

CHAPTER IV

STATE OF THE SYSTEM

This State of the System Report is the existing conditions element of the Connect Central Virginia 2045 Plan, which serves as the CVTPO's Long Range Transportation Plan (LRTP). VDOT is the source of all data related to roadways, crashes, bridges and culverts. DRPT and the Greater Lynchburg Transit Company provided data related to transit. The Central Virginia Planning District Commission (CVPDC) and its constituent localities of Amherst (Town and County), Appomattox (Town and County), Bedford (Town and County), Campbell County and the City of Lynchburg provided all other data, unless otherwise noted.



ROADS

With four counties, three towns and an independent city, the PDC has an extensive road network of 5,077 linear miles of roads, with 1,591 of the road miles lying within the Metropolitan Planning Area (MPA). Since LRTPs traditionally focus on regional networks, this chapter will focus on the regional roads as recognized by VDOT in their State Planning System (SPS) 2017 dataset. The SPS roads in the PDC total to 1,378 miles, with 423 miles situated in the MPA. The focus of this document is on the TPO area, which includes the City of Lynchburg, Amherst County, Appomattox County, Bedford County, Campbell County and the Town of Amherst.

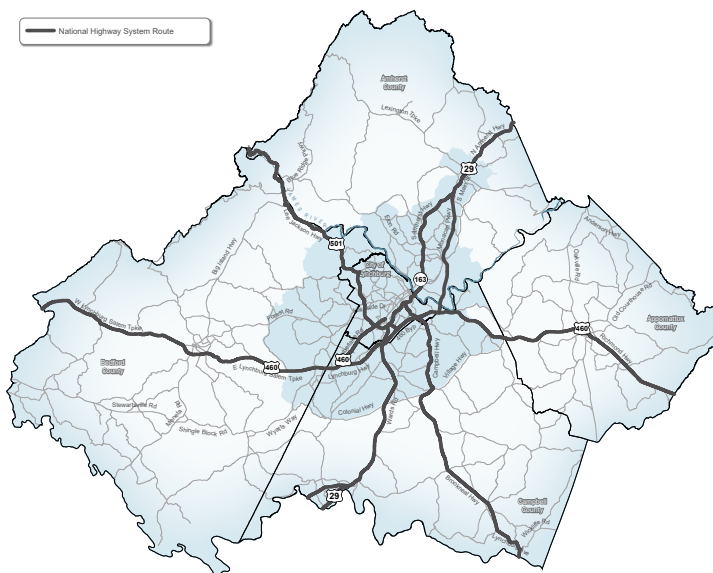
FACILITIES

The MPA is served by a robust arterial network, which makes up for the lack of interstate highways. A number of improvements in recent years have upgraded lengthy segments of US Routes 460 and 29 to interstate limited access standards, which allows those routes to function similarly to interstate highways. The arterial network is supported by a network of major and minor collectors. **Figure 11** explains how the functional classification of roads relates to the balance between access and mobility. In this context, access refers to the amount of useful destinations that can be reached and mobility refers to the ease of reaching destinations. Local roads tend to intersect with driveways and other entrances more often than higher order roads, such as collectors and arterials, so more destinations can be reached directly from local roads than the higher order roads. Consequently, speed limits tend to be lower and congestion higher on local roads, which results in lower mobility levels than on the higher order roads. **Figure 10** shows the VDOT Functional Classification of the MPA's regional road network. **Figure 9** shows the National Highway System (NHS) routes that pass through the MPA.

Corridors of Statewide Significance

The Virginia Statewide Multimodal Freight Study identified twelve Corridors of Statewide Significance (CoSS) in Virginia that represent the vital multimodal corridors that connect the Commonwealth's major activity centers to one another and to other states. These corridors carry a high volume of both freight

Figure 9: National Highway System routes in the PDC | Source: Bureau of Transportation Statistics (BTS)



and passenger travel and are considered priorities for state transportation improvement funding. Two CoSS routes cross the MPA: the Seminole Corridor (US Route 29) and the Heartland Corridor (US Route 460.)

Freeways and Expressways

The MPA has three Freeways and Expressways. Lynchburg Highway (on US Route 460), the Lynchburg Expressway (on US Route 501 and US Route 29 Business) and Monacan Parkway (on US Route 29). Lynchburg Highway and Monacan Parkway facilitate travel around the eastern edge of Lynchburg. The Lynchburg Expressway circulates traffic throughout the city, connecting the Downtown with the major commercial areas around the intersections of US Routes 221 and 501 and the urbanized area of Forest in a horseshoe shape. The Expressway provides access to a number of employment and shopping centers along the Timberlake and Wards Road corridors. The Freeways and Expressways total 39 miles of the regional road network.

Arterials

With the exceptions of Candler's Mountain Road, Memorial Avenue, Fifth Street and South Amherst Highway, the CoSS routes serve as the region's Principal Arterials. Principal Arterials connect Downtown Lynchburg with the low-density areas



Figure 10: VDOT Functional Classification | Source: VDOT

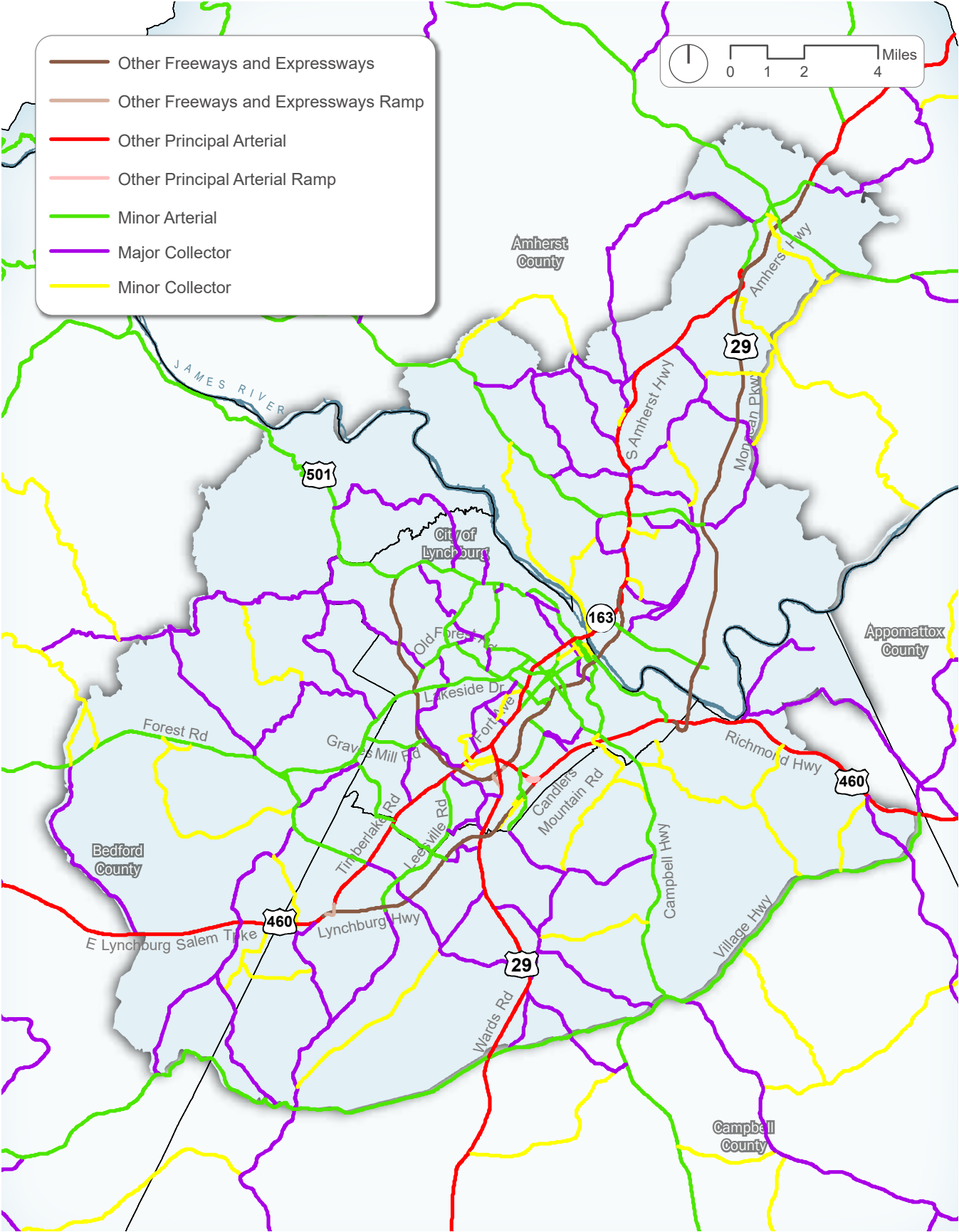
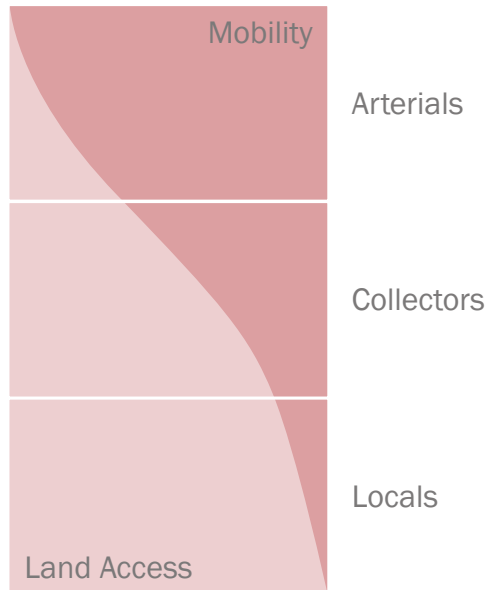


Figure 11: Access vs. mobility diagram



beyond the urban core and with the surrounding localities. The Principal Arterials constitute 48 miles of the MPA's regional road network.

The MPA's Minor Arterials provide access to the commercial area around the interchange of US Routes 221 and 501 and throughout the downtown area. The area's Minor Arterials encompass 101 miles of the road network.

Collectors

Major and Minor Collectors make up much of the MPA's regional road network. Major Collectors total to 160 miles of the network and Minor Collectors add up to 75 miles of the network.

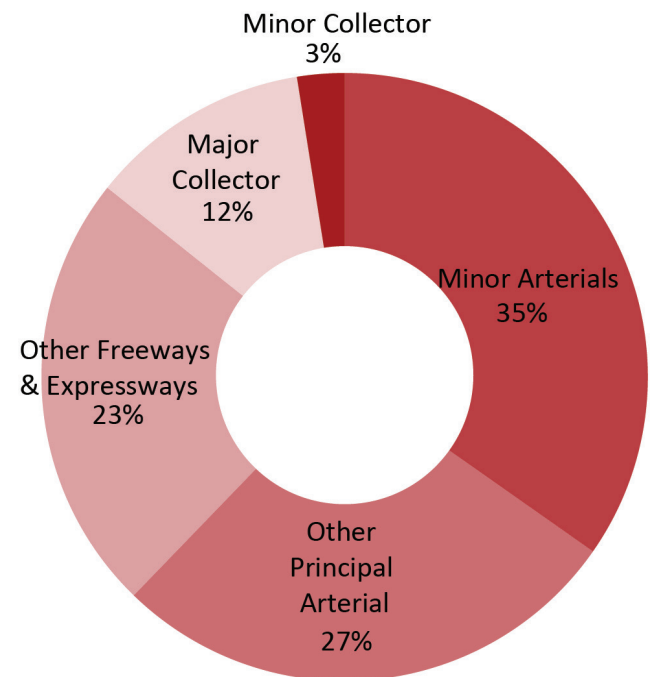
Local roads

Local roads make up the majority of the road network, with 1,168 miles of roads. LRTPs generally focus on regional networks, rather than local streets, though these facilities are important for providing access to the higher-order facilities.

TRAFFIC VOLUMES

Vehicle Miles Traveled (VMT) measures the total annual amount of miles vehicles travel in an area. For the PDC as a whole, VMT has increased consistently since 2012, but plateaued between 2017

Figure 12: AADT by functional classification in the MPA | Source: VDOT SPS 2017



and 2018, the most recent year for which data was available. **Figure 14** shows how the increase in VMT was largely driven by consistent increases in Amherst County and the City of Lynchburg. VMT in Lynchburg has tapered off since 2016, around when Bedford County saw a sharp uptick in VMT followed by a tapering off between 2017 and 2018. The uptick in Bedford is likely the result of an increase in the number of businesses located along with the US Route 221 corridor. Unlike the other localities and the PDC, Amherst County saw a considerable increase in VMT between 2017 and 2018.

