SHRP2 I-64 Corridor Study

Staunton Augusta Waynesboro Metropolitan Planning Organization

Thomas Jefferson Planning District Commission

Introduction

The I64 Corridor study is a joint project between the Charlottesville Albemarle Metropolitan Planning Organization (MPO) and the Staunton Augusta Waynesboro MPO. The study is focusing on the Interstate 64 Corridor between Charlottesville and Staunton. The study is being funded by FHWAs Strategic Highway Research Program and focuses on using FHWA's PlanWorks toolbox to inform the corridor planning project. The project is being managed by staff from the MPOs with the support of a Working Group with members from the MPOs, VDOT, public safety, local governments, FHWA, private industry and topical experts. This group will be meeting is meeting every other month and will provide tecnical expertiese to help guide the process.

The Corridor

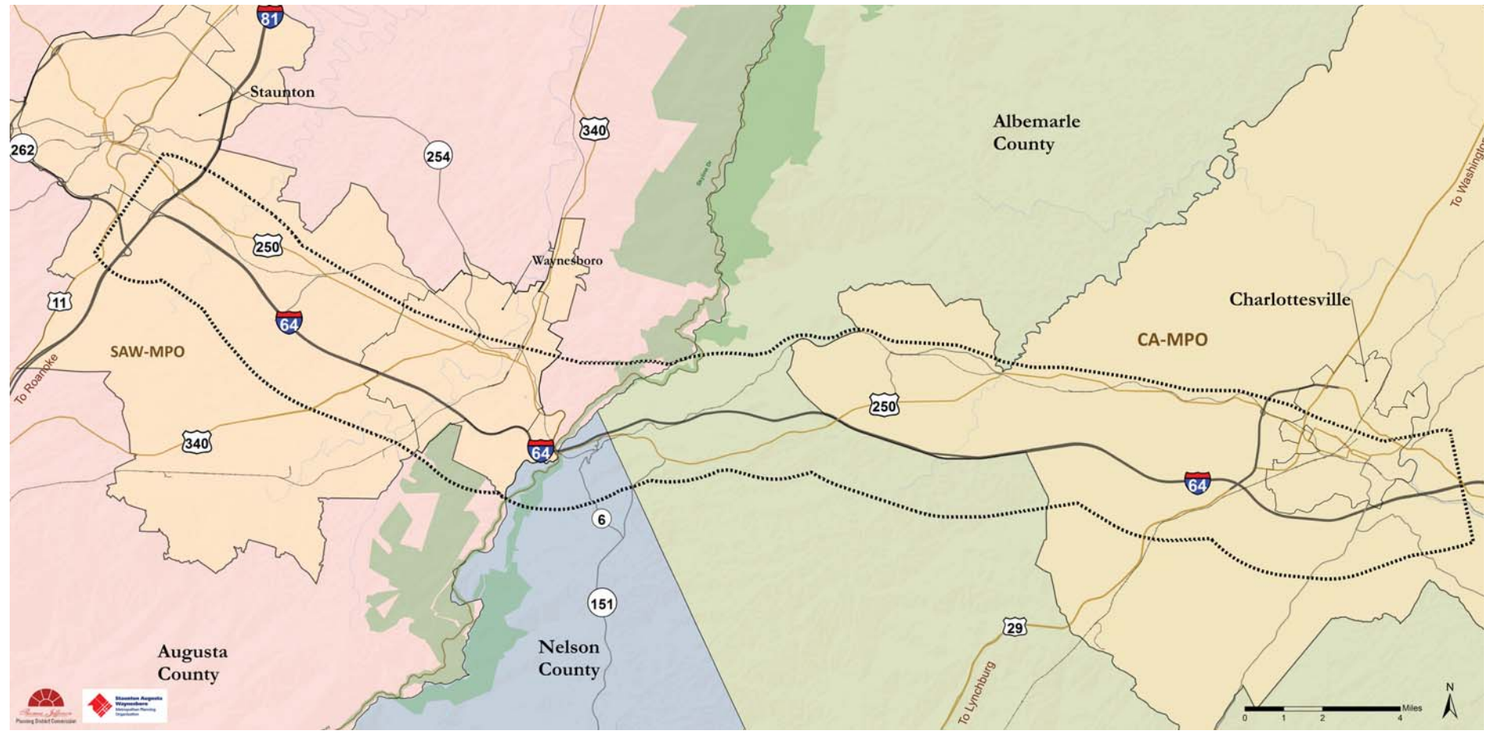
The I64 corridor serves as one of Virginia's key east west corridors and is identified in the State-wide transportation plan as a corridor of statewide significance. The interstate, along with US250 and the CSX Buckingham Branch/ CSX pass over the Blue Ridge Mountains at Rockfish Gap. Weather, congestion and frequent accidents result in a corridor that quickly becomes congested causing delays for a growing number of commuters, travelers and freight. The Corridor presents some unique constraints including steep slopes of the Blue Ridge which limit the ability for the roadways to be widened.

