



# TRANSPORTATION EXISTING CONDITIONS REPORT

MARCH 2022

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# INTRODUCTION

Transportation infrastructure plays a critical role in community planning and accounts for most public spaces, in the form of streets and trails. When done correctly, transportation planning should be holistic, considering all modes of travel as a system of mobility options to meet the community's needs and support an overall vision. These efforts should support goals and policies for each comprehensive plan chapter. For instance, the transportation chapter may foster safe and efficient travel, grow the economy, support land-use decisions, preserve historical context, strive for greater equity, and pursue many other objectives.

This report is the first step in Henrico County's transportation planning process, under its comprehensive plan update, HenricoNext. The process begins with assessing existing conditions, which lays the groundwork for subsequent phases. Understanding the current transportation network will help identify travel needs, which will inform goals, policies, and recommendations to be included in the updated Comprehensive Plan.

This "State of the System" report summarizes all the main travel modes for intra- and inter-county transportation. The Roads and Thoroughfares section consists of a general overview of the County's roadways. There is a discussion on traffic volumes and congestion, including a general inventory of facilities. Next, the Safety Summary section analyzes crash data to highlight areas of potential concern. This information will help to fine tune safety objectives and policies for future phases of the HenricoNext process. The safety summary will also help identify where capital improvements are needed. The Summary of Bike and Pedestrian Modes follows the Safety Summary and provides an overview of bike and pedestrian facilities in Henrico County. This section is general because there is a parallel process to develop a Bike and Trails Plan. The HenricoNext process will also engage the County's Active Transportation Committee, which will help to identify existing issues and needs. The following section, Summary of Transit, provides an overview of GRTC Transit System's (GRTC) service in the County. There are various transit efforts in the region, and routes are always in flux. Consequently, this report depicts a snapshot of current transit and avoids overly detailed information. The rail discussion references the Virginia

Statewide Rail Plan and describes efforts at the Staples Mill Amtrak Station. Finally, there is an overview of Richmond International Airport, an essential transportation hub for the region. The information in this document, one of a series of existing conditions reports, will be used to develop updated visioning statements and transportation recommendations.

## BIKE AND TRAILS PLAN

The HenricoNext process includes the development of a Bike and Trails Plan. While this State of the System report briefly summarizes the County's current bike and pedestrian network, the more detailed Bike and Trails Plan will provide a thorough overview of those existing conditions. This parallel effort will specify recommendations for primary bike and trail corridors within the County. That plan will develop stronger connections to the Capital Trail and other essential destinations as a complete bike/trail countywide network. Deliverables will include:

- A map of proposed primary bike and trail corridors, updating the bicycle trails network plan in the current comprehensive plan and expanding it to include additional routes,
- Cross-section typologies of typical facilities of bike and trail corridors, and
- A bicycle and trail design guidelines memorandum.



# EXISTING TRANSPORTATION NETWORK

The County's existing transportation network includes urban, suburban, and rural elements, reflecting Henrico's diverse landscape and needs. The County's road network is comprised of a hierarchy of roads that serve different mobility and accessibility needs dependent upon the classification of road.

## SUMMARY OF ROADS AND THOROUGHFARES

Henrico County is one of two counties in Virginia that maintains its own roadways, except for its primary routes and interstates, which Virginia Department of Transportation (VDOT) maintains. The roadways are managed by the Department of Public Works, which oversees the design, construction, and maintenance of the system. This Department is responsible for developing, improving, and maintaining an efficient and safe transportation network. In addition, it ensures that all engineering, construction, and maintenance work for roads and transit amenities meet acceptable and achievable standards through the efficient use of capital expenditures.

### **Existing Facilities**

The Department of Public Works currently maintains eighty percent (80%) of the county's roadway lane-miles, while VDOT maintains the other twenty percent (20%). With such a high percentage of roads under its management, the County recognizes its responsibility to efficiently move high traffic volumes and provide integrated inter-county and intra-county mobility. This responsibility offers opportunities to create a well-designed road network contributing to the County's identity and high quality of life. The County also seeks to protect valuable historical, natural, and cultural resources from the impacts of incompatible transportation improvement projects.

### **Road Classifications**

The functional class hierarchy of roads varies. The highest priority is on vehicular mobility and throughput on "controlled access" highways. The lowest priority is vehicular mobility on local streets. Major and minor arterials

and major and minor collector streets fall in the middle of the hierarchy. Map 1 Road Classification, on page 5, shows the classification of roads in the County.

### **Controlled Access Roads**

Vehicular movement is restricted to designated interchanges on controlled access roads. Trip lengths on such facilities are longer. With the exception of certain rush hour periods, these roads primarily are for inter-city travel. The function of controlled access roads is to move large volumes of traffic through the metropolitan area, and to serve major population centers and civil defense activities with full control of access.

### **Major Arterials**

These roads connect major centers of activity within the metropolitan area. Next to controlled access roads, major arterials are the highest traffic volume corridors and are designed to accommodate the longest trips within the area. These roads should carry a large portion of the total area traffic on a minimum of road mileage. Service to abutting land should be secondary to the provision of mobility for major traffic movements.

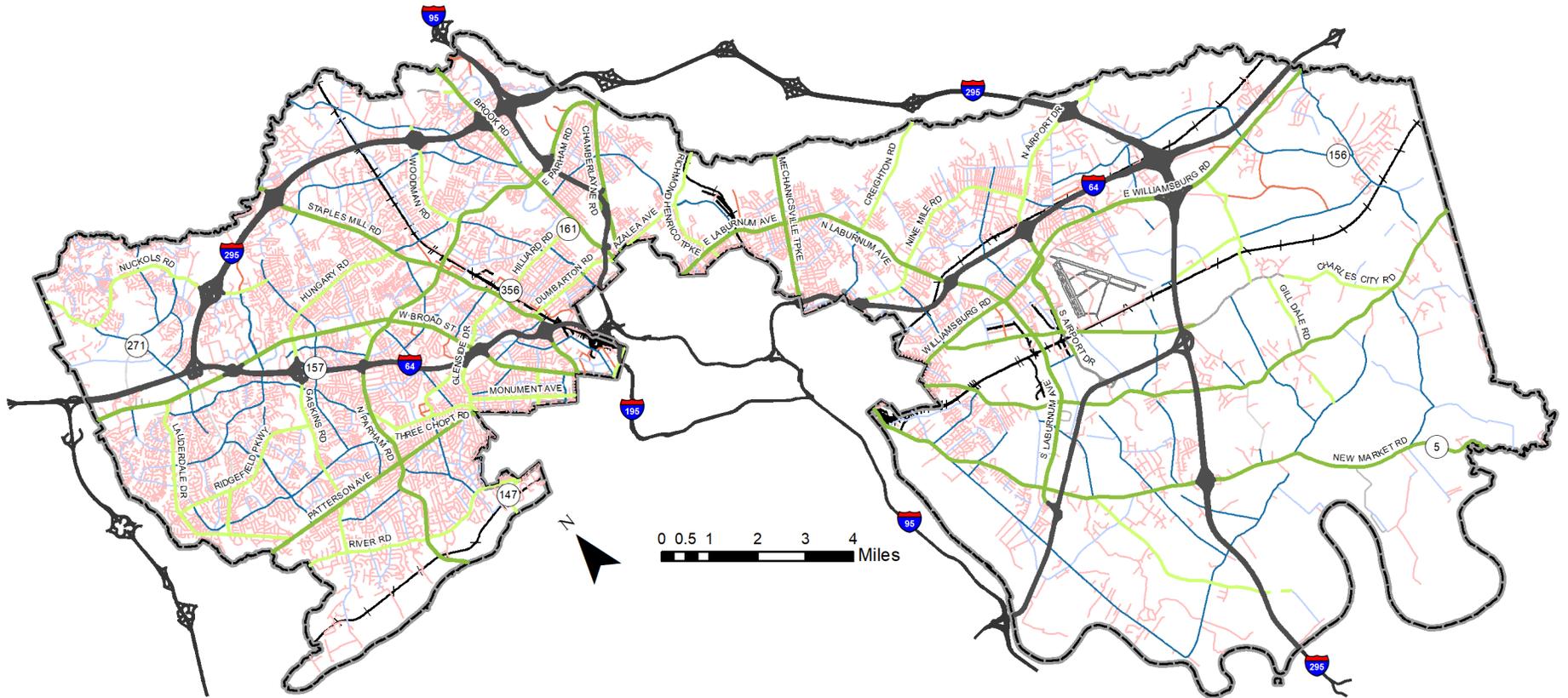
### **Minor Arterials**

These roads augment the higher road classifications and they should not penetrate identifiable neighborhoods. Because of mobility and safety concerns for longer-distance trips, adequate access is provided through the use of turning lanes and signalization. These roads place more emphasis on land access and offer a lower level of traffic mobility than major arterials.

### **Major Collectors**

Collector roads provide both access and service for local traffic movements within residential neighborhoods and commercial and industrial areas. The collector system may penetrate neighborhoods, collecting traffic from the local streets throughout the area and channeling it to higher-level roads. Major collectors provide a slightly higher level of mobility and a slightly lower level of access than minor collectors.

# MAP 1 ROAD CLASSIFICATION



## Functional Classification

- Controlled Access
- Major Arterials
- Minor Arterials
- Major Collectors
- Minor Collectors
- Major Access Roads
- Local Streets



Source: Henrico County Department of Public Works, Street Centerlines, received 4/13/21

### Minor Collectors

These roads generally provide the same service as major collectors; however, they provide for a slightly lower level of mobility and a slightly higher level of access than major collectors.

### Major Access Roads

These roads generally serve abutting land with high levels of commercial and industrial development. Roads within business and industrial parks are prime examples. Because of the abutting land uses, these roads generally require higher design standards than local streets in residential neighborhoods.

### Residential Collectors

Residential collectors generally provide a slightly higher level of access than a minor collector. Located in residential areas, their function is to collect and move traffic between local streets or cul-de-sacs and move traffic to minor and major collectors.

### Local Streets

The function of a local street is to provide direct access to abutting land and to the collector system.

