



# NEW RIVER VALLEY MPO MULTIMODAL PLAN





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# EXECUTIVE SUMMARY



The New River Valley Metropolitan Planning Organization's (NRVMPO) Multimodal Plan is an update of the region's 2014 Bicycle and Pedestrian Master Plan. This document reexamines the goals and methods used to create the original plan and, using the newly updated Virginia Department of Rail and Public Transit (DRPT) [Multimodal System Design Guidelines](#), revisits the previous analysis and recommendations.

The goal of the original plan was 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 potential bicycle and pedestrian projects on six factors vital to transportation in the region: connectivity and accessibility, safety, cost efficiency, economic vitality, environmental stewardship, and public health. These factors remain the overarching goals of the updated plan. In addition to those goals, more weight has been placed on regional transit connections and equitable access to transportation.

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. Multimodal planning takes a more holistic approach, framing the region's streets and trails as a single, comprehensive network designed to serve all modes equally. 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: evaluate existing transportation conditions, analyze activity density, define multimodal districts, identify multimodal centers within those districts, classify the corridor network to pinpoint how travel occurs or will occur, and, finally, create a multimodal plan.

Part of the process for creating this plan involved re-examining the original plan's data, assumptions, and recommendations to create a new set of districts and centers, multimodal corridor system, and contemporary analysis with updated recommendations. Starting with the 2014 data for comparison, the project team collected new population and employment information and developed a model of activity density. Post-processing of this data to account for other factors such as the universities and planned future development was performed. Stakeholder and public meetings were conducted to gauge the needs of the community. New methods were used to define the multimodal districts and centers, while the multimodal corridor network was largely based on the original plan with modifications based on recent planning and engineering efforts. The Multimodal Plan concludes with a set of representative street transects and future project recommendations, with considerations for each mode.

The New River Valley MPO region benefits from a dynamic and growing bicycle culture, strengthened

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by support from a large student population, local stakeholder investment, and tourism. While this culture was already existing at the time the 2014 plan was published, interest in bicycle tourism has increased dramatically due to the Huckleberry Trail's expansion and the establishment of the Roam NRV bikesharing program in 2018. Because of this ongoing emphasis on constructing quality bicycle infrastructure on a regional scale, the area is poised to take advantage of all these factors to continue on a path to create a safe, connected bicycle network. The recommendations reflect this opportunity to grow bicycle culture in the region.

Recognition of transportation equity issues have stressed the importance of creating and maintaining a network that is accessible and safe for all users regardless of their mode of choice. As a result, there is a critical need to re-evaluate transportation systems to ensure that they are equitable and accessible, particularly for those who depend on it for work and other vital travel. Transit and pedestrian safety and infrastructure improvements are important factors for meeting the needs of these populations. All future projects should first and foremost consider its contribution to the region's equity and accessibility as they are planned and funded.

As we continue to think of the New River Valley region as a culturally and physically connected set of communities, the role of the NRVMPPO in guiding and facilitating communication and cooperation is apparent. The NRVMPPO can assist localities and stakeholders with guidance and regionally-based services, which can be particularly useful in developing a comprehensive transportation system that allows users to seamlessly travel within and outside the region. Programs such as creating and managing a system-wide Geographic Information Systems (GIS) database with common formatting and nomenclature and/or promoting regional fare and trip booking technologies for transit, bikeshare and e-scooters - are examples that benefit from a regional approach for which the NRVMPPO can advocate.

The NRVMPPO Multimodal 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 opportunities arise, it may also serve as a way to coordinate on other plans. The following sections will lay out the reasoning and methods used to create the updated multimodal system and recommendations.



# NEW RIVER VALLEY

# 1

## Introduction

The New River Valley provides a unique opportunity for multimodal planning. As an area with two major universities that also serves as the largest geographic region in Southwest Virginia, there are concrete reasons for a comprehensive planning approach. This document looks at transportation not as just a collection of modes, but as a system comprised of those same modes. Its primary approach is to look at how bicyclists and pedestrians fit into that system, but all modes are accounted for. Blacksburg, Christiansburg, Radford, and the surrounding areas are already primed for future investment in multimodal infrastructure. There is an active bicycle community in the region and by virtue of both Blacksburg and Radford being college towns, there has been an emphasis on bicycle and pedestrian safety. Transit is also a strong component of the region's transportation system. The region features access to four different transit systems that connect to each other.

Just in the last five years, there has been a significant investment in planning for a more accessible transportation system. Highlights include the new Multi-Modal Transit Facility (MMTF) which is being developed on the Virginia Tech campus and the nascent Roam bike-sharing program which currently has stations in both Blacksburg and Christiansburg. Elsewhere, bicycle and pedestrian infrastructure is a significant part of a number of road projects in all the jurisdictions in the region. Finally, there is ongoing growth in the region's dedicated bicycle and pedestrian infrastructure set apart from the roads and highways. The Huckleberry Trail and the Radford Riverway Trail have been in and will be in expansion phases and there are plans for a multi-regional trail connecting the City of Roanoke to the New River Trail State Park.

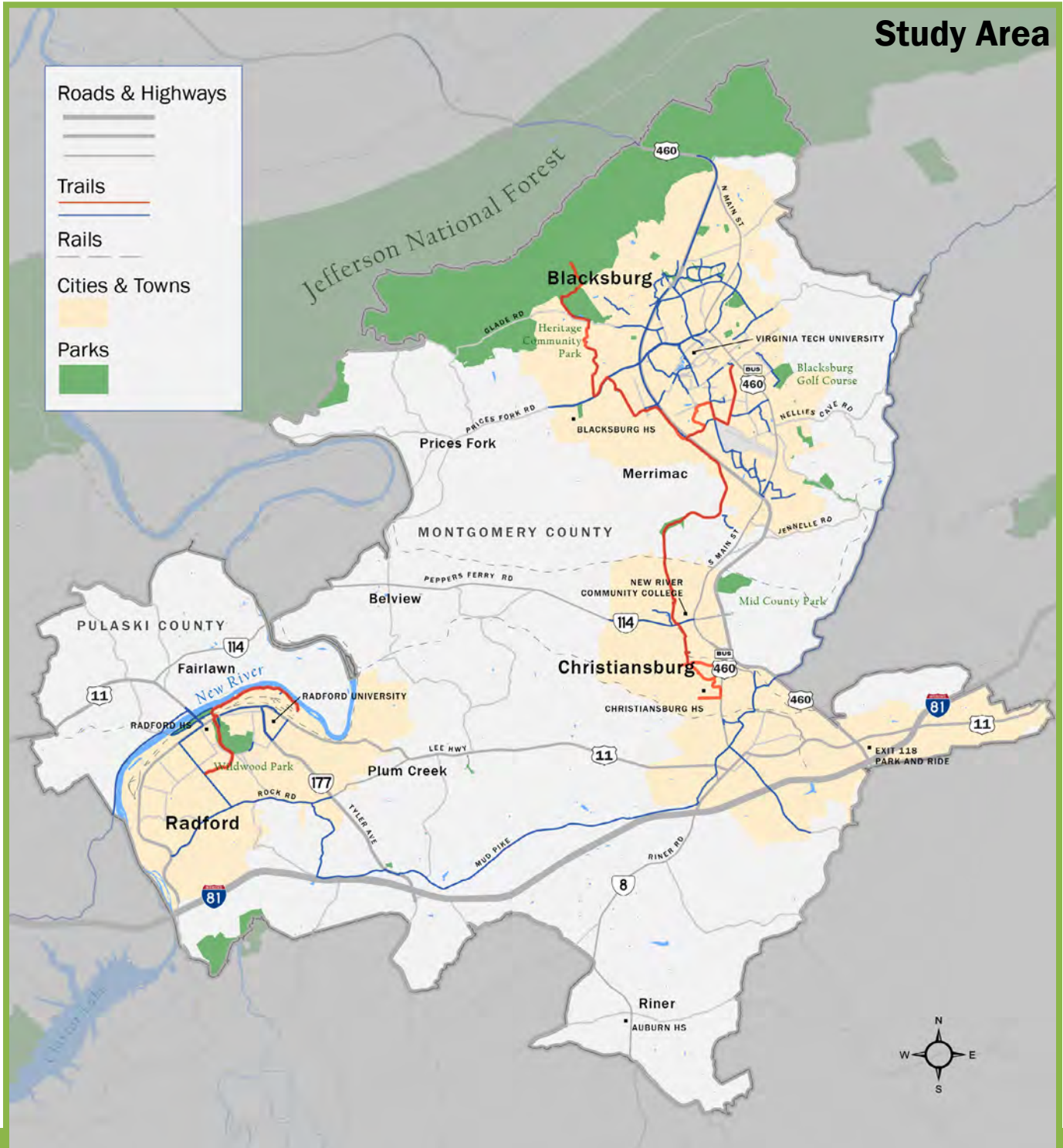


# NEW RIVER VALLEY

## Study Area Geography

The New River Valley Metropolitan Planning Organization (NRVMPO) boundaries include the urbanized areas of Montgomery County, Pulaski County, the City of Radford, and the towns of Blacksburg and Christiansburg. I-81, the parallel US 11, and Peppers Ferry Road are the principal east/west arterials while US 460 connects Christiansburg

to Blacksburg north to south. Via I-81, New River Valley has a socioeconomic and cultural relationship with the Roanoke Valley. As of 2019, the region (defined here as the NRVMPO urban area) had just over 100,000 residents. Between the two universities and the New River Community College, approximately 50,000 students are enrolled in higher education.





## Planning and Development Efforts

A number of new planning efforts and development projects have occurred since the last plan was published in 2014. Additionally, there are ongoing projects and future projects that have a bearing on multimodal planning in New River Valley. The Huckleberry Trail has grown substantially from its original alignment between Virginia Tech and the New River Valley Mall. It now runs from the Jefferson National Forest to Christiansburg High School with plans to extend it to downtown Christiansburg.

A quick scan of the 2045 Long Range Transportation Plan (LRTP) shows a number of bicycle, pedestrian, and transit projects in the constrained plan. Examples include:

- Pedestrian improvements on Main Street in Blacksburg
- Bicycle parking throughout the Town of Blacksburg
- Upgraded passenger amenities for Blacksburg Transit
- The Depot Park Trail in Christiansburg
- Extension of the Huckleberry Trail to downtown Christiansburg
- A new park and ride lot at Exit 118
- Bicycle and pedestrian improvements on US 11 in Pulaski County



Bissett Park in Radford

Additionally, the vision plan includes bicycle infrastructure. There are proposed parallel multi-purpose trails at the Southgate Connector and along Stroubles Creek near Prices Fork Road. There are also improvements planned on a number of corridors throughout the region including US 11, Glade Road, Ellett Road, Viscoe Road in Pulaski County, and University Drive in Radford.

There are other projects on the table too. There have been various levels of planning for two trail bridges across the New River on either side of Radford. One bridge would connect Pulaski County to downtown Radford and the western end of Bissett Park in Radford; the other bridge would connect the southern end of Radford University's campus with Pulaski County near the Pete Dye River Course golf course and the proposed bike infrastructure near Viscoe Road. Another upcoming project, Signature Park in Christiansburg, will include a connection to the Huckleberry Trail and two miles of paved trails.

Planning documents consulted include, but are not limited to, the following:

*NRVMPO 2045 Long Range Transportation Plan (2020)*  
*Pulaski County Comprehensive Plan (2019)*  
*NRV Comprehensive Economic Develop Strategy (2019)*  
*Beyond Boundaries: Virginia Tech Campus Plan (2018)*  
*Prices Fork Road Safety and Mobility Study (2017)*  
*Destination Christiansburg 2022 (2017)*  
*US 11 Corridor Improvement Study (2016)*  
*Town of Christiansburg Comprehensive Plan (2016)*  
*Blacksburg Comprehensive Plan (2016)*  
*Blacksburg Bicycle Master Plan (2015)*

*US Bike Route 76 – New River Valley Report (2014)*  
*NRVMPO Bicycle and Pedestrian Master Plan (2014)*  
*US 11/US 460 Corridor Study (2013)*  
*Route 99 Retail Feasibility Study (2013)*  
*New River Valley's Bikeway, Walkway, Blueway Plan (2011)*  
*Route 177 Gateway Area Plan (2011)*  
*New River Trail Extension Feasibility Study (2008)*  
*Village Transportation Links Plan (2007)*  
*Montgomery County, 2025 (Comprehensive Plan) (2004)*

## Regional Transportation

Transit, bicycling, and pedestrian infrastructure are already integral parts of the transportation landscape in the New River Valley region. There has been consistent investment in transit throughout the region, connecting valley internally and externally to Roanoke. The same attention has been paid to bicycling and pedestrian facilities, with extensive trail networks and a population of students in Blacksburg and Radford more amenable to riding bicycles and walking as part of their trip decisions.