Corridor Facts

The Project Corridor includes Interstate 64 and US250 as well as the Amtrak, Buckingham Branch, CSX railway line between Charlottesville and Staunton.

- Corridor length: 36 miles
- Crash Rate: One and a Half
- US Route 250 Annual Average Daily Traffic: 12,404
- Interstate 64 Annual Average Daily Traffic: 35,944
- Percent of vehicles classified as trucks: 11%
- Population within 2 miles of the corridor 97,784

Project Corridor



PlanWorks

PlanWorks is a set of planning tools and best practices created by FHWA through extensive collaboration with State DOT's MPO's and local governments. The toolkits are orientated around major topics of Transportation Planning. The Decision Guide outlined below was developed through extensive research by FHWA and is designed to streamline the transportation planning process. The Corridor Planning Decision Guide consists of 9 steps focused on key decision points. This Corridor Planning guide is being used to inform the I64 corridor planning process.

Outcomes

1. Draft MOUs that establish a framework for Increased communication and cooperation between groups that have infrequently communicated or worked collaboratively with each other in the past.

2. Draft corridor plan that contains recommendations for future projects and studies to address key deficiencies that are identified in the corridor. Recommendations will be structured so that they can be implemented through Long Range Transportation Plans and the Statewide Transportation plan.

I-64 Corridor Communit[ies] Profile

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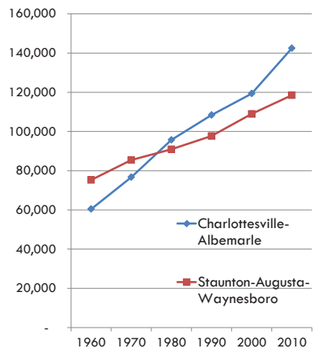
Population Change

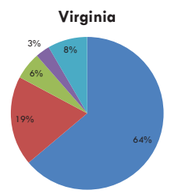
Since World War II, population has grown faster in Charlottesville and Albemarle than in Staunton, Augusta, and Waynesboro. For most of that time, growth was faster in the counties. In the last 5 years, however, Charlottesville has outpaced Albemarle and Staunton and Waynesboro have grown faster than Augusta.

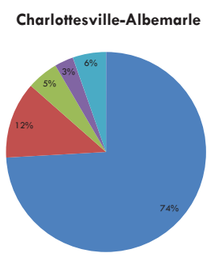
Geography	2015 Pop	2010-15 Growth Rate
Virginia	**8,382,993**	**4.8%**
C-A	**153,261**	**7.6%**
Charlottesville	48,210	10.9%
Albemarle	105,051	6.1%
SAW	**121,218**	**2.3%**
Staunton	24,542	3.4%
Augusta	74,881	1.5%
Waynesboro	21,795	3.8%

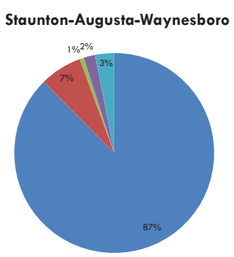


Race and Ethnicity

Both regions are more White than the state as a whole, with the Valley being significantly more White. Charlottesville has a higher population of Asian, Hispanic, and African-American residents.



