

Roanoke County

Safe Streets and
Roads for All

Comprehensive Safety Action Plan

Prepared by Timmons Group
February 2025



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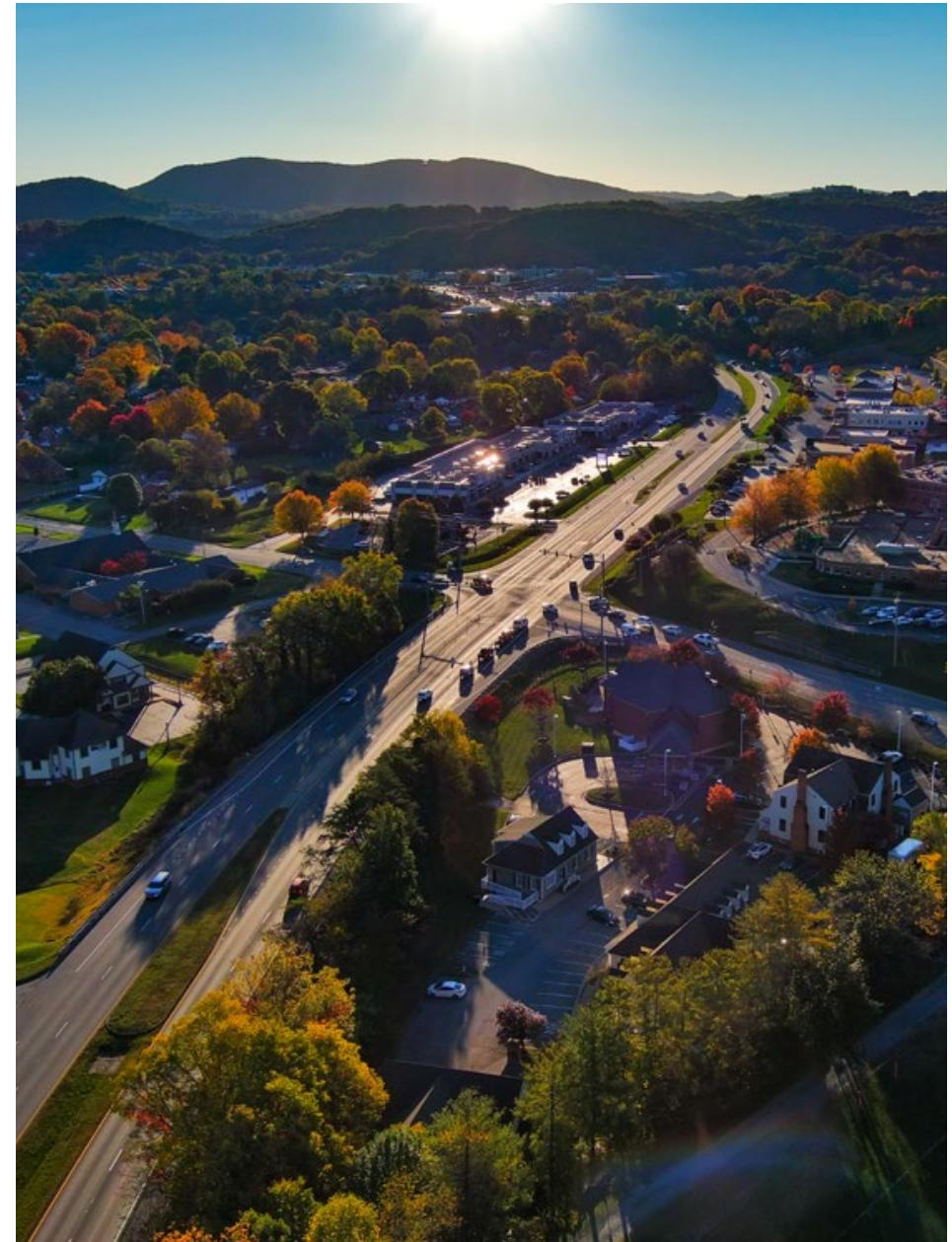
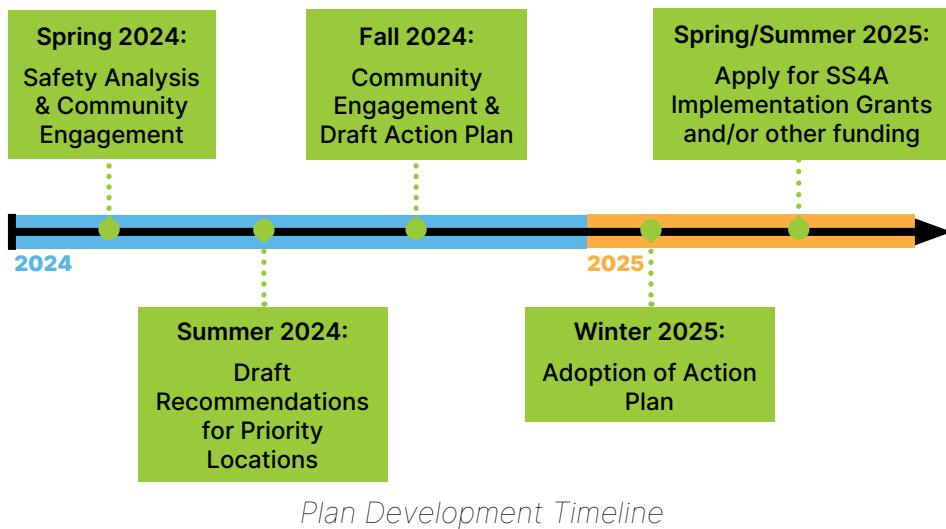




Introduction

Between 2015 and 2023, there were 47 fatal non-interstate traffic crashes in Roanoke County. In the same nine-year time-frame, there were 494 serious injury crashes on our transportation network. That represents an average of five fatal and 55 serious injury crashes each year. These severe crashes are preventable tragedies that can be reduced or eliminated through innovative design, strategic policies, and committed local leadership.

This Comprehensive Safety Action Plan is part of Roanoke County's commitment to enhancing roadway safety under the Federal Safe Streets and Roads for All (SS4A) program. The plan outlines targeted strategies to improve road safety, reduce crashes, and promote a culture of responsible driving. Fatal and serious injury (FSI) crashes are analyzed due to their severity. Fatal crashes result in one or more deaths and serious injury crashes involve incapacitating injuries, beyond visible injuries such as bruising, abrasions, swelling, or limping; serious injury crashes may be life-altering. By implementing engineering solutions, enhancing enforcement measures, and fostering community education, Roanoke County can create a safer, more reliable roadway system for all.



Program Overview

Safe Streets and Roads for All Program (SS4A)

In 2022, the US Department of Transportation (USDOT) awarded \$280,000 to Roanoke County, Botetourt County, and the Town of Vinton. With a \$70,000 match from the localities, these funds were used to develop a comprehensive safety action plan as part of the Safe Streets and Roads for All (SS4A) Grant Program. The SS4A program funds regional, local, and Tribal initiatives throughout the country through grants to prevent roadway deaths and serious injuries. The program focuses on the development of a comprehensive safety action plan and its implementation for all users of a jurisdiction's highways, streets, and roadways, including motorists, bicyclists, pedestrians, and more.

According to USDOT, an Action Plan is required to have the following aspects:

1. Leadership and goal setting: A high-ranking official and/or governing body in the jurisdiction publicly committed to an eventual goal of zero roadway fatalities and serious injuries
2. Planning structure: committee, task force or implementation group
3. Safety analysis
4. Engagement and collaboration
5. Equity Considerations
6. Policy and process changes
7. Strategy and project selections
8. Progress and transparency



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Commitment to Safety

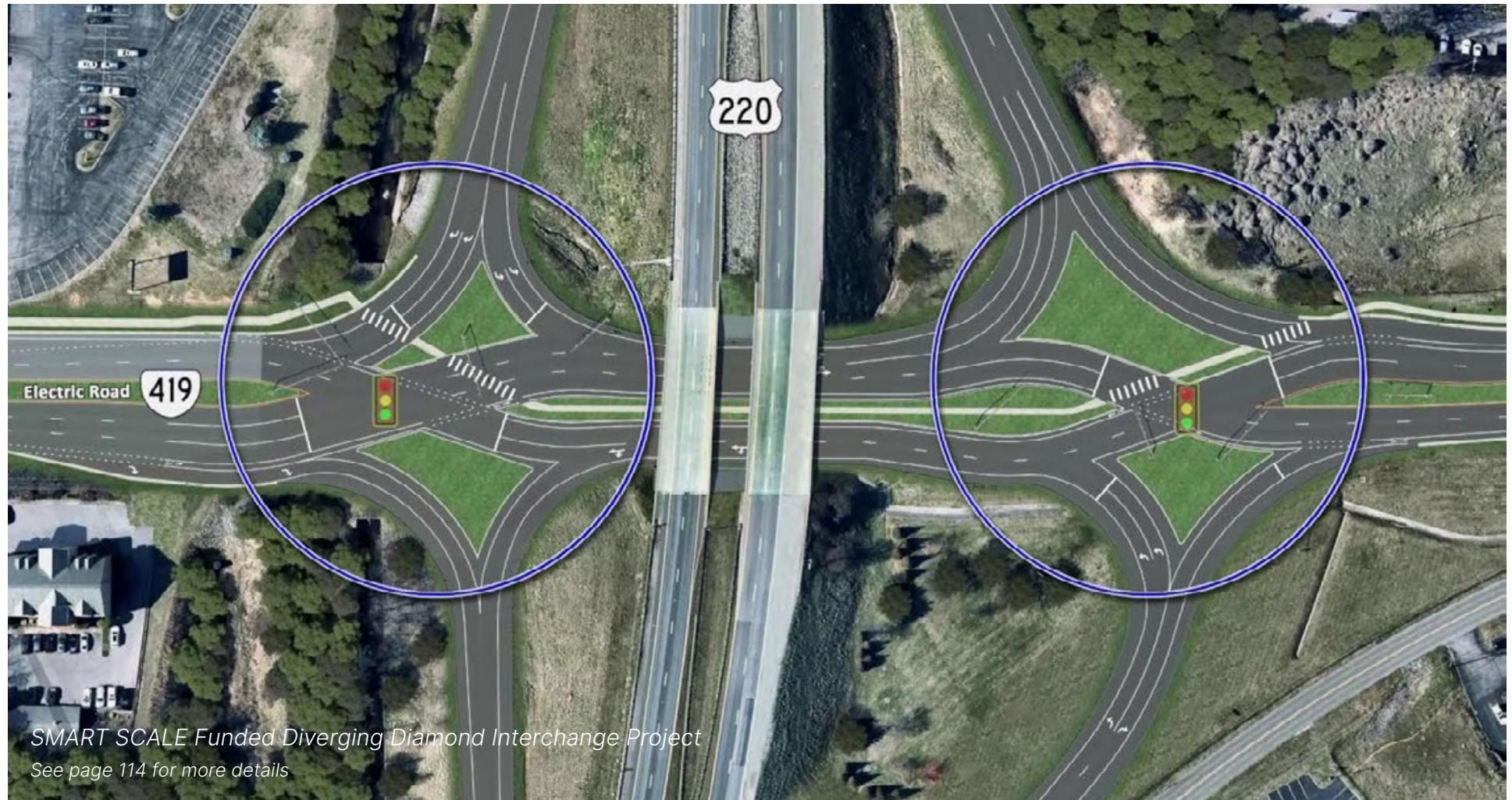
"The greatest benefit of the Safe Streets and Roads For All Comprehensive Safety Action Plan has been highlighting the roadway intersections and corridors where our worst crashes are occurring. With additional insight into why the crashes are taking place, we can now focus on leveraging our limited County resources to improve safety and save lives in these high crash areas."