### Transit

The New River Valley is served by four transit agencies, three of which are based in the region. A map of the systems' services mimics the pattern of regional urban development.

Blacksburg Transit is the largest system, providing service to the towns of Blacksburg and Christiansburg. The system has over 50 buses

and over 300 bus stops and provides access to a commuter park-and-ride lot on US 11 at Exit 118. A substantial portion of the service is located in Blacksburg with a connection to three loops within Christiansburg. Blacksburg's service is largely anchored around Virginia Tech—the service functions as the university's bus service—and the Multi-Modal Transit Facility will be constructed on the north end of campus. Simultaneously, Blacksburg Transit provides service for non-university affiliates as well in and between the two towns.

The City of Radford has its own service, Radford Transit, consisting of seven routes. Most run on the western side of town near Radford University, but there are also two cross-city routes that run concurrently and a route that crosses the New River and serves the Fairlawn area of Pulaski County. A regional service connects to Christiansburg at Uptown Christiansburg (previously called the New River Valley Mall until July 2020) and to Blacksburg at the Squires Student Center on the Virginia Tech campus. All Radford Transit routes converge at a transit hub at the corner of Main Street and Tyler Avenue.

The Town of Pulaski has a transit system as well. Though the town itself is outside the MPO boundaries, Pulaski Area Transit has service (the New River Express) that connects to Radford Transit in Fairlawn (at the Kroger and the Walmart), north of the New River, and to Blacksburg Transit at New River Valley Mall (Uptown Christiansburg). Riders can travel to Dublin and Pulaski from those points.

The Smart Way bus and Smart Way Express are commuter routes operated by Valley Metro in Roanoke. Within the New River Valley, the Smart Way route stops at the Exit 118 park-and-ride lot, the New River Valley Mall, the Virginia Tech Corporate Research Center, the Blacksburg Municipal Building, and finally, the Squires Center. In doing so, the Smart Way service connects to Blacksburg Transit multiple times and Radford Transit on campus. The Smart Way Express connects Virginia Tech to the Virginia Tech Carilion School of Medicine and Research Instituted on the Roanoke campus.



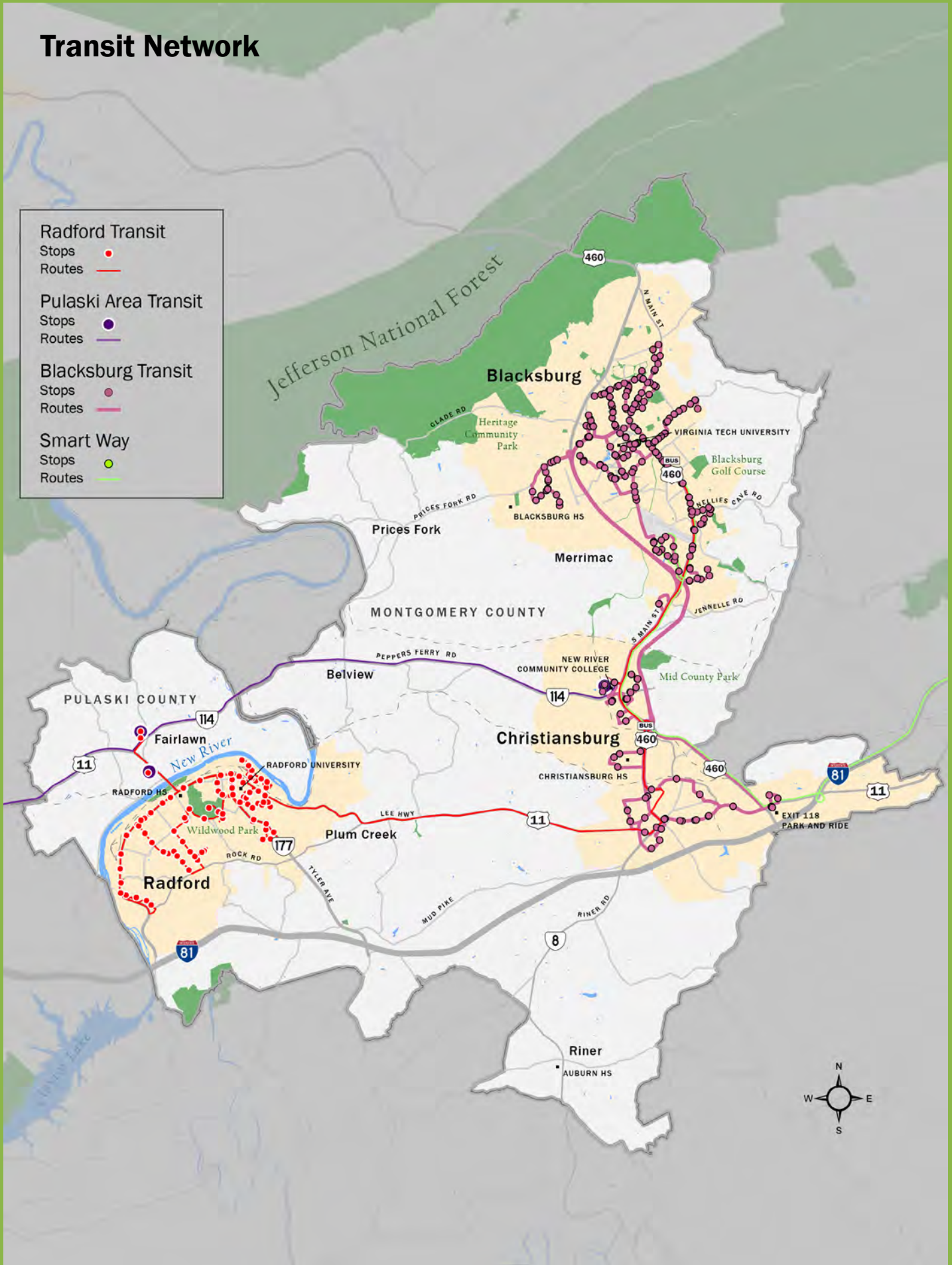
Bus stops throughout New River Valley





# Transit Network

<b>Radford Transit</b>	
Stops	● (Red)
Routes	— (Red)
<b>Pulaski Area Transit</b>	
Stops	● (Purple)
Routes	— (Purple)
<b>Blacksburg Transit</b>	
Stops	● (Pink)
Routes	— (Pink)
<b>Smart Way</b>	
Stops	● (Green)
Routes	— (Green)





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One additional transit connection is the Virginia Breeze, which connects the New River Valley region to Washington, D.C. with daily stops at both the Virginia Tech Squires Student Center and in Christiansburg at the Falling Branch Park and Ride.

## Cycling

New River Valley is home to two major universities and a community college so bicycling is a critical element of the transportation network. Blacksburg has a well-developed bicycle network throughout the town—each route has a name and a difficulty assigned to it. The town has done a great job of building an expansive off-road trail network in its office and research park areas that all connect to the larger network. Christiansburg is a stop along the National Bike Route 76 and has its own network with mostly on-street infrastructure, though not as robust as Blacksburg. Radford has a network of multi-use paths connecting downtown to the heart of the city’s residential area and to the Radford University campus. Plans to build two bridges across the New River on either side of the city will allow for regional bicycle connections to both the east and west.

The Huckleberry Trail is one of the highlights of New River Valley’s transportation network. It is a multi-use path that begins in the Jefferson National Forest, connects to the heart of Blacksburg, and then ends at Christiansburg High School. Incremental expansion, and the addition of a bike sharing



The Roam NRV bikeshare station at Squires Center at Virginia Tech

system, have underscored the popularity of this trail and emphasized the need to connect it to a larger network and other regions (such as the Roanoke River Greenway and the New River Trail State Park).

The aforementioned bikeshare program, Roam NRV, is a relatively new system with ten hubs in Blacksburg and two in Christiansburg. The locations are scattered throughout the Virginia Tech campus and the two in Christiansburg are at strategic locations along the Huckleberry Trail: at the Christiansburg Recreation Center and at the New River Valley Mall. Given the towns’ robust networks of cycling infrastructure, it has been a successful program and there are plans for expansion in the near future.

## Pedestrians & Accessibility

Like many jurisdictions that have grown organically over decades, the presence and quality of sidewalks throughout the region varies dramatically. For the most part, sidewalks are found where they would be expected, such as the downtown cores, multifamily residential areas, and newer suburban residential neighborhoods. Some of the major roads in and out of the towns and city also have them, but they typically end unceremoniously at an intersection or a short distance outside the urban core. A majority of the sidewalks are four feet in width and directly adjacent to the street but it is not uncommon to have small park strips in some neighborhoods. A majority of the downtown intersections in all three of the major communities have crosswalks. Beyond the urban and suburban core, it is rare to see sidewalks



Pedestrians and a Cyclist on Huckleberry Trail

outside of neighborhoods. New development in Riner on Route 8, for example, requires sidewalks as seen in front of the Dollar General on Riner Road. However, relying on redevelopment for sidewalks typically results in long-term implementation of a connected, accessible sidewalk network.

Virginia Tech experimented with an e-scooter program in late 2019 and early 2020, deploying 200-300 e-scooters. There were approximately 120,000 trips over that period of time and Virginia Tech intends to redeploy the scooters in the fall of 2021. For many pedestrians, scooters are a way to extend walking trips as usage tends to be low-cost and the vehicles are much more portable than shared bikes due to the lack of docking.

## Rail

In 2017, the Amtrak's Northeast Regional passenger rail service was extended from Lynchburg to Roanoke which is the southern extent of Amtrak service in Virginia. Amtrak operates a Thruway bus from Roanoke to the Squires Center which allows New River Valley residents an opportunity to connect to passenger rail service without having to drive to Roanoke. Prior to the extension to Roanoke, the MPO published a study regarding the feasibility of passenger rail in the valley, including quantitative analysis of potential station locations, economic impact analysis, and ridership estimates.

In 2016, the town of Christiansburg purchased a property east of Franklin Street on the south side of the existing Norfolk Southern right-of-way. This purchase, and subsequent purchases that have expanded the site, was the culmination of a NRVRC study which identified potential sites for an Amtrak station. The site is adjacent to the Christiansburg Aquatic Center and is less than a mile from downtown and less than two miles from Uptown Christiansburg. When Amtrak is extended to New River Valley and a station is built at this site, it will be a true multimodal facility in the heart of the valley, connecting all modes in a single, central location.



Potential future location of passenger rail station in Christiansburg across from the town's Aquatic Center

## Stakeholder and Public Outreach

In addition to analysis of existing planning documents and proposals from across the region, the planning team held meetings with each of the localities to provide some background into multimodal planning and to discuss past and future developments. The team met with stakeholders from the following jurisdictions and organizations:

- Town of Blacksburg
- Blacksburg Transit
- Town of Christiansburg
- Montgomery County
- New River Community College
- New River Valley Metropolitan Planning Organization
- New River Valley Regional Commission
- Pulaski County
- Pulaski Area Transit
- City of Radford
- Radford Transit
- Radford University
- Valley Metro
- Virginia Tech

In addition, an initial public outreach session was held in December of 2020. Due to Covid-19 restrictions, the meeting was held online. The purpose of the meeting was twofold. First, the

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team wanted to educate the public on multimodal planning, namely the purpose and benefits. The second goal was to get an accounting of the issues that the public were interested in. Many issues were specific to certain geographic areas, such as certain intersections without crosswalks, roads where on-street parking creates dangerous situations, or locations where bicycle lanes end short of potential destinations. All of these types of feedback indicate issues that are consistent with a lack of multimodalism and a need to look at the connections within and between communities more systematically.

A second public meeting was held on April 6<sup>th</sup> of 2021 to present the draft document of the Plan and discuss the findings and recommendations. The two-hour open house virtual session began with an overview presentation before opening the floor to participants for questions and comments.



*The Renva Knowles Memorial Brige carries Huckleberry Trail over Peppers Ferry Road*



# MULTIMODAL PLANNING

# 2

## What is Multimodal Planning?

The goal of multimodal planning is to account for the changing nature of mobility in urban areas. There has been a gradual shift from automobiles to non-motorized modes but the former still dominates the landscape. Instead of looking at the modes as competitors, multimodal planning looks at modes as parts of a complete system. The goal is to make the system more accessible, safer, more efficient, and more equitable by approaching the design of corridors in a different way.

