121,250 - \$1,267,500
Contingency (35%)		\$1,569,750 - \$1,774,500
Estimated Project Total (Range)		\$7,176,000 - \$8,112,000



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term.

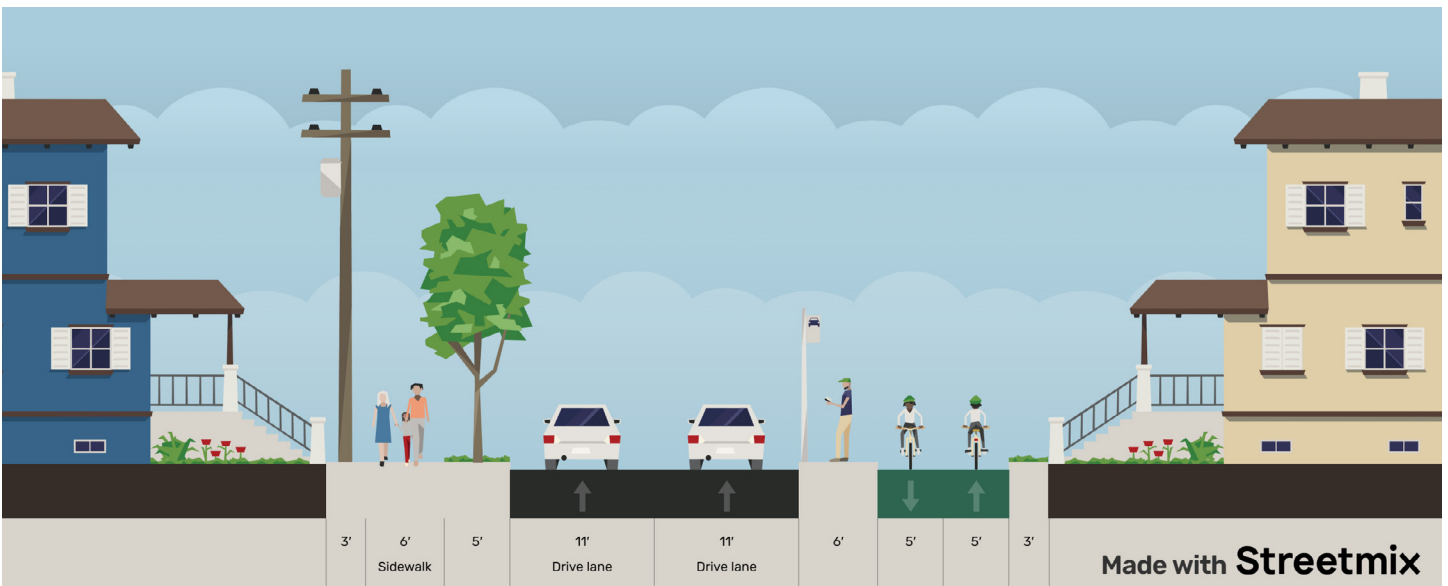
Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

Oaklawn Boulevard 			
Jurisdiction:	Hopewell	Functional Classification:	Other Principal Arterial
West Terminus:	Colonial Corner Drive	Average Daily Traffic (2023):	20,835
East Terminus:	Blackstone Avenue	Multimodal Transect:	T3 Suburban Zone 
Project Length (ft.):	4,500	Corridor Type:	Placemaking Boulevard 



Oaklawn Boulevard is the eastbound half of a couplet that crosses through residential and commercial sections of Hopewell. While it is a principal arterial, there may be an opportunity to reduce a lane and use the additional space to improve sidewalk infrastructure and introduce a bi-directional protected bicycle network that would connect Fort Gregg-Adams to downtown Hopewell and other major commercial areas in Hopewell.



Typical Cross-Section Elements		
Cross Section Element	Total Width	Element Linear Foot Cost
Landscaping and Utilities	11'	\$175 - \$200
Sidewalks	12'	\$300 - \$325
Travel Lanes	22'	\$150 - \$175
Bicycle Lanes	10'	\$75 - \$100
Total Cross-Section Width and Linear Foot Cost	55'	\$700 - \$800
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$3,150,000 - \$3,600,000
Utilities Estimate (25%)		\$787,500 - \$900,000
Contingency (35%)		\$1,102,500 - \$1,260,000
Estimated Project Total (Range)		\$5,040,000 - \$5,760,000



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term. Transit-related funding opportunities for technical assistance and capital grants through DRPT’s MERIT program. Federal opportunities may include FTA capital funding via PAT.

Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

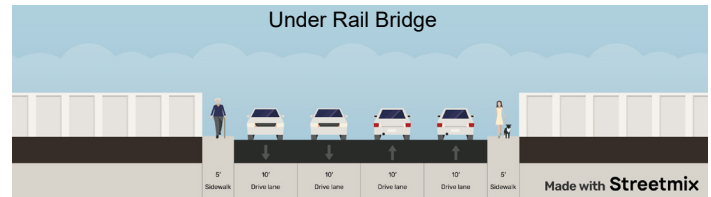
Boulevard (US 1)



Jurisdiction:	Colonial Heights	Functional Classification:	Other Principal Arterial
North Terminus:	Lakeview Avenue	Average Daily Traffic (2023):	25,561
South Terminus:	Newcastle Drive	Multimodal Transect:	T3 Suburban Zone
Project Length (ft.):	1,375'	Corridor Type:	Placemaking Boulevard



Boulevard in Colonial Heights is a major thoroughfare in the city and this particular stretch passed under a train viaduct, dramatically reducing the right-of-way in the corridor and constraining the modal choices. A hybrid approach can allow the expansion of multimodal facilities on Boulevard as a whole while concessions are made to maintain separation between vehicular traffic and other modes for the approximately 200 feet the right-of-way narrows.



Typical Cross-Section Elements (Standard)

Cross Section Element	Total Width	Element Linear Foot Cost
Sidewalks	12'	\$300 - \$325
Bicycle Lanes	12'	\$75 - \$100
Landscaping	22'	\$375 - \$400
Travel Lanes	44'	\$350 - \$375
Sidewalks (including viaduct modifications)	10'	\$350 - \$375
Travel Lanes (including viaduct modifications)	40'	\$375 - \$340
Total Cross-Section Width and Linear Foot Cost (Standard)	90'	\$1,100 - \$1,200
Total Cross-Section Width and Linear Foot Cost (Rail)	50'	\$725 - \$775
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$1,437,500 - \$1,565,000
Utilities Estimate (25%)		\$359,375 - \$391,250
Contingency (35%)		\$503,125 - \$547,750
Estimated Project Total (Range)		\$2,300,000 - \$2,504,000



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term.

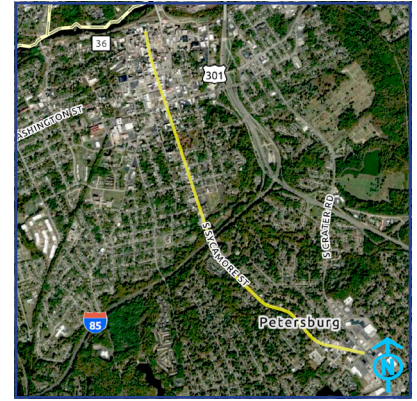
Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

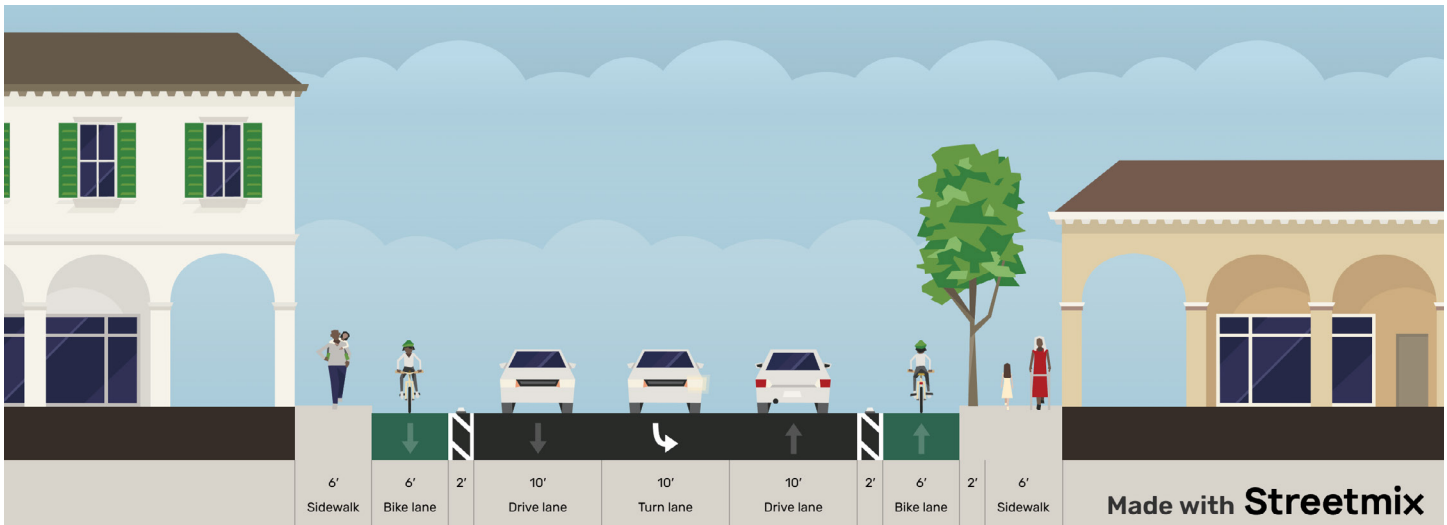
Sycamore Street



Jurisdiction:	Petersburg	Functional Classification:	Minor Arterial
North Terminus:	Wythe Street	Average Daily Traffic (2023):	5,622
South Terminus:	S. Crater Road	Multimodal Transect:	T3 Suburban Zone
Project Length (ft.):	14,520'	Corridor Type:	Placemaking Avenue



Sycamore Street is the principal north-south corridor through Petersburg, running from downtown to the city’s suburbs. While the road changes width and configuration, the example here allows it to maintain its traffic volume while adding buffered bicycle facilities and uniform sidewalk infrastructure. Modifications would be needed downtown to allow for on-street parking, such as shared bicycle lanes with lower-speed traffic.



Typical Cross-Section Elements		
Cross Section Element	Total Width	Element Linear Foot Cost
Sidewalks	12'	\$300 - \$325
Travel Lanes	30'	\$225 - \$250
Bicycle Lanes and Buffers	16'	\$125 - \$150
Landscaping and Utilities	2'	\$25 - \$50
Total Cross-Section Width and Linear Foot Cost	60'	\$675 - \$775
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$9,801,000 - \$11,253,000
Utilities Estimate (25%)		\$2,450,250 - \$2,813,250
Contingency (35%)		\$3,430,350 - \$3,938,550
Estimated Project Total (Range)		\$15,681,600 - \$18,004,800



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term.

Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

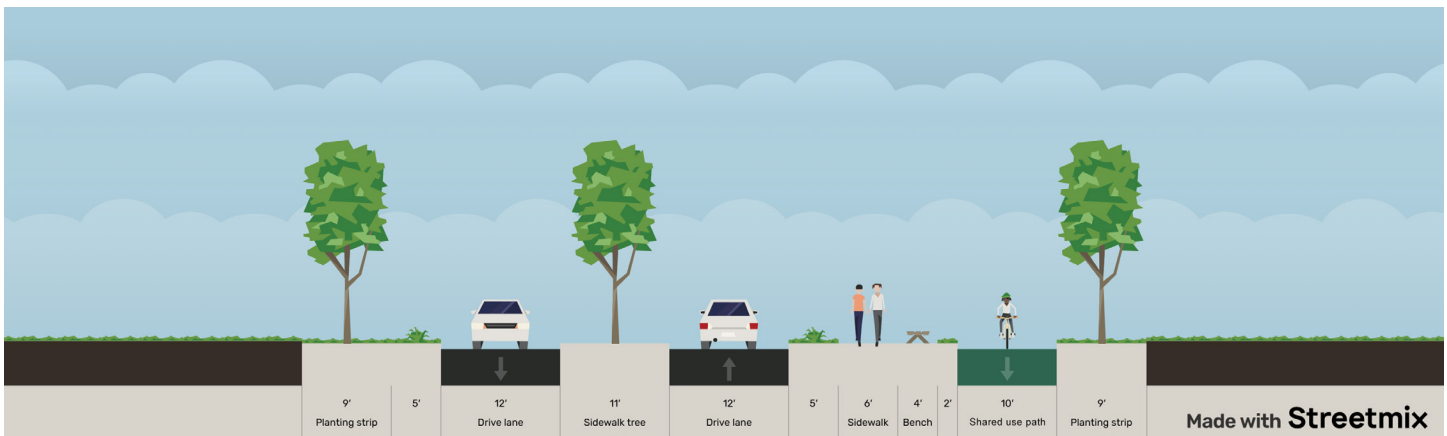
Happy Hill Road



Jurisdiction:	Chesterfield County	Functional Classification:	Minor Arterial
West Terminus:	Branders Bridge Road	Average Daily Traffic (2023):	6,239
East Terminus:	Harrowgate Road	Multimodal Transect:	T2 Rural/Village Zone
Project Length (ft.):	5,025'	Corridor Type:	Placemaking Local



With the future addition of the Fall Line Trail connecting the Tri-Cities area to Richmond, this project would further connect the southern Chesterfield neighborhoods and the Route 1 corridor to the future trail. A separated multi-use path with complementary pedestrian infrastructure and amenities would allow for continued vehicle operation while expanding the modal choices. The additional bicycle and pedestrian infrastructure is intended to support the connection to the Fall Line Trail and provide recreational facilities for nearby neighborhoods.



Typical Cross-Section Elements

Cross Section Element	Total Width	Element Linear Foot Cost
Landscaping	45'	\$800 - \$825
Travel Lanes	24'	\$225 - \$250
Sidewalk	6'	\$150 - \$175
Bicycle Lanes	10'	\$125 - \$150
Total Cross-Section Width and Linear Foot Cost	85'	\$1,200 - \$1,300
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$6,030,000 - \$6,532,500
Utilities Estimate (25%)		\$1,507,000 - \$1,633,125
Contingency (35%)		\$2,110,500 - \$2,286,375
Estimated Project Total (Range)		\$9,648,000 - \$10,452,000



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term. Trail-related grant programs include Trail Access Grants program and the federal Recreational Trails Program (RTP) through Virginia Department of Conservation and Recreation.

Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

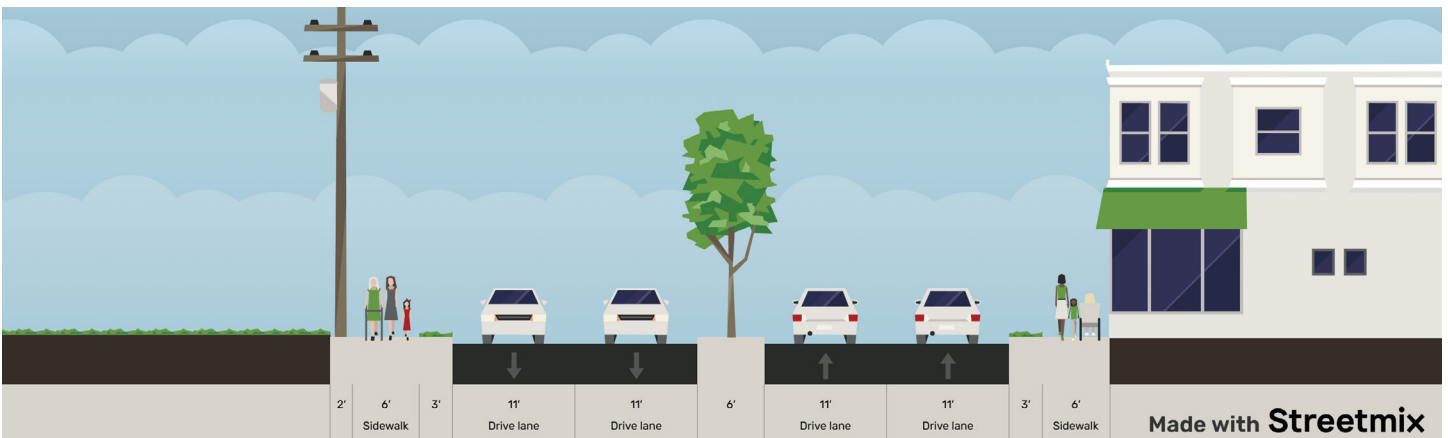
Route 1



Jurisdiction:	Chesterfield County	Functional Classification:	Other Principal Arterial
North Terminus:	Aldridge Avenue	Average Daily Traffic (2023):	25,561
South Terminus:	Whitehouse Road	Multimodal Transect:	T3 Suburban Zone
Project Length (ft.):	1,220'	Corridor Type:	Placemaking Boulevard



This project would rectify a gap in the pedestrian network near the southern border of Chesterfield along Route 1, one of the region’s major north-south connection. There are moderate levels of activity here due to a concentration of institutional uses and this would expand the pedestrian accessibility in and around the Harrowgate Road and Route 1 intersection.



Typical Cross-Section Elements		
Cross Section Element	Total Width	Element Linear Foot Cost
Landscaping and Utilities	14'	\$250 - \$275
Travel Lanes	44'	\$325 - \$350
Sidewalks	12'	\$300 - \$325
Total Cross-Section Width and Linear Foot Cost	70'	\$875 - \$950
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$1,067,500 - \$1,159,000
Utilities Estimate (25%)		\$266,875 - \$289,750
Contingency (35%)		\$373,625 - \$405,650
Estimated Project Total (Range)		\$1,708,000 - \$1,854,400



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term.

Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

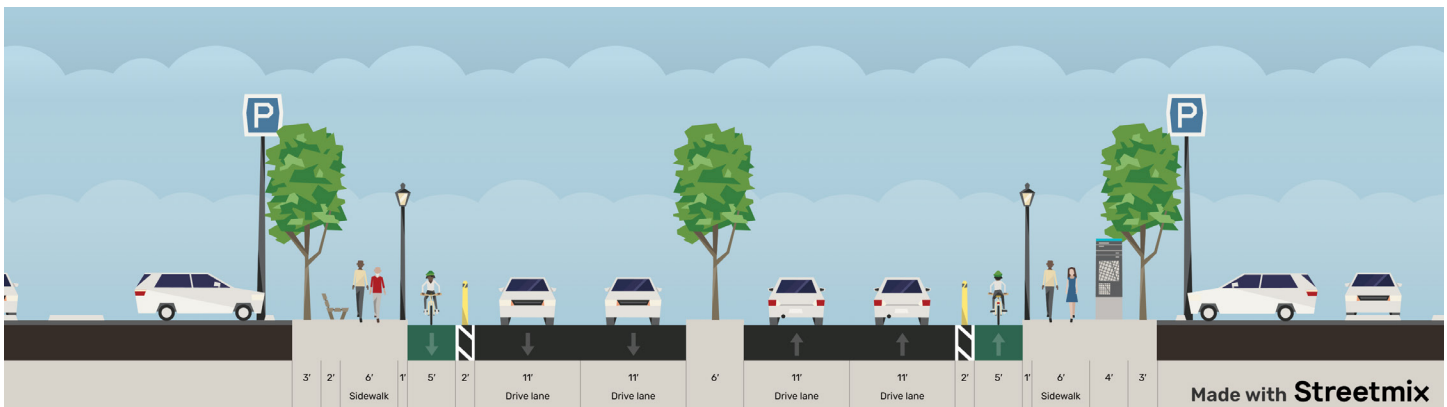
Southpark Boulevard



Jurisdiction:	Colonial Heights	Functional Classification:	Major Collector
North Terminus:	Southpark Circle	Average Daily Traffic (2023):	23,484
South Terminus:	I-95 On/Off-Ramp	Multimodal Transect:	T3 Suburban
Project Length (ft.):	4,100	Corridor Type:	Placemaking Local



Southpark Boulevard is a unique road as it funnels considerable commercial traffic through a dense shopping area but also provides direct connectivity between I-95 and Southpark Mall itself. While acknowledging the major automobile focus of the corridor, these proposed additions allow people to access the commercial center by bicycle or to walk between stores outside of the main right-of-way or the parking lots. The use of street trees, landscaped medians, and wayfinding signage helps establish the street as part of a specific place as well without requiring changes to the actual orientation of the buildings.



Typical Cross-Section Elements

Cross Section Element	Total Width	Element Linear Foot Cost
Landscaping and Amenities	18'	\$300 - \$325
Travel Lanes	44'	\$325 - \$350
Sidewalk and Utilities	14'	\$325 - \$350
Bicycle Lanes and Buffers	14'	\$110 - \$135
Total Cross-Section Width and Linear Foot Cost		\$1,060 - \$1,160
Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>		\$4,346,000 - \$4,756,000
Utilities Estimate (25%)		\$1,086,500 - \$1,189,000
Contingency (35%)		\$1,521,100 - \$1,664,600
Estimated Project Total (Range)		\$6,953,600 - \$7,609,600



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term.

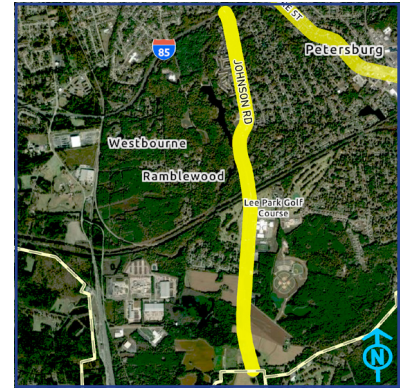
Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

PROJECT PROFILE

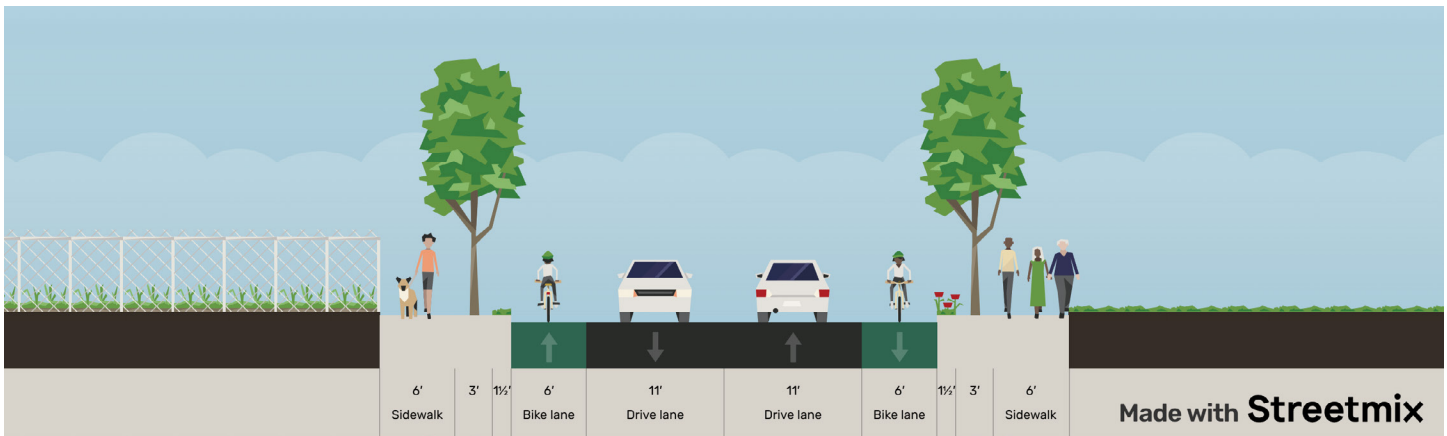
Johnson Road



Jurisdiction:	Petersburg	Functional Classification:	Minor Arterial
North Terminus:	I-85 Overpass	Average Daily Traffic (2023):	5,720
East Terminus:	Flank Road	Multimodal Transect:	T2 Rural/Village Zone
Project Length (ft.):	14,200	Corridor Type:	Placemaking Avenue



Johnson Road is a corridor in southwestern Petersburg that connects low- and medium-density residential to parks and institutional uses, including Petersburg High School. This configuration would help to slow traffic and introduce bicycle infrastructure to the corridor. A roundabout that maintain the bicycle and pedestrian connectivity at the intersection of Johnson Road and Defense Road would reduce conflict points and improve safety.



Typical Cross-Section Elements

Cross Section Element	Total Width	Element Linear Foot Cost
Sidewalks	12'	\$300 - \$325
Landscaping	9'	\$160 - \$185
Bicycle Lanes	12'	\$100 - \$125
Travel Lanes	22'	\$150 - \$175
Total Cross-Section Width and Linear Foot Cost	55'	\$710 - \$810



Potential Funding Sources: State funding through TAP and HSIP in short-term; SMART SCALE in long-term.

Estimated Total Project Subtotal <i>Linear Foot Cost x Project Length</i>	\$10,082,000 - \$11,502,000
Utilities Estimate (25%)	\$2,520,500 - \$2,875,500
Contingency (35%)	\$3,528,700 - \$4,025,700
Roundabout Installation	\$10,00,000 - \$12,500,00
Estimated Project Total (Range)	\$26,131,200 - \$30,903,200

Note: Project costs are high-level planning estimates derived from two-year (2022-2024) VDOT statewide averages of construction costs. Estimates are based on linear foot (LF) costs for the typical cross-section shown with 25% utility relocation estimate and an added 35% contingency.

Additional Policy and Program Recommendations

Bicycle Lane Education and Enforcement

Objective

Enhance the safety and usability of bicycle lanes across the Tri-Cities area.

Description

Develop an education program paired with stricter enforcement of bicycle lane regulations to ensure that they are used exclusively by cyclists and are free from obstructions such as parked vehicles. This will involve community engagement by planners and increased monitoring by local law enforcement

Planning Time Frame

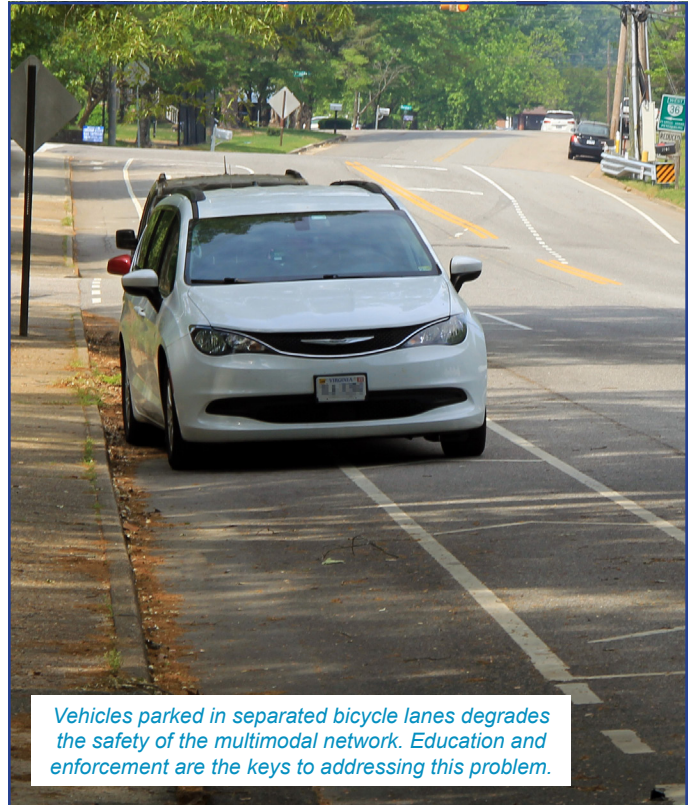
Immediate and ongoing

Partners

Local law enforcement agencies, Tri-Cities Area MPO, local governments

Funding Sources

Local government, state transportation grants



Vehicles parked in separated bicycle lanes degrades the safety of the multimodal network. Education and enforcement are the keys to addressing this problem.

Improved and Consistent Signage for Local Trail Systems

Objective

Improve navigation and safety for users of the Appomattox River Trail, the future Fall Line Trail, and other local trails.

Description

Continue to install comprehensive and consistent wayfinding and informational signage along the developing Appomattox River Trail (as recommended in the **Signage Master Plan**) and other trails as built to enhance user experience and safety. This includes directional signs, distance markers, and informational signs about local flora, fauna, and historical sites.

Planning Time Frame

As trail sections are completed

Partners

FOLAR, local governments, VDOT, DRPT

Funding Sources

Grants from environmental and recreational organizations (state or federal), local government, private donations



The Appomattox River Trail has a well-established signage program and style which should be continued as it expands to enhance its role in connectivity.

Street Trees

Objective

Mitigate the urban heat island effect and improve pedestrian comfort.

Description

Plant street trees along major pedestrian corridors to provide shade and reduce surface temperatures. This initiative will focus on areas with high pedestrian traffic and limited green space. Implementation will be in accordance with the character of the corridor and the surrounding environment and in accordance with local, state, and federal guidance for sight lines and other safety needs.

Planning Time Frame

As projects are designed and constructed

Partners

Local governments, urban forestry programs, community organizations

Funding Sources

Local government, state and federal environmental grants, private donations

Bikeshare Program(s) in Tri-Cities

Objective

Expand access to sustainable transportation options.

Description

Develop and implement bikeshare programs in Colonial Heights, Petersburg, and Hopewell, modeled after successful programs in other multi-jurisdictional regions. This will include the installation of bikeshare stations at key locations along the growing recreational trail system in the area and the introduction of electric-assist bikes to encourage usage. Would develop parallel to the expansion of bicycle facilities.

Planning Time Frame

Medium-term (3-5 years)

Partners

Local governments, private bikeshare companies, community organizations

Funding Sources

Local government, private investments, state transportation grants



Appropriate implementation of street trees enhances the sense of place and provides important shade to pedestrians.



Example of a bike sharing station in Richmond. A similar program may prove useful in the Tri-Cities region with the Appomattox River Trail and the VSU campus nearby.

Safe Routes to School Program Expansion

Objective

Expand the usage of the Safe Routes To School (SRTS) program in each of the MPO localities

Description

SRTS and the more general Transportation Alternatives Program (TAP) guidelines allow localities to apply for funding on the basis of increasing safe multimodal connectivity to K-12 schools in their respective areas. These projects need support from their localities and local school districts in the form of “six Es” that reinforce students’ participation in a bike or walk to school program: engagement, equity, engineering, encouragement, education, and evaluation. Localities are also encouraged to survey and conduct outreach in local schools to identify their needs.

Planning Time Frame

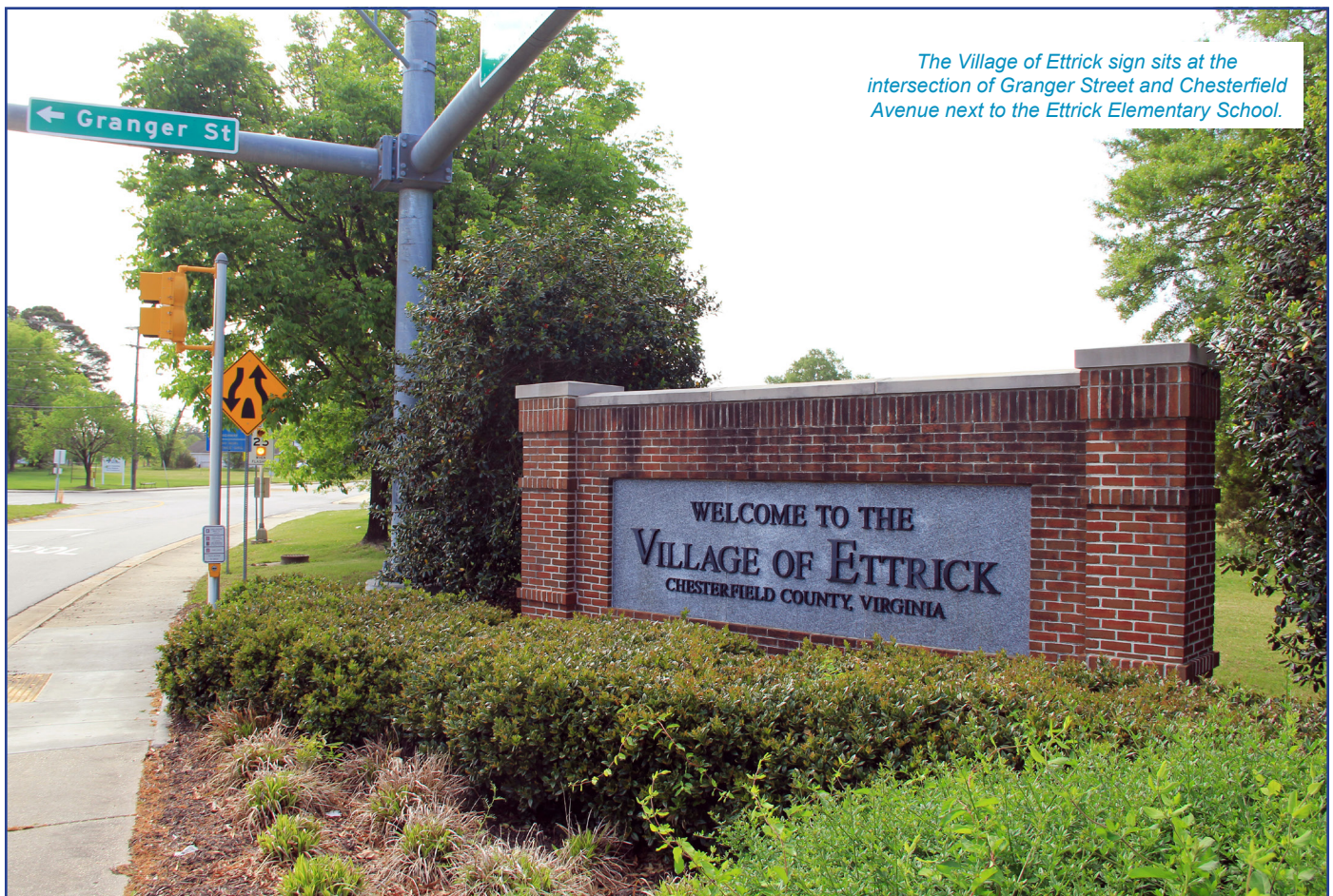
Annual program and grant cycle

Partners

VDOT, Tri-Cities Area MPO, local governments, law enforcement, school officials, and community members

Funding Sources

Local government, state, and federal grants (where available)



The Village of Ettrick sign sits at the intersection of Granger Street and Chesterfield Avenue next to the Ettrick Elementary School.