-Richard Caywood, County Administrator

Our goal is to reduce roadway fatalities and serious injuries by 50 percent by the year 2045.



The Roanoke County Planning Department led the SS4A Action Plan process and development, in close partnership with the Town of Vinton and Botetourt County. The creation of this action plan could not have been possible without the guidance and collaboration provided by stakeholders including elected officials, the Planning Commission, Police, Fire and EMS, Engineering and Public Works staff, Public Schools staff, the Roanoke Valley-Alleghany Regional Commission (RVARC), and the Virginia Department of Transportation (VDOT).

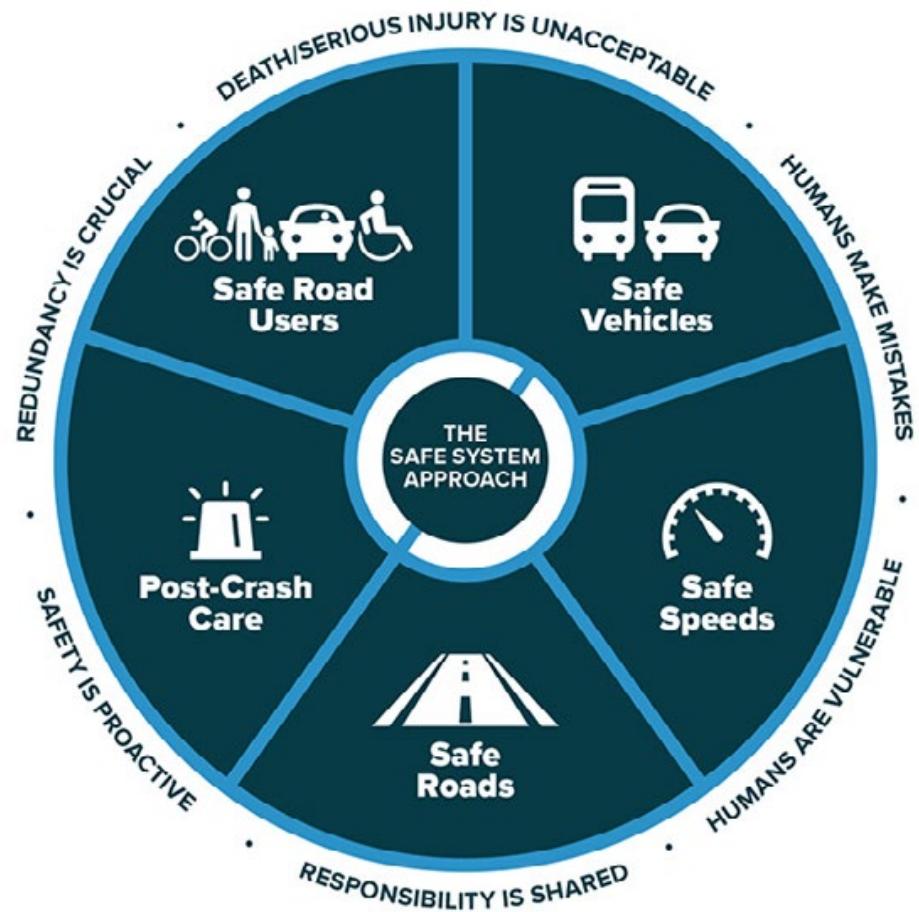


The Safe System Approach

The Safe System approach, developed and adopted by the USDOT, is a framework that guides safety efforts. It works by building and reinforcing multiple layers of protection to both prevent crashes from happening in the first place and minimize the harm caused to those involved when crashes do occur. It is a holistic and comprehensive approach that provides a guiding framework to make places safer for people.

This is a shift from a conventional safety approach because it focuses on both human mistakes AND human vulnerability and designs a system with many redundancies in place to protect everyone.

The Safe System Approach is arranged around five complementary objectives: safe road users, safe roads, safe vehicles, safe speeds, and post-crash care. Together, these objectives help steer safety programs to a future with reduced roadway fatalities and serious injuries in Roanoke County, Botetourt County, and the Town of Vinton.



Safe System Approach. Source: FHWA

Historical Crash Analysis

The safety analysis is informed by a historical crash analysis within Roanoke County. Historical crash data, from January 1, 2015, to December 31, 2023, was reviewed to evaluate patterns and trends within the crash data such as crash types, crash locations, and contributing circumstances. Crashes on interstates I-81 and I-581 were excluded from the analysis in order to focus improvements on roads where Roanoke County is most able to affect change; interstates fall wholly under Virginia Department of Transportation (VDOT) purview. Crashes within the City of Roanoke, the City of Salem, and the Town of Vinton were also removed from the dataset. The scope of this Safety Action Plan is non-interstate crashes located within Roanoke County.

This analysis focused primarily on the 541 non-interstate severe crashes in the nine-year time period that resulted in fatal and serious injuries. Within Roanoke County, there were **47 fatal crashes and 494 serious injury (FSI) crashes** reported during the study period. Figure 1 illustrates the non-interstate severe (fatal and serious) crashes reported by year within the county. Though some variation occurred year-to-year, the number of fatal and serious crashes in the county remained relatively steady.

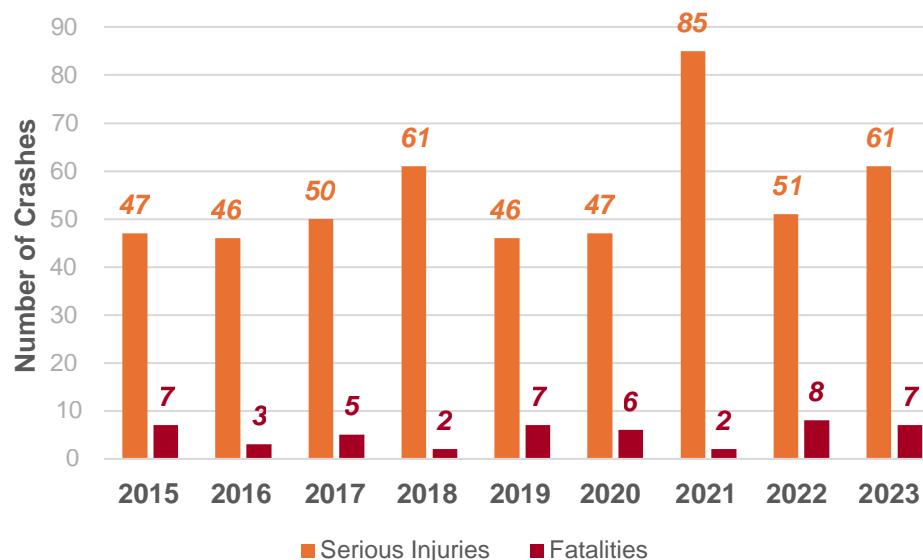


Figure 1. Severe Crashes by Year, Roanoke County (2015-2023)

Roanoke County



47

severe crashes resulting in fatality



494

severe crashes resulting in serious injury



60.1

average annual severe crashes

Crash Types

The most common crash type among the fatal and serious injury (FSI) crashes reported in the nine-year analysis period was fixed object off-road crashes, which accounted for approximately 37 percent (37%) of all fatal and serious injury crashes in Roanoke County. Angle crashes (28%), rear-end crashes (13%), and head-on crashes (7%) were the next most common crash types reported. Figure 2 summarizes the fatal and serious injury (FSI) crashes reported during the nine-year analysis period by crash type.

The vast majority of severe fixed object off-road crashes occurred during clear weather conditions (87%), and most commonly occurred during the day.

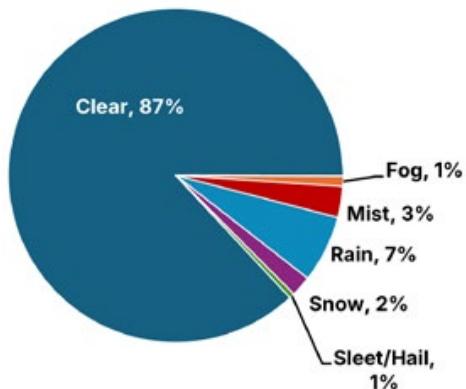


Figure 3. Severe Crashes by Weather Conditions

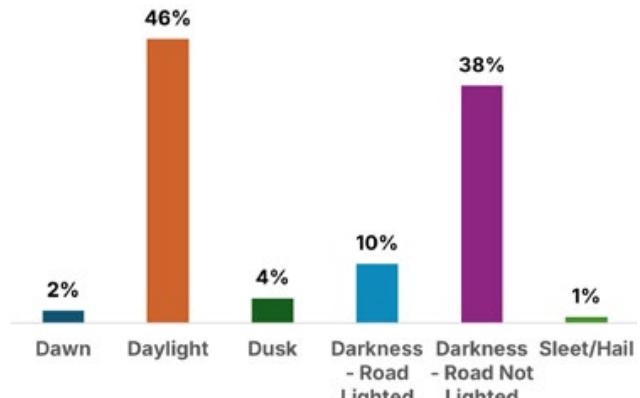


Figure 4. Severe Fixed Object Off-Road Crashes by Lighting Conditions

MOST COMMON CRASH TYPES

*Fatal and Serious Injury Crashes Only
Roanoke County (2015-2023)*

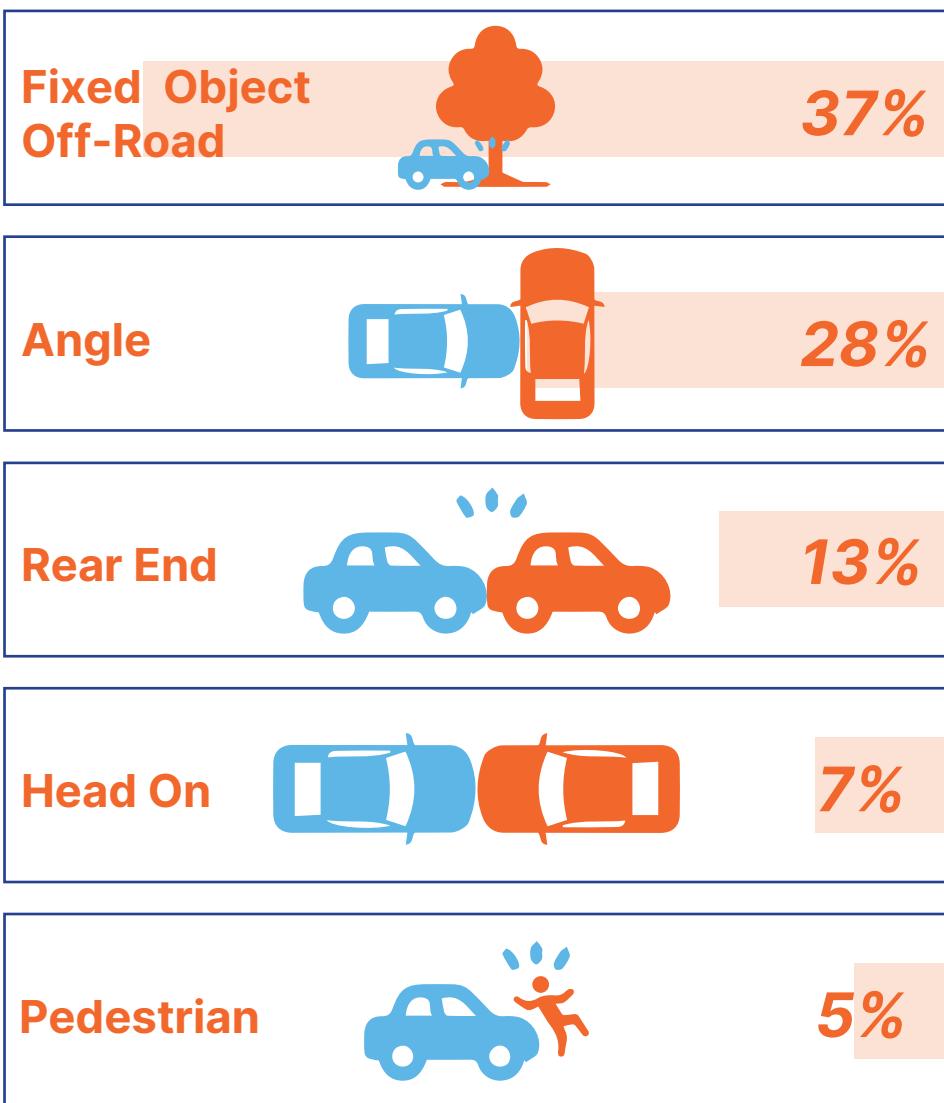


Figure 2. Severe Crashes by Crash Type, Roanoke County (2015-2023)

Environmental Conditions

The environmental factors contributing to crashes can highlight potential areas for improvement in the roadway network to better serve the traveling public. Factors such as lighting and weather were analyzed for the 541 crashes reported in Roanoke County.

Figure 5 illustrates the impact of changing lighting conditions on roadway safety. When fatal and serious injury (FSI) crashes occur at night, they are significantly more likely to occur when the road is not lit, compared to when it is lighted.

Overall the environmental factors contributing to crashes were consistent with statewide trends. 31% of Roanoke County's severe crashes occurred at night compared to 38% in all of Virginia, 9% of Roanoke County's severe crash occurred during rain compared to 10% in all of Virginia, and 14% occurred during wet roadway surface conditions compared to 14% statewide.

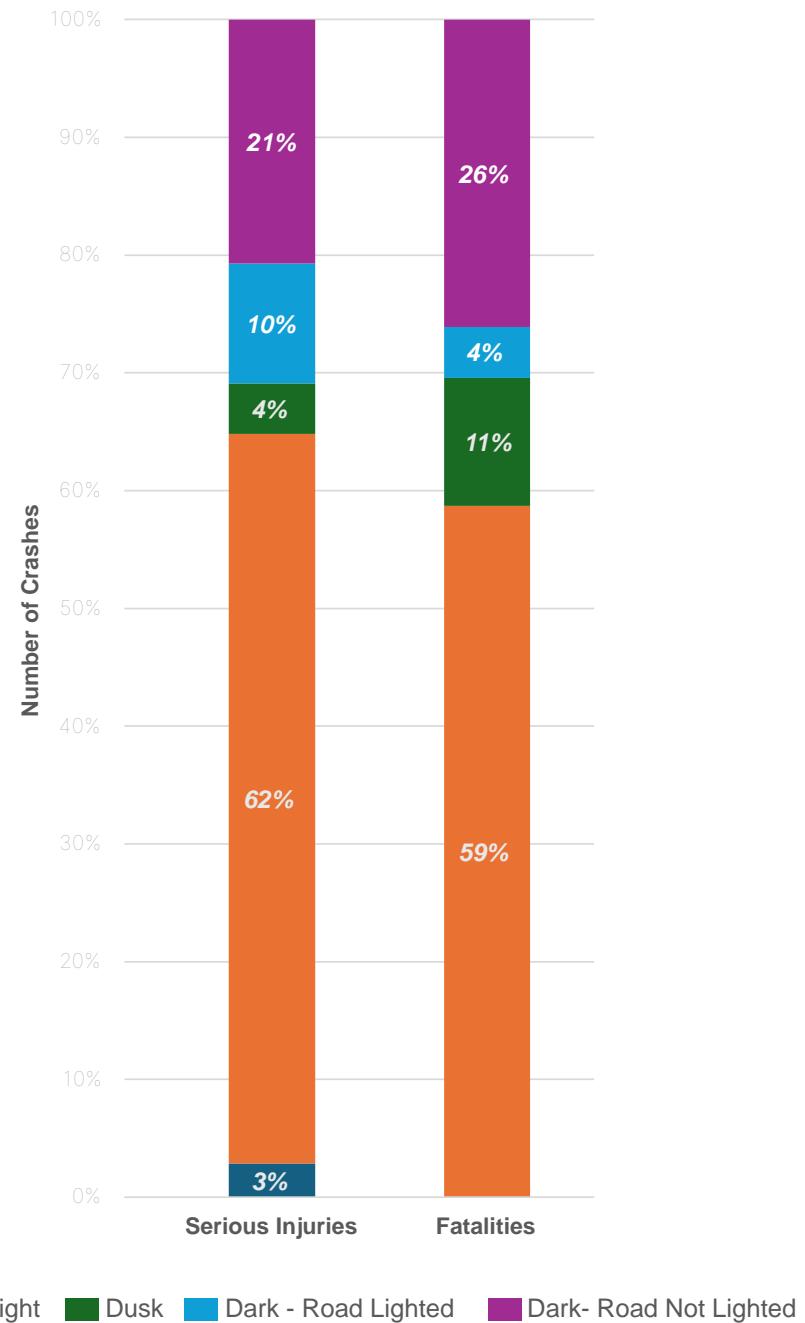
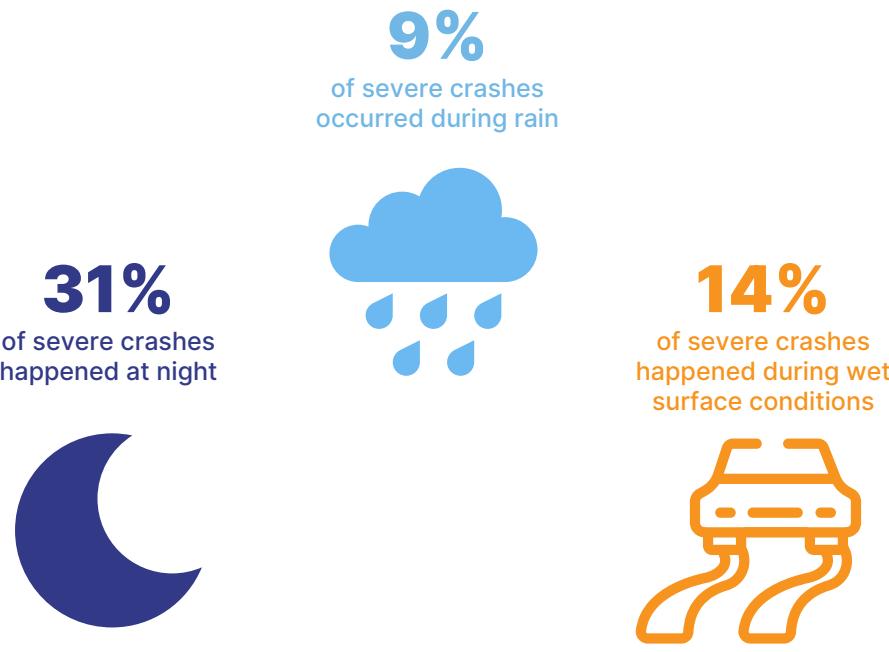


Figure 5. Crash Types by Lighting Conditions, Roanoke County (2015-2023)

Driver Behavior

Speed

Higher driving speeds lead to higher collision speeds. Higher driving speeds also make crashes more difficult to avoid because high speeds provide less time to process information and to act on it, and require longer break distance. 56% of fatal and serious injury crashes occurred on roads with speed limits of 45 mph or higher. High speeds are especially dangerous for road users outside of a vehicle. According to the FHWA, pedestrians have a 90% chance of surviving a crash involving a vehicle traveling 20 mph or below, and less than a 50% chance of surviving a crash with a vehicle traveling 30 mph or above.

Exceeding the posted speed limit further heightens the risk of a severe crash. In Roanoke County, 29% of fatal and serious injury crashes involved speeding, similar to the 32% of crashes statewide.

29%

of cars in severe crashes
were speeding



Drugs or Alcohol

According to the National Highway Traffic Safety Administration (NHTSA), every day, about 37 people in the United States die in drunk-driving crashes. In 2022, 13,524 people died in alcohol-impaired driving traffic collisions.

Drivers with a Blood Alcohol Concentration (BAC) .08 (the legal limit) are approximately 4 times more likely to crash than drivers with a BAC of zero. At a BAC of .15, drivers are at least 12 times more likely to crash than drivers with a BAC of zero.

In Roanoke County, 24% of fatal and serious injury crashes involved drugs or alcohol, compared to only 17% statewide.

24%

of severe crashes
involved drugs or alcohol



Distraction

Distracted driving is defined as any activity that diverts attention from driving. According to the NHTSA, in 2022, 3,308 people died in traffic collisions that involved distracted drivers. Such distractions may include talking or texting on the phone, eating or drinking, or adjusting the audio navigation system. Sending or reading a text takes a driver's eyes off the road for 5 seconds. At 55 mph, that is equivalent to driving the length of an entire football field.

In Roanoke County, 17% of fatal and serious injury crashes involved distracted driving, compared to 19% statewide. Note that distracted driving is often underreported and the actual number may be higher.

17%

of severe crashes involved
distracted driving



Seatbelts

One of the safest and simplest choices drivers and passengers can make is to buckle up. Research on passenger cars has shown that seatbelts reduce the risk of fatal injury to front-seat occupants by 45 percent and the risk of injury by 50 percent. However, according to the NHTSA 2022 report on seat belt use, Virginia has the lowest use rate of any state in the U.S. at 75.6%.

In Roanoke County, severe crashes are twice as likely to be fatal if the occupants are not buckled up. 18% of serious injury crashes involved unbelted occupants, but in 40% of fatal crashes the occupants were not wearing seatbelts.

40%

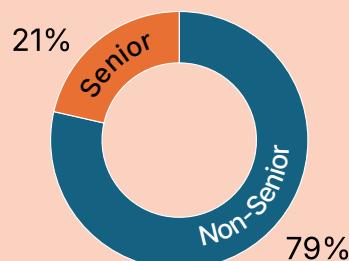
of fatal crashes involved
not wearing a seatbelt



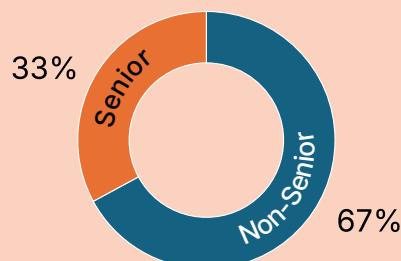
Crash Age Profiles

Crashes involving seniors (age 65+) and young drivers (ages 15-20) were analyzed due to the unique challenges and risk factors associated with each group.

Drivers aged 65 and older were involved in 21% of all severe crashes in Roanoke County. Residents that are 65 years or older make up 22% of the County population (2022 American Community Survey 5-year Estimates). Of all crashes on Principal Arterials, seniors were involved in one-third of crashes. Principal arterials are major highways intended to serve large amounts of traffic traveling relatively long distances at higher speeds. The most common collision type for senior drivers was angle crashes (42%).

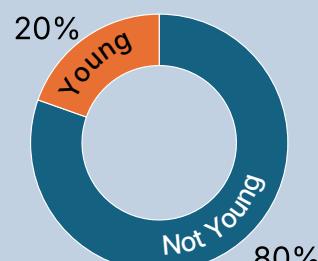


Senior drivers in severe crashes on all roadways

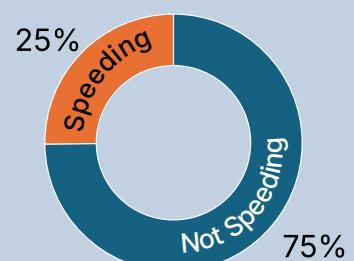


Senior drivers in severe crashes on Principal Arterials

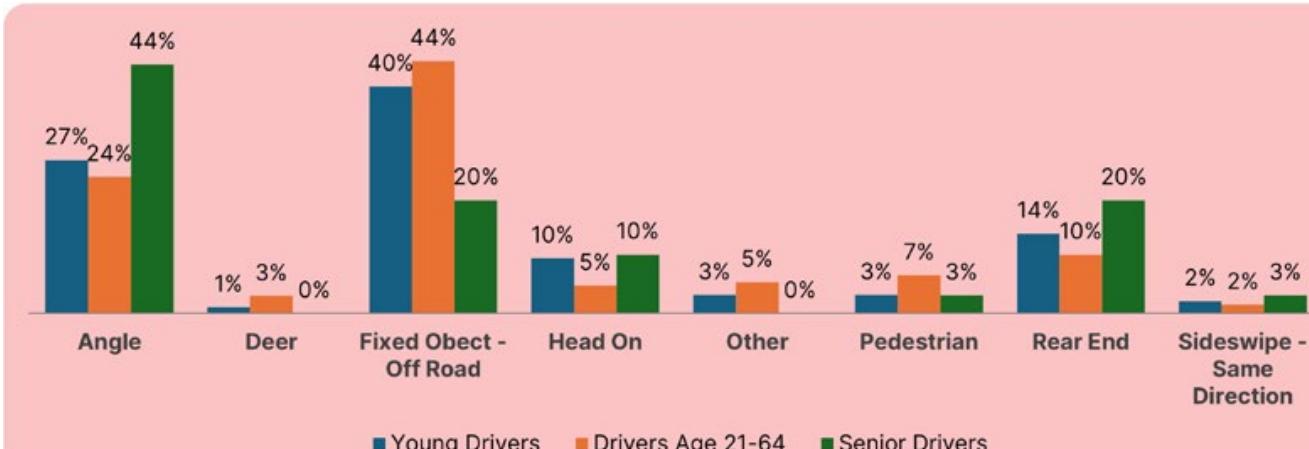
Drivers aged 15 to 20 were involved in 20% of all severe crashes. Residents that are 15 to 20 years of age make up 6% of the County population (2022 American Community Survey 5-year Estimates). Young drivers were 50% more likely to be in a severe crash when speeding was a factor. The most common collision type for young drivers was with a fixed object off the road (35%)



Young drivers in severe crashes



Young drivers in severe crashes when speeding was a factor



Severe Crashes by Age and Crash Type

Crash Severity by Mode

Although motorcyclists, bicyclists and pedestrians represent a small minority of overall road users, they are overrepresented in fatal and serious crashes. The figure below illustrates the relative risk of a crash resulting in serious or fatal injury for different roadway users. Less than 6% of car crashes cause severe harm, but 43% of motorcycle crashes and 46% of bicycle or pedestrian crashes result in a serious or fatal injury. Motorcyclists are 12 times more likely to be killed in a crash compared to motorists, and pedestrians and bicyclists are 18 times more likely to be killed in a crash compared to motorists.

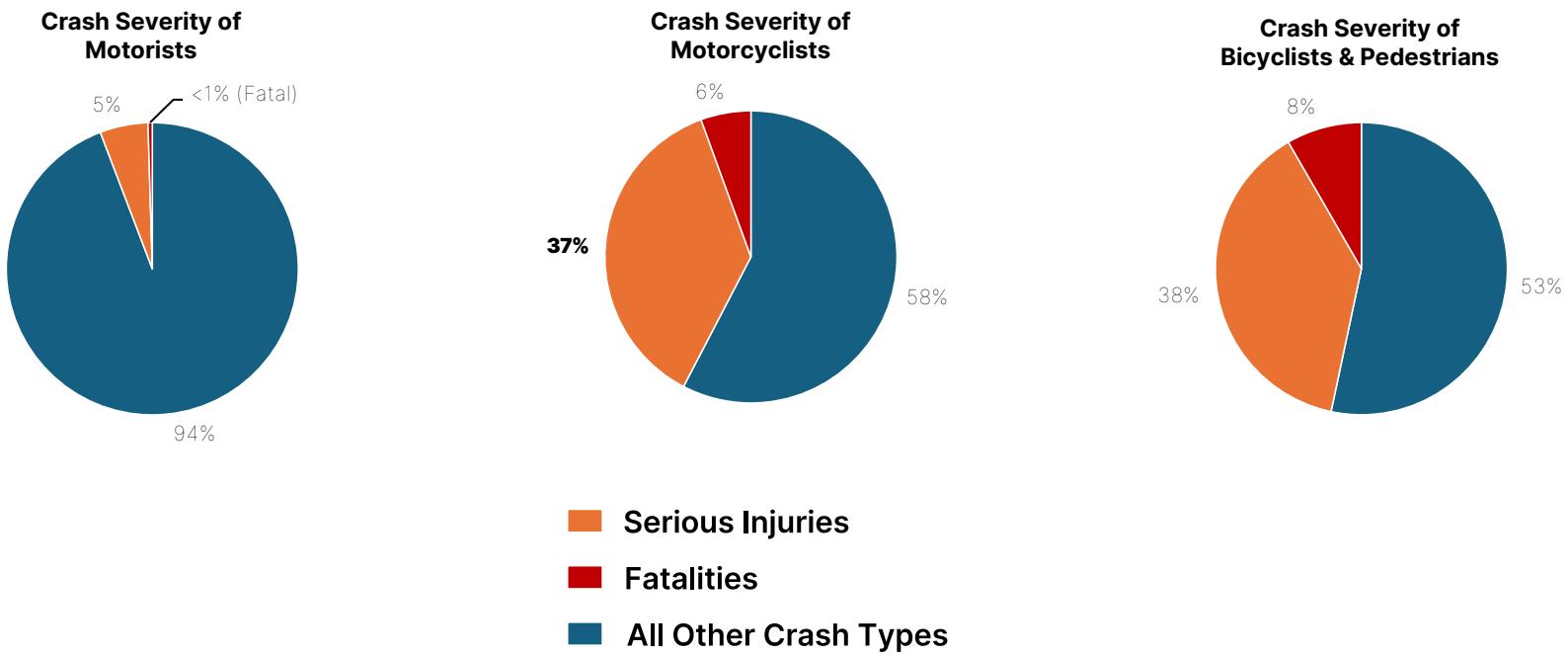


Figure 6. Crash Severity by Mode of Travel

Pedestrian and Bicycle Crashes

Among the 541 fatal and serious injury (FSI) crashes, there were 25 pedestrian crashes and three bicycle crashes recorded within Roanoke County during the nine-year analysis period. Among these incidents, five of the pedestrian crashes resulted in a fatality; all three of the bicycle crashes resulted in serious injury.

A majority of the pedestrian crashes (56%), occurred during the night time under dark conditions. Eight of the bicycle and pedestrian crashes (32%) involved drugs or alcohol. Almost half of the pedestrian crashes (44%) occurred on 45 mph roads. Most of the bicycle and pedestrian crashes occurred where bicycle or pedestrian facilities are not present.

Figure 7 shows these crashes throughout the region. Hotspot locations include Brambleton Avenue in the vicinity of Cave Spring Middle and Elementary School, Peters Creek Road in the vicinity of Burlington Elementary School, and Williamson Road.

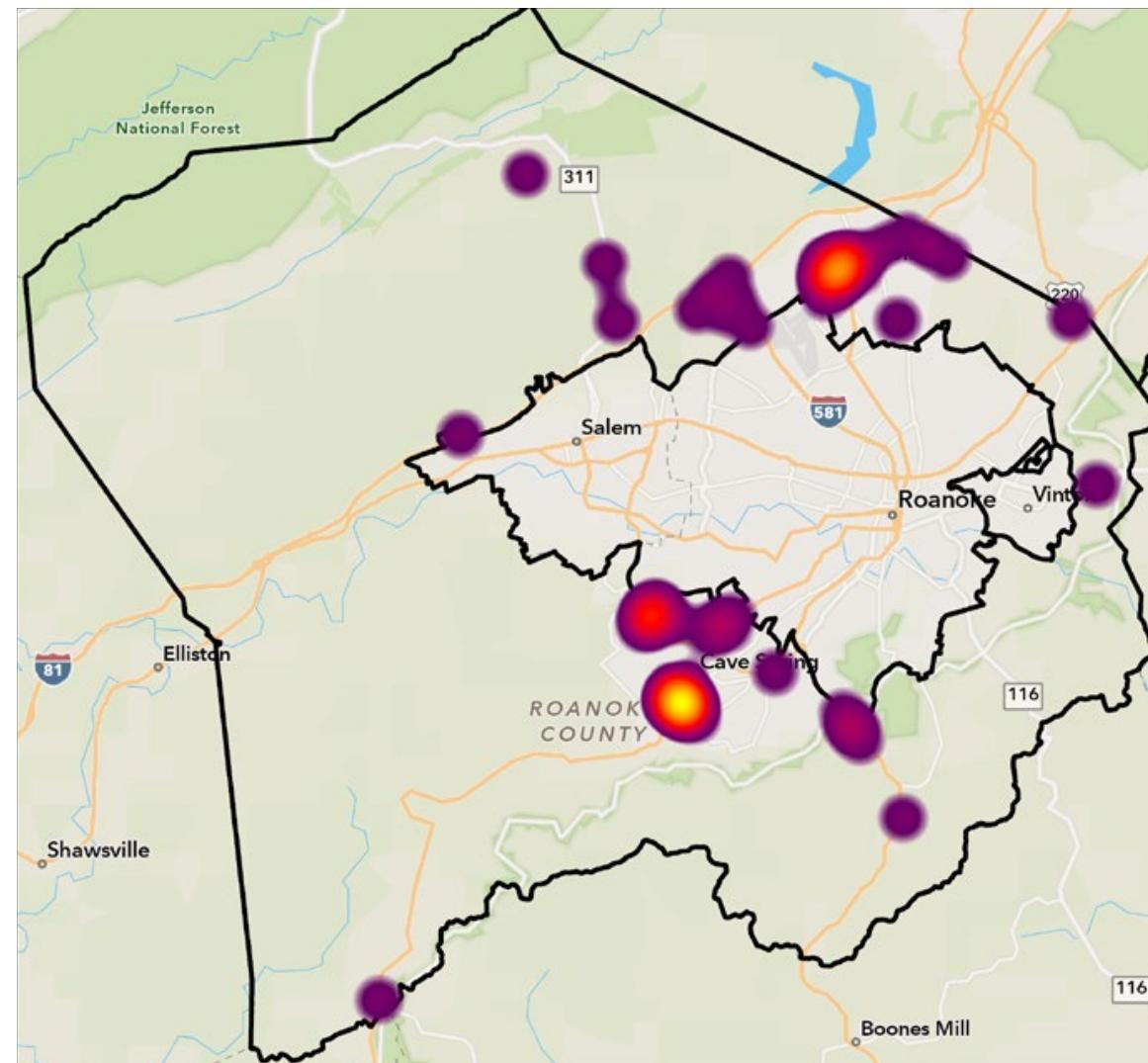


Figure 7. Roanoke County Bicycle & Pedestrian Crashes Heat Map

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Network Analysis

In addition to understanding historical trends, it is important to locate the places where people are most likely to be injured in a crash. This effort utilized the ESRI Traffic Crash Analysis Solution to better understand and map out the areas with the highest incidence of serious injury and fatal crashes – along with crashes of other severity types.

The Traffic Crash Analysis solution provides a range of capabilities designed to analyze crash data using methodologies outlined by the United States Road Assessment Program (usRAP) and the Federal Highway Administration (FHWA). usRAP uses a risk-mapping protocol to create maps that show variations in the level of crash risk across a road network. These maps can guide the prioritization of highway infrastructure improvements and targeted enforcement strategies. The tool creates roadway segments, assigns crashes to the segments, and creates risk maps.



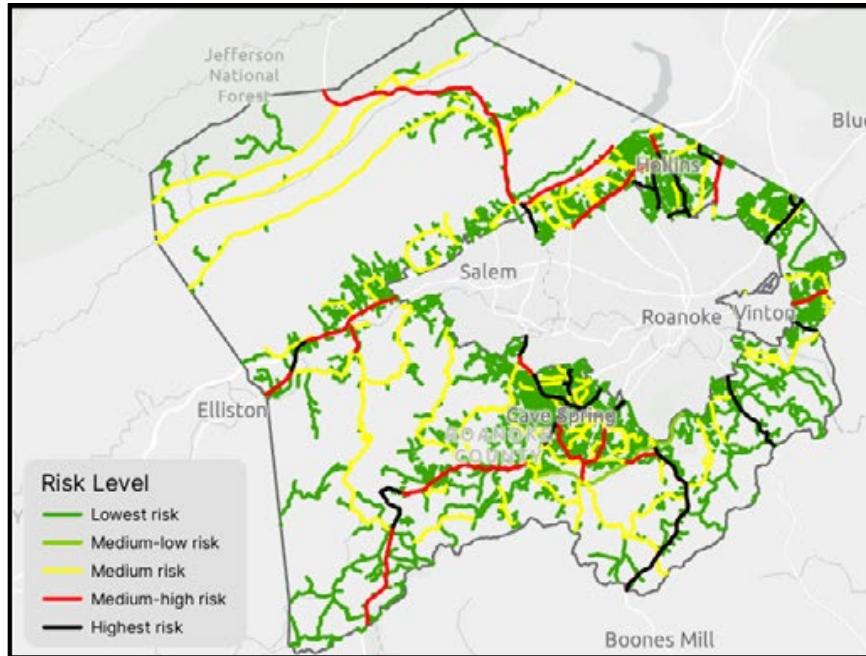
For Roanoke County, the usRAP Analysis was used to generate the following maps:

- Crash Density:** Crashes per mile of road. Emphasizes road segments that are associated with the highest rate of severe crashes. These segments represent areas where there may be the greatest opportunity to reduce crashes.
- Crash Rate:** Crashes per 100 million vehicle miles of travel. Illustrates the risk to an individual motorist while traveling through a given road segment.
- Crash Rate Ratio:** Risk expressed as the ratio of the crash rate for a particular analysis segment to the average crash rate for all segments of the same roadway type. Emphasizes segments that have above average crash rates for their roadway type.
- Potential Crash Savings:** Estimate of the number of crashes per mile that would be reduced if the crash rate for the road segment could be reduced to the average crash rate for similar road segments.

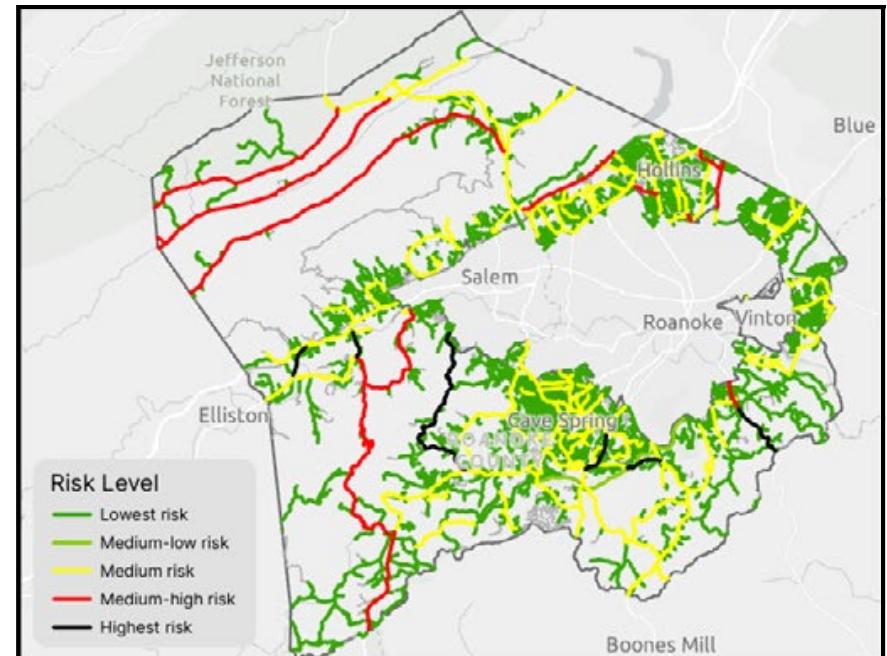
Each map includes five color coded risk levels. The risk categories include Highest Risk (top 5 percent of system), Medium-High Risk (10 percent of system), Medium Risk (20 percent of system), Medium-Low Risk (25 percent of system), and Lowest Risk (bottom 40 percent of system). **Click on each map to launch a detailed map viewer in a new browser.**

Note that only corridors with 3 crashes or more in the 9-year study period were placed in the two highest risk categories.

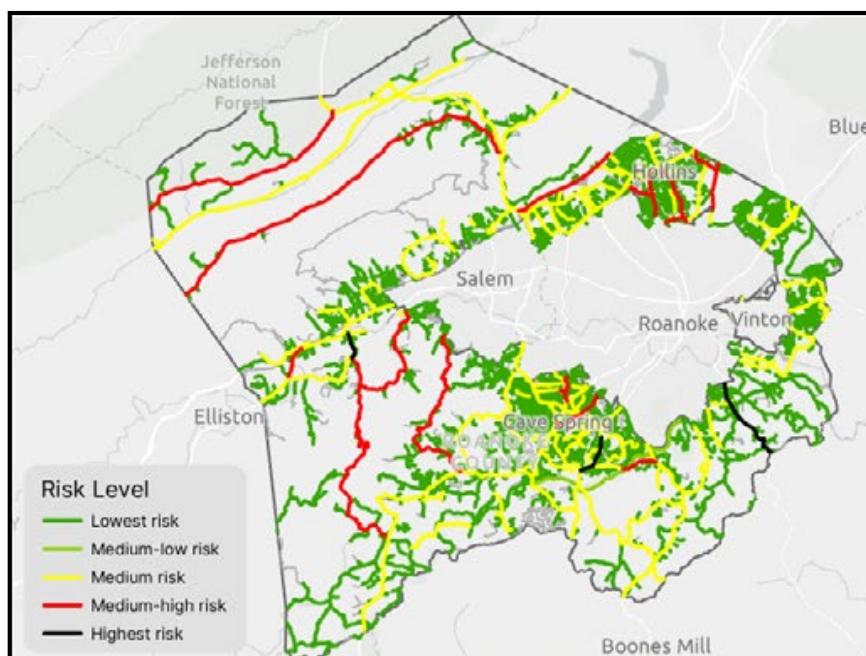
Crash Density



Crash Rate



Crash Rate Ratio



Potential Crash Savings

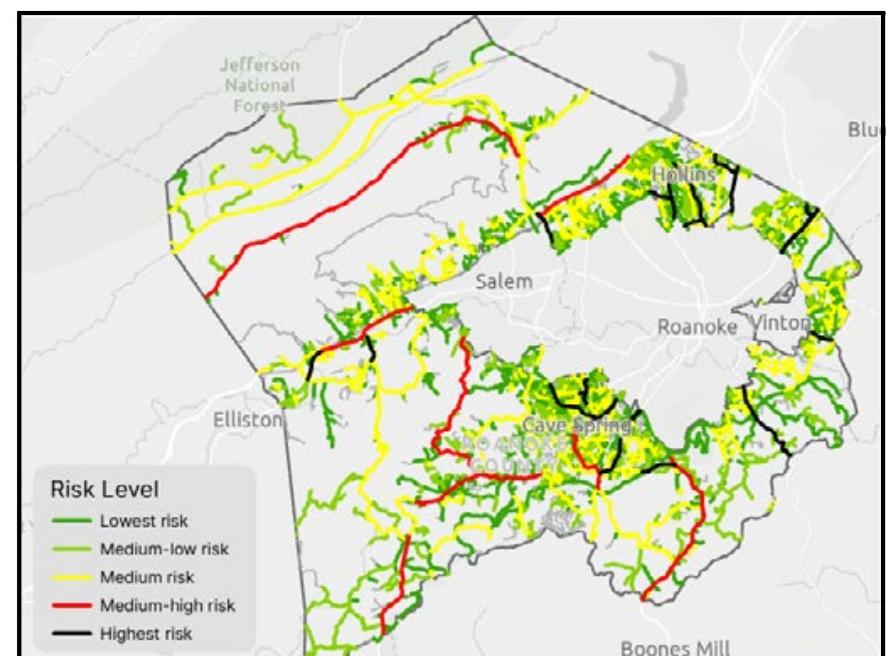


Figure 8. Roanoke County Severe Crashes Risk Maps

High-Injury Network

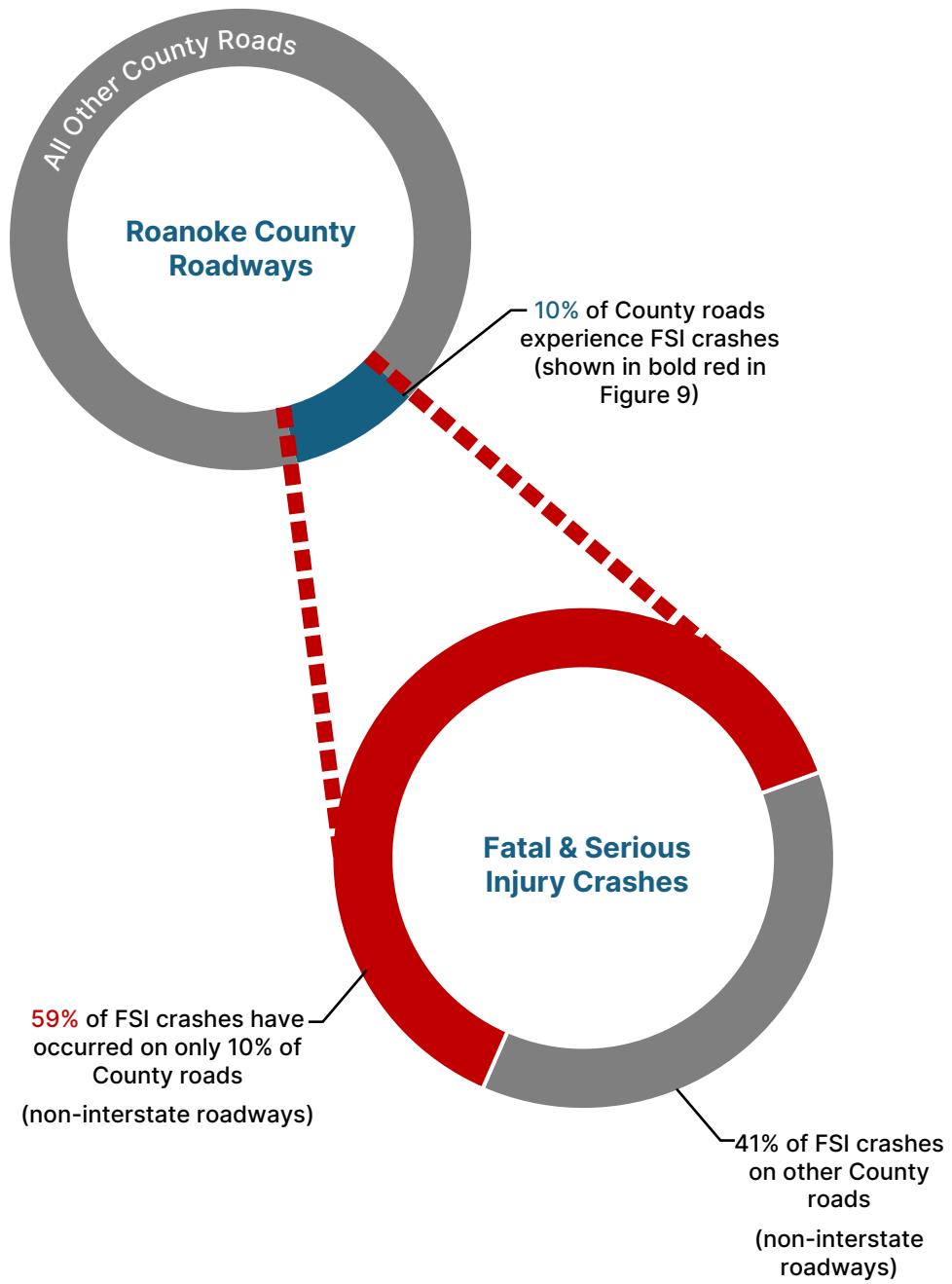
The crash risk data from the four maps generated by the usRAP analysis was combined to assign each roadway a single risk score. The result is a High-Injury Network ranking every roadway in Roanoke County.

The High-Injury Network (HIN) is a collection of streets and roadways where a disproportionate number of severe car crashes, resulting in fatalities or serious injuries, occur. While increasing safety is important on every street, identifying a HIN assists local leaders in focusing their efforts on improvements on areas that will have the greatest impact and save the most lives.

The HIN in Figure 9 shows areas where the risk score is the highest and most in need of transportation investment in red, lower scoring areas are shown in orange, and places with lowest risk score are shown in yellow.

The corridors scoring in the highest 10% of Roanoke County's entire roadway network are highlighted and shown in a bold red. The corridors account for almost 60% of all fatal and serious crashes in Roanoke County. A few notable findings about these corridors are summarized below:

- 40% are in rural areas
- 50% are along 40-45 mph roadways
- The two most common crash types are:
 - Fixed Object Off Road: 31%
 - Angle Crash: 30%



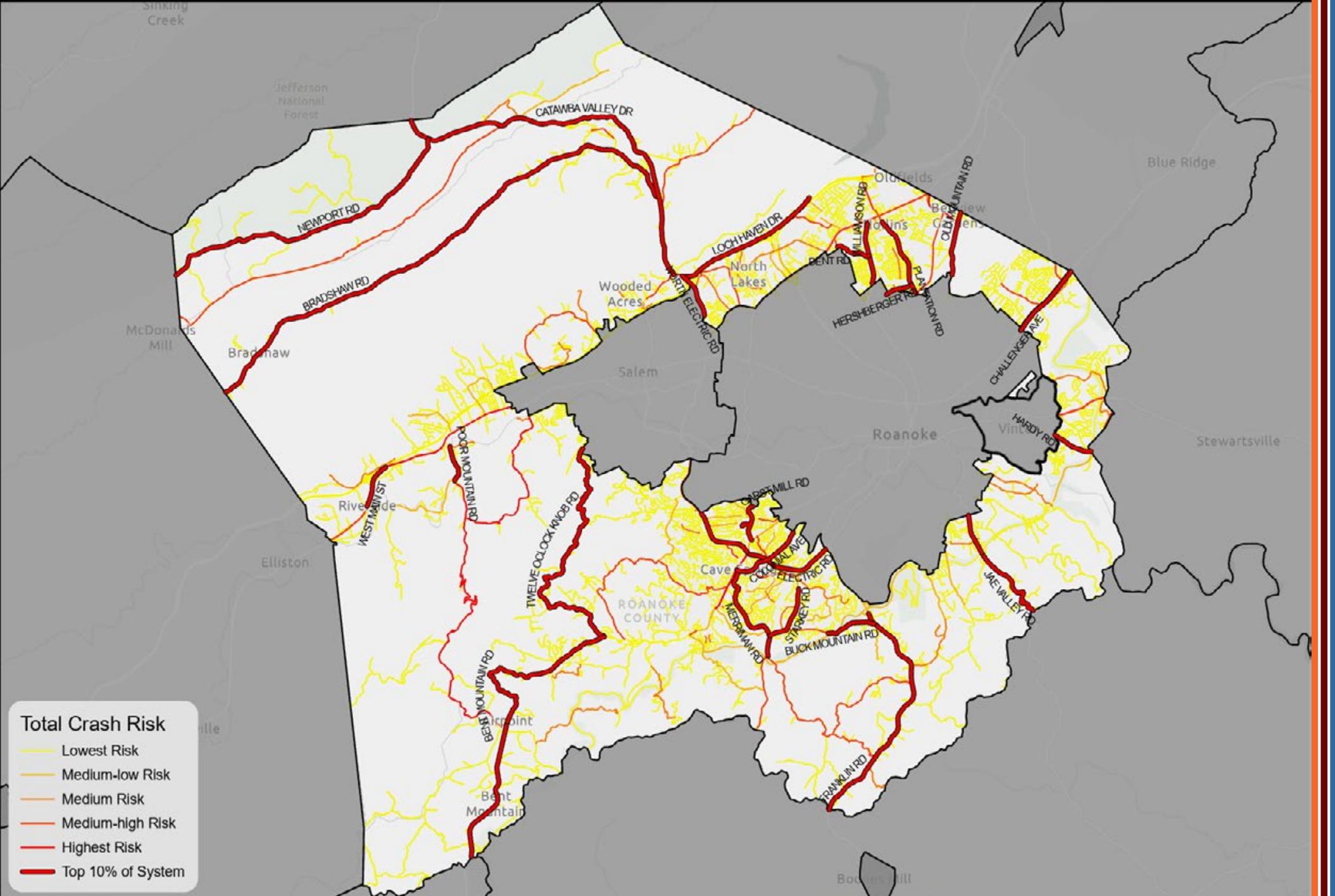


Figure 9. Roanoke County High Injury Network

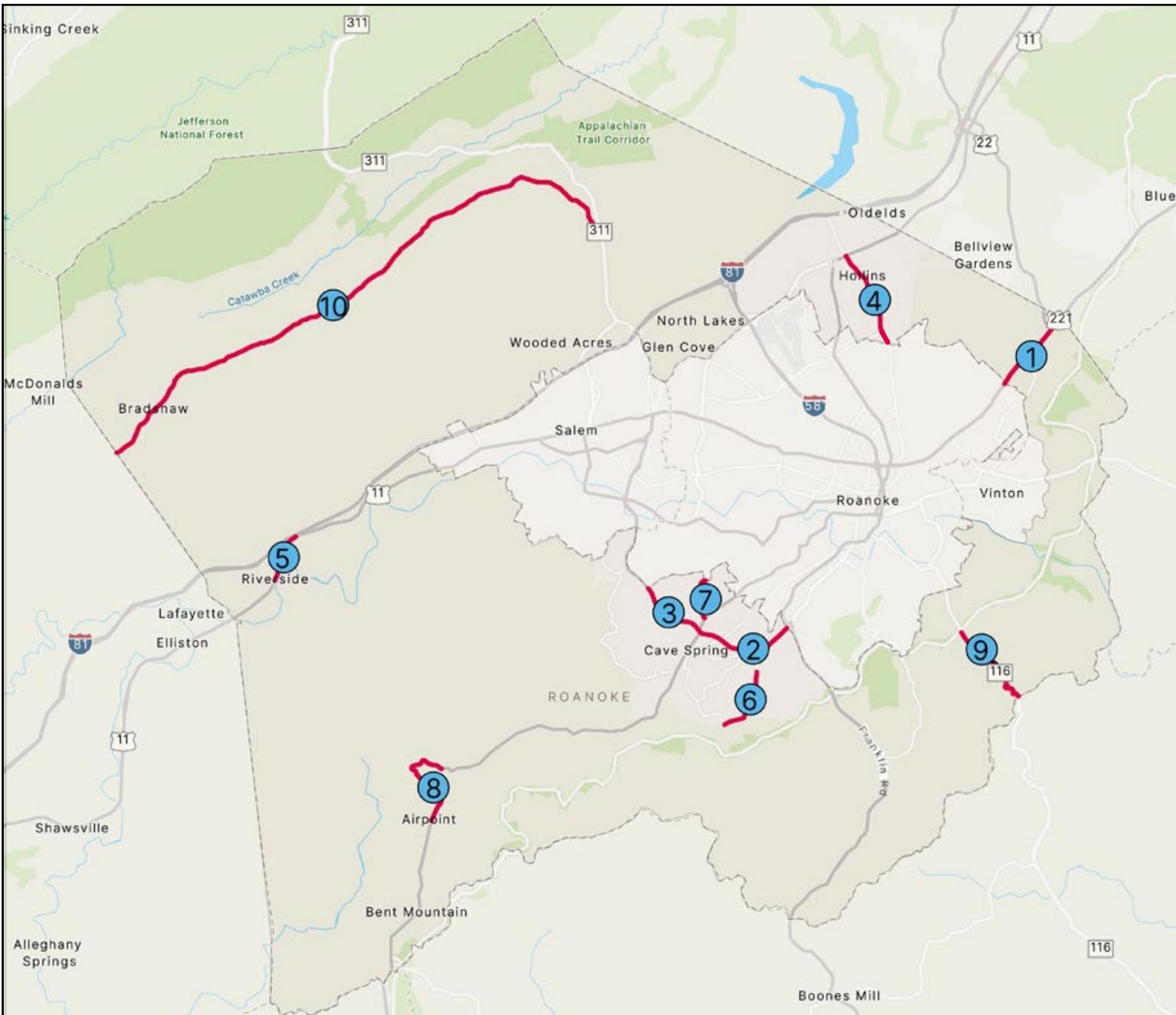


Figure 10. Roanoke County Priority Corridors

— Priority Corridors

Ⓐ Map Labels

Table 1. Roanoke County Priority Corridors

Map Label	Corridor Location	Serious Injury Crashes	Fatal Crashes
1	Challenger Avenue (From Roanoke City Line to Botetourt County Line)	29	4
2	Electric Road East (From Brambleton Avenue to Roanoke City Line)	27	1
3	Electric Road West (From Brambleton Avenue to Glen Heather Drive)	17	1
4	Plantation Road (From Williamson Road to Roanoke City Line)	20	2
5	West Main Street (From West River Road to Pleasant Run Drive (East))	14	2
6	Starkey Road (From Benois Road to Merriman Road)	7	0
7	Garst Mill Road (From Brambleton Avenue to Roanoke City Line)	7	1
8	Bent Mountain Road (From Tinsley Lane to Back Creek Orchard Road)	10	2
9	Jae Valley Road (From Blue Ridge Parkway to Franklin County Line)	11	1
10	Bradshaw Road (From Catawba Valley Drive to Montgomery County Line)	11	1

Priority Corridors

The overall high injury network was further refined to include only the top 10 corridors. These 10 corridors represent less than 30 miles of roadway, approximately 7% of Roanoke's non-interstate roadways, but account for 30% of all severe crashes in Roanoke County.

Refining the High Injury Network to the top 10 priority corridors ensures that Roanoke County can focus its limited resources on the areas with the greatest potential for reducing severe crashes. This approach not only enhances road safety but also improves the quality of life for all road users. By using data-driven strategies, community input, and proven safety measures, Roanoke County can make measurable progress toward the goal of zero fatalities.

These ten corridors established a preliminary list that was reviewed by elected officials, locality staff, and the public to ensure the selection aligned with broader safety and mobility goals.

Figure 10 shows the locations of the 10 highest crash corridors. Table 1 lists each corridor's road name(s) and number of crashes.



30%

of severe crashes in
Roanoke County between
2015-2023 occurred on the
Top 10 Priority Corridors

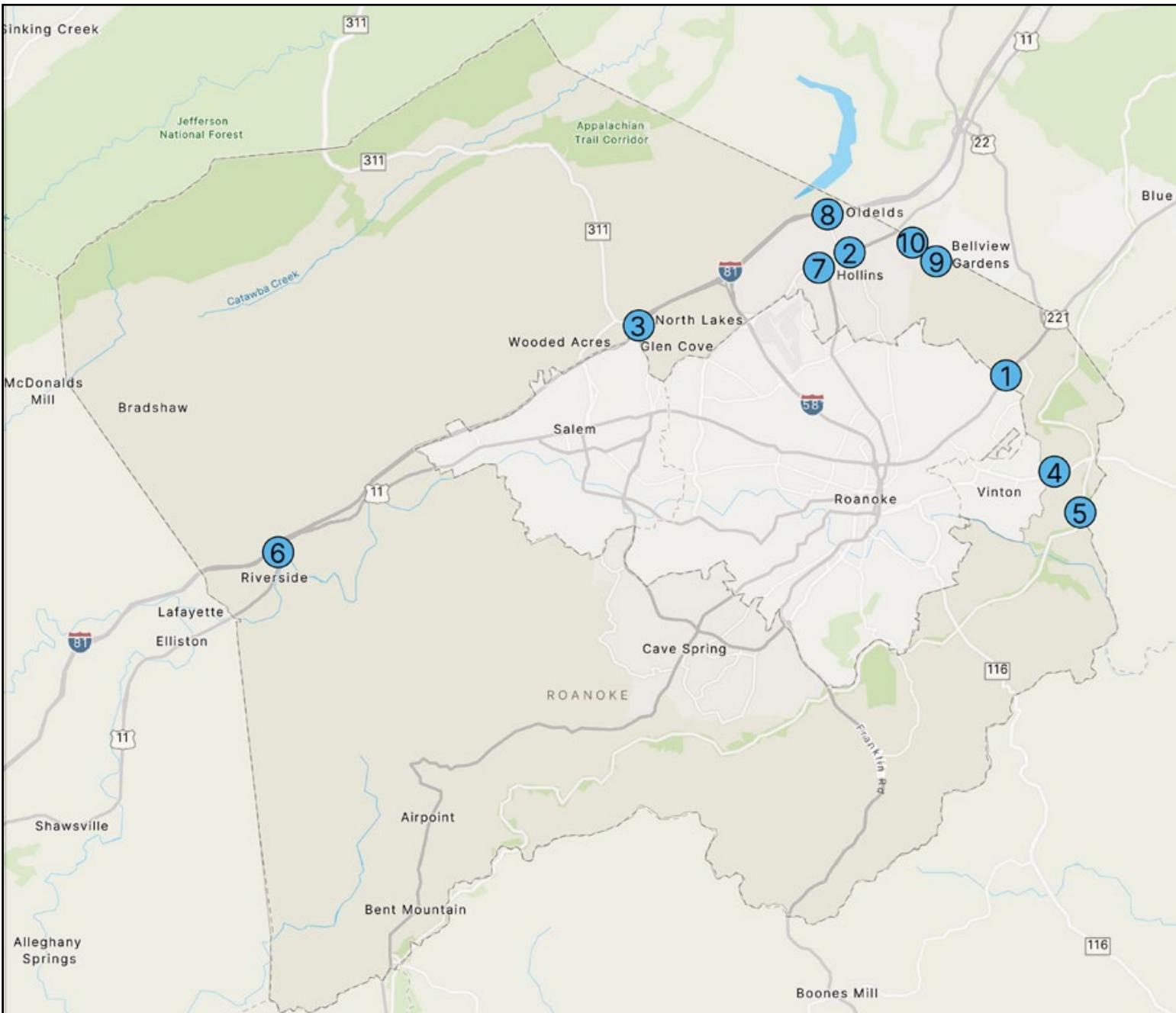


Figure 11. Roanoke County Priority Intersections

(A) Map Labels

Table 2. Roanoke County Priority Intersections

Map Label	Intersection	Serious Injury Crashes	Fatal Crashes
1	Challenger Avenue and Valley Gateway Boulevard	3	1
2	Williamson Road and Plantation Road	3	0
3	N Electric Road and I-81 Southbound Ramps at Exit 141	5	0
4	Washington Avenue and Food Lion Access (East Vinton Plaza Shopping Center)	6	0
5	Hardy Road and Feather Road	5	1*
6	West Main Street and Dow Hollow Road	9	1
7	Peters Creek Road and Barrens Road	3	0
8	Plantation Road and McDonald's/Days Inn Access	4	0
9	Shadwell Drive and Sanderson Drive	4	0
10	Shadwell Drive and Hollins Road	4	0

* Fatality occurred in 2024

Hot-Spot Priority Intersections

In addition to the systemic corridor analysis preformed for all Roanoke County roadways, individual intersections were analyzed to find hot spots. All intersections with fatal and serious injury crashes within 250 feet of the intersection were compiled and ranked by the number of crashes. The 10 intersections with the most severe crashes were selected for further review.

Figure 11 shows the location of the 10 highest crash intersections. Table 2 lists each intersection's road names and number of crashes.



16%

of severe intersection crashes in Roanoke County between 2015-2023 occurred at the Top 10 Priority Intersections

Community Engagement

Community engagement and feedback played a critical role in ensuring the development of this Action Plan was done using an inclusive and representative process. Community engagement for the initiative included holding community meetings, gathering survey responses, and distributing project information through local news campaigns, social media marketing, and online resources (such as StoryMaps and interactive dashboards). The project team also routinely collaborated with an identified stakeholder group, that consisted of representatives from the Virginia Department of Transportation (VDOT), local police, fire, and emergency response, the Town of Vinton, Roanoke County Public Schools, and other Roanoke County departments.

The first round of community meetings took place in April/May 2024. The April/May community meetings were an opportunity to introduce the project and its goals to County residents, as well as gather feedback on the identified fatal and serious injury crash locations. With feedback from the community, the project team moved forward in developing both location-specific and systemic recommendations. The September meetings presented these findings to the community and collected their thoughts and comments (see page 38 for Fall 2024 community responses).

Following each of the meetings, community members could share their on-road observations and experiences, as well as their comments on the recommendations by attending the in-person meetings or completing a paper or online survey.

The meetings were held in a variety of different locations across Roanoke County to ensure more people had an opportunity to contribute to the plan and to better target those less likely to attend meetings.



Hollins Library 5/2/24

Over
235 survey responses recorded **33** total attendees at in-person meetings **1,000** total community members reached*

Spring 2024 Meetings

- Monday, April 29th from 5-7 pm: Roanoke County (South) at the Brambleton Center Gymnasium
- Thursday, May 2nd from 5-7 pm: Roanoke County (North) at the Hollins Library

Fall 2024 Meetings

- Thursday, September 5th: Roanoke County (North) at the Hollins Library
- Monday, September 9th: Roanoke County (South) at the South County Library

* Includes Roanoke County, Botetourt County, and Town of Vinton Spring and Fall survey respondents and meeting attendees, observation app respondents, AGOL Dashboard views, and AGOL StoryMap views

Spring 2024 Engagement Summary

Public outreach and participation have added a much-needed component to the evaluation and decision-making process for this project. Residents provide invaluable first-hand experiences with transportation safety issues.

To ensure that Roanoke County staff and the project team had the benefit of the public knowledge and support, a website and survey were presented to local residents to understand where they believe targeted transportation investment is needed most. The website was available for public access and comment from April 25 to May 25, 2024. Roanoke County staff worked to initiate outreach efforts on social media and other resources to share the website and survey links.

There were a total of 121 responses to the on-line survey as part of the public outreach. The survey asked respondents to rank the priority locations in order of their level of concern, and provided an opportunity to comment on the location.

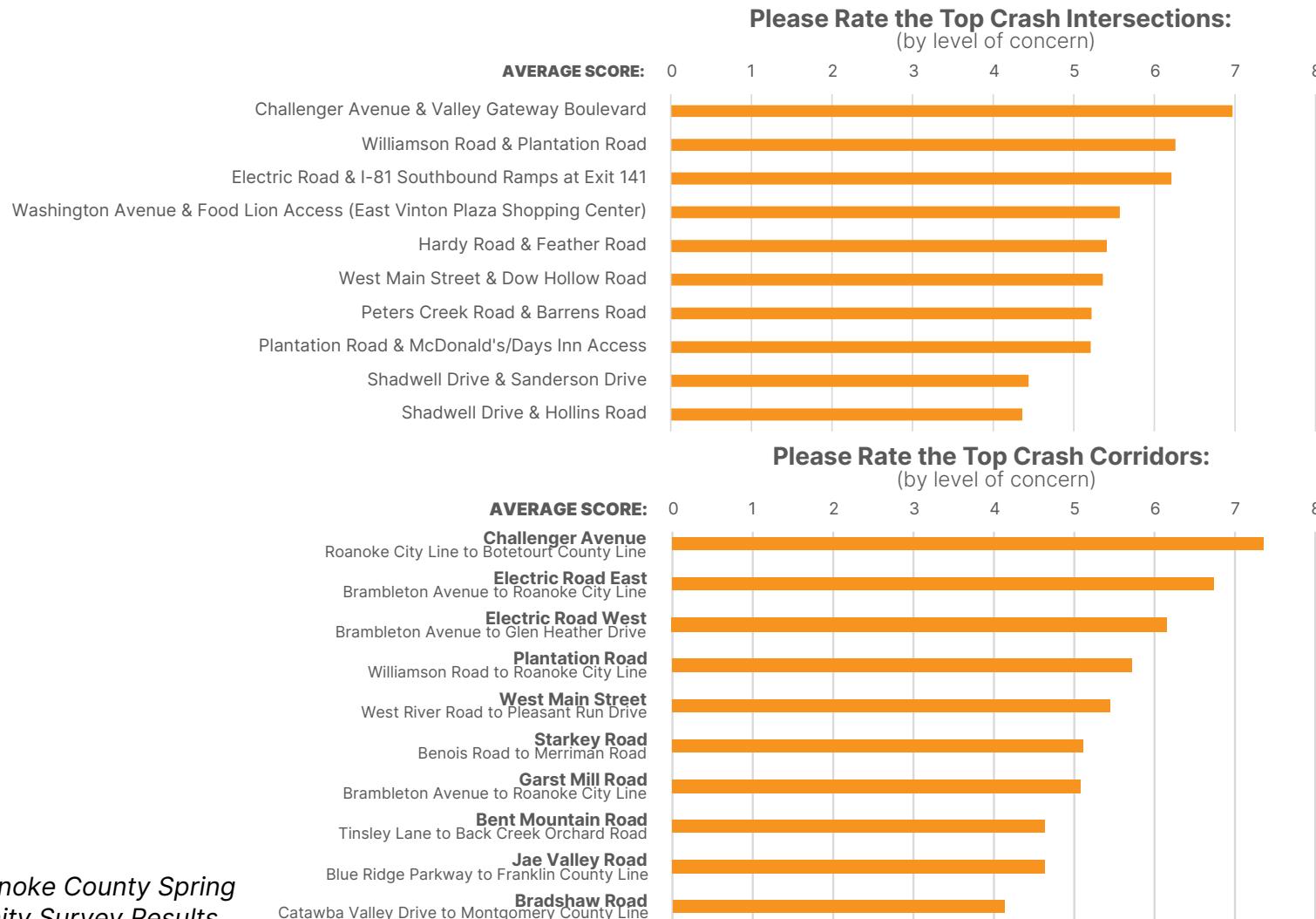


Figure 12. Roanoke County Spring 2024 Community Survey Results

Spring 2024 Engagement Summary

The responses from the community survey can be grouped into several categories based on the concerns and suggestions provided by the respondents. Below is a detailed summary of each category:

Pedestrian and Bicycle Safety

Many respondents expressed concerns about the lack of pedestrian and bicycle infrastructure in the county. Key points include:

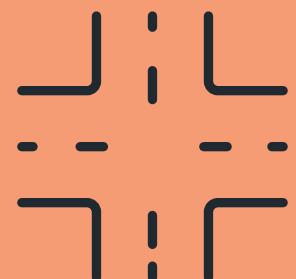
- Need for more sidewalks and bike lanes on a variety of roads. Specific roads mentioned include Brambleton Avenue, Electric Road, Garst Mill Road, Stoneybrook Road, Feather Road, Hardy Road, Plantation Road, Washington Avenue, Williamson Road, Hershberger Road and Blacksburg Road
- Importance of prioritizing pedestrian access to commercial and community services
- Desire for improved pedestrian crossings near public facilities, such as Burlington Elementary and the Roanoke County Hollins Library on Peters Creek Road. Improvements could include installing high-visibility crosswalks or rectangular rapid flashing beacons
- Concerns about the safety of cyclists on roads with rural character such as Route 311, Twelve O' Clock Knob Road, Carvins Cove Road, and Roselawn Road



Intersection Safety and Traffic Flow

Respondents identified several intersections of concern:

- Colonial Avenue and Electric Road near North Cross School: Speeding concerns
- Electric Road between Chaparral Drive and Colonial Avenue: Speeding concerns; Access concerns to/from Promenade Park and Electric Road
- West Main Street and Dow Hollow Road: Speeding concerns; Driver behavior concerns
- Challenger Avenue and W. Ruritan Road: Flashing yellow left turn light concerns
- Peters Creek Road and Barrens Road: Pedestrian access concerns, specifically connections to the school and library



Public Transportation and Land Use

A few respondents touched on broader issues related to public transportation and land use:

- Limit further development along congested corridors like Route 460, as existing infrastructure cannot handle increased traffic
- Improve public transportation options to reduce reliance on personal vehicles



Road Design and Maintenance

Some respondents provided suggestions for road design improvements, both system-wide and for specific locations:

- Washington Avenue in Vinton: Convert four-lane road to two lanes with a tree-lined median to reduce congestion
- Ramp from Route 419 onto US-220 North: Reconfigure to eliminate the need for merging traffic to shift left
- Implement more traffic circles and traffic calming measures to reduce speeds on residential streets
- Improve street repairs as respondents feel that degraded streets contribute to accidents



Driver Behavior and Enforcement

Many respondents attributed safety issues to driver behavior rather than road design. Suggestions include increased enforcement and education measures.



Observation Reporting App

In addition to the public survey questions, participants were also provided with the opportunity to share their experiences by marking locations on a map where they had encountered specific transportation safety concerns. The observations clustered around two areas, summarized below.

1. Washington Avenue

Most observations clustered along Washington Avenue from the Town of Vinton to Spring Grove Drive, near the East Vinton Plaza Shopping Center. Respondents reported instances of near-misses, speeding, and the need for pedestrian infrastructure.

In addition, respondents expressed a desire for more sidewalks on the routes that connect to the corridor, such as Feather Road.



Figure 13. Washington Avenue Observations

2. Green Ridge Road and Wood Haven Road Intersection

The second grouping of observations clustered around the intersection of Green Ridge Road and Wood Haven Road. Respondents reported issues with speeding and poor sight distance. These concerns, coupled with the lack of pedestrian facilities, have raised concerns about pedestrian safety.

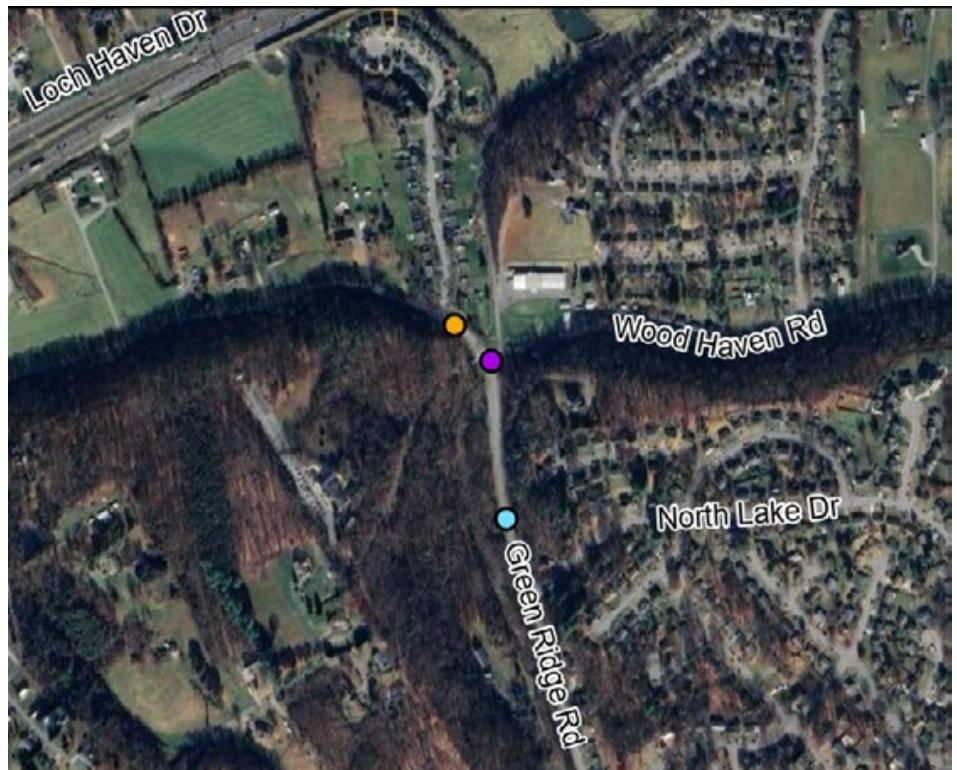


Figure 14. Green Ridge Road & Wood Have Road Observations

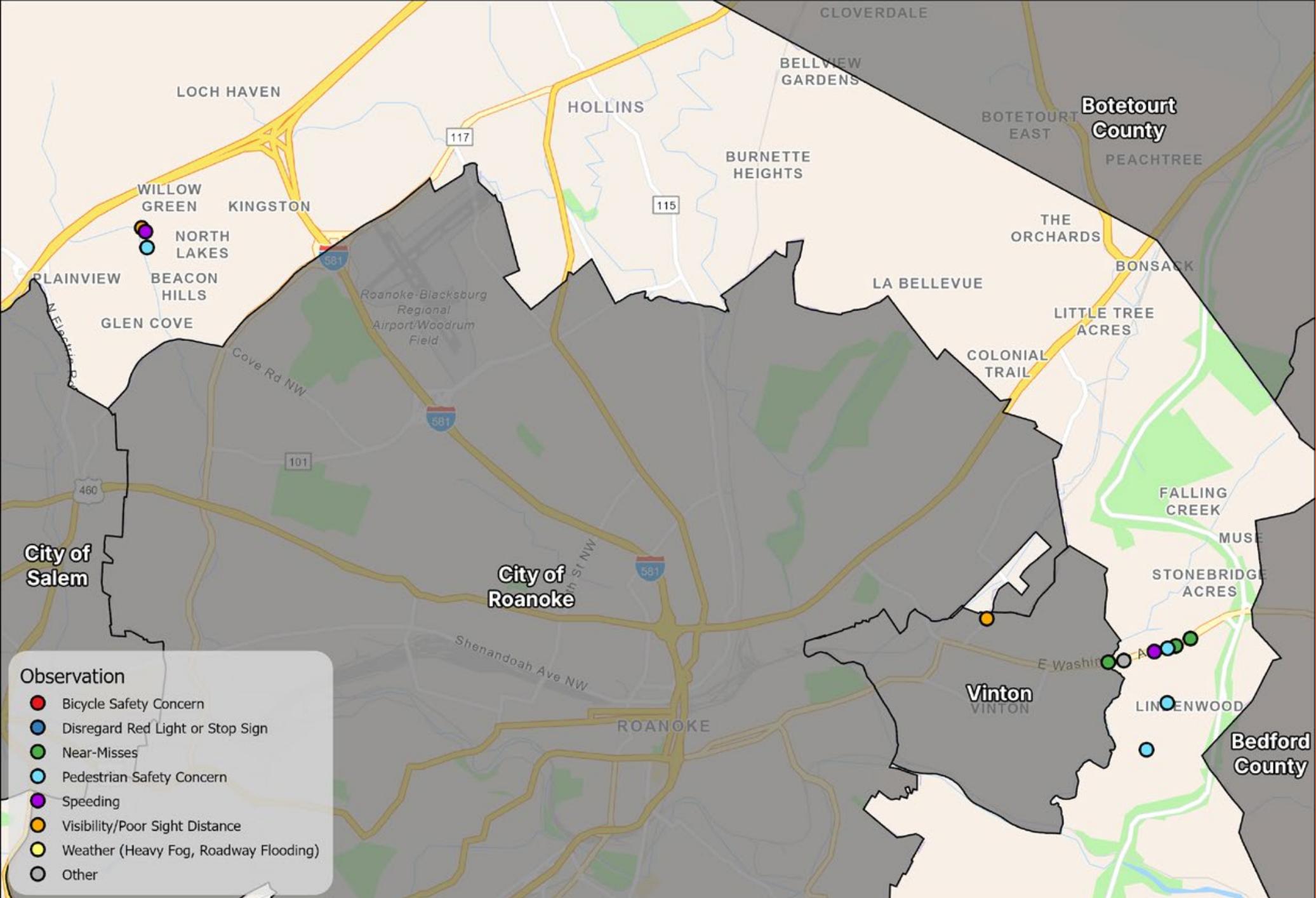