### Existing Roadway Conditions

#### Vehicle Volumes

Data from VDOT's Statewide Planning System (SPS) reveals existing conditions of roadways in Henrico County. Map 2 Traffic Volumes, on page 7, shows the 2019 annual average daily traffic (AADT) for major roads in the County. AADT is an estimate of the average number of vehicles driving on a given road segment per day. As shown in Map 2, on page 7, the interstate routes in the County (I-95, I-64, and I-295) carry the most daily traffic loads. Table 1 Top Five Interstate Road Volumes shows the top five most traveled interstate road segments in the county and Table 2 Top Five Non-Interstate Road Volumes shows the five most traveled non-interstate segments.

**Table 1 Top Five Interstate Road Volumes**

Roadway Name	From	To	2019 AADT
I-64E	Staples Mill Road	West Cordon Line Richmond	154,200
I-95N	I-295	Hanover Cordon Line	136,200
I-64E	Glenside Drive	Dickens Road	122,000
I-64E	Dickens Road	Staple Mills Road	122,000
I-95N	NCL Richmond / 161 Off-Ramp	Brook Road	121,300

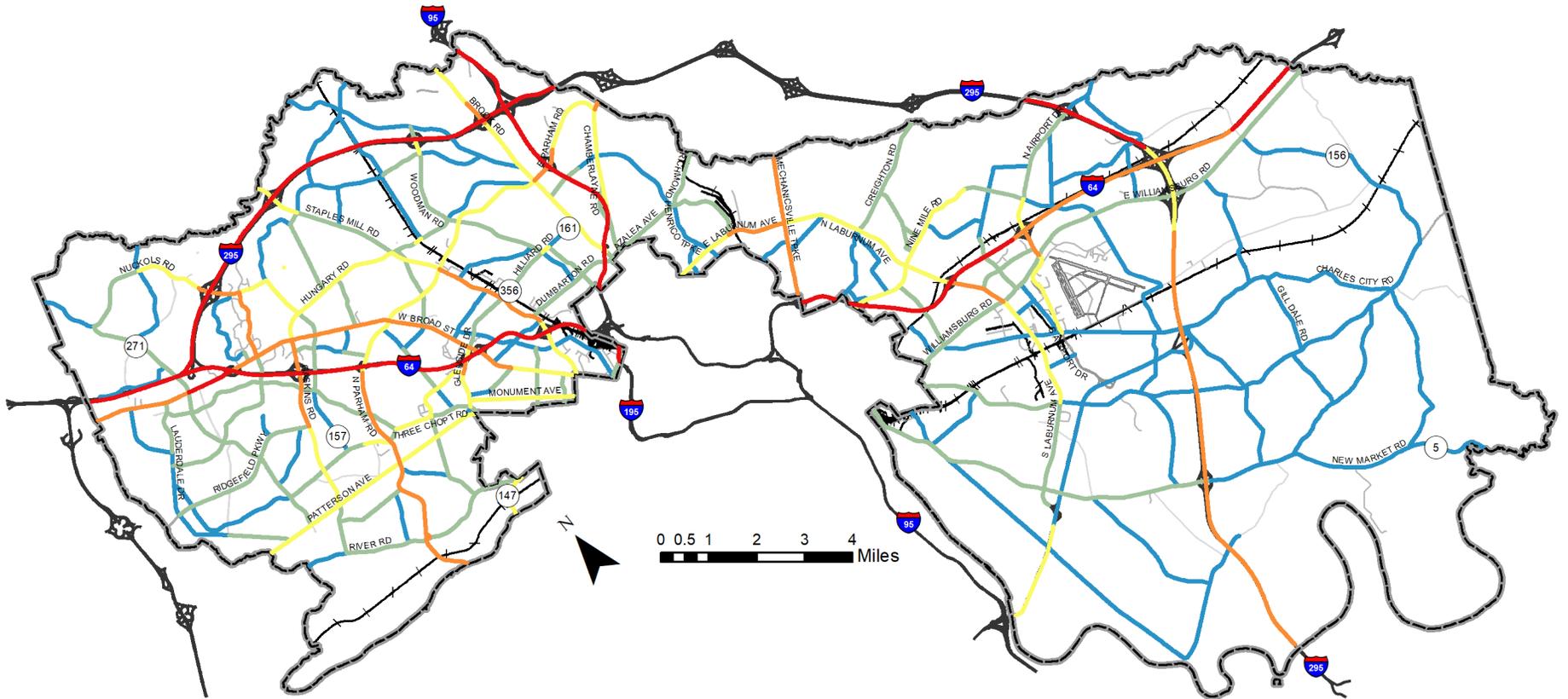
Source: VDOT Statewide Planning System, accessed 6/17/2021

**Table 2 Top Five Non-Interstate Road Volumes**

Roadway Name	From	To	2019 AADT
West Broad Street (US-250E)	Pouncey Tract Road	I-64 EB On-Ramp	76,100
West Broad Street (US-250E)	I-64 EB On-Ramp	Cox Road	46,500
North Parham Road (CR-7518N)	Three Chopt Road	I-64	42,400
Chippenham Parkway (VA-150S)	River Road Connector	West end of bridge	41,000
Chippenham Parkway (VA-150S)	West end of bridge	Richmond CL	41,000

Source: VDOT Statewide Planning System, accessed 6/17/2021

# MAP 2 TRAFFIC VOLUMES



## 2019 Traffic Volumes (AADT)

- 227 - 8,000
- 8,001 - 17,000
- 17,001 - 29,000
- 29,001 - 52,000
- 52,001 - 154,272



Source: 2019 AADT volumes from VDOT Statewide Planning System, accessed 6/17/2021

## Roadway Capacity

Volume-to-Capacity (V/C) ratios from VDOT's SPS dataset indicate the available capacity status of roadways in the County. V/C signifies how close a road segment is to meeting or exceeding its capacity for moving vehicles. V/C is expressed as a ratio, where the higher the V/C ratio, the more congested the road is. As V/C approaches or exceeds 1.0, drivers face longer delays and more queuing. Map 3 Volume-to-Capacity, on page 9, shows the 2019 V/C ratios for roadways in the County. Per federal guidance, a V/C above 0.95 is considered to be at capacity, and above 1.00 is exceeding capacity. Table 3 At-Capacity Road Segments summarizes the roadway segments in the County that are at capacity and Table 4 Over-Capacity Road Segments shows the segments that are over capacity.

**Table 3 At-Capacity Road Segments**

Roadway Name	From	To	2019 V/C	AADT
River Road (CR-7506 East)	Ridge Road	Huguenot Road	1	14,600
Staples Mill Road (US-33 East)	Hungary Road	Parham Road	0.99	27,500
North Parham Road (CR-7518 North)	Three Chopt Road	I-64	0.96	42,400
East Parham Road (VA-73 East)	Brook Road	I-95	0.96	34,400
Gaskins Road (CR-7514 North)	Ridgefield Parkway	Three Chopt Road	0.96	32,400

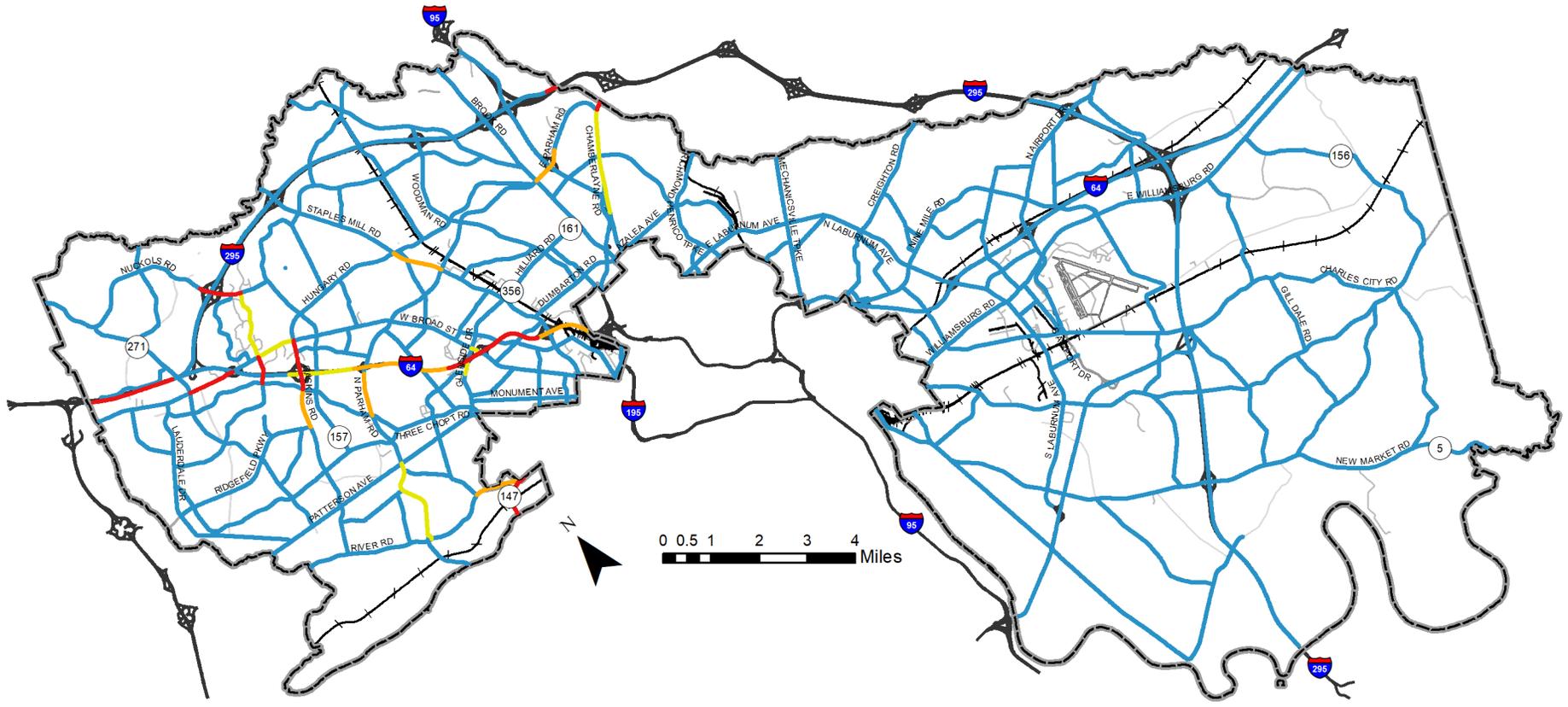
Source: VDOT Statewide Planning System, accessed 6/17/2021