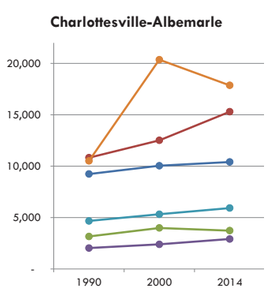


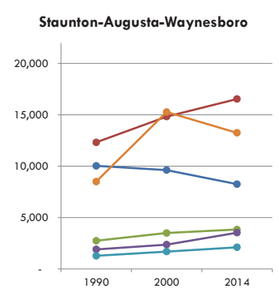


Non-Hispanic White
Non-Hispanic Black
Asian
Other (including multiracial)
Hispanic or Latino

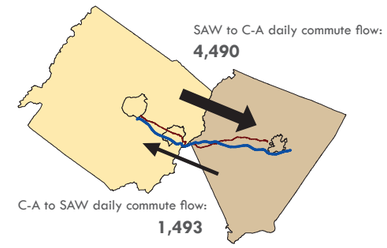
Household Type

In both regions, married couples without children have grown as a percentage of households while families with children have declined or stayed constant.





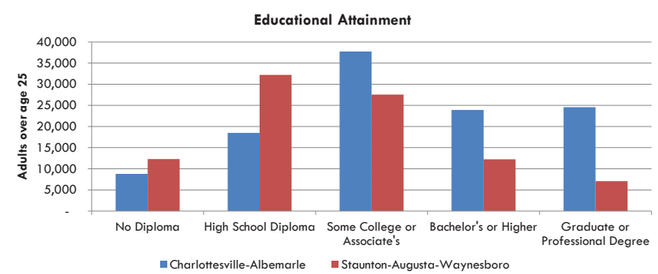
Married couples with children
Married couples without children
Single parents with children
Other families
Non-family groups
Householder living alone

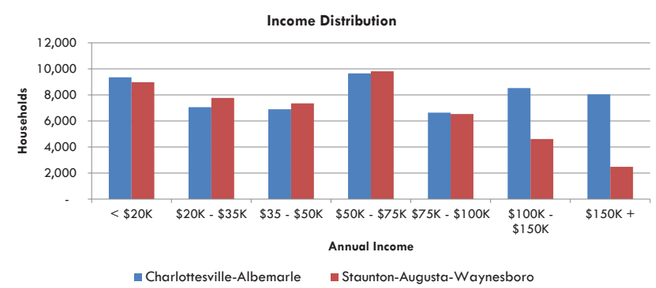


Source: Census Bureau Longitudinal Employer-Household Dynamics 2014 data (includes only "primary" jobs)

Income, Education, and Employment

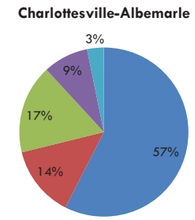
Poverty and unemployment are both slightly higher in the Valley, but the difference is small. Income is distributed similarly in both communities across the lower and middle income brackets. Educational attainment and median income, however, are substantially higher in the Charlottesville area, which has about 10,000 more households earning $100,000 or more per year.

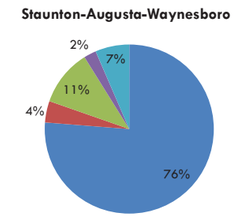




Geography	Median Household Income	Poverty Rate	Non-student Poverty Rate	Unemployment Rate (BLS)
Charlottesville Metro Area	**$59,189**	**15.2%**	**10.2%**	**3.9%**
Charlottesville	$47,218	27.5%	15.1%	3.7%
Albemarle	$67,958	9.7%	8.4%	3.9%
Staunton-Waynesboro Metro Area	**$49,262**	**13.2%**	**13.2%**	**4.3%**
Staunton	$39,982	18.2%	17.8%	4.4%
Augusta	$54,018	9.3%	9.4%	4.1%
Waynesboro	$45,499	20.7%	20.8%	4.7%

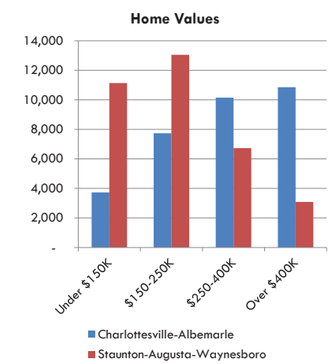
Housing

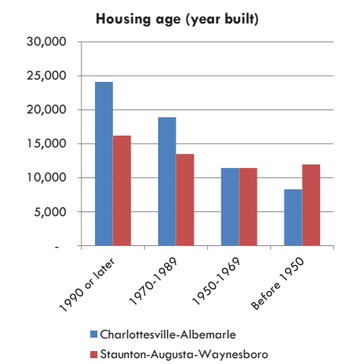




Single-family detached
SF Attached or Duplex
3-19 units
20 or more units
Mobile home or RV