There are four guiding principles for multimodal corridor design. Streets should be safe for everyone; streets should move people and not just cars; streets should be accessible to all people regardless of their physical ability, income, gender, and culture; and, most fundamental of all, streets can change. There are always opportunities to improve the environment for all users.

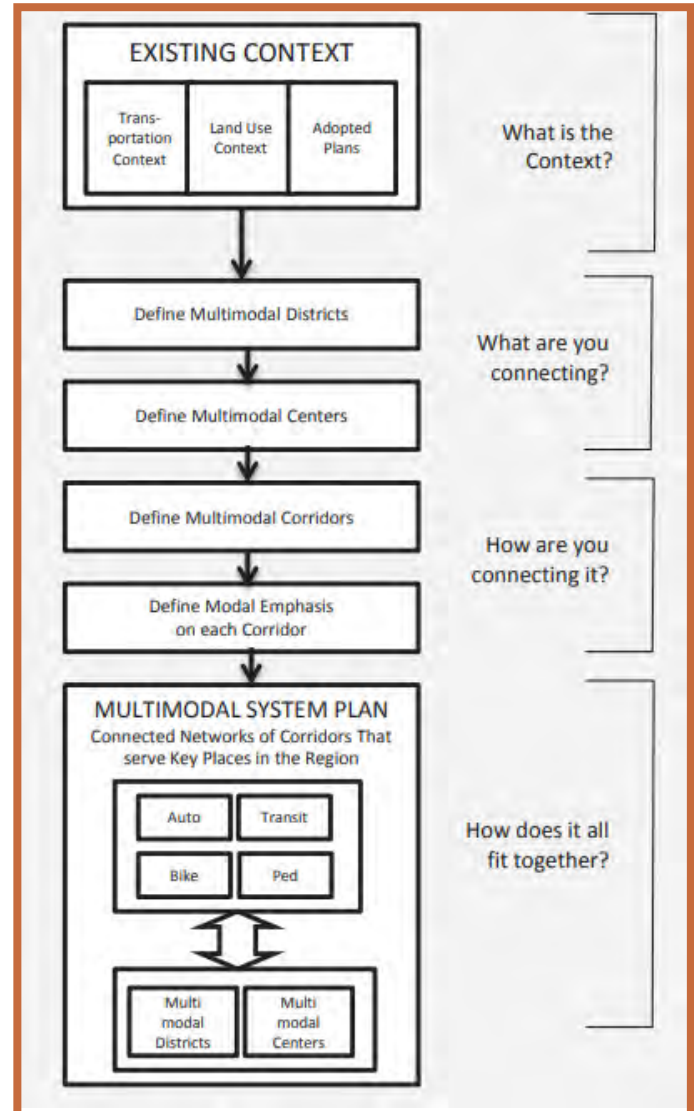
Multimodal planning is both a descriptive and prescriptive process. It defines what's on the ground so people can see their environment in a new way and make decisions based on this new point-of-view. Multimodal planning also provides direction on how to make changes to the environment to accommodate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

### 1. What's the context?

In short, what does the system and built environment look like? Both of these elements impact how people move and how they choose to move around so knowing what the existing network looks like and what sort of land use policies and adopted planning documents guide development is critical.

### 2. What's being connected?

The next step is to identify where people want to go. The way doesn't necessarily matter, but the best indicator is something called activity density, which is a union of population and job densities. There are other types of centers though—recreation



Multimodal planning process from DRPT's *Multimodal System Design Guidelines*

facilities, trailheads, campus buildings, and schools, for example—all of which may not be fully accounted for in an activity density analysis but serve as destinations nonetheless.

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 policies, land use documents, or zoning designations. From there, multimodal

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activity centers are determined. 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.

### 3. How is it being connected?

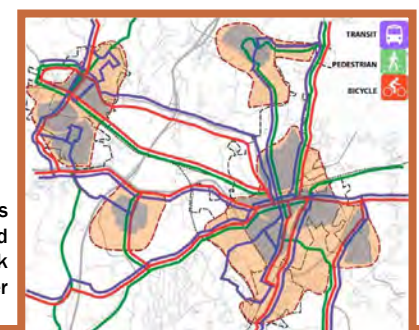
This is where multimodal corridors are identified. Roads, trails, or other rights-of-way between two districts or centers are mapped and given a “modal emphasis”. In other words, a corridor with a significant bus route has a transit modal emphasis while a multi-use path would have a bicycle and pedestrian modal emphasis. Streets can have an automobile emphasis, but the goal is to describe a potential system for where the automobile doesn’t 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. Generally speaking, 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 Huckleberry Trail is a through corridor with a bicycle and pedestrian modal emphasis that connects not only centers to one another, but districts in different towns.

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



The campuses of Virginia Tech (top), Radford University (middle), and New River Community College are almost entirely within multimodal centers



A model of how districts (tan), centers (gray), and modal corridors work together



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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).

## 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.

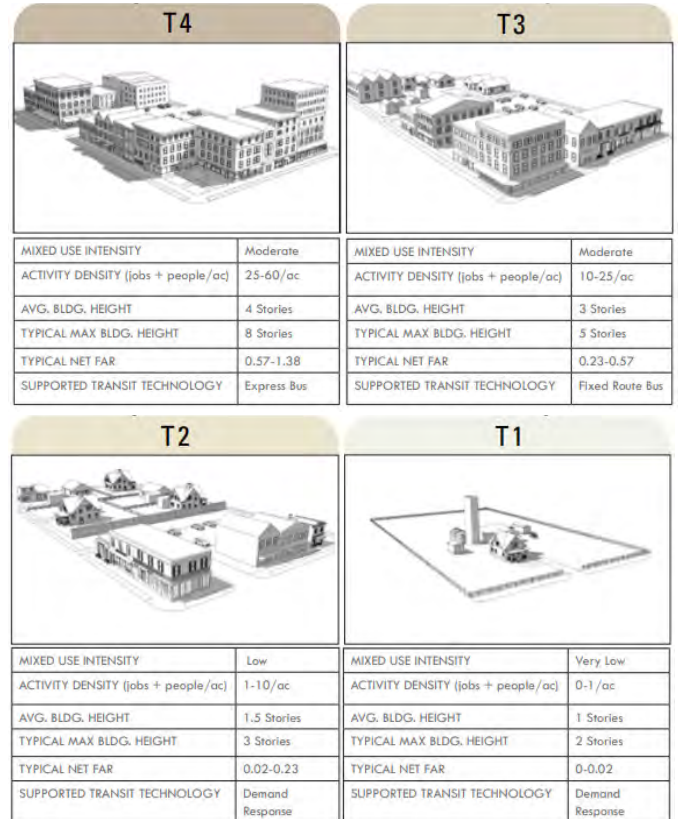
Districts are relatively amorphous, and they are not always beholden to jurisdictional boundaries, streets, or other obstacles. It is important to note that the districts can follow these obstacles if warranted. The boundaries they do have more typically relate to topography, major highways, or planning policies. New River Valley's districts have some of those boundaries in the form of the New River, I-81, the US 460 bypass, Jefferson National Forest, and the differing planning policies of the localities and the counties.

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 genesis of a center can come in a number of forms—an intersection of two streets, a park or trailhead, or a specific building. 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.

## Transect Zones

The final steps 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 place-making 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.



A transect continuum showing the six zones and typical densities and heights for each





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Generally speaking, development across a region like the New River Valley 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 New River Valley falls into a T5 or T6 transect and the fact that Blacksburg is a college town makes the application a bit more difficult. Heights and densities can be skewed due to the unique development patterns of universities. But parts of the downtowns of Christiansburg and Blacksburg exhibit the density and height one would expect from the lower end of a T4 transect.

The rest of the two towns and the City of Radford are squarely in a T3 transect, with shades of heights and densities all of which would be considered suburban. The farther one travels outside of the two urban areas, the more rural the pattern becomes.

Due to topography, much of the T1 development is located along the major connecting roads like Prices Fork and Peppers Ferry roads, so development in these zones feels denser than it truly is. There are a few unincorporated towns scattered throughout the MPO area such as Riner, Plum Creek, and Merrimac; these areas are representative of T2 transects.

## Applying Transects

As multimodal districts and corridors are connected, you can define templates or best practices for redevelopment of corridors. For example, avenues, which are defined in the Virginia Department of Rail and Public Transit (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 Blacksburg, Christiansburg, and Radford 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.



Bicycles and pedestrians are the two modes emphasized on Drillfield Drive

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 roadway 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.



## Developing the Plan

The 2014 *New River Valley MPO Bicycle & Pedestrian Plan* was the region's first attempt to identify its multimodal elements. The plan defined districts, centers, and corridors, applied a modal emphasis for each corridor, and established a recommended phased approach to continuing the planning process.

This multimodal plan is a combination of both existing conditions and anticipated future development. In developing the plan, a number of network gaps, potential connections, and policy ideas were identified by stakeholders and members of the public that are described in this plan and noted in recommendations. The aim of this plan was to look at the system not as it is today, but as it could be with an emphasis on connecting transit hubs, bikeshare hubs, and park-and-ride locations with a continuous bicycle and pedestrian network.

The first step was to review the original document and validate its assumptions. In addition, the team reviewed other planning documents developed over the last six years and worked with stakeholders to identify proposals or concepts that could be incorporated into an updated system. This information was complemented with statistical analysis of population and jobs data for the New River Valley region (see *Activity Density*, p.16). This establishes a baseline of where the people typically are and averages it across a region. It is not a complete picture because it does not capture all destinations and the presence of two universities tends to skew results, so additional post-processing is necessary to verify the data. Further analysis included review of traffic volumes on major roadways and corridors and review of zoning allowances and restrictions.

## Multimodal Districts

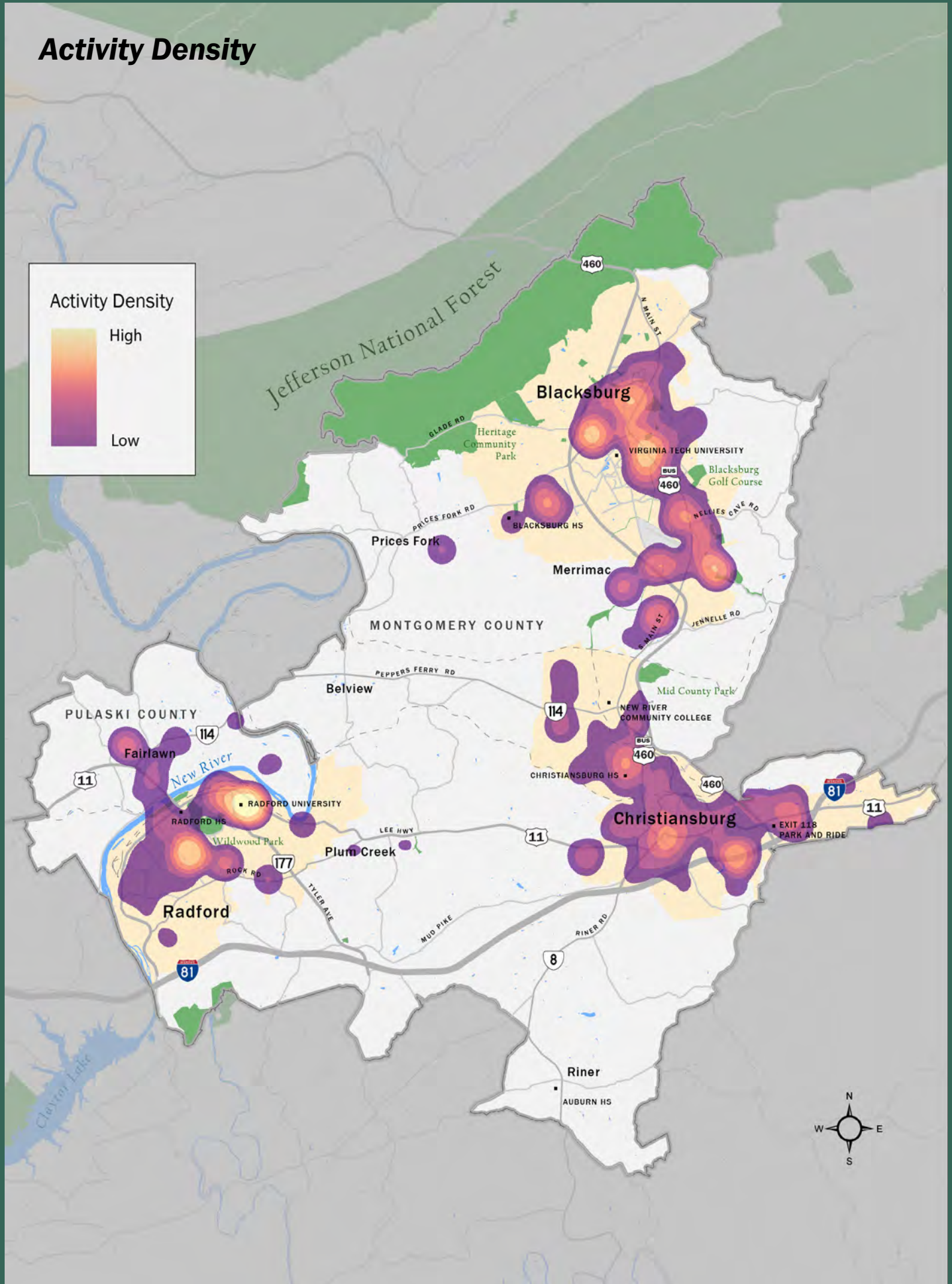
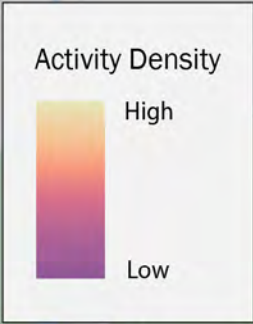
The distribution of the multimodal districts in the 2014 plan were very similar to those identified in this plan (see *Multimodal Districts*, p.17). However, the previous plan identified a number of districts that this project team believed were not distinguishable