**Table 4 Over-Capacity Road Segments**

Roadway Name	From	To	2019 V/C	AADT
Huguenot Road (VA-147 East)	River Road	West Cordon Line Richmond	1.64	26,500
Huguenot Road (VA-147 East)	North Cordon Line Richmond	River Road	1.56	26,200
Nuckols Road (CR-7706 East)	I-295	Lake Brook Drive	1.55	37,200
Nuckols Road (CR-7706 East)	Lake Brook Drive	Cox Road	1.55	37,200
Cox Road (CR-42 North)	Church Road @ Three Chopt Road	Broad Street	1.36	15,000
Gaskins Road (CR-7514 North)	I-64	Broad Street	1.26	39,500
Chamberlayne Road (US-301 North)	Parham Road	Hanover Cordon Line	1.24	32,400
Gaskins Road (CR-7514 North)	Three Chopt Road	I-64	1.23	41,000
West Broad Street (US-250 East)	Pouncey Tract Road	I-64 Eastbound On-Ramp	1.19	76,100

Source: VDOT Statewide Planning System, accessed 6/17/2021

# MAP 3 VOLUME-TO-CAPACITY



### 2019 Volume-to-Capacity Ratio

- ≤ 0.85
- 0.86 - 0.95
- 0.96 - 1.00
- > 1.00



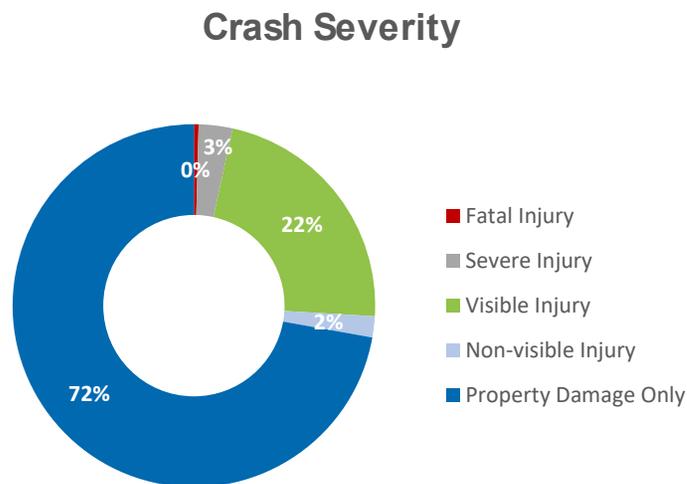
Source: 2019 V/C ratios from VDOT Statewide Planning System, accessed 6/17/2021

## SAFETY SUMMARY

Crashes on roadways in the County over a five-year period from January 1, 2016 to January 1, 2021 were retrieved from the VDOT Crash Analysis Tool and summarized. A total of 28,042 crashes occurred in the County during the five-year period. As seen in Figure 1 Crash Severity, the majority of crashes resulted in property damage only. Of the remaining crashes, 117 resulted in a fatality, and 846 resulted in severe injuries.

Map 4 Crash Heatmap, on page 11, shows where crash clusters occurred over the five-year period, excluding crashes that involved alcohol, distracted drivers, and collisions with animals. The largest hotspot of crashes is on West Broad Street (US 250) near Short Pump Town Center and West Broad Village. Another hotspot is on West Broad Street (US 250) near the intersection with Glenside Drive and the I-64 interchange, and a third hotspot is at the I-64 and Staples Mill Road (US 33) interchange.

**Figure 1 Crash Severity**

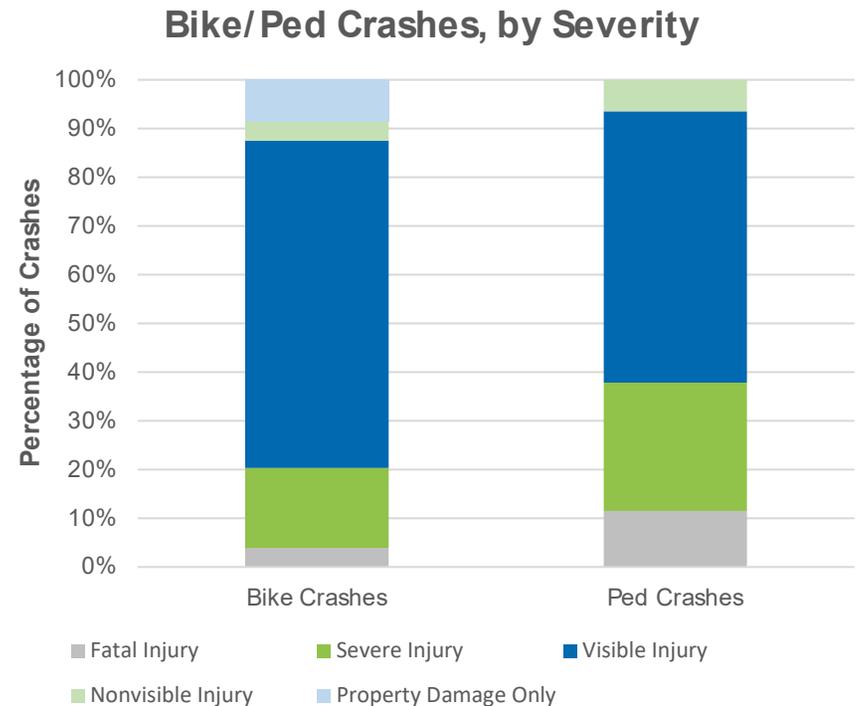


Source: VDOT Crash Analysis Tool data from 1/1/2016 to 1/1/2021, accessed 6/1/2021

## Bike and Pedestrian Crashes

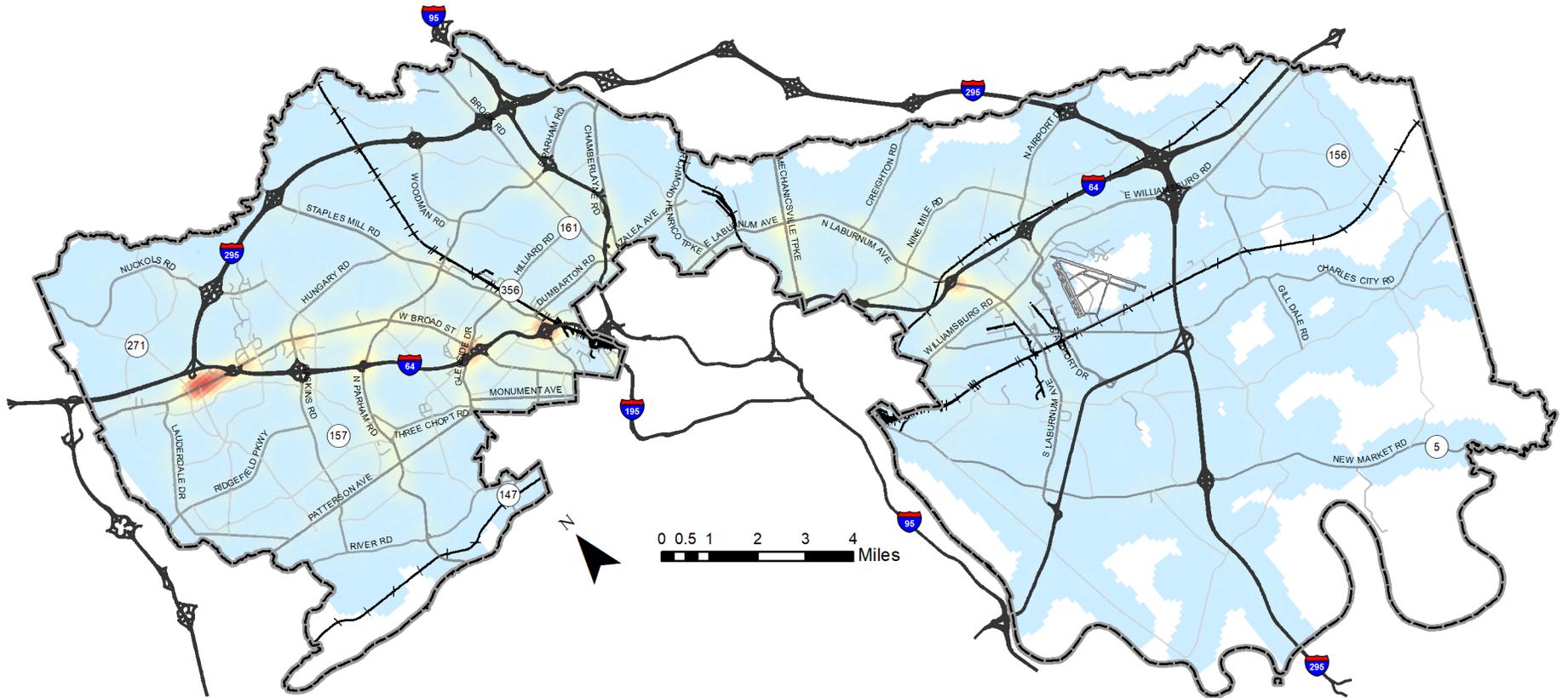
Over the five-year study period, there were 128 collisions involving bikes and 357 collisions involving pedestrians. In total, there were 5 bike fatalities and 41 pedestrian fatalities. Map 5 Bike and Pedestrian Crashes, on page 12, shows the locations of the bike and pedestrian collisions. Figure 2 Bike & Pedestrian Crash Severity shows the breakdown of crashes by injury severity.

