

## Chapter 5: Multi-Modal Transportation Needs

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Transportation needs are defined as the gap between existing transportation network deficiencies and the 2045 vision for the region. Needs were identified by the general public; local stakeholders across all transportation modes and industries; and staff from local, regional, state and federal agencies. The LRTP Working Group applied their professional knowledge and reviewed data from the 2018 and 2045 travel demand model.

The SAWMPO travel demand model estimated travel behavior and travel demand on the transportation network from a set of regional land-use and transportation related assumptions. The SAWMPO model inputs were calibrated to local traffic data, sociodemographic factors, travel behavior (such as the amount of travel and mode of transportation chosen), and other variables for the 2018 base year. Future conditions were based on 2045 population and employment projections and the most likely areas of growth were identified.

The 2045 estimates from the travel demand model assisted planners in understanding where deficiencies may exist in the transportation network, and the effects of different improvement scenarios. While outputs from travel demand modeling are a useful planning tool, the results are only a general guide in understanding travel changes.

This chapter covers:

- 5 – 1 Network Operation Conditions
- 5 – 2 Transit, TDM, and Bicycle and Pedestrian

### 5 – 1 Network Operating Conditions

#### Capacity Needs for Roads and Freight

##### **2018 Network**

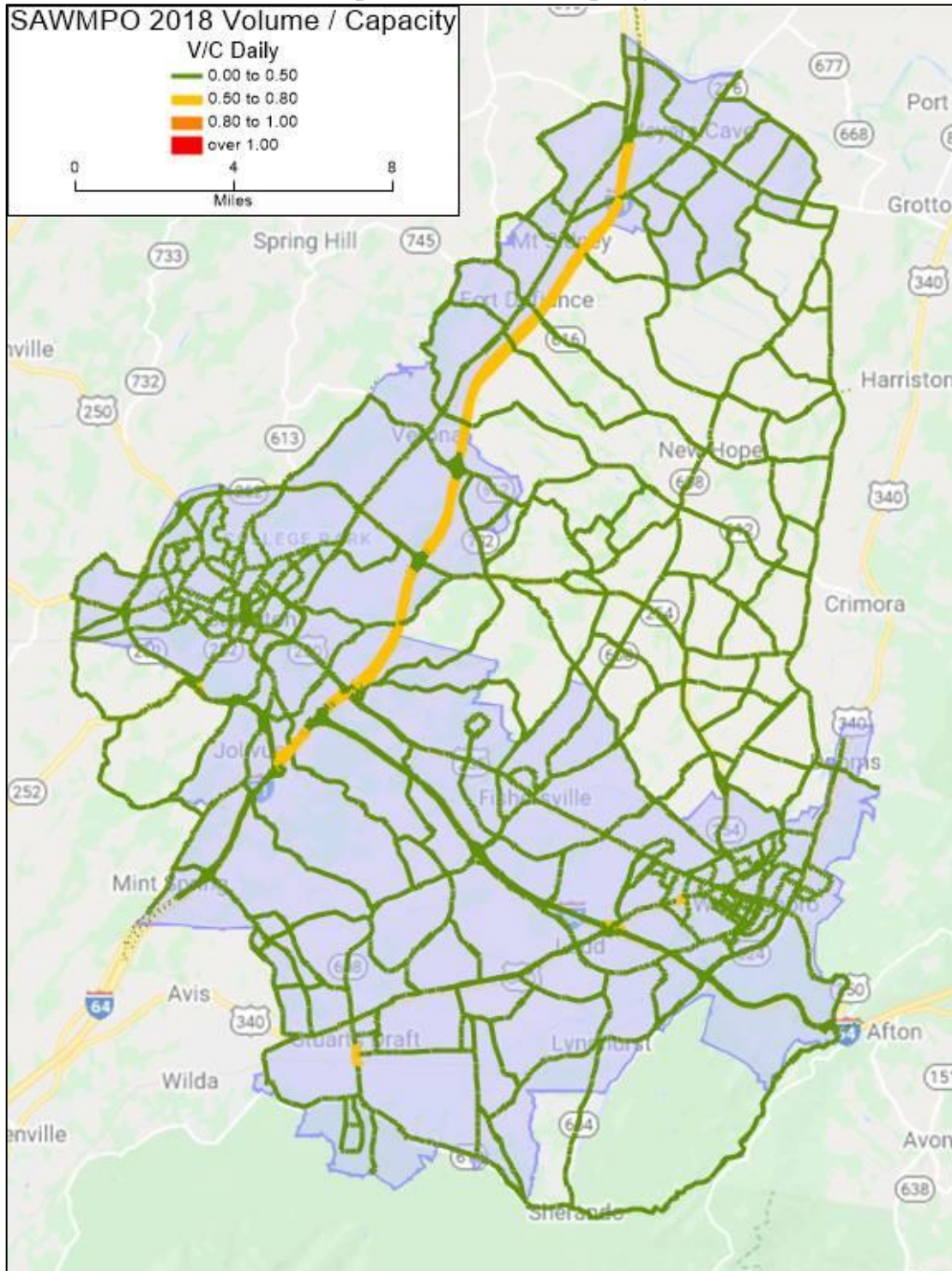
The 2018 base year scenario results derived from the SAWMPO travel demand model were used to determine deficient roadway segments. Deficient segments are reflected by a Volume to Capacity (V/C) ratio, which is a method to measure congestion and performance of a roadway by comparing vehicle volumes at a given time with the carrying capacity of the roadway.