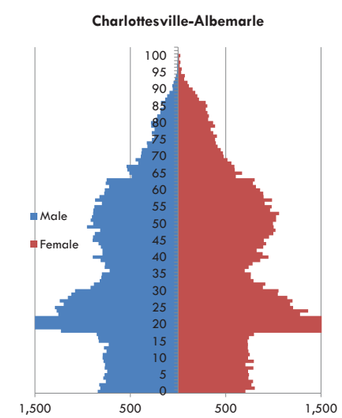
Single family detached is the predominant form of housing in both communities. The Charlottesville area has more multi-family and a slightly newer housing stock than Staunton, Augusta, and Waynesboro. The difference in home values is dramatic and likely the main reason that more workers commute into Charlottesville than out of it.

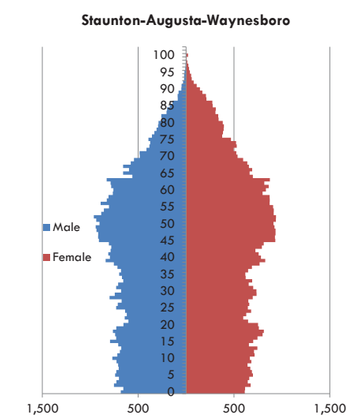




Age

Aside from the huge number of college-aged residents in Charlottesville, both areas have relatively balanced age pyramids. Both will struggle with aging populations in the future, though Charlottesville has seen a huge influx of young adults in their late 20's and early 30's in the last decade. (Age pyramids from 2010 census)





I-64 Corridor Existing Conditions

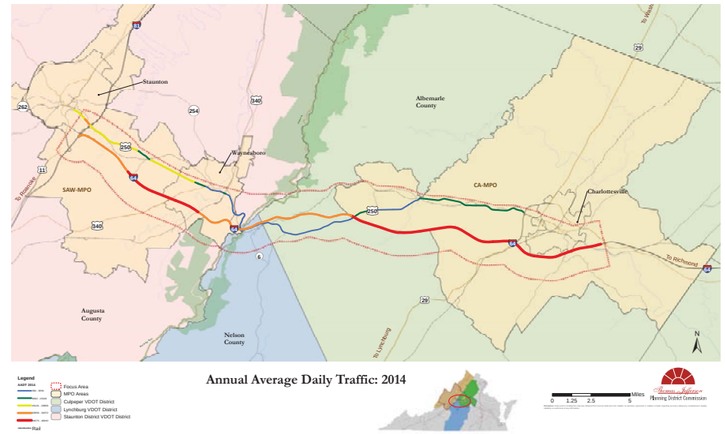
Staunton Augusta Waynesboro Metropolitan Planning Organization

Thomas Jefferson Planning District Commission

Introduction

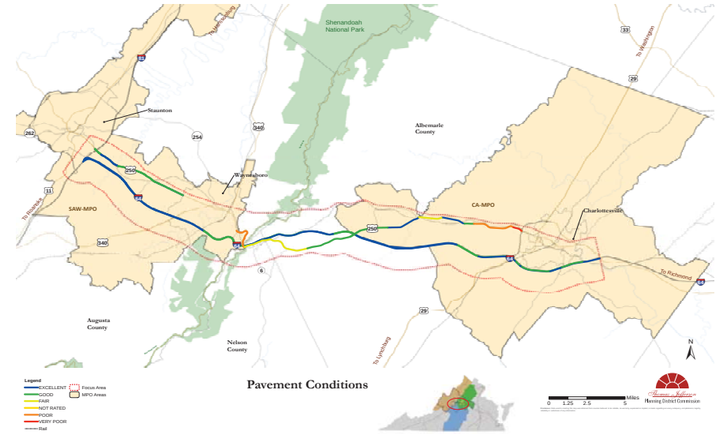
Examining the current conditions of the corridor is an important first step of this study. A few of those conditions are highlighted here and include: annual traffic averages (both for the current year and projected to 2035), pavement conditions of the roadway, the level of heavy vehicles (trucks) traveling through the corridor, and the roadway's capacity to handle traffic. These data sets provide a snapshot of the corridor as it stands today and help to identify potential conflict spots that may require more attention.