as separate districts. On the ground, there was little to delineate one defined district from another. The only true barriers to the definition of new districts were either natural (the New River or topography) or large infrastructure (such as the US 460 bypass). Otherwise, district boundaries were determined by activity density, development patterns, zoning, future land use, and designations like urban development areas (UDAs).

Generally speaking, the Blacksburg-Christiansburg urban area is effectively a continuous spine of development along the US 460 and BUS 460 corridors. There are some breaks in the intensity of the development, but from I-81, the first true break in development is the interchange north of Lewis Gale Hospital Montgomery. Even the Virginia Tech/Montgomery Executive Airport, a land use that is generally low intensity, is surrounded by intense development on all sides, including expansion of the office park development towards Virginia Tech's campus. A district for the Motor Mile on Lee Highway (US 11) was defined due to its separation from the rest of Christiansburg and its consistent development pattern. The continued growth of the Prices Fork Road corridor also indicated that the district identified there in 2014 was accurate.

The multiple districts defined in the 2014 plan in Radford were similarly consolidated into three distinct districts. Radford University and the ongoing infill development to its west is geographically separated from the western half of the city and there are differences in the development patterns. The third district is in Pulaski County in both the Fairlawn area and expanding into the land between the bend in the New River where there is a mix of industrial uses and new residential development. These were identified as separate areas in 2014 but a number of planning efforts are happening in the area that will provide for continuity between the two areas: the donation of the Margaret Smith property east of Lee Highway, a proposed trail system on the north side

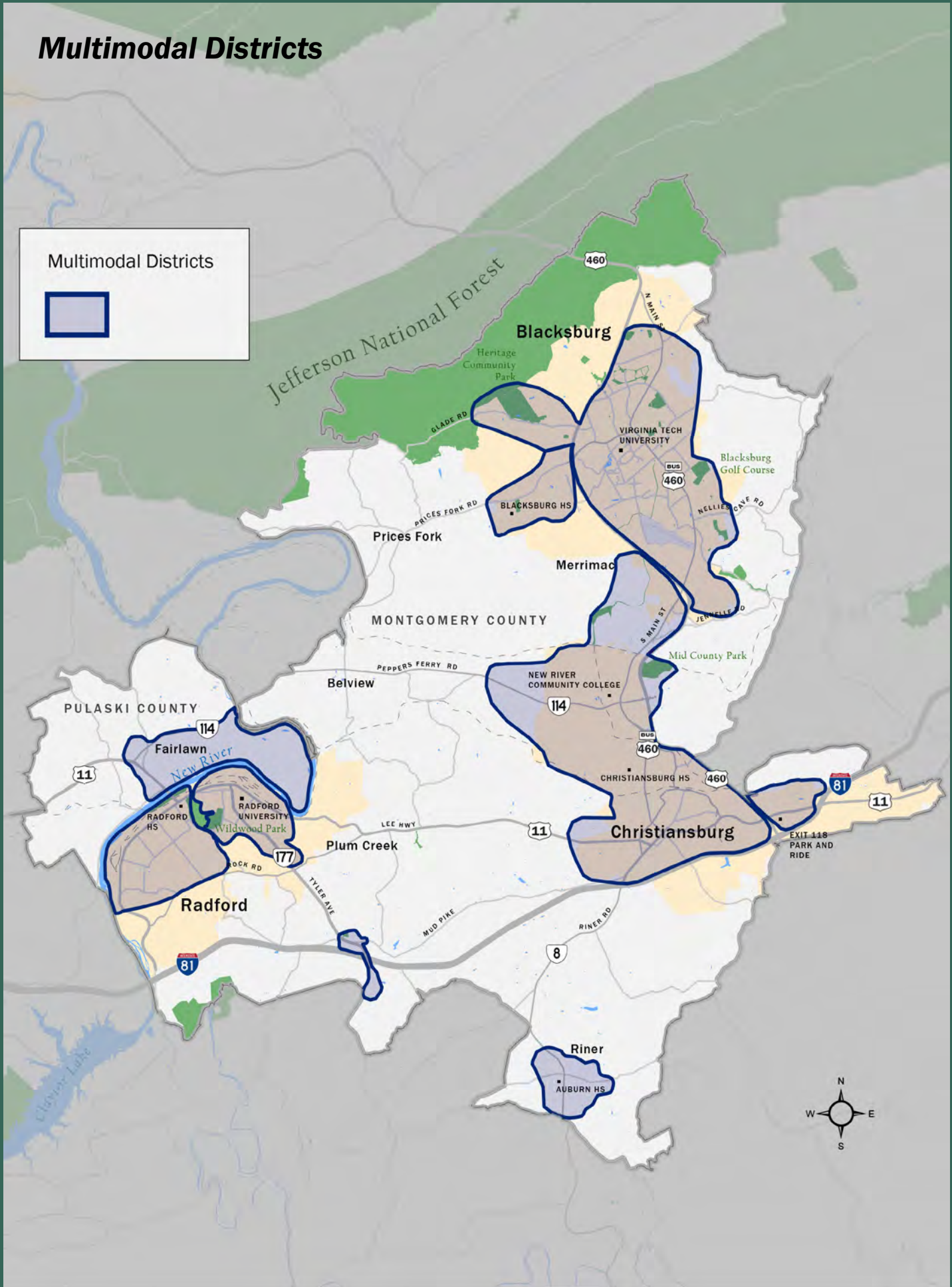

# Activity Density





# Multimodal Districts

Multimodal Districts



# THE PLAN

of the river, and the potential for Viscoe Road to serve as part of a regional bike network.

The district at the interchange of Tyler Avenue and I-81 (exit 109) was also maintained as Montgomery County's land use policies indicate a desire to grow and it serves as the primary gateway into the city. Finally, the project team added a new district in the community of Riner. The public school campus, some new development, and zoning indicates potential future growth in the area.

## Multimodal Centers

A different approach was taken for the development of centers (p.20) than was utilized in 2014. For this plan, centers were located at intersections, buildings, or other specific points of interest, and a walkshed was defined. Such points may include schools, parks, trailheads, bikeshare stations, hospitals, entrances to neighborhoods or residential complexes, and community centers. After identifying these locations, a walkshed was established for each, based on both an average five- and ten-minute walk. Each center was analyzed specifically for other elements in the immediate area that might either extend the center's diameter, present obstacles to movement, or otherwise skew the walkshed results. Due to this extra analysis, multimodal centers can differ in size.

In the example on the right, the center is located at the intersection of Research Center Drive and Knollwood Drive in the Virginia Tech Corporate Research Center. The area in red is an approximation of the average walking distance covered in five minutes; yellow represents a ten-minute walk. With this geography, the project team estimated the boundaries of the center based on the walkshed. As mentioned earlier in this report, centers are intentionally nebulous for many reasons. In this case, the eastern and southern limits of the established center are invariably the intersection of Main Street and Industrial Park Road because there is no further safe pedestrian infrastructure.

It is not uncommon in urban areas with a culture of bicycling and walking like Blacksburg that centers would end up overlapping. A majority of the Virginia Tech campus and points north along Main Street fall within a multimodal center's boundaries. The same is true for the eastern side of Radford and downtown Christiansburg. Many of the centers are also suggested with proposed or potential enhancements in the built environment or future development. A number of factors go into determining whether or not multiple overlapping centers are merged into larger single centers. These factors include the connectivity between those centers, the uniqueness in character of one or more of the centers in question, and the differences in land uses. In cases where centers were combined such as in Radford, it was because there was a similarity in the land uses and densities of the two areas. An example is the large multimodal center between the entrance to Bisset Park and the Central Square Shopping Center along Main Street.

Walkshed analysis is useful because it can provide a visual clue as to where there are limitations to the pedestrian environment. Often times those limitations apply to bicycling as well. Centers that appear long and narrow indicate that the direction of travel is limited to only two directions, which could be the result of a lack of mid-block crossings and other pedestrian infrastructure issues.




## Multimodal Corridors

The corridors developed for the 2014 plan were used as a basis for the development of corridors for this plan. Some potential routes from the earlier plan that were no longer supported in planning

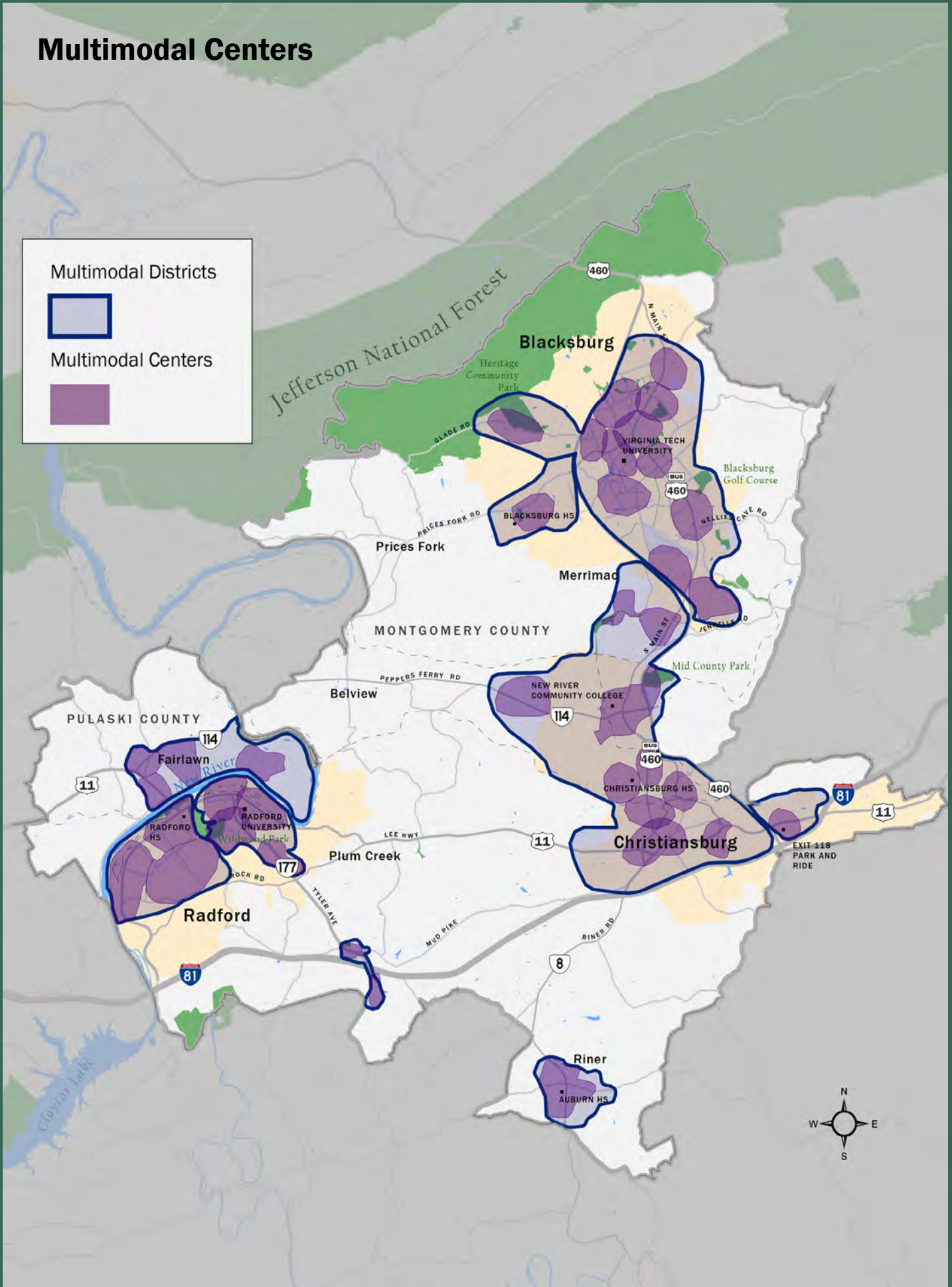



# Multimodal Centers

Multimodal Districts



Multimodal Centers



# THE PLAN

documents or other sources were given further analysis and, where suitable, incorporated into the new plan.