A V/C ratio of less than 0.3 indicates minimal to no congestion. A roadway at capacity has a V/C ratio of 1.0 The busiest roads in the SAWMPO – US 250, US 11, US 340, VA 254, and portions of I-64, and I-81 – have V/C ratios of .50 - .80. The V/C measures and identified busiest roads have changed little since the 2009 data included in the 2040 LRTP.

**Map 20** illustrates the Volume to Capacity ratio for the 2018 network.

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Map 20: 2018 Volume/Capacity



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## ***2045 Existing + Committed Network***

The LRTP working group developed 2045 socio-economic data projections to anticipate growth and network capacity needs. The projected growth data was assigned to specific areas of the SAWMPO based on where growth is expected to occur. The travel demand model used the 2045 data to project population density and employment location to daily trip generation.

The 2045 transportation network includes both existing facilities and future projects that have committed funding and a tentative start date. This future year “Existing + Committed” scenario identifies system-wide capacity issues and specific over-capacity corridors where population and job growth continue as projected; however, the scenario does not account for any additional capacity-adding projects that could potentially be built in the next 25 years.

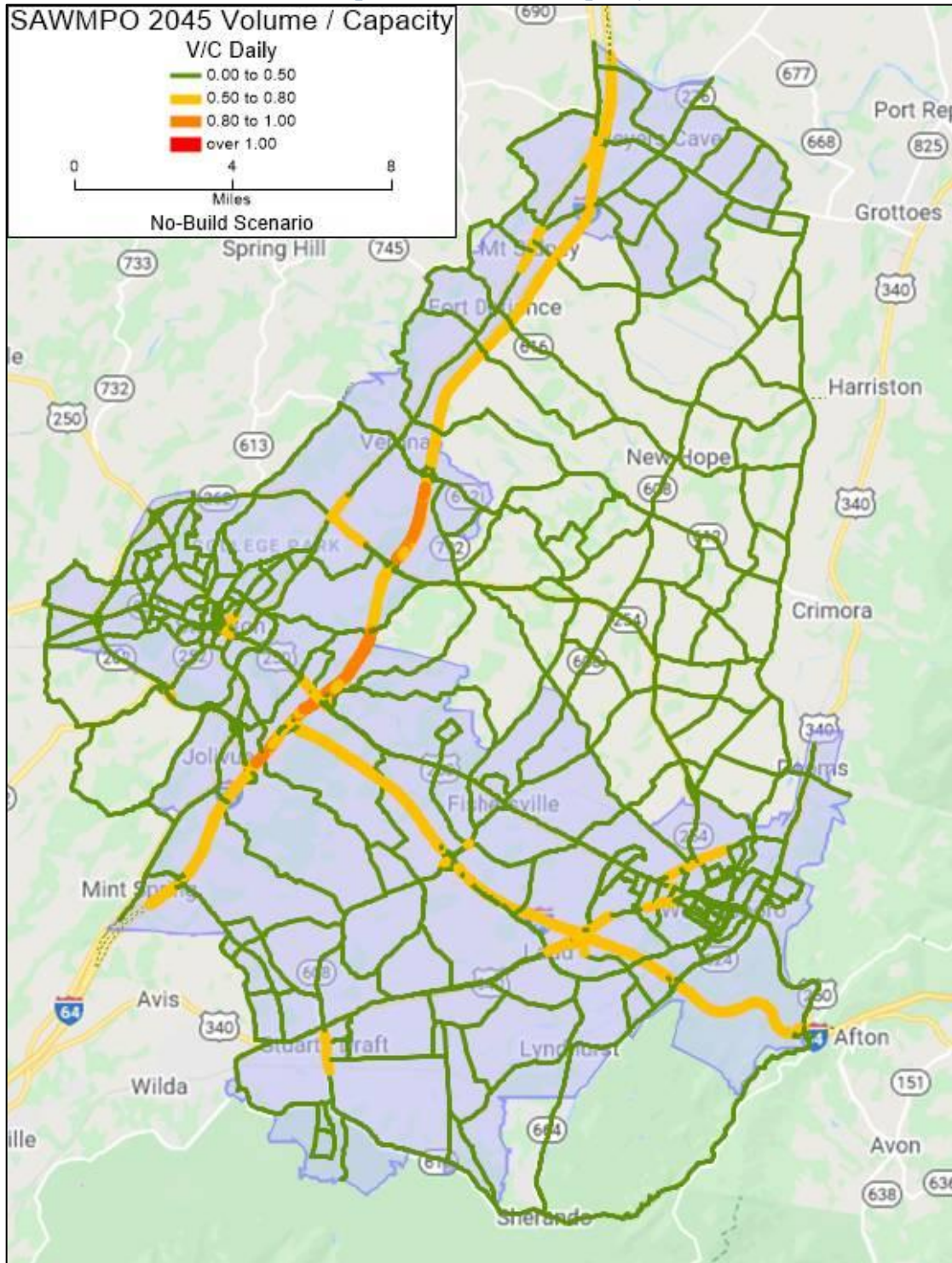
The 2045 V/C No Build and Committed scenario identifies several segments along I-81 increasing in congestion from .50 – .80 V/C to .80 – 1.00 V/C; however, the map does not consider future I-81 project improvements are being funded through the I-81 Improvement Plan, which address the greatest future congestion needs in the SAWMPO.