Plan Information

Crater Planning District Commission

Tri-Cities Area Metropolitan Planning Organization

Zakari Mumuni, Assistant Director of Transportation, Tri-Cities Area MPO

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Tri-Cities MPO Policy Committee

[list upon adoption]

Tri-Cities MPO Technical Advisory Committee

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Project Steering Committee

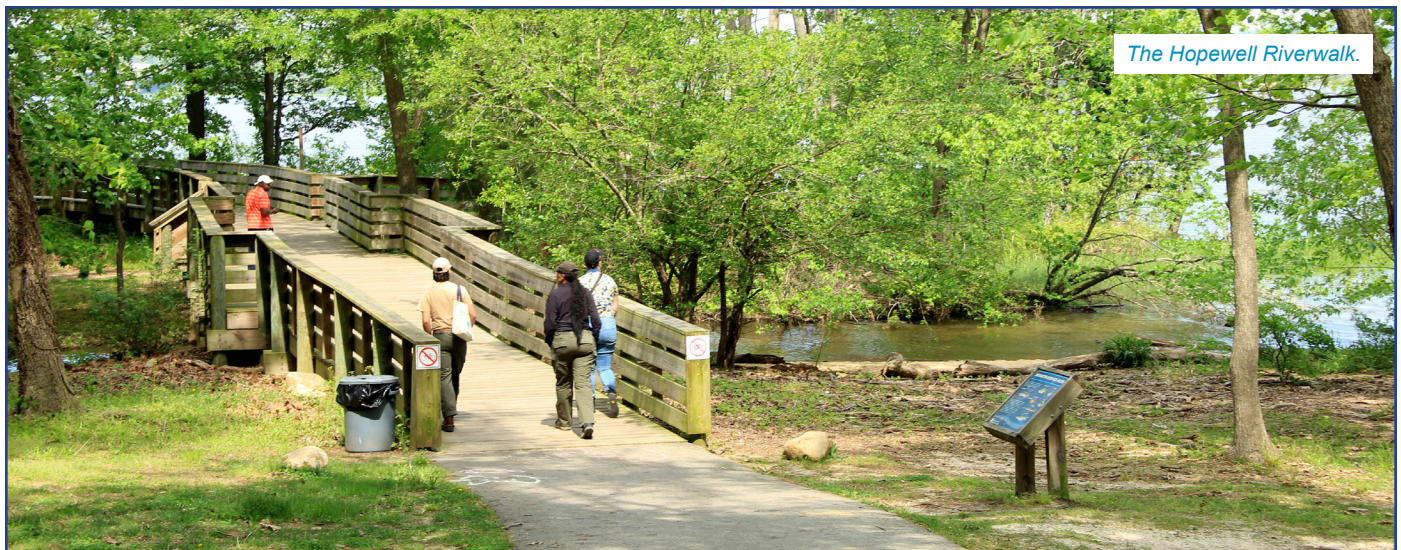
Robert Baldwin (Prince George County), Marian Barney (VSU), Heather Barrar (FOLAR), Mark Bassett (Dinwiddie County), Jerry Byerly (Petersburg), Theresa Caldwell (Virginia Department of Health), Brigitte Carter (RideFinders), Joseph Carter (Colonial Heights), Brian Copple (Petersburg), Kelly Davis (Hopewell), Tina Fonteneau (VCU), Nicole Hentrup (Chesterfield County), Mitch Huber (DRPT), Wood Hudson (DRPT), Heather Lyne (Hopewell Downtown Partnership), Darius Mason (Petersburg Area Transit), Annie Mickens (Petersburg), Nicole Mueller (VDOT), Matthew Parker (Colonial Heights), Matthew Ryan (Colonial Heights), Naomi Siodmok (Petersburg), Barb Smith (Chesterfield County), Matt Spruill (Hopewell)

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Figures 2 - 4 and 13 - 15 adapted from DRPT's Multimodal System Design Guidelines (2020). All photographs by Michael Baker International project team except photograph on page 4 by Mojo Hand (Wikipedia) and Amtrak platform photograph on page 21 by Taylor Jenkins.



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Appendix A

Community Engagement Plan



REGIONAL MULTIMODAL MOBILITY STUDY

Community Engagement Plan

Prepared by Michael Baker International
April 2024

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PROJECT OVERVIEW

The Regional Multimodal Mobility Plan was initiated in 2024 by the Tri-Cities Area Metropolitan Planning Organization (TCAMPO). This Community Engagement Plan will outline how the study team will conduct outreach activities to optimize public participation and produce a final plan reflective of the needs and desires of the community. Public engagement will occur early and often throughout the study process to promote principles of transparency, relevance, and collaboration with the public. The following actions of the public outreach strategy will be discussed throughout this plan:

- Opportunities for public engagement, including public meetings, field outreach, and the study survey
- A pre-prepared list of Frequently Asked Questions (FAQs)
- Key messages to prioritize communicating throughout the study

By utilizing the Multimodal System Design Guidelines published by the Virginia Department of Rail and Public Transportation (DRPT), the study will identify activity centers and placemaking corridors within the MPO area and develop recommendations for improving and connecting the overall multimodal system. The study is planned for an early-2025 completion.

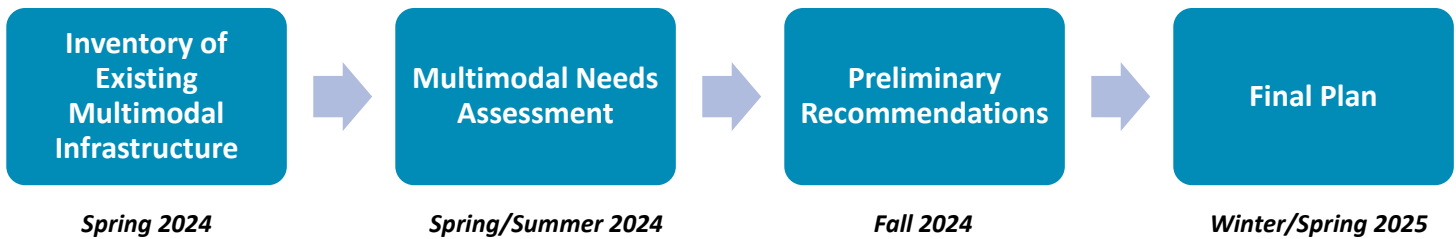


Figure 1. Project Schedule

Background

Located in southeastern Virginia, the Tri-Cities area MPO was established in 1974 and falls within the boundaries of the Crater Planning District Commission (PDC). It supports a multimodal transportation system consisting of highways, public transportation, rail, bicycle, and pedestrian access. The MPO is within the travel corridors of I-295, I-85, and I-95. The study area boundary is identical to the MPO boundary, which includes the cities of Petersburg, Hopewell, and Colonial Heights, and portions of Chesterfield, Dinwiddie, and Prince George counties. **Figure 2** illustrates the study area.

The MPO completed a Bikeway Plan update in 2003 that aimed to create a safer and more comprehensive transportation system by further integrating options for bicycling. The final plan identified more than 100 miles of proposed bike trails, lanes, and connected routes throughout the MPO boundary. Today, a major regional trail destination is available for cyclists and pedestrians (the Appomattox River Trail) with another recently breaking ground (the Fall Line Trail).

Petersburg Area Transit (PAT) is the public transportation provider for the region. It operates fixed route and paratransit service predominantly in Petersburg, with some routes extending into other localities of the region. PAT also operates a route providing four daily round trips between Petersburg and Richmond. The Tri-Cities region has many multimodal options for residents today, and the Regional Multimodal Mobility Plan will support the planning necessary to continue improving quality of life through a connected transportation system.

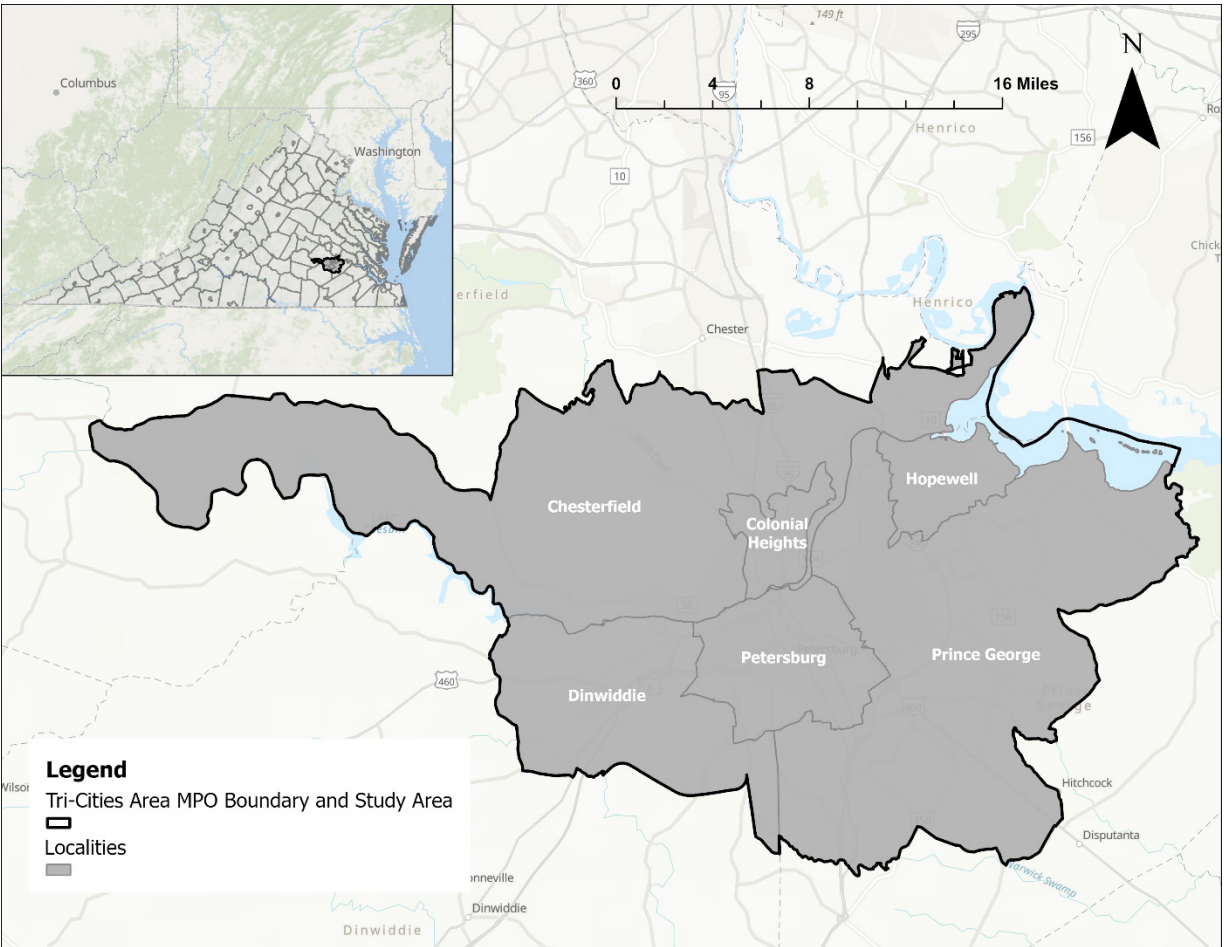


Figure 2. Tri-Cities Area MPO Boundary and Study Area

Study Team and Committees

The study team is composed of TCAMPO and consultant staff. Other committees that will be engaged throughout the study are listed below:

- **Steering Committee:** To help guide the direction of the study, a Steering Committee will be established to include external stakeholders representing partnering organizations, or those with specialized expertise and interest in the study. Potential organizations could include Petersburg Area Transit, planning staff from individual localities, local chambers of commerce, community and nonprofit leaders, Virginia State University, and more. MPO staff will act as the liaison between the consultant team and the Steering Committee.
- **Technical Advisory Committee:** The MPO Technical Advisory Committee is made up of technical planning and engineering staff. TAC members will receive updates from the study team and provide technical feedback as the study progresses.
- **TCAMPO Policy Committee:** The MPO Policy Committee is the decision-making body for the MPO and will be responsible for final approval of the Regional Multimodal Mobility Plan. Policy Committee members will receive updates, as necessary, from the study team as the study progresses.

COMMUNITY ENGAGEMENT PLAN GOALS AND OBJECTIVES

The following community engagement goals and objectives will guide the manner of encouraging public feedback throughout the study:

Table 1. Community Engagement Plan Goals and Objectives

Goal 1: Obtain Actionable Feedback from the Public
<i>Objective 1.1: Conduct a public survey</i>
<i>Objective 1.2: Conduct interactive, participatory public meetings</i>
Goal 2: Create Opportunities for Casual Engagement
<i>Objective 2.1: Conduct field-based outreach in locations of high pedestrian, transit, and/or biking activity</i>
<i>Objective 2.2: Amplify study content on TCAMPO social media platforms</i>
Goal 3: Ensure All Community Members are Provided an Opportunity to Participate in the Planning Process
<i>Objective 3.1: Conduct field-based outreach in areas representing priority audiences identified in subsequent sections of this plan</i>
<i>Objective 3.2: Disseminate a paper survey to ensure widespread access</i>
Goal 4: Clearly Communicate the Study Background, Purpose, and Needs
<i>Objective 4.1: Dedicate one set of public meetings to introducing the study and conducting a community-driven needs assessment</i>
<i>Objective 4.2: Prepare key messages and responses to Frequently Asked Questions to ensure communications are consistent and accurate</i>

Outreach Activities

Public outreach activities will address the full spectrum of the study, from informing the public about the purpose to soliciting input about final project recommendations. In addition to regular internal meetings, the study team will also conduct several meetings with the MPO's Technical Advisory Committee and Steering Committee, providing key stakeholders multiple opportunities to provide feedback. Each outreach activity outlined in this section supports the goals and objectives of the Community Engagement Plan.

The study team is proposing a total of nine meetings over the course of the study that will be organized in sets of three. Meetings will be scattered throughout a given week and during different times of day to capture the widest range of participants possible. The study team intends to maximize transit accessibility and prioritize familiar locations, as well as geographic diversity within the MPO area.

The first set of three meetings will focus on the project background, introduction of the multimodal planning process, and requesting preliminary feedback regarding areas of concern or focus as identified by the Needs Assessment. The second set of meetings will identify transects, discuss early project recommendations, and provide an overview of the prioritization process. The third set of meetings will present final project recommendations and the draft final study as the project prepares for conclusion.

In addition to public meetings, a survey will also be conducted to further solicit input during the study. It will be administered virtually and by paper to ensure accessibility and provide those not able to make a public meeting the opportunity to still provide input.

Targeted Public Engagement

The study team recognizes the importance of engagement strategies that supplement public meetings. Because gathering public input should involve meaningful and convenient opportunities for residents to provide feedback, approximately 14 hours of field-based community engagement will be conducted in targeted locations of Petersburg, Hopewell, and Colonial Heights. Informal or casual engagement opportunities help build trust and share knowledge among community members. Dependent upon collaboration with TCAMPO staff, potential locations could include:

- Downtown Hopewell
- Hopewell Community Center
- Arlington Park
- Appomattox River Trail
- Virginia State University
- Richard Bland College
- The YMCA of Petersburg
- Colonial Heights Library
- South Crater Road corridor

The study team envisions visiting areas of high pedestrian, transit, and/or general activity and engaging residents in discussions about multimodal planning and local needs. Targeted public engagement will help reach the study's priority audiences and support goals two and three of this community engagement plan. A pre-determined list of points and questions can be prepared to help guide conversations with individuals.

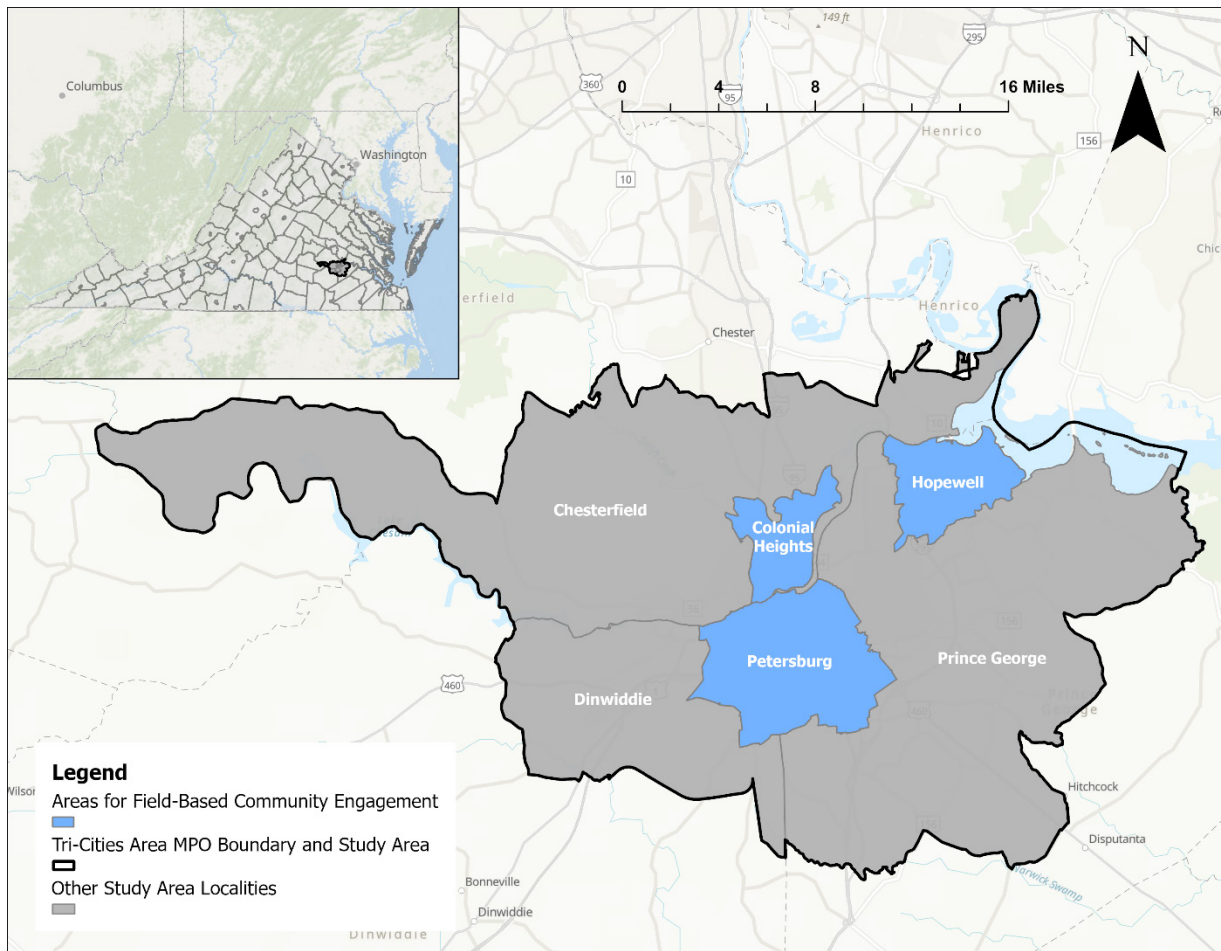


Figure 3. Priority Areas for Field-Based Community Engagement

Study Messaging

A key goal of the study is to improve connections of the existing multimodal network, including transit stops and routes, bike infrastructure, pedestrian infrastructure, and park-and-ride lots. Part of accomplishing this is ensuring the public understands why a connected transportation network is important.

This study is being guided by the 2020 Multimodal System Design Guidelines published by the Virginia Department of Rail and Public Transportation (DRPT). The document provides guidance for planning multimodal corridors throughout Virginia that are connected and accessible by all modes, rather than simply automobiles. Walking, biking, and transit are part of healthy transportation system that provides options for its residents.

The MPO area has seen an increase in transit, bike, and pedestrian activity. Petersburg Area Transit (PAT), the regional public transportation service provider, experienced a 39.6% increase in annual bus ridership between fiscal years 2020-2023¹. In the agency's latest Transit Strategic Plan (TSP) completed in 2021, PAT identified a goal of increasing mobility to the Petersburg community with an objective of supporting regional planning efforts. Furthering access to public transportation enhances mobility when individuals gain access to education, employment, healthcare, and entertainment.

The Appomattox River Trail is a regional destination that offers visitors a network of bicycle and pedestrian trails, parks, and historical sites. Another upcoming project is the Fall Line Trail, which will be 43 miles long traveling from Ashland to Petersburg once complete. Both trails present an opportunity to encourage wellness and conservation in the region and support the need to continue planning for an integrated transportation system.

The Frequently Asked Questions below have been prepared to address more common questions that may arise during the study process, and to provide study team members with "talking points" that may be helpful when engaging in discussion. Questions and responses can be updated as necessary as the plan progresses.

Frequently Asked Questions (FAQs)

1. **What is the purpose of the Regional Multimodal Mobility Study?**

This study will examine the existing multimodal system in the Tri-Cities area, including highways, public transportation, rail, bicycle, and pedestrian access. It will identify key activity centers and develop recommendations for improving transportation connections.

2. **Who is leading this effort?**

The Tri-Cities Area Metropolitan Planning Organization is leading this effort, with support from its partners.

3. **What is the project schedule?**

The plan began in March 2024 and is tentatively scheduled for mid-2025 completion.

4. **How can I get involved with the study?**

The study team will host multiple public meetings throughout the south-central Virginia region. Meetings will be announced on the Crater Planning District Commission website (<https://craterpdc.org/>) with advance notice. A study survey will also be developed to collect public input and it will be available electronically and by paper.

5. **How has transit use changed within the study area?**

¹ Virginia Department of Rail and Public Transportation. (n.d.). Open Data Portal. <https://virginia-drpt.opendata.arcgis.com/pages/transit>

Petersburg Area Transit is the regional public transportation service provider in the Tri-Cities area. Between Fiscal Years 2020-2023, annual bus ridership increased 39.6%.

6. How has cycling use changed in the study area?

The MPO completed a Bikeway Plan Update in 2003 with a goal of further integrating bicycling into the transportation network. Today, the study area includes a major regional trail destination (the Appomattox River Trail) with another recently breaking ground (the Fall Line Trail). Once completed, the Fall Line Trail will be 43 miles long stretching from Ashland to Petersburg.

Outreach Tools and Methods

Study Webpage

The Crater PDC maintains a website that communicates its ongoing activities. The Tri-Cities area MPO manages transportation planning processes within the PDC and has multiple webpages on the CDC website to post resources, ongoing and completed plans, and public input opportunities. To help the Regional Multimodal Mobility Plan engage with the largest audience possible, a study webpage will be hosted on the Crater PDC website. Consultant staff will be responsible for providing study updates and other relevant content, and Tri-Cities staff will update the page.

Public Input Database

Monitoring and recording public input is a critical element of maintaining transparency and accountability throughout the planning process. A member of the public could provide feedback during the study in a multitude of ways, including but not limited to:

- Providing feedback during field-based engagement opportunities
- Providing feedback during public meetings or open houses
- Completing a virtual or paper survey
- Submitting comments on the draft final plan

The consultant team will maintain a digital database of public input as it is received. Comments received in physical form will be scanned and digitized for incorporation into the database. At the conclusion of the planning process, an engagement summary memo will be provided to TCAMPO staff representing major themes of public input and broad actions that were taken due to the feedback, if applicable. All public comments received will be attached as an appendix to the memo.

Study Survey

The study survey will be conducted via paper and electronically using the ArcGIS Survey123 platform. The platform is spatially integrated, providing an opportunity to connect survey data with geographical features. The survey will tentatively be launched in late summer to align with the second set of three community meetings addressing the Needs Assessment phase. The survey will remain open for at least one month.

Requirements for Public Involvement, Environmental Justice, and Title VI

As a recipient of federal financial assistance, TCAMPO is required to comply with Title VI of the Civil Rights Act of 1964 which prohibits discrimination based on race, color, or national origin. The MPO last updated its Title VI plan in 2015, and it summarizes how the organization will coordinate nondiscrimination requirements and identify procedures for filing discrimination complaints. This includes complying with **Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations** and **Executive Order 13166: Improving Access to Services for Persons with Limited English Proficiency (LEP)**.

As outlined by the Title VI Plan and TCAMPO Public Participation Plan, the Regional Multimodal Mobility Plan will consider areas of LEP, populations potentially impacted by environmental justice concerns, and other statistical information available regarding race and income. All meetings will provide sufficient public notice of at least seven calendar days and the study will provide interpreter services as appropriate for the Spanish speaking community.

Priority Audiences

Transportation has a direct influence on an individual’s quality of life, including their access to opportunities such as employment and social activities. Auto-less, minority², LEP, and low-income populations are of special interest in the community engagement process to ensure the study captures those who may be more vulnerable to negative impacts from transportation decisions. Demographic data discussed below are sourced from the most recent U.S. Census Bureau American Community Survey 5-Year estimates (2018-2022).

Auto-Less Households

The first demographic of interest, auto-less households, refers to households that do not have access to a personal vehicle. These populations are more likely to rely on walking, biking, and public transportation to meet their daily trip needs. According to tables 2 and 3, the cities of **Colonial Heights, Hopewell, and Petersburg** have the highest percentages of households without access to a vehicle (all greater than 5%). Petersburg has the highest percentage of households without access to a vehicle (16%).

Table 2. Number of Vehicles Available by Household in Chesterfield, Dinwiddie, and Prince George Counties

	Chesterfield County		Dinwiddie County		Prince George County	
	Number	Percent	Number	Percent	Number	Percent
No vehicle available	4,205	3%	297	3%	383	3%
1 vehicle	33,414	25%	2,186	21%	2,656	21%
2 vehicles	55,102	41%	3,251	31%	4,559	36%
3 vehicles	27,102	20%	2,722	26%	3,042	24%
4+ vehicles	14,321	11%	1,976	19%	2,168	17%
Total Households	134,144	-	10,432	-	12,808	-

Source: U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates

Table 3. Number of Vehicles Available by Household in Colonial Heights, Hopewell, and Petersburg Cities

	Colonial Heights City		Hopewell City		Petersburg City	
	Number	Percent	Number	Percent	Number	Percent
No vehicle available	501	7%	840	9%	2,421	16%
1 vehicle	2,536	33%	3,233	35%	6,717	46%
2 vehicles	2,825	37%	2,717	29%	3,612	25%
3 vehicles	1,240	16%	2,013	22%	1,325	9%
4+ vehicles	510	7%	545	6%	628	4%
Total Households	7,612	-	9,348	-	14,703	-

² Minority populations include those who identify their race as Black or African American, American Indian or Alaska Native, Asian American, or Native Hawaiian and Other Pacific Islander. It also includes those of any race who identify their ethnicity as Hispanic or Latino.

Source: U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates

Supplementing engagement with this population will be supported by the previously discussed field-based community engagement, where the study team will dedicate 14 hours of effort to collecting on-the-ground feedback. Further analysis during the overall study will take into consideration the geographic distribution of these households.

Minority Populations

As identified by **Executive Order 12898: Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations** and the TCAMPO Title VI Plan, special attention should be taken to avoid negative environmental and health effects from study actions on minority populations. Petersburg has the highest percentage of minority population (85.1%), followed by Hopewell (57.5%) and Prince George County (47.4%).

Table 4. Minority Population by Locality

	Chesterfield County	Dinwiddie County	Prince George County	Colonial Heights	Hopewell	Petersburg
Total Population	366,019	28,057	42,634	18,158	23,046	33,261
Minority Population	149,684	10,452	20,206	5,620	13,246	28,312
Percent Minority	40.9%	37.3%	47.4%	31.0%	57.5%	85.1%

Source: U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates

Limited English Proficiency (LEP)

Households with limited English proficiency are a priority audience due to the potential for reduced access to materials in native languages. Because transportation decisions have such a direct impact on residents' lives, everyone should have the opportunity to provide input on decisions where possible.

Table 5. Percent of Population Speaking English Less Than "Very Well" by Locality

	Chesterfield County	Dinwiddie County	Prince George County	Colonial Heights	Hopewell	Petersburg
Total Population 5 Years and Over	344,617	26,621	40,535	16,991	21,397	30,797
Population Speaking English Less Than "Very Well"	18,513	345	937	595	433	940
Percent of Population	5.4%	1.3%	2.3%	3.5%	2.0%	3.1%

Source: U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates

Chesterfield County has the highest percent of individuals with limited English proficiency (5.4%), followed by Colonial Heights (3.5%) and Petersburg (3.1%). Within populations of limited English proficiency, the predominant language spoken is typically Spanish apart from Colonial Heights, where 50.3% of limited English speakers speak Asian and Pacific Island languages at home. Engaging these populations will include strategizing translation services, especially focused on Chesterfield County where the largest number of non-English speakers reside within the study area. Opportunities for the translation of materials into Spanish will be further explored and determined in consultation with TCAMPO staff.

Low-Income Populations

Low-income populations are the final priority audience of consideration. A low-income individual is someone whose household income is at or below poverty guidelines established by the United States Department of Health. Table 6 presents poverty status in the past 12 months in TCAMPO localities.

Table 6. Poverty Status in the Past 12 Months

	Chesterfield County	Dinwiddie County	Prince George County	Colonial Heights	Hopewell	Petersburg
Population for Whom Poverty Status can be Determined³	361,091	27,279	36,712	17,854	22,824	32,754
Population Below Poverty Level	24,163	3,014	3,040	1,826	4,867	7,275
Percent Below Poverty Level	6.7%	11.0%	8.3%	10.2%	21.3%	22.2%

Source: U.S. Census Bureau, 2018-2022 American Community Survey 5-Year Estimates

While Chesterfield County has the highest number of individuals below the poverty level, Petersburg (22.2%) and Hopewell (21.3%) have the highest percentages out of all TCAMPO localities.

³ The population for whom the U.S. Census Bureau can determine poverty status is slightly less than the total population. Poverty status is undefined for certain individuals, such as those living in college dorms, institutional quarters, or those under 15 years of age unrelated to the Householder.

Appendix B

Existing Conditions Technical Memorandum



REGIONAL MULTIMODAL MOBILITY STUDY

Existing Conditions Memorandum

Prepared by Michael Baker International
June 2024

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Introduction

The Tri-Cities Area Metropolitan Planning Organization (TCAMPO), encompassing the cities of Colonial Heights, Petersburg, Hopewell, and parts of Chesterfield, Dinwiddie, and Prince George Counties, stands at a pivotal juncture in its transportation evolution as a growing region. As local planning authorities embark on the development of a new multimodal plan, it is imperative to reflect on the existing conditions that shape the region's mobility landscape. The Tri-Cities Area boasts a combination of historical significance, economic diversity, and a growing population that collectively inform transportation infrastructure and services.

The existing transportation system, a complex network of over 1,300 miles of interstates, arterials, and local roads, serves as the backbone of regional connectivity. It supports not only the daily commute of our residents but also the thriving logistics and distribution centers that leverage our strategic location at the crossroads of major shipping routes. The system's multi-modal nature extends to air, rail, transit, pedestrian, and bicycle facilities, each playing a crucial role in the overall functionality and accessibility of our transportation ecosystem.

As planners and stakeholders delve into the existing conditions of the Tri-Cities Area, they will review the current state of highways, bridges, and pavement conditions, alongside the burgeoning developments in bicycle and pedestrian pathways that promise enhanced non-motorized travel options. This memorandum will examine the existing land use, roadway network, transit network, demographic profile, employment patterns, and commuting trends that drive our planning strategies, ensuring that our future initiatives align with the needs and aspirations of our diverse communities.

In this era of rapid technological advancement and environmental consciousness, the TCAMPO is committed to fostering a transportation system that not only addresses today's challenges but also anticipates tomorrow's opportunities. Through a data-driven, performance-based approach, TCAMPO aims to craft a multimodal plan that upholds safety, promotes economic vitality, and enriches the quality of life for all who call the Tri-Cities Area home.

Existing Land Use

The Tri-Cities area contains a variety of land uses that are reflective of its rich history and strategic economic positioning. The region is characterized by a blend of urban, suburban, and rural landscapes, with each city and county contributing its unique land use patterns to the collective profile of the area. Urban centers like Petersburg and Hopewell offer dense residential and commercial districts, while Colonial Heights serves as a hub for retail and services, particularly around the Southpark Mall area. The surrounding counties provide a contrast with their expansive agricultural lands, forested areas, and sparsely populated residential zones. Industrial activities are strategically placed near transportation corridors in all of the localities, supporting the region's economic vitality. Public and semi-public lands, including government facilities, schools, and parks, are interspersed throughout, ensuring community access to essential services and recreational spaces. This existing land use pattern within the Tri-Cities area underpins the region's

socio-economic fabric and is a critical consideration in the ongoing development and implementation of multimodal transportation planning interventions.

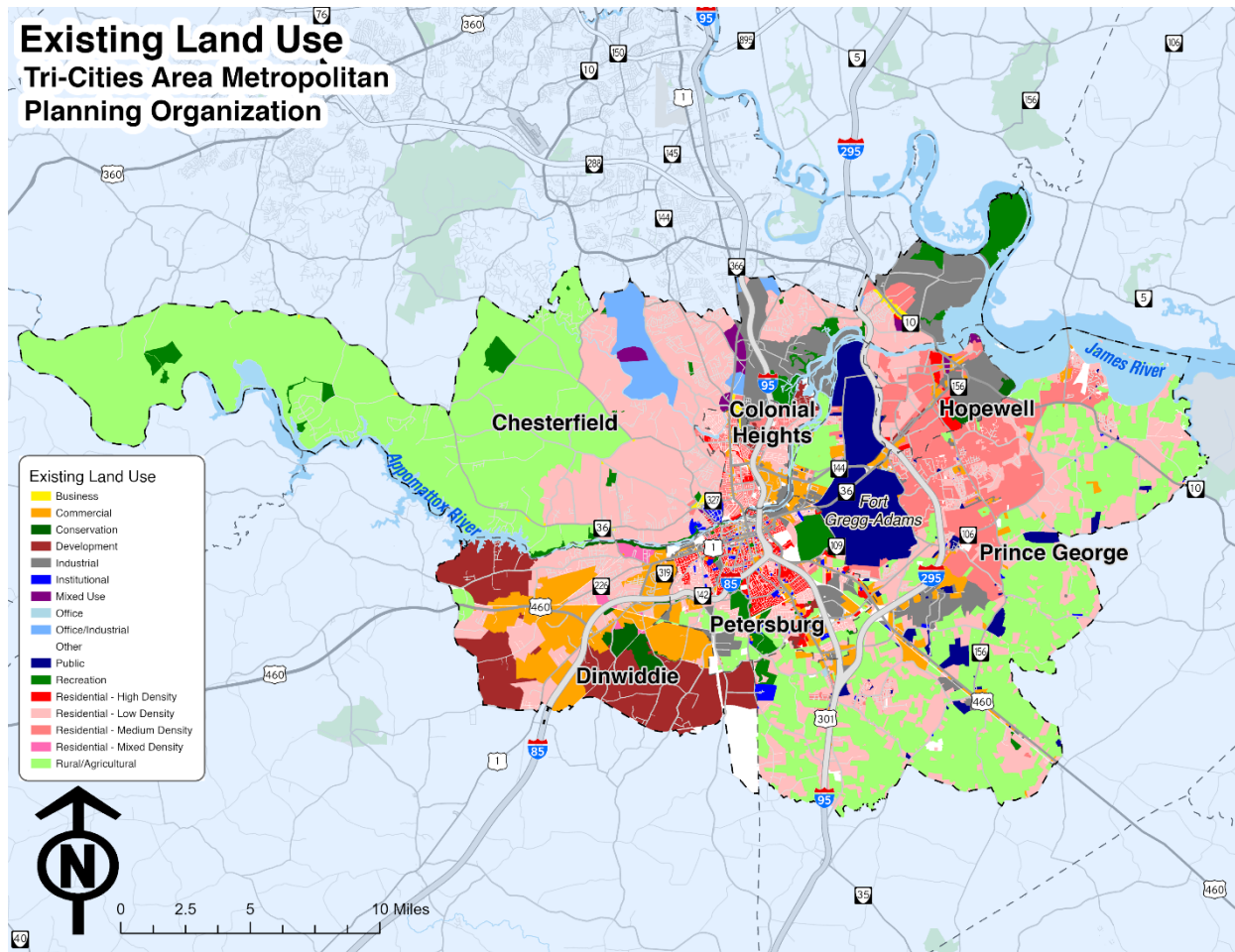


Figure 1. Existing Land Use in the Tri-Cities area.