**Figure 2 Bike & Pedestrian Crash Severity**

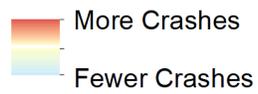


Source: VDOT Crash Analysis Tool data from 1/1/2016 to 1/1/2021, accessed 6/1/2021

# MAP 4 CRASH HEATMAP

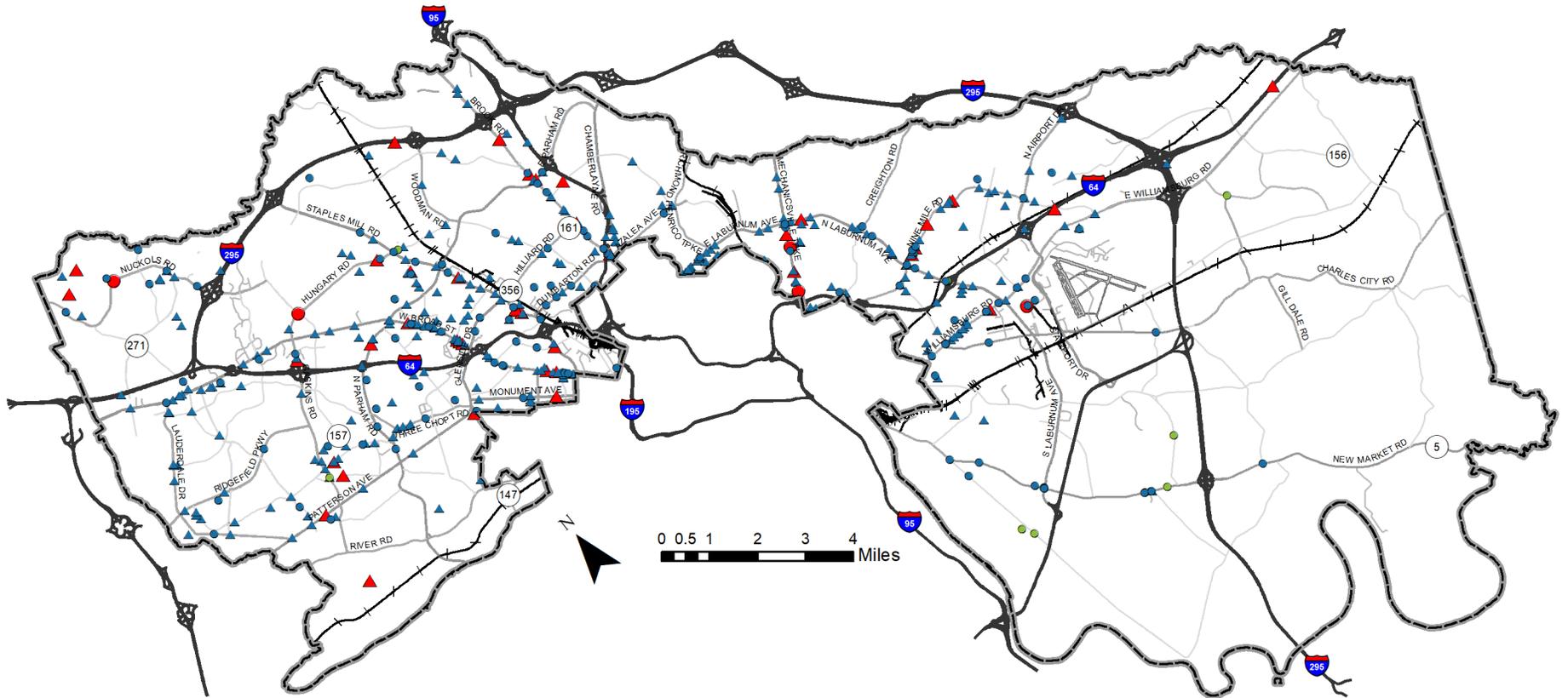


### Heatmap of Crashes



Source: VDOT Crash Analysis Tool data from 1/1/2016 to 1/1/2021, accessed 6/1/2021

# MAP 5 BIKE AND PEDESTRIAN CRASHES



## Bike & Pedestrian Crashes

### Bike

- Property Damage Only
- Injury
- Fatality

### Pedestrian

- ▲ Injury
- ▲ Fatality



Source: VDOT Crash Analysis Tool data from 1/1/2016 to 1/1/2021, accessed 6/1/2021

## ***Distracted Driver Crashes***

Approximately 22% (5,013) of the crashes involved distracted drivers. The spatial pattern of these types of crashes is very similar to the overall pattern of crashes shown in Map 4 Crash Heatmap, on page 11. Consequently, projects intended to address crash hotspots will likely cover areas with high incidences of distracted driving crashes.

## ***Alcohol-Related Crashes***

Over the same study period, 1,337 (5%) of crashes involved alcohol. The spatial distribution of alcohol-related crashes is similar to the overall crash pattern, except that West Broad Street (US 250) near the intersection with Glenside Drive and the I-64 interchange is more of a hotspot than West Broad Street (US 250) near Short Pump Town Center and West Broad Village.

## ***Animal-Involved Crashes***

Approximately 3% (766) of the crashes involved collisions with an animal, primarily with deer. Of the animal crashes, 711 involved deer, while 55 were collisions with other types of animals. Map 6 Animal-Involved Crashes Heatmap, on page 14, shows a heatmap of the animal crashes. There are several locations where a handful of animal crashes occurred over the five-year period, mostly in the more rural eastern portion of the County. The largest hotspot is at the interchange of I-95 and Chamberlayne Road (US 301). Improvements at the hotspot locations could include installing fencing to prevent deer and other wildlife from entering the roadway.

## ***Potential for Safety Improvements***

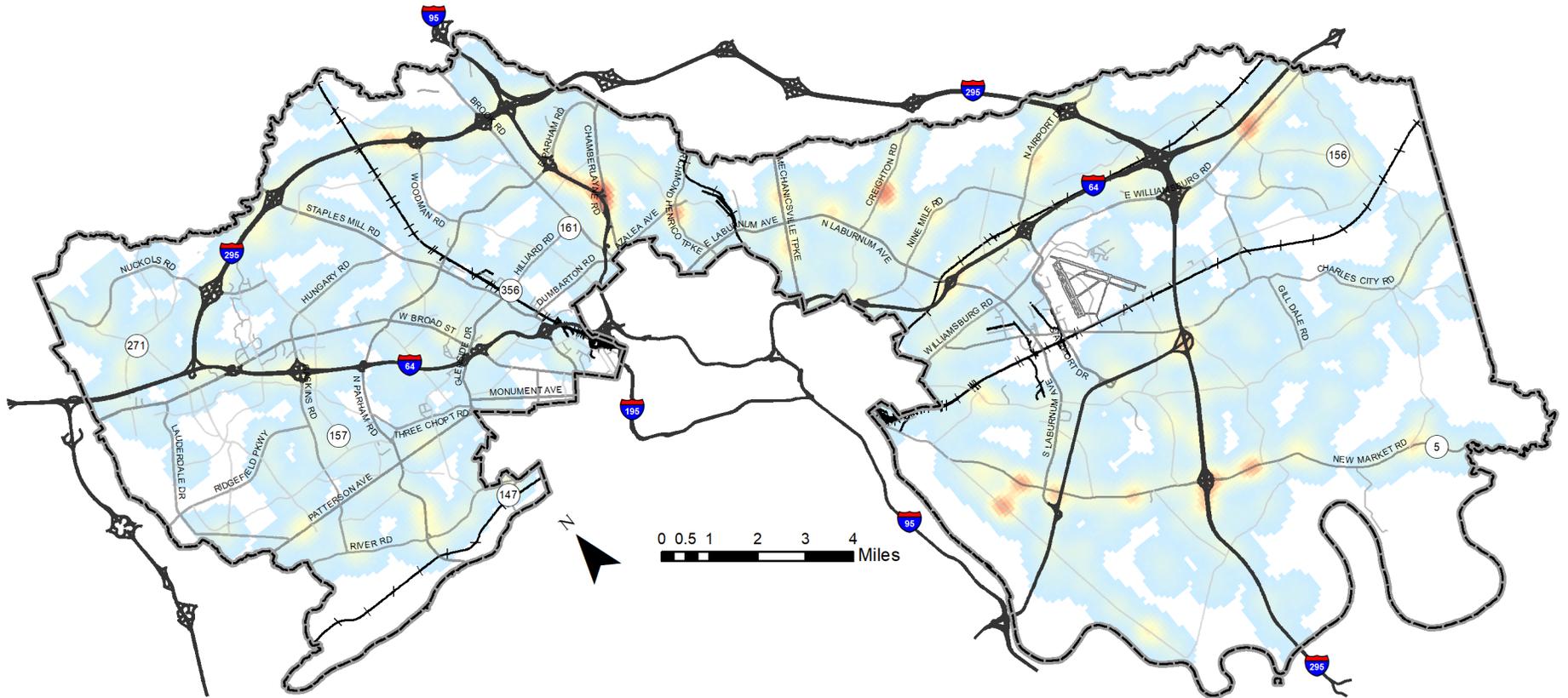
VDOT identifies Potential for Safety Improvements (PSI) locations at intersections and along roadway segments that have higher occurrences of crashes than expected based on roadway characteristics. For each of its nine construction districts, VDOT prioritizes the top 100 PSI intersections and the top 100 miles of roadway segments. PSI locations warrant study for safety and roadway improvements and their district ranking can be used as a priority level. Map 7 PSI Locations, on page 15, shows the PSI intersections and segments in the County from the Richmond District's top 100 lists, along with their district ranks.

Planned roadway and intersection improvements should consider PSI locations for the safety of County residents and for funding opportunities. PSI locations are areas with a history of higher-than-expected incidences of crashes, so they are important indicators of road safety needs in the County. Certain PSI locations contribute to eligibility for Smart Scale, the primary source of state and federal transportation funding. The Top 100 PSI intersections and segments are considered to be Mid-Term Needs in VTrans, the Commonwealth's Long-Range Transportation Plan. Meeting a VTrans need is one of the screening requirements for Smart Scale eligibility. Consequently, the PSI locations in Map 7, on page 15, could make projects at those locations eligible for Smart Scale funding.