Figure 13 exhibits the Annual Average Daily Traffic (AADT) for the MPA in 2017. AADT estimates the number of vehicles that move on a road segment on a daily basis. Per Functional Classification, Minor Arterials carried the most vehicles in the MPA, followed by Principal Arterials, as seen in **Figure 12**. Segments on Richmond Highway and the Lynchburg Expressway recorded the highest vehicle counts in 2017, with counts between 39,000 and 51,000. The most traveled segment was on Richmond Highway/US Route 460, between the interchanges of US Route 29 and US Route 501, which conveyed an average of 50,149 cars on a daily basis in 2017.



Figure 13: Average Annual Daily Traffic in the MPA | Source: VDOT SPS 2017

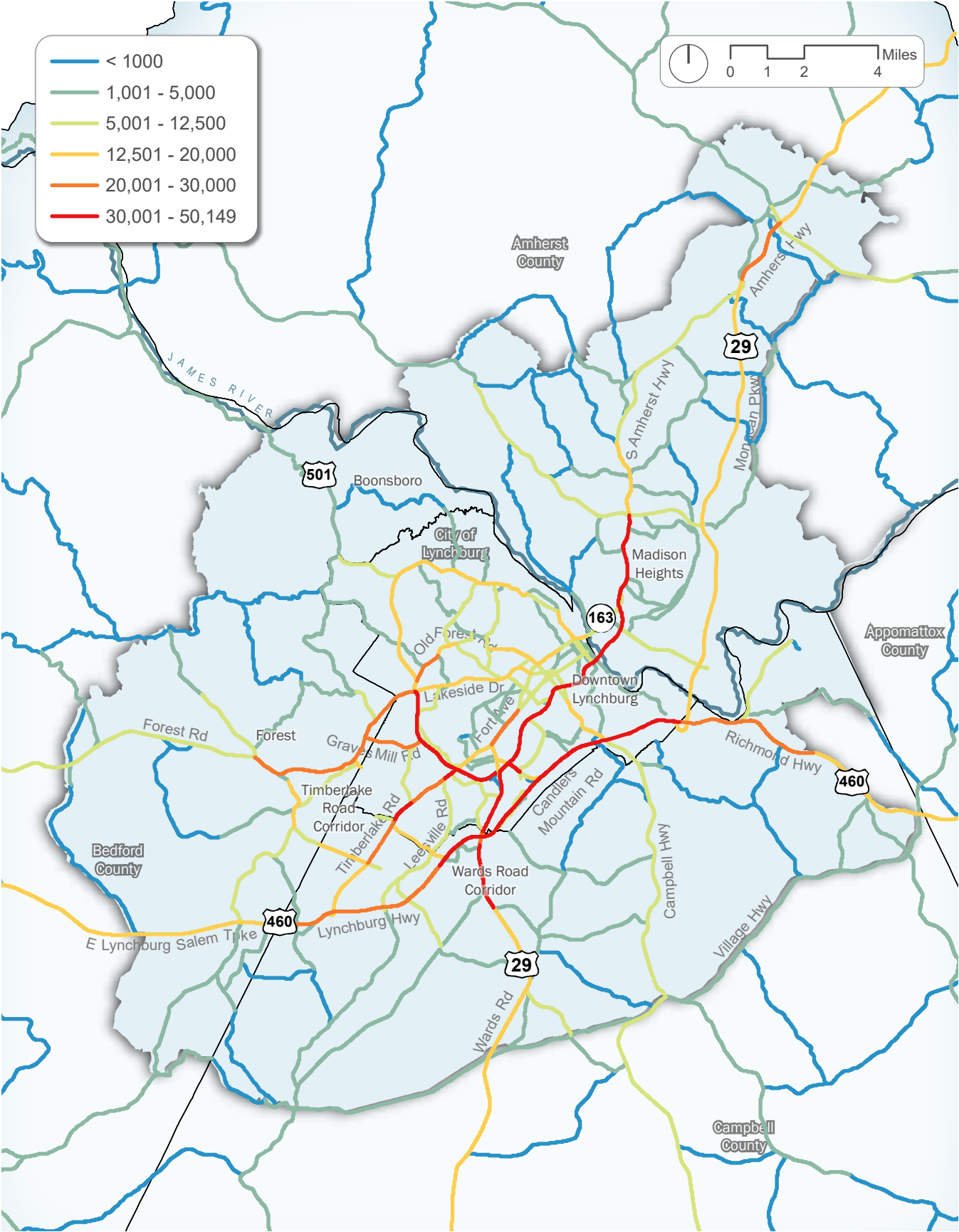
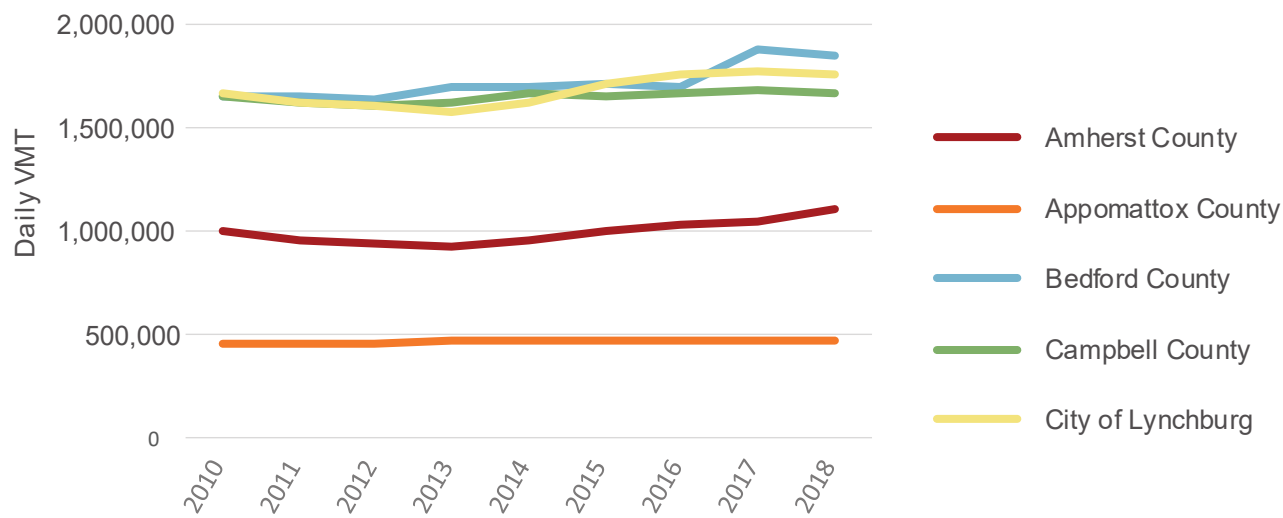


Figure 14: Daily vehicle miles traveled in the PDC counties | Source: VDOT



CONGESTION

Level of Service

Level of Service (LOS) describes the operating conditions of a road segment by measuring the speed and travel time, freedom to maneuver, traffic interruptions and comfort and convenience that prevail on said segment. LOS across the region is quite good on the whole. Only 81, (7%) of road segments received a rating of D or less. Of those 81 segments, 15 segments received an LOS of E and 1 received an LOS of F. The segment of US Route 221/Forest Road from Venture Drive (just east of Perrowville Road) to Thomas Jefferson Drive received the LOS of F. Segments of US Route 29/Wards Road, US Route 501/Forest Road and Enterprise Drive had LOS E ratings. **Figure 15** depicts the LOS for MPA road network segments in 2017 and **Figure 16** shows the same for 2045.

Volume-to-Capacity Ratios

Volume-to-Capacity (V/C) compares the number of vehicles that a road segment or intersection carries with the number that it could carry given its design elements. The capacity of the MPA regional road network as measured by V/C ratios shows a considerable number of segments that are approaching or are over capacity. The segment of US Route 221/Forest Road from Venture Drive to Thomas Jefferson Drive and the segment of US Route 460/Richmond Highway from the US Route 501 interchange to the US Route 29 interchange are both over capacity, with

V/C ratios of 1.31 and 1.02, respectively. Fourteen other segments, largely on US Routes 29, 221 and 460, show V/C ratios of 0.8 or higher. **Figure 17** displays the V/C ratios for the regional road network in 2017. With the exception of the above segments, much of the network remains well under capacity, with 85% of the area's road segments at less than half capacity.

Figure 18 shows the projected V/C ratios for the network in 2045. As in 2017, many of the segments projected to be at or near capacity fall on the main thoroughfares of the region including, Forest Rd/Lakeside Dr, US Route 460 and South Amherst Hwy. Additional capacity concerns occur on Thomas Jefferson Rd, Waterlick Rd, Wards Rd, Candler Mountain Rd and Rivermont Ave.

NEEDS AND CONCLUSIONS

Within the MPA, the VDOT SPS data described above informs the following conclusions. These conclusions help to define the TPO Goals, Performance Measures and Targets, elaborated in **Chapter VI**. The following also aids in the evaluation of roadway projects, conducted in **Chapter VII**, as projects prove to serve an existing and future need.

Balancing Growth and Capacity

The Weldon Cooper Center projects that the PDC will gain almost 30,000 people by 2040, with the City of Lynchburg taking 53% of the growth. The population increase will result in an increase in trip making, thereby increasing VMT. The MPA's stressed road