Source: City of Petersburg, City of Colonial Heights, City of Hopewell, Dinwiddie County, Prince George County, Chesterfield County GIS.

Petersburg exhibits a diverse array of land uses that reflect its historical significance and evolving urban landscape. The city spans approximately **22.9 square miles**, with residential areas comprising 26% of the land, including low-density single-family homes, medium to high-density apartment complexes, and mobile homes. Commercial activities, including retail and services, occupy about 5% of the city, predominantly concentrated in downtown/Old Town Petersburg, along Crater Road, and Route 36/Washington Street. Industrial uses, both light and heavy, account for 6.5% and are scattered throughout older parts of the city and along railroad lines. Public and semi-public uses, such as community facilities, places of worship, cemeteries, and parks like Petersburg Battlefield, make up around 17%. Notably, a significant portion of the city, also 26%, remains vacant, encompassing undeveloped lots and open spaces.

Colonial Heights presents a well-defined land use structure that supports its status as a suburban city with a strong community focus. The city covers an area of approximately **7.3 square miles**, with

residential land use constituting the majority of the city’s layout. Single-family homes dominate the residential landscape, reflecting the city’s preference for low- to medium-density living spaces. Commercial land use is strategically located along major thoroughfares, particularly the Boulevard, which serves as the city’s primary commercial corridor, accounting for a significant portion of the city’s economy. Retail establishments, restaurants, and service-oriented businesses thrive in this area, catering to the needs of the local population and visitors alike. Industrial land use is minimal, with existing facilities zoned to minimize impact on residential areas and maintain the city’s aesthetic appeal. Public and institutional land uses are prominent, with several schools, government buildings, and healthcare facilities dispersed throughout the city to serve its citizens effectively. Recreational and open spaces are valued, with parks and greenways offering residents opportunities for leisure and outdoor activities.

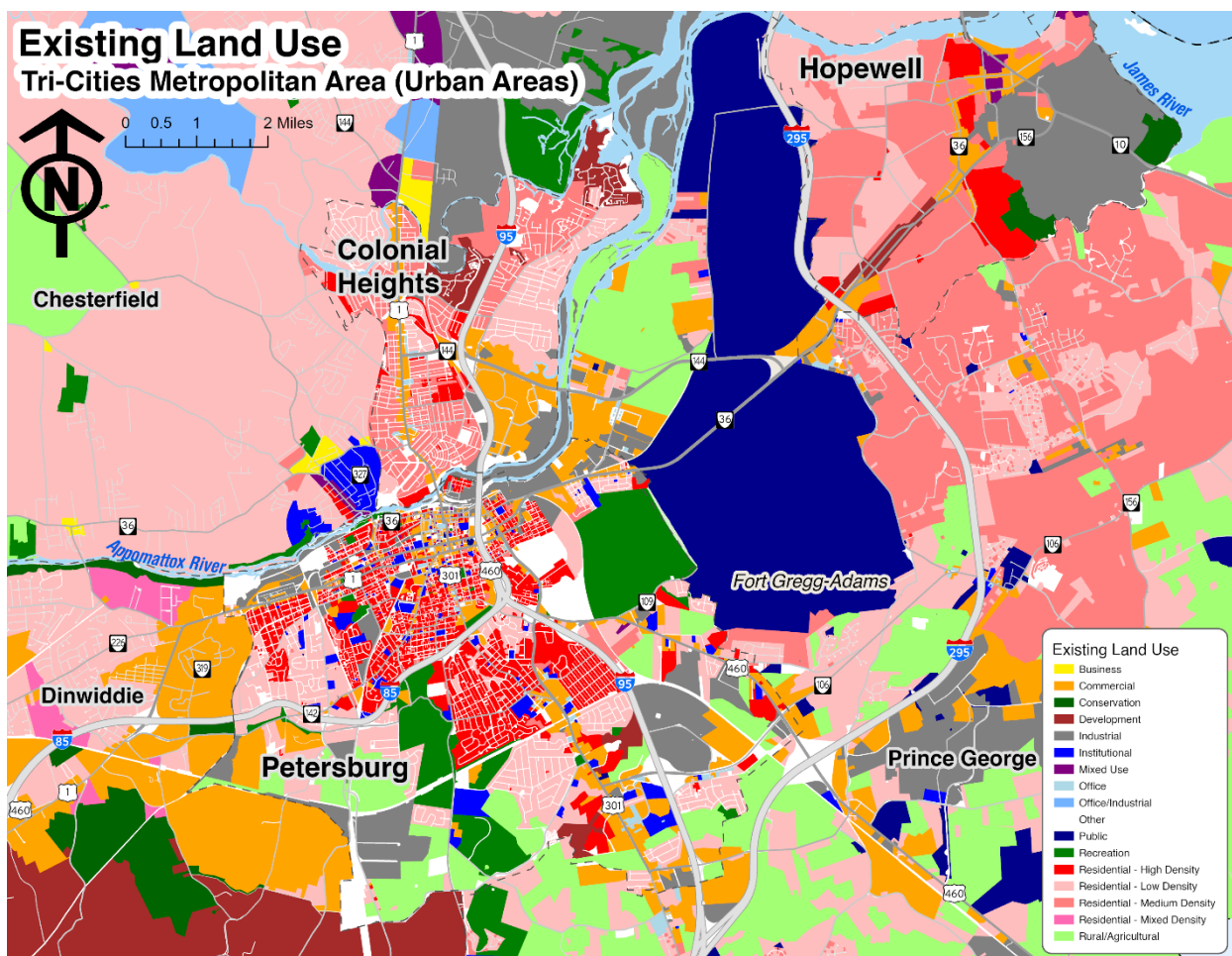


Figure 2. Detailed view of Existing Land Use in the urban areas of the Tri-Cities.

Source: City of Petersburg, City of Colonial Heights, City of Hopewell, Dinwiddie County, Prince George County, Chesterfield County GIS.

Hopewell is a city with a diverse land use composition that reflects its multifaceted industrial- and commerce-oriented development. The city encompasses an area of approximately **10.8 square miles** and features a variety of land uses that cater to its residents and the local economy. Residential zones in Hopewell are primarily composed of single-family homes, with a growing

number of multi-family dwellings to accommodate an increasing population. These residential areas are thoughtfully interspersed with commercial districts that provide a range of services and shopping opportunities, particularly concentrated along major corridors like Oaklawn Boulevard. Industrial land use is significant in Hopewell, given its strategic location along the James River and proximity to major transportation routes. The city hosts several large industrial complexes, which are vital to the local economy and employment. Public and institutional land uses are also well-represented, with numerous schools, government facilities, and healthcare services available to the community.

Dinwiddie County is characterized by its predominantly rural landscape and agricultural heritage. The county covers an area of approximately **507 square miles**, with land use primarily dedicated to agriculture and forestry. Residential land use in Dinwiddie County is dispersed, with single-family homes dotting the countryside and small clusters of higher-density housing found in proximity to the county's towns and villages. Commercial activity is limited but strategically placed to serve the local communities, often along major roadways and in town centers closer to Petersburg proper. Industrial land use is minimal, with a focus on light industry that complements the county's rural economy. Public and institutional land uses, such as schools, government buildings, and healthcare facilities, are located to provide accessible services to the widespread population. The county's land use policy emphasizes the preservation of agricultural and forested lands, reflecting a commitment to maintaining the rural character and natural resources that define Dinwiddie County.

Southern **Chesterfield County** is a region that features a blend of urban, suburban, and rural land uses. The area is part of the larger Chesterfield County, which spans approximately **437 square miles** extending to the City of Richmond north of the Tri-Cities area. The southern part of the county, including the area around Chester, is marked by a mix of residential neighborhoods, commercial developments, and vast stretches of undeveloped land that offer potential for future growth or conservation. Residential land use in southern Chesterfield County ranges from established neighborhoods with single-family homes to newer developments that offer a variety of housing options, reflecting the county's goal to provide a range of lifestyle choices. Commercial land use is concentrated along major corridors, providing residents with access to retail, dining, and services. The county's comprehensive plan envisions a balanced and harmonious land use pattern, with mixed-use activity centers serving as community hubs. These centers typically combine residential, commercial, and office spaces. The plan also emphasizes the importance of coordinating land development with public infrastructure provision, ensuring that growth is sustainable and well-supported by necessary services. In terms of industrial land use, southern Chesterfield County offers spaces like Ruffin Mill for light to moderate industrial activities, strategically located near the James and Appomattox Rivers to minimize impact on residential areas and preserve the region's environmental quality in other areas. Public and institutional land uses, including schools, government facilities, and healthcare services, are strategically placed to be accessible to all residents. The rural areas of southern Chesterfield County are characterized by agricultural and forested lands, which are integral to the county's identity and economy. These areas are protected and managed to maintain the rural character and support the agricultural sector.

Prince George County is a locality with a diverse land use profile that supports both its rural character and the needs of its growing population. The county spans an area of approximately **282 square miles**, with land use patterns that reflect its commitment to preserving natural resources while fostering economic development. Agricultural land use is prominent in Prince George County, with vast tracts of land dedicated to farming and forestry, contributing to the county's economy and rural ambiance. Residential land use is varied, ranging from single-family homes in rural and suburban settings to multi-family units closer to urban centers. This mix of housing options caters to residents' preferences and the county's existing patterns of development. Commercial land use is concentrated in strategic locations, providing essential services, shopping, and dining options to residents and visitors. These activity centers are typically found along major roadways and in proximity to residential developments, facilitating ease of access and community cohesion. Industrial land use in Prince George County is carefully planned, with industrial parks and facilities located to minimize impact on residential areas and the environment. The county's proximity to transportation corridors makes it an attractive location for light to moderate industrial activities. Public and institutional land uses, including schools, government buildings, and healthcare facilities, are distributed throughout the county to serve the widespread population effectively. Recreational and open spaces are also a priority, with parks, trails, and conservation areas providing opportunities for outdoor activities and preserving the county's natural beauty.

Driving & Roadway Conditions

Driving remains the predominant mode of transportation in the Tri-Cities area, with a network of highways and roads facilitating intra- and inter-city travel. Major thoroughfares include Interstates 95 and 85, which run through the heart of the area, providing a vital link for commuters and freight traffic alike. The region also benefits from several primary and secondary state routes that support the flow of traffic and connect the Tri-Cities to other parts of Virginia and beyond:

- **Interstate 95:** The primary north-south artery that not only connects the Tri-Cities to Richmond and beyond but also serves as a critical link in the national interstate system.
- **Interstate 85:** Another significant interstate that intersects with I-95 near Petersburg, providing a vital connection to cities like Atlanta to the south.
- **Interstate 295:** A bypass route around Richmond that intersects with both I-95 and I-85, offering an alternative path for regional and through traffic.
- **U.S. Route 1:** Known as "The Boulevard" in Colonial Heights, it is a major north-south route that runs parallel to I-95. Also known as Washington Street in Petersburg before continuing on in Dinwiddie as Boydton Plank Road.
- **U.S. Route 301:** This route serves as a significant corridor for regional travel and commerce, connecting Colonial Heights and Petersburg within the Tri-Cities area to other key locations in Virginia.
- **U.S. Route 460:** An important east-west highway that provides a direct link between western cities like Lynchburg, Roanoke, and Petersburg and from Petersburg to Suffolk in the east, traversing rural and urban areas.
- **State Route 10:** This route connects southern Chesterfield and Hopewell to Suffolk along the James River. The road also bisects urban Hopewell and creates a dilemma for bicycle and pedestrian facilities in Hopewell's downtown.

- **State Route 36:** Known as “Broadway” and “Oaklawn” or “Woodlawn” (two parallel one-way roads) in Hopewell, it serves as a vital connector within the Tri-Cities, especially for residents and businesses in Petersburg and Hopewell.
- **State Route 144:** Known as “Temple Avenue,” it provides access to local destinations and serves as a key roadway in Colonial Heights.
- **State Route 156:** This route provides a north-south corridor through Prince George County, connecting to the Fort Gregg-Adams military base and intersecting with several key east-west routes.
- **State Route 106:** Running through Prince George County, this route offers connectivity to rural areas and links to State Route 156.
- **State Route 226:** Traversing Dinwiddie County, this route connects rural communities and provides access to regional attractions and facilities.
- **State Route 106/156 (Prince George Drive):** Serving as a primary connector within Prince George County, this combined route facilitates movement between residential areas and commercial hubs.

Also significant to the region are its transportation-oriented bridge crossings over the Appomattox and James Rivers:

Appomattox River

- **Martin Luther King Jr. Memorial Bridge:** A bridge that serves as a major crossing over the Appomattox River, connecting Petersburg and Colonial Heights via U.S. Route 1 and U.S. Route 301.
- **Charles Hardaway Marks Bridges:** Twin bridges that span the Appomattox River, facilitating east-west travel between Prince George County and Hopewell.
- **Fleet Street Bridge:** A small historic bridge serving as a connection between Fleet Street in Petersburg and Chesterfield Avenue in Ettrick near Virginia State University.
- **Ferndale Road Bridge:** A small bridge connecting Ferndale Road in Dinwiddie to Pickett Avenue in the Matoaca area of Chesterfield County.
- **Appomattox River Bridge:** A large highway bridge carrying Interstate 295 over the Appomattox River.
- **Hopewell Bridge:** A bridge carrying State Route 10/Hundred Road/Randolph Road over the Appomattox River between Hopewell and Chester.
- **Temple Avenue Bridge:** A bridge carrying State Route 144/Temple Avenue over the Appomattox River and Halls Island between Chesterfield and Prince George County.

James River

- **Varina-Enon Bridge:** A cable-stayed bridge that carries Interstate 295 over the James River, connecting Henricus and Chesterfield County.
- **Benjamin Harrison Memorial Bridge:** A lift bridge that carries State Route 106 and State Route 156 over the James River near Hopewell, replacing the former Hopewell Ferry.

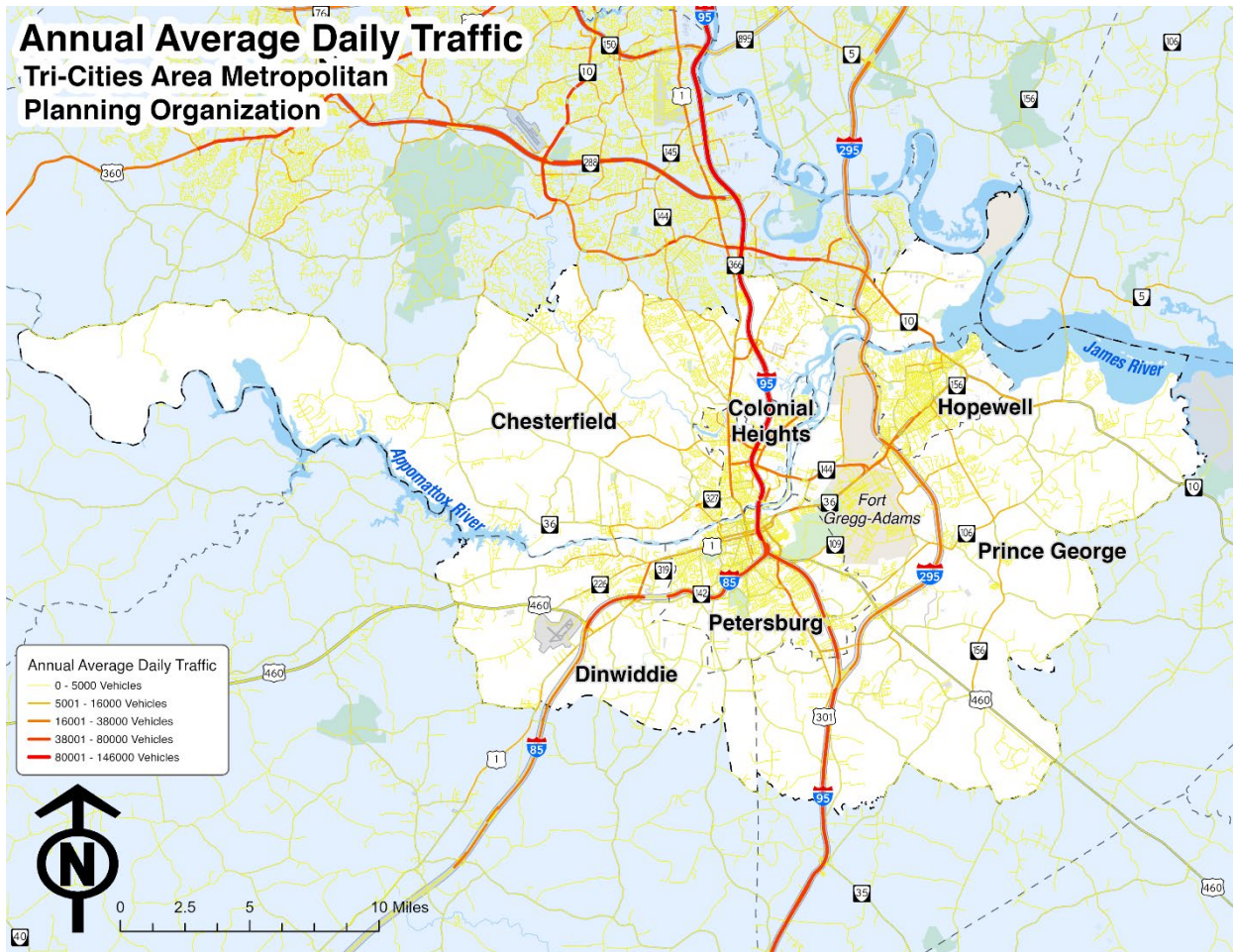


Figure 3. Annual Average Daily Traffic in the Tri-Cities area.
 Source: Virginia Department of Transportation GIS.

Like many metropolitan areas, the Tri-Cities experience periodic congestion, particularly during peak morning and evening travel times. Efforts to mitigate traffic issues include regular maintenance and upgrades to the transportation infrastructure, as well as strategic planning for future improvements. Annual Average Daily Traffic (AADT), shown in Figure 3, reflects roadways on which congestion is most likely to occur. Maps showing functional classification and pavement condition data are available in Appendix A.

Transit

Local Transit

Local transit in the Tri-Cities area is both integral to the region’s connectivity to jobs, housing, key destinations, and community resources, but also suffers from issues of frequency, coverage, infrastructure, and broader connectivity in doing so.

Petersburg Area Transit (PAT) serves as the backbone of local public transportation, offering twelve routes that extend to various destinations such as Virginia State University, Southpark Mall, and Fort Gregg-Adams. PAT’s services are crucial for residents, providing transit options within the

cities of Petersburg, Colonial Heights, and Hopewell, as well as connections to Ettrick, Virginia State University, and the McGuire Veterans Hospital in Richmond. Although PAT's services are vital to regional mobility, this provider is limited by operating hours (service ending at 6 p.m.) that cannot support working populations in many circumstances. PAT routes as of 2023¹ include:

- **Walnut Hill/Mall Plaza:** Connects Downtown Petersburg with Walnut Hill, including stops at major shopping centers, including a Food Lion, and residential areas.
- **South Crater Road:** Serves the Crater Road area and includes stops at housing along Crater Road and Southside Regional Medical Center.
- **South Park Mall:** Links the communities of Petersburg and Colonial Heights, with stops at Southpark Mall and Downtown Petersburg.
- **Blandford/Hopewell:** Runs between Petersburg and Hopewell, providing access to the Hopewell Circulator and Fort Gregg-Adams.
- **Washington Street/Lee Avenue:** Covers Washington Street corridor from Downtown Petersburg to the Dinwiddie County line.
- **Ettrick/Virginia State/Amtrak:** Connects Petersburg with Ettrick, including service to Virginia State University and the Ettrick Amtrak station.
- **Halifax/Virginia Avenue:** Operates within southern Petersburg, offering convenient access between Downtown Petersburg, Petersburg Sports Complex, and local schools.
- **Hopewell Circulator:** Provides service between Petersburg and Hopewell, with stops at Randolph Medical Center, City Point, and other major destinations in the area.
- **460 County Drive:** Connects Downtown Petersburg with housing, businesses, and the Social Services office on County Drive.
- **Richmond Express:** Offers express service from Petersburg to downtown Richmond, facilitating commuter travel.
- **Richard Bland Circulator:** Serves Richard Bland Community College and Downtown Petersburg.

The **Greater Richmond Transit Company (GRTC)** complements PAT by providing express service to Downtown Richmond with its **95 Express line**, allowing between Petersburg and the state capital. This partnership enhances the regional transit system, making it more accessible for commuters and travelers who require broader access across the metropolitan area, but it also struggles to ensure consistent arrival and departure times.

A notable addition to the regional transit offerings is the **Blackstone Transit's Dinwiddie Express line**, which operates from Blackstone to Petersburg through Dinwiddie County. This service is particularly significant as it connects rural areas with urban centers, facilitating mobility for residents who may otherwise have limited access to essential services and employment opportunities, as well as those who work at various industrial facilities in rural Dinwiddie County.

¹ Routes in the list do not match mapped routes. While some of the characteristics are consistent, as of 2023, some routes have been folded into others. The data published in the map is obtained from the most recent entry for PAT in Virginia DRPT's GTFS data clearinghouse. The data in the list comes from recent information as of 2024 on PAT's website. The website and GTFS feed have been corrected as of 2025.

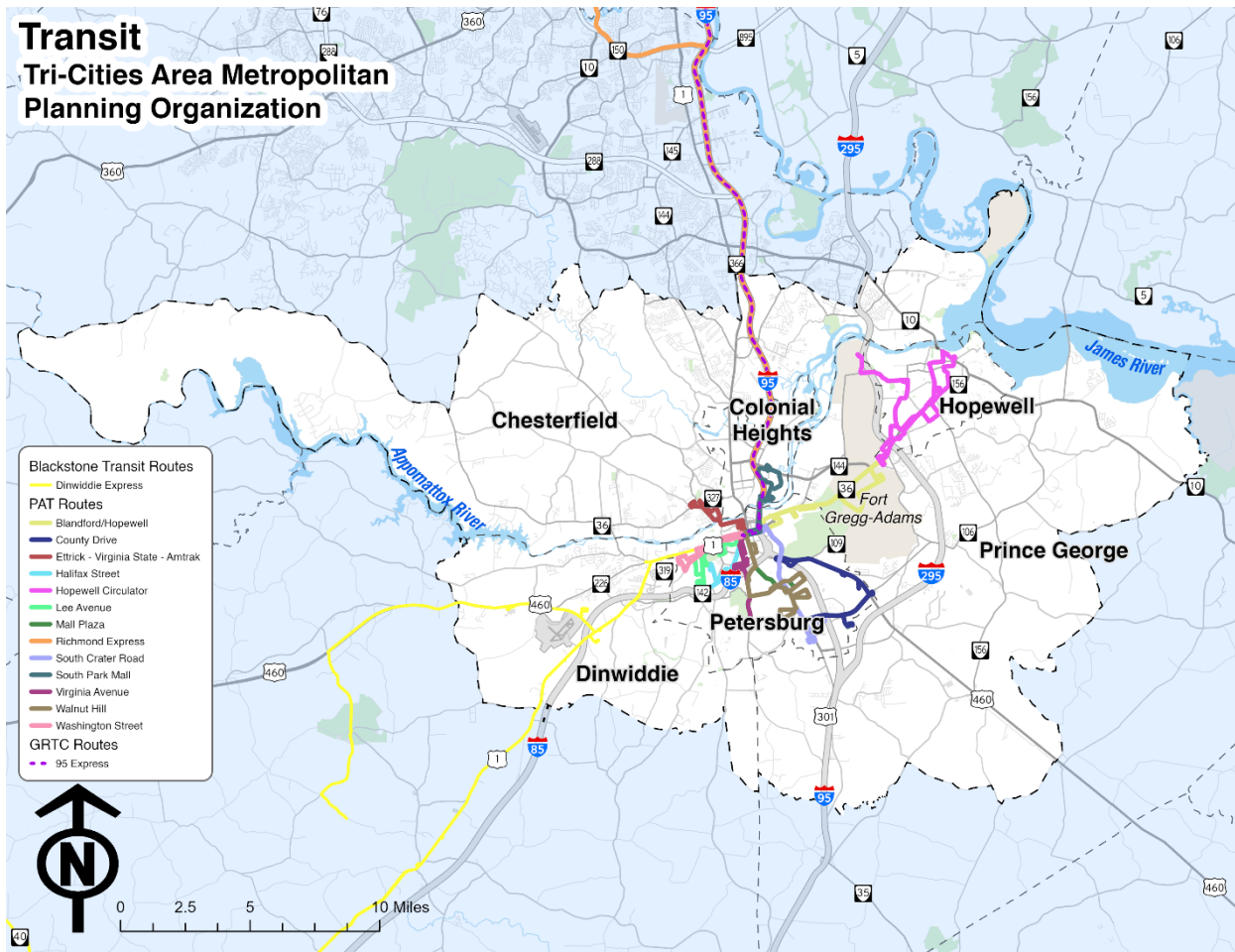


Figure 4. Transit coverage in the Tri-Cities area by provider.
Source: Virginia Department of Rail and Public Transportation GIS.

The Dinwiddie Express line is a testament to the region’s commitment to expanding transit services and addressing the needs of all communities within the Tri-Cities area.

The limitations of local transit in this area are multifaceted and impact the effectiveness and reach of public transportation services. One of the primary challenges is the **limited coverage** of transit routes, which do not extend to rural or less densely populated areas in Prince George County, southern Chesterfield County, and some parts of Dinwiddie County. Colonial Heights also has limited coverage for a typical urban area, despite a line running from Petersburg to the Southpark Mall area. This can result in gaps in service that leave some residents without convenient access to public transportation. One example of a gap in service, highlighted by the Steering Committee, is service for commuters to industrial jobs in eastern Hopewell.

Another significant limitation is the **frequency of service**. Buses and other forms of public transit may not run as often as needed, especially during off-peak hours, weekends, or holidays, making it difficult for residents to rely on transit as their primary mode of transportation. This can be particularly challenging for those with non-traditional work hours or those who require transit for essential trips outside of regular commuting times.

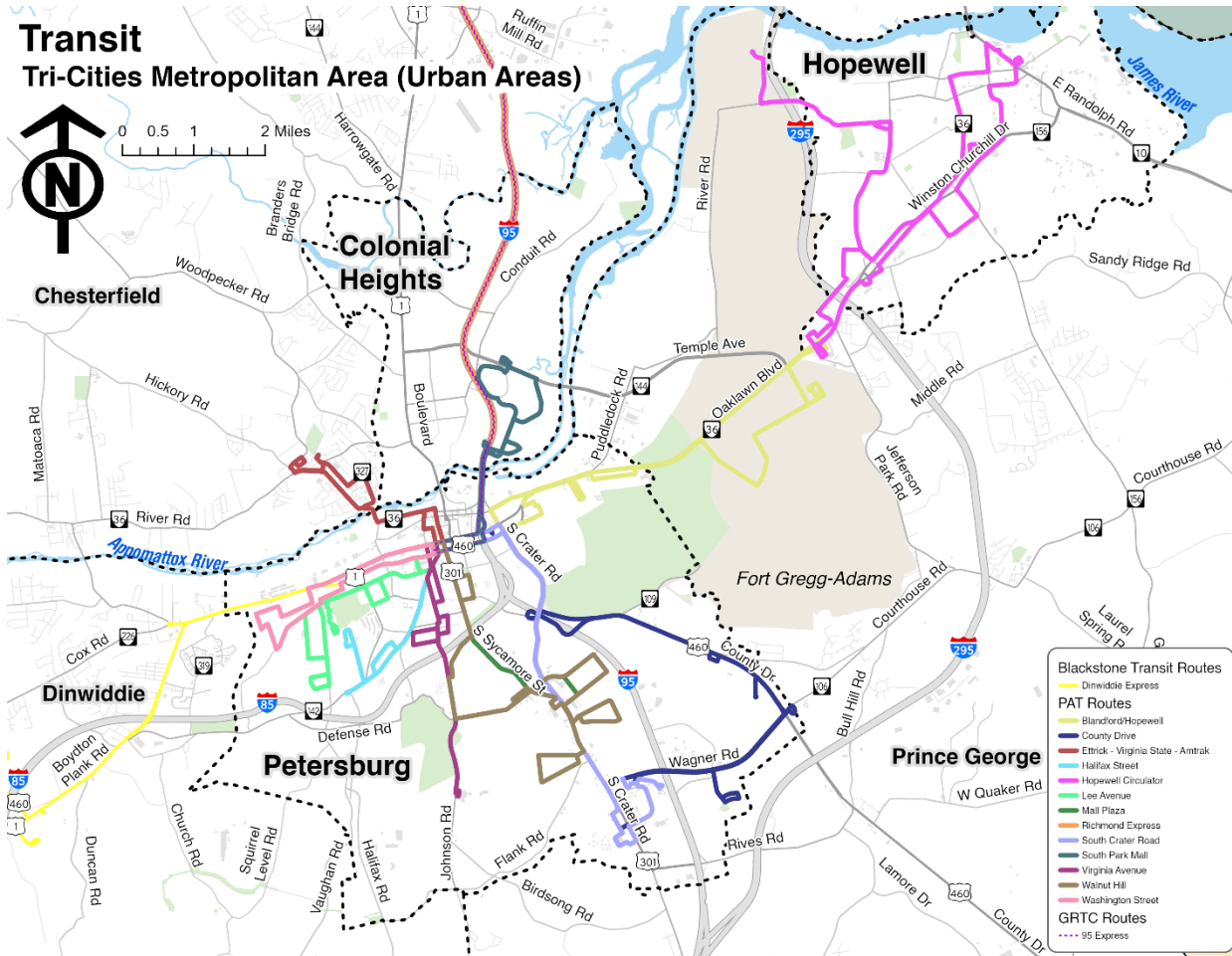


Figure 5. Detailed view of transit coverage in the urban areas of the Tri-Cities Area MPO.

Source: Virginia Department of Rail and Public Transportation GIS.

The **aging infrastructure and fleet** can also pose challenges, as older vehicles and facilities may not meet the current demand or provide the level of access, comfort, or reliability that passengers expect. Maintaining and upgrading these assets requires significant investment, which can be a hurdle for transit agencies operating with constrained budgets. Lack of bus shelters, lack of signage, and roadway conditions like pavement condition, lane, and bus stop design all serve as examples of the way infrastructure impacts the existing transit network.

Financial constraints are a pervasive issue, affecting the ability of the transit agencies to expand services, increase frequency, and upgrade infrastructure. Without adequate funding, it becomes difficult to make the improvements necessary to attract new riders and meet the needs of a growing population.

Lastly, there is often a lack of **integration between different modes** of transportation, such as buses, trains, and bike-sharing programs. This can make it cumbersome for passengers to use multiple modes of transit for a single trip, potentially discouraging the use of public transportation altogether. This concern will be considered throughout the proceeding multimodal planning process.

Addressing these limitations requires a comprehensive approach that includes increased funding, grant identification, strategic planning, community engagement, and collaboration between various stakeholders to create a more robust and accessible transit system for the Tri-Cities area. Overall, the transit system in the Tri-Cities area is characterized by its collaborative efforts between localities and transit providers to create and maintain comprehensive, efficient, and inclusive transportation options, but local transit providers could improve offerings by linking jobs and transit service destinations. The existing conditions memo underscores the importance of these services in supporting the daily lives of residents and the economic development of the region. As the area continues to grow, the multimodal plan will play a pivotal role in shaping the future of transit in the Tri-Cities, ensuring that it remains adaptable and responsive to the evolving needs of its population.

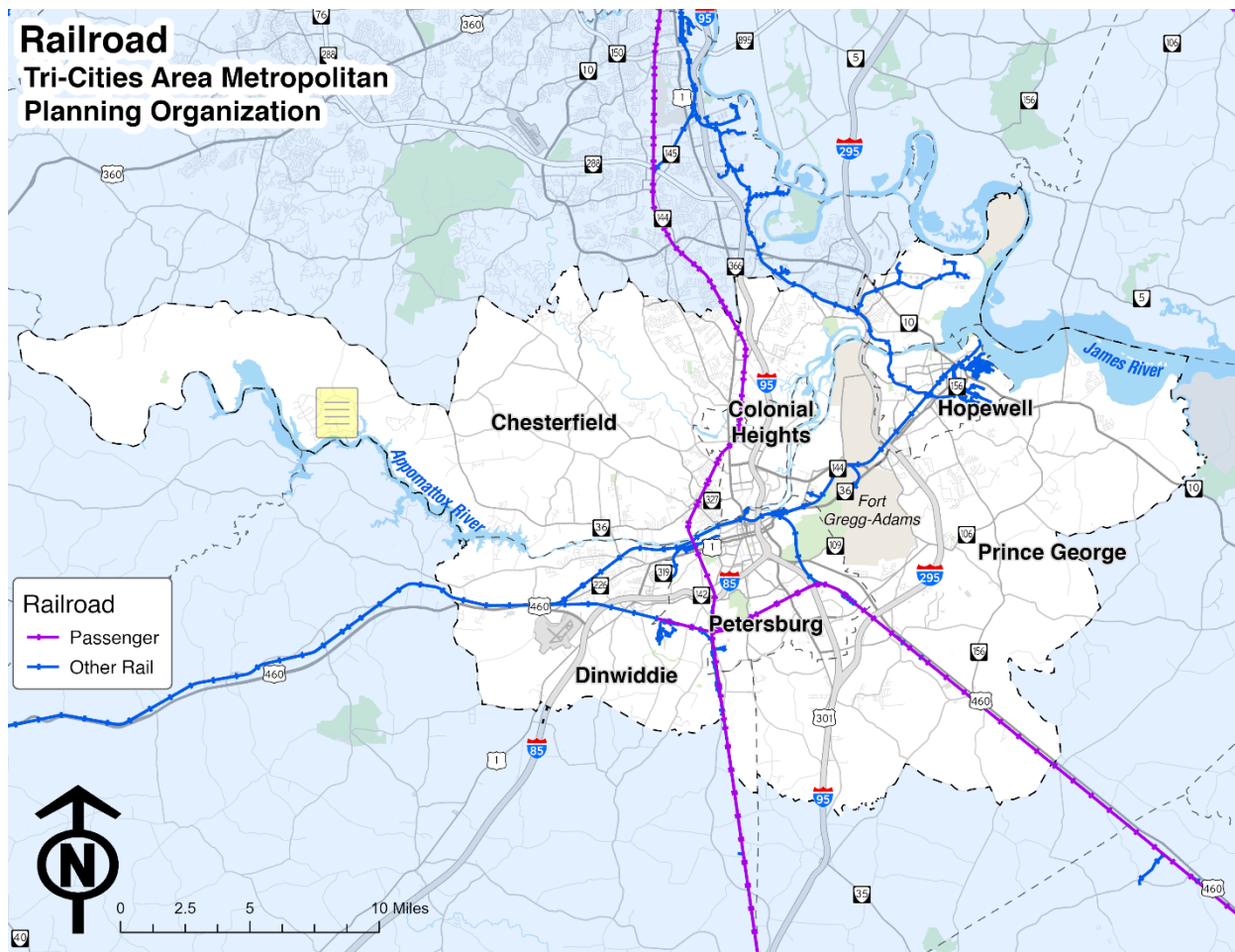


Figure 6. Active railroad right-of-ways in the Tri-Cities area.
Source: Virginia Department of Rail and Public Transportation GIS.