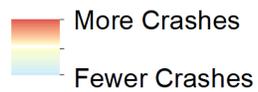
Table 5 Highest-Ranked PSI Segments, on page 16, shows the ten highest-ranked PSI segments in the Richmond District that are in the County. Table 6 Highest-Ranked PSI Intersections, on page 16, shows the ten highest-ranked PSI intersections in the Richmond District that are in the County. Some of the Top 100 PSI locations in the County coincide with planned roadway or intersection improvements, the others could be considered priority areas for future roadway and intersection safety improvement projects.



# MAP 6 ANIMAL-INVOLVED CRASHES HEATMAP

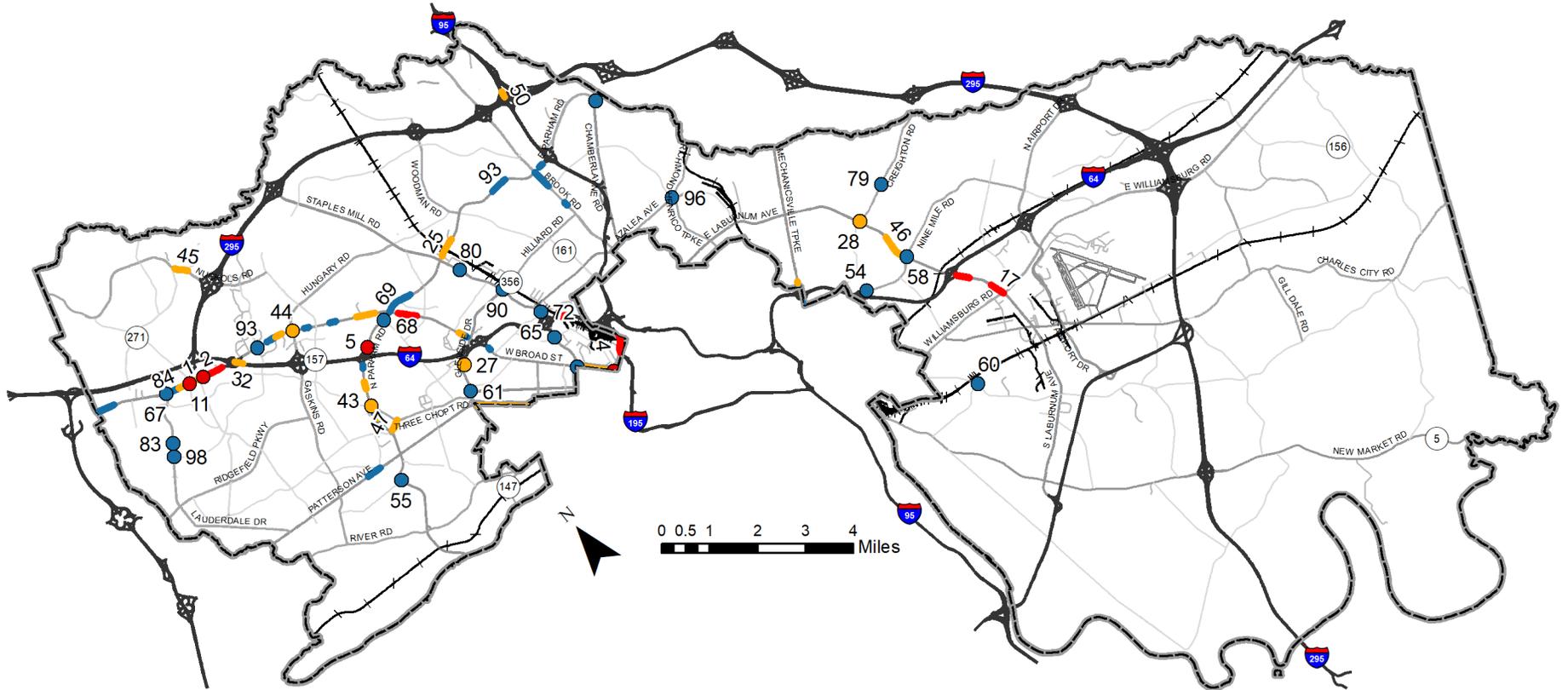


Heatmap of Animal-Involved Crashes



Source: VDOT Crash Analysis Tool data from 1/1/2016 to 1/1/2021, accessed 6/1/2021

# MAP 7 PSI LOCATIONS



## PSI Locations by Rank in the Richmond District

### Intersections

- Ranked 20 or lower
- Ranked 21 to 50
- Ranked above 50

### Segments

- Ranked 20 or lower
- Ranked 21 to 50
- Ranked above 50



Source: VDOT 2014-18 Top Potential Safety Improvements and Intersections, accessed 6/1/2021

**Table 5 Highest-Ranked PSI Segments**

Road Name/ Location	From	To	District Rank	Maintenance
West Broad Street	Pouncey Tract Road	John Rolfe Parkway	1	VDOT
West Broad Street	Brownstone Boulevard	Tom Leonard Drive	2	VDOT
West Broad Street	John Rolfe Parkway	Brownstone Boulevard	3	VDOT
I-195 Northbound	Westwood Avenue	Approx. 0.2 mi. South of West Laburnum Avenue	4	VDOT
South Laburnum Avenue	I-64 Eastbound Off-Ramp	Gay Avenue	7	Henrico County
West Broad Street	Tom Leonard Drive	Approx. 450 ft. East of Tom Leonard Drive	8	VDOT
South Laburnum Avenue	Gay Avenue	Approx. 350 ft. Northwest of Jan Road	13	Henrico County
West Broad Street	Carousel Lane	Colyer Street	15	VDOT
South Laburnum Avenue	Finlay Street	Williamsburg Road	17	Henrico County
I-64 Westbound	Approx. 0.5 mi. East of Staples Mill Road	Approx. 550 ft. Southwest of From Location	20	VDOT

Source: VDOT 2014-18 Top Potential Safety Improvements and Intersections, accessed 6/1/2021 and Henrico County

**Table 6 Highest-Ranked PSI Intersections**

Road 1	Road 2	District Rank	Maintenance
West Broad Street	John Rolfe Parkway	1	VDOT
North Parham Road	Mayland Drive	5	Henrico County
West Broad Street	Pump Road	11	VDOT
Glenside Drive	Forest Avenue	27	Henrico County
Creighton Road	North Laburnum Avenue	28	Henrico County
Three Chopt Road	North Parham Road	43	Henrico County
West Broad Street	Gaskins Road	44	VDOT
Nine Mile Road	Gordons Lane	54	VDOT
North Parham Road	Derbyshire Road	55	Henrico County
Nine Mile Road	North Laburnum Avenue	58	VDOT

Source: VDOT 2014-18 Top Potential Safety Improvements and Intersections, accessed 6/1/2021 and Henrico County

## SUMMARY OF BIKE AND PEDESTRIAN MODES

Henrico County has the most extensive multimodal network of any County in the Richmond Metropolitan Area. The only jurisdiction with more bike and pedestrian infrastructure is the City of Richmond, which also has the most urbanized environment. In the County, facilities are not evenly distributed due to different land use densities and development timeframes. Rural areas have fewer sidewalks and bike paths. The existing routes, such as the Virginia Capital Trail, are more intended for recreational uses. The urbanized parts of Henrico contain a more complete network of sidewalks and other facilities. In the western portion of the County, the environment is more suburban. Due to recent developments in the western portions of the County, there are newer facilities and a growing bike and pedestrian network.

### ***Pedestrian Network***

Sidewalks can be found throughout the county but are most prevalent west of I-95, especially within new residential developments and commercial corridors. Some of the county's older neighborhoods have pedestrian accommodations, but these facilities have begun to show signs of deterioration. Newer commercial projects have incorporated sidewalks within and along their property. However, if they were developed as infill, there may be gaps in the pedestrian infrastructure as older developments were not required to install such facilities. Map 8 Active Transportation Facilities on page 18 shows the existing and proposed sidewalks and bike facilities in the county.

In 2021, the Board of Supervisors adopted three new documents that will influence the county's future bicycle and pedestrian network. Effective September 1, 2021, a new Department of Public Works' Design Manual, along with updated Subdivision and Zoning Ordinances, will require new facilities for both residential and non-residential development.

The new Department of Public Works' Design Manual requires all development, including subdivisions, plans of development and capital improvement projects, to install 5-foot sidewalk on both sides of major thoroughfare roads. All other roads shall have sidewalk installed on one side of the road, at a minimum. Additionally, the Design Manual warrants bus pad

installation adjacent to all existing and proposed public transit stops. Bike lane and trail typical sections are outlined in the Manual as well.

### ***Bicycle Network***

There are 49 miles of bike paths in Henrico County. As with the sidewalk network, most bicycle facilities are west of I-95. However, there are exceptions, such as the Virginia Capital Trail, which follows Route 5 (New Market Road). This trail includes off-road, paved surfaces.

### ***Regional Bicycle Trails***

This section provides an overview of regional bike trail amenities in Henrico County that connect the County to surrounding areas. These routes have regional, statewide, and national significance.