**Map 21** illustrates peak hour Volume to Capacity for the 2045 No Build Existing and Committed scenario.



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Map 21: 2045 Volume/Capacity



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Public and stakeholder input indicates that congestion is a concern along the I-81 and I-64 corridors, with other congestion concerns including:

- *Improve existing interstate exists.* Evaluate existing interstate interchanges for long-term improvements, especially at Exit 235 at the Blue Ridge Community College, Exit 222 in Staunton, and Exit 94 in Waynesboro.
- *Plan for population growth and associated traffic volume increases.* Anticipate increased congestion along routes as the population continues to increase along Route 250 in Staunton and Waynesboro, Rosser Avenue and Lew Dewitt in Waynesboro, in and around Fishersville, and the corridor between Stuarts Draft and Waynesboro
- *Address areas most susceptible to peak congestion.* Prioritize congestion mitigation improvements near schools, and high-concentration employment and retail areas during peak hours in the morning and evening commutes.

## Safety Needs for Roads and Bridges

### **Road intersections and segments**

Safety deficiencies were identified by reviewing VDOT's 2014 – 2018 Potential for Safety Improvement (PSI) top 100 ranked intersections and segments data. PSI is a highway safety method that compares the average predicted number of crashes to the observed number of crashes at an intersection or along a segment over a five-year period.

These areas are placed on the District Priority List of Intersections or Corridors due to frequency or potential for safety improvements and the number of fatal crashes and incapacitating injuries. Sites with high value in at least two years for both total and fatal and injury PSIs were selected for consideration for Virginia's Highway Safety Improvement Program (HSIP), which are referred to as Target Safety Need (TSN) sites.

Of the top 100 crash intersections and segments in the VDOT Staunton Construction District, 17 intersections and 10 segments are located in the SAWMPO. The highest-ranked intersection in the SAWMPO is the intersection of Richmond Road and Statler Boulevard intersection in Staunton<sup>4</sup>, which is the 1st ranked overall intersection in the Staunton District. The segment with the highest PSI score in the SAWMPO is westbound along Richmond Road from the Staunton City limit to Frontier Drive, which is the 18<sup>h</sup> ranked overall segment in the Staunton District.