Rail Transit

The Ettrick Station, located at 3516 South Street in Petersburg, VA near Virginia State University’s campus, is a vital intercity passenger rail hub in the Tri-Cities area. The station is staffed and equipped with a range of amenities including a waiting area and restrooms, as well as a ticket sales office.

The station is a major regional transit point, serving approximately 30,000 passengers annually with six roundtrip trains each day. The station provides a crucial link to Amtrak’s Northeast Corridor, offering services to Richmond, Washington, DC, Norfolk, and northern destinations such as New York City and Boston. It also connects to the Southeast Rail Corridor, facilitating regional travel. Significant Amtrak routes include:

- **Carolinian**, which travels between Charlotte and New York City.
- The **Silver Meteor** and **Silver Service/Palmetto lines**, providing service to destinations in the Southeast as far as Florida and Northeast.
- The **Northeast Regional**, which offers multiple daily services to cities like Richmond, Washington, DC, Norfolk, New York City, and Boston.

In addition, the station is set to undergo significant upgrades, thanks to a \$6.4 million grant awarded to the Virginia Passenger Rail Authority (VPRA). These enhancements will include ADA-compliant improvements, a new 850-foot platform, canopy replacement, a new wheelchair lift enclosure, and a covered walkway. The station’s interior will also see upgrades such as a new ticket window, lighting repairs, and new restroom doors. All interior and exterior signage will be replaced to improve navigation and information dissemination. The construction is scheduled to commence in 2024 and is expected to continue through 2025.

Multimodal Facilities

The Tri-Cities area features a growing network of bicycle and pedestrian infrastructure that is essential for fostering sustainable multimodal transportation and enhancing the quality of life for residents through connectivity between work, housing, recreation facilities, and open spaces. This section of the multimodal existing conditions memo provides an overview of the current state of bike paths, sidewalks, and trails, highlighting key features such as the Appomattox River Trail. As TCAMPO looks to the future, plans are in place to expand these networks, connecting neighborhoods to commercial centers and parks, and improving safety and accessibility for all both locally and regionally. The trajectory for future planning is focused on creating a cohesive system that not only meets the needs of today’s residents but also anticipates the growth and evolution of the region and growing need for multimodal active transportation facilities.

Pedestrian Facilities

Pedestrian infrastructure in the Tri-Cities area varies widely by locality but nonetheless has some significant features serving the region more broadly. Urban centers like Petersburg, Hopewell, and Colonial Heights have general sidewalk coverage, with Petersburg having the strongest network of sidewalks around the historic downtown area. These areas also feature issues with connectivity around major multilane roadways like the Boulevard (U.S. Route 1 in Colonial Heights), Crater Road in Petersburg, and Winston Churchill Drive or Randolph Road in Hopewell. A map of Petersburg’s known sidewalk network is available in Appendix C, but there is no comprehensive inventory of sidewalks in the Tri-Cities area available. Figure 7 shows a map overlay for the area of the National Walkability Index, an Environmental Protection Agency-published (EPA) national raster dataset of

calculated walkability in the country. Figure 8 shows a more detailed view of the urban areas. The EPA defines **walkability** simply, as the characteristic of a place being easy to walk around.²

Infrastructure in rural counties like Dinwiddie, Prince George, and southern Chesterfield is typically sparser and more centered around town and commercial areas like Matoaca, Ettrick, and Prince George Courthouse. This pattern of existing infrastructure offers limited connectivity outside of the town areas in which it is implemented.

The **Appomattox River Trail** connects rural eastern Dinwiddie County to City Point in Hopewell moving along the Appomattox River. This trail, while being a prominent bike and pedestrian feature, is still in development to connect all segments to form a linear park. The trail touches waterfront areas on either side of the river including Dinwiddie, Petersburg, Colonial Heights, Prince George, and finally Hopewell. The trail system includes amenities such as restrooms, picnic tables, benches, fishing areas, and a hard-surfaced trail for both passive and active users.

City Point in Hopewell, more specifically, is also an area of burgeoning pedestrian infrastructure development surrounding the existing residential uses and recreational use at Waterfront Park. The land around Waterfront Park is owned by the National Park Service. Pedestrian facilities here are

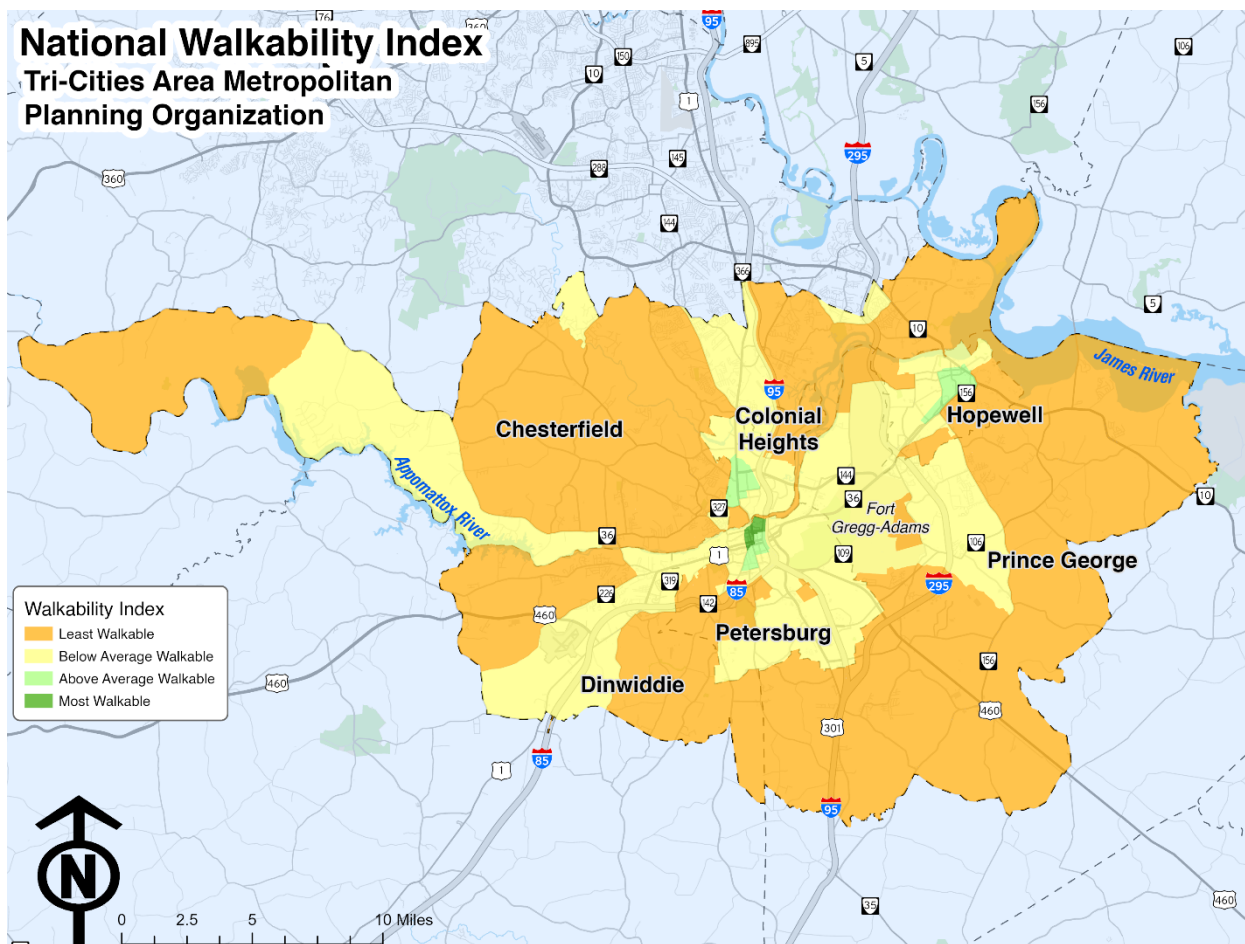


Figure 7. National Walkability Index overlay for the Tri-Cities MPO.

Source: EPA.gov

² [National Walkability Index Methodology and User Guide](#)

being enhanced to provide better connectivity and access to the waterfront, which offers a sweeping vista of the Appomattox and James rivers. The city is currently considering future redevelopment of the component Shiloh Lodge historic building within the City Point area. The **Hopewell Riverwalk** is a 1,736-foot wooden boardwalk that follows the shoreline of the Appomattox River in City Park near Hopewell’s downtown. These areas are substantial pedestrian destinations for Hopewell.

Considering the sweeping success of the Virginia Capital Trail across the James River from the Tri-Cities area, regional transportation authorities and localities have collaborated to develop a planned right-of-way for the **Fall Line Trail** extending through the Greater Richmond region between Ashland in the north and Petersburg in the south. As of 2025, 68% of the trail is funded, the Hanover sections are nearing completion, and groundbreaking in Petersburg is scheduled for mid-2025. This will be a substantial multimodal development for the region. A map of the Fall Line Trail alignment with an overlay of the region’s existing bicycle facilities is available in Appendix C.

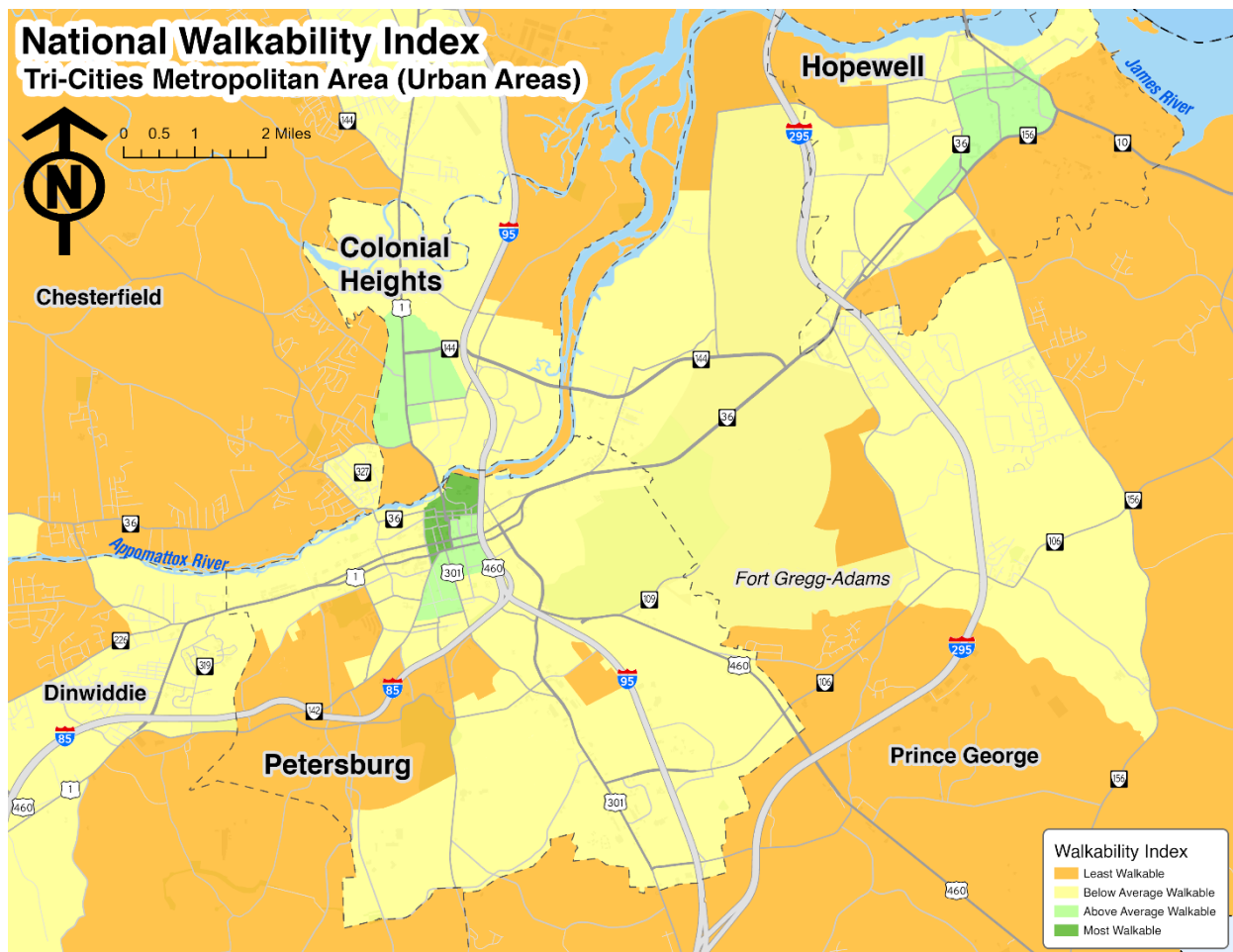


Figure 8. National Walkability Index overlay for urban areas in the Tri-Cities MPO.

Source: EPA.gov

Bicycle Facilities

Bicycle facilities, like pedestrian facilities, are focused around the urban areas of the region.

- **Petersburg** has existing shared lanes on Sycamore Street, Halifax Street, South Boulevard, Market Street, and Washington Street.
- **Ettrick** has a shared use path along River Road near Virginia State University.
- **Hopewell** has designated bike lanes along River Road, Jackson Farm Road/Cedar Level Road, Broadway, 21st Avenue, Riverside Avenue, 9th Avenue, City Point Road, and Appomattox Street. There is a shared use lane on 2nd Avenue.
- The in-progress **Appomattox River Trail** will serve as a shared-use bike path and will support transportation uses as well as recreation uses once fully connected. This trail is partially paved (1/3 mile of paved trail near VSU) and partially dirt trail.
- The **Virginia Capital Trail**, while outside the Tri-Cities area, is a notable shared use trail connecting Richmond and Williamsburg north of the James River. Access to this trail on a regional scale should be considered as new bicycle technologies (e-bikes in particular) allow people to travel longer distances via shared use paths. Currently, users from the Tri-Cities area must access the trail via Richmond or the Benjamin Harrison Bridge/State Route 156 east of Hopewell.
- The future **Fall Line Trail** will run from Ashland to Petersburg through Richmond and Chesterfield, providing a route for north-south travel.

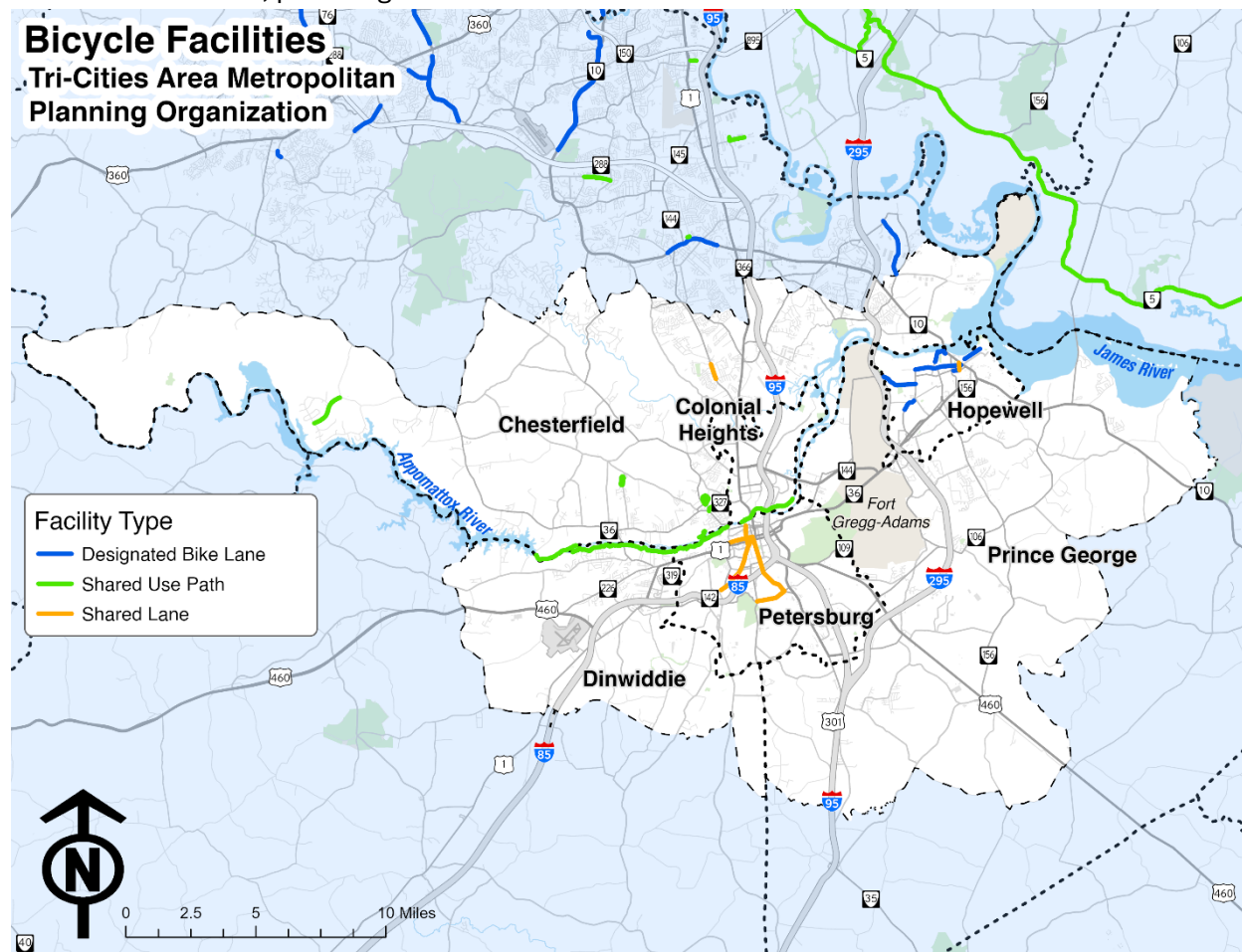


Figure 8. Bicycle facilities in the Tri-Cities MPO.

Source: Virginia Department of Transportation

Demographics & Mobility

The Tri-Cities area features a broad demographic landscape that is integral to understanding the region's existing conditions. This section delves into regional growth trends and population distribution characteristics including black, indigenous, and other people of color; population with disabilities; limited vehicle access households; populations living in poverty; and population density itself. This demographic analysis of existing conditions serves as a foundation for assessing the area's transportation needs and preferences, particularly because these factors reflect groups with a tendency to rely on alternative means of transportation like transit, walking, or biking to move around, while population density informs where transportation alternatives are most geographically feasible. However, these factors do not serve as a comprehensive demographic analysis of the region, which is performed as part of individual localities' comprehensive plans. By analyzing these demographic factors, we can tailor transportation solutions that enhance accessibility and connectivity across the Tri-Cities, fostering a more inclusive and efficient mobility network.

Growth

Petersburg experienced a significant decline in population from 1990 to 2020, with a total decrease of 12.85%. The initial sharp decline of 12.11% from 1990 to 2000 could be attributed to economic downturns, loss of industries, or reduced job opportunities leading to outmigration. The slight recovery from 2010 to 2020 suggests some revitalization efforts or economic improvements may have taken place.

Colonial Heights showed consistent growth across all decades, totaling an increase of 13.1% from 1990 to 2020. This steady growth could be due to its appeal as a suburban community with access to urban amenities in Petersburg and Richmond, possibly attracting families and individuals seeking a balance between urban and suburban living.

Hopewell remained relatively stable, with a minor overall decrease of 0.29% over the 30-year span. The small fluctuations suggest a balance between people moving in and out, possibly influenced by the local job market and housing availability. Industrial job growth could also impact these numbers.

Chesterfield saw the most significant growth, with an impressive 74.17% increase over the 30-year period. This could be due to a combination of factors such as economic development, an influx of businesses, and attractive residential developments, making it a desirable location for new residents.

Dinwiddie also experienced growth, although it saw a slight decrease of 0.19% from 2010 to 2020. The overall increase of 33.33% from 1990 to 2020 might be due to its affordable housing and land during the ongoing housing shortage.

Prince George had a notable growth of 57.01% from 1990 to 2020, with consistent increases each decade. The presence of military installations like Fort Gregg-Adams could be a driving economic factor, along with other economic opportunities and community development initiatives that attract and retain residents in areas outlying Hopewell, Petersburg, and Colonial Heights.

Table 1. Population in Tri-Cities MPO Localities, 1990-2020

Locality	Population				Percent Change			
	1990	2000	2010	2020	1990-2000	2000-2010	2010-2020	1990-2020
Petersburg	38,386	33,740	32,420	33,458	-12.11%	-3.91%	3.2%	-12.85%
Colonial Heights	16,064	16,897	17,411	18,170	5.18%	3.04%	4.36%	13.1%
Hopewell	23,101	22,354	22,591	23,033	-3.23%	1.06%	1.96%	-0.29%
Chesterfield	209,274	259,903	316,236	364,548	24.18%	21.67%	15.29%	74.17%
Dinwiddie	20,960	24,533	28,001	27,947	17.05%	14.14%	-0.19%	33.33%
Prince George	27,394	33,047	35,725	43,010	20.64%	8.1%	20.39%	57.01%

Source: US Census Bureau, 1990-2020.

Demographic Distribution

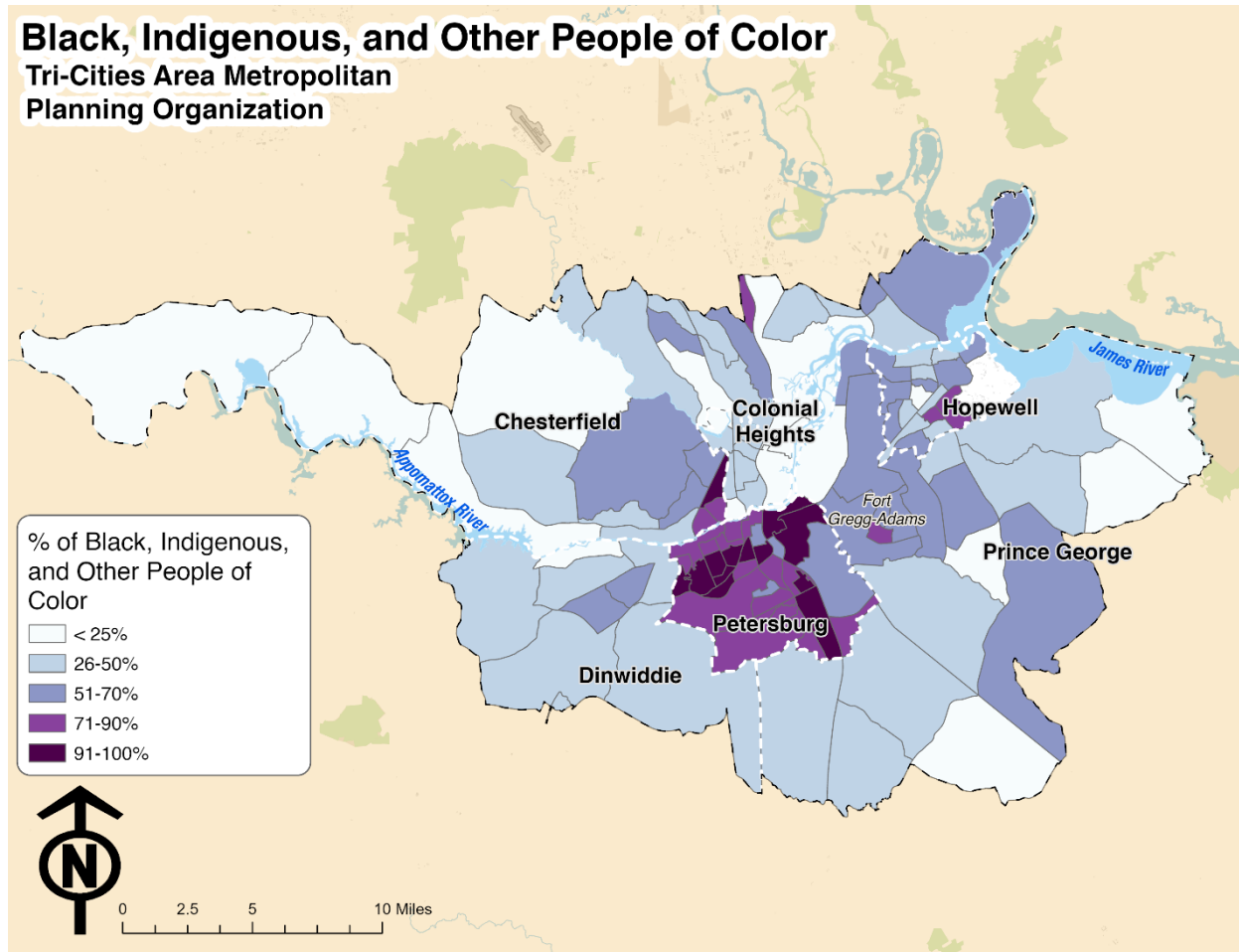


Figure 9. Black, Indigenous, and People of Color in the Tri-Cities MPO.
Source: US Census Bureau, ACS 2017-22

Black, Indigenous, and People of Color

The analysis of Black, Indigenous, and People of Color (BIPOC) population distribution within the Tri-Cities area is important for both ensuring equitable service as well as identifying areas of higher alternative mobility use propensity. This demographic is often disproportionately affected by transportation inequities, which can limit access to essential services, employment, and educational opportunities. Understanding the spatial distribution of BIPOC communities helps in identifying areas where transit services may need to be enhanced to promote equitable access. It also aids in ensuring that the voices of these communities are heard, and their needs are met in the planning process. The data shows that many people of color in the Tri-Cities area live in the City of Petersburg.

People with Disabilities
 Tri-Cities Area Metropolitan
 Planning Organization

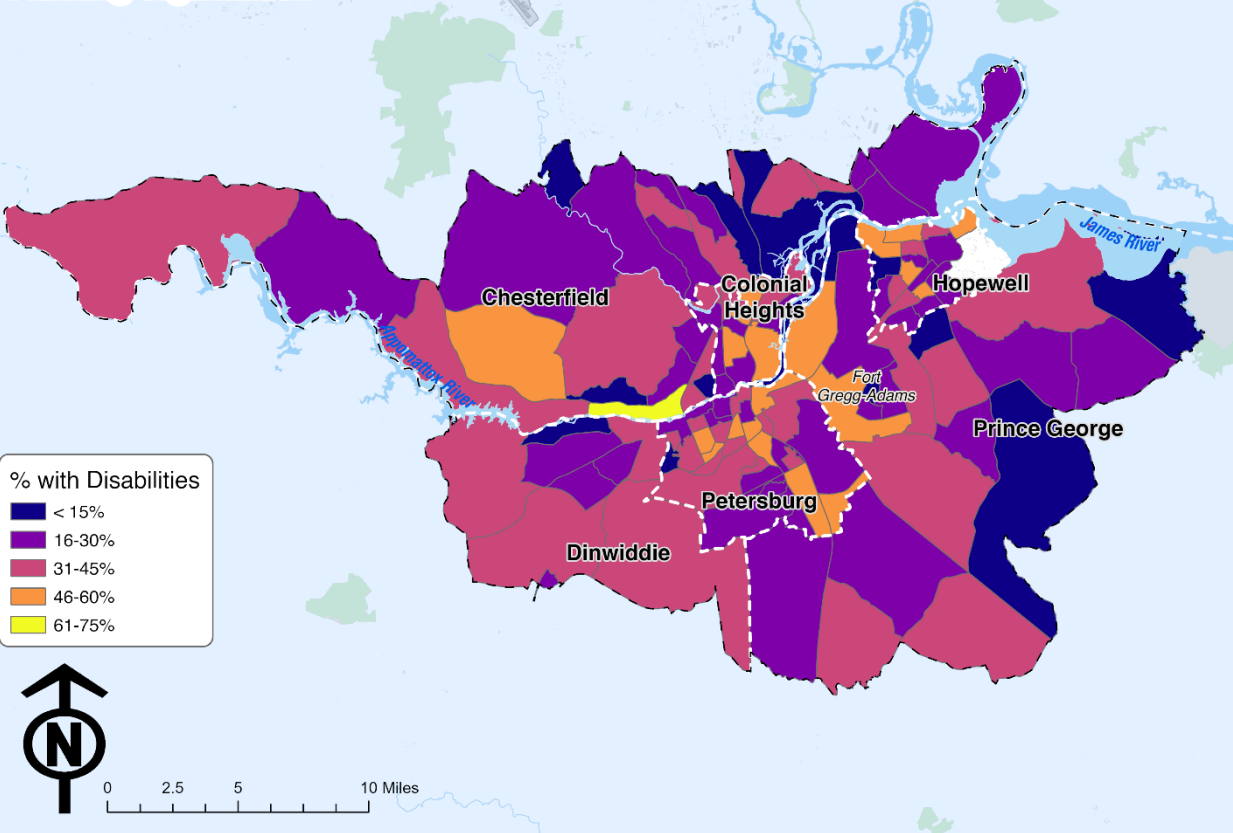


Figure 10. Populations with Disabilities in the Tri-Cities MPO. Source: US Census Bureau, ACS 2017-22

Populations with Disabilities

Incorporating an analysis of populations with disabilities is vital to ensure that the multimodal plan adheres to the Americans with Disabilities Act (ADA) standards and provides accessible options for all. This group may require specialized transit services, such as paratransit or demand-responsive transport offered by PAT and GRTC, to navigate the urban landscape. By understanding where these populations reside, transit planners can optimize routes and services to improve mobility for individuals with disabilities, thereby enhancing their independence and quality of life. The data shows that people with disabilities are broadly distributed throughout the region, but many live in the urban areas of Petersburg, Colonial Heights, and Hopewell and in the village of Matoaca.

Households with One or Fewer Vehicles
 Tri-Cities Area Metropolitan
 Planning Organization

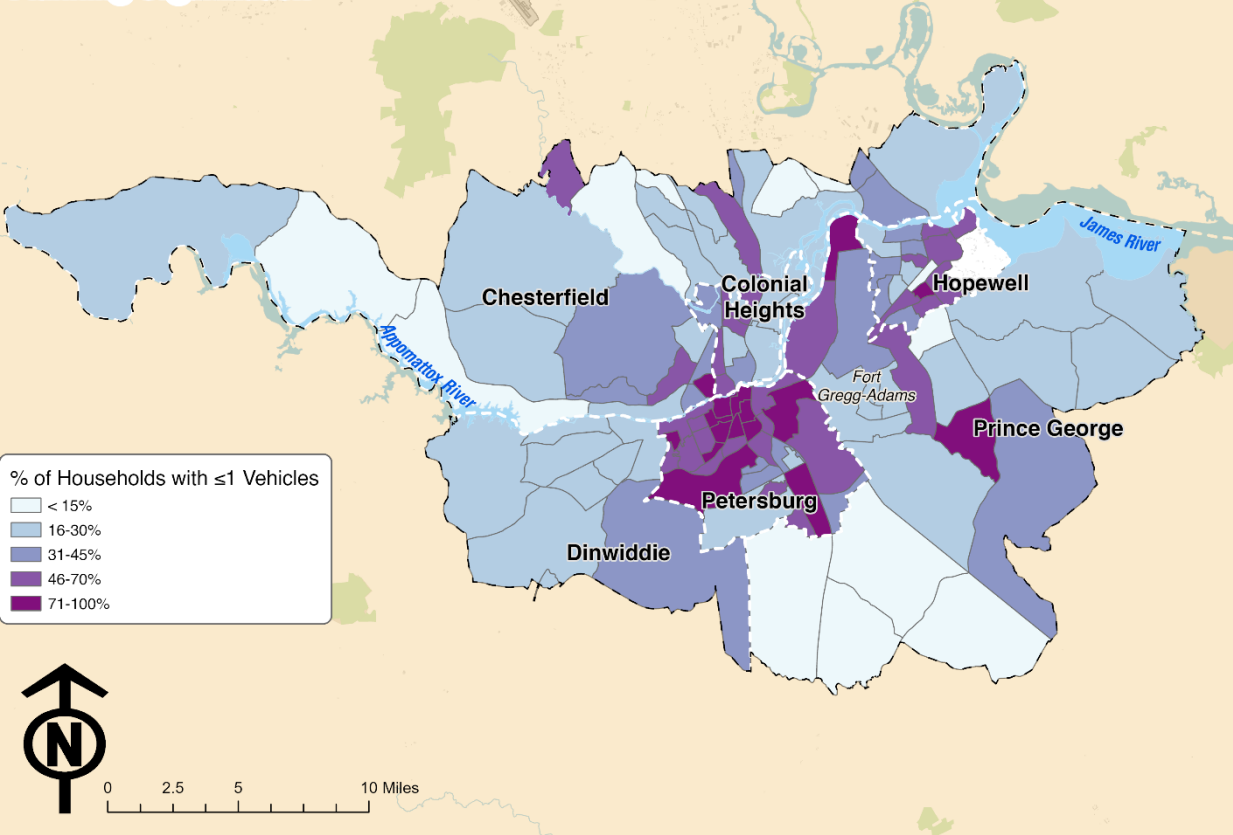


Figure 11. Households with One or Fewer Vehicles in the Tri-Cities MPO.
 Source: US Census Bureau, ACS 2017-22

Zero Vehicle and One or Fewer Vehicle Households

Households with no or limited access to private vehicles are inherently walk-, bike-, or transit-dependent for transportation. This analysis identifies where these households are located and how well they are served by existing transit networks. It’s important to ensure that these households, which may include low-income families or elderly residents, have adequate access to public transportation. This enables them to participate fully in the economy and society, reducing social isolation and improving overall well-being. A map of exclusively zero vehicle household distribution is available in Appendix B. Urban households, as reflected by the map, are less likely to own multiple vehicles or a vehicle at all.