The current transit routes for each community were used to develop the transit corridor network. Using the transit development plans for each of the four agencies, modifications were made to the network. The next step was to add bicycle facilities into the network. Bicycle lanes, shared lanes, multi-use paths, and other signed facilities (e.g., US Bicycle Route 76) were all included in the network. Additionally, corridor connections between centers with pedestrian facilities were added to the list. In many cases, these corridors are shared with at least one other mode (transit or bicycle). In some cases, a corridor was given a pedestrian modal emphasis because it was a potential connection between two centers (such as Ellett Road between Franklin Street and Cambria Street) despite currently not having the necessary infrastructure.

The results show a robust system of connections across not just multiple centers within districts, but between districts. Transit is particularly notable as there is significant interconnectivity throughout the region. Pulaski Area Transit provides service between Pulaski/Dublin (outside of the MPO area) to Radford and Christiansburg twice daily six times a week. Radford Transit provides service between Radford, Christiansburg, and Blacksburg six days a week. From the east, Roanoke's Valley Metro connects Roanoke to Christiansburg and Blacksburg six days a week as well. The result is a network of services that allows residents of Roanoke, Pulaski, or Dublin the chance to work, shop, visit, and go to school in Radford, Christiansburg, or Blacksburg. The park-and-ride at Exit 118 in Christiansburg also serves as a transfer point between Valley Metro and Blacksburg Transit, thus expanding the access for transit users with only a single transfer.

Another notable connection is the Huckleberry Trail, a well-supported community asset shared by Christiansburg, Montgomery County, Blacksburg, and Virginia Tech. It provides a paved, off-road connection between Christiansburg, the Jefferson

National Forest, the Virginia Tech campus, and downtown Blacksburg. Expansion of the trail to downtown Christiansburg is the logical next step and a well-documented desire of the community.

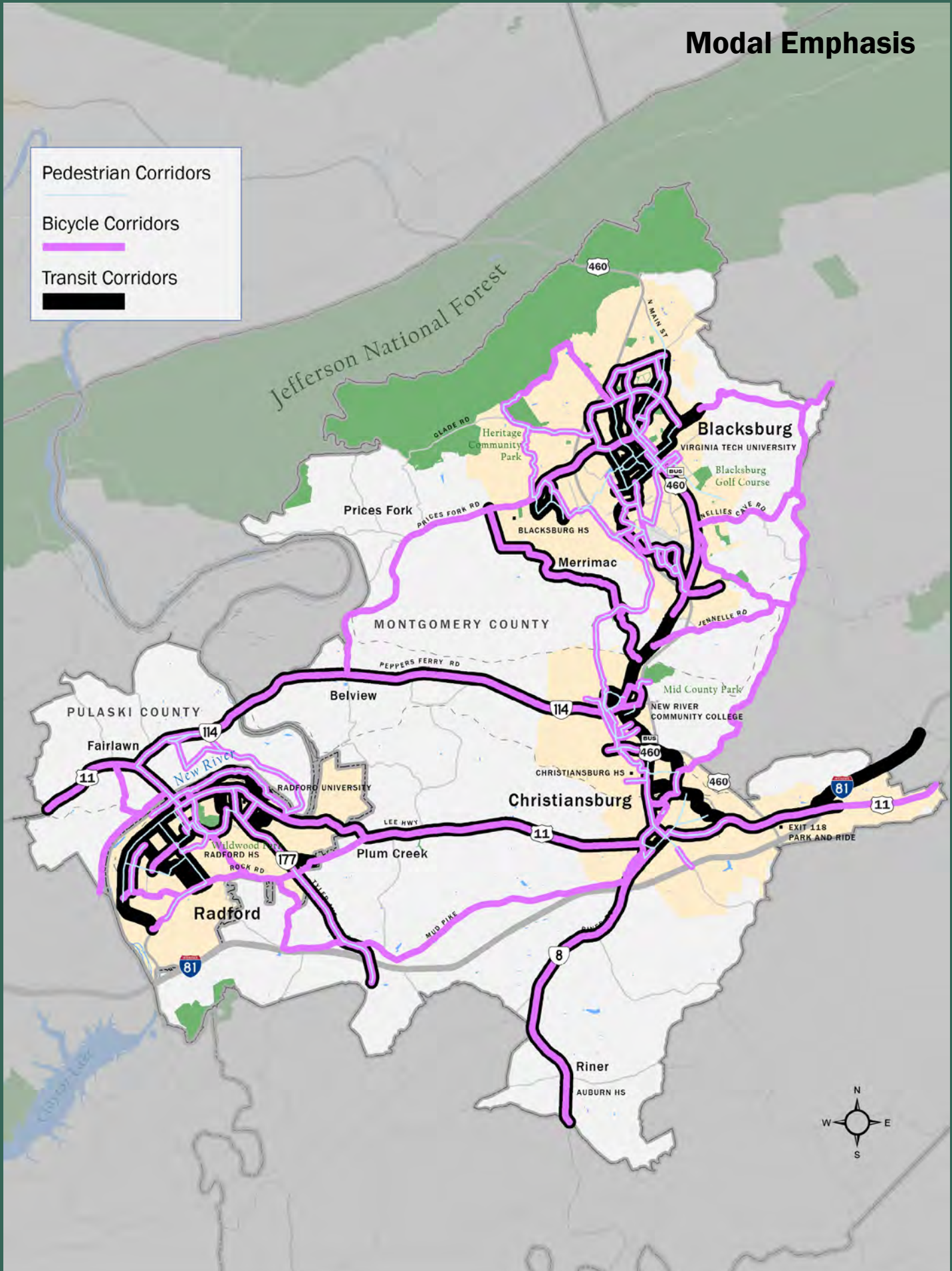
One of the major goals of this plan is to determine where to concentrate in order to develop a more seamless network between transit users, bicyclists, and pedestrians. While bicycle corridors identified in this plan, whether existing or proposed, do provide a significant amount of coverage and connectivity between districts, it is important to note that not all of these connections are off-road facilities like the Huckleberry Trail. Many of these bicycle connections are located on through corridors linking other districts. The connections that many members of the public provided feedback on are those between centers within single districts. These are the corridors people use for daily activities in which they replace a trip by automobile with a bicycle trip (e.g., commuting). These corridors are placemaking corridors.

This is where multimodal planning is particularly useful. Outside of trail networks like the Huckleberry Trail or the pathway network in the Virginia Tech Corporate Research Center, bicycle infrastructure is often put in place well after a corridor has been established. This frequently occurs when a road is repaved, reconstructed, or its lane configuration is changed. In a majority of those cases, the existing right-of-way is being reconfigured without additional right-of-way being added. How a road is designed is largely dependent, then, on the parameters of that corridor: its modal emphasis (p. 22), the type of placemaking corridor it is (p. 23 & 24), and its applicable transect zone (p.25).





# Modal Emphasis

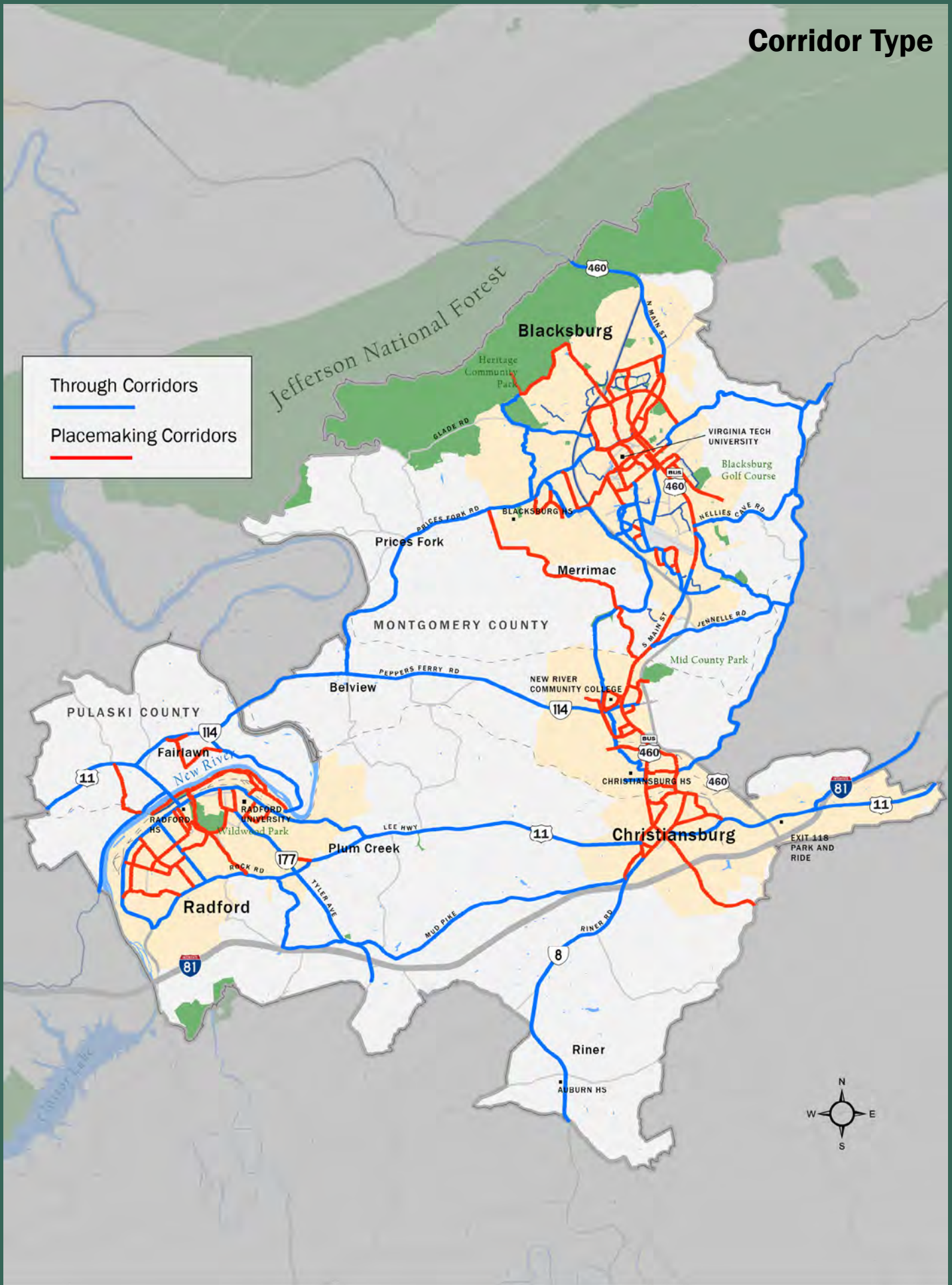
Pedestrian Corridors  
Bicycle Corridors  
Transit Corridors