**Maps 22 and 23** illustrate the PSI intersections and segments by TSN for the SAWMPO region.

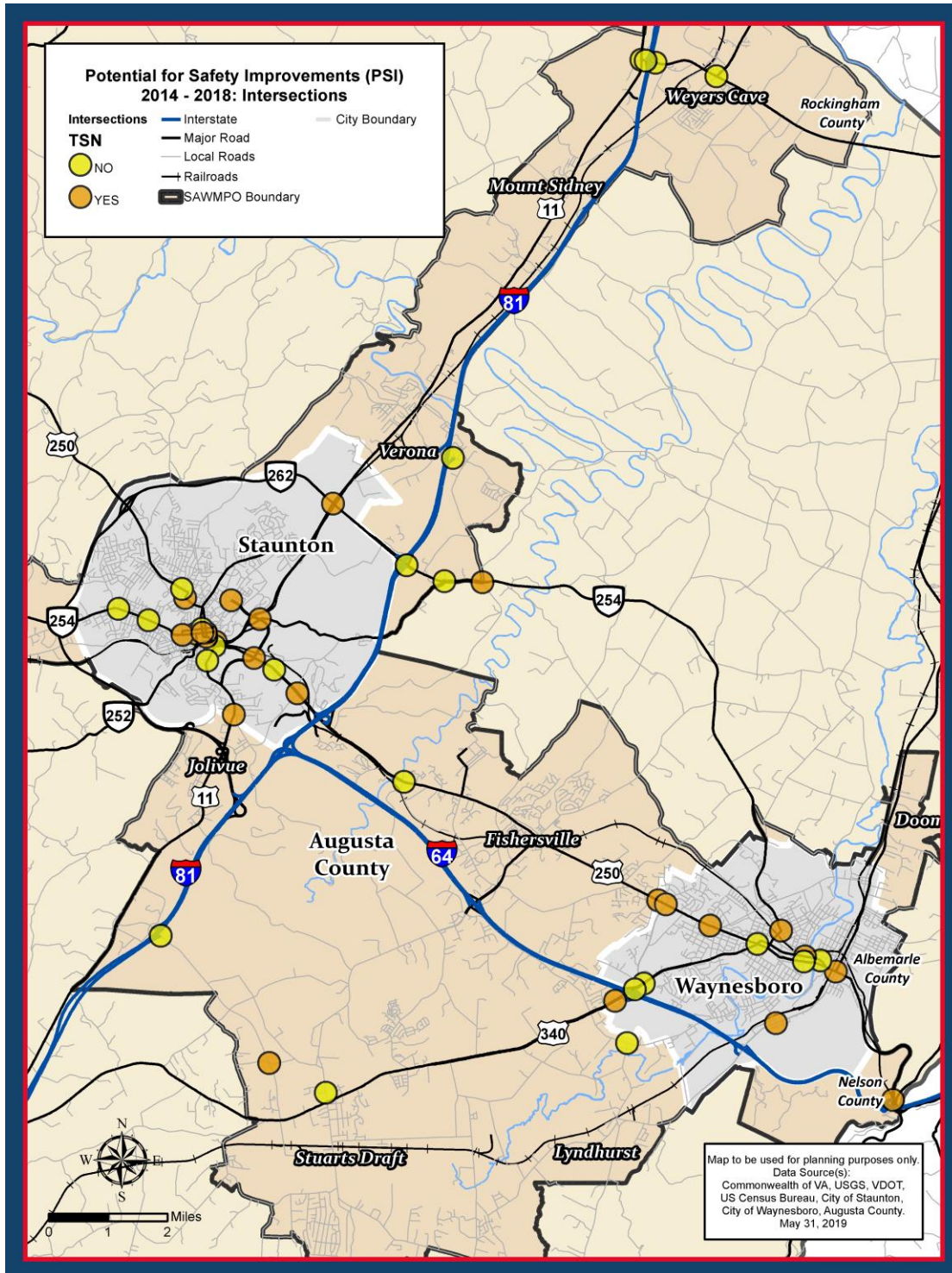
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<sup>4</sup> This intersection was part of a Smart Scale Application project.



