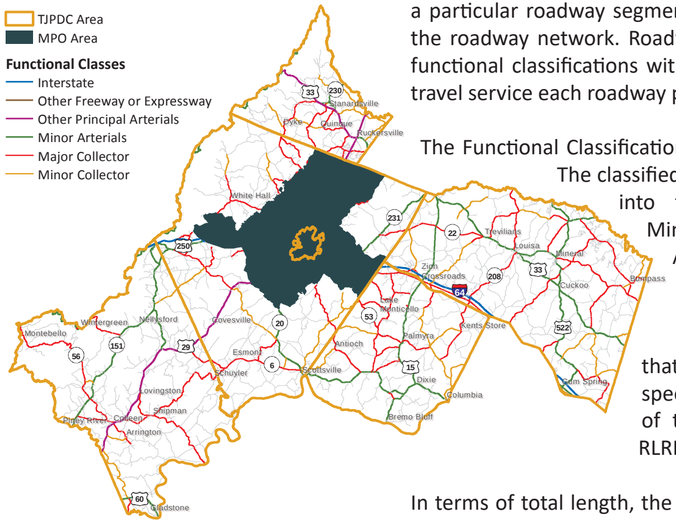
3
US 29

REGIONAL TRANSPORTATION SYSTEM

ROAD FUNCTIONAL CLASSIFICATIONS



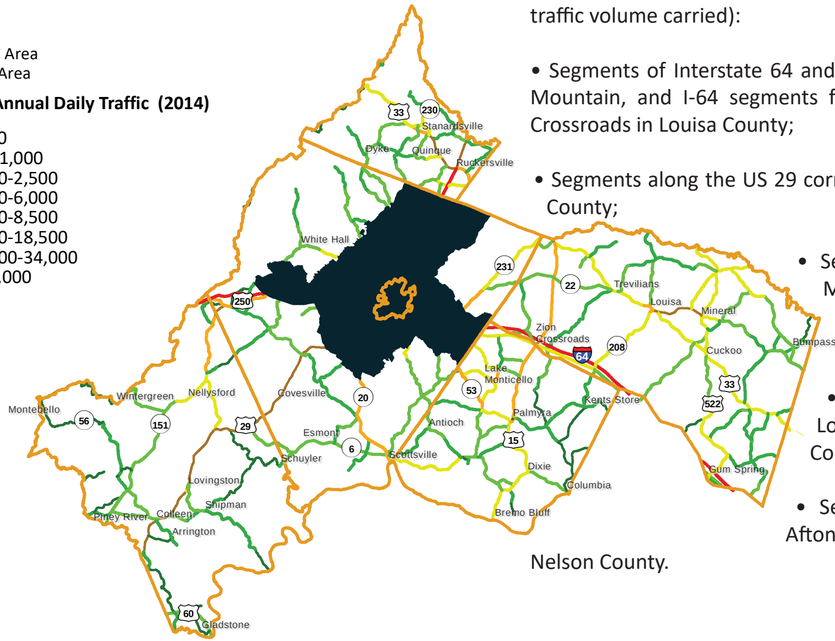
Functional Classification is the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide. The functional classification defines the role that a particular roadway segment plays in serving the flow of traffic through the roadway network. Roadways are assigned to one of several possible functional classifications within a hierarchy according to the character of travel service each roadway provides.

The Functional Classification process does not include private roadways. The classified roadway segments in the region are grouped into four major categories: Principal Arterial, Minor Arterial, Collector, and Local. Principal Arterial's include interstate, other freeways and expressways, and other principal arterial roadways. Collectors include major and minor collector roads. The Local roadways that are usually composed of two-lane, low-speed rural roadway segments are not part of the Functional Classification analysis of the RLRP.

In terms of total length, the majority of roadways in the region are either private or local. In addition to Interstate 64, there are other principal arterials such as US 29 and US 33, minor arterials Route 20 and Route 151, major collector US 250, and minor collectors form the main skeleton of the roadway system in the region (see table on page 19 for "Total Length and Percentages of All Roadways" statistics).

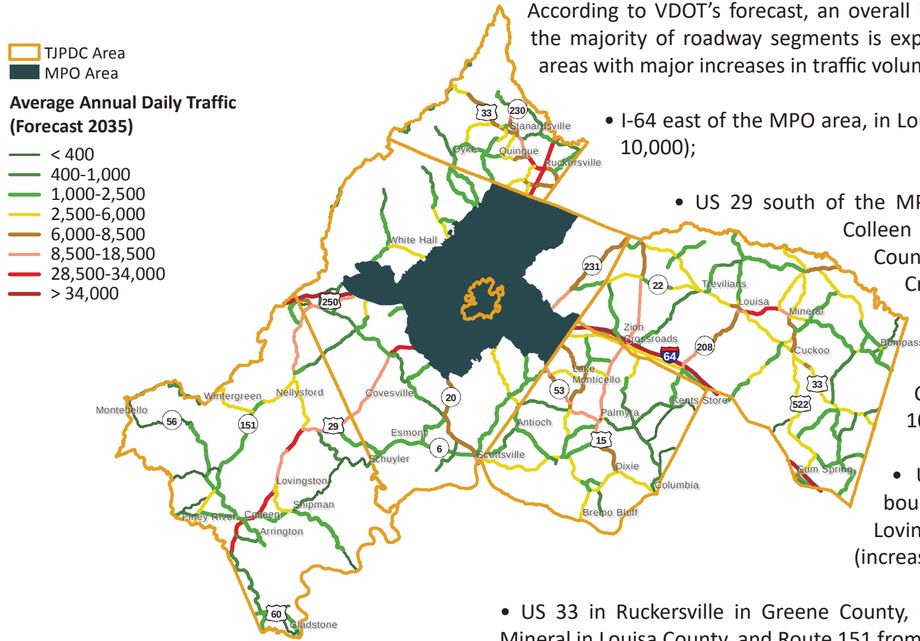
Roadway Class	Total Length (Miles)	Percentage of All Roadways
Interstate	59.91	1.7%
Other Principal Arterials	99.37	2.8%
Minor Arterials	243.71	6.8%
Major Collector	371.97	10.5%
Minor Collector	171.67	4.8%
Local	1,497.96	42.1%
Not Classified	1,114.76	31.3%

AVERAGE ANNUAL DAILY TRAFFIC



Annual Average Daily Traffic (AADT) is an estimate of the average daily traffic along a defined segment of a roadway. As shown on the adjacent map, there are several areas with high volumes of traffic concentration in the non-MPO portion of the TJPDC region. These areas include (in decreasing order of traffic volume carried):