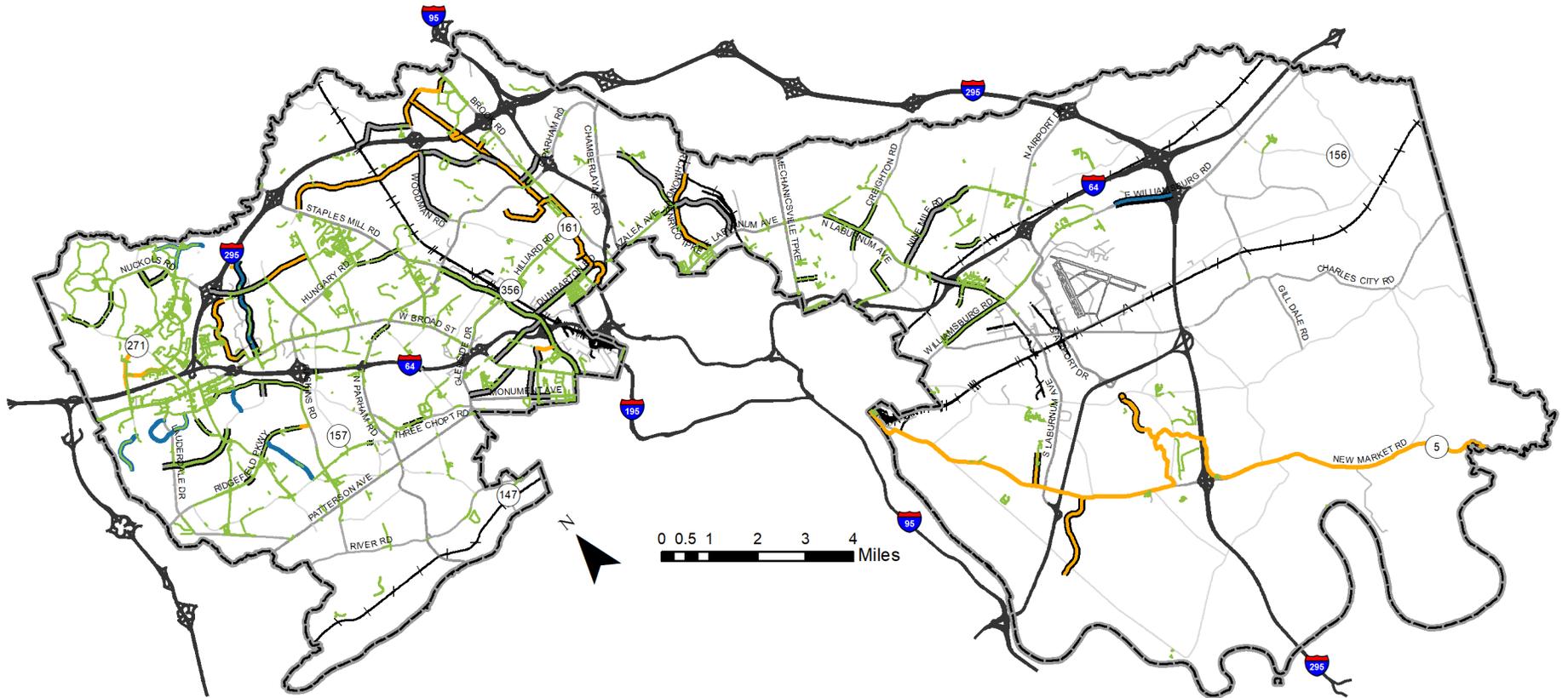
### ***U.S. Bicycling Route System (USBRS)***

In 1978, the American Association of State Highway and Transportation Officials (AASHTO) established the U.S. Bicycling Route System (USBRS), the cycling equivalent to the numbering system for highways and interstates. The purpose of these route numberings and markings is to facilitate recreational riding between states by way of roadways that are reasonably suitable for bicycling. While these include off-road paths, most of the route mileage consists of on-road facilities (public highways). Currently, there are nearly 18,000 miles of approved Bike Routes spanning 31 states. Virginia was the first state to have two routes, both of which traverse Henrico County. Stretching from Maine to Florida, Route 1 has a north-south orientation. It passes through Henrico along Old Washington Highway, through Lakeside, and into the City of Richmond.

### ***The TransAmerica Trail***

The concept for Bike Route 76, the TransAmerica Bicycle Trail, originated with a large cycling event in 1976, which celebrated the Country's bicentennial. Stretching from Oregon to Virginia, this route spans approximately 4,242 miles from coast to coast. Route 76 runs through eastern Henrico, generally along Elko and Willis Church Roads, joining with the Virginia Capital Trail and ending in Yorktown.

# MAP 8 ACTIVE TRANSPORTATION FACILITIES



## Multimodal Facilities

### Existing

- Bike Lane
- Shared-Use Path
- Sidewalk

### Planned

- Bike Lane
- Shared-Use Path
- Sidewalk
- Unspecified Facility



Source: Henrico County Department of Public Works, received 4/13/21

## East Coast Greenway

The East Coast Greenway bisects the middle of Henrico County and roughly follows US Bike Route 1. It connects five states and 450 communities, stretching 3,000 miles from Maine to Florida.

## Virginia Capital Trail

The Virginia Capital Trail crosses four counties and spans 51.7 miles between Jamestown and Richmond. The trail has historical significance, connecting Virginia's first colonial capital and its current capital city. In Henrico, the Virginia Capital Trail consists of paved paths that follow Route 5 (New Market Road). The trail is generally 10 feet wide, with a grass strip that separates it from travel lanes. At Interstate 295, the trail turns away from Route 5, passing through wooded and open space areas. This diversion allows cyclists to avoid the interchange. There are crosswalks at various points as the trail passes New Market Road to switch sides of the road. The Virginia Capital Trail Foundation oversees this facility and "exists to protect, promote, and enhance the Virginia Capital Trail, and to serve as a resource, community builder, and connector to other trails throughout the Commonwealth." The trail currently serves the eastern half of the County. The Foundation has proposed the development of the James River Heritage Trail which would provide a connection to the Virginia Capital Trail and an east-west route through western Henrico County.

## Fall Line Trail

While not officially established, VDOT initiated this study to identify a corridor to construct a roughly 40-mile multi-use trail from Ashland to Petersburg, Virginia. Part of the preferred alignment passes through Henrico County, as seen in Figure 3 Fall Line Trail Preferred Alignment. The County's portion would primarily be an off-street, shared-use path, with some sections adjacent to existing roads. The plan constitutes a regional-scale effort with no dedicated funding source. However, the alignment presents the County with the opportunity to build on a regional effort to increase bike and pedestrian accessibility.

**Figure 3 Fall Line Trail Preferred Alignment**



Source: Fall Line Trail Study

## Related Plans

The 2026 Comprehensive Plan references various bike and pedestrian plans and studies that influence Henrico County's transportation network. With the update to the plan, a higher level of emphasis will be placed on identifying recommendations for future needs, bicycle routes, and connections. This will result in a stand-alone Bike and Trails Plan. The standalone document will be incorporated into the Comprehensive Plan by reference.

Current planning efforts in the region that are relevant to bike and pedestrian planning include the Richmond Regional Active Transportation

Plan, and small area and specific trail plans, including the Fall Line Trail Study. While separate documents, these plans and studies provide project details on accomplishing county goals.

### **Richmond Regional Active Transportation Plan Update**

This plan serves as the Bicycle and Pedestrian Plan for the Richmond Transportation Planning Organization (TPO) region, which includes Henrico County. As of the publication of this report, the Richmond TPO was still updating the plan. Its vision is to provide “mobility for people of all ages and abilities through a safe, continuous, recognizable, and intuitive pedestrian and bicycle network. Efforts to make walking and biking a safe travel mode are well-integrated into all regional and local comprehensive and related plans, implementing ordinances and guidelines to equitably enhance the quality of life, strengthen local economies, and preserve the natural environment.” An outcome of the plan will be a TPO-wide dataset of existing and proposed bike lane facilities.

### **Westwood Small Area Study**

The Henrico County Planning Department conducted this small area study in the Brookland Magisterial District in 2017. The area is northeast of Scott’s Addition, which has seen increased residential and commercial development in recent years. The study assesses the development pressures of the area and recommends changes to support sustainable development. Pedestrian improvements are recommended under Goal 3 of the plan (Objective 3.2), “Enhance pedestrian environment.” The recommendations include installing sidewalks on both sides of all roads in the study area and creating off-street pedestrian paths and trails where the street network connectivity is low.

## **SUMMARY OF TRANSIT**

Henrico County residents have access to various transit services through the region’s transit agency, the GRTC Transit System (GRTC). GRTC services are concentrated in the City of Richmond and extend into Henrico County. Recent substantial improvements to the area’s bus network have increased the accessibility of transit to County residents. Proposed improvements will continue to expand access for the area’s transit riders. Improving and expanding transit in the region will help to sustainably support the transportation mobility needs for the County’s projected population growth.

This section summarizes the existing conditions of GRTC and provides an overview of currently planned improvements to the system.

### **GRTC Transit System**

GRTC operates transit services in the greater Richmond area and has operated bus service in Henrico County since 1975. Jointly owned by the City of Richmond and Chesterfield County the agency’s six-member Board of Directors is comprised of appointees from each locality. Beginning in fiscal year 2022, Henrico County will be responsible for providing GRTC’s largest local funding source. As a result, the county is pursuing membership on the Board of Directors.

GRTC offers a range of services, including bus rapid transit (BRT), local and express bus service, and paratransit. GRTC also manages the region’s transportation demand management programs. The agency provides fixed-route and demand-based bus services to the City of Richmond, Henrico County, and Chesterfield County. The GRTC system recently completed several significant improvements, including a bus network redesign that began operation in 2018 and substantial upgrades to signs and ADA accessibility at stops across the region.

### **GRTC Services in Henrico County**

#### **The Pulse**

The Pulse is a 7.6-mile bus rapid transit (BRT) route that opened in 2018 with the redesigned bus network. BRT offers fast, high-quality bus service primarily by using dedicated bus lanes, off-board fare collection, and stations with level-boarding. The Pulse provides service with 15-minute frequency or better from Rocketts Landing in the City of Richmond to the Willow Lawn shopping center in Henrico County. The station at Willow Lawn is the only Pulse station in the County. The 2017 Greater RVA Transit Vision Plan includes a proposed extension of BRT in the County with service to Short Pump.

## Local Service

Local service bus routes are the most common GRTC service available to Henrico County residents. GRTC local bus services operate from 5:00 am to 1:00 am, seven days a week. Over a dozen of GRTC's local routes traverse the County with frequencies ranging from every 15-minutes, 30-minutes, and 60-minutes, depending on the route and time of day. The 2018 bus network redesign included expanded weekend and night-time services to the County.

## Express Service

Several express routes provide weekday peak-hour service that connects Park and Ride lots in the County with Downtown Richmond. Express bus service offers a more direct trip by making fewer stops than local service. In September 2021, GRTC consolidated Express Routes 23x, 26x, and 27x into the 29x due to low ridership. The new route mirrors trips on the 23x, 26x and 27x, while preserving the original 29x scheduled boardings. The Route 29x (Gaskins Express) provides service in the western part of the County.