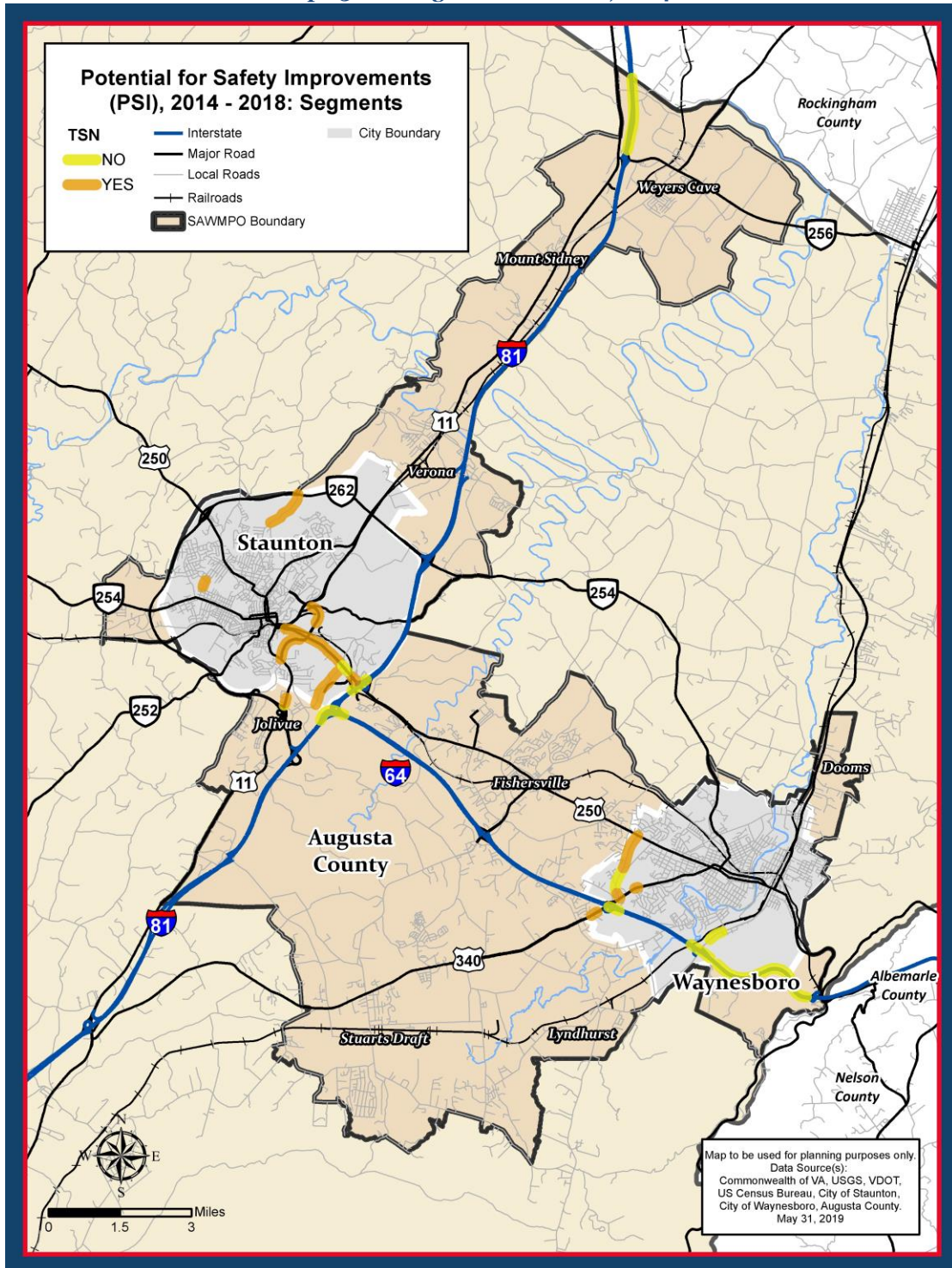
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Map 22: PSI Intersection Locations, 2014 - 2018



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### Map 23: PSI Segment Locations, 2014 - 2018





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## **Bridges**

Bridge sufficiency ratings are based on the Federal Highway Administration (FHWA) rating system, with condition ratings ranging from 0 (failed condition) to 9 (excellent). Factors in the ratings system include structural adequacy, whether the bridge is functionally obsolete, and the level of service provided to the public. Bridges with a sufficiency rating of less than 50 percent are eligible for federal replacement funds and bridges with a rating between 50 percent and 80 percent are eligible for repairs.

According to 2018 VDOT data, five bridges within the SAWMPO were rated “poor” and are eligible for repair, with four bridges in Augusta County and with one bridge in Waynesboro (**see Table 5 and Map 24**).