People Living in Poverty
Tri-Cities Area Metropolitan
Planning Organization

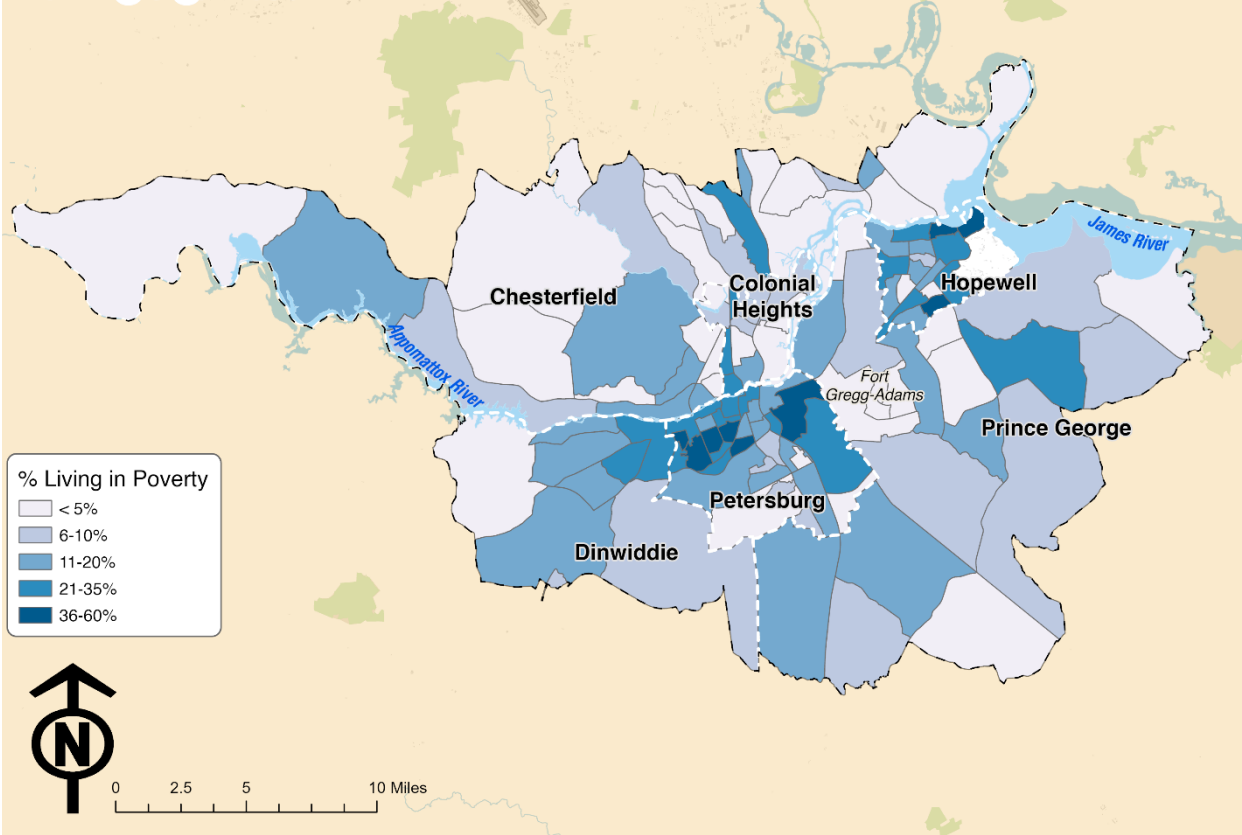


Figure 12. People Living in Poverty in the Tri-Cities MPO.
 Source: US Census Bureau, ACS 2017-22

Populations Living in Poverty

Analyzing the distribution of populations living in poverty is essential because economic constraints can significantly limit transportation options. This population segment often relies on public transit for commuting to work, accessing healthcare, and other daily needs. Ensuring that transit services are affordable and accessible to impoverished areas can alleviate some of the burdens of poverty and provide a lifeline to those in need. A map of Areas of Persistent Poverty (AoPP) census tracts is available in Appendix B.

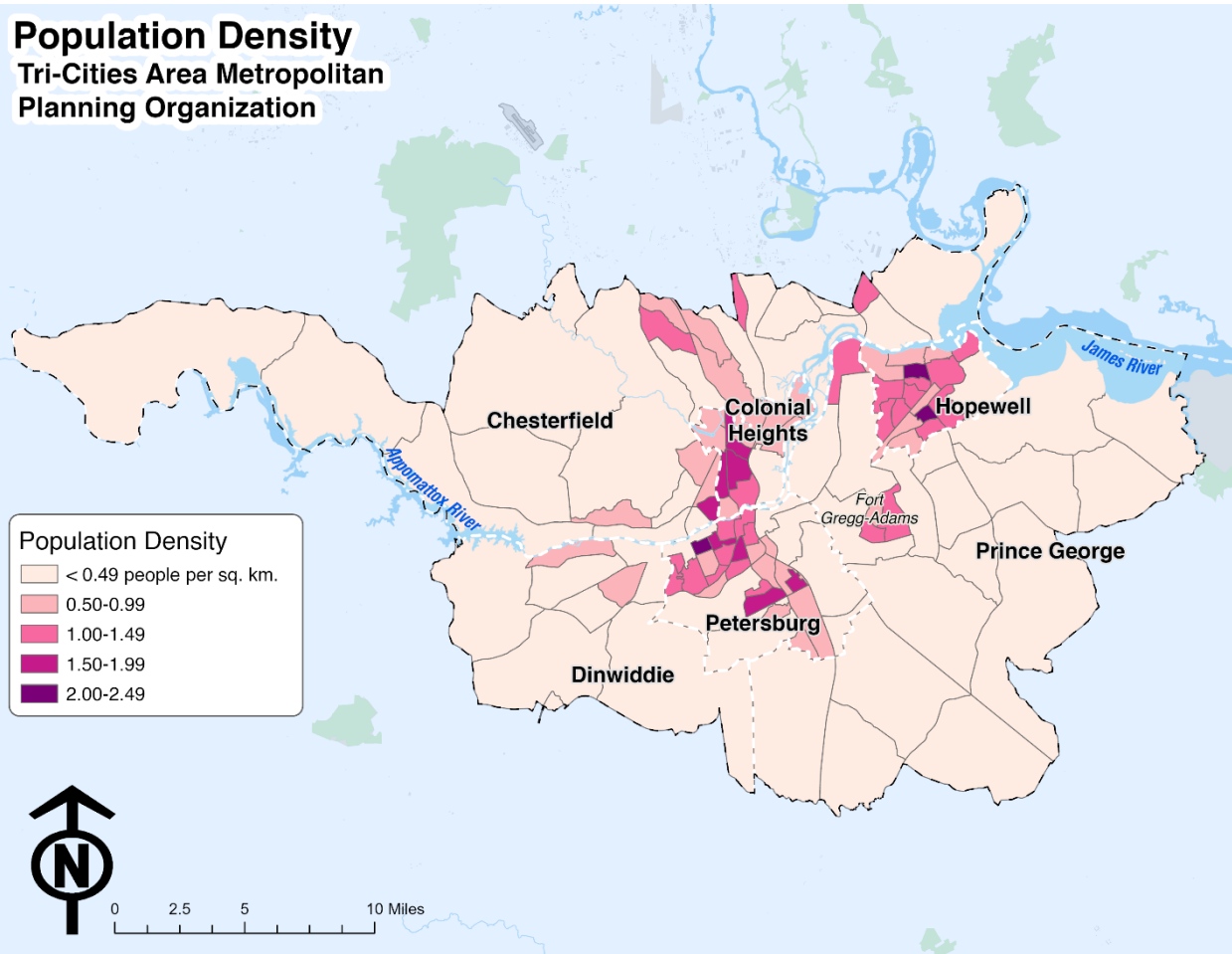


Figure 13. Population Density in the Tri-Cities MPO.

Source: US Census Bureau, ACS 2017-22

Population Density

Population density plays a significant role in multimodal planning. High-density areas typically warrant more frequent and varied transit services due to the higher demand. Conversely, lower-density areas may require different strategies, such as on-demand services like PAT Paratransit, GRTC Link microtransit, or Ridefinders ride sharing, to use resources efficiently. Understanding population density helps in designing a multimodal network that can adapt to the varying needs of the region, ensuring that services and facilities are neither overextended nor underutilized.

Job Distribution

The urban centers of Petersburg, Colonial Heights, and Hopewell serve as the primary employment hubs, with the highest job densities reflecting the concentration of service industries, government employment, and retail sectors. These areas benefit from their strategic locations along major transportation corridors, facilitating commerce and attracting businesses. Surrounding these urban cores, the job density tends to taper off, transitioning into suburban and then rural areas where employment is more dispersed. In these outlying areas, job distribution may be influenced by the presence of industrial parks, agricultural activities, or smaller business clusters that serve the local communities.

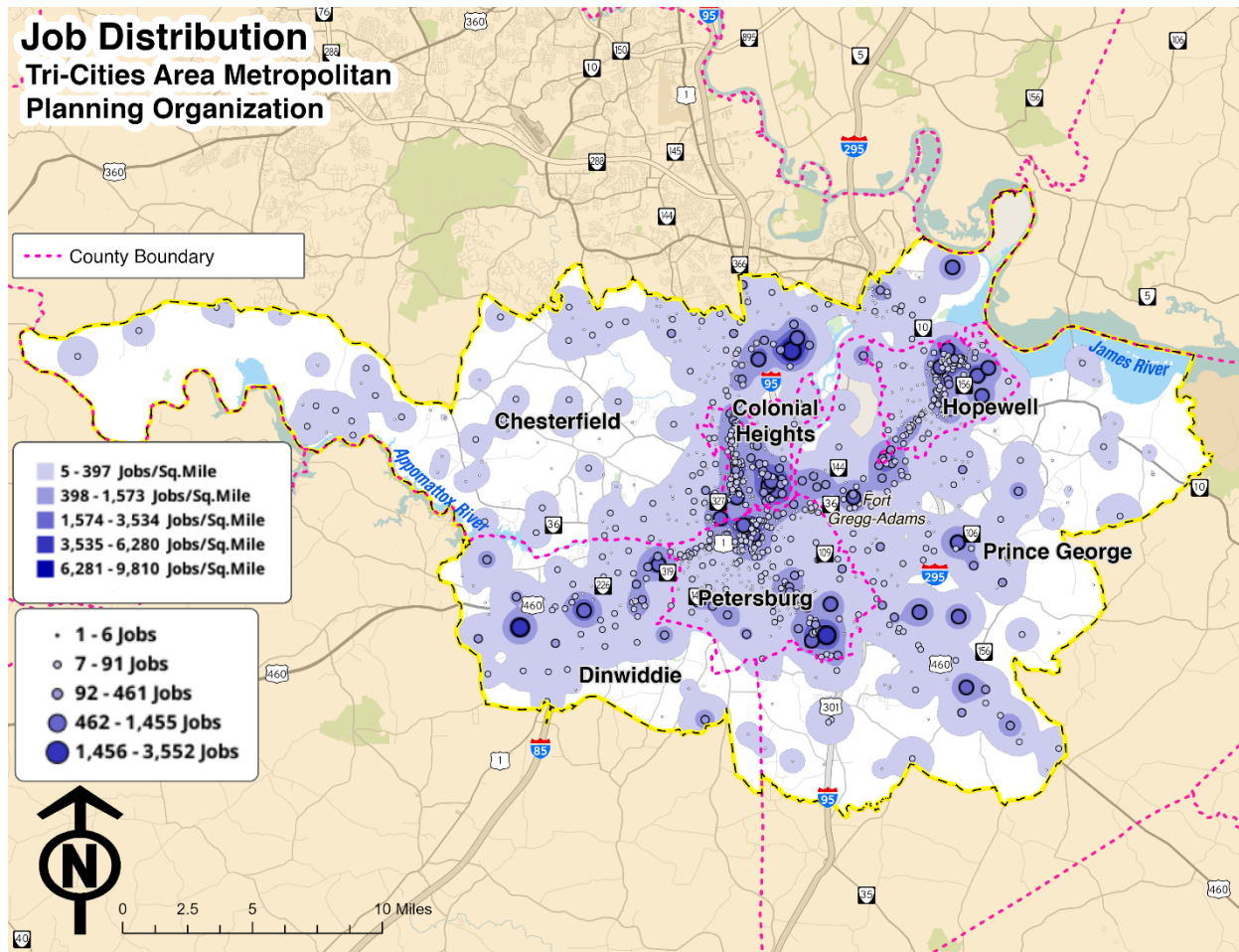


Figure 14. Job Distribution and Centers by number of jobs in the Tri-Cities MPO.

Source: US Census On the Map, 2021

Chesterfield County, with its significant population growth, has likely seen an expansion in job opportunities, particularly in sectors like healthcare, education, and professional services, which typically accompany residential development. Areas like Ruffin Mill between U.S. Route 1 and the James River have concentrated industrial and office uses that take advantage of major transportation corridors and proximity to deepwater terminals in the James River. The presence of

Fort Gregg-Adams in Prince George County contributes to the area’s job density, with military and related civilian employment playing a significant role.

The job distribution also reflects the region’s economic evolution, with traditional manufacturing and industrial jobs giving way to more service-oriented positions. This shift is part of a broader trend seen across many metropolitan areas, where job growth is increasingly concentrated in urban centers, supporting a more knowledge-based economy. The map in Figure 15, using data from the U.S. Census Bureau’s Census On the Map tool, reflects this job distribution, with major job centers appearing along key transportation corridors and in urban centers of Petersburg, Hopewell, and Colonial Heights as well as along U.S. Route 1 in southern Chesterfield.

Activity Centers

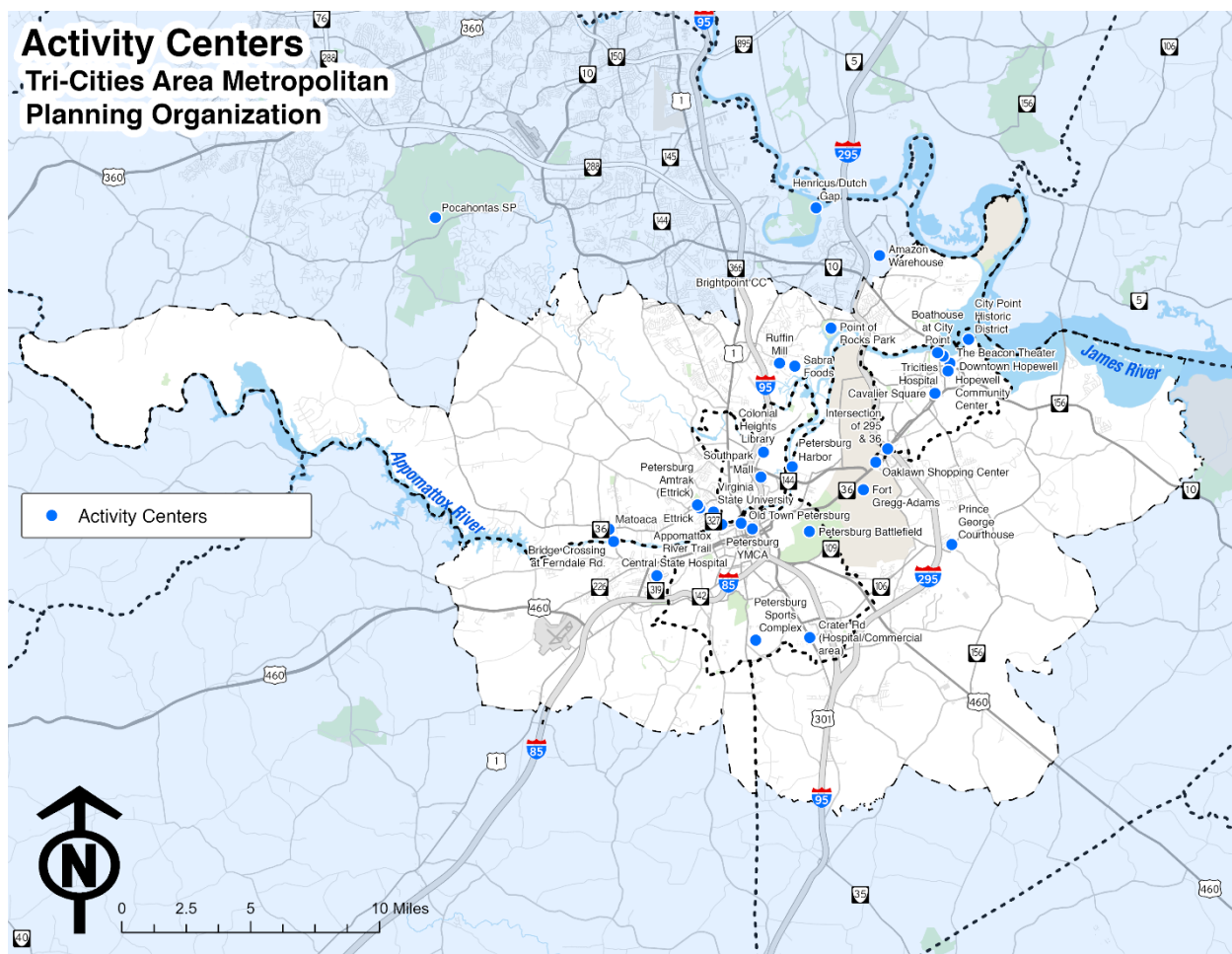


Figure 15. Activity centers in the Tri-Cities region.

Source: US Census Bureau, ACS 2017-22

The Tri-Cities area is poised for growth, and the multimodal transportation network is integral to supporting this trajectory by providing means of access to key activity centers, as defined by the project’s Steering Committee. **Activity centers** are hubs of economic, social, and cultural activities that attract a significant number of trips. Efficient and equitable access to these centers is crucial for the region’s vitality. The goal of multimodal planning and infrastructure is to offer accessible,

efficient, and sustainable transportation options for all users to reach activity centers important to their daily lives, either for work, housing, commercial needs, or purely recreational spaces.

On April 30, 2024, the Steering Committee for this multimodal plan participated in a map activity where they identified and marked specific activity centers on a personal map—some chose areas that they know people in their respective communities travel to often and others chose areas that are of personal significance to themselves as they navigate daily life in the Tri-Cities. Figure 16 shows a map of activity centers identified by committee members in that activity.

Some key activity centers include:

Higher Education

- **Virginia State University (VSU):** A historically black university located in Petersburg, Virginia, offering a range of undergraduate and graduate programs.
- **Brightpoint Community College:** A public two-year institution situated in Chester, Virginia, providing diverse academic programs and workforce training.
- **Richard Bland College:** An associate degree-granting branch of William & Mary, located in South Prince George, Virginia, with a focus on transfer and workforce education.

Hospitals

- **Southside Regional Medical Center:** A full-service healthcare facility in Petersburg, Virginia, offering advanced medical care and emergency services.
- **Tri-Cities Hospital:** A community hospital located in Hopewell, Virginia, providing comprehensive healthcare services including emergency and specialized care.

Existing Commercial Hubs

- **Southpark Mall:** A major retail destination in Colonial Heights, Virginia, featuring a wide array of stores and dining options.
- **Crater Road Commercial Corridor:** A commercial area in Petersburg, Virginia with a variety of retail and dining establishments.
- **Cavalier Square:** An actively redeveloping commercial strip mall in Hopewell, adjacent to Fort Gregg-Adams and not far from Hopewell's downtown.
- **Oaklawn/Woodlawn Commercial Corridor:** A commercial area located along Oaklawn Boulevard in Hopewell.

Recreation

- **Petersburg Sports Complex:** A multi-purpose athletic venue in Petersburg, Virginia, with facilities for baseball, softball, and various recreational activities.
- **Petersburg Family YMCA:** A community center in Petersburg, Virginia, offering fitness, wellness, and educational programs for all ages.
- **Patton Park:** A public park in Petersburg, Virginia.
- **Pocahontas State Park:** A public state park with natural and recreational facilities.
- **Point of Rocks Park:** A public park along the Appomattox River in Chester, Virginia.

- **Appomattox River Trail:** A linear park moving along the Appomattox River in the Tri-Cities area.
- **Hopewell Community Center:** A community gathering and recreation space in central Hopewell, Virginia.
- **Riverwalk Trail:** A recreational boardwalk adjacent to the Appomattox River and downtown Hopewell.
- **City Park:** A recreational park near Hopewell’s downtown.
- **Atwater Sports Complex:** A public sports and recreation complex in Hopewell.

Events

- **The Beacon Theater:** An iconic performance venue in Hopewell, Virginia, hosting a variety of live entertainment and cultural events.

Areas, Districts, and Locations

- **City Point:** A National Park Service historic area in Hopewell, Virginia, known for its Civil War history and scenic views of the confluence of the James and Appomattox rivers.
- **Old Town Petersburg:** A charming district in Petersburg, Virginia, with well-preserved architecture, boutiques, and eateries reflecting its rich history.
- **Fort Gregg-Adams:** A historical site and currently operating military base in Prince George, Virginia.
- **Matoaca:** A community in Chesterfield County, Virginia situated along River Road, known for its rural nature and historical significance.
- **Downtown Hopewell:** A historic downtown area in the center of Hopewell.

- **Ettrick:** A census-designated place in Chesterfield County, Virginia, home to Virginia State University and a rich cultural heritage.
- **Prince George Courthouse:** The governmental center of Prince George County, Virginia, housing administrative offices and historical landmarks.
- **Petersburg Harbor:** A key commercial and recreational port on the Appomattox River in Petersburg, Virginia.
- **Petersburg Battlefield:** A national park in Petersburg, Virginia, preserving sites from the longest military event of the Civil War.
- **Ruffin Mill:** An industrial area in Colonial Heights, Virginia, with a history of manufacturing and commerce.

Schools

The Steering Committee noted the need for special attention to be given to the area’s public schools, as children are more likely than adults to rely on multimodal infrastructure, especially to travel to and from schools. Figure 17 is a map of the area’s public schools and other educational facilities.

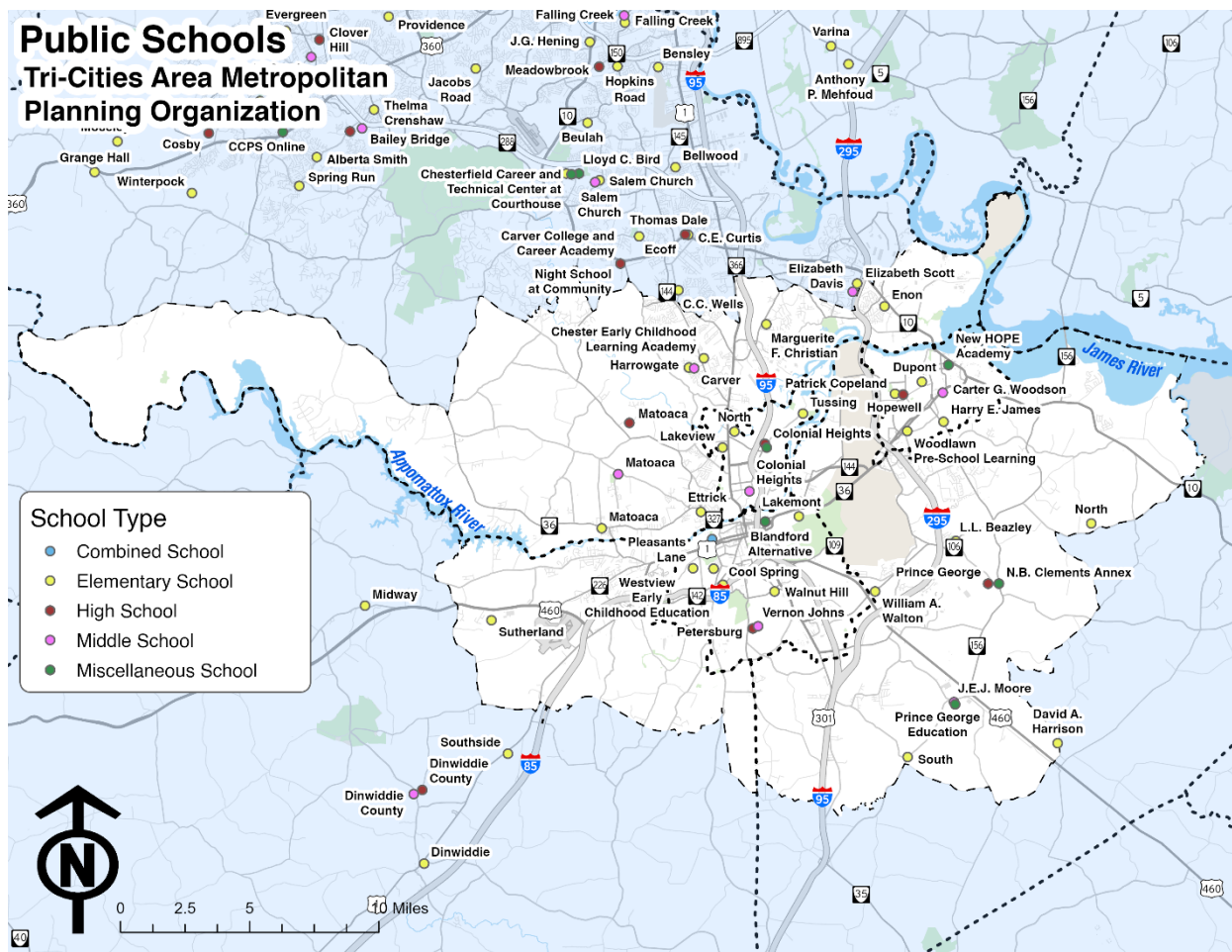


Figure 16. Public schools and educational facilities in the Tri-Cities area.
Source: Virginia Department of Education

Urban Heat Islands

One standout component of the environmental existing conditions that warrants further consideration is the Urban Heat Island effect. The **urban heat island (UHI) effect** is a phenomenon where urban areas experience higher temperatures than their rural surroundings. This is primarily due to the absorption and retention of heat by buildings, roads, and other infrastructure, as well as the reduced cooling effects from vegetation and open land. The UHI effect can exacerbate heatwaves, increase energy consumption for cooling, and negatively impact public health.

In multimodal planning, understanding the UHI effect is crucial for developing strategies that mitigate its impact. This includes integrating green infrastructure, such as parks and green roofs, to enhance cooling; planning for tree-lined streets that provide shade; and designing buildings and materials that reflect rather than absorb heat. Addressing the UHI effect in multimodal planning can improve comfort for pedestrians and cyclists as networks expand, reduce the demand on public utilities, and contribute to overall urban sustainability. Figure 18 shows an overlay of the Urban Heat Island dataset from The Trust for Public Land's 2020 data publication.

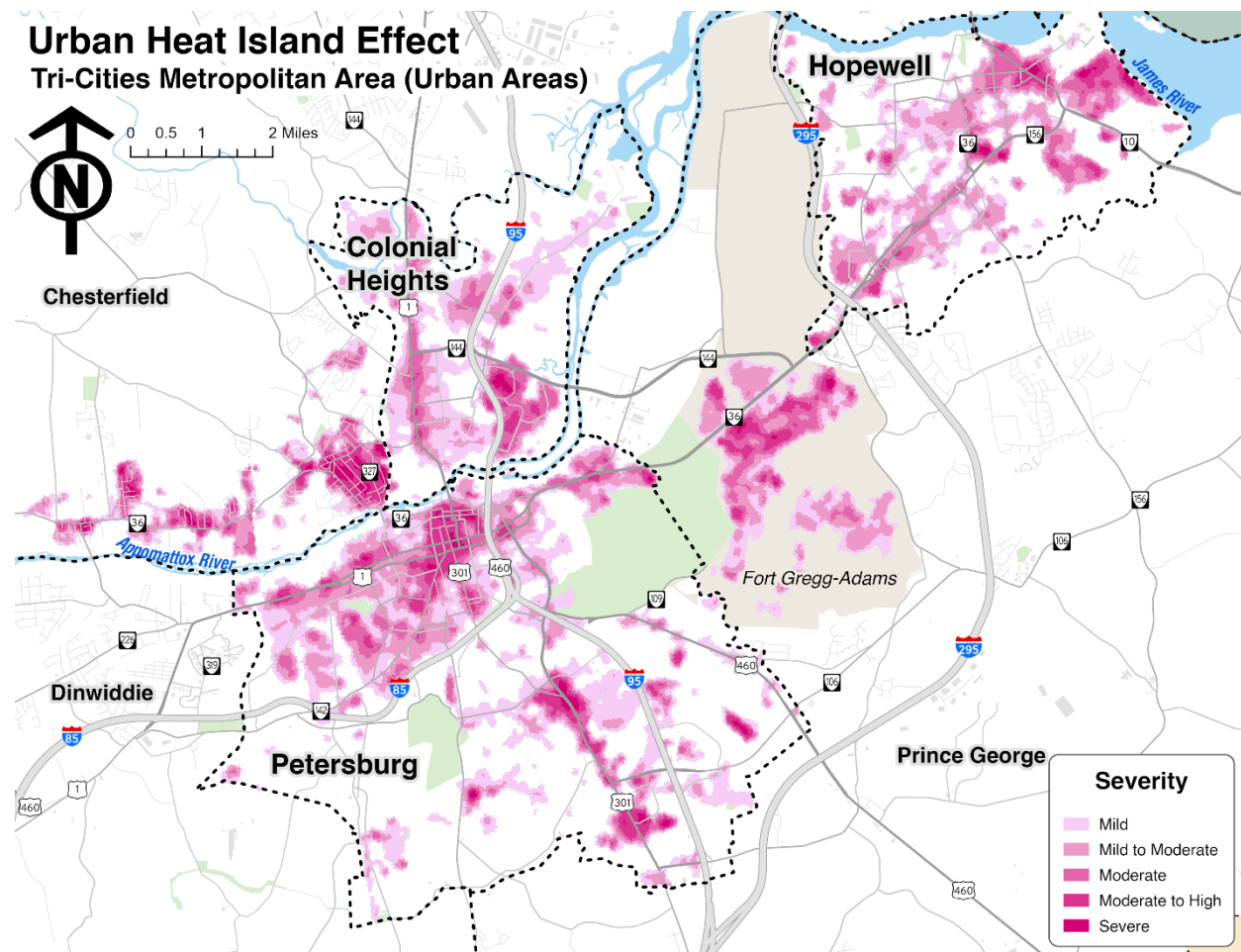


Figure 17. Map of Urban Heat Island severity in the Tri-Cities' urban areas.
Source: The Trust for Public Land, 2020

In conclusion, the Regional Multimodal Mobility Study serves as a foundational framework for the future of multimodal transportation planning in the Tri-Cities Area. By leveraging comprehensive data and current conditions, the study will outline a path forward that prioritizes efficient, sustainable, and equitable multimodal solutions. The insights garnered from these existing conditions will inform planning decisions, guide infrastructure development, and shape a resilient transportation ecosystem that supports the region's growth and enhances the quality of life for all residents.