2014 Annual Average Daily Traffic



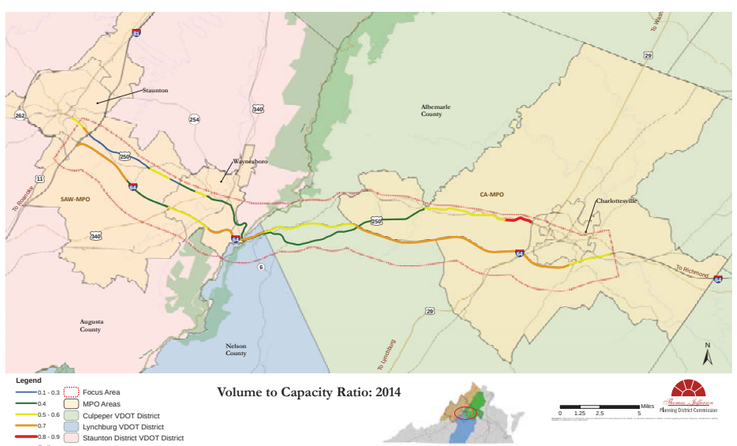
Annual Average Daily Traffic (AADT) is an estimate of the average number of vehicles that travel along a given road segment. VDOT collects traffic count data using sensors along the roadway. Portions of I-64 between Staunton and Waynesboro, as well as the majority of I-64 in the CA-MPO region, have high volumes of daily traffic.

Pavement Conditions



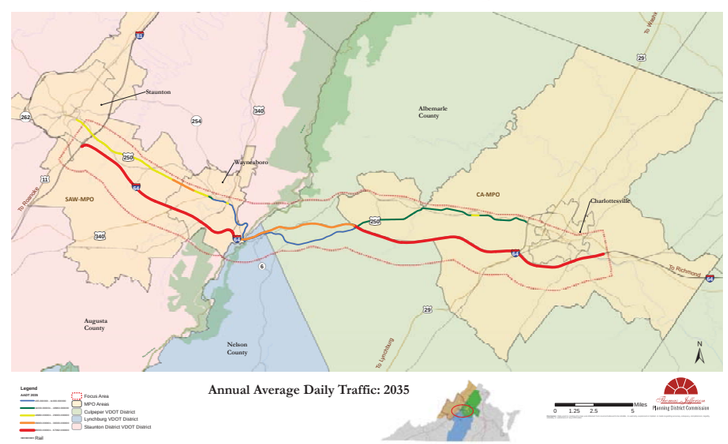
Pavement conditions of the roadway are monitored and recorded by VDOT. The above map reveals that all of I-64 within the study area falls into the "excellent" or "good" categories. However, portions of US 250 fall into the "poor" or "very poor" categories. Data for roads within city boundaries is not available.

Volume to Capacity Ratio 2014



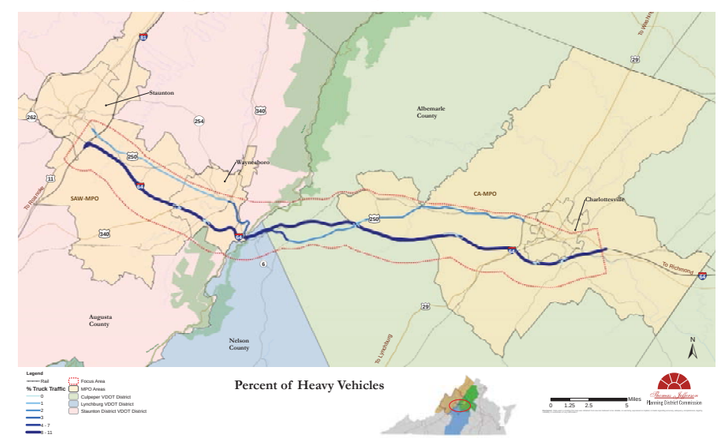
Volume to capacity ratios or V/C vary from 0 to 1 depending on travel speed the closer a segment is to a V/C of 1 the more congested the road segment is. V/C ratio helps planners and transportation engineers understand how over capacity or under capacity any given segment of roadway is. Segments of I-64 have V/C ratio of 0.6. The section of I-64 at Afton has a current Level of Service (LOS) of C and is forcasted to be a LOS of E by 2035.