## Paratransit

The CARE program provides on-demand, curb-to-curb paratransit service for eligible riders in Richmond, Henrico County, and parts of Chesterfield County. CARE shuttles operate within the GRTC fixed-route service area, plus a ¼-mile buffer. CARE provides service from 6:00 am to 11:00 pm for Henrico County residents. While CARE satisfies the Americans with Disabilities Act (ADA) requirements, GRTC offers a supplemental paratransit service called CARE Plus. CARE Plus extends the CARE service for residents and destinations beyond the ¼-mile buffer, or if a trip is needed outside the normal operating hours for trips in Henrico County.

## Transportation Demand Management

RideFinders is a division of GRTC that seeks to decrease the number of single-occupancy vehicle trips in the region. RideFinders manages programs that promote alternative commuting options, including carpooling, vanpooling, transit, teleworking, walking, and biking. Henrico County residents have access to RideFinders' programs and services.

## Planned Improvements

### Transit Development Plan

The GRTC Transit Development Plan (TDP) details the agency's planned improvements to its services and physical capital. The TDP was updated in 2018 to include projects and initiatives from 2018 to 2022. The TDP lists several improvements that will affect service in Henrico County. The improvements include route extensions, frequency increases, and expanding the operating hours for routes in the County. A major capital improvement is the construction of a Multi-Modal Transportation Terminal in the City of Richmond. The agency is currently seeking sites to accommodate the facility. While the terminal will be in the City, it will facilitate improvements to scheduling coordination and on-time performance for numerous GRTC bus routes.



Source: GRTC

## **Greater RVA Transit Vision Plan**

The 2017 Greater RVA Transit Vision Plan established a vision for transit in the Richmond area through 2040. The plan identified corridors for expanded transit service. A technical supplement to the plan, the 2018 Near-Term Strategic Technical Analysis, further analyzed the corridors. The 2018 supplement assessed the expansion of BRT, local service, express service, regional service, and private shuttle service on the identified corridors. The assessment included screening the corridors for their viability to support transit service. Multiple corridors identified in Henrico County can support new or enhanced services. The document includes feasibility analyses of the corridors, with recommendations on the next steps of securing funding, conducting corridor planning, procuring vehicles, and designing and constructing improvements. The realization of the improvements in the Vision Plan would greatly enhance access to transit in the County.

### ***Inter-city Bus Service***

In addition to the local and regional services of GRTC, Henrico County residents have access to the nation's capital through the Capital Connector route of the Virginia Breeze inter-city bus service. The route runs from Martinsville to Washington D.C., with stops in Danville, South Boston, Farmville and Richmond. The Capital Connector makes its Richmond stop at the Main Street Station, providing one northbound and one southbound trip daily. The northbound trip departs at 11:05 AM and the southbound trip departs at 3:25 PM.

## **SUMMARY OF RAIL**

Henrico County has extensive railroad infrastructure that supports a variety of freight and passenger rail services. Vast amounts of freight move through the County along three Norfolk Southern and CSX railroad corridors that extend up and down the east coast and out to the mid-west. Every day, thousands of passengers originate from or pass through the County on a handful of Amtrak services that operate on the same corridors. The Staples Mill Road Amtrak Station is a central passenger rail hub in Virginia, with the highest yearly ridership numbers in the Commonwealth. This section describes existing conditions and major planned investments in freight and passenger rail infrastructure in the County.

## ***Freight Rail***

Two Class I railroads and one shortline railroad traverse Henrico County. Class I railroads are major national railroads and shortlines are smaller local railroads. CSX and Norfolk Southern operate the Class I railroads. While CSX owns the shortlines, Buckingham Branch Railroad operates on the line. Map 9 Railroads, on page 23, shows the alignment of the area's railroads. A Norfolk Southern railroad runs from West Point, VA, towards Roanoke, VA, cutting through the eastern end of the County. CSX owns and operates most of the freight rail infrastructure in the region.

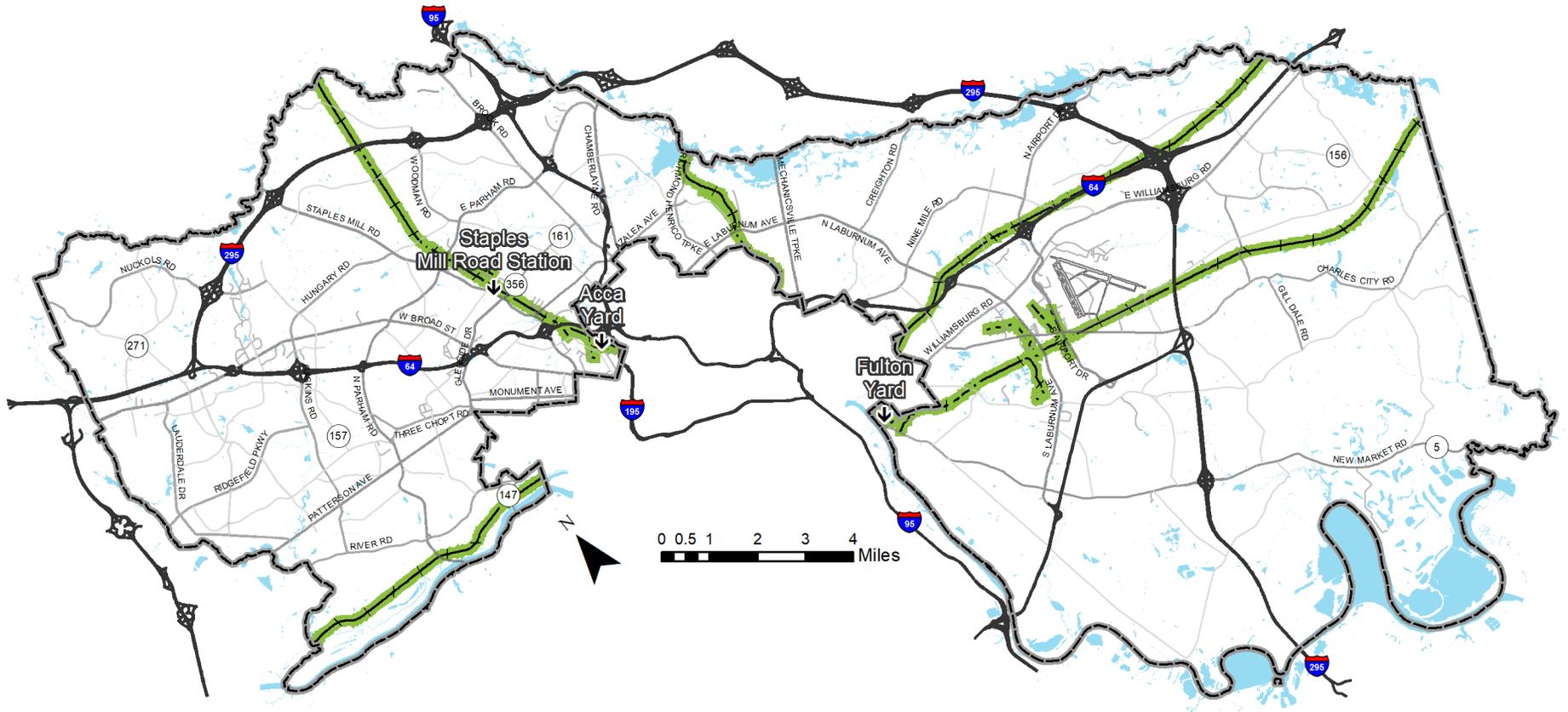
Three CSX rail corridors traverse the County. The Coal Network corridor, which connects the coalfields of West Virginia to the ports of Newport News, runs through the eastern and western ends of the County. The National Gateway and I-95 corridors share tracks that run north-south through the central portion of the County. Additionally, CSX operates the Acca Yard and Fulton Yard railyards, both in Henrico.

Acca Yard has approximately 20 tracks servicing both CSX's freight and Amtrak passenger rail which creates considerable congestion at the facility. The yard is on the federally designated "High-Speed Rail Corridor," which means passenger service passing through the yard will increase, complicating congestion. Fulton Yard is smaller, with 13 tracks, and only accommodates freight service.

### ***Passenger Rail***

Several of Amtrak's regional and long-distance routes pass through Henrico County. The regional services include Route 47 and Route 50, Virginia Department of Rail and Public Transportation (DRPT) sponsored routes that connect Hampton Roads to Washington D.C. The long-distance services are the Carolinian (service from Charlotte, NC to New York, NY), Palmetto (service from Savannah, GA to New York, NY), and Silver Service (service from Miami, FL to New York, NY). The Amtrak services operate on railroads hosted by Norfolk Southern, CSX, or Buckingham Branch Railroad. The Staples Mill Road Station serves the above services, as seen in Figure 4 Amtrak Routes in Virginia, on page 24.

# MAP 9 RAILROADS



**Railroads**  
 Railroads



Source: Henrico County

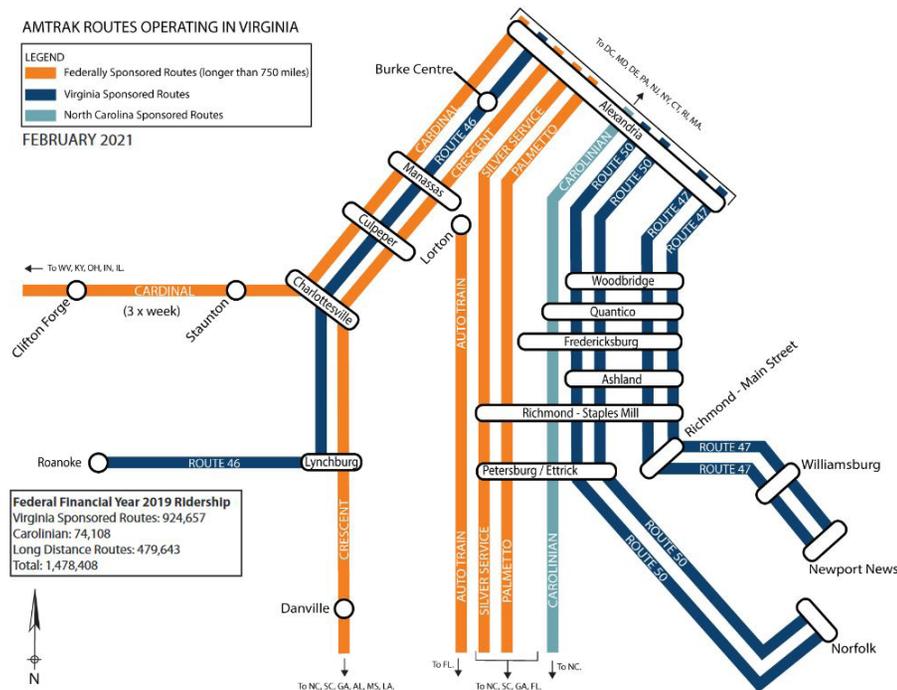
The Staples Mill Road Station is a major passenger rail hub in Virginia. The station typically has the highest number of boardings per year of Virginia's Amtrak stations. The COVID-19 pandemic has taken a toll on travel through the station, with 12,883 boardings reported in July 2021 compared with 21,824 boardings in July 2019 (pre-pandemic). The station is one of three that serve the Richmond Metropolitan Area. With 17 to 18 daily trains from the above services, the station provides the region's residents access to numerous destinations from Miami to New York. Amtrak provides 587 parking spaces at the station. Ticketing and passenger service are available twenty-four hours a day, seven days a week. A multi-state planning effort for a new high-speed rail service will increase activity at the station.