Bridges are inspected and maintained by the Bridge Division of VDOT. Repair and reconstruction is funded with dedicated State of Good Repair (SGR) maintenance dollars and capital programs. Bridge sufficiency is included in the SAWMPO LRTP for informational purposes, or if a bridge project is included in the SYIP, but bridge projects are not included in the LRTP’s potential transportation projects.

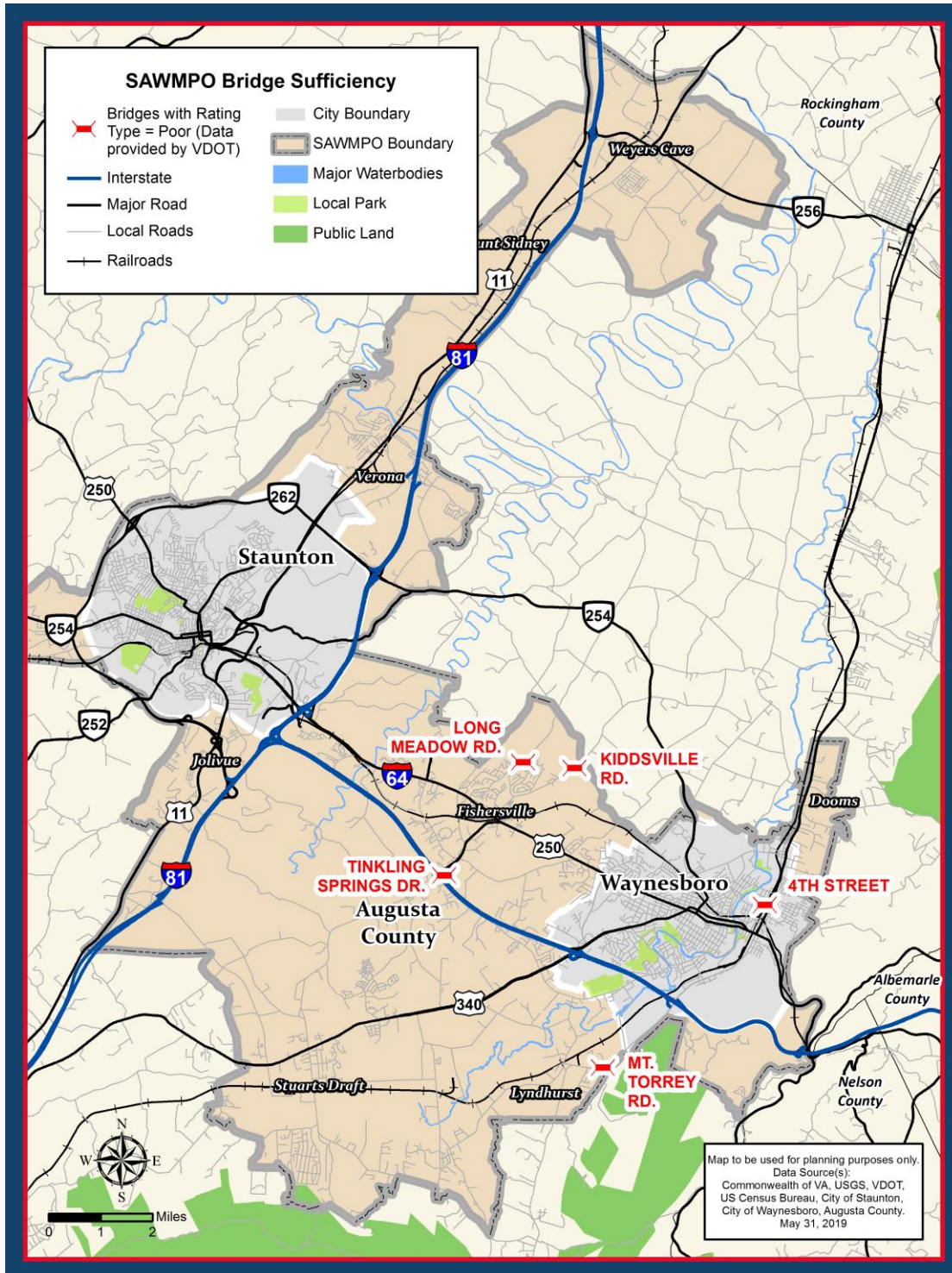
**Table 5: Bridges Rated Poor in the SAWMPO Region, 2018**