2035 Annual Average Daily Traffic



VDOT forecasts future AADT to the year 2035. Without any interventions or upgrades, I-64 and US 250 will continue to see increases in daily traffic volumes. Almost all of the 64 corridor in the study area has increased along with portions of 250 within the boundaries of the SAW-MPO. Those segments highlighted in red represent higher levels of traffic, while those in the green and blue represent lower traffic volumes.

Percentage of Heavy Vehicles



The sensors that are used to conduct vehicle counts for the AADT calculations are able to distinguish between typical, 2-axled vehicles (such as passenger cars) and larger, multi-axled vehicles (such as trucks and busses). The map above shows the percentage of heavy vehicles, those with multiple axles, on each segment of the roadway. The darker blues represent higher percentages. The light blues that can be seen on I-64 are the entrance and exit ramps.

I-64 Corridor Safety Profile

Staunton Augusta Waynesboro Metropolitan Planning Organization

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Introduction

Analyzing crash data is crucial in understanding the safety of the 1-64 and US 250 corridors. Looking at the types of crashes that are occurring, how severe they are, and their location, helps to reveal potential hazardous areas. Identifying these points where crashes are clustering provides practitioners with specific locations where improvements or further study need to occur in order to provide a safe and efficient network for all users.

Crash Type

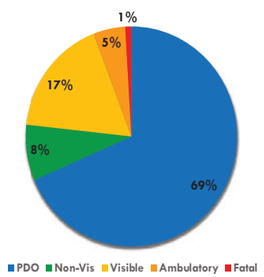
Identifying crash type provides a snapshot of the nature of the collision that has occurred. There are 11 broad categories of crashes, with the number of crashes occurring for the study years of each type represented in the table below. The most common crash type was "Rear End" collisions, followed by "Fixed Object Off Road." The table also shows the number of serious injuries and fatalities for each crash type.

Collision Type	Number	Fatality	Serious Injury	Serious or Fatal % of Total
Rear End Collision	1023	3	31	3%
Fixed Object Off Road	687	6	44	7%
Angle	535	8	27	7%
Deer or Other Animal	466	0	2	.5%
Sideswipe (Either Direction)	222	2	6	4%
Non-Collision	72	2	17	26%
Head On	54	3	10	24%
Other	36	1	3	11%
Fixed Object In Road	19	1	0	5%
Pedestrian	18	3	6	50%
Backed Into	8	0	0	N/A
TOTAL	**3140**	**29**	**146**	

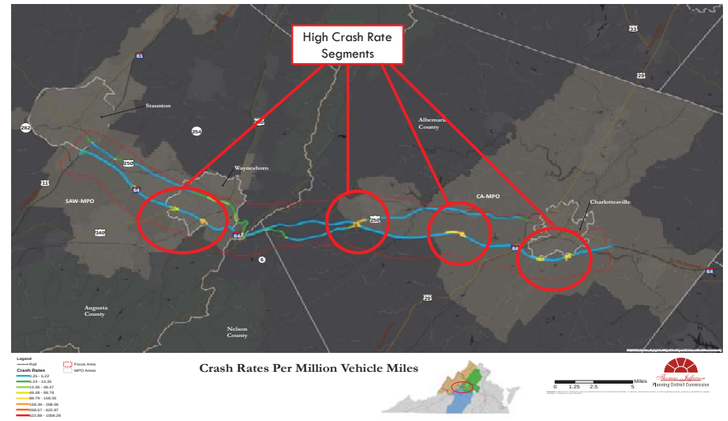
Crash Severity

To supplement crash type data, crash severity looks at how serious, in terms of injury, a crash is. There are 5 categories of severity, with "Property Damage Only" being the least severe, and "Fatal" being the most. The overwhelming majority of accidents fall into the least severe category.