Figure 15: Level of Service in the MPA in 2017 | Source: VDOT SPS 2017

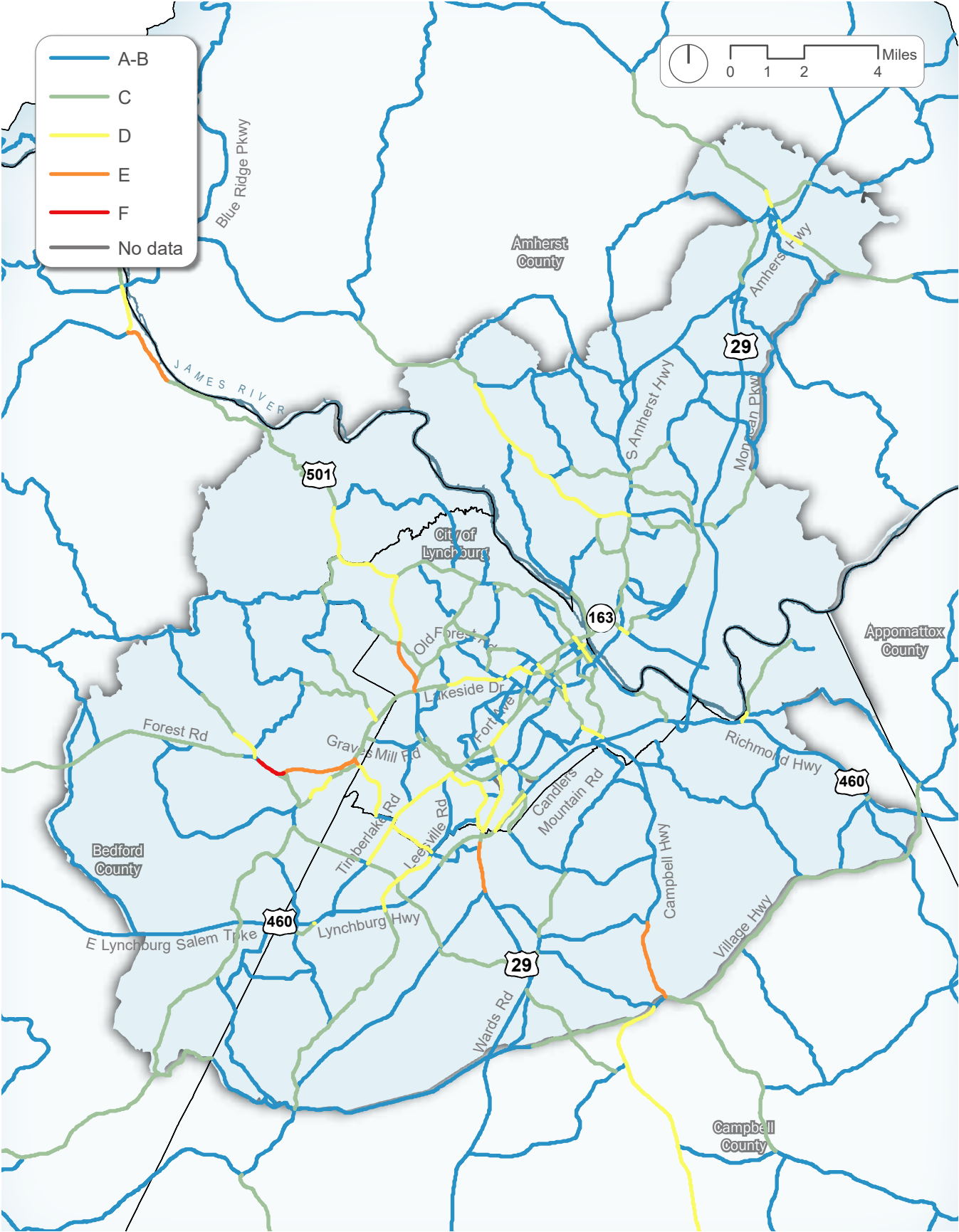


Figure 16: Level of Service in the MPA in 2045 | Source: VDOT SPS 2017

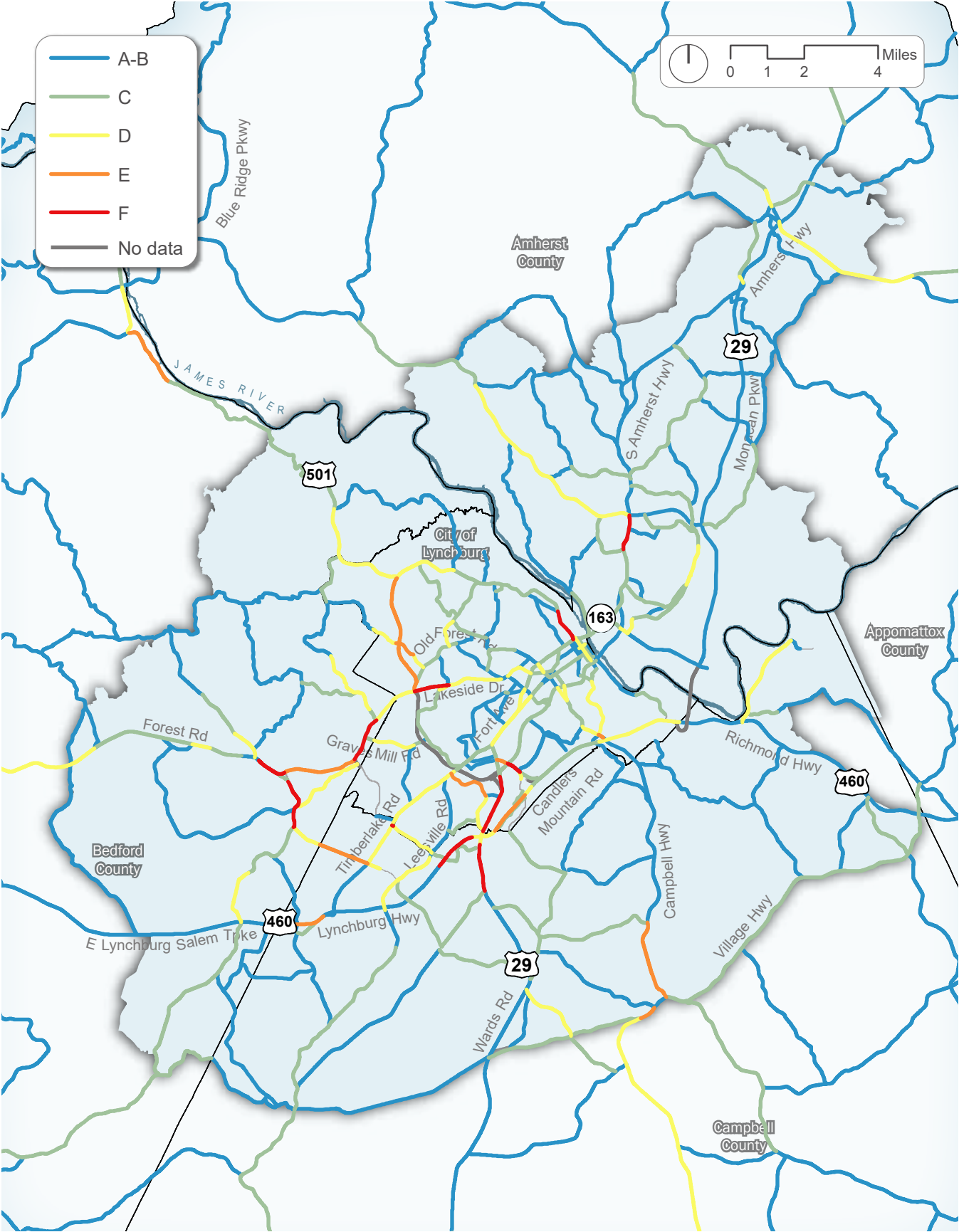


Figure 17: Volume-to-Capacity in the MPA in 2017 | Source: VDOT SPS 2017

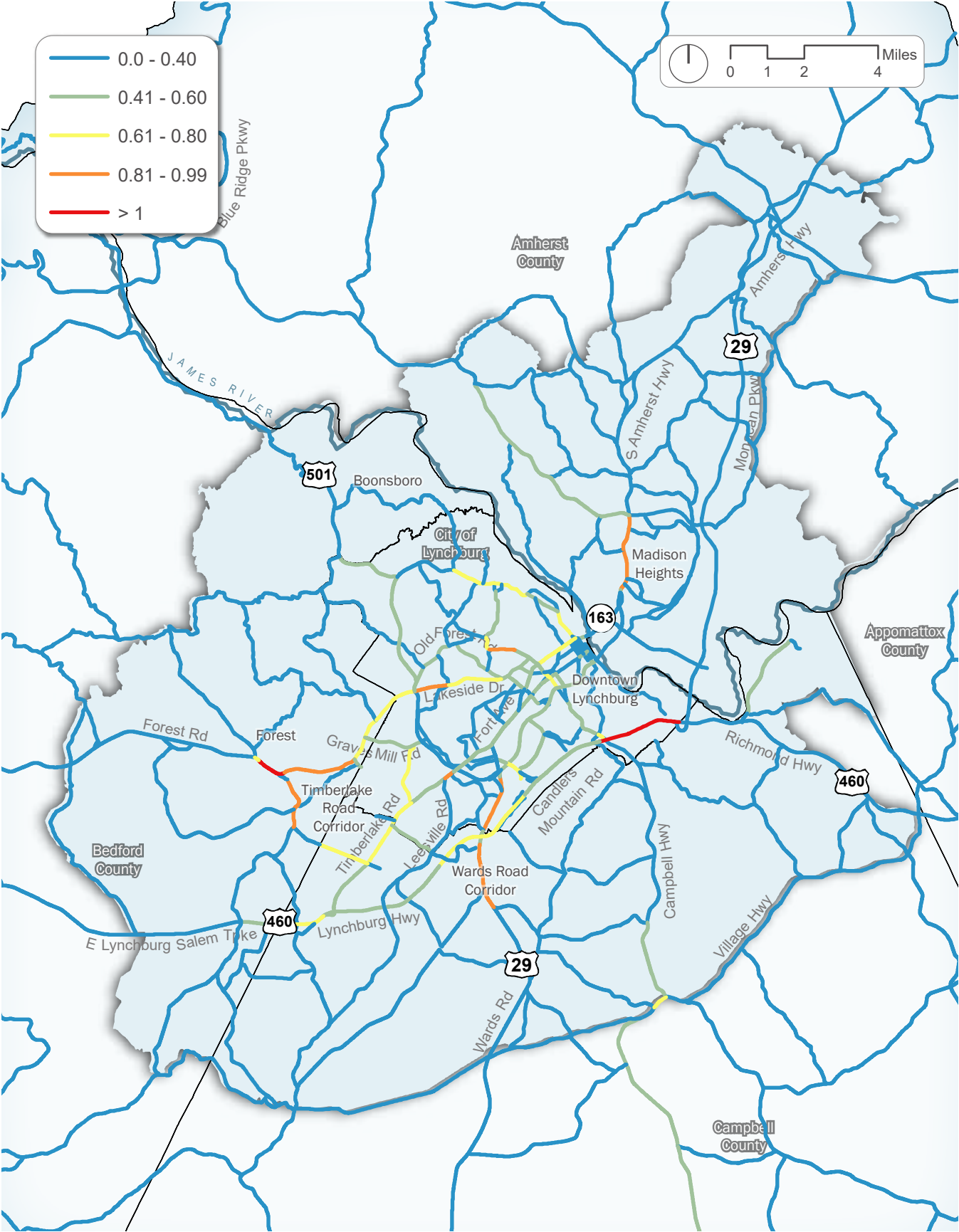
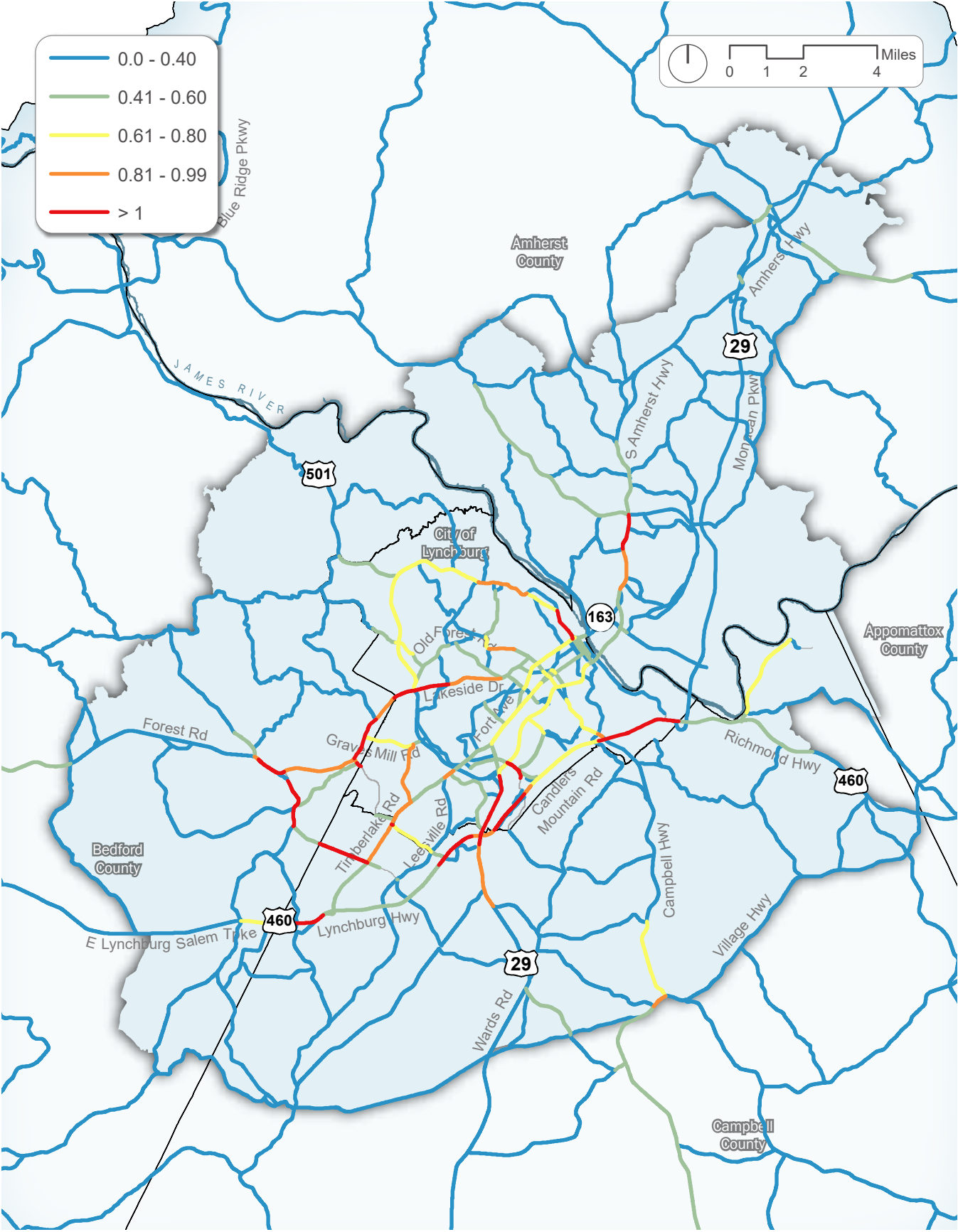


Figure 18: Volume-to-Capacity in the MPA in 2045 | Source: VDOT SPS 2017



segments, i.e., those mentioned above as exhibiting poor LOS or V/C measures, will see worsening LOS and V/C performance. Segments that are currently operating well will reach problematic capacity and LOS levels. Population growth will be especially onerous on the road network due to the heavy reliance on personal vehicles for making trips. Increasing roadway capacity will encourage more people to drive, which prevents the initial capacity increase from reducing congestion in the long-term, a phenomenon called induced demand. Due to induced demand, increasing the vehicle capacity of roadways alone is not a viable option for avoiding high congestion levels. The area's localities will need to implement policies that incentivize more efficient land uses and development patterns, as well as employ travel demand management strategies to increase modal share for more efficient modes, such as constructing bike lanes and sidewalks, incentivizing mixed use development, ride sharing and transit.