Appendices

Appendix A1. Roadway Supplement

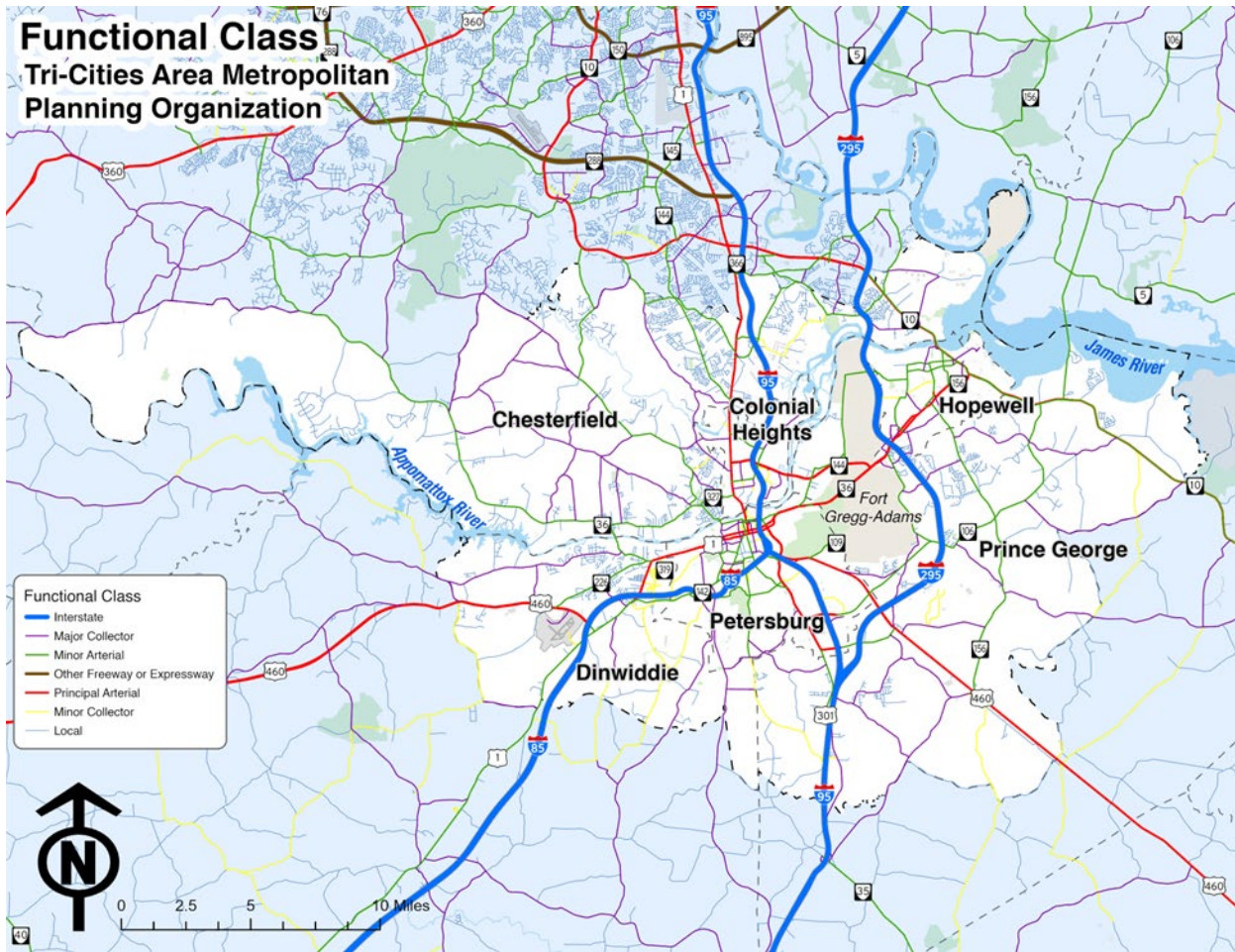


Figure 18. Functional class of roadways in the Tri-Cities MPO.
Source: Virginia Department of Transportation

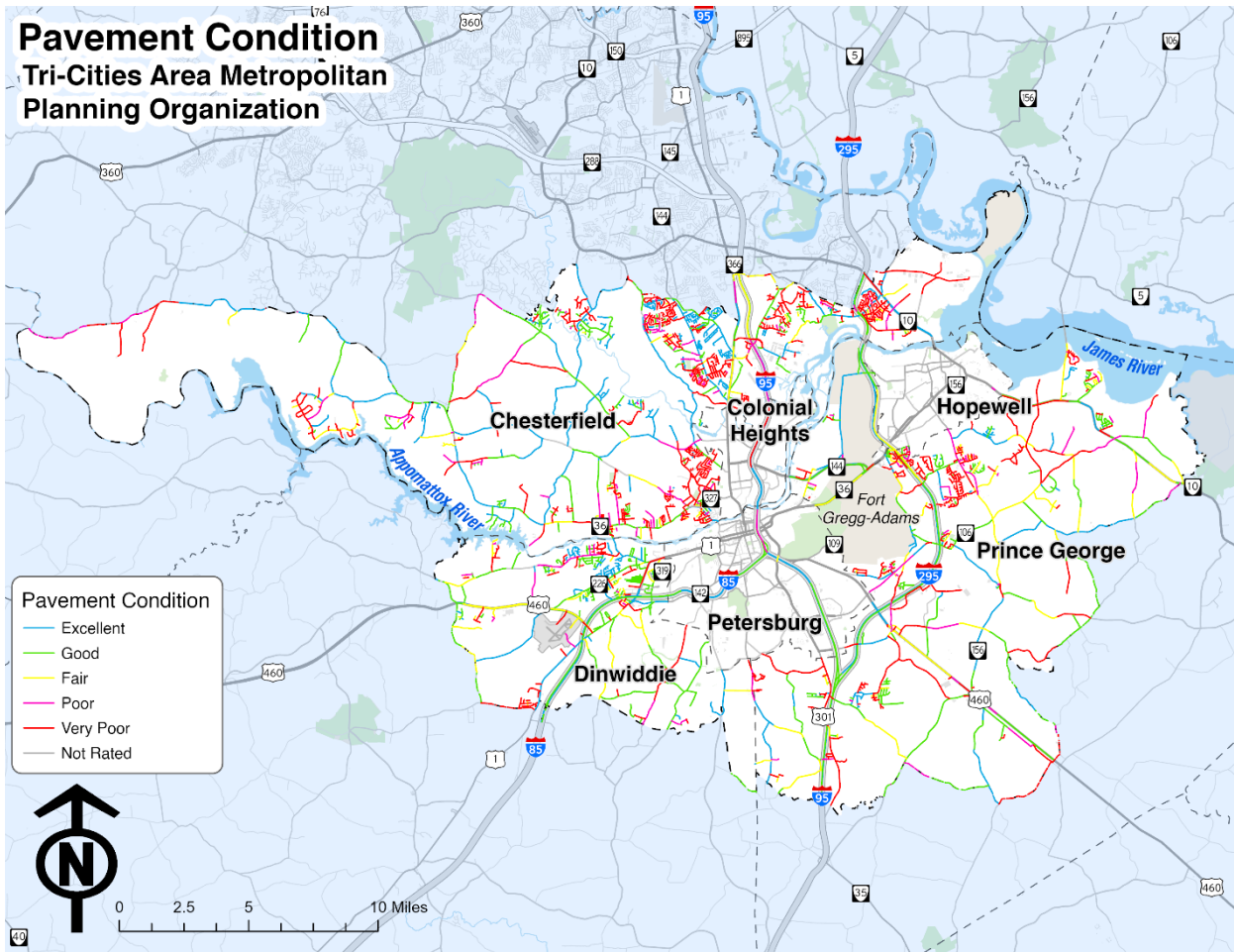


Figure 19. Pavement condition in the Tri-Cities MPO.

Source: Virginia Department of Transportation

Appendix B1. Demographic Supplement

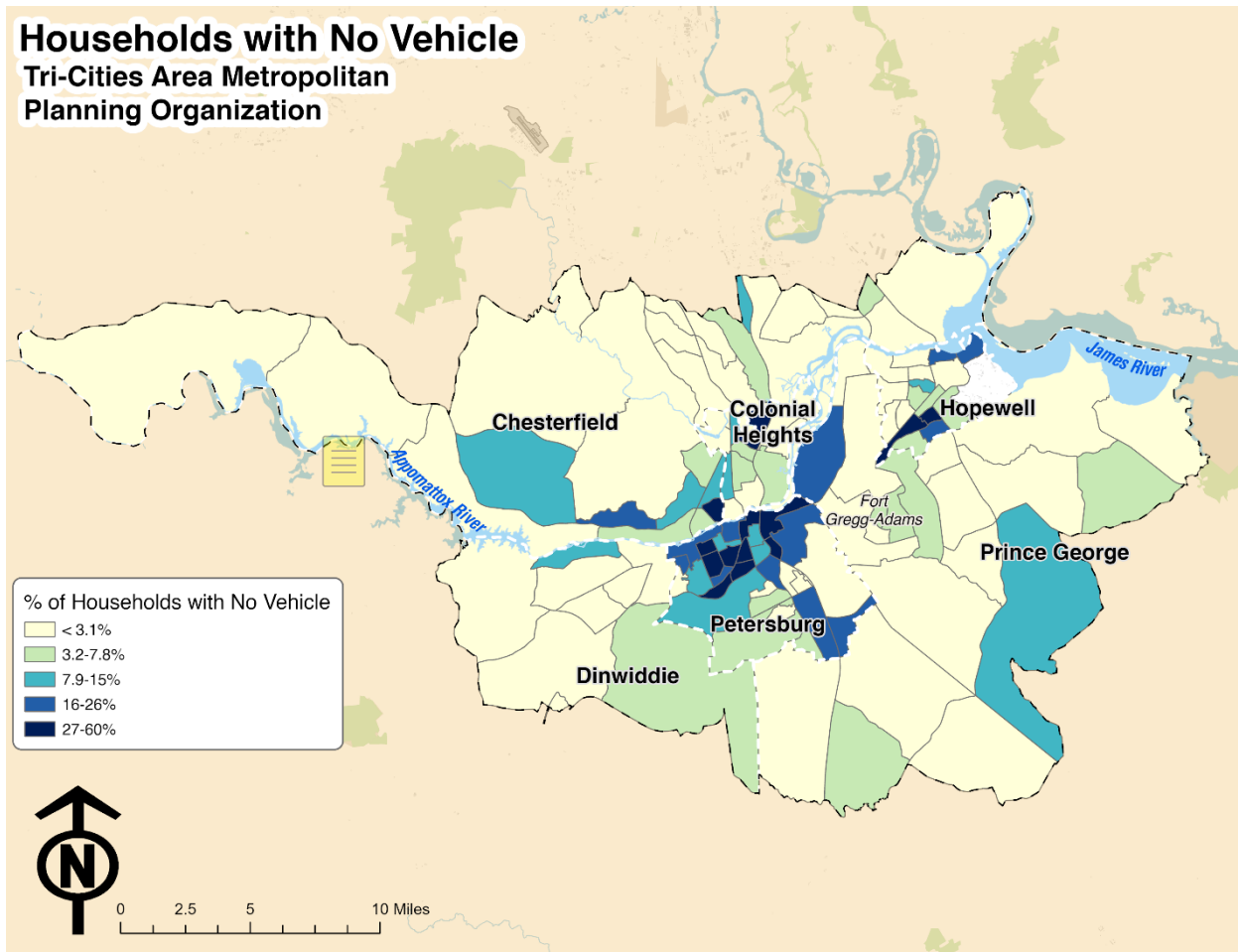


Figure 20. Households with no vehicle access in the Tri-Cities MPO.

Source: US Census, ACS 2017-22

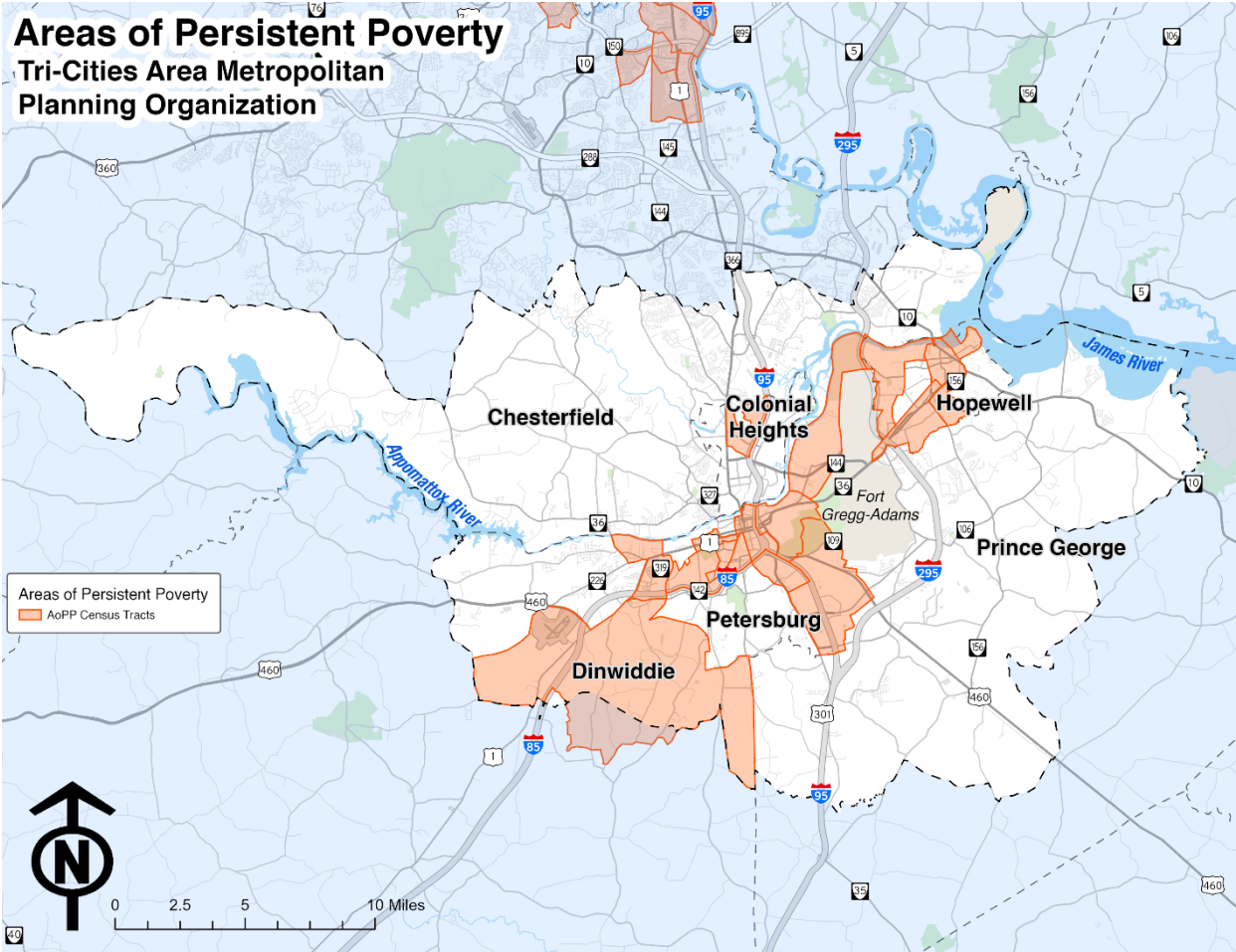


Figure 21. 2020 Areas of Persistent Poverty by Census Tract.
Source: Federal Transit Administration, Areas of Persistent Poverty program

Appendix C1. Multimodal Supplement

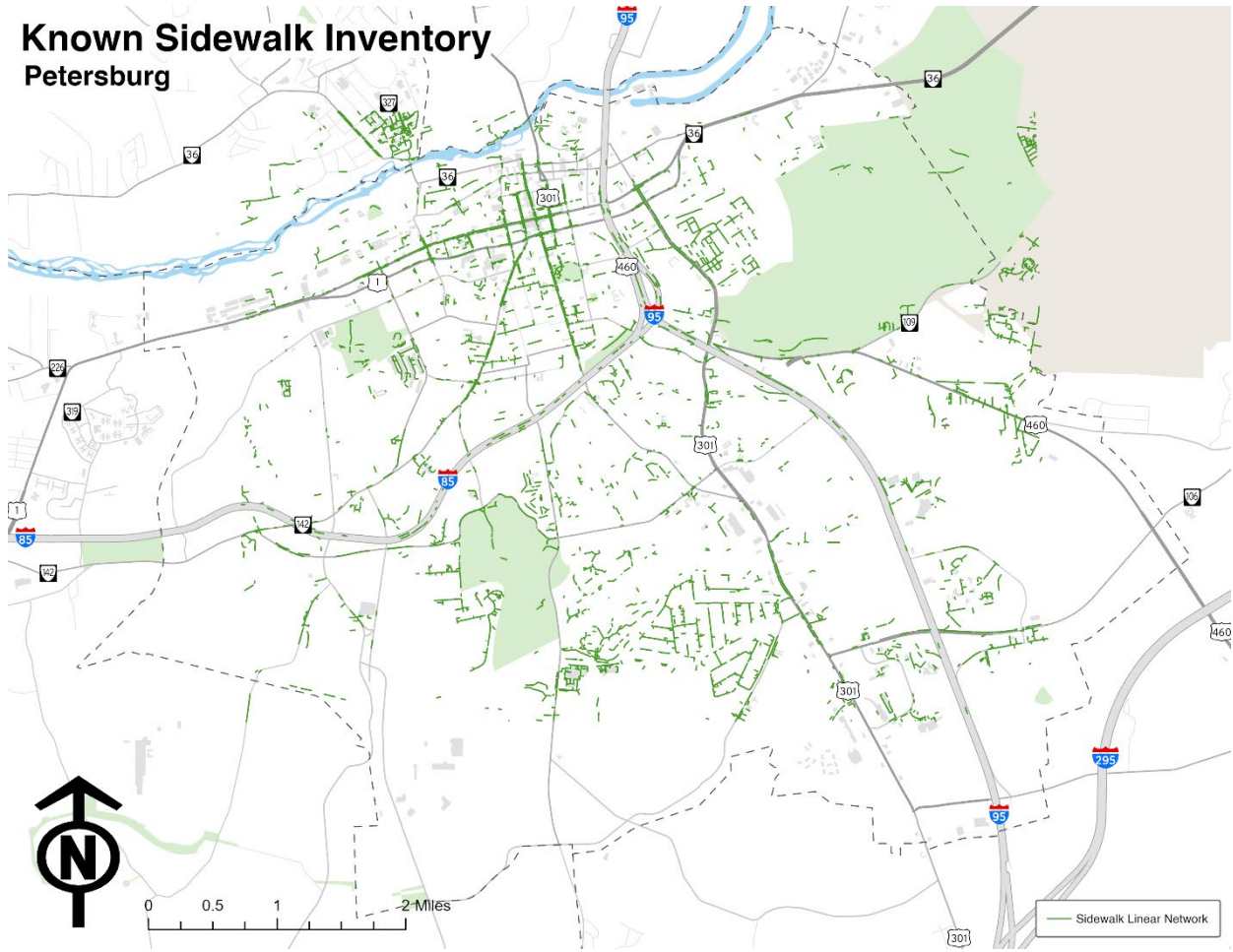


Figure 22. Petersburg's known sidewalk network.

Source: TCAMPO

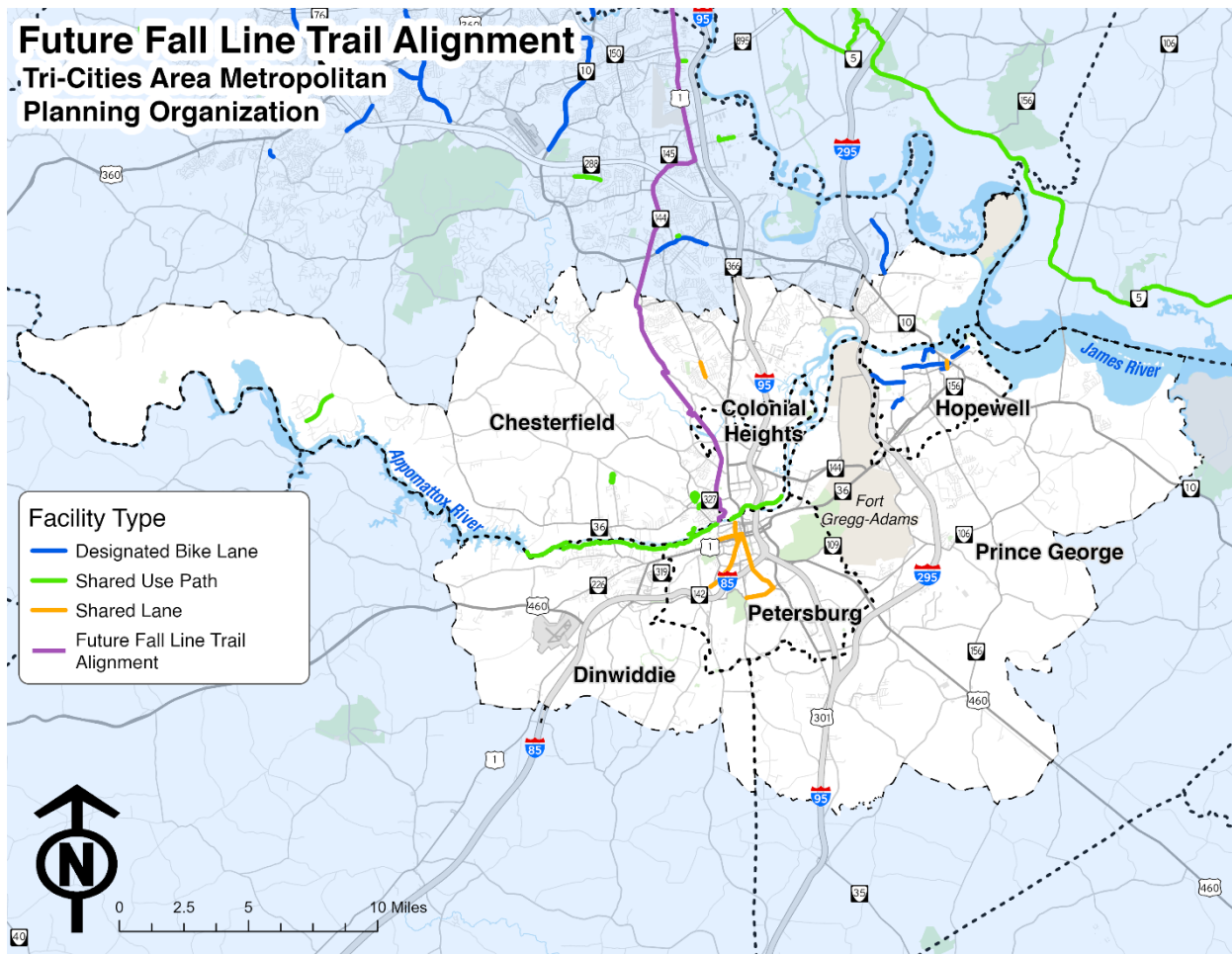


Figure 23. Future Fall Line Trail alignment relative to existing bicycle network.
Source: Virginia Department of Transportation

Appendix C

Previous Planning Efforts Review

2024 Tri-Cities Area

Multimodal Plan Mobility Plan

Technical Memorandum #1: Summary of Previous Planning Efforts

May 2, 2024

Tri-Cities Area Metropolitan Planning Organization

TCAMPO Bikeway Plan (2003)

The TCAMPO Bikeway Plan is a component of the FY2002 Unified Transportation Work Program that sought to update the 1979 bikeway plan and recognize bicycling as a safe, convenient, and viable transportation alternative that deserves integration with pedestrian infrastructure in the area. Goals of the plan include establishing a bikeway system in the Tri-Cities area, encouraging use of the bicycle as an alternative means of everyday transportation, and making bicycling and walking safer in the Tri-Cities Urban Area. The plan provides a summary of bicycle and pedestrian planning interventions in the MPO's constituent localities, plan summaries for historical planning interventions, maps and descriptions of existing facilities, proposed facilities and interventions by locality and roadway segment, and an implementation plan.

2045 Tri-Cities Area Long Range Transportation Plan (2022)

Plan2045 is the federally mandated long range metropolitan transportation plan that outlines goals, objectives, policies, and programs to improve the transportation system of the Tri Cities MPO. Completed in 2022, the plan makes recommendations for highway, bicycle, pedestrian, and rail projects through 2045 for the region. Most projects identified in the constrained list of projects for FY21-24 have been completed, with the following regionally significant roadway projects still outstanding:

- North Enon Church Road widening from Route 10 to the MPO boundary line
- East-West Freeway (new 2 lane public/private road) from Route 1 to West of Branders Bridge Road
- Woods Edge Road widening from Route 1 to East of the Railroad Tracks
- Temple Avenue widening from Conduit Road to the Colonial Heights boundary
- Cedar Level Road southern segment widening from North Avenue to Woodlawn Street, including the addition of bicycle lanes and sidewalk on both sides

Technical Appendix B lists projects that were not included in the constrained list but were previously identified in other plans and studies as regional needs. New park-and-ride lots were proposed for Dinwiddie (I-85 exit 61), Petersburg (I-95 exit 50), and Prince George (near I-295 and Rt 460).

Although not itemized and programmed in the financially constrained list, regionally significant trail planning initiatives highlighted in the plan included the continued development of the Appomattox River trail, Fall Line Trail, and East Coast Greenway. Some sections of the Appomattox River Trail are already completed, and the Lower Appomattox River Trail/Virginia Capital Trail Connection Study (2018) recommended a bus shuttle service or bicycle and pedestrian ferry to connect the two trails. The Fall Line Trail also recently began construction, indicating that planning for the establishment and connectivity of regional trails will continue to be a priority. Plan2045 additionally supports the future establishment of a bike share program within the MPO area for resident travel and tourism.

Recent public transportation initiatives include new Petersburg Area Transit (PAT) service from Petersburg to Emporia (Southern Express route) and an ongoing feasibility study for a new maintenance facility. GRTC Transit System also operates service from Richmond to the Tri-Cities region, and the agency recently partnered with Chesterfield County to extend route 3B from Brightpoint Community College to Greenleigh Mobile Home Park in Chester. Other service opportunities included trolley service to historic sites such as the Petersburg National Battlefield and Fort Gregg-Adams. For rail, the Richmond to Raleigh

S-Line corridor project will provide high-performance passenger rail service with a stop in Petersburg. NEPA documentation is complete and preliminary engineering began in 2023.

Chesterfield County

[Chesterfield County Comprehensive Plan \(2014\)](#)

The Comprehensive Plan for Chesterfield County aims to enhance the community's quality of life through well-planned and attractive development, while preserving existing legal land rights. The Plan's successful implementation relies on collaboration among government officials, citizens, business leaders, and other stakeholders. It also provides guidance for growth and development decisions, utilizing tools such as Zoning and Subdivision Ordinances, and other regulations and policies.

Chesterfield County's Land Use Plan supports the development of higher density mixed-use activity centers that could be linked by various transit options, including buses, carpools, and rail. The county's diverse land use patterns and the need for travel between rural, suburban, and urban areas necessitate a wide range of transit options. The Ettrick Station, leased by Amtrak, provides daily passenger service along two routes, enhancing the county's connectivity. The Bikeways and Trails Chapter emphasizes the importance of a safe and accessible non-motorized network, combining transportation and recreation elements to serve the public and provide opportunities for the equestrian community.

The Virginia Department of Rail and Public Transportation and the Richmond Regional Transportation Planning Organization have developed a 20-year vision plan for the Richmond region, including specific transit recommendations for Chesterfield County. These include a local route network, Bus Rapid Transit along Midlothian Turnpike and Hull Street, and enhanced local bus service along Jefferson Davis Highway. The plan also includes the construction of park and ride lots at various locations. Two locations have been programmed for funding in the VDOT Six-Year Improvement Program on Hopkins Road near Chippenham Parkway and on US 360 near Winterpock Road. The implementation focus of the Bikeways and Trails plan is looking to improve connections to Pocahontas State Park and enhancing bicycle and pedestrian access in the Northern Jefferson Davis Highway area.

City of Colonial Heights

[Colonial Heights Trail Plan \(2014\)](#)

The Colonial Heights Trail Plan provides for recreation and trail surfaces along the Appomattox River Greenway Trail in the City of Colonial Heights. The northern section improvements include hard-surface trail; a northern trailhead with parking, a small play area, and gazebo; and a boat launch at Roslyn Landing Park. The southern section improvements include hard-surface trail; a scenic overlook; a canoe and kayak launch, fishing pier, recreational facilities, and trailhead at Appamatuck Park. The plan also includes provisions for uniform signage throughout the park.

[Colonial Heights Comprehensive Plan \(2021\)](#)

The Master Plan of Colonial Heights serves as a guide for the city's development, addressing housing, economy, public facilities, environmental protection, and transportation. It informs the decision-making process of the City Council, Planning Commission, and City Manager's administration. Input from a City-wide Visioning Meeting and a Citizen Planning Committee helped shape a Vision Statement reflecting community consensus on the city's strengths and weaknesses.

The transportation plan for Colonial Heights extends beyond city roads, emphasizing the importance of pedestrian walkways as connectors within the system. However, bicycle facilities are scarce, with most roads being too narrow for bike lanes and the Appomattox River Trail mainly serving recreational purposes. The lack of dedicated bikeways poses challenges for cyclists using bikes as transportation. Public transit is also limited, with only one direct route provided by the Petersburg Area Transit to the Southpark Mall area.

The city's comprehensive plan includes transportation policies that aim to integrate Complete Streets concepts into new and redeveloped areas, enhancing pedestrian and bicycle infrastructure. There is a push to create bike lanes on city streets and incorporate bike facilities into future trails to encourage physical activity and reduce car usage. Additionally, the plan supports the Safe Routes to School program and regional trail plans to improve neighborhood infrastructure and promote safe biking and walking.

Dinwiddie County

Dinwiddie County Comprehensive Plan (2023)

Dinwiddie County's current comprehensive plan titled "Dinwiddie Forward," adopted on September 19, 2023, outlines the vision and strategies for the county's development over the next twenty years. It emphasizes preserving rural character, enhancing community facilities, and expanding economic opportunities while maintaining a strong sense of community. The plan includes detailed chapters on natural environment, housing, transportation, economic development, land use, and more, each with specific goals and implementation strategies. It also reflects extensive community input, highlighting the desire for improved utilities, infrastructure, broadband access, and recreational opportunities. The plan is a guiding policy document for future development, shaped by state requirements and local aspirations, aiming to balance growth with the preservation of Dinwiddie County's unique identity and values.

The plan emphasizes the importance of a multimodal transportation system that connects residents to essential services and economic opportunities. The plan outlines strategies to improve road safety, expand public transit, and enhance pedestrian and bicycle infrastructure. It also discusses the integration of land use and transportation planning, particularly through Urban Development Areas (UDAs) designed for higher density and mixed-use developments. The plan recognizes the need for collaboration with regional partners and prioritizes projects that align with state transportation goals. Overall, the plan aims to provide a balanced, efficient, and accessible transportation network that supports the county's growth and residents' quality of life.

Dinwiddie County Comprehensive Plan (2014)

The Dinwiddie County Comprehensive Plan aims to designate areas for various types of public and private development, including residential, business, industrial, and other uses. It also discusses the establishment of transportation and community service facilities, historical areas, groundwater protection measures, and affordable housing. Additionally, it includes the creation of an official map, a capital improvements program, and various ordinances and district maps.

The Crater District Area Agency on Aging and the Petersburg Foster Grandparents Program manage grant funds for one van, prioritizing transportation for seniors and disabled individuals, particularly for medical trips. The latest assessment conducted by the Crater Planning District Commission and the Department

of Transportation does not identify a need for mass transit service in Dinwiddie County, but suggests considering vanpooling, especially for major employers like Central State Hospital and the Walmart Distribution Center. Trailways Inc., a private inter-city and charter bus service in the Tri-Cities Area, focuses its service on the I-85 and I-95 corridors. The Blackstone Area Bus System operates the Dinwiddie Express, a bus route sponsored by the County of Dinwiddie, which loops through several routes in Dinwiddie County before returning to Blackstone including Route 460, Route 1, and Route 40.

The Crater Planning District Commission has developed a multi-modal transportation plan as part of their Unified Transportation Work Program, focusing on the integration of bicycle routes due to increasing usage and energy conservation needs. The section of the plan affecting Dinwiddie County proposes a Class III bike route system in the northeastern part of the county, including a route through the Appomattox River Park, and a future Class II trail along Virginia 226 pending the development of a recreational site in the Brickwood area. Additional routes are suggested to connect key areas such as Richard Bland College, Petersburg National Military Park, and Dinwiddie County, enhancing the overall connectivity of the region.

City of Hopewell

[Hopewell Comprehensive Plan 2028 \(2018\)](#)

The 2018 Comprehensive Plan is a result of Hopewell leadership's efforts to review and apply growth management lessons since 2001, and it will guide the city's future action plans, capital improvements, and land use decisions. The Plan suggests development areas and land use activities based on current conditions, expected demographic and economic shifts, and Hopewell citizens' preferences gathered through surveys and community meetings. The policies in the Plan will form the foundation for the city's zoning and other development ordinances to implement the plan.

Hopewell's primary focus is on enhancing bicycle and pedestrian connectivity. The County's comprehensive plan advocates for future development to be centered around the completion of its transportation network through the development of Complete Streets. As Hopewell continues to grow and redevelop, the objective is to transform every street segment into a Complete Street. Despite budget constraints, existing transportation budgets can accommodate Complete Streets projects by re-prioritizing and allocating funds to projects that enhance overall mobility.

[Active Connections in Hopewell Plan \(2018\)](#)

Active Connections in Hopewell is aimed at revitalizing the City of Hopewell, Virginia, by enhancing connectivity and promoting active living. Hopewell, a small waterfront community, is developing shared-use paths and bicycle lanes to link neighborhoods with key destinations like schools, parks, and the downtown area. The project addresses the city's transportation challenges, highlighted by the fact that 11.8% of households lack a vehicle and public transportation usage is under 1%. The proposed bicycle network will connect four schools serving 3,124 students and is seen as transformative for economically depressed communities and those with a median household income significantly lower than the Virginia average. Phase I of the project, costing \$949,579 and spanning 65,794 linear feet, includes constructing new bicycle lane segments and neighborhood connector routes, with completion over two years. This initiative is part of Hopewell's broader efforts to revitalize its community and requires VDOT assistance to achieve its goals.

Friends of the Lower Appomattox River (FOLAR)

FOLAR Appomattox River Trail Master Plan (2017)

The Appomattox River Trail Master Plan aims to enhance regional quality of life, promote health and active living, and boost economic vitality through the development of trails, river access, and signage. It serves as a comprehensive guide for the coordinated placement and prioritization of shared-use trails and signage systems across six municipalities along the lower Appomattox River. This master plan also emphasizes the conservation and protection of the river's natural environment.

The master plan proposes a trail system expansion along the Appomattox and James Rivers, enhancing connectivity and accessibility through various improvements in the six localities. Key features include the conversion of trails to shared-use paths, the addition of pedestrian bridges, and the extension of trails to significant areas such as Patton Park and Atwater Park. The plan emphasizes neighborhood integration with improved access trails, rustic trail enhancements along riverbanks, and sidewalk upgrades. These developments aim to create a more interconnected and walkable community, fostering outdoor activities and engagement with natural surroundings.

City of Petersburg

Petersburg Area Transit (PAT) Transit Development Plan (2020)

The 2020 Petersburg Area Transit (PAT) Transit Development Plan was completed in accordance with standards and guidelines set by the Virginia Department of Rail and Public Transportation to provide an overview of the transit system; goals, objectives, and service design standards; an evaluation of the system and service offered; planned improvements; and implementation of those improvements. The plan provides detailed descriptions of the routes and types of service offered as well as maps of the route alignments and stops.

Major goals and objectives include providing a safe and dependable transportation service for the Petersburg community; increasing mobility to medical facilities, employment areas, shopping centers, schools, and community agencies; improving efficiency and effectiveness; improving awareness; and strengthening organizational processes. The plan outlines short-term (1 to 3 years), mid-term (3 to 10 years), and long-term (beyond 10 years) service adjustments along routes to optimize ridership and revenue models. Implementation involves adjustment of rolling stock utilization, maintenance and operations facility adjustments, passenger amenities, and technology improvements over a ten-year period facilitating planned system changes.

PAT Transit Strategic Plan (2021)

The 2021 Petersburg Area Transit (PAT) Transit Strategic Plan, like the Transit Development Plan, was completed in accordance with standards and guidelines set by the Virginia Department of Rail and Public Transportation. The plan provides an overview of the PAT system but focuses on recent initiatives and PAT's overall vision with goals, objectives, and service design standards. It includes detailed evaluations of current operations, market demand, and underserved areas, along with a financial plan for operating and maintenance costs. The plan also prioritizes service improvements, such as increased frequency and extended hours, and considers the trade-offs between coverage and frequency. Additionally, it details

capital costs for vehicle purchases and facility improvements, aiming to address the transit needs of the Petersburg community effectively over a ten-year period.

[City of Petersburg Comprehensive Plan \(2022\)](#)

The PetersburgNEXT Comprehensive Plan 2044 (2022) outlines a strategic vision for the City of Petersburg's development over the next 20 years. The plan emphasizes equitable growth, public health and safety, responsible regionalism, and environmental stewardship as key themes. It aims to create a thriving, culturally diverse community where residents enjoy safe neighborhoods, economic opportunities, quality education, and a celebration of the city's history. The plan includes strategies for land use, economic development, housing, infrastructure, and transportation, with a focus on sustainability and smart growth. It also details an implementation matrix to guide the city's actions towards achieving these goals, ensuring that Petersburg continues to progress and adapt to the needs of its community.

The plan also discusses multimodal transportation in Petersburg, envisioning a future where the community is vibrantly and equitably connected through various modes of transport. It emphasizes the importance of a transportation system that includes walking, biking, public transportation, and driving to enhance quality of life and regional connectivity. The document analyzes current trends and safety concerns, proposing principles to guide transportation and land use decisions. It highlights the need for a multimodal network that provides safe and efficient access to employment, education, and other amenities. The document also outlines priority transportation projects and strategies to improve the transportation infrastructure, considering community health and environmental impacts. It calls for collaboration with regional and state partners to build a sustainable and equitable transportation network for Petersburg.