Severity	Number	Percentage of Total
Property Damage Only	2152	69%
Non-Visible Injury	257	8%
Visible Injury	548	17%
Ambulatory Injury	154	5%
Fatal Injury	29	1%

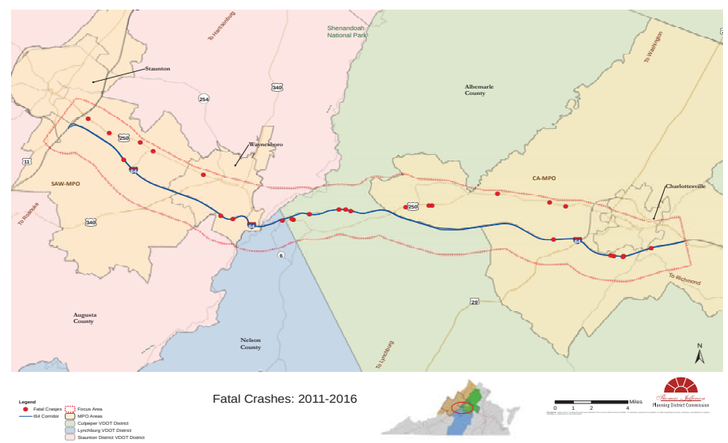


Crash Rates per 100 Million Vehicle



Crash rates explore the amount of collisions occurring on a given road segment, providing a more comparable measure of crashes to similar road types. The areas highlighted above identify segments that have higher than average crash rates. These segments tend to be located along interchanges, merging lanes, and on and off ramps.

Fatal Crash Locations

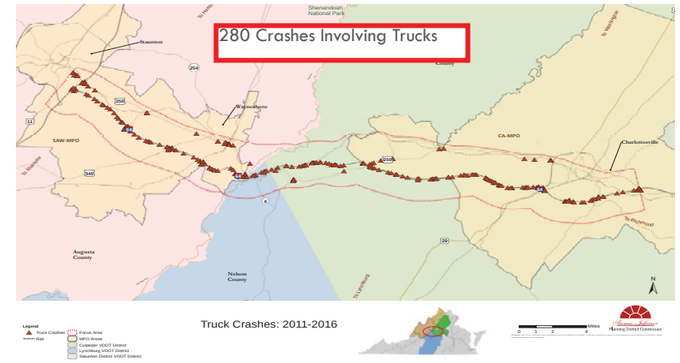


29 collisions that resulted in 30 total fatalities occurred over the last six years

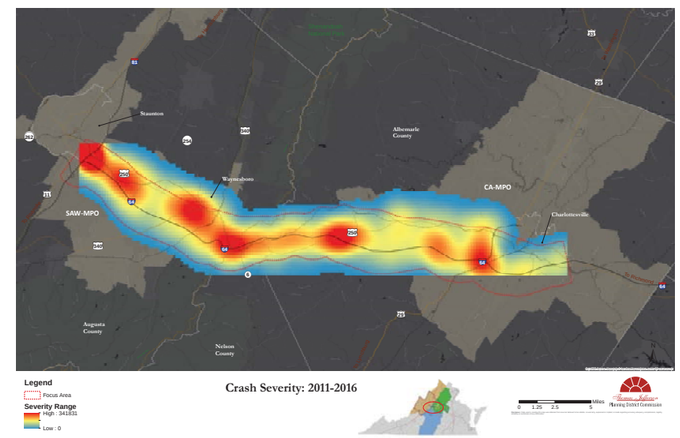
Quick Stats

- 3,140 total crashes
- 30 Fatalities
- "Rear End" collisions most common type
- "Property Damage Only" most common severity category
- 25% occur during peak afternoon commute times (3 PM to 6 PM)
- Fridays have slightly higher number

Truck Crashes

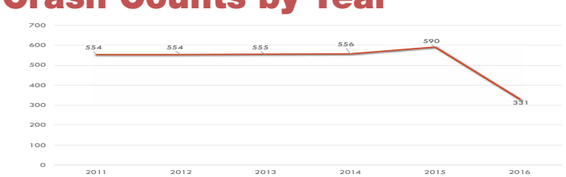


Severity Hotspots: 2011-2016



The areas shaded in red and orange (known as hotspots) identify locations with higher numbers of severe crashes along the corridor. Clustering of severe crashes (from L to R on the above map) are occurring along US 250 in Staunton, US 250 in Waynesboro, around exit 99 in the Afton area on I-64, at the I-64 and US 250 interchange in Albemarle County, and at the I-64 and US 29 interchange in Charlottesville.

Crash Counts by Year



For years 2011 through 2014, crash rates stayed consistent, averaging 554 per year. However, 2015 saw a 6% increase. Data for 2016 is not complete.