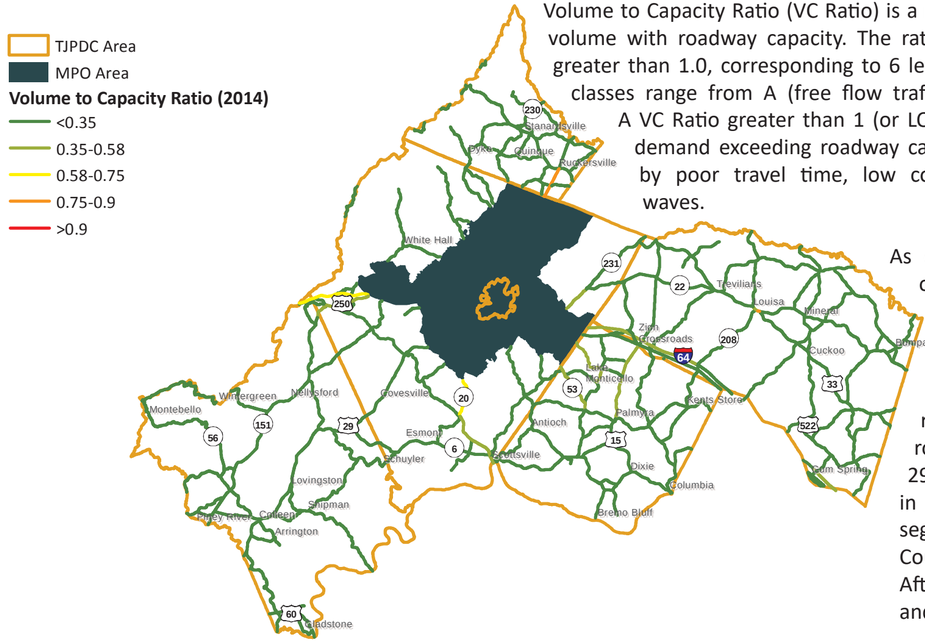
- Segments of Interstate 64 and US 250 from Crozet to Afton Mountain, and I-64 segments from the MPO limits to Zion Crossroads in Louisa County;
- Segments along the US 29 corridor in Ruckersville in Greene County;
- Segments of US 29 from the MPO limits to Covesville and Lovingston in Nelson County;
- Segments of Route 208 from Louisa to Mineral in Louisa County;
- Segments of Route 151 from Afton Mountain to Nellysford in Nelson County.



According to VDOT's forecast, an overall increase in traffic volume on the majority of roadway segments is expected by 2035. Some of the areas with major increases in traffic volume include:

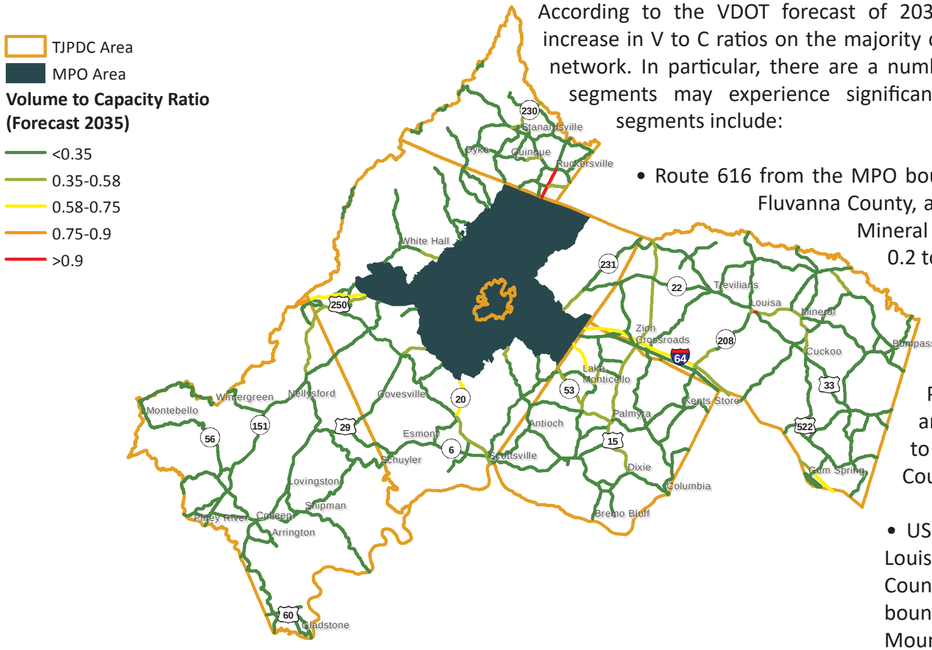
- I-64 east of the MPO area, in Louisa County (increase by over 10,000);
- US 29 south of the MPO area, from Lovingston to Colleen and Arrington in Nelson County, US 15 segments from Zion Crossroads to Dixie in Fluvanna County, and Route 53 from the MPO area boundary to Palmyra in Fluvanna County (increase by 5,000 to 10,000);
- US 29 from the MPO area boundary in the south to Lovingston in Nelson County (increase by 2,000 to 5,000);
- US 33 in Ruckersville in Greene County, US 522 around the town of Mineral in Louisa County, and Route 151 from Rockfish Gap to Nellysford in Nelson County (increase by 1,000 to 2,000).

VOLUME TO CAPACITY RATIO



Volume to Capacity Ratio (VC Ratio) is a measure that compares traffic volume with roadway capacity. The ratio varies from a low of 0 to greater than 1.0, corresponding to 6 levels of service (LOS). The LOS classes range from A (free flow traffic) to F (severe congestion). A VC Ratio greater than 1 (or LOS category F) indicates traffic demand exceeding roadway capacity, which is characterized by poor travel time, low convenience, and stop-and-go waves.

As of 2014, the great majority of roadways in the area did not challenge their current carrying capacity. Roadway segments in certain areas, however, are reaching their capacity. These roadway segments include US 29 segments in Ruckersville in Greene County; Route 208 segments in Louisa in Louisa County; and I-64 segments in Afton Mountain in Albemarle and Nelson County.



According to the VDOT forecast of 2035, there will be an overall increase in V to C ratios on the majority of the roadways in the area's network. In particular, there are a number of areas where roadway segments may experience significant increases. Such roadway segments include:

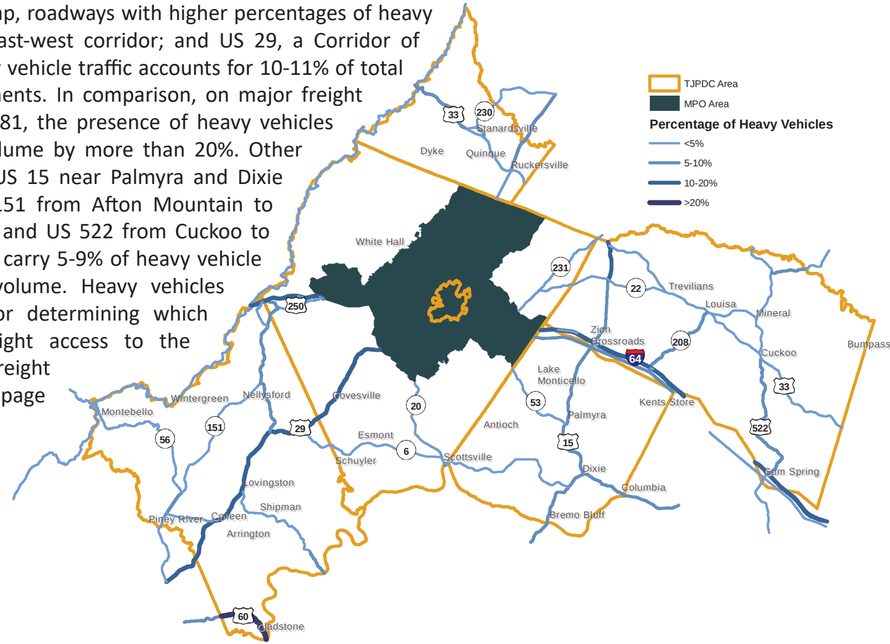
- Route 616 from the MPO boundary to Lake Monticello in Fluvanna County, and Route 208 from Louisa to Mineral in Louisa County (increase by 0.2 to 0.3);