[Prince George County](#)

[Prince George County Comprehensive Plan \(2022\)](#)

The Prince George County Comprehensive Plan identifies issues, evaluates trends, and outlines community goals and strategies to guide decision-making and public investments, with specific timeframes for implementation to measure progress. In the most recent update, a significant focus was on improving future land use recommendations related to the County's public utility infrastructure needs, such as water and wastewater, guided by the County Engineer's 2012 Water and Wastewater Study. This study aided the Land Use Committee in formulating new recommendations for commercial corridor growth, while the Capital Improvement Plan Committee addressed school renovations, recreation field and lighting needs, and large-scale projects like fire station renovations and relocations.

Prince George County's transportation system includes highways, air transportation, rail facilities, waterways, bikeways, and pedestrian opportunities. However, the county lacks passenger rail or mass transit. In 2003, the Metropolitan Planning Organization (MPO) updated the Tri-Cities Area Bikeway Plan, which was adopted in 2004 and incorporated into the comprehensive plan. Despite these efforts, as of now, the county has no designated bikeways or bike routes.

Prince George County is implementing measures to enhance its transportation system. The County plans to boost mass transit and rail options for its residents. Additionally, it will advocate for the inclusion of

bike lanes in VDOT road projects, aligning with an existing bikeway plan, and will modify local ordinances to necessitate bike and pedestrian facilities.

Richmond Regional Transportation Planning Organization (RRTPO)

RRTPO BikePedRVA Plan (2022)

The BikePedRVA 2045 Plan (2022) outlines a comprehensive strategy to enhance biking, walking, and rolling as modes of transportation in the Richmond region. The plan emphasizes safety, equity, and climate as key focus areas and recognizes the importance of reducing motor vehicle speed to create safer streets for vulnerable road users. It details a planning process that included a steering committee, public engagement through surveys, and a focus on investments in active transportation and transit expansion.

The plan defines best practices for safety, using terms from the National Association of City Transportation Officials (NACTO) to classify regional active transportation facilities. It sets guiding principles for a safe, continuous, and intuitive pedestrian and bicycle network, highlighting the benefits of active transportation on the economy, climate, equity, safety, and health.

The document discusses barriers and opportunities for active transportation, such as rivers, railroads, and interstates, and the need for connections to Equity Emphasis Areas and Low Health Opportunity Index Areas. It proposes six Big Regional Ideas for plan implementation, including creating a regional active transportation spine network and focusing on pedestrian sidewalk networks.

PlanRVA, the regional planning commission, has a role in supporting localities with tools, resources, and educational opportunities to implement the plan. The Central Virginia Transportation Authority (CVTA) is mentioned as a source of public funds to support active transportation projects.

Virginia Department of Transportation (VDOT)

Ashland to Petersburg Trail Study (Fall Line Trail) (2020)

The Ashland to Petersburg Trail Study (2020) was initiated by the Virginia Department of Transportation (VDOT) to identify a preferred corridor for a multi-use trail spanning approximately 40 miles between Ashland and Petersburg. The study involved collaboration with various stakeholders, including government agencies, special interest groups, and the public.

The study aimed to enhance safety, connectivity, and consistency with existing transportation plans. It addressed the need for safer pedestrian and bicycle routes, improved access to active transportation, and alignment with state, regional, and local planning efforts. Key stakeholders formed advisory groups, such as the Stakeholder Technical Advisory Group (STAG) and the Environmental Agency Working Group (EAWG), providing valuable input throughout the study process. Several corridor options were developed and evaluated through a two-tiered process. The evaluation considered environmental impacts, cost, feasibility, and alignment with the study's purpose and needs.

The study concluded with the recommendation of a preferred corridor that minimizes environmental impact and aligns with agency and public support. This corridor serves as a conceptual starting point for further local investigation and planning. The document also outlines next steps, including additional

analyses required by environmental statutes and regulations, potential funding sources, and the use of the study's findings in local planning efforts to advance the implementation of the trail.

Virginia State University (VSU)

Campus Master Plan (2022)

Virginia State University's Master Plan focuses on increasing enrollment through integrated management programs and fostering a campus culture that supports student success. The plan aims for academic excellence with innovative programs and state-of-the-art IT infrastructure, while also extending resources to benefit the region's economy and quality of life. Additionally, it seeks to enhance the campus community by optimizing space, improving technology, ensuring safe circulation, and expanding the university's branding and community relationships.

The six-year Master Plan for Virginia State University prioritizes projects that align with strategic goals, including the construction of a Pedestrian Walkway on University Avenue. This walkway will involve closing or limiting vehicular traffic, using removable bollards, and creating raised crosswalks to connect both sides of the street. The plan also includes enhancing pedestrian paths with brick pavers, improved lighting, trees, and consistent site amenities like benches, trash receptacles, and bike racks. A significant feature of the plan is to connect to the proposed Appomattox River Trail and bridge, extending University Avenue southward over the Appomattox River into Petersburg. This extension will transform the campus with a unique amenity, creating a Petersburg Gateway that includes a bridge and park enhancements, supported by regional entities such as the Cameron Foundation and FOLAR.

Appendix D

Economic Impact Analysis



REGIONAL MULTIMODAL MOBILITY STUDY

Estimated Economic Impact of The Multimodal System

Prepared by Michael Baker International
June 2024

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Introduction

Located in southeastern Virginia, the Tri-Cities area MPO (TCAMPO) falls within the boundaries of the Crater Planning District Commission (PDC). It includes the cities of Petersburg, Hopewell, and Colonial Heights, and portions of Chesterfield, Dinwiddie, and Prince George counties. The Tri-Cities region supports a multimodal transportation system consisting of highways, public transportation, rail, bicycle, and pedestrian access.

The availability of varying modes of transportation not only contribute to increased resident quality of life, but also offer the region several economic benefits. Transit- and trail-oriented development concepts illustrate the potential for development patterns to follow or coincide with alternative modes of transportation and increased density.

Public Transportation and Rail

The availability of public transportation offers many benefits to residents, including increased mobility and reducing the burden of car ownership. According to the American Public Transportation Association (APTA), annual costs of car ownership can be more than \$6,200 when accounting for insurance, registration, and licensing. Residents without access to a vehicle may resort to other modes for their daily travel, including transportation network companies (TNCs) such as Uber or Lyft. While convenient, ridesharing services are typically a costlier means of travel and cost savings from replacing a TNC trip with public transit can average nearly \$15 per trip.¹

Petersburg Area Transit (PAT) is the primary public transportation provider for the region. It operates 11 fixed routes and demand response service predominantly in Petersburg, with some routes extending into surrounding localities. PAT also operates four daily round trips between Petersburg and Richmond. Annual systemwide ridership totaled 968,307 trips in FY23. The system is currently operating fare free until further notice, continuing to provide residents with critical access to destinations that some would otherwise not be able to afford.

- Insert details about paratransit service offered by PAT
- Insert details about paratransit and demand response overall, definitions, etc.

GRTC Transit System (GRTC) in Richmond, VA operates the 95x Petersburg route traveling from the Petersburg Transit Center to downtown Richmond. It is weekday-only service with four daily trips northbound and southbound. For FY23, the route had 14,901 annual trips taken. **Figure 1** illustrates the transit routes operating within or through MPO boundaries.

The Virginia Department of Rail and Public Transportation (DRPT) conducted a study in 2020 examining how public transportation generates economic value and other direct benefits to the state. According to the study, each dollar invested in public transit stimulates \$2.86 in economic activity across the state. Similarly, each dollar invested in public transit stimulates \$2.11 in economic benefits across the state. Transit availability and use creates jobs, and translates to direct economic benefits related to fuel, congestion, roadway maintenance, and transportation cost savings.

¹ (2020). (rep.). *Economic Impact of Public Transportation Investment: 2020 Update*. Retrieved from <https://www.apta.com/wp-content/uploads/APTA-Economic-Impact-Public-Transit-2020.pdf>.

The study continued identifying economic impacts of transit by separating the state into three categories: Northern Virginia Urban Areas, Other Urban Areas, and Rural Areas. The Tri-Cities Area MPO would fall under the Other Urban Areas Category, which is estimated to stimulate \$2.51 in economic activity and \$1.83 in economic benefits for every dollar of public investment in transit.

In FY24, PAT had an annual operating expense of \$4,331,398 for bus and demand response service.² Local, state, and federal contributions to PAT’s operating budget made up 93.6% (\$4,055,798) of operating contributions, representing a significant public investment in transit for the region. While PAT is currently operating fare free service and there are no direct revenues from the transit service, the Economic Impacts of Public Transportation study illustrates indirect benefits of public investment. Using key findings informed by methodology of the study, every dollar of public investment in Tri-Cities area transit services generates \$10,180,053 in economic activity and \$7,422,110 in economic benefits.

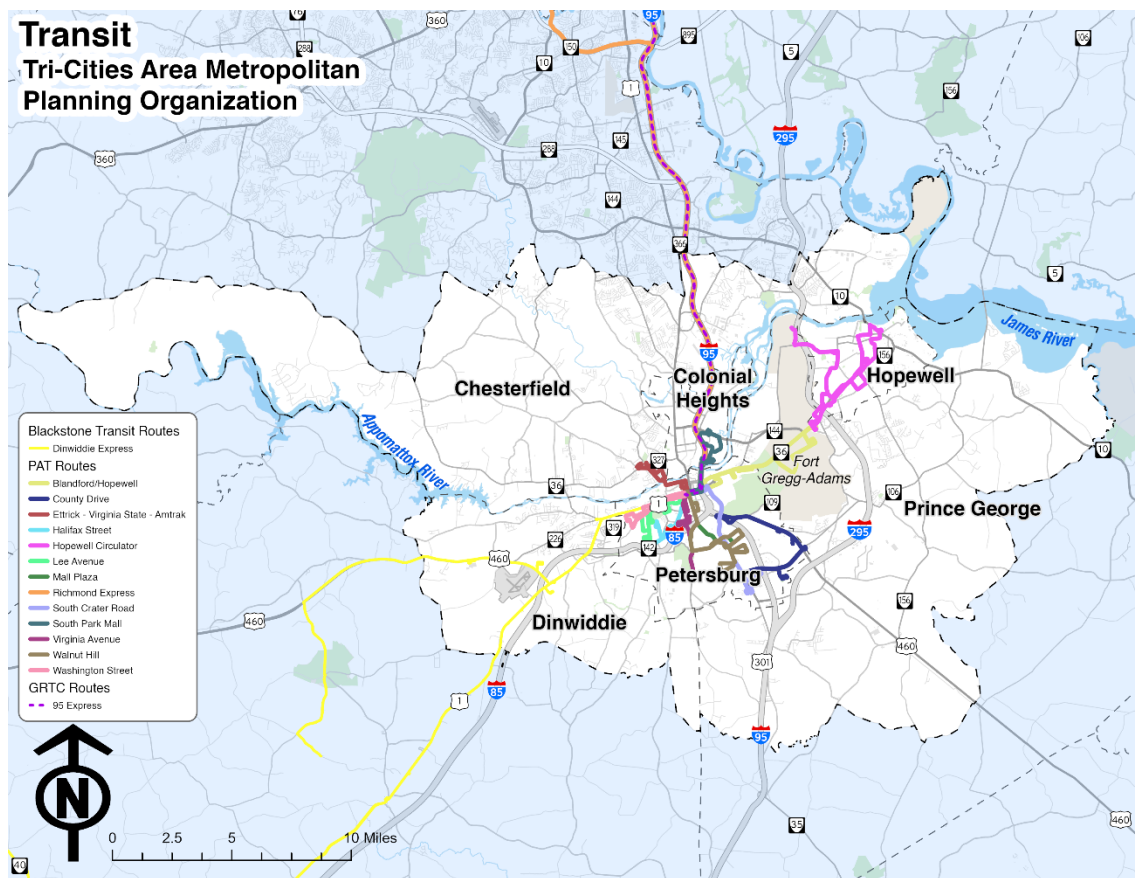


Figure 1: Tri-Cities Area MPO Transit Routes

The TCAMPO study area is served by a passenger rail station located just outside of Petersburg in Ettrick, VA. Five Amtrak routes currently provide service to the station: Northeast Regional, Carolinian / Piedmont, Silver

² Financial Reports. Virginia Department of Rail and Public Transportation. (n.d.). <https://drpt.virginia.gov/studies-and-reports/drpt-financial-reports/>

Meteor, Palmetto, and Silver Star. The Ettrick station falls just outside of Amtrak's Northeast Corridor, which is the busiest railroad in North America spanning from Boston, MA to Washington, D.C.

According to Amtrak's FY24-29 Five Year Service Plan, ridership on the Northeast Regional route carried over 9 million passenger trips in FY23 and surpassed pre-pandemic ridership levels. Nearly 40% of trips on the Northeast Regional line began or ended in Virginia, illustrating an opportunity to continue capturing statewide ridership and connecting residents to other urban areas. State supported routes provide service on 750-mile or shorter corridors and are funded in partnership with states. For the Ettrick station, the Carolinian / Piedmont route is a state-supported route. Long distance routes are longer than 750 miles and are funded in partnership with the federal government. For the Ettrick station, the Silver Star, Silver Meteor, and Palmetto routes are long distance.³

In FY22, the Virginia Passenger Rail Authority (VPRA) received a grant from the Federal Railroad Administration (FRA) for Ettrick station upgrades. Platform, building structure, ADA, and parking improvements will be completed through 2025 and will allow for a future installation of a third track for additional route frequencies between Richmond and Raleigh. These improvements will lead to more than 10,000 new passengers attracted to the station and service.

³ *Amtrak FY24-29 five year service and Asset Line Plans*. Amtrak. (n.d.). <https://www.amtrak.com/content/dam/projects/dotcom/english/public/documents/corporate/businessplanning/Amtrak-Service-Asset-Line-Plans-FY24-29.pdf>

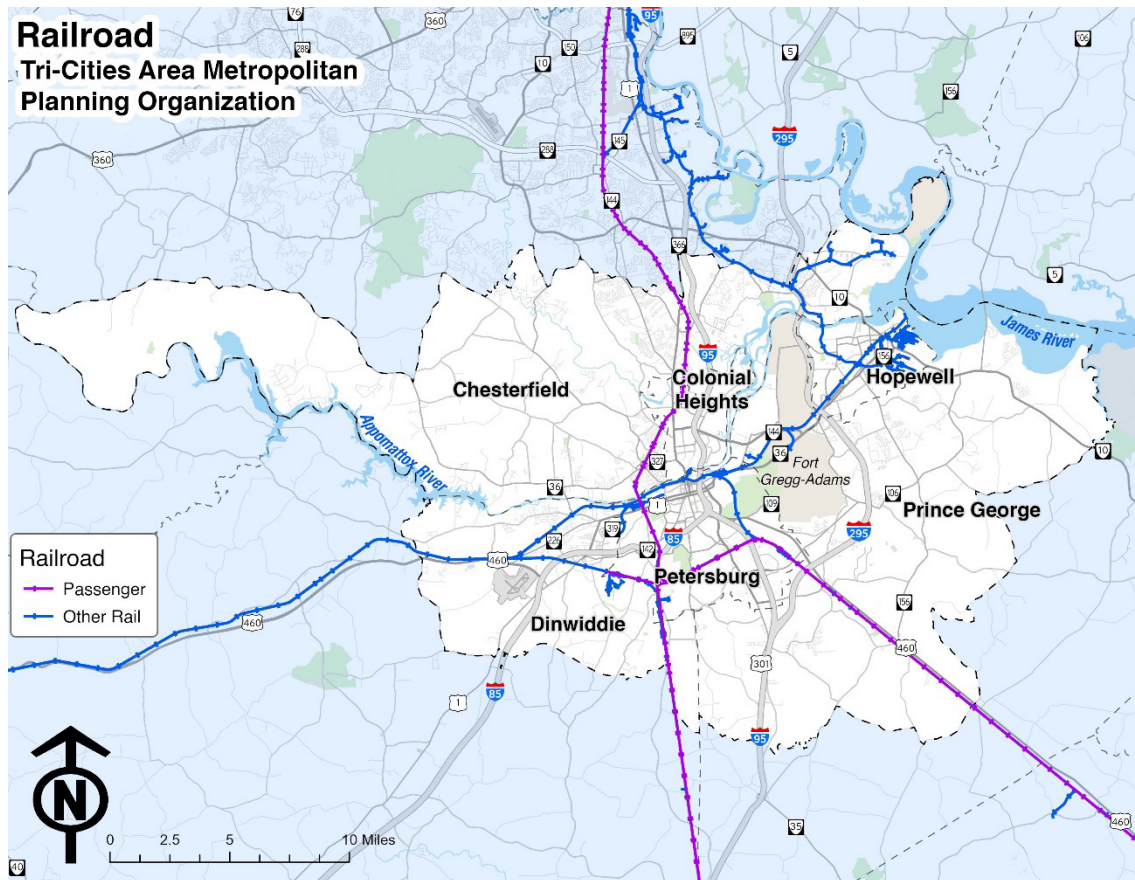


Figure 2: Tri-Cities Area MPO Passenger and Freight Rail

Virginia’s rail corridors are significant to both passenger and freight rail service as noted by the Virginia Statewide Rail Plan completed in 2022. Economic impacts summarized in the plan included direct, indirect, and induced effects on employment, gross domestic product, and state income. Statewide, rail contributed 300,000 jobs and \$68.8M of business output in 2019.⁴

Bicycling, Walking, and Outdoor Recreation

Introduced in 2023, the 5 & Dime Trail is a scenic driving trail that takes users through historic destinations in Virginia. The trail showcases local restaurants and vineyards, historic Jamestown, the Riverwalk at City Park, and connects with the Virginia Capital Trail.

- Map of the 5 & Dime

The MPO completed a Bikeway Plan Update in 2003 with a goal of further integrating bicycling into the transportation network. Today, the study area includes two regional trails under development: the Appomattox River Trail and the Fall Line trail. Once completed, the Fall Line trail will be 43 miles long stretching from Ashland

⁴Virginia Statewide Rail Plan. Virginia Department of Rail and Public Transportation. (2022). <https://drpt.virginia.gov/studies-and-reports/2022-virginia-statewide-rail-plan/>

to Petersburg and the Appomattox River Trail will be 25 miles long. Both trails will be shared use paths for all ages and abilities and will eventually intersect with one another. The Appomattox River Trail is an important connection to Virginia State University (VSU). Will the Fall Line trail connect to VSU?

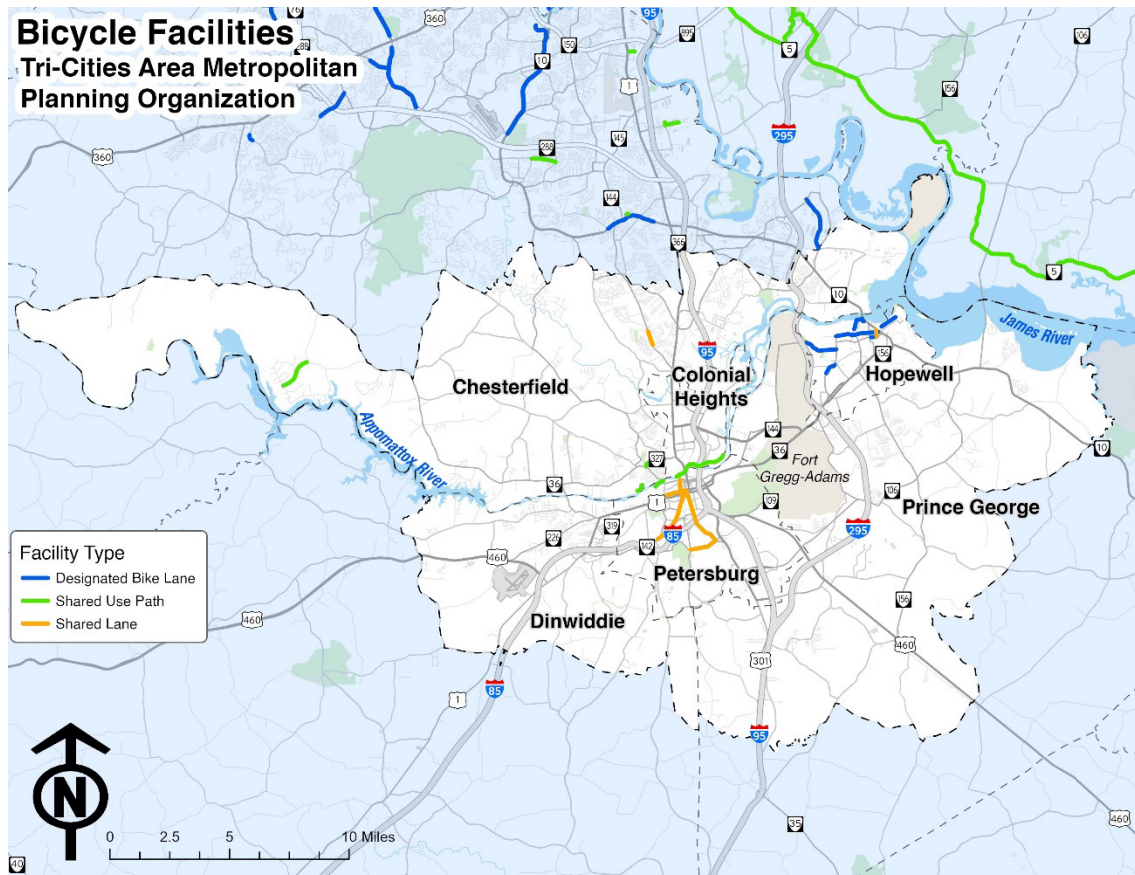


Figure 3: Tri-Cities Area MPO Bicycle Facilities

Access to outdoor recreation enhances physical and mental wellbeing in addition to contributing to local, regional, and national economies. The United States Bureau of Economic Analysis (BEA) develops measurements of the outdoor recreation economy nationally and at the state level. In 2022, employment in the outdoor recreation sector increased 8.3% in Virginia.⁵ This growth includes jobs directly related to customary recreation activities such as hiking and bicycling, as well as supportive activities like construction and tourism that together contributed more than \$11 billion in gross domestic product.

Regional trails for recreation and transportation can act as economic stimuli for local economies. An example positioned just north of the MPO study area is the Virginia Capital Trail: a 51.7-mile multi-use trail from the City of Richmond to James City County near Williamsburg. Residents and tourists enjoy walking, cycling, biking, and events held on the trail throughout the year. During Fiscal Year 2018-19, the Virginia Capital Trail induced

⁵ *New Statistic for 2022; Updates for 2017-2021*. Outdoor Recreation Satellite Account, U.S. and States, 2022 | U.S. Bureau of Economic Analysis (BEA). (2023, November). <https://www.bea.gov/news/2023/outdoor-recreation-satellite-account-us-and-states-2022>

economic activities that led to an estimated \$613,000 generated in state and local tax revenues for the state. Over the same period, visitors spent an estimated \$6.1M throughout the state with more than 90% spent within 50 miles of the trail.⁶ With regional recreational trails under development in the study area, the MPO is positioning itself to benefit from positive economic impacts in the future as demonstrated by the Virginia Capital Trail.

In Richmond, the James River Park System (JRPS) is a cherished linear collection of local parks spanning 600 acres.⁷ According to a study completed in 2017 examining property values, JRPS has a positive impact on residential property values. More specifically, single family properties see an increase of \$6.79 in total assessed property value every foot closer to JRPS boundaries and each dollar allocated to the JRPS budget corresponds with \$60.26 in visitor spending.⁸ In addition to having local parks in its boundaries, the Tri-Cities region is home to Petersburg National Battlefield. The National Park Service determined that while visiting, \$11.9M was spent locally by visitors in 2022 and 174 jobs were estimated to have been contributed due to activity generated by the battlefield.⁹

- Add mention of Pocahontas State Park and Henricus Historical park, though not within the MPO study area

Pedestrian infrastructure also plays a critical role in urban development and quality of life for residents. Sidewalks, tree canopy, speed limits, and infrastructure condition all play a role in the comfort and perceived access to destinations for pedestrians. According to a report by the Urban Land Institute, fifty percent of residents in the United States report that walkability is a high priority when considering a place to live.¹⁰

“Walk Score” is a measure of walkability calculated based on analysis and modeling and is often referenced alongside Transit Score and Bike Score. Walk Score data is utilized by professional fields including urban planning, and it can often be observed on real estate boards accompanying with housing listings. **Table 1** presents the Walk Score for cities and counties in the TCAMPO boundary.

Table 1: Tri-Cities Area MPO Walk Scores by Locality

Locality	Walk Score
Colonial Heights	33
Hopewell	36
Petersburg	30
Chesterfield	19

⁶ Pilkington, L., Magnini, V., & Wyatt, C. (2019). (rep.). *The Economic and Fiscal Impacts of the Virginia Capital Trail: Fiscal Year 2018-2019*.

⁷ *James River Park System: Richmond*. James River Park System | Richmond. (n.d.). <https://www.rva.gov/parks-recreation/james-river-park-system>

⁸ Shivy, V., & Suen, I.-S. (2017). (rep.). *Economic Impact of the James River Park System*.

⁹ U.S. Department of the Interior. (2023). *Visitor spending effects*. National Park Service. <https://www.nps.gov/subjects/socialscience/vse.htm>

¹⁰ MacCleery, R., McMahon, E., & Norris, M. (2016). *Active transportation and real estate: The next frontier*. Urban Land Institute.

Dinwiddie*	-
Prince George	46

*Walk Score was unavailable for Dinwiddie County, VA.

Walk Score is measured on a scale of 0-100 and takes into consideration nearby destinations in proximity to the selected location. It does not present a complete picture and should not be utilized in place of direct site observation when planning improvements to pedestrian infrastructure.

Appendix E

Project Evaluation Matrix



Tri-Cities Area Metropolitan Planning Organization (TCAMPO) Regional Multimodal Mobility Plan

The project team will begin the process of identifying potential projects and filtering them through an evaluation matrix. This matrix will focus on multiple characteristics, including but not limited to functionality, potential environmental impacts, and overall feasibility. Up to ten (10) of the highest scoring projects will be further developed through various visualization programs, including the collaborative online urban design platform StreetMix, to demonstrate how these potential interventions could look upon implementation and to determine planning-level cost estimates and potential sources of funding.

Criteria	Measurement
VTrans	Does the project meet a VTrans need?
Safety	Does the project address a safety need?
Equity	Is the project within an area of persistent poverty (AOPP) or historically disadvantaged community?
Feasibility	Is the project actually feasible?
Context-Appropriate	Does the project fit the context of the area?
Environment	Is the project in proximity to publicly observable natural sites?
Modal Choice	Does the project improve modal choice?
Public Interest	Is the project's popularity illustrated by public comments?

The eight criteria for evaluation were selected based on MPO priorities and observed measures in other project prioritization processes. Each are equally weighted. Project ideas will be filtered through this evaluation matrix to identify the top 10 that will be developed with project profiles.

Before Starting

1. Take each of the projects from the identified list and digitize the corridor(s)/segment(s)
2. Download VTrans dataset from [InteractVTrans](#).
3. Download AOPP data from USDOT [here](#), with instructions for a web-based assessment [here](#).

VTrans: Does the Project Meet a VTrans Need?

VTrans is Virginia's statewide transportation plan that outlines the vision and goals for transportation in the Commonwealth. VTrans identifies mid-term (0-10 years) and long term (20+ years) planning needs, and projects must meet a VTrans need to be eligible for SMART SCALE funding. VTrans needs are also used to prioritize VDOT Revenue Sharing funding requests. Follow the steps below to identify if the project meets a VTrans Need:

1. Overlay digitized project corridor(s)/segment(s) with VTrans Needs dataset from the InteractVTrans web viewer.
2. Observe if projects overlap with identified VTrans needs and indicate yes or no on the evaluation matrix. Note which needs specifically are identified that the project overlaps with.

Safety: Does the project address a safety need?

The safety evaluation criteria will assess whether the project addresses an identified safety need to support a safer, more reliable transportation system. Follow the steps below to identify if the project meets a VTrans Safety Need:

1. Overlay digitized project corridor(s)/segment(s) with VTrans Needs dataset from the InteractVTrans web viewer.
2. Observe if projects overlap with identified VTrans needs and indicate yes or no on the evaluation matrix. Note which needs specifically are identified that the project overlaps with.

Equity: Is the project within an area of persistent poverty (AOPP) or historically disadvantaged community?

Equity is measured by the potential project's proximity to an area of persistent poverty (AOPP) or historically disadvantaged community, as defined by the Bipartisan Infrastructure Law and U.S. Census. A project is located in an AOPP if:

- the **County** in which the project is located consistently had greater than or equal to 20 percent of the population living in poverty in all three of the following datasets: (a) the 1990 decennial census; (b) the 2000 decennial census; and (c) the most recent (2022) Small Area Income Poverty Estimates; **OR**
- the **Census Tract** in which the project is located has a poverty rate of at least 20 percent as measured by the 2014-2018 5-year data series available from the American Community Survey of the Bureau of the Census; **OR**
- the project is located in any territory or possession of the United States.¹

Follow the steps below to identify if the project is located in an AOPP:

1. Overlay digitized project corridor(s)/segment(s) with USDOT AOPP dataset.
2. Observe if the census tract in which the project is located in is identified as one of persistent poverty, and indicate yes or no on the evaluation matrix.

Feasibility: Is the project actually feasible?

Project concept feasibility will be assessed by determining at a high level if the project would be viable. This is mostly a qualitative, desktop judgement measure; follow the steps below to determine if the project is feasible:

1. Referencing the excel spreadsheet of projects and Google Maps, use professional judgement to assess project feasibility. This could include understanding available right-of-way, costs for similar projects in other places, potential for displacement of residents, traffic volumes, etc.
2. Note yes or no and save comment justification for either (approximately a paragraph).

Context-Appropriate: Does the project fit the context of the area?

The Federal Highway Administration defines context sensitivity as a transportation facility that "fits its physical setting and preserves scenic, aesthetic, historic, and environmental resources, while maintaining

¹ <https://www.transportation.gov/grants/mpdg-areas-persistent-poverty-and-historically-disadvantaged-communities>

safety and mobility.” This is mostly a qualitative, desktop judgement measure; follow the steps below to determine if the project is feasible:

1. Referencing the excel spreadsheet of projects and Google Maps, use professional judgement to assess context appropriateness. Does the project fit the character of the area? Would it preserve resources to the best extent possible?
2. Note yes or no and save comment justification for either (approximately a paragraph).

Environment: Is the project in proximity to publicly observable natural sites?

The environmental evaluation criteria will assess the potential project’s proximity to natural sites using satellite imagery and other spatial resources. This is a desktop review that should follow the steps below:

1. Place digitized project corridor(s)/segment(s) on a map in ArcGIS. Using the most recently available satellite imagery, note yes or no for if the project is in proximity to publicly-observable natural sites (bodies of water, designated natural areas, etc.).

Modal Choice: Does the project improve modal choice?

Modal choice refers to the availability of multiple transportation options for individuals to select from for their travel needs. Improving modal choice in the context of the Regional Multimodal Plan would be a project that provides or expands access to public transportation, bicycling, and/or walking.

1. Referencing the excel spreadsheet of projects, indicate if the project improves modal choice by expanding access to non-auto modes of travel.

Public Interest: Is the project’s popularity illustrated by public comments?

The MPO and its localities receive public comments when undergoing various planning processes. The public interest criteria will seek to identify if a project concept has previously been mentioned at public meetings or within public comments, illustrating community desire and support for the concept.

1. Referencing the excel spreadsheet of projects, news articles, and conversations with study partners, indicate if the project concept has been previously mentioned or raised before.

Rank	Locality	Project	VTRANS	SAFETY	AOPP	FEASIBILITY	CONTEXT	NATURAL AREAS	MODAL CHOICE	PUBLIC INTEREST	SCORE
1	Hopewell	Randolph Rd and 6th Ave intersection pedestrian crossing and 6th Ave bike lanes from W Randolph Rd to Winston Churchill Dr	3	1	1	2	1	0	3	1	12
2	Prince George	S. Crater Rd sidewalk from Clary Rd to Gravelbrook Rd	3	1	1	3	1	0	1	1	11
3	Dinwiddie	Cox Rd sidewalk from Sterling Rd to Westgate Dr	3	1	1	2	1	0	2	1	11
4	Hopewell	Oaklawn Blvd bicycle access from Colonial Corner Dr to Kenwood Ave	3	1	1	3	1	0	2	0	11
5	Colonial Heights	Boulevard improved sidewalk from Lakeview Ave to Newcastle Dr	3	1	1	1	1	0	3	1	11
6	Petersburg	Sycamore St trees and multimodal improvements from Old St to Crater Rd	3	1	1	2	1	0	3	0	11
7	Chesterfield	Fall Line Trail Spur - South Happy Hill Rd from Branders Ridge Rd to Rte 1	3	1	0	2	1	0	2	1	10
8	Chesterfield	Route 1 sidewalk from Aldridge Ave to Harrowgate Rd	3	1	0	2	1	0	3	0	10
9	Colonial Heights	Southpark Blvd sidewalk improvements from mall circle to E. Roslyn Rd	3	1	0	2	1	-1	3	1	10
10	Petersburg	Johnson Rd multimodal roundabout at Johnson Rd/South Blvd/Defense Rd & other multimodal improvements from I-85 to Flank Rd	3	1	1	2	1	0	2	0	10
11	Hopewell	Arlington Rd sidewalk improvements from Winston Churchill Dr to Bassett St	2	1	1	3	1	0	2	0	10
12	Petersburg	Defense Rd sidewalk from Baylors Ln to Johnson Rd	2	1	1	2	1	0	1	1	9
13	Chesterfield	Chesterfield Ave bicycle accommodations from Paine St to Appomattox River	3	1	0	3	1	-1	2	0	9
14	Hopewell	Riverside Ave sidewalk between Hopewell Marina and W. Randolph Rd	3	1	1	1	1	-1	2	1	9
15	Hopewell	Bike lanes and sidewalks on Cousins Ave / Western St from Perrymont Rd to Oaklawn Blvd	3	1	1	2	1	-1	2	0	9
16	Chesterfield	Enon Church Rd shared use path from Point of Rocks Park to Route 10	3	1	0	2	1	0	2	0	9
17	Hopewell	Oaklawn Plaza pedestrian crossings and bicycle infrastructure on Plaza Dr to Cousins Ave, Norman Sisisky Dr, and Tri Cities Dr	3	1	1	2	1	-1	2	0	9
18	Chesterfield	Harrowgate Rd sidewalk from Hyde Park Dr to Wellspring Rd	2	1	0	2	1	-1	3	1	9
19	Chesterfield	River Rd Sidewalk from Trojan Dr to Matoaca Library	2	1	0	2	1	0	1	1	8
20	Chesterfield	Happy Hill Rd sidewalk from Old Happy Hill to Burnettedale Dr	2	1	0	2	1	0	1	1	8
21	Chesterfield	Harrowgate Rd sidewalk from Heritage Dr to Broadwater Rd	2	1	0	2	1	0	2	0	8

Appendix F

Community Survey Results



REGIONAL MULTIMODAL MOBILITY PLAN

Metroquest Survey Summary

Prepared by Michael Baker International
September 2024

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Introduction and Overview

The Regional Multimodal Mobility Plan was initiated in 2024 by the Tri-Cities Area Metropolitan Planning Organization (TCAMPO). By utilizing the Multimodal System Design Guidelines published by the Virginia Department of Rail and Public Transportation (DRPT), the study will identify activity centers and placemaking corridors within the MPO area and develop recommendations for improving and connecting the overall multimodal system. The study is planned for an early-2025 completion.