The station sits along a future high-speed rail corridor. In 2002, DRPT and the North Carolina Department of Transportation completed an Environmental Impact Statement (EIS) to implement high-speed rail service

along the Southeast High-Speed Rail corridor between Washington D.C. and Charlotte, North Carolina, via Richmond and Henrico County. A follow-up study of the corridor between Richmond and Washington, D.C. recommends making incremental improvements on the route, including straightening curves, adding tracks, eliminating grade-crossings, making station improvements, and increasing service frequencies. The D.C. to Richmond Southeast High Speed Rail Study completed an EIS in 2019. The preferred alternative recommends adding nine new daily intercity round trips to Staples Mill Road Station.

DRPT is studying the replacement and expansion of Staples Mill Road Station to handle the planned increase in passenger rail service. The study will result in preliminary engineering designs and cost estimates for improvements to the station's physical facilities and will also recommend land use changes in the surrounding area. The study is scheduled to be completed by December 2021.

**Figure 4 Amtrak Routes in Virginia**



Source: DRPT

## SUMMARY OF AIR SERVICE

Richmond International Airport (RIC) is a major gateway for people and goods in Central Virginia. Located in eastern Henrico County, the airport serves essential roles in the mobility and economy of the County. The airport is a gateway for travelers entering the region and is a large employment center for County and area residents. This section summarizes the existing conditions of air service in the County and major improvements planned for RIC.

### Richmond International Airport

Aeronautic activities at the site of RIC date back to the Civil War when soldiers used tethered balloons for reconnaissance. The land was dedicated for the airport in 1927, under the name Byrd Field, and passenger flight service began in 1932. In 1975, the Commonwealth established the Capital Region Airport Commission (CRAC) to operate the airport, renamed to Richmond International Airport. CRAC is governed by a 14-seat board comprised of two appointees from Hanover County and four appointees each from the City of Richmond, Chesterfield County, and Henrico County. With revenues from various services covering all operating costs, RIC has been self-sustaining since CRAC took over operations.

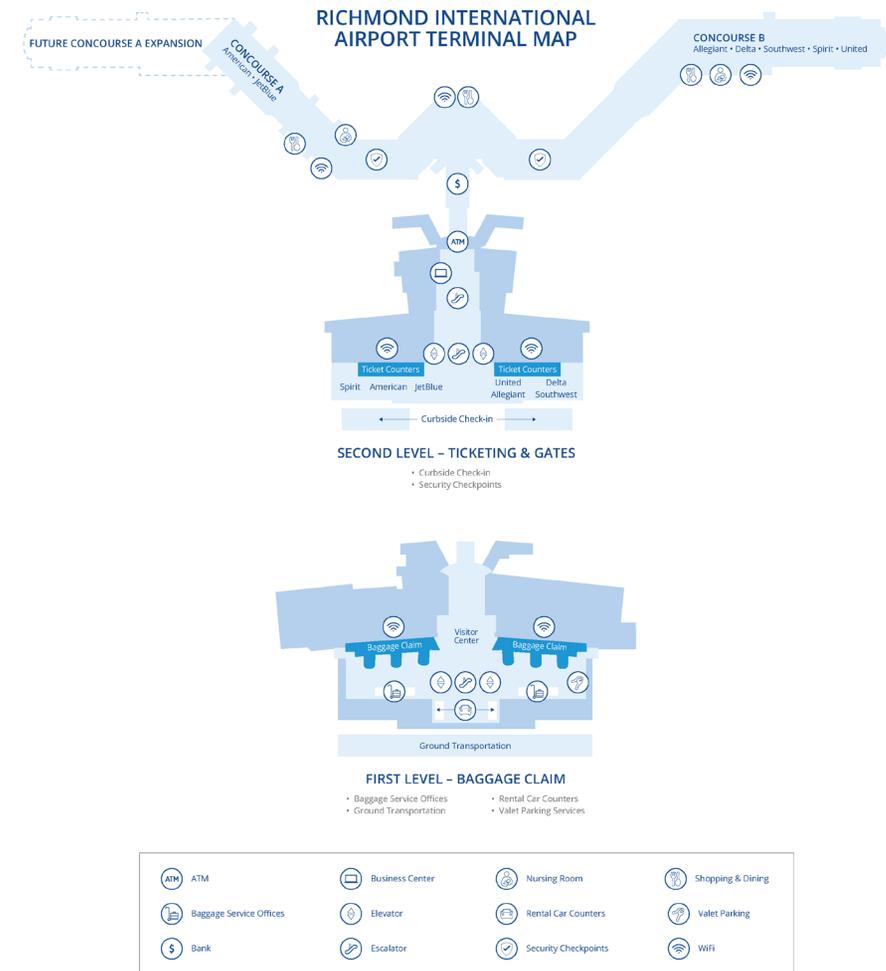
## Air Service

RIC offers a variety of passenger, cargo, and other aeronautic services. Nearly four million travelers pass through the airport each year. Passenger service is provided by seven airlines through two passenger terminals, shown in Figure 5 RIC Terminal Map, on page 25. The seven commercial airlines are American Airlines, Delta Air Lines, JetBlue Airways, Southwest Airlines, Spirit Airlines, United Airlines, and Allegiant. Other passenger services include charter flights operated by Martin Air and HeloAir, Inc. and corporate aviation services. Additional related activities at RIC include the ATP Flight School and three Fixed Base Operators who offer a range of aeronautic services. Additionally, approximately 140 million pounds of cargo pass through RIC annually through its carriers, FedEx Freight Forwarding, UPS Cargo, DHL Cargo, and Southwest Airlines Cargo.

## Airport Master Plan

The 2012 Richmond International Airport Master Plan lays out the improvement needs for RIC through the planning horizon year 2026. The Master Plan forecasted that demand for services at RIC would grow each year to the horizon year. Therefore, the plan addressed the improvement projects needed to maintain an acceptable level of service as demand continues to grow. The plan considered improvements to Airfield Facilities, Passenger Terminal Facilities, Support/Ancillary Facilities, and Ground Access Facilities. Major projects programmed to be completed by 2026 include expanding Concourse A, shown in Figure 5 RIC Terminal Map, and building a new passenger terminal with a new concourse, Concourse C. Major projects beyond 2026 include the construction of new surface and multi-level garage parking facilities and the development of a new Aviation Business Park that could include office, industrial, and warehouse uses.

**Figure 5 RIC Terminal Map**



Source: RIC

# CONCLUSION

The transportation chapter of the updated Comprehensive Plan will serve as a resource for local officials by reviewing existing conditions and needs while setting transportation policies, goals, objectives, and recommendations. The State of the System report was the first step in this process. Henrico's consultants will continue to analyze the existing conditions, identify needs and use public feedback to determine desired solutions.

# NEXT STEPS

The following steps will build on this report as Henrico's consultants assemble the county's updated comprehensive plan and transportation elements.

- Phase III – Evaluate Growth Alternatives: The State of the System Report will set the baseline for evaluating future growth. This next phase will also identify how the County's existing conditions change over time. The travel demand model will be a powerful tool for forecasting future needs.
- Phase IV – Develop Plan: This phase will include updates to Henrico's vision and policy framework. The existing conditions information helps to determine a starting point for evaluating existing goals, objectives, and policies. New transportation recommendations will also help to address existing and future conditions. This phase includes developing Henrico's Bike and Trails Plan, which will include additional detail on bike and pedestrian modes.

## PARALLEL PLANNING EFFORTS

Past and present planning efforts fed into the State of the System Report, providing essential considerations for the subsequent phases. There are various transportation plans and studies that help to support Henrico County's transportation vision. Statewide documents, such as VTrans and the Statewide Rail Plan, define needs of statewide significance and are essential for the Commonwealth's funding decisions. The Richmond Regional Transportation Planning Organization's (RRTPO) Long Range Transportation Plan (LRPT) and other regional plans include modeling, analysis, and lists of project recommendations. Local plans, such as the Glen Allen Small

Area Plan, also overlap with or detail the goals and objectives from the comprehensive plan.

Henrico County acknowledges these state, regional, and local plans. The following are essential considerations for County officials when making transportation-related decisions.

### Statewide Considerations

- VTrans
- Virginia State Rail Plan
- Virginia Outdoors Plan

### Regional Considerations

- Connect RVA 2045
- Richmond Regional Active Transportation
- Richmond Regional Park and Ride Investment Strategy
- Regional Public Transportation Plan
- Greater RVA Transit Vision Plan
- Ashland to Petersburg Trail Study
- Richmond International Airport Master Plan

### Local Considerations

- Glen Allen Small Area Plan
- Westwood Small Area Plan
- Route 5 Corridor/Marion Hill Study
- Henrico County Department of Public Works
- Public Works Design Manual
- Safety and Mobility Studies
- STARS Studies - various locations
- Interstate Moficiation Reports (IMRs) - various locations
- Short Pump Interstate Access Report
- Short Pump Sub Area Study
- DRPT Staples Mill Small Area Plan