# Corridor Type

Through Corridors  


Placemaking Corridors  




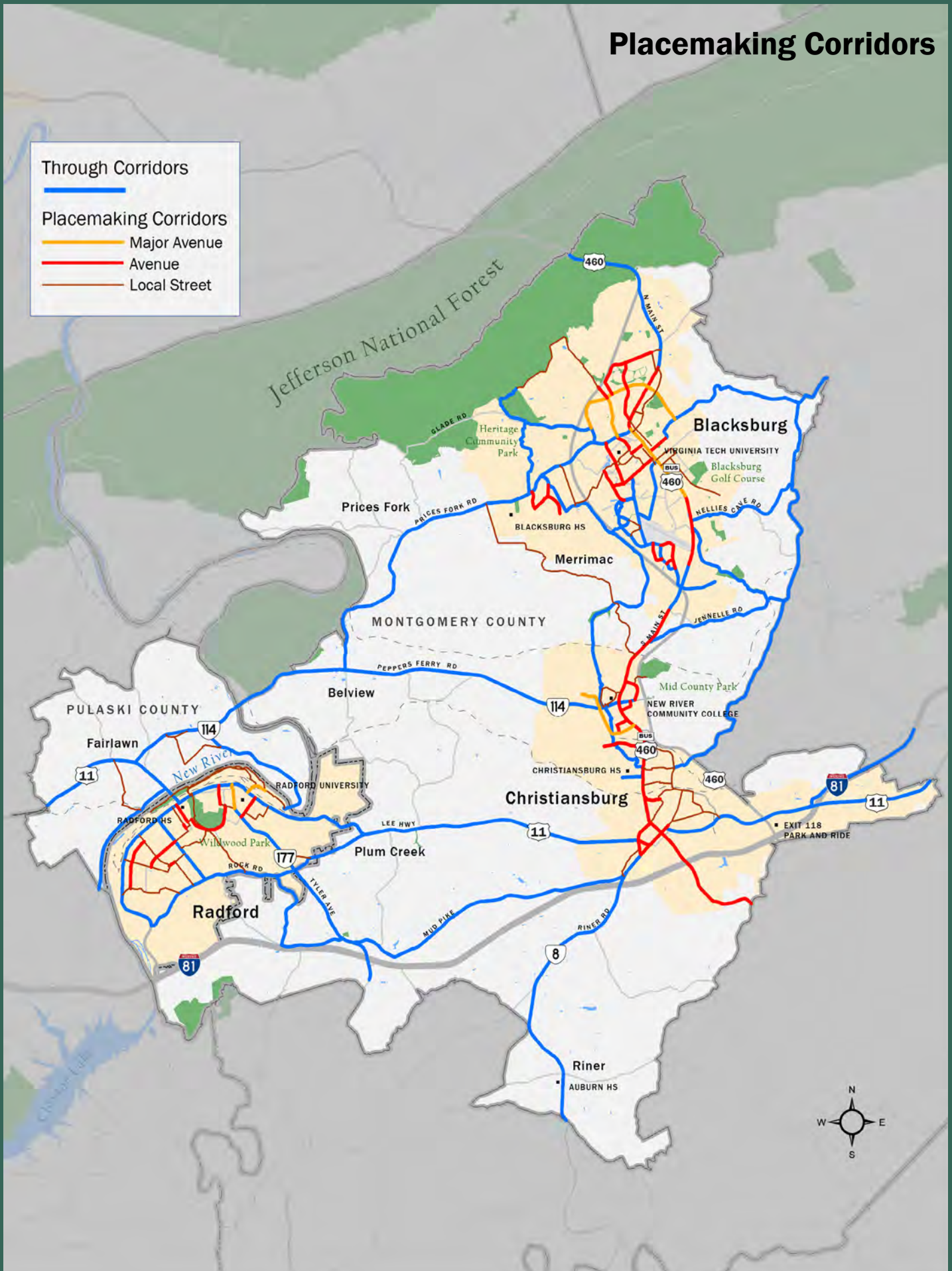


# Placemaking Corridors

Through Corridors

Placemaking Corridors

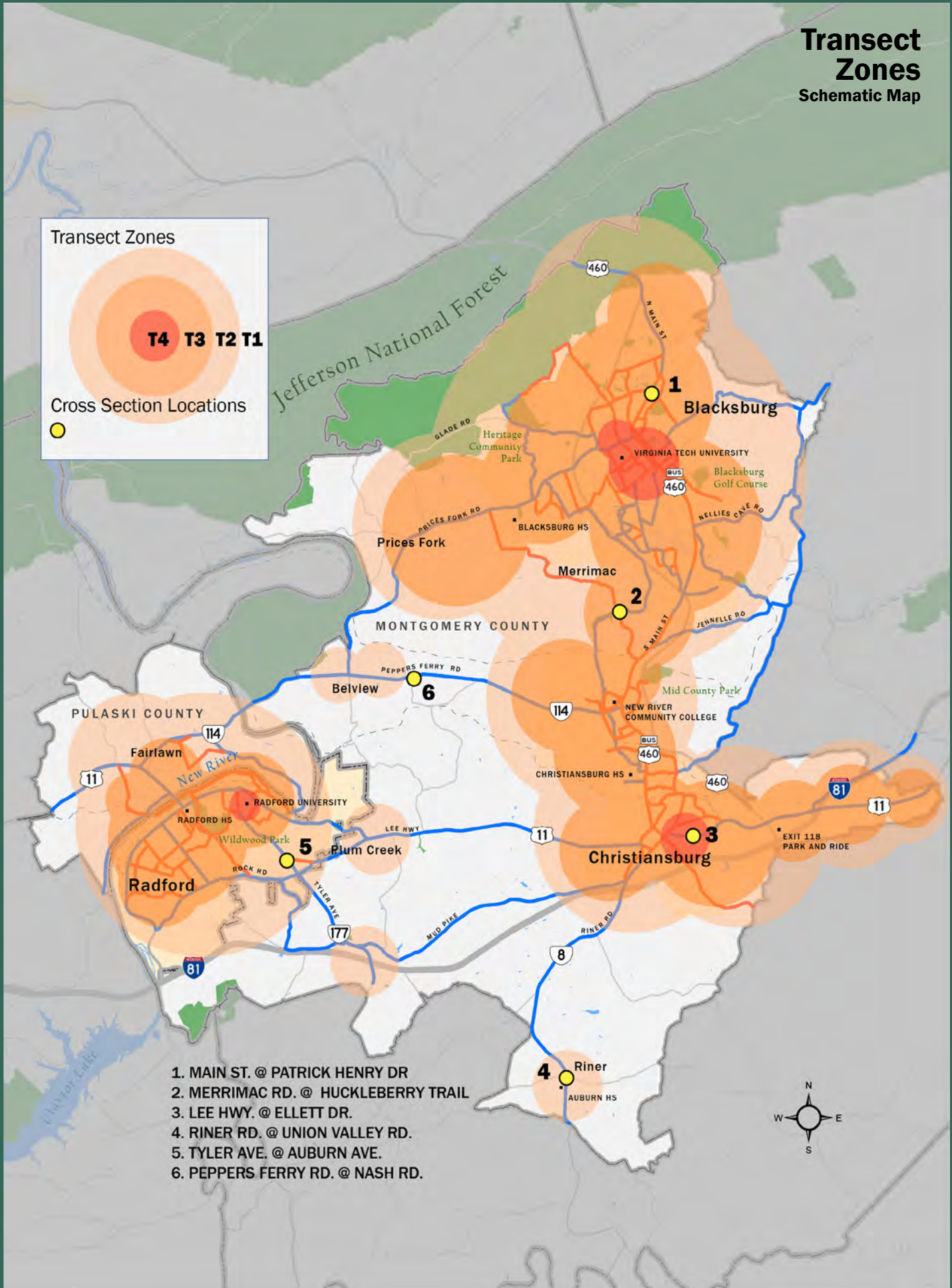
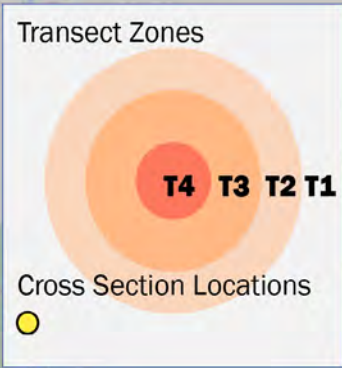
- Major Avenue
- Avenue
- Local Street





# Transect Zones

## Schematic Map



1. MAIN ST. @ PATRICK HENRY DR
2. MERRIMAC RD. @ HUCKLEBERRY TRAIL
3. LEE HWY. @ ELLETT DR.
4. RINER RD. @ UNION VALLEY RD.
5. TYLER AVE. @ AUBURN AVE.
6. PEPPERS FERRY RD. @ NASH RD.

## Transect Zones and Cross-sections

Transect zones are based on the overarching development pattern of a particular area. They are used to identify the level of intensity of development which is then used to determine the appropriate design for a corridor. Having identified multimodal districts and centers and selected a particular corridor for redevelopment, DRPT's *Multimodal System Design Guidelines* provides a matrix for selecting a prototype cross-section for reference. The final step in this process is to identify what transect zone the corridor is in.

As part of this plan, six corridors were selected based on the type of corridor and the location of the corridor, providing a variety of potential cross-sections. These are intended to be typical sections and not recommendations for future development or projects. The goal of this exercise is to demonstrate how multimodal planning can be used to develop a more interconnected system for multiple modes.

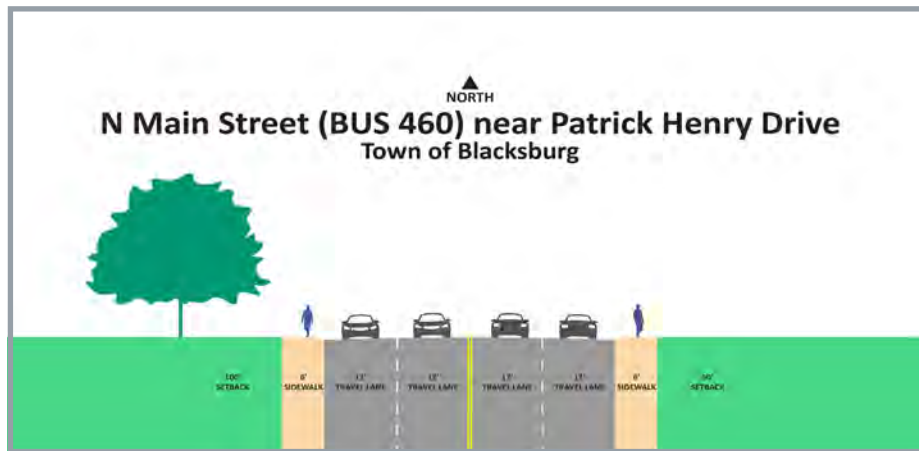
# THE PLAN

## N Main Street at Patrick Henry Drive Blacksburg T3 Placemaking Corridor (Avenue)



This section of US 460 Business is four lanes of traffic with no median, no on-street parking, and 6' sidewalks. Modification of this corridor into one with a modal emphasis on bicycles could look like a road diet; the right-of-way would be converted into two through lanes with a middle turn lane and bicycle infrastructure, such as a buffered bike lane, against the sidewalk.

### Existing Design



### Potential Design



*These proposals do not reflect potential projects, for illustration only.*



# THE PLAN

## Merrimac Road at the Huckleberry Trail

Montgomery County

T2 Placemaking Corridor (Local Street)



This location is of particular importance because it is a trailhead for the Huckleberry Trail, near the entrance and trailhead for the Coal Mining Heritage Park and Loop Trail, and a potential corridor for future transit service. It is a unique situation where a typical section may not provide an ideal amount of guidance, but placemaking elements and pronounced bus amenities at this location would help to slow traffic.