A public engagement survey was administered July 19, 2024 – August 18, 2024 using the Metroquest interactive survey platform. The average time for completion was 6 minutes and 59 seconds and 91 total survey responses were collected: 87 English electronic surveys, one Spanish electronic survey, and three paper surveys from open houses. Most respondents completed the survey on mobile devices (68.13%).

Limitations of Results

Survey results are limited by factors impacting its ability to be generalized to a larger population. The small sample size and existing demographic distribution may cause data to be more susceptible to underrepresentation, overrepresentation, or biases. Additionally, no questions required responses and all answers were self-reported. Results should be interpreted with these limitations in mind.

Survey Question Overview

Of the 14 questions asked, not every respondent answered every question. This section will provide a question-by-question overview of results, including how many respondents answered each question and how the findings will potentially impact the multimodal mobility plan. Though demographics are covered first in this report, demographic questions were the last to be presented to the survey taker.

Demographics

Demographics questions are critical to include in a survey because they help the study team understand the characteristics of the respondents. Preferences for different modes of transportation may vary by factors such as income, race/ethnicity, age, and gender. Identifying these differences in the study population can inform policy and planning decisions.

Age and Gender

The question asking respondents to identify their gender received 51 total responses, and the question asking to identify age received 50 responses. The gender distribution of respondents was nearly even with approximately 49% female and 47% male. A small percent of respondents (1.96%) identified as Other or preferred not to answer.

The distribution of ages varied with the largest group of respondents (28%) being age 35-44. The smallest age groups (8% of respondents each) were 25-34 and 75+.

Table 1: Age

Age	Count of Respondents	Percent
35-44	14	28%
45-54	12	24%
65-74	8	16%
55-64	7	14%
25-34	4	8%
75+	4	8%
Prefer not to answer	1	2%

Table 2: Gender

Gender	Count of Respondents	Percent
Male	25	49.02%
Female	24	47.06%
Prefer not to answer	1	1.96%
Other	1	1.96%

Race/Ethnicity (Select All That Apply)

This question received 50 total responses. Most respondents (66%) identified as White, followed by Black or African American (14%). Respondents were instructed to select all races/ethnicities that applied.

Table 3: Race/Ethnicity

Race/Ethnicity	Count of Respondents	Percent
White	33	66%
Black or African American	7	14%
Hispanic or Latino	4	8%
Prefer not to answer	3	6%
Other	2	4%
White, Black or African American, American Indian or Alaska Native	1	2%

What is your household size?

This question received 44 total responses. Most respondents (48%) reported a household size of two people, followed by one person (21%), four or more people (18%), and three people (11%). Approximately 2% of respondents preferred not to answer.

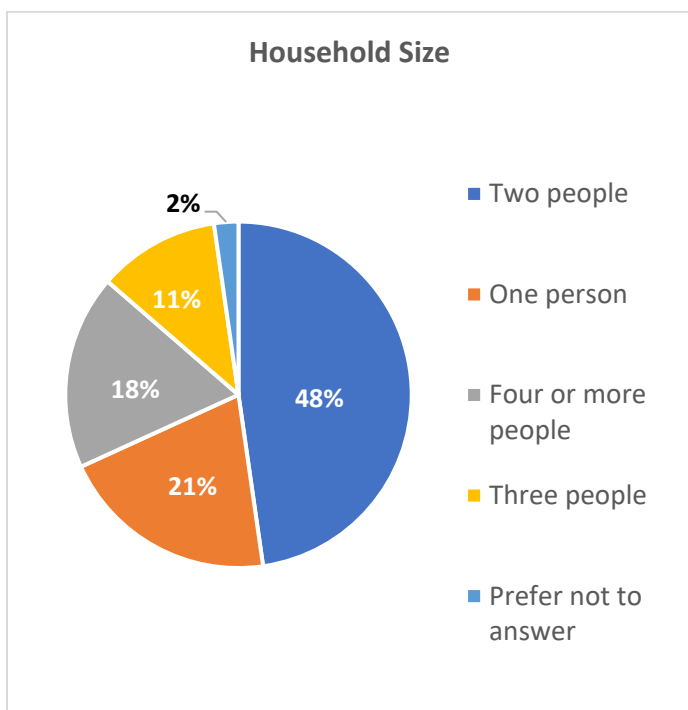


Figure 1: Household Size

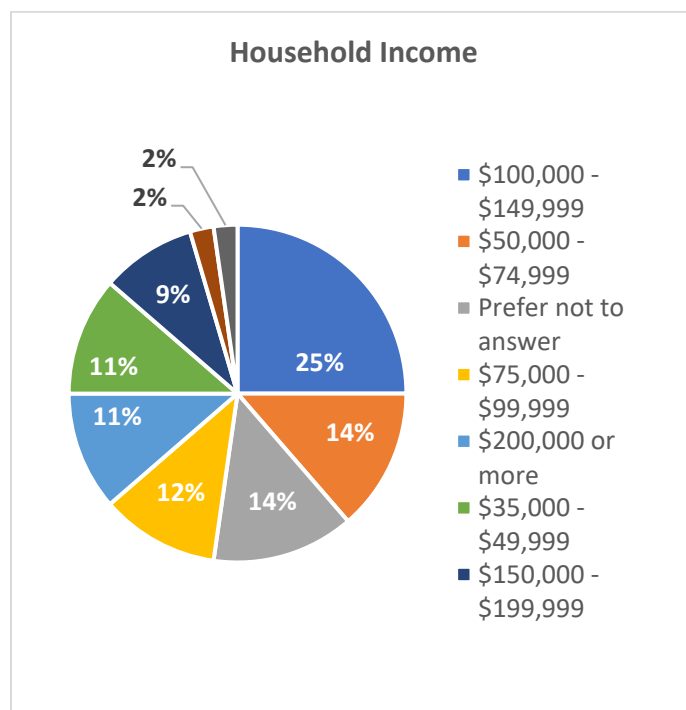


Figure 2: Household Income

What is your household income?

This question received 44 total responses. While the distribution of household income varied widely, the largest percent of respondents earned yearly household income between \$100,000 - \$149,999 (25%). Approximately 14% of respondents earned a household income of \$50,000 - \$74,999, followed by 11% earning \$35,000 - \$49,999; \$75,000 - \$99,999; or more than \$200,000.

Home and Work Zip Codes

The survey also collected home and work zip codes to understand the geographic distribution of respondents. Both home and work zip code survey completions are concentrated in south central Virginia, with home zip codes being more common within or close to the MPO boundary and work zip codes being slightly more north. The most common home zip code was 23805 with 10 respondents, and the most common work zip code was 28834.

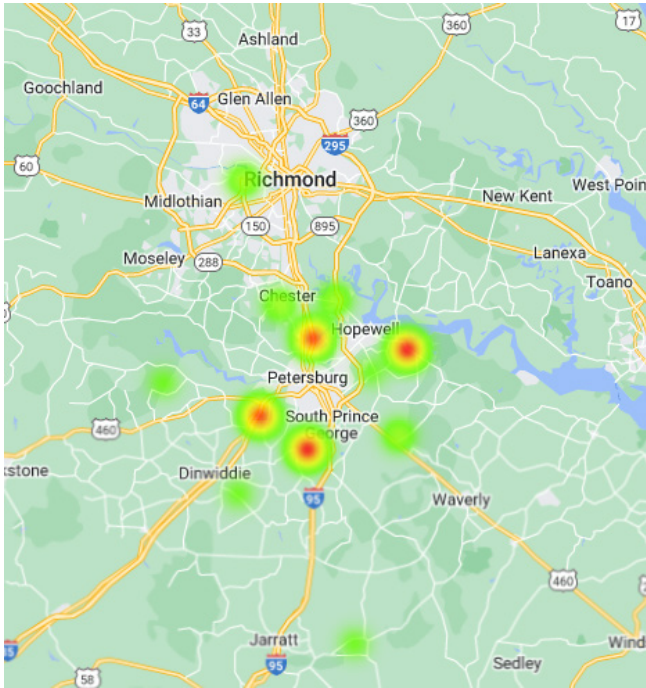


Figure 3: Home Zip Code

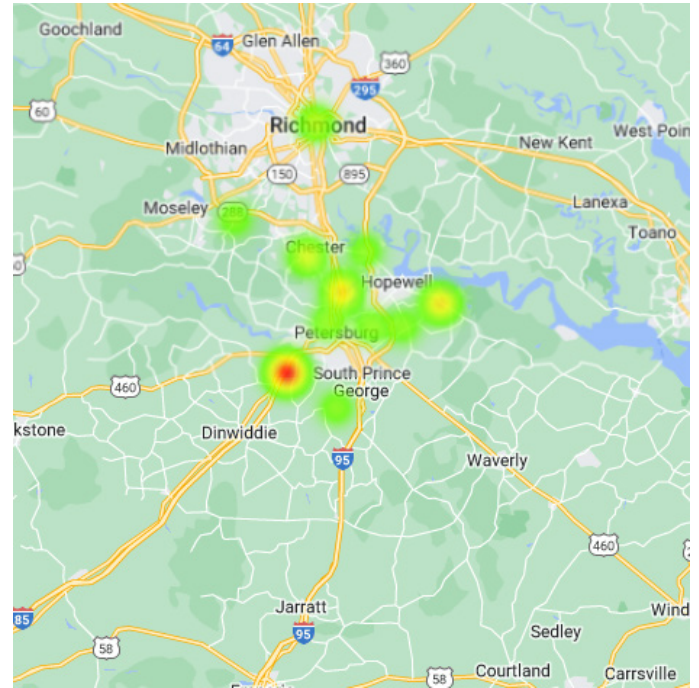


Figure 4: Work Zip Code

Study Area Profile

What is the purpose of your travel trip in the study corridor? Please select all that apply.

This question received 88 total responses. Results highlight that the most common trip purpose within the study area is for shopping or services (70 selections). School-related travel was the least-selected trip purpose with only 13 selections.

Table 4: Primary Travel Mode

Primary Travel Mode	Count of Respondents	Percent
Driving alone	74	90.24%
Bicycling	3	3.66%
Walking	2	2.44%
Carpooling or vanpooling	1	1.22%
Public transportation	1	1.22%
Rideshare services, such as Uber or Lyft	1	1.22%

Table 5: Trip Purpose

Trip Purpose	Frequency of Selection
Shopping or Services	70
Entertainment and Socializing	58
Home	57
Work	52
School	13

How do you primarily travel throughout the study area?

This question received 82 total responses. Most respondents (90.24%) reported primarily traveling by driving alone. Other modes of travel such as bicycling, walking, carpooling/vanpooling, public transportation, and rideshare services are currently much less common.

Approximately how often do you travel within the study area?

This question received 84 total responses. Most respondents (75%) travel the study area daily, followed by weekly (23%). The least number of respondents traveled the study area monthly or less frequently than that (less than 2%).

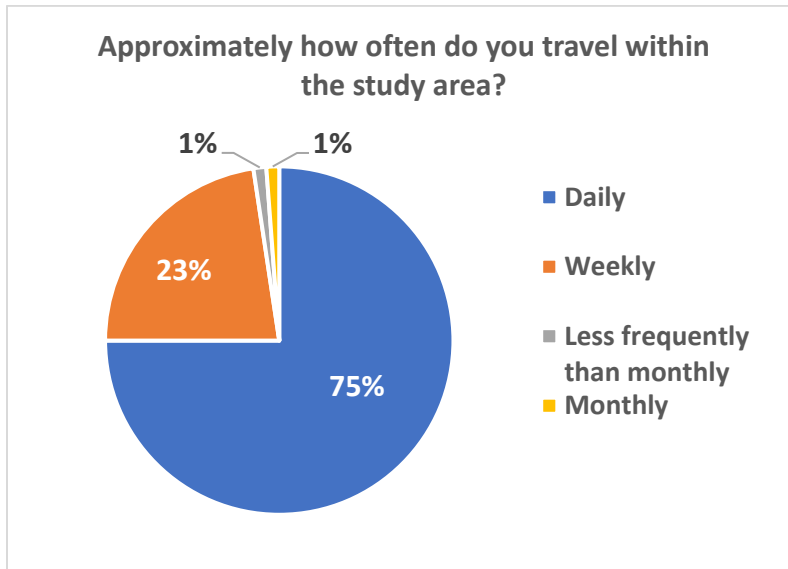


Figure 5: Travel Frequency

Understanding trip purpose and frequency of travel can help identify patterns and trends that influence how improvements are targeted. If most respondents are traveling daily and most often for shopping or services, entertainment, home, and work, this provides insight for the study team related to planning priorities.

Do you own or have access to a vehicle in your household?

This question received 82 total responses. Most respondents have access to at least one vehicle in their household (98%) and 2% do not have access to a vehicle.

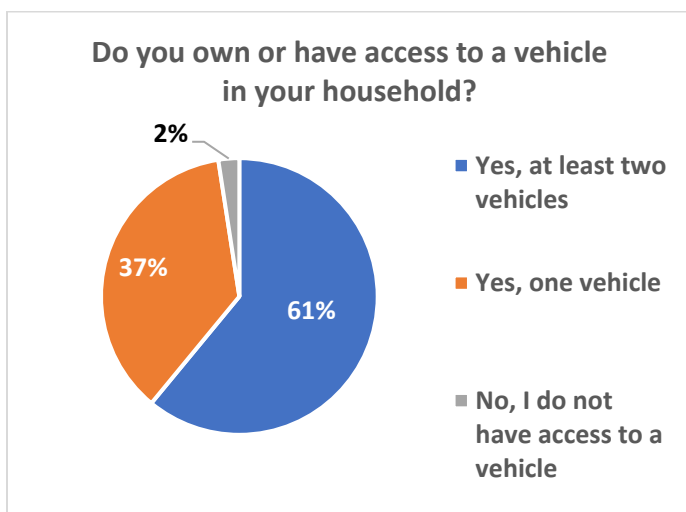


Figure 6: Vehicle Access

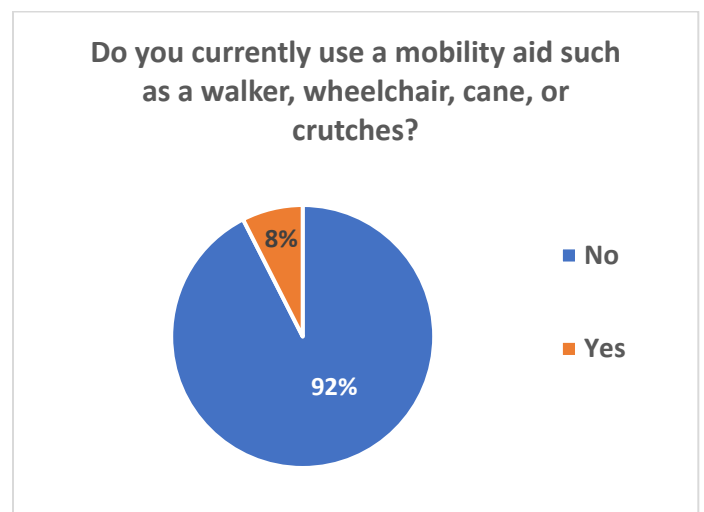


Figure 7: Use of Mobility Aid

The high percentages of respondents who primarily drive alone (90.24%) and the significant vehicle access (98%) present in survey respondents could indicate a greater need for strategies to encourage and make-available alternative modes of transportation, such as improving transit, bike, and pedestrian infrastructure.

Do you currently use a mobility aid such as a walker, wheelchair, cane, or crutches?

This question received 80 total responses. Most respondents (92%) do not currently use a mobility aid.

Other than driving alone, what transportation modes would you consider using? Please select all that apply.

This question received 71 total responses. When asked to consider other transportation modes of travel, walking received the most selections (43) followed by bicycling (31). This is aligned with a high desire for pedestrian infrastructure improvements that will be illustrated in the subsequent section and suggests potential interest in alternative travel modes if improvements are made. The least-often selected travel option for consideration was carpooling or vanpooling (15).

Table 6: Other Travel Options

Other Travel Options	Number of Times Selected
Walking	43
Bicycling	31
Public transportation	28
Rideshare services such as Uber or Lyft	27
Carpooling or vanpooling	15

Study Area Needs

Respondents were asked to order each of the study area needs from highest priority to lowest priority. This question received 71 total responses. As illustrated in Figure 8, respondents most often ranked road safety improvements as their highest priority, followed by pedestrian infrastructure and bicycle infrastructure. Respondents most often ranked park and ride lot access as their lowest priority need for the study area.

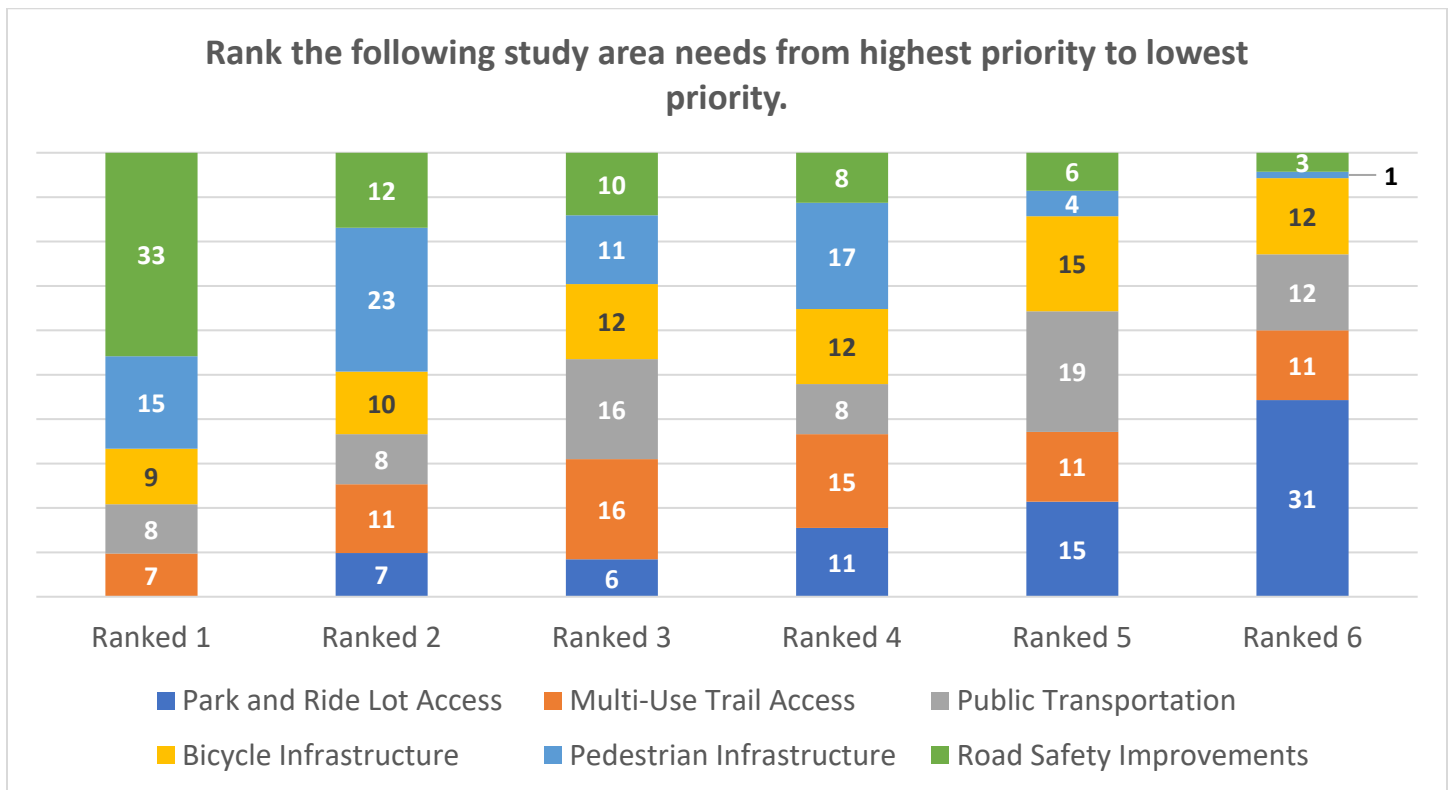


Figure 8: Ranked Study Area Needs

Note: some respondents only ranked a limited number of priorities, and not every completed survey had 6 priorities.

This prioritization suggests a strong desire for safer roads and more pedestrian infrastructure.

Challenges and Opportunities

This section of the survey asked respondents to identify areas of concern or where they would like to see changes or improvements on a map of the MPO area. Individuals dropped markers on the map for the same categories presented in the previous section.

Respondents provided **206 markers** and **158 comments** on this section of the survey. Some comments were singular words such as “crosswalk”, while others were detailed responses of a sentence or more. Some were only markers without a comment included with its placement.

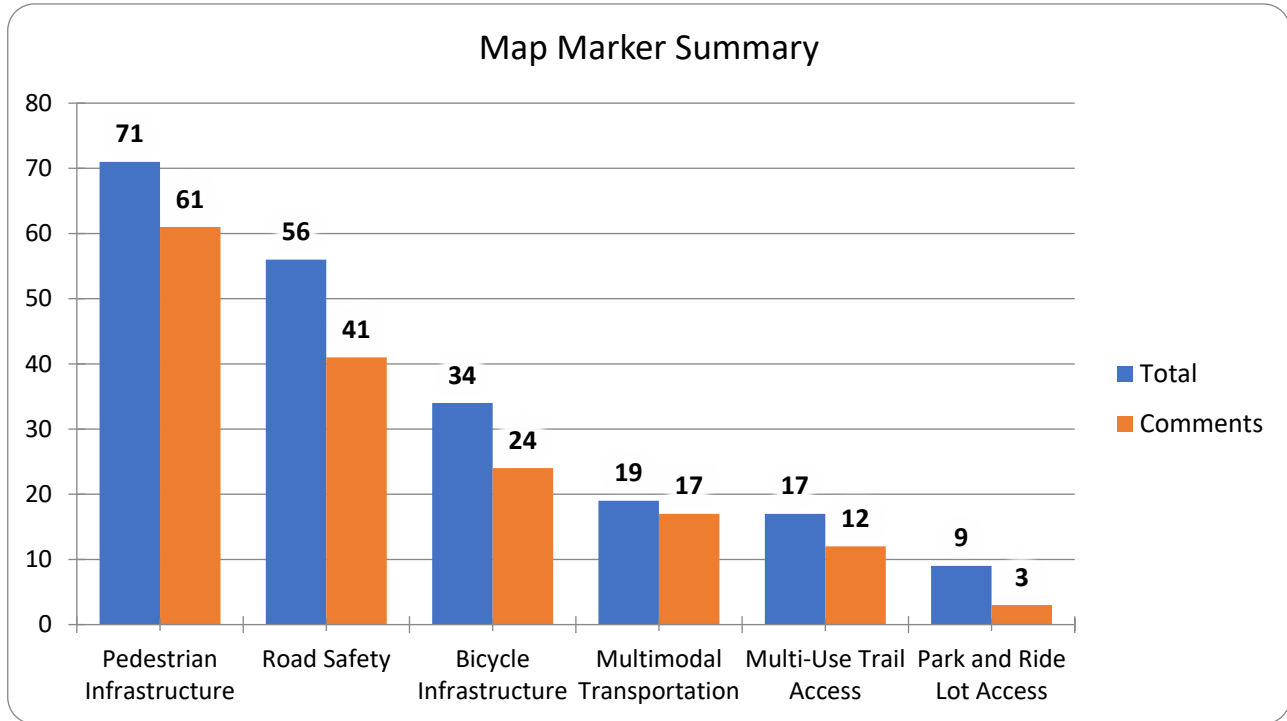


Figure 9: Map Marker Summary

Most comments and markers placed were related to pedestrian infrastructure, followed by road safety. Although categories of needs were presented for survey respondents, some comments overlapped with multiple need categories. For example, if someone submitted a comment categorized as “Road Safety” referencing unsafe walking conditions due to lack of sidewalk, this could overlap with pedestrian infrastructure needs as well. As presented in **Figure 10**, comments and markers were highly concentrated in Petersburg and Hopewell.

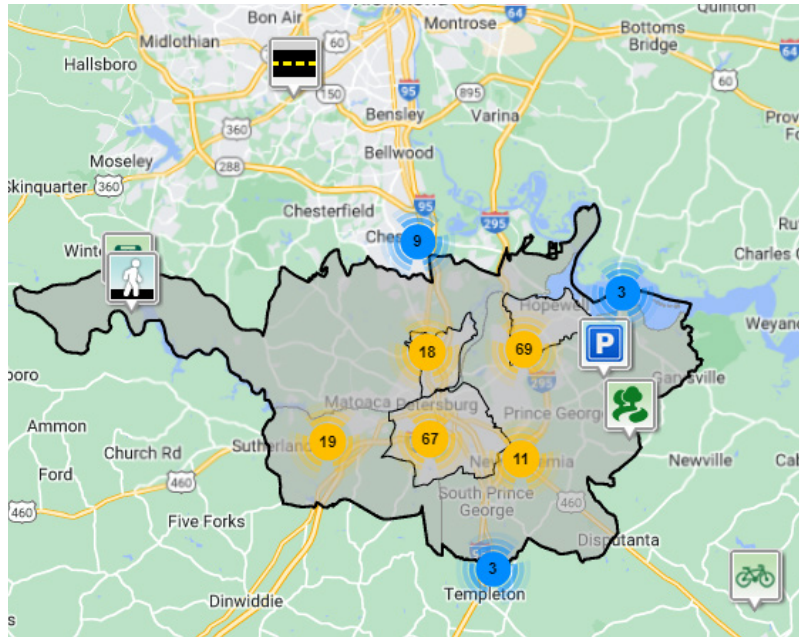


Figure 10: Geographic Distribution of Challenges and Opportunities Markers and Comments

Word clouds are a simple way to illustrate high-level themes in text responses. They are also easily digested by the public and are a great tool for public engagement. Summarized by Metroquest, the series of figures below present word clouds for challenges and opportunities in each of the need categories. The larger the word, the more often it was mentioned in comments.

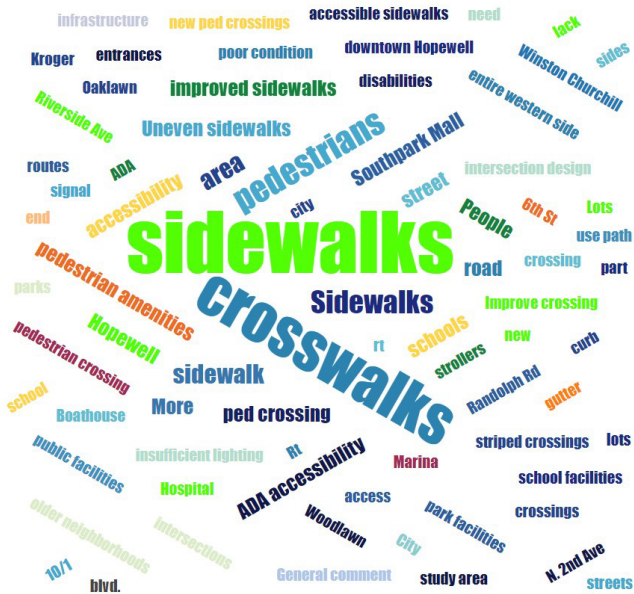


Figure 11: Pedestrian Infrastructure Word Cloud



Figure 12: Road Safety Word Cloud

All localities received comments about pedestrian infrastructure and road safety. Pedestrian infrastructure comments most often referenced the need for sidewalks, crosswalks, and pedestrian signals throughout the study area, especially in popular shopping destinations and around schools. Southpark Mall and Route 10 were specifically mentioned twice.

As referenced previously, some comments could fall into multiple categories of needs. “Sidewalks” and “pedestrians” were words heavily mentioned in comments about road safety, illustrating an overlap between that need and a pedestrian infrastructure need. Many comments submitted for road safety referenced the area’s interstates, exits, ramps, congestion, and speed limits.

themes related to active recreation. The Appomattox River Trail, “the river trail”, and “riverwalk” were called out specifically in a few comments. Others overlap with pedestrian infrastructure needs by mentioning sidewalks.

Three comments were received about park and ride lots. The comment received in Colonial Heights indicated that a park and ride lot with GRTC should be explored, and the other two comments submitted in Petersburg did not reference specific locations. One of the two comments mentioned that the park and ride in Petersburg didn’t seem to be used often.

Needs Outside of the Study Area

Nine markers were dropped outside of the MPO boundaries, and three markers included comments. One comment referenced congestion and safety along I-95 South, one comment referenced a need for protected bike lanes, and one referenced the lack of pedestrian infrastructure along Route 1 in Chester as it approaches W Hundred Road.

Conclusion

The Metroquest survey conducted for the Tri Cities Regional Multimodal Mobility Plan provided valuable insights into the community’s transportation needs and preferences. The survey results highlighted several areas for improvement, particularly around road safety, pedestrian infrastructure, and bicycle infrastructure. Respondents expressed a strong desire for more and better sidewalks, crosswalks, pedestrian signals, and safer road conditions for bicycling which indicating a clear priority for enhancing the necessary infrastructure going forward.

The survey results reinforce the need for a comprehensive, connected, and accessible transportation system within the Tri Cities area. While most respondents currently drive alone, there is clear interest in alternative modes of transportation such as walking, public transportation, and bicycling. Location-specific public comments will continue to be considered when developing project ideas further in the plan’s process.

Appendix G

Data Sources and Usage Technical Memorandum

Appendix H. Data Sources and Usage Technical Memorandum

This technical memorandum serves as a guide for navigating the Tri-Cities’ Multimodal Plan source data, as well as data created in the planning process, and how it was used to create the plan. The central file system for the project was developed by Michael Baker International for the Tri-Cities Area Metropolitan Planning Organization and is delivered in a file system organized by project phase:

Main Folder

- Existing Conditions folder

Subfolder	Contents
Demographic data	<ul style="list-style-type: none"> • Tabular folder <ul style="list-style-type: none"> ○ Data pulled from 2022 census, formatted to be joined in ArcGIS Pro to either block group or census tract geometries <ul style="list-style-type: none"> ▪ 17-22 ACS 5-year estimates ○ Labeled by contents and “BG” or “CT” to denote geometry • GIS folder <ul style="list-style-type: none"> ○ Job density data pulled from Census OnTheMap (2021) ○ Areas of Persistent Poverty data from FTA
Transportation data	<ul style="list-style-type: none"> • Organized by source • VDOT folder <ul style="list-style-type: none"> ○ Functional Class ○ Statewide Bicycle Facilities ○ Sidewalk Linear Network ○ Pavement Condition ○ Annual Average Daily Traffic ○ Future Fall Line Trail Alignment • DRPT folder <ul style="list-style-type: none"> ○ Statewide Rail ○ GTFS folder <ul style="list-style-type: none"> ▪ Blackstone Transit <ul style="list-style-type: none"> • Stops, routes ▪ Petersburg Area Transit <ul style="list-style-type: none"> • Stops, routes ▪ Greater Richmond Transit Company <ul style="list-style-type: none"> • Stops, routes • Strava folder <ul style="list-style-type: none"> ○ Ped origins ○ Ped destinations ○ Bicycle origins ○ Bicycle destinations • EPA folder <ul style="list-style-type: none"> ○ National Walkability Index (recent as of 2024)

	<ul style="list-style-type: none"> ▪ Used in lieu of comprehensive inventory of sidewalk <ul style="list-style-type: none"> ○ Smart Location Database (recent as of 2024) <ul style="list-style-type: none"> ▪ Used along with Census ACS/Census OnTheMap data to compare job density, residential density, and activity density • Other folder <ul style="list-style-type: none"> ○ Petersburg Sidewalk Inventory (from Crater PDC) ○ Future Appomattox River Trail Alignments (from FOLAR)
Land Use data	<ul style="list-style-type: none"> • Listed by locality within folder • Folder also includes composite layer of all localities in the MPO <ul style="list-style-type: none"> ○ Layer is simplified by reclassification to negotiate differences between land use categories
Activity data	<ul style="list-style-type: none"> • TCAMPO Schools (point layer) • TCAMPO Activity Centers (point layer; as defined by Steering Committee at Meeting #1)
Environmental data	<ul style="list-style-type: none"> • Urban Heat Island raster layer (Trust for Public Land, 2023)

• Needs Assessment folder

Subfolder	Contents
Activity Analysis	<ul style="list-style-type: none"> • Only one subfolder for this phase • Activity Density raw polygon layer with scores by block group • Activity Density heatmap raster layer with generalized block group data • Multimodal Districts polygon layer (defined by study team and Steering Committee) • Multimodal Centers point layer (defined by study team and Steering Committee) • Through and Placemaking Corridors polyline layer • Corridors by Type polyline layer • Modal Emphasis polyline layer • Calculated Transect Zones polygon layer (defined by activity density overlay) • Estimated Transect Zones polygon layer (defined by activity density overlay with study team and Steering Committee input; includes high and low designations within transects)

• Community Engagement folder

Subfolder	Contents
Community Engagement	<ul style="list-style-type: none"> • July folder

	<ul style="list-style-type: none"> ○ Contains materials and boards from July 2024 public meetings ● Fall folder <ul style="list-style-type: none"> ○ Contains materials and boards from Fall 2024 pop-up events ● Winter folder <ul style="list-style-type: none"> ○ Contains materials and boards from Winter 2025 pop-up events
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• Recommendations and Prioritization folder

Subfolder	Contents
Project Matrices	<ul style="list-style-type: none"> ● Contains Excel matrices used to evaluate projects <ul style="list-style-type: none"> ○ Multiple iterations showing how ranking changes with Steering Committee input
GIS	<ul style="list-style-type: none"> ● Contains point and line layer files used to delineate project locations ● Line layers also contain project evaluation in attribute table, particularly for location-review elements like project location in area of poverty and VTrans review
Visual	<ul style="list-style-type: none"> ● StreetMix Visualizations folder ● Project Sheet Map folder ● Before Photos folder
Feedback	<ul style="list-style-type: none"> ● Comments submitted by Steering Committee directly and existing project documents considered in project evaluation process