- I-64 east of the MPO area in Louisa County, Route 53 from Cunningham to Palmyra in Fluvanna County, and Route 633 from Quinque to Ruckersville in Greene County (increase by 0.15 to 0.2)

- US 15 from Zion Crossroads in Louisa County to Dixie in Fluvanna County, I-64 from the western boundary of the MPO to Afton Mountain in Albemarle County (increase by 0.1 to 0.15)

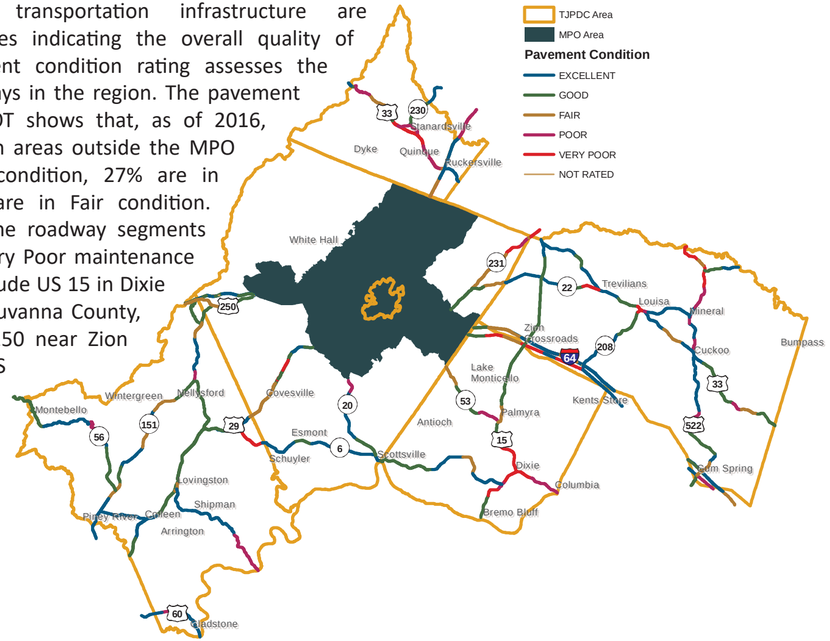
HEAVY VEHICLES TRAFFIC

As shown on the adjacent map, roadways with higher percentages of heavy vehicles are I-64, a major east-west corridor; and US 29, a Corridor of Statewide Significance. Heavy vehicle traffic accounts for 10-11% of total traffic volume of these segments. In comparison, on major freight corridors, such as Interstate 81, the presence of heavy vehicles increases the total traffic volume by more than 20%. Other roadway segments such as US 15 near Palmyra and Dixie in Fluvanna County, Route 151 from Afton Mountain to Nellysford in Nelson County, and US 522 from Cuckoo to Gum Spring in Louisa County carry 5-9% of heavy vehicle traffic in their daily total volume. Heavy vehicles can be used as a proxy for determining which corridors are providing freight access to the regions industries. Regional freight movement is discussed on page 29.



PAVEMENT CONDITIONS

Maintenance conditions of transportation infrastructure are important performance measures indicating the overall quality of the infrastructure. The pavement condition rating assesses the current state of repair of roadways in the region. The pavement condition rating data from VDOT shows that, as of 2016, 39% of the roadway segments in areas outside the MPO are in excellent maintenance condition, 27% are in Good maintenance, and 11% are in Fair condition. Approximately 8% and 9% of the roadway segments in the region are in Poor and Very Poor maintenance respectively. These segments include US 15 in Dixie and Route 53 near Palmyra in Fluvanna County, Route 22 near Louisa and US 250 near Zion Crossroads in Louisa County, US 29 near Ruckersville and US 33 in Standardsville in Greene County, and Route 6 in Nelson County.

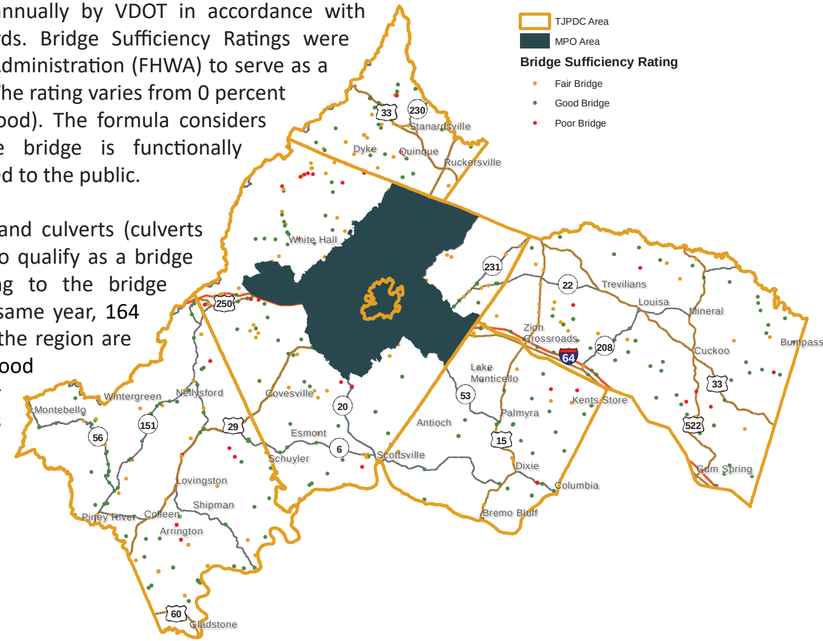


Jurisdiction \ Pavement Condition	Distance in Miles				
	Excellent	Good	Fair	Poor	Very Poor
Albemarle (Non-MPO area)	26	30	19	2	4
Fluvanna	10	32	12	8	13
Greene	12	9	11	16	21
Louisa	111	53	19	13	19
Nelson	69	75	15	13	4

BRIDGE SUFFICIENCY

Bridges in Virginia are inspected annually by VDOT in accordance with National Bridge Inspection Standards. Bridge Sufficiency Ratings were developed by the Federal Highway Administration (FHWA) to serve as a prioritization tool to allocate funds. The rating varies from 0 percent (very poor) to 100 percent (very good). The formula considers structural adequacy, whether the bridge is functionally obsolete, and level of service provided to the public.

As of 2015, there are 455 bridges and culverts (culverts must be a minium of 20’ in width to qualify as a bridge structure) in the region. According to the bridge sufficiency rating conducted in the same year, 164 (36%) of all bridges and culverts in the region are in Fair condition, 264 (58%) are in Good condition, and 37 (8%) are in Poor condition. The summary of bridges and culverts rating by location is presented in the table below.