### Existing Design



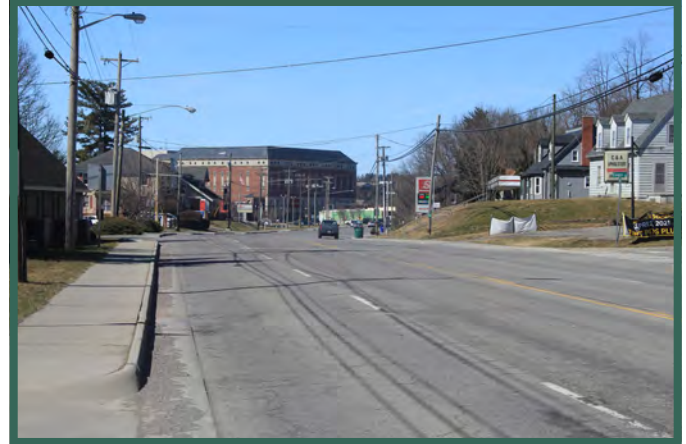
### Potential Design



*These proposals do not reflect potential projects, for illustration only.*

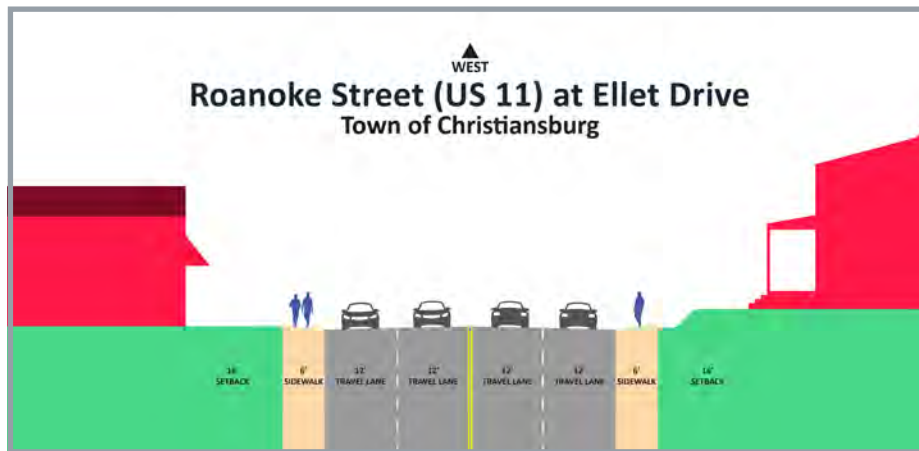
# THE PLAN

## Roanoke Street at Ellett Drive Christiansburg T4 Placemaking Corridor (Avenue)



Christiansburg's downtown is on the lower end of the T4 spectrum but it is a typical urban corridor where long-term redevelopment could not only increase the density in the area and along US 11, but strengthen the transit emphasis as well. In this case, it might be appropriate to consider a road diet to add bicycle infrastructure and reduced speeds.

### Existing Design



### Potential Design



*These proposals do not reflect potential projects, for illustration only.*

# THE PLAN

## Riner Road at Union Valley Road

Montgomery County

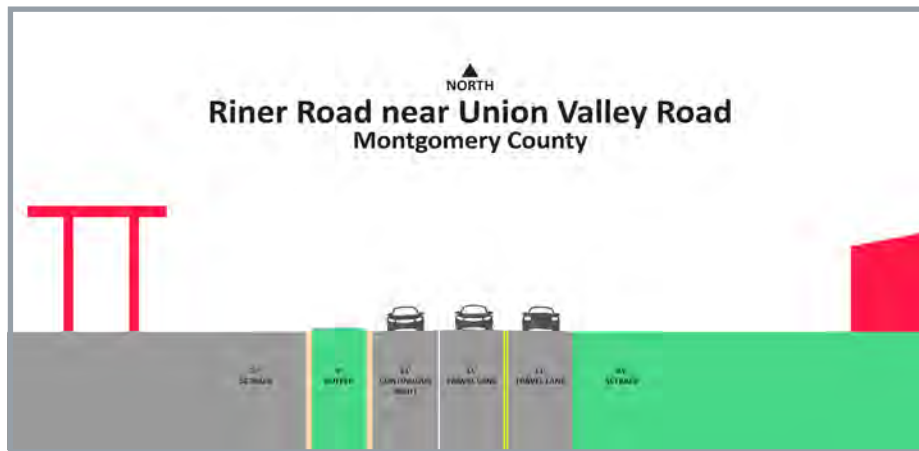
T2 Placemaking Corridor

T2	Building Frontage	A	45'
	Sidewalk Through	B	10'
	Amenity	C	22'
	Curbside Activity	D	n/a
	Bicycle	E	shared <sup>b</sup>
	Travel Lane	F	12'
	Median	G	40'



Riner Road is a good example of a through corridor that should slowly transition into a placemaking corridor as the district and center grow. The additional continuous turn lane provides access to the commercial establishments and school campus right now but could be modified to serve as a shoulder for bicyclists in the future.

### Existing Design



### Potential Design



*These proposals do not reflect potential projects, for illustration only.*



# THE PLAN

## Tyler Avenue at Auburn Avenue

Radford

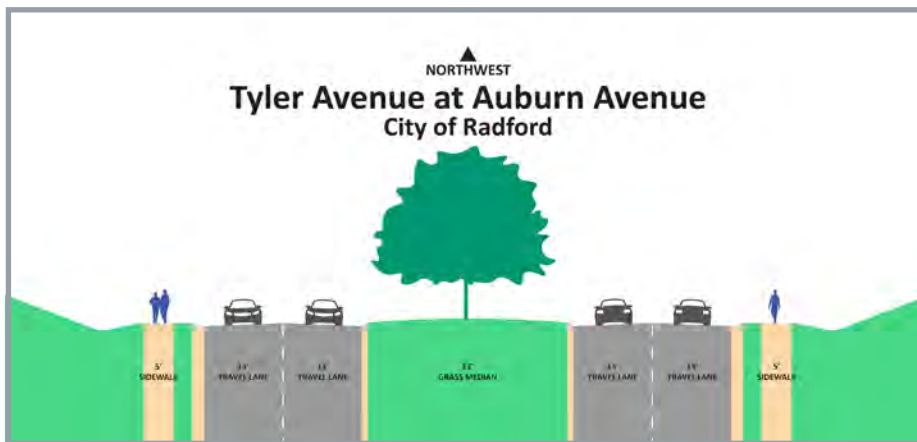
T2 Through Corridor

T2	Building Frontage	A	45'
	Sidewalk Through	B	10' <sup>00</sup>
	Amenity	C	22'
	Curbside Activity	D	n/a
	Bicycle	E	shared <sup>h</sup>
	Travel Lane	F	12'
	Median	G	40'



Currently this section of Tyler Avenue functions like a through corridor, providing the connection between I-81 and the urban part of Radford. Its intersection with Auburn has some moderate development in the form of a hotel and some other low intensity commercial uses. This has been selected by Radford as an area of future growth. It is unlikely the overall density would change and it would remain in the same transect zone, but the street could be designed to accommodate more modes comfortably, especially bicycles, through some modifications to the right-of-way.

### Existing Design



### Potential Design



*These proposals do not reflect potential projects, for illustration only.*

# THE PLAN

## Peppers Ferry Road at Nash Road

Montgomery County  
T1 Through Corridor

T1	Building Frontage	A	45'
	Sidewalk Through	B	10'*
	Amenity	C	8'
	Curbside Activity	D	n/a
	Bicycle	E	shared*
	Travel Lane	F	12'
	Median	G	40'




Peppers Ferry between Christiansburg and the Belview community is a true through corridor in a T1 transect. Assigning a bicycle modal emphasis to this corridor would likely look like a physically separated trail similar to the Capital Trail between Richmond and Williamsburg. Otherwise it continues to be a multimodal corridor with a transit emphasis for Pulaski Area Transit service.

### Existing Design



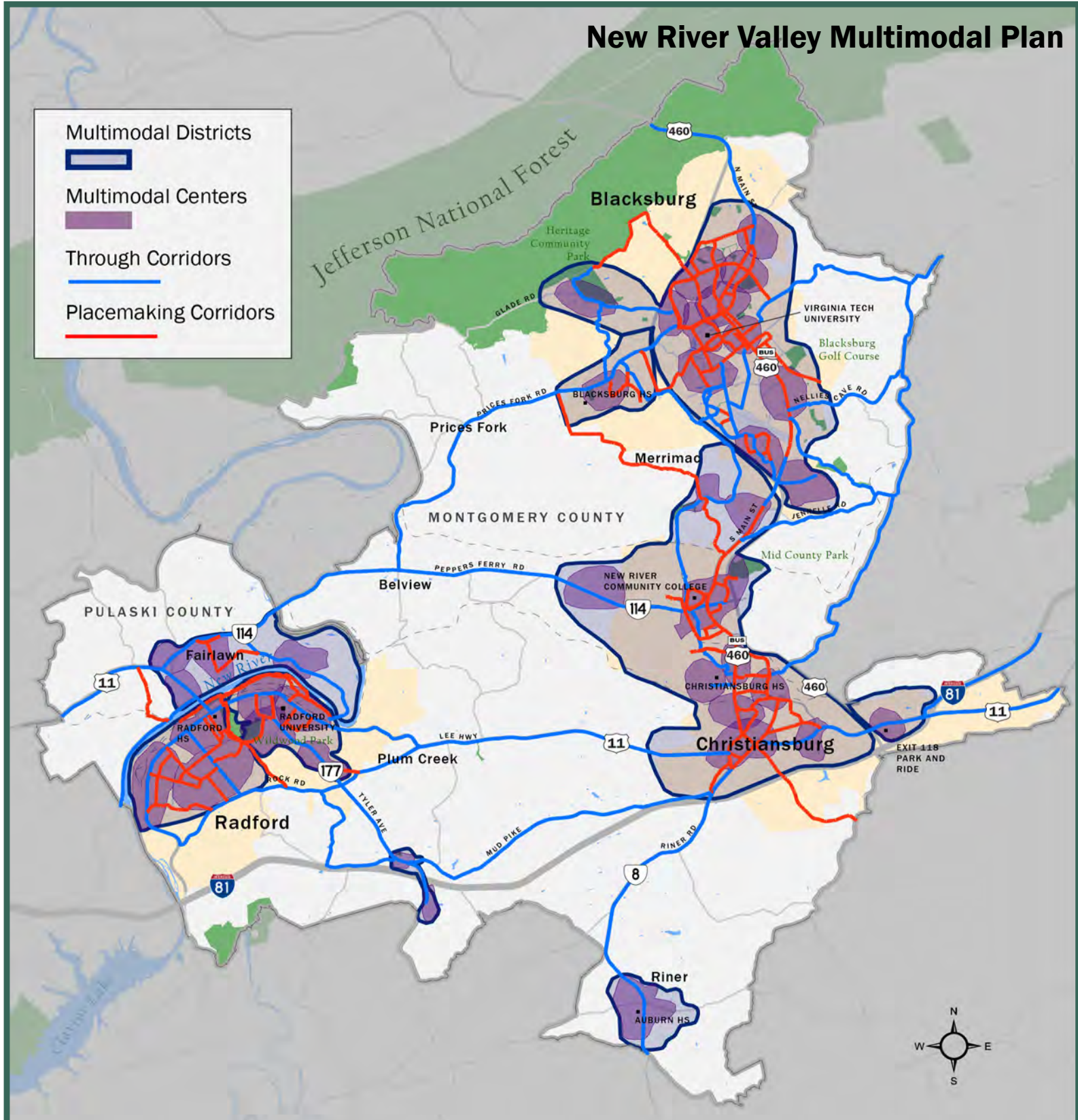
### Proposed Design



*These proposals do not reflect potential projects, for illustration only.*

# THE PLAN

The full New River Valley Multimodal Plan is below.





# NEXT STEPS

# 4

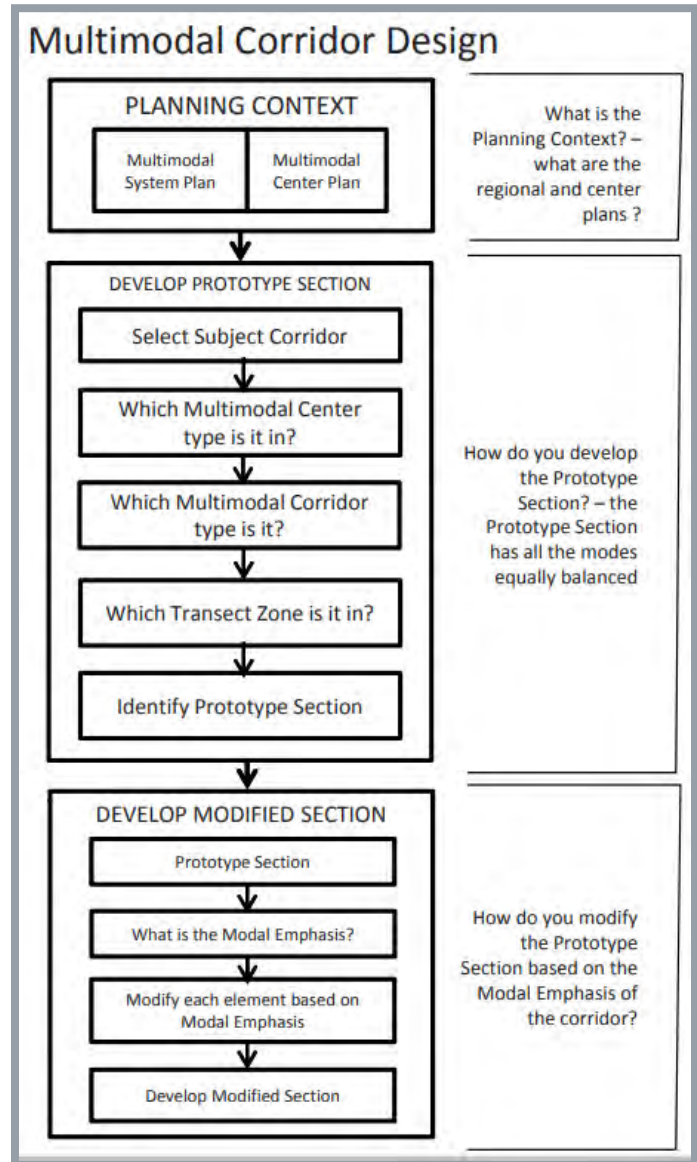
## Path to Implementation

The New River Valley Multimodal Plan is a regional document. It is an element of the MPO's planning program, but more importantly, it is intended to serve as general guidance for the entire region. At its core, the intent of this document is to provide guidance to decision makers, technical staff, and others responsible for identifying opportunities for improvements to the transportation network and making those improvements happen. Many of New River Valley's transportation projects serve as examples of good planning. Projects like the Huckleberry Trail and the Roam NRV bikesharing program require participation from multiple jurisdictions and the MPO. To that extent, the project team approached this plan with a focus on improving connections in the region.

Briefly, the goals of multimodal planning are to design for safety, design to move people, ensure universal accessibility, and acknowledge that streets can change. By using the multimodal planning framework, planners and engineers can consider a variety of options for how to improve a right-of-way or how to make a corridor safer for pedestrians and cyclists. There is no one correct approach.

Any potential street project such as repaving or adding curb and gutter is an opportunity for planners to consult the multimodal planning document and consider the potential design strategies that will meet the aforementioned goals. More simply, any potential corridor study or project is an opportunity to implement this plan.

The following specific recommendations were developed throughout the planning process by working with stakeholders, reaching out to the public, and incorporating past planning efforts. The purpose of these recommendations is to provide support to the full multimodal transportation network by ensuring the different elements connect to one another. Partners for each recommendation have been identified and potential funding sources have been listed. Multimodal corridor studies can be funded through a number of federal and state



Multimodal corridor design from DRPT's *Multimodal System Design Guidelines*

sources such as Federal Transit Administration grants (coordinated through DRPT) or VDOT's Transportation Alternatives (TA) program. Studies or projects that address a need identified in VTrans for corridors of statewide significance, the regional network, a UDA, or safety are eligible for SMART SCALE funding.

# NEXT STEPS

## Recommendations

The following projects were selected during the planning process because of their potential to expand and enhance multimodal connections throughout the region. Each project description includes suggestions for partnership opportunities and funding, and a planning-level time frame. Long-term projects generally require more funding and major planning studies before implementation while short-term projects are lower cost and/or do not require additional studies.

### Expand Bikeshare Programs

#### *Roam NRV Expansion*

Currently the Roam NRV program is largely based out of Blacksburg with two stations in Christiansburg. Expansion of the program is already underway and in the future, as the network is built out, connectivity to the bike sharing network should be a consideration for all new road projects where bicycle infrastructure is being added. This not only expands the reach of the bikeshare program but underscores the relationship between accessibility to additional modes of transportation and accessibility to the overall transportation network. Approximately 14 additional bikeshare hubs will be installed, and the original fleet of 75 bikes will be replaced with 150 “electric-assist” bikes in 2021.

- **Planning Time Frame:** Ongoing
- **Partners:** Blacksburg, Christiansburg, Montgomery County, Virginia Tech, NRVMPPO
- **Funding Sources:** Local, program revenue, DRPT

#### *Radford Bikeshare Program*

Additionally, a bikeshare program in Radford would be a way to increase mobility and accessibility beyond campus. Radford University’s proximity to the Riverside Trail, its network of slow-speed residential streets, and the linear downtown would be well served by a program similar to Roam NRV but at a smaller scale. Smaller programs have been implemented or considered in the state (Danville

and Winchester, respectively). Though Radford’s population is less than both of those cities, the presence of a university may provide both a user base and funding partner. A Radford bikeshare feasibility study led by either the city or the MPO should be considered.

- **Planning Time Frame:** Short-term
- **Partners:** Radford, NRVMPPO
- **Funding Sources:** DRPT, VDOT

### Huckleberry Trail Improvements and Expansion

#### *Safety Improvements*

The Huckleberry Trail should continue to be a priority for the region and localities moving forward. The Renva W. Knowles Bridge across Peppers Ferry Road is a statement of the region’s dedication to ensuring the safety of Huckleberry Trail users. Two other crossings were highlighted as problematic. Friends of the Huckleberry are actively working on part of Prices Fork Road near its current at-grade crossing at Heather Drive. They have acquired the land and are currently working on design and construction phases. The other crossing, at Merrimac



Merrimac Road at the Huckleberry Trail is a location where a corridor or access study is recommended

## NEXT STEPS

Road, requires additional analysis for an engineering solution.

The corridor is also of concern for potential public transit. The convergence of the Huckleberry Trail, Slate Branch, Hightop Road, and the entrance to the Coal Mining Heritage Park makes this a safety concern for all modes. Additionally, a volunteer “ambassador” program would be a low-cost improvement for the Huckleberry Trail. These volunteers could patrol the trail, providing assistance where needed, directions to visitors, and supplies like water or first aid.

- **Planning Time Frame:** Short-term
- **Partners:** Blacksburg, Montgomery County, Friends of the Huckleberry
- **Funding Sources:** Local, VDOT, SMART SCALE, private parties

### *Expansion to Downtown Christiansburg*

Currently, the Huckleberry Trail ends south of Christiansburg High School, less than a mile short of downtown. There are two major obstacles to this: Crab Creek and the Norfolk Southern railroad tracks. Notably, Christiansburg owns land on the south side of the tracks on Mill Lane, the future location of a passenger rail station. This land connects the trail to the Christiansburg Aquatic Center, Depot Park, and additional transit opportunities. A connection would solve potential land acquisition concerns as it opens the opportunity for the Huckleberry Trail to be directly connected to the future passenger rail corridor. It also presents another major road crossing which would need to be remedied. A connection between the two towns would be a signature accomplishment and using the rail station as a means to finalize that connection would be appropriate. With passenger rail, automobile access, transit connections with multiple providers, bikesharing, and regional trail access, a rail station would be a quintessential multimodal facility.

- **Planning Time Frame:** Long-term (trail alignment study south of Crab Creek), long-term (passenger rail station development)

- **Partners:** Christiansburg, NRVMP, DRPT, VDOT
- **Funding Sources:** Local, DRPT, VDOT, SMART SCALE

### **Valley to Valley Trail**

The Valley to Valley Trail is an ongoing project looking at the establishment of a multi-use trail connection between the Roanoke River Greenway in Roanoke County to the New River Trail State Park in Pulaski. No alignment has been selected, but it is anticipated to be a long-term, phased project where segments of independent utility are designed and constructed. All alternatives include a connection with both the Huckleberry Trail and the Riverside Trail in Radford. This project would also ultimately establish a dedicated bicycle connection between Montgomery County, Radford, and Pulaski County. This connection is represented in the New River Valley MPO Multimodal Plan as a multimodal connection via Peppers Ferry Road, Lee Highway, or Mud Pike. The alignment will depend on a number of factors, but the goal is to provide a facility not unlike the Capital Trail between Richmond and Jamestown where road crossings are minimal and there is a physical buffer between the pathway and the road. Once established, it would create a network from the City of Roanoke to the City of Galax.

- **Planning Time Frame:** Long-term
- **Partners:** VDOT, Roanoke County, Montgomery County, Christiansburg, Blacksburg, Radford, Pulaski County
- **Funding Sources:** VDOT, SMART SCALE





# NEXT STEPS

## New River Bridges

Radford and Pulaski County are in a unique position to have two opportunities for new infrastructure across the New River. Preliminary plans were developed for the conversion of the existing railroad trestle east of Radford to a paved shared use trail which would connect the southern edge of the Pete Dye River Course in Pulaski County to the southern end of Radford University's campus near the baseball stadium. This crossing could ultimately be a bicycle and pedestrian connection to Radford from Peppers Ferry Road via a facility parallel to Viscoe Road. This has been identified as one alternative for a future Valley to Valley Trail.

The second potential crossing is on the western edge of the city, parallel to the existing Norfolk Southern tracks west of the New River Bridge (US 11). Only the piers of a former bridge remain; establishing a trail using this infrastructure would require a significant investment but would offer another opportunity for non-motorized regional connectivity

and another potential crossing of the New River dedicated to bicycles and pedestrians.

- **Planning Time Frame:** Short-term (eastern bridge), long-term (western bridge)
- **Partners:** Pulaski County, Radford, VDOT
- **Funding Sources:** VDOT, SMART SCALE

## Mid County Park Connection

Christiansburg is anticipating significant growth around the Peppers Ferry Road and Franklin Street. In addition to the existing development at Uptown Christiansburg (which includes a New River Community College campus), Christiansburg Marketplace east of Franklin Street is slated for major redevelopment with the addition of multifamily residential, a hotel, and a grocery store.

To the north, there is a pedestrian bridge which crosses the US 460 bypass that is only accessible from a small neighborhood off of Franklin Street. It connects to the parking lot for the Golden Hills Disc Golf Course on Authority Drive, adjacent to Mid-County Park. Connecting future residents of Christiansburg Marketplace to one of the largest parks in Montgomery County using an existing bridge would require construction of an additional paved path, a majority of which could be constructed in the VDOT right-of-way.

- **Planning Time Frame:** Short-term
- **Partners:** Montgomery County, Christiansburg, VDOT
- **Funding Sources:** VDOT, SMART SCALE

## East/West Connections in Radford

One of the notable gaps identified during the development of this plan was the lack of connectivity between the two halves of Radford. Main Street, 2<sup>nd</sup> Avenue, and Rock Road are the only options for travel. All three are multimodal in nature with a heavy transit presence on Main Street, shared use paths on 2<sup>nd</sup> Avenue, and bicycle facilities on parts of Rock Road. Main Street is a good opportunity for employment of multimodal planning as there



is opportunity to better physically and visually emphasize transit, bicycles, and pedestrians in the corridor. It is also an opportunity to strengthen the connection among a variety of centers along Main Street: Radford High School, the entrance to Bisset Park, and the East Main Street/Radford University area. Additionally, 2<sup>nd</sup> Avenue has been greatly improved in the past few years, but those improvements are limited to the roundabout at Park Road and Belle Heth Elementary School. Beyond the school, 2<sup>nd</sup> Avenue has a narrow sidewalk on one side of the street, disrupting the continuity of the multimodal corridor before it reaches Lawrence Street and Radford University. Rock Road's bicycle facilities should be extended for its entirety between Tyler Avenue and West Main Street.

- **Planning Time Frame:** Short-term
- **Partners:** Radford, VDOT
- **Funding Sources:** VDOT, SMART SCALE

### Support Technology & Innovation

#### *Regional GIS Database*

Currently, area transportation data is kept individually by each locality, university, and transit provider. Each data manager has different rules and methods for collecting and storing data which causes issues such as gaps/missing data, differences in the types of data collected, maintenance deficiencies,

and inconsistent naming systems. This can lead to difficulties in analyzing projects, particularly regional projects that cross jurisdictional boundaries. To aid area decision-makers, a regional database should be created containing transportation network and related area data with a uniform format and nomenclature. In addition, it can be a useful tool for smaller towns who might lack the resources to collect and manage their own data.

- **Planning Time Frame:** Short-term
- **Partners:** Blacksburg, Christiansburg, Montgomery County, Virginia Tech, Blacksburg Transit, Radford Transit, Pulaski Area Transit, NRVMPPO
- **Funding Sources:** VDOT, DRPT, Local

#### *Regional Cross-system Technologies*

With four transit systems serving the region in various capacities, a bikeshare program, and a scooter-sharing that will relaunch in 2021, there may be potential for linking these programs together with a single technology for simplifying the process of scheduling trips across multiple platforms. This would allow people to check transit schedules on multiple systems to assist with transfers and reserve scooters or bicycles at their destinations.

- **Planning Time Frame:** Short-term
- **Partners:** NRVMPPO, DRPT
- **Funding Sources:** DRPT