<b>Jurisdiction</b>	<b>Route/Street Name</b>	<b>Crossing</b>
Augusta County	Kiddsville Road	Unnamed stream
Augusta County	Long Meadow Road	Meadow Run
Augusta County	Mt. Torrey Road	Back Creek
Augusta County	Tinkling Springs Road	Goose Creek
Waynesboro	4 <sup>th</sup> Street	CSX railroad



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### Map 24: SAWMPO Bridge Sufficiency



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## 5 – 2 Transit, TDM, and Bicycle and Pedestrian

Planning for a multimodal transportation system requires consideration of needs related to public transit; Transportation Demand Management (TDM) programs like park and ride lots, ridesharing, and other commuter transportation services; and bicycle and pedestrian facilities. Each of these transportation modes are addressed comprehensively in other planning documents. A needs summary for each is below.

### 5 – 3 Identified Needs

#### Transit Needs

The BRITE Transit Development Plan (TDP) identifies regional transit needs for a ten-year period, and functions as the transit portion of the SAWMPO LRTP. The document was approved in 2015 and updated in 2019. A new TDP is scheduled to be completed in 2021. In the interim, BRITE Transit, stakeholders, and public input identified the following SAWMPO transit needs beyond what has been achieved in the 2015 TDP:

- *Continue to prioritize the needs of transit-dependent populations.* Demographic trends show that the region's ageing population will continue to increase by 2045, which may also increase transit demand. Future transit service should consider the needs of the elderly and other populations reliant upon transit.
- *Plan for increased demand in paratransit service.* Demand for paratransit service will continue to grow as the area's population ages. The transit system could see negative impacts to fixed-route on-time performance if buses deviate more often to accommodate paratransit customers. BRITE may need to expand paratransit service in a way that will maintain the reliability and frequency of its primary route service.
- *Improved bus stop infrastructure for safety and accessibility.* There continues to be a need for safety, security and accessibility improvements at the bus stops in the service area. Many of these stops lack landing pads, lighting, or connecting pedestrian infrastructure.
- *Develop ITS to improve schedule management.* There are currently no Information Technology Systems (ITS) in use by BRITE. As ridership grows, many technologies such as mobile data collection systems, updated paratransit scheduling software, real-time data feeds, and bus arrival text message services would increase operational reliability and performance as well as customer access and convenience.
- *Improve Route 250 Service.* Delays continue along BRITE's 250 Connector route, which is the backbone of the transit system. In response, a 2019 Route 250 Connector study recommended several improvements, and the first improvements from the plan were complete in September 2019. Longer-term improvements focused on route reliability and frequency will need to be implemented as the demand for transit between Waynesboro and Staunton grows.
- *Plan for making transit connections to employment centers to enhance workforce mobility.* Factories around Stuarts Draft serving major employers such as Hershey Foods, Hollister Incorporated, and McKee Foods Corporation do not have transit service. The next TDP should consider the feasibility of making connections to employment centers not currently served by BRITE.

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- *Consider Sunday service options.* There is currently no Sunday service in the area. As development continues in the designated growth areas of Fishersville, Stuarts Draft, Verona, Weyers Cave, and Staunton south and west, a minimum limited Sunday service may need to be introduced to connect people in Augusta County to jobs that have non-traditional working hours.

### Transportation Demand Management Needs

Travel Demand Management in the SAWMPO focuses on providing longer distance commuters with the facilities and services to make carpooling, vanpooling, or transit trips feasible. In addition to the CSPDC's RideShare program, which provides TDM services such as Guaranteed Ride Home and carpool matching, an important aspect of regional TDM management is the improvement and expansion of the area's park and ride facilities. The CSPDC monitors two park and ride facilities in the SAWMPO in Verona and Waynesboro:

- Verona – The 35-space location on Laurel Hill Road has over 70% occupancy rate, which is the highest average in the CSPDC's five-county region.
- Waynesboro Town Center – The 120-space location is the largest park and ride facility in the CSPDC's five-county region.

Improving the amenities and functionality of each park and ride lot is a priority. The Waynesboro Town Center lot received Smart Scale funding for improvements to paving, lighting, and a dedicated bus lane beginning in 2020. Additionally, the City of Staunton is working on road improvements and a park and ride near the interchange of U.S. 250 and I-81 adjacent to the Staunton Crossing development. The need for a Park and Ride lot adjacent to I-81 within the City is critical both for carpoolers, as well as for future inter-regional bus service between the metro Harrisonburg, Staunton, Waynesboro and Charlottesville areas as detailed in the 2016 Inter-regional Transit Study published by the CSPDC.