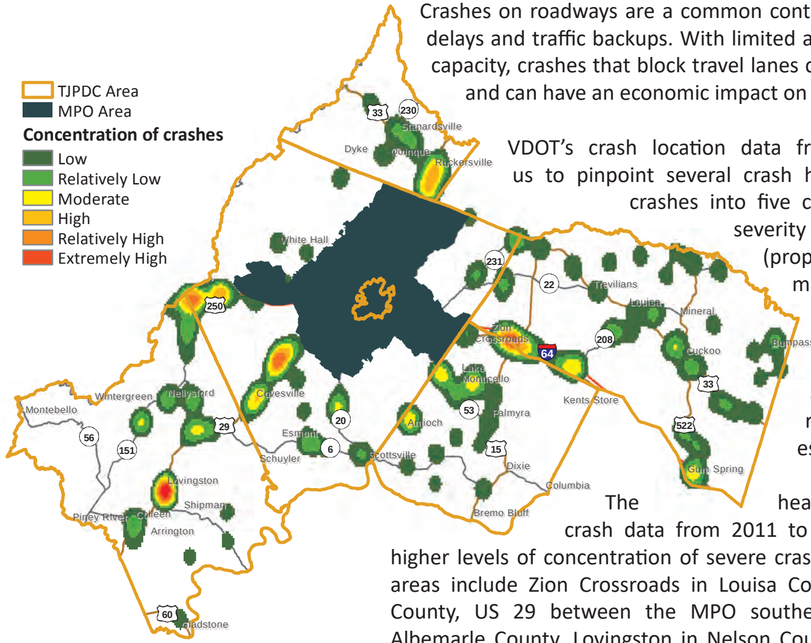
Jurisdiction \ Bridge Sufficiency	Number of Bridges and Culverts of 20’+		
	Fair	Good	Poor
Albemarle	59	65	16
Fluvanna	18	35	4
Greene	24	22	4
Louisa	30	60	7
Nelson	33	82	6

Bridge Sufficiency Ratings consider structural adequacy, whether the bridge is functionally obsolete, and level of service provided to the public.

CONCENTRATION OF CRASHES

Crashes on roadways are a common contributing factor that results in delays and traffic backups. With limited alternative routes with similar capacity, crashes that block travel lanes can cause significant backups, and can have an economic impact on people and communities.

VDOT's crash location data from 2011 to 2016 enables us to pinpoint several crash hotspots. The data classifies crashes into five categories according to their severity that range from least severe (property damage only) to the most severe (fatal injury). The crash locations are mapped by attributing each crash type a different weight according to its severity, referring to the 'KABCO' scale established by VDOT.



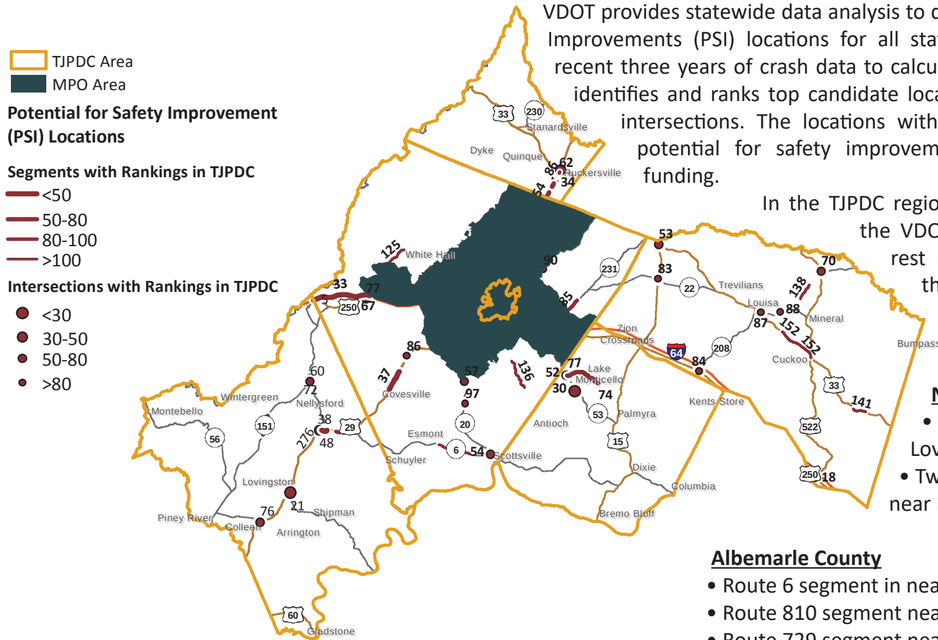
Crash Type	Value	Weight	Number
Fatal (K)	$5,400,000	540	812
Serious (A)	$300,000	30	2,052
Moderate Injury (B)	$100,000	10	477
Minor Injury (C)	$50,000	5	122
Property Damage Only (O)	$10,000	1	6,730

The heat map, created using VDOT crash data from 2011 to 2016, illustrates areas with higher levels of concentration of severe crashes – crash hot spots. These areas include Zion Crossroads in Louisa County, Ruckersville in Greene County, US 29 between the MPO southern limits and Covesville in Albemarle County, Lovingston in Nelson County, and I-64 and US 250 in Rockfish Gap.

POTENTIAL FOR SAFETY IMPROVEMENT LOCATIONS

VDOT provides statewide data analysis to develop the Potential for Safety Improvements (PSI) locations for all state routes and uses the most recent three years of crash data to calculate the PSI. As a result, VDOT identifies and ranks top candidate locations, roadway segments and intersections. The locations with higher rankings have higher potential for safety improvements and are prioritized for funding.

In the TJPDC region, Nelson County is a part of the VDOT Lynchburg District, and the rest of the counties are apart of the VDOT Culpeper District. The locations with high PSI rankings are as follows:



Nelson County

- US 29 segment near Lovingston (PSI 72)
- Two intersections on Route 6 near Nellysford (PSI 60 and 72)

Albemarle County

- Route 6 segment in near Scottsville (PSI 139)
- Route 810 segment near Crozet (PSI 125)
- Route 729 segment near Saddlewood Farms (PSI 136)

Greene County

- US 29 segments south of Ruckersville (PSI 100 and 115)
- Intersection on US 29 south of Ruckersville (PSI 82)

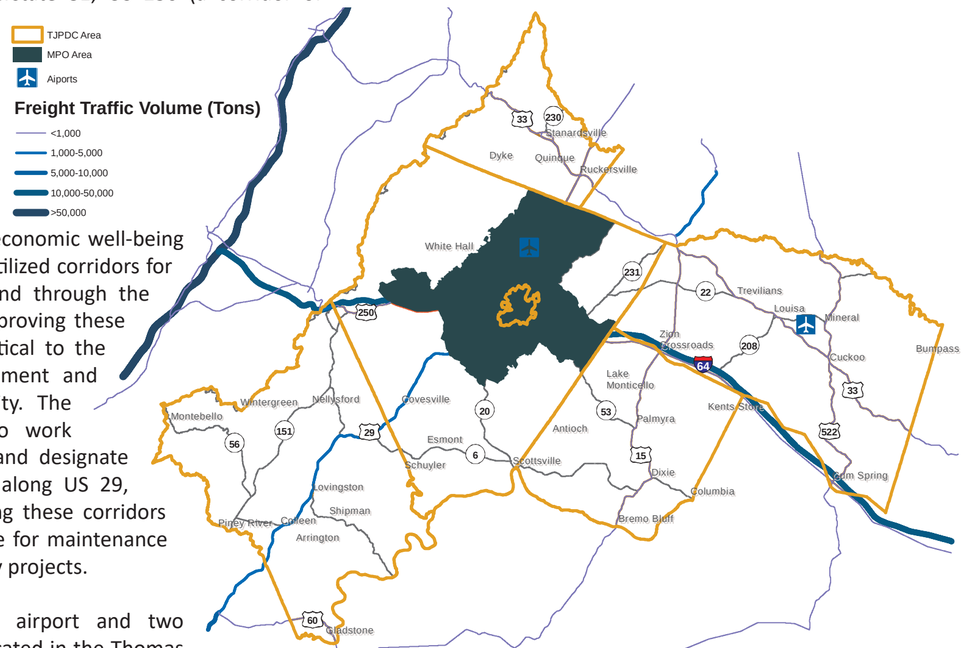
Louisa County

- US 33 segments between Louisa and Cuckoo (PSI 152)
- US 33 segments in the east of Louisa (PSI 141)
- Route 623 segments in the north of Mineral (PSI 138)

FREIGHT AND INTER-REGIONAL TRANSPORTATION

Situated at a major transportation crossroads, the region is well served by freight and inter-regional transportation connections. These connections include interstate 64 and, within close proximity, Interstate 81, US 250 (a corridor of statewide significance), and rail linkages on several class I railroads (CSX and Norfork Southern) providing access to major ports and west into the heartland of America. These freight connections are critical to the region's economic well-being and are the region's most utilized corridors for transporting goods from and through the region. Maintaining and improving these transportation links are critical to the region's economic development and long-term economic stability. The region should continue to work collaboratively to identify and designate key rural freight corridors along US 29, I-64, and US 15. Designating these corridors as such could bring revenue for maintenance and construction of roadway projects.

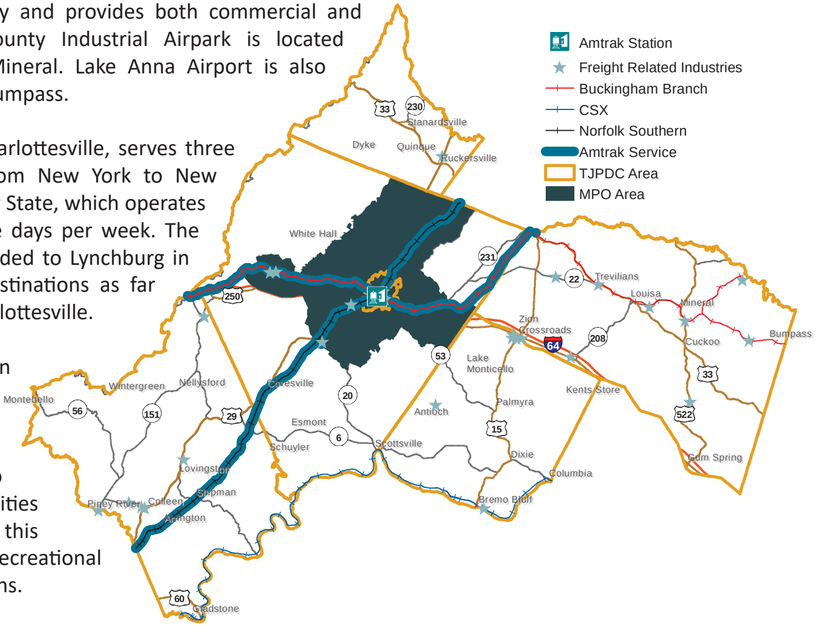
Approximately 16 interstate carriers serve the Charlottesville urbaninzed area and broader Planning District via truck freight, four of which have Albemarle County terminals.



There is one commercial airport and two general aviation facilities located in the Thomas Jefferson region. The Charlottesville-Albemarle Airport is located in northern Albemarle County and provides both commercial and general aviation services. Louisa County Industrial Airpark is located between the towns of Louisa and Mineral. Lake Anna Airport is also located in Louisa County just west of Bumpass.

One Amtrak station, in the City of Charlottesville, serves three routes: The Crescent, which runs from New York to New Orleans daily, and the Cardinal/Hoosier State, which operates between New York and Chicago three days per week. The existing Northeast Regional was extended to Lynchburg in October 2009 with potential final destinations as far north as Boston. There is a stop in Charlottesville.

Additional inter-city transportation is also available via Greyhound Bus Lines, which works in conjunction with Amtrak in the Charlottesville-Albemarle MPO area. Greyhound also provides transportation to major cities within and outside the region, but this transportation is utilized more for recreational travel than standard commuting patterns.



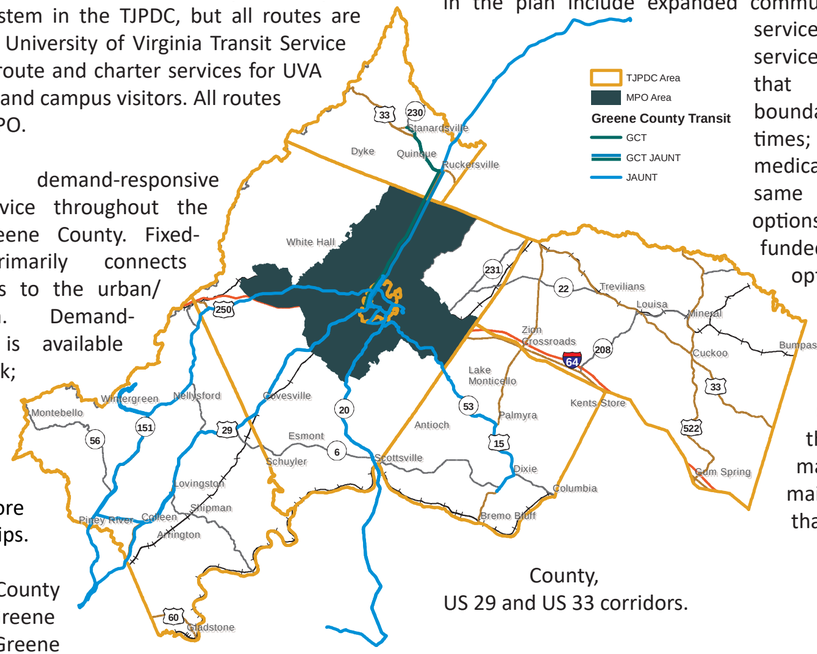
GOODS MOVEMENT

Freight generators with the Thomas Jefferson region were identified and their proximity to nearby major roadway and rail corridors noted. Approximately 16 interstate carriers serve the Charlottesville urbanized area and broader Planning District via truck freight, four of which have Albemarle County terminals: UPS, FedEx, Swift, and Roadway Express. Four roadways provide primary access to the major commercial areas and business centers at the center of the Planning District - Interstate 64, US 29, US 250 and US 15. Major employers were also identified and mapped by the TJPDC in order to assess additional trip generator locations as part of the traffic analysis.

PUBLIC TRANSPORTATION

Public transportation includes public transit, both fixed-route and demand-responsive, volunteer transportation, and private providers. Charlottesville Area Transit Service operates a public fixed-route transit system in the TJPDC, but all routes are within the MPO. The University of Virginia Transit Service (UTS) operates fixed-route and charter services for UVA students, employees, and campus visitors. All routes are also within the MPO.

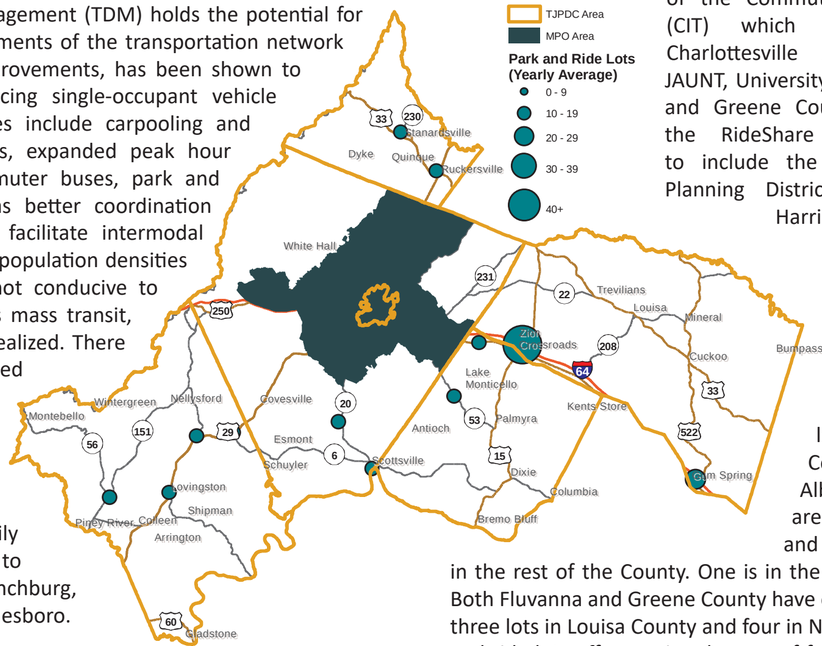
JAUNT operates demand-responsive and fixed-route service throughout the PDC, except in Greene County. Fixed-route service primarily connects outlying communities to the urban/metropolitan area. Demand-responsive service is available seven days a week; days and hours of service vary by locality. From July 2016 to June 2017, JAUNT provided more than 355,000 trips. Demand-responsive services in Greene County are provided by Greene County Transit. Greene County Transit operates Monday through Friday with shorter hours on Saturday.



JAUNT completed a Transit Development Plan (TDP) in June 2011. JAUNT, CAT, and Greene County Transit are currently updating their TDP's, any recommendations from those plans can be incorporated at a later date. Transit needs identified in the plan include expanded commuter routes; expanded service hours and weekend service; additional services that cross jurisdictional boundaries; reduced ride times; expanded service to medical facilities; expanded same day transportation options; non-Medicaid funded medical trips; options for recreational trips; and improved coordination with Greene County Transit. Greene County Transit, for their future needs, has made a commitment to maintain service levels that match population growth in Greene County, especially along the US 29 and US 33 corridors.

TRAVEL DEMAND MANAGEMENT

Travel Demand Management (TDM) holds the potential for enhancing many elements of the transportation network and, with other improvements, has been shown to greatly aid in reducing single-occupant vehicle trips. TDM measures include carpooling and vanpooling programs, expanded peak hour public transit, commuter buses, park and ride lots, as well as better coordination between modes to facilitate intermodal transfers. While low population densities in rural areas are not conducive to major shifts towards mass transit, some gains can be realized. There are concentrated areas to which commuters in the TJPDC are currently traveling for employment, primarily Charlottesville and, to a lesser extent, Lynchburg, Richmond, and Waynesboro.



TJPDC coordinates the RideShare program, whose services include car and vanpool matching, referrals to transit providers, inventory, marketing and developing park and ride lots, operating the Guaranteed Ride Home Program, and promoting bicycle and pedestrian transportation. Total active RideShare registrants as of December 2017 was 552.

RideShare is an active participant of the Commuter Information Team (CIT) which includes RideShare, Charlottesville Area Transit (CAT), JAUNT, University Transit Service (UTS), and Greene County Transit. In 2009 the RideShare program expanded to include the Central Shenandoah Planning District (CSPDC) and the Harrisonburg metro area.

There are presently 31 official and unofficial park and ride lots throughout the RideShare service area, with 10 of those lots in Albemarle County. Within Albemarle County, nine are in the urban area and three are spread out in the rest of the County. One is in the City of Charlottesville. Both Fluvanna and Greene County have one lot each. There are three lots in Louisa County and four in Nelson County. The park and ride lots offer varying degrees of formality and amenities. Several of the lots are owned and operated by VDOT and include lighting and trash cans. Other parking lots are informal and are gravel strips along VDOT right-of-way at major intersections. Most of the park and ride lots exist at private facilities through agreements with the property owners. The

Waynesboro official VDOT park and ride lot, located in the CSPDC, is the busiest lot, with the majority of users commuting to work in the City of Charlottesville. The other two busiest lots are also official VDOT lots at Zion Crossroads and Gum Springs in Louisa County. The average number of all park and ride lot users was 317 in 2017.

BICYCLE AND PEDESTRIAN FACILITIES

Bicycle and pedestrian facilities are well used in the urban areas. Roads without facilities are also used by necessity. The region is traversed by US Bike Route 76, an east to west cross-country bike route, and the Appalachian Trail. The Jefferson Area Bike and Pedestrian Plan outlines potential corridors that can be developed by each locality over time (TJPDC, 2004). Currently TJPDC staff are developing an update to the Jefferson Area Bike and Pedestrian Plan. The update will be integrated into the region's 2040 Rural Long Range Plan and the MPO's 2045 Long Range Transportation Plan (LRTP). The Planning District completed a region-wide study of the Bike Route 76. Adopted in 2012, the study provides detailed recommendations for improving safety and bikeability of this on-road transAmerican bike route.

The majority of bicycle route development and planning has been concentrated within the MPO, City of Charlottesville, and Albemarle County. The City of Charlottesville and Albemarle County adopted bicycle plans in 1991 and updated these in 2004 known as the Jefferson Area Bike and Pedestrian Plan. The city has further adopted a Bicycle and Pedestrian Master Plan in 2015.

Other than US Bike Route 76, Fluvanna County maintains minimal bicycle facilities. Biking in Fluvanna County is generally for recreational purposes or short trips. Palmyra and Columbia each have a few narrow walkways, while Fork Union has sidewalks along US 15 and VA 6. Fluvanna County has, however, expanded its trail system at Pleasant Grove near Palmyra. The Fluvanna Heritage Trail and Village Park are designed to provide pedestrian access for tourists and local citizens to the Rivanna River, by linking the village of Palmyra to Pleasant Grove, a county-owned tract of land.

Greene County roads offer potential routes for bicyclists. On some roads there is very little automobile and/or truck traffic; however, most roads do not currently have paved shoulders or bike lanes. Pedestrian activity in Greene County is generally limited to Standardsville and Ruckersville. The Appalachian Trail passes through the western mountains of the County.

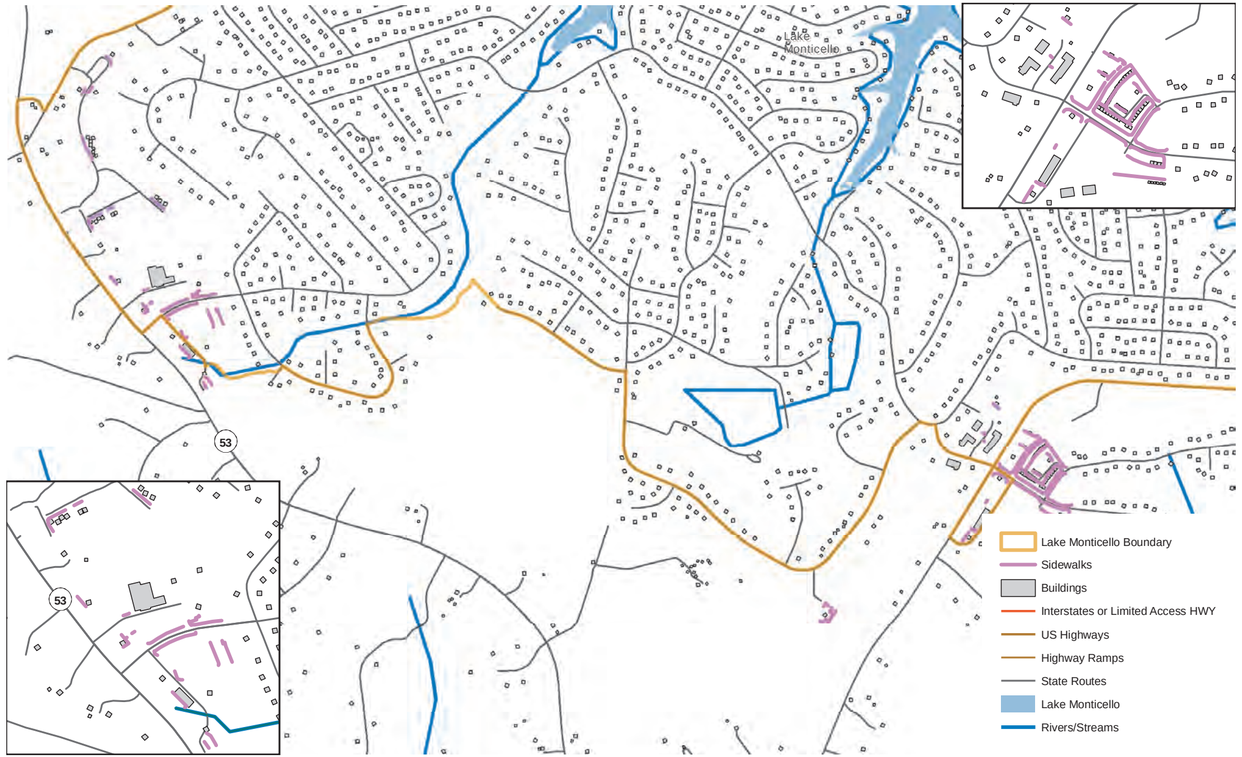
The secondary and back roads of Louisa County host numerous bicycle routes, including 25 miles of US Bike Route 76. Louisa County has a painted, on-road bicycle lane on a section of VA 618 near the Town of Mineral. The majority of pedestrian activity and facilities are in the Towns of Louisa and Mineral.

The Blue Ridge Parkway is a key bike route along the western edge of Nelson County and is part of US Bike Route 76. Other major tourist bikeways in Nelson County include the Delfosse Trail, the Rockfish Valley Loop Trails, and the Blue Ridge Railway Trail, which is an ongoing rails to trails project. There are a number of hiking opportunities in the area including trails at Fortunes Cove Preserve, Wintergreen Resort, Crabtree Falls, Nelson County Wilderness Area, and the Appalachian Trail.