ROADWAY SAFETY

Safety is a vital concern for the region's transportation system. The ability of area residents to move safely is of paramount concern for the development of this plan. Preliminary stakeholder engagement, see Appendix E, has revealed that safety is a top priority for the area's decision makers.

CRASH OVERVIEW

In the last five years (May 31, 2014 to May 31, 2019), there were 17,761 crashes in the PDC and 11,480 in the MPA. Of the MPA crashes, 53 were fatal, 619 were severe and 3,311 caused visible or non-visible injuries. **Figure 19** shows the crashes in the MPA, and **Figure 20** shows the crashes by type.

POTENTIAL FOR SAFETY IMPROVEMENT

Potential for Safety Improvement (PSI) is the ratio of the number of crashes that occur at a specific location over the number of crashes expected at that location based on characteristics of the roadway. VDOT calculates the PSI values for intersections and road segments across the state and creates rankings for each type across each district. PSI locations

are more likely to receive funding for implementation and are emphasized in the Statewide Transportation Plan (VTrans). Given this importance, PSI locations should be a focus of LRTP assessments.

Based on crash data between 2013 and 2017, VDOT identified 501 PSI segments and 146 PSI intersections in the MPA. **Figure 21** shows the PSI locations in the MPA. The following pages highlight the highest ranked PSI locations in the Lynchburg and Salem VDOT districts that are within the MPA. An aerial photograph of each location is accompanied by a bar chart showing the number of different types of crashes and the number of crashes that caused fatal, severe and visible or non-visible injuries.

SAFETY NEEDS AND CONCLUSIONS

The MPA area's highest ranked PSI locations reveal a clustering of safety issues in and around the areas of the Forest Road, Timberlake Road and Wards Road. The area that the clusters fall in represents a junction of major regional routes along with a high concentration of economic activity centers and Liberty University. Perhaps not surprisingly, most of the locations fall on the MPA's most used roads, US Routes 29 and 460. The PSI locations and surrounding links and intersections should be the focus of safety improvement projects.

BIKE & PEDESTRIAN INFRASTRUCTURE

While the MPA has an extensive roadway network, the bike and pedestrian facilities are relatively limited. Bike and pedestrian infrastructure is crucial for increasing mobility in the MPA.

FACILITIES

The four categories of bike and pedestrian infrastructure include on-road facilities (sidewalks, bike lanes, sharrows) and off-road facilities (trails). Most of these facilities in the MPA are concentrated in Lynchburg. Within the city, the facilities are predominantly located in the downtown area and older parts of the city where the density of the built environment is the highest in the PDC. **Figure 22** shows the networks of bike and pedestrian facilities in the MPA.



Figure 19: Fatal and severe injury crashes in the MPA | Source: VDOT

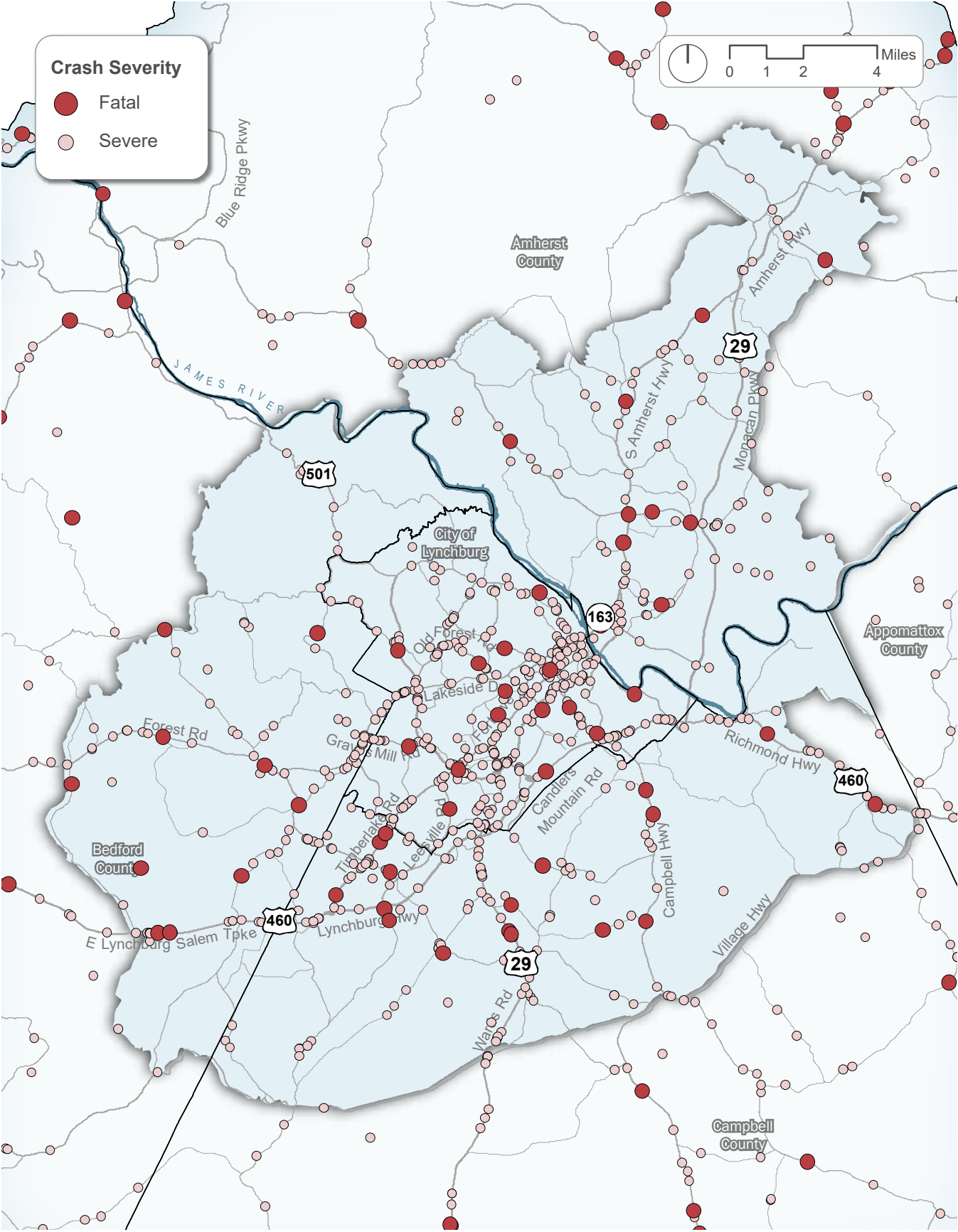


Figure 20: Fatal and severe injury crashes by type in the MPA | Source: VDOT

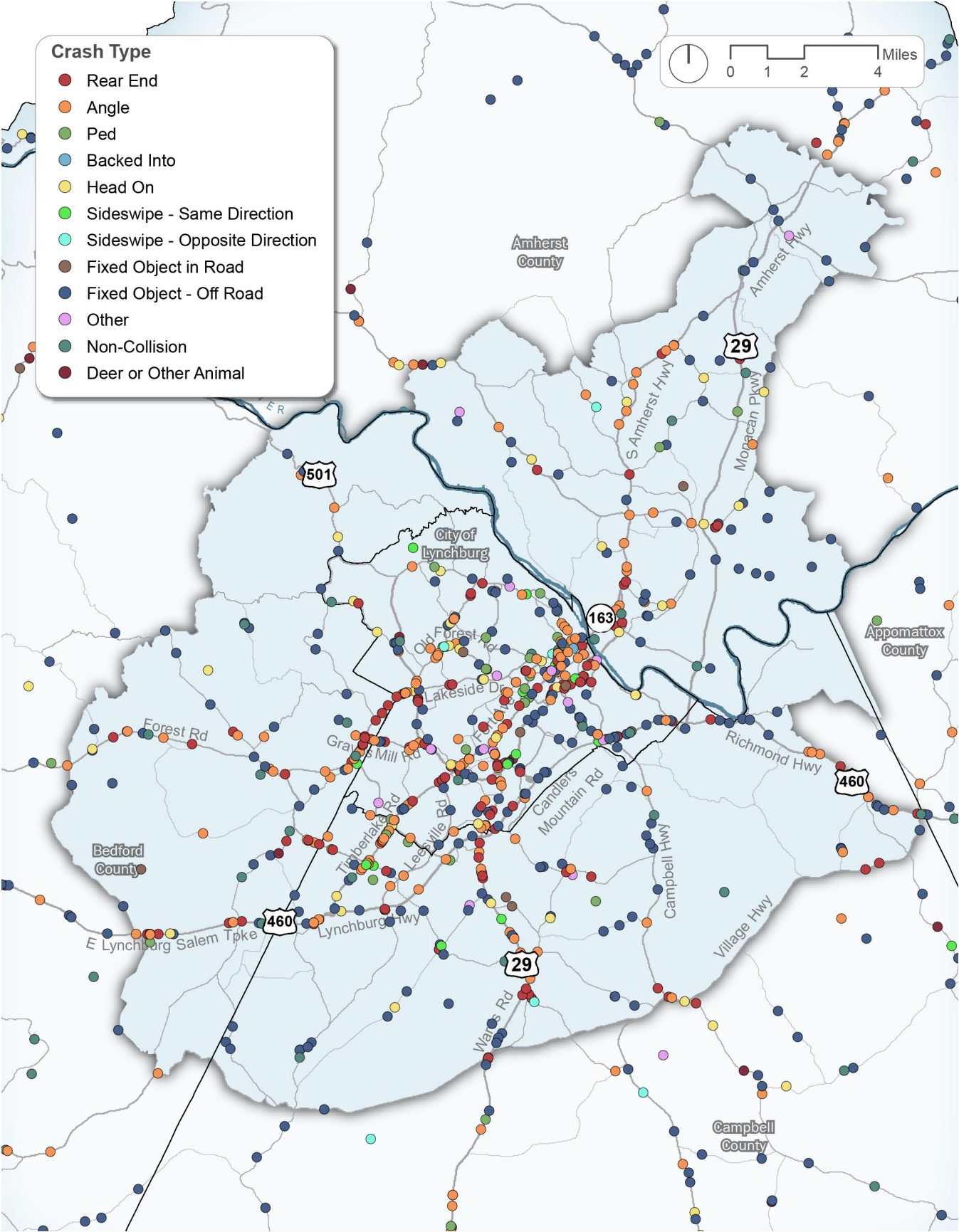
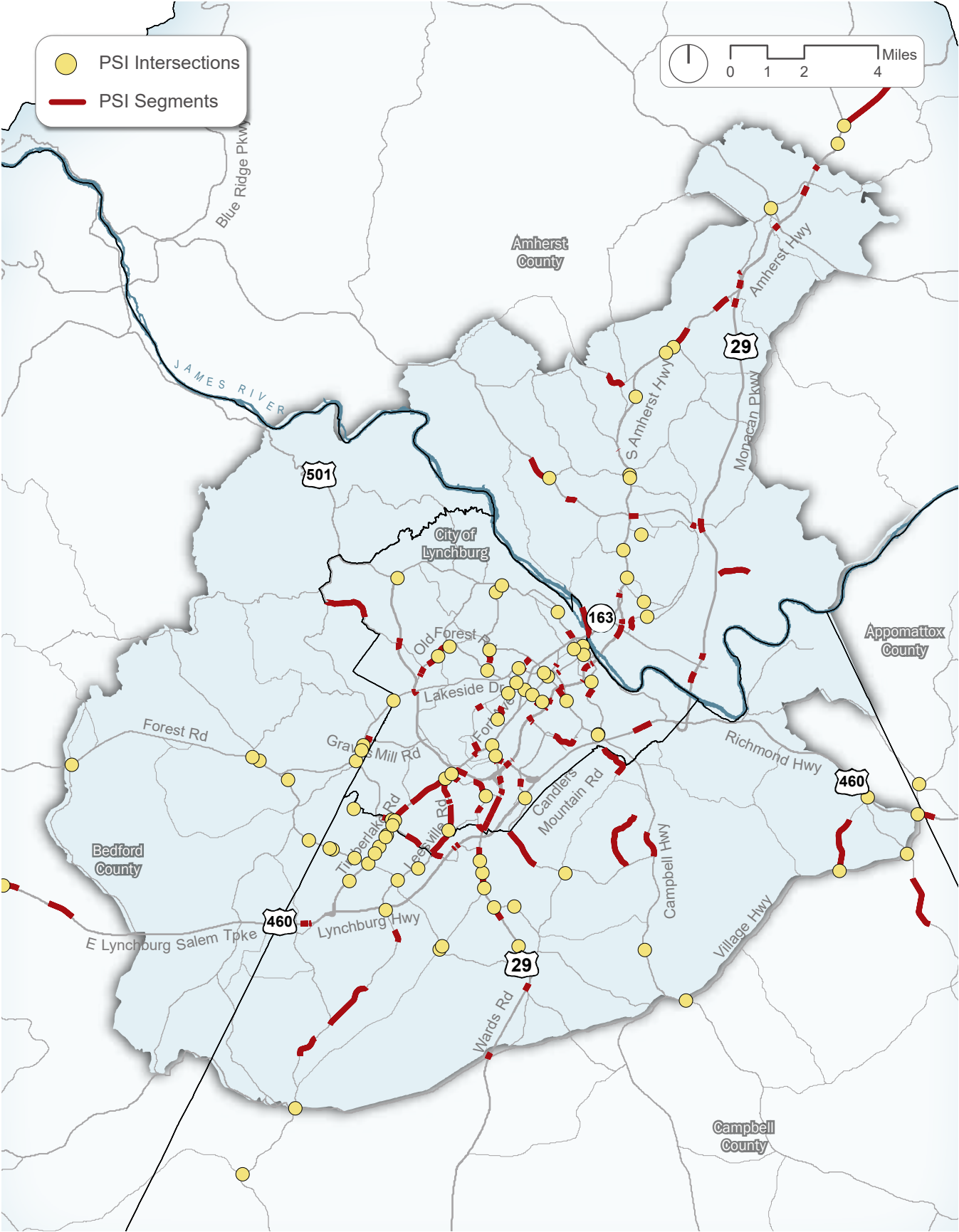


Figure 21: PSI intersection and segments in the MPA | Source: VDOT



Sidewalks

The MPA transportation network includes approximately 210 miles of sidewalks, with 190 miles falling within Lynchburg. The sidewalks are predominantly paved with concrete, but some segments include brick, granite, asphalt, gravel or wood surfaces. The uneven distribution of sidewalks in the region might be explained by the history of Lynchburg's use of annexation. Areas that were annexed later in the city's history are less likely to have sidewalks. However, the zoning ordinance mandates that new developments provide sidewalks along the property frontage of all public streets, with connections made between the sidewalk and internal walkways.

Bike Lanes

The MPA has a total of just over 16 lane miles of designated bike lanes, with 11 of those miles in Lynchburg. In addition to the bike lanes, MPA area residents can bike on the area's 15 miles of shared-use paths. Three miles of bicycle lanes were recently added in the Town of Amherst through a road diet project. In addition to the bike lanes, there are over 50 road lane miles with Share The Road signs posted throughout the region.

Trails

Approximately 91 miles of trails exist in the MPA. The most popular trail in the MPA is the Blackwater Creek Trail, a 3-mile paved trail that meanders along the Blackwater Creek on an abandoned railway bed. The trail accommodates a variety of non-motorized modes and intersects a number of unpaved trails that allow area residents to explore the Blackwater Creek Natural Area. The Blackwater Creek trail saw over 700 daily users between February and August of 2020, and is currently being extended 0.5 miles to Linkhorne Elementary and Middle Schools.

Mobility Hub

The Downtown Lynchburg Masterplan recommends the creation of mobility hubs in the city of Lynchburg. Mobility hubs are places where residents can transfer between multiple modes of transportation to complete their trips. Modes served by the hubs could include buses, park and ride, and shared cars, bikes and electric scooters. For example, a bus rider could disembark at the mobility hub, then check out a bikeshare bike to complete the remainder of their trip.

The plan identifies the existing Court Street Lot (Lot R) near the Lynchburg Regional Business Alliance as a potential location, and recommends identifying another mobility hub location in the downtown area. Mobility hubs could be implemented throughout the Urbanized Area to increase the choices that residents have when deciding how to travel to their destinations.

PUBLIC AND PRIVATE INITIATIVES

City of Lynchburg Better Streets Policy

The City of Lynchburg adopted a policy to improve the multimodal design qualities of its streets in its most recent Comprehensive Plan. The policy recognizes that the benefits that streets can provide are maximized when they are designed to adequately accommodate an array of modes. The policy aims to improve mobility, facilitate utility extensions, reduce energy consumption, improve water quality and reinforce the quality of the area's environmental systems.

Community Cycling Events and Spaces

Lynchburg is home to several notable social endeavors that focus on promoting cycling in the MPA. Several local bike shops host weekly group bike rides, often followed by social gatherings. The group ride events are examples of vital civic initiatives that raise awareness of safe cycling practices and foster increased ridership in the MPA.

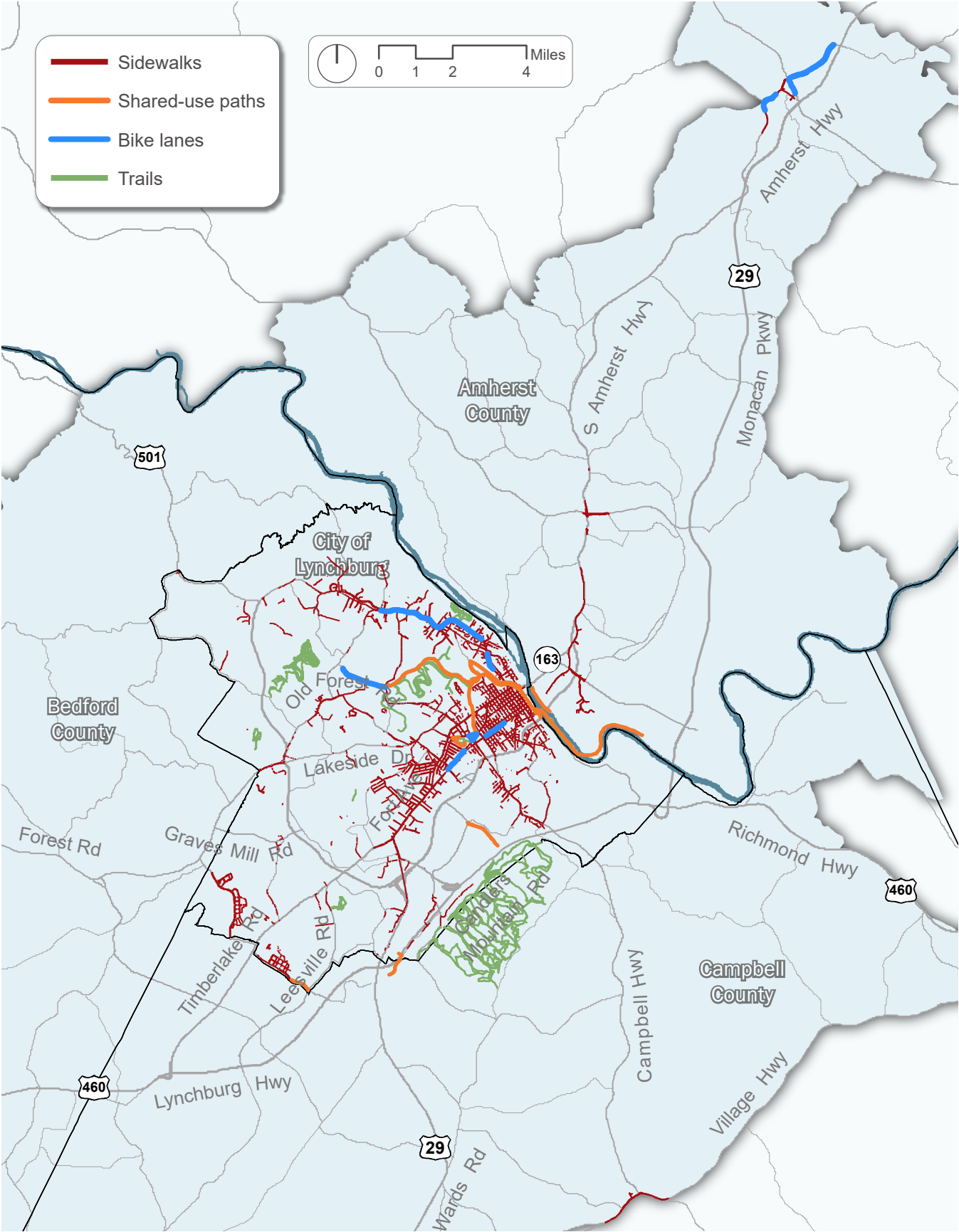
NEEDS AND CONCLUSIONS

For every mile of sidewalks in the MPA, there are 7.5 miles of roads and for every mile of designated bike lanes, there are over 99 miles of roads. These facilities are generally clustered in the downtown area and central portion of the city, leaving residents elsewhere in the region with fewer travel options. However, capital investments since 2012 have resulted in an increase of bike lane miles from 0 to 16 within the MPA. Setting clear goals for additional investments can build on this success.

Constructing more sidewalks and bike lanes and allocating more existing right-of-way to the above modes is an imperative first step for the region to meet the policy set out in Lynchburg's Better Streets Policy. Identifying areas with high population



Figure 22: Bike and pedestrian facilities in the MPA | Sources: CVTPO, VDOT, City of Lynchburg and Campbell County



Middle James Segment Plan

This draft plan identifies portions of the James River Watershed between Lynchburg and Maidens that have regional importance as heritage, agritourism, and recreation sites to coordinate investment and protection of these resources to raise the area's profile as a premier recreation destination. Two of the plan's targeted areas fall within the Central Virginia region. Each focus area has a set of recommendations for achieving near-term progress toward the overall trail vision. Once the plan is finalized, the transportation recommendations could be supported by Connect Central Virginia 2045 by being included as projects or recommendations in future updates. The recommendations for the two focus areas are outlined below.

Appomattox Court House to Holliday Lake

- » Explore a recreational use speed limit/traffic calming plan on Route 24 and improve safety at the Appomattox River/Route 24 crossing
- » Add additional trailheads with parking areas along with merge lanes for access to parking areas
- » Connect Courtland Festival Park to Abbott Park with a connector trail
- » Feasibility study for a bike route from the Town of Farmville to the Town of Appomattox
- » Study the feasibility of a shared-use path connection from the Town of Appomattox and the national park to the state forest along Route 24

Lynchburg/Amherst Riverfront

- » Acquire land to extend the James River Heritage Trail to Riveredge Trail and the pedestrian crossing at the end of Percival Island
- » Incorporate a designated pedestrian/bicycle facility on the John Lynch Bridge linking Lynchburg with Amherst/ Riveredge Park
- » Develop a pedestrian map and kiosk as part of an overall pedestrian wayfinding system
- » Work with VDOT and localities to improve the safety of bicyclists and pedestrians crossing the James Lynch Bridge
- » Work with localities to develop a pedestrian bridge at the eastern end of Percival Island
- » Work with VDOT and localities to develop a pedestrian facility attached to or in the vicinity of the Carter Glass Bridge
- » A longer range vision is the connection across the Six Mile Bridge to Campbell County

James River & Kanawha Canal Towpath Natural Surface Trail

The longterm vision for the towpath is to make it available for public use, as it would be an excellent route for hiking, mountain biking and horseback riding. In the short-term, on-road bike route connections to the trail have been proposed including:

- » A connection from Holliday Lake State Park to James River State Park to incorporate Routes 626 and 636
- » A connection from the Town of Appomattox to the High Bridge Trail
- » A connection from Appomattox Court House to Appomattox-Buckingham State Forest



densities and special needs that are also underserved by sidewalk and bicycling infrastructure should be the focus moving forward.