A 2013 VDOT Park and Ride Investment Strategy study identified a need for a park and ride facility in Weyers Cave adjacent to I-81. Other options could include the businesses adjacent to the intersection of Weyers Cave Road and Route 11, or Blue Ridge Community College.

### Bicycle and Pedestrian Needs

Public and stakeholder input and the needs identified in local plans acknowledge that bicycle and pedestrian infrastructure improvements should be a priority to address safety, multi-modal access, and improve quality of life. The CSPDC's 2005 Bicycle Plan was the first region-wide plan to articulate the barriers to multi-modal infrastructure and evaluate the potential for new routes and facilities along roadways. Since then, other area plans continue to identify similar infrastructure gaps.

The City of Staunton's 2019 Comprehensive Plan includes the 2018 Bicycle and Pedestrian Plan and a list of multi-modal priorities, and the City of Waynesboro's 2018 Comprehensive Plan amendment includes prioritizing greenway and trail construction projects that are also in the City of Waynesboro's 2012 Bicycle Plan. In Augusta County, bicycle and pedestrian improvements are detailed in the county's small area plans. Specific goals and



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objectives for multi-modal improvements are included in the 2009 Fishersville Small Area Plan, as well as the 2020 Stuarts Draft Small Area Plan.

A summary of bicycle and pedestrian needs from area plans is below:

- *Continue to increase awareness and public support for bicycle and pedestrian infrastructure.* Several plans, and public comments, note the importance of establishing new bike/ped initiatives and plans to augment the future development of multi-modal facilities, to include sidewalk networks, crosswalks, and multi-use trails.
- *Address the lack of sidewalk and multi-use trail connectivity in downtown areas to periphery areas around towns.* The current sidewalk system is fragmented and there is a need to fill gaps in the pedestrian network to enhance safety, especially in areas with disadvantaged populations such as low-income populations and the elderly.
- *Encourage non-motorized travel options for existing and new development.* Support and encourage a variety of transportation options to enhance mobility, including pedestrian and bicycle facilities for activities centers and residential areas. New developments should include sidewalks along proposed roadways and connecting into adjacent pedestrian facilities of neighboring properties. Sidewalks should also provide connectivity within the development to encourage their use.
- *Develop shared-use path systems for non-motorized transport and seek opportunities to establish a region-wide multi-use path network connect cities to the county.* Stakeholder and public comment repeatedly mention the importance of connecting Staunton and Waynesboro path networks to destinations in Augusta County such as Fishersville, Stuarts Draft, Verona, and along existing and new arterial and collector roads and riparian corridors.
- *Use the “complete streets” concept to connect to local destinations.* Several area plans emphasize including sidewalks, bike lanes, and multi-use paths, and street trees along existing or planned roadway development where opportunities exist to enhance bike and pedestrian connection to civic centers such as schools, parks, and government centers. Waynesboro in particular is seeking to complete a multi-phased greenway project.
- *Evaluate retrofitting opportunities along “overbuilt” roads.* Consider repurposing segments along US 11, 250, and 340 for bicycle and pedestrian improvements.

## Small Area Study Needs

Since 2017, the MPO has conducted three Small Area Studies to address safety and congestion concerns, and VDOT has conducted two Strategically Targeted Affordable Roadway Solutions (STARS) studies, which address similar issues. Study areas included: Greenville Avenue in Staunton, the Wilson Workforce Complex in Fishersville, Rosser Avenue, Richmond Road in Staunton, and US 250 in Augusta County and Waynesboro. The studies consistently identified the following regional transportation needs:

- Safety concerns due to entrance spacing and access management
- Undivided four-lane roadways
- Left-turn movements and conflict points

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- Lack of pedestrian and bicycle facilities
- Lack of crosswalks

## 5 –4 Summary

Many of the needs identified in the 2040 LRTP have remained the same, and improvements continue to be focused on addressing the congestion, safety, multi-modal, and transit needs along the interstate corridors, in the cities of Staunton and Waynesboro, and Augusta County's designated growth areas in Fishersville, Stuarts Draft, and Verona. Stakeholder and public input indicate that addressing congestion on I-81, improving multi-modal connections and transit service, and continuing to maintain existing roadways are the highest regional priorities.