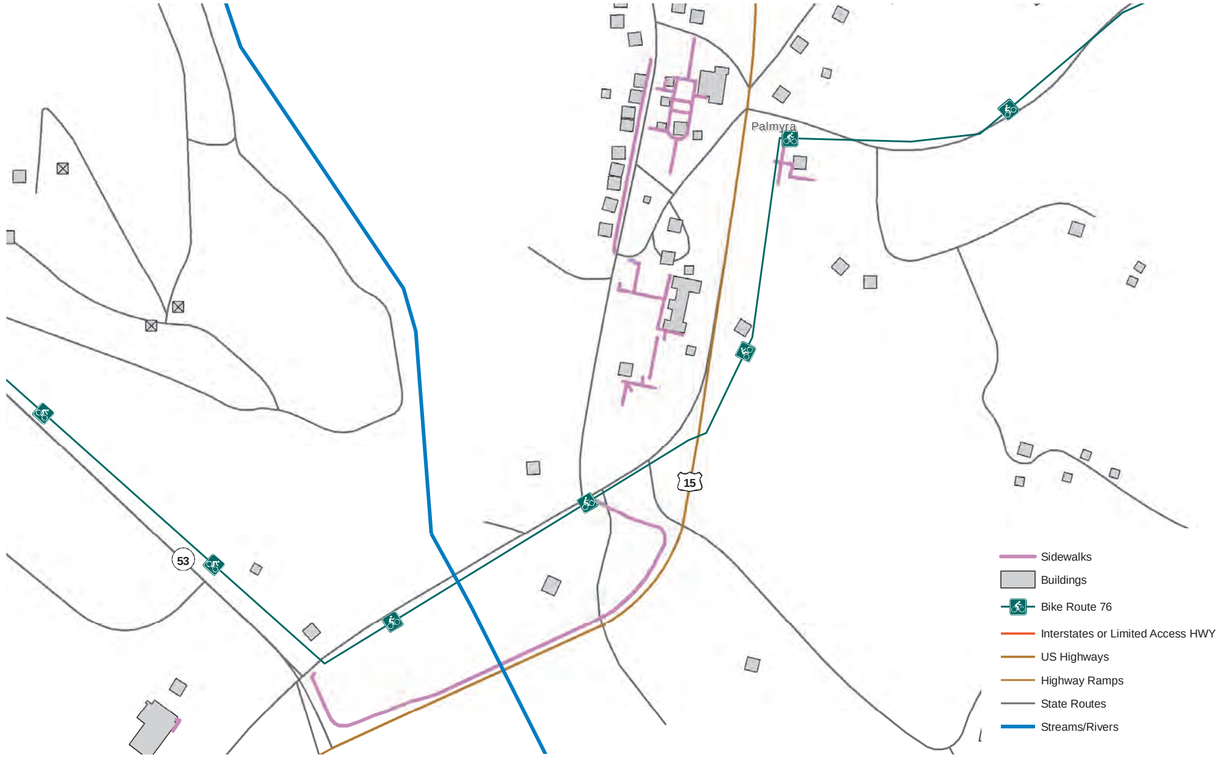
Photo Credit: Louisa County

ALBEMARLE COUNTY | TOWN OF SCOTTSVILLE

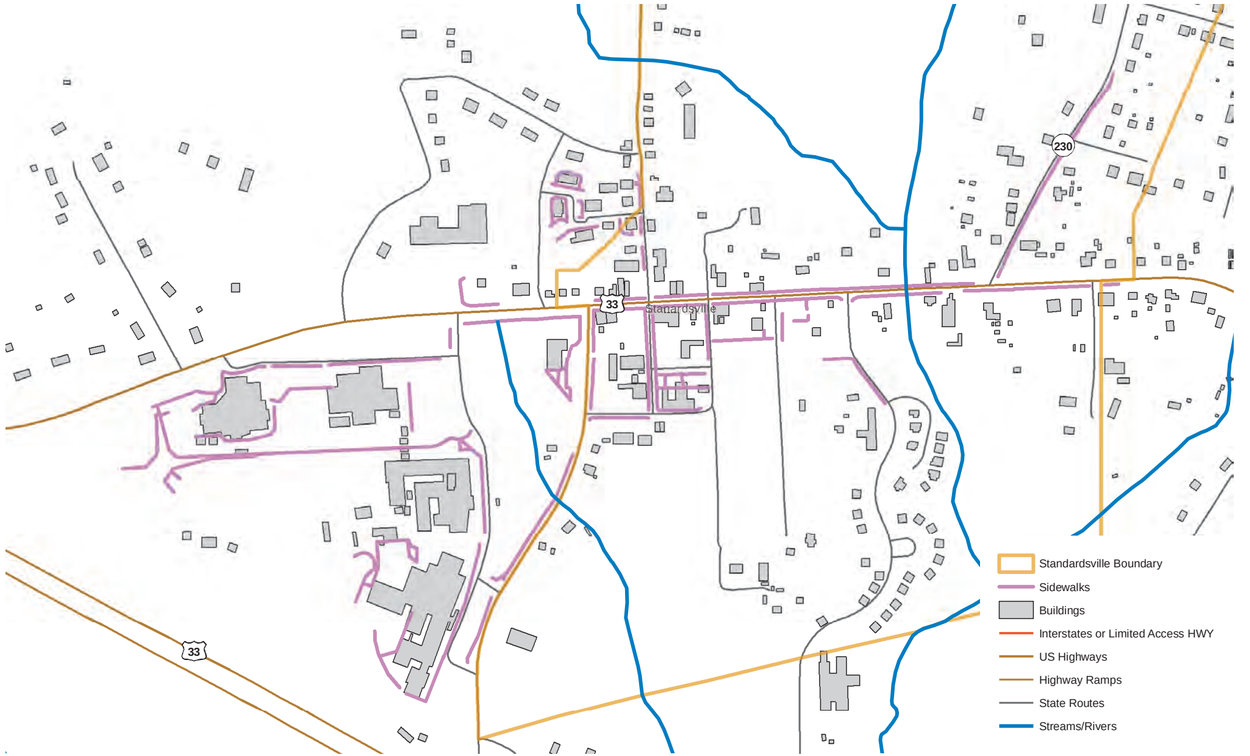
FLUVANNA COUNTY | LAKE MONTICELLO



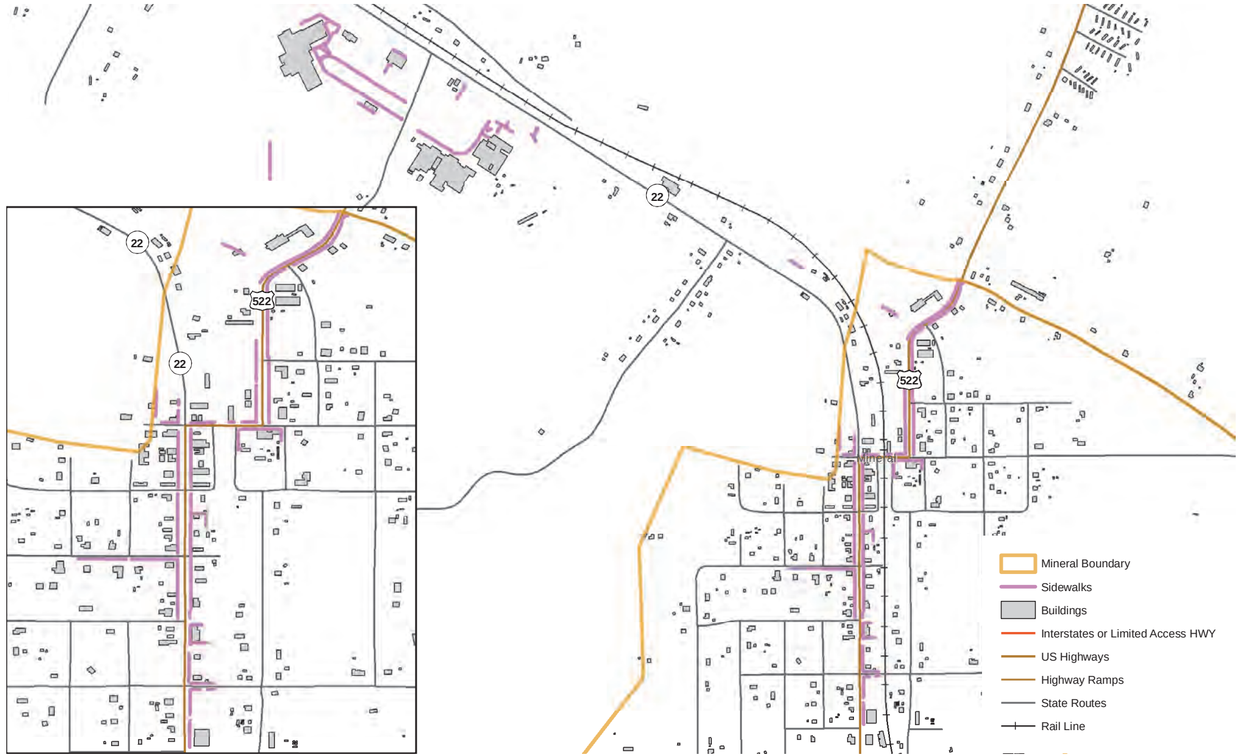
FLUVANNA COUNTY | PALMYRA



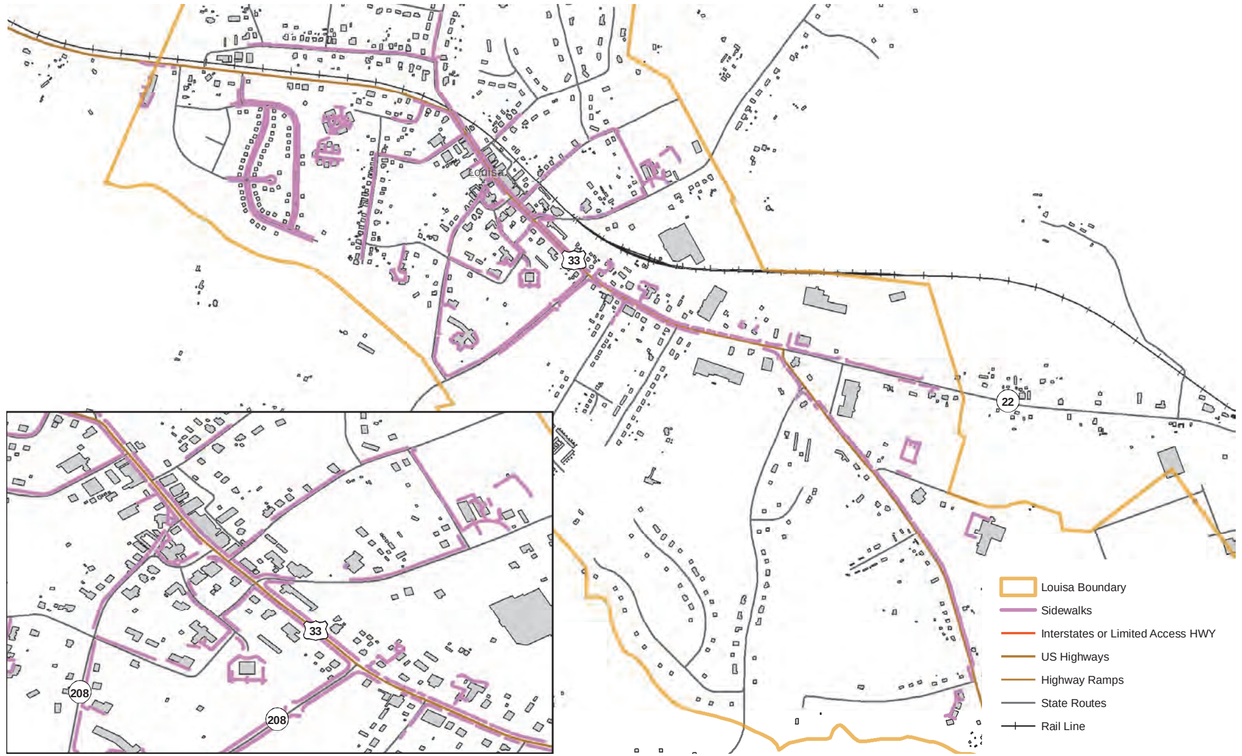
GREENE COUNTY | TOWN OF STANARDSVILLE



LOUISA COUNTY | TOWN OF MINERAL



LOUISA COUNTY | TOWN OF LOUISA



LOUISA COUNTY | ZION CROSSROADS

NELSON COUNTY | LOVINGSTON