There should also be consideration for recent travel options that supplement bike and pedestrian movements, such as Liberty University's Zipcar and Bird e-scooters.

TRANSIT

The Greater Lynchburg Transit Company (GLTC) is the only public transportation provided in the MPA. GLTC is owned by the City of Lynchburg and is governed by a Board of Directors, whose nine members are appointed by the Lynchburg City Council. GLTC is overseen by two advisory committees: the Customer Advisory Committee (CAC) and the Americans with Disabilities Act (ADA) Committee. In 2017, GLTC updated the Transit Development Plan (TDP) with the assistance of consultants. The TDP is a six-year planning document required by the Virginia Department of Rail and Public Transportation (DRPT) in order to receive state transit funds. While the TDP is a short range plan, focused on the subsequent six years, it

is integrated into the TPO's long-range transportation plan. The following observations on transit in the MPA are largely informed by the TDP.

TRANSIT CAPITAL AND ROLLING STOCK

The TDP provides a detailed inventory of existing capital assets and rolling stock. Capital includes buildings, the Kemper Street Transfer Center, bus stops, loading areas and other physical improvements. GLTC's rolling stock consists of 58 service vehicles.

Transit Capital

The GLTC's central facilities are the Operations and Maintenance Facility, located on Bradley Drive, and the Kemper Street Transfer Station. GLTC stores its fleet vehicles at the facility and conducts all of its administrative, operations and maintenance activities there, making the facility a crucial asset to the organization.

The Kemper Street Transfer Station was built in 2014 to replace the previous transfer station at the Plaza Shopping Center. In addition to providing indoor and outdoor waiting areas for bus routes and



connections, the transfer station offers in-person customer service, ticket and map kiosks, as well as conference rooms for GLTC employees. The station is adjacent to the Kemper Street Station, which offers Amtrak and Greyhound services. In addition to the intercity connections, the transfer station is connected to the City's sidewalk network, offers bike racks and is connected to the Kemper Station Multi-use Trail, making it a multimodal facility.

Lastly, GLTC serves approximately 700 bus stops throughout the MPA. While GLTC's standards mandate that stops with at least 25 boardings per day be equipped with benches and stops with at least 50 boardings per day receive shelters, the City has no requirements for transit design, so the actual implementation of these standards is inconsistent. However, new stops are required to meet ADA design requirements and stops built by developers to reduce on-site parking requirements are required to have benches, shelters and sidewalk connections.

Transit Fleet

In terms of rolling stock, GLTC owns 58 service vehicles and 13 support vehicles. The fixed-route services are provided by 40 diesel and hybrid-electric diesel buses ranging from 29 to 40 feet long. The paratransit routes are served by 18 gas-powered cutaway buses ranging from 19 to 23 feet long. All of the buses are equipped with fareboxes, destination signs, bike racks and security cameras. The support vehicles are a range of pickup trucks and vans.

TRANSIT SERVICES

GLTC offers fixed-route and paratransit services. In Fiscal Year (FY) 2017, GLTC routes served 2,063,896 riders, with 1,262,393 of those riders coming from the Liberty University routes operated by GLTC.

Fixed-Route Service

GLTC operates 16 fixed-route weekday bus routes and 12 Saturday routes. GLTC has established limited Sunday service using CARES Act funding, but maintaining sustainable long-term Sunday service is a challenge. In addition to the 16 routes, GLTC operates 9 routes for Liberty University. The fixed-route service mainly serves Lynchburg, but also includes stops in Madison Heights, Amherst County, Bedford County and Campbell County. The service frequency varies by route with the highest frequency being

30 minutes and the lowest being 2 hours. **Figure 23** shows the fixed-route service routes that GLTC provides.

Additionally, the Town of Altavista offers a deviated fixed-route service six days a week. The service runs from 8:00 AM to 6:00 PM on weekdays and from 9:00 AM to 2:00 PM on Saturdays.

Paratransit Service

GLTC offers paratransit service for residents who are unable to use the fixed-route service due to differences in physical abilities. Paratransit service is available throughout Lynchburg and a three-quarter mile buffer around the bus routes that are outside of the city limits. GLTC strives to ensure that paratransit riders are picked up within one hour of their requested pick up time.

Service Partnerships

Beyond the contracted on-campus shuttle service for Liberty University, GLTC partners with the University of Lynchburg and Central Virginia Community College to provide free rides for students, faculty and staff via their University ID cards.

NEEDS AND CONCLUSIONS

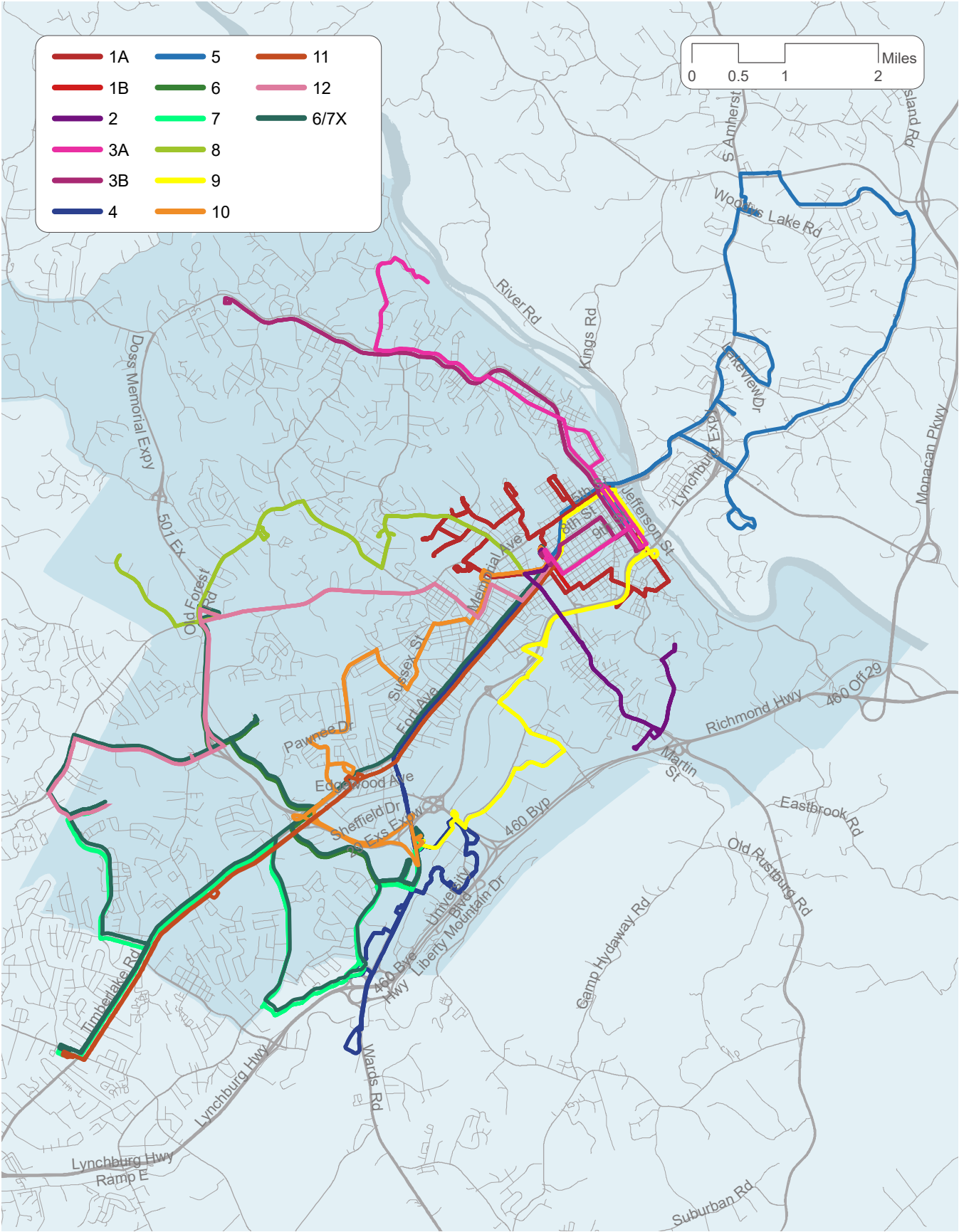
The population growth forecasted for the region will have considerable consequences for the services that GLTC provides. The following needs and conclusions are informed by GLTC ridership data and a survey implemented by the organization.

Declining Ridership

GLTC recorded significant ridership decreases over the past three fiscal years, as seen in **Figure 24**. In FY 2017, GLTC served 26% fewer riders than in FY 2015. The most dramatic drop off occurred between 2015 and 2016, with a much less significant change between 2016 and 2017. Construction of two large dormitories on Liberty's campus was completed around the time of the ridership drop off, suggesting that much of the ridership decline can be attributed to a high number of Liberty students no longer requiring bus service to reach their destinations. In contrast to the fixed-route service, paratransit ridership increased each year, with an 11% gain between 2015 and 2017. However, GLTC officials have noted that paratransit ridership has also begun to decline since 2017. Declining ridership is very problematic



Figure 23: GLTC Fixed-Route Service | Source: GLTC



for maintaining good service. The following areas for improvement could attenuate the loss of ridership, and may in fact contribute to the decreases.

Insufficient Frequency

The most significant need for improvement is increasing the frequency of the bus routes. The TDP states that the best case scenario for their routes is 30 minute frequency. Generally, transit becomes useful enough for regular use when a route provides 15 minute headways or less. The survey revealed low frequency to be the most common concern for non-riders and tied for the most common concern for frequent riders. Striving towards headways closer to 15 minutes should be a paramount goal for GLTC in the future.

Limited Service Hours

The survey of non-riders and frequent riders revealed a strong desire for expanded hours of service on both weekdays and weekends. Currently the GLTC bus services run from 5:00 AM to 10:15 PM on weekdays and from 5:30 AM to 9:45 PM on weekends. Ending service at around 10:00 PM leaves many workers in industrial and service sector jobs stranded after late night shifts. Additionally, GLTC does not offer service on Sunday, which deprives area residents who do not have access to a car the ability to easily move around the area once a week. Expanding service later into the night and providing limited service on Sunday should be a high priority for the GLTC as the region continues to grow.

Additional improvements elaborated in the *Downtown 2040 Plan* include enhancing GLTC bus stops to include amenities such as bus shelters and passenger information displays.

FREIGHT

The efficient movement of goods within and through the region is vital to the region’s economy. Freight within the MPA is predominantly moved by trucks and trains. The infrastructure that serves those modes is a primary concern for the wellbeing of the region’s economy.

TRUCK MOVEMENT

According to the Lynchburg Regional Connectivity Study, the majority of freight by tonnage and value in the region is moved by truck. **Figure 25** depicts the percentage of AADT that consists of trucks on the MPA road network. The two CoSS routes account for the highest share of freight movement in the MPA, with US Route 501 as the next highest. On US Routes 460 and 29, the majority of freight movement is freight moving through the area, as opposed to moving out from or into the area. In contrast, through movement represents a minority of freight moved on US Route 501, with outbound freight making up the majority and inbound coming in close behind.

The Regional Connectivity Study shows that food manufacturing makes up the largest share of freight moved by truck as measured by value, with fabricated metal and chemical goods following behind. The study authors observed that the region’s major industries tend to move freight in similar proportions across the three above-mentioned corridors, suggesting that each is fundamentally important to the regional economy.

RAILROAD MOVEMENT

The PDC is traversed by approximately 351 miles of rail lines, which are owned by the Class 1 railroads Norfolk Southern and CSX. **Figure 26** maps the region’s freight rail lines. The Norfolk Southern rail lines are situated in the company’s Heartland

Figure 24: GLTC Yearly Ridership Numbers | Source: GLTC

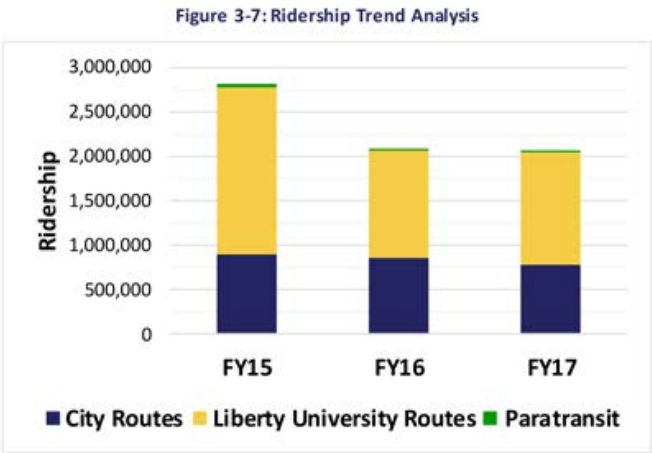
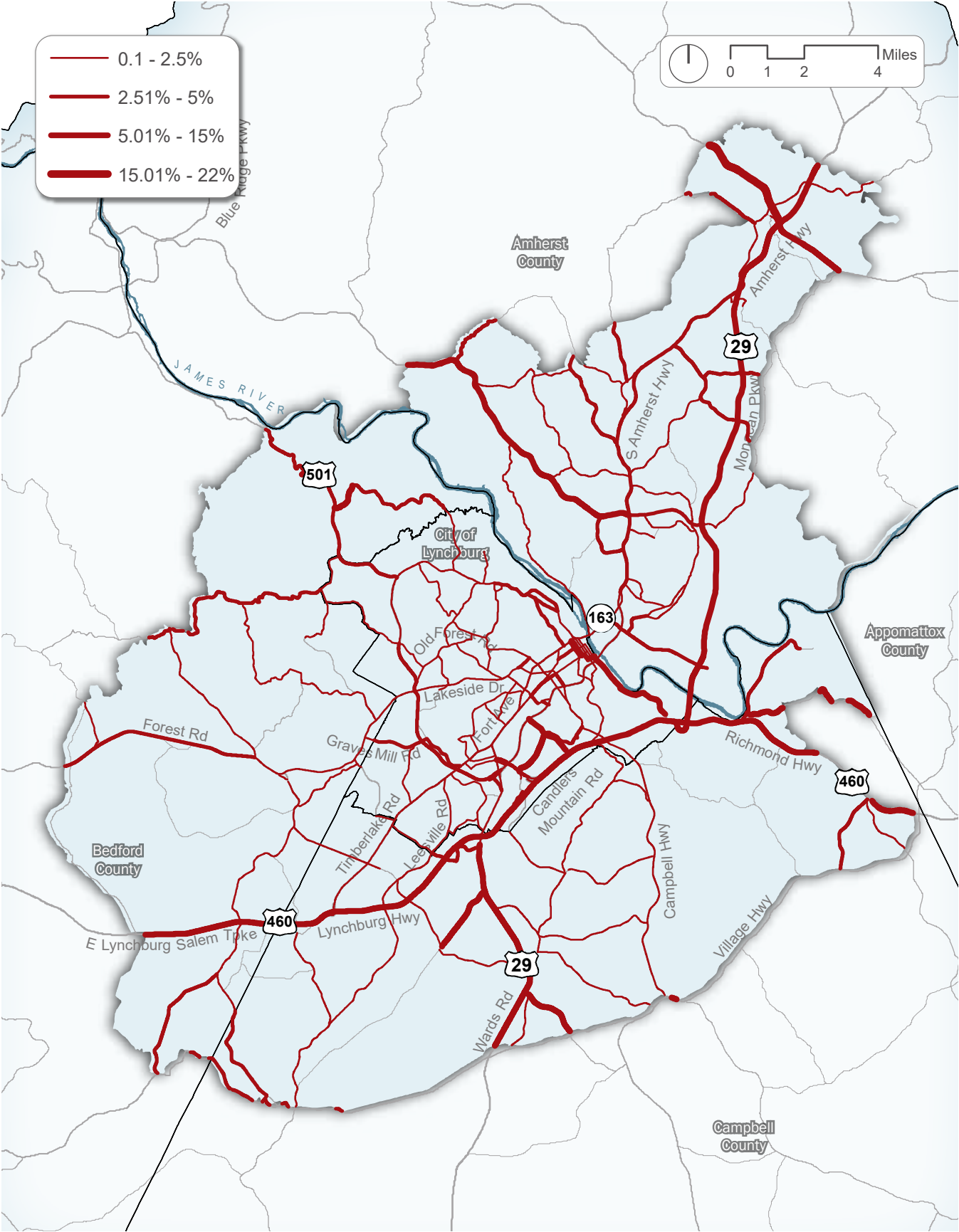


Figure 25: Percentage of AADT from heavy vehicles | Source: VDOT SPS 2017



and Crescent intermodal corridors, which connect the Mid Atlantic with the Midwest and the Northeast with the Gulf Coast, respectively.

The PDC area does not have an intermodal freight facility where freight containers are switched from one transportation mode to another. The nearest such facility is the Norfolk Southern Thoroughbred Bulk Transfer Terminal in Roanoke.

NEEDS AND CONCLUSIONS

The region's highway infrastructure offers a highly efficient means of transporting goods from, to and through the MPA. The Regional Connectivity Study notes that outside of the southern of section US Route 29 near Liberty University, congestion and delay do not present significant problems for the truck freight movement in the region. The study's authors point out that the oft-mentioned concern

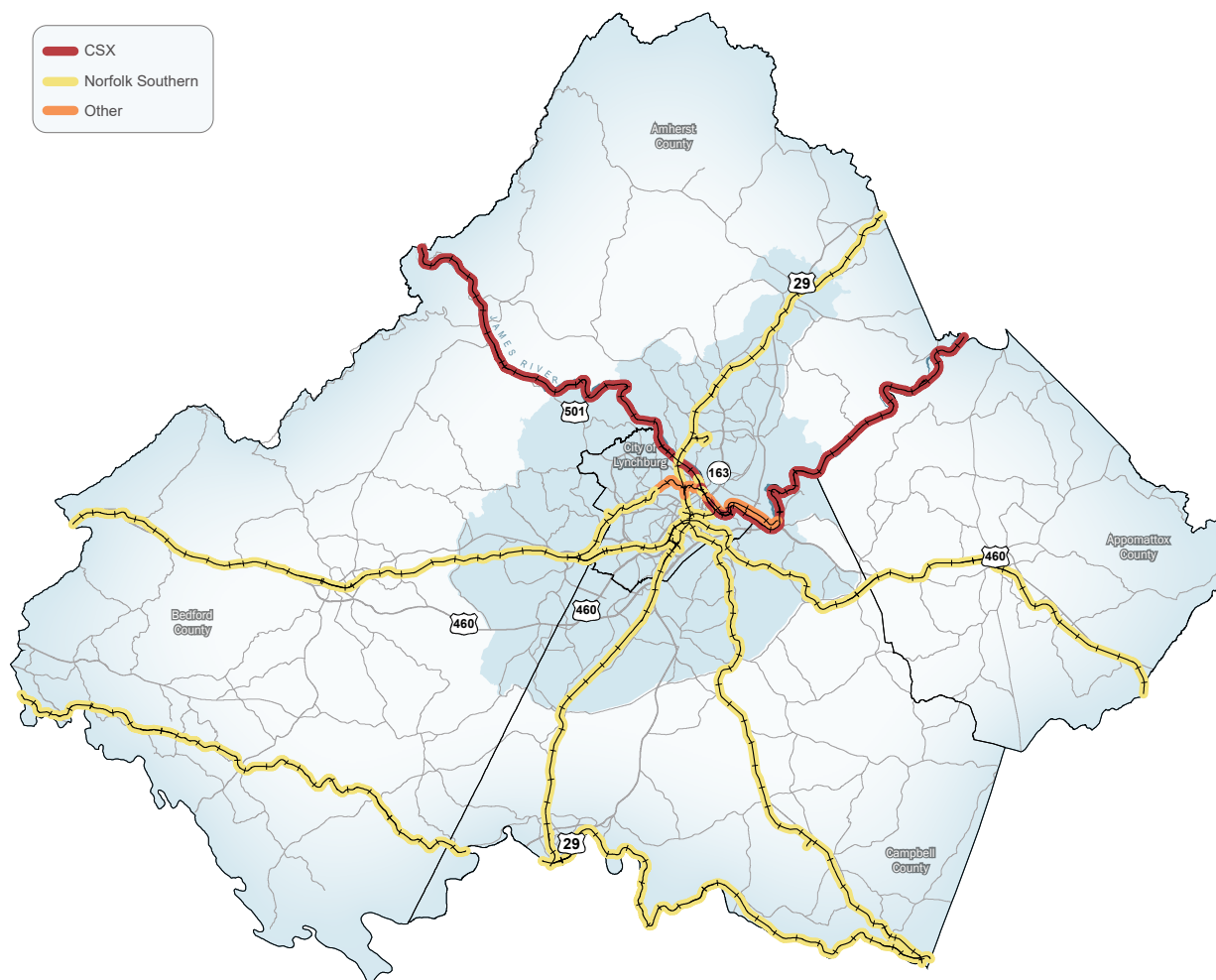
over the lack of an interstate in the area is only a problem of perception given the high performance of the region's roads in carrying freight.

Rail stands to play an important role in the region's freight activities and consequently the future of the region's economic development. The convergence of two Class 1 railroads presents a strong platform for the growth of future rail movement in the region.

INTERCITY TRAVEL

Central Virginia residents have two options for intercity passenger travel: the train service operated by Amtrak and the bus service operated by Greyhound. Amtrak's Crescent and Northeast Regional lines provide the area's rail service. The Kemper Street Station serves stops for both intercity modes.

Figure 26: Freight rail lines in the PDC area | Source: BTS



INTERCITY RAIL

Amtrak's Crescent Line connects New York with New Orleans and the Northeast Regional runs from Roanoke to Boston. The Commonwealth, through the DRPT, subsidizes the extension of Amtrak's Northeast Regional line from Washington D.C. to serve Lynchburg and Roanoke. **Figure 27** shows the Crescent and Northeast Regional lines in the PDC. **Figure 28** shows the extent of the Crescent Line in the context of Norfolk Southern's Crescent Corridor. Both lines run daily train service through the MPA. Currently, the Crescent Line train departs at 5:56 AM and arrives at 10:00 PM, while the Northeast Regional train departs at 9:59 AM and arrives at 8:14 PM. Adding additional trips to and from the station could increase ridership.

Daily service makes the Amtrak service an excellent choice for intercity travel in theory. However, Amtrak does not own any rail in Virginia and consequently uses rail owned by Norfolk Southern, CSX and other companies. This means that Amtrak's trains must yield to the trains run by those companies, which creates serious on-time performance problems for Amtrak. In spite of the unreliable service, 82,251 people boarded trains at the Lynchburg Station in Fiscal Year 2017, which represents a 0.6% decrease from the previous year.

INTERCITY BUS

Greyhound operates intercity bus service for the MPA. Area residents can pick up a Greyhound bus at the Kemper Street Station, adding to the station's multimodality. The station hours are from 8:00 AM to 5:00 PM.

Figure 27: Amtrak lines and stations in the PDC area | Source: BTS

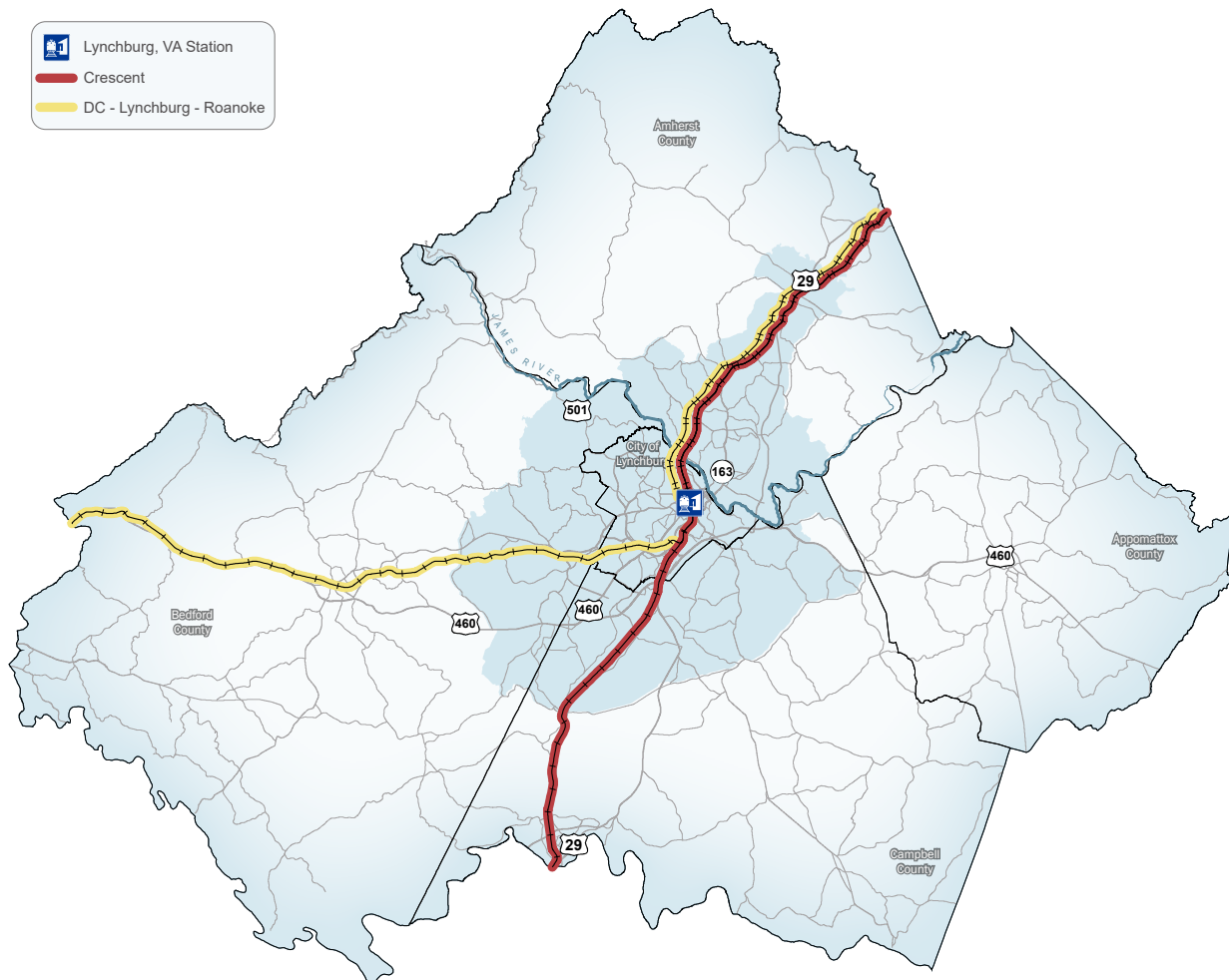


Figure 28: Norfolk Southern's Crescent Corridor | Sources: BTS, Norfolk Southern



The recent expansion of the Virginia Breeze bus service provides a new intercity travel options for Central Virginia residents. The TPO is on the Piedmont Express line, which runs daily service from Danville, VA to Washington, D.C.

PARK AND RIDE

There is one park and ride lot in the MPA, located on Alum Springs Road in the New London Area. The lot has 70 designated spaces.

NEEDS AND CONCLUSIONS

The viability of Amtrak services rests on its ability to mitigate delays from yielding to freight trains. Amtrak's trains on both lines typically experience delays and subsequently receive poor on-time performance ratings at the Lynchburg station. The unlikely prospects of Amtrak's service improving are attenuated by the recent expansion of the Virginia Breeze service. The existing Virginia Breeze service has proven to be popular, which suggests that it will be a promising addition to options for intercity travel in the MPA. Additionally, per the recommendations in the Virginia Statewide Rail Plan, extended service improvements south from Lynchburg to Charlotte and a new passenger rail line connecting Lynchburg to Richmond are identified needs and areas of long-term investment.

AIR TRAVEL

The MPA is home to the Lynchburg Regional Airport (LYH). Formerly known as Preston Glenn Airport, the airport was built in 1931. The airport was expanded in 1992 with the addition of a new terminal facility. The facility is owned by the City of Lynchburg.

AIR TRAVEL

LYH offers 14 daily arriving and departing flights. LYH's location at the intersection of US Route 29 and US Route 460 makes it very accessible to the region's residents. The airport is served by a regional affiliate of American Airlines, called American Eagle Airlines. American Eagle Airlines offers direct flights to the hub airport Charlotte Douglas International Airport where travelers can easily connect to numerous flights. Charlotte Douglas is the 12th busiest

airport in the country, ahead of Miami (15), La Guardia (21), Dulles (25) and Reagan (26). People in this region often cite air service to Dulles as being a concern. Consequently, LYH is exploring a connecting flight to Dulles. Currently, there is no shuttle or transit service that connects LYH to the city or to surrounding parts of the PDC.

The Lynchburg Regional Airport Commission, the entity that oversees LYH, is considering restructuring the facility to be managed by an independent airport authority. There is already state enabling legislation that permits the transition, but approval by City Council would be required to move forward.

FLIGHT TRAINING

The private company Freedom Aviation offers flight training at its facilities at LYH. Freedom Aviation is the fixed-base operator at LYH. The flight training programs range from private pilot to commercial pilot licensing. The programs also offer online components. The addition of a flight training program at LYH makes the airport more than a travel hub in the region.

NEEDS AND CONCLUSIONS

The American Airlines connection at LYH makes air service a viable option for intercity travel for the region's residents. Charlotte Douglas is a major hub for American Airlines, which renders a multitude of cities accessible, albeit indirectly, to Central Virginia residents. The Regional Connectivity Study states that, while LYH offers fewer direct connections, and subsequently serves fewer passengers than nearby airports, such as Charlottesville-Albemarle Airport or Roanoke-Blacksburg Regional Airport, fares at LYH tend to be cheaper than at the others. The fares may explain the successful service that LYH has maintained despite recent trends in the air service market.

It is important for LYH to maintain its level of service in the face of a challenging market. In recent years, a shortage of pilots across the country has caused major airlines to draw up pilots from regional markets, which has caused many airports the size of LYH to lose capacity and therefore diminish service. A study by the Virginia Department of Aviation concluded that LYH has managed to stave off the negative effects of the pilot shortage. The report holds that LYH has improved in a number of



areas such as increasing aircraft size and maintaining a high revenue per seat ratio. Preserving the high performance of the airport is important to the region's transportation system.

BRIDGES AND CULVERTS

Bridges and culverts are a critical part of the region's transportation system, allowing people, goods and services to span natural obstacles, like streams and rivers. These structures can be bottlenecks for roads, bike and pedestrian facilities and rail. A failed bridge or culvert could severely hinder the local, regional or even intra-regional transportation network.

PDC-WIDE ANALYSIS

Across the Central Virginia PDC area, there are 1,117 separate bridges and culverts that allow people, goods and services to span otherwise impassable features. Of this total, there are 445 culverts and 672 bridges. Poor condition ratings on several of these structures may present future safety and funding challenges, as the region struggles with its aging infrastructure.

CVPDC Bridges

The region's bridges are aging, with 1960 as the average year built. The oldest bridge dates to 1839, where 9th Street spans a portion of the old

Kanawha Canal. Despite its age, that particular bridge is in good condition, though nearly 40 percent of CVPDC bridges were constructed in the 1930s, during the New Deal Era. Over 60 percent of all bridges in the region were built before 1970.

Most of the PDC's bridges are rated as being in good condition (477 of the 672). Nearly a quarter of these structures are in fair condition (160 bridges). Conversely, there are 29 bridges, about 4 percent of the regional total, that are rated as being in poor condition. As might be expected, the poorly rated structures are older than average, with a mean-built year of 1941. As this infrastructure ages, bridges

Figure 30: TPO Bridges by General Condition Rating

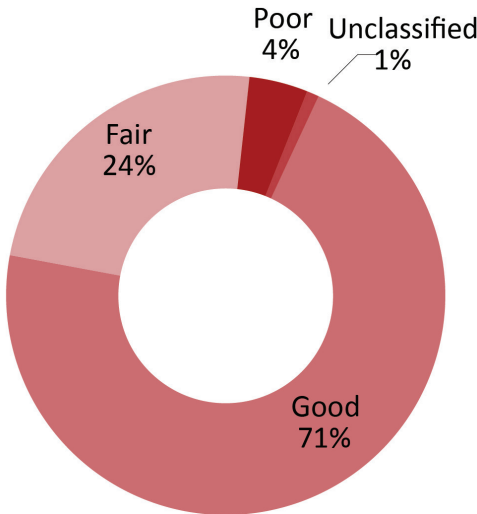
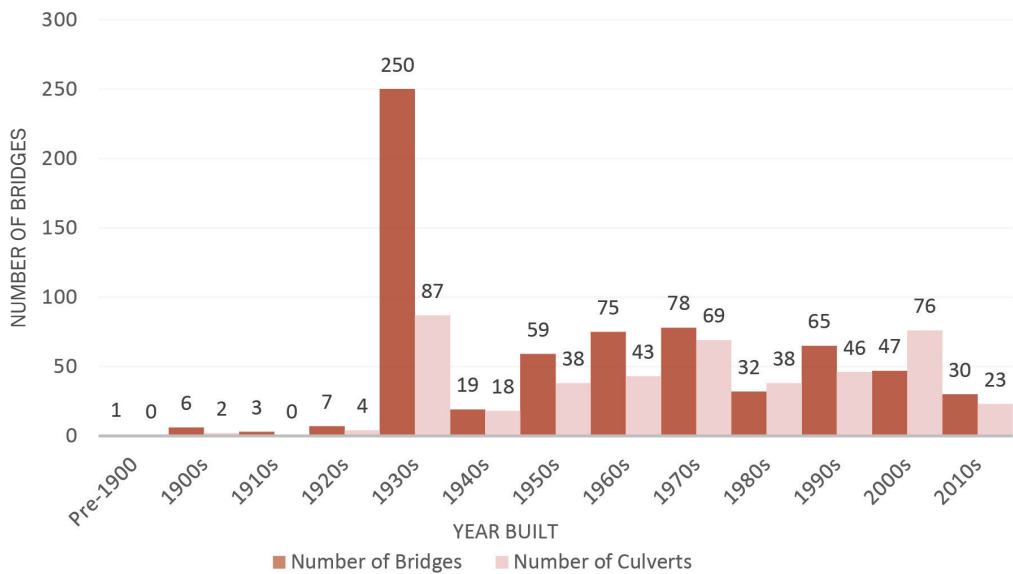


Figure 29: TPO Bridges & Culverts by Year Built



in good condition are more likely to degrade into fair condition, with other structures entering poor condition.

CVPDC Culverts

Structure years and conditions for culverts are similar to the bridges of the region. The oldest culvert is from 1900 (Lawyers Road in Campbell County). The average age of a culvert is 52 years, given that there was more post-war construction of culverts than bridges. Yet, the New Deal Era was still a time for culvert installation.

Culvert conditions are also similar to that of area bridges. Like bridges, 4 percent are rated in poor condition, including 15 culverts. Nearly 20 percent (85 culverts) are in fair condition, with 77 percent (344) in good condition.

TPO-WIDE ANALYSIS

Approximately 60 percent of area bridges and nearly 40 percent of area culverts are within the TPO boundaries. There is a higher share of bridges in the urbanized area, likely because these capital investments are generally more expensive. With additional funding sources available to urbanized areas and greater growth trends, bridges and culverts are generally newer than in the rural portions of the region. In the MPA, the average construction date is seven years (1967) later than the regional average of 1960. On average, TPO culverts are over a decade newer (1976) than the regional average of 1967.

TPO Bridges

In the MPA, while the 1930s account for the highest number of bridge structures, the urbanized area has a high share of post-war construction, compared with the PDC region. Approximately 70 percent of existing bridges are from the post-war era (**Figure 29**). In terms of condition rating, over 70 percent of TPO bridges (176) are in good condition. Nearly 20 percent (47) are in fair condition. The MPA has a higher share of poorly rated bridge conditions, accounting for 6 percent, a total of 15 bridges (**Figure 30**). Generally, these structures are older, with an average build date of 1946.

TPO Culverts

In the MPA, culverts are notably new, with over a third built since the year 2000 (**Figure 29**). Perhaps by no coincidence, a smaller share of culverts are listed in poor condition, with 2 percent (4 culverts) in this category. **Figure 31** shows the TPO bridges and culverts.

BRIDGES AND CULVERTS CONCLUSIONS

The bridges and culverts in the Central Virginia MPA are in relatively good condition, aside from nearly 20 structures that are referred to above and detailed in **Chapter VII**. The main threat is an aging infrastructure over time. By the year 2045, many of the existing bridges and culverts will be reaching critical periods in their structural life-cycle. Given trends in public funds, there may be fewer resources for restoring, rehabilitating or rebuilding those structures.



Figure 31: Bridges and Culverts in the MPA | Source: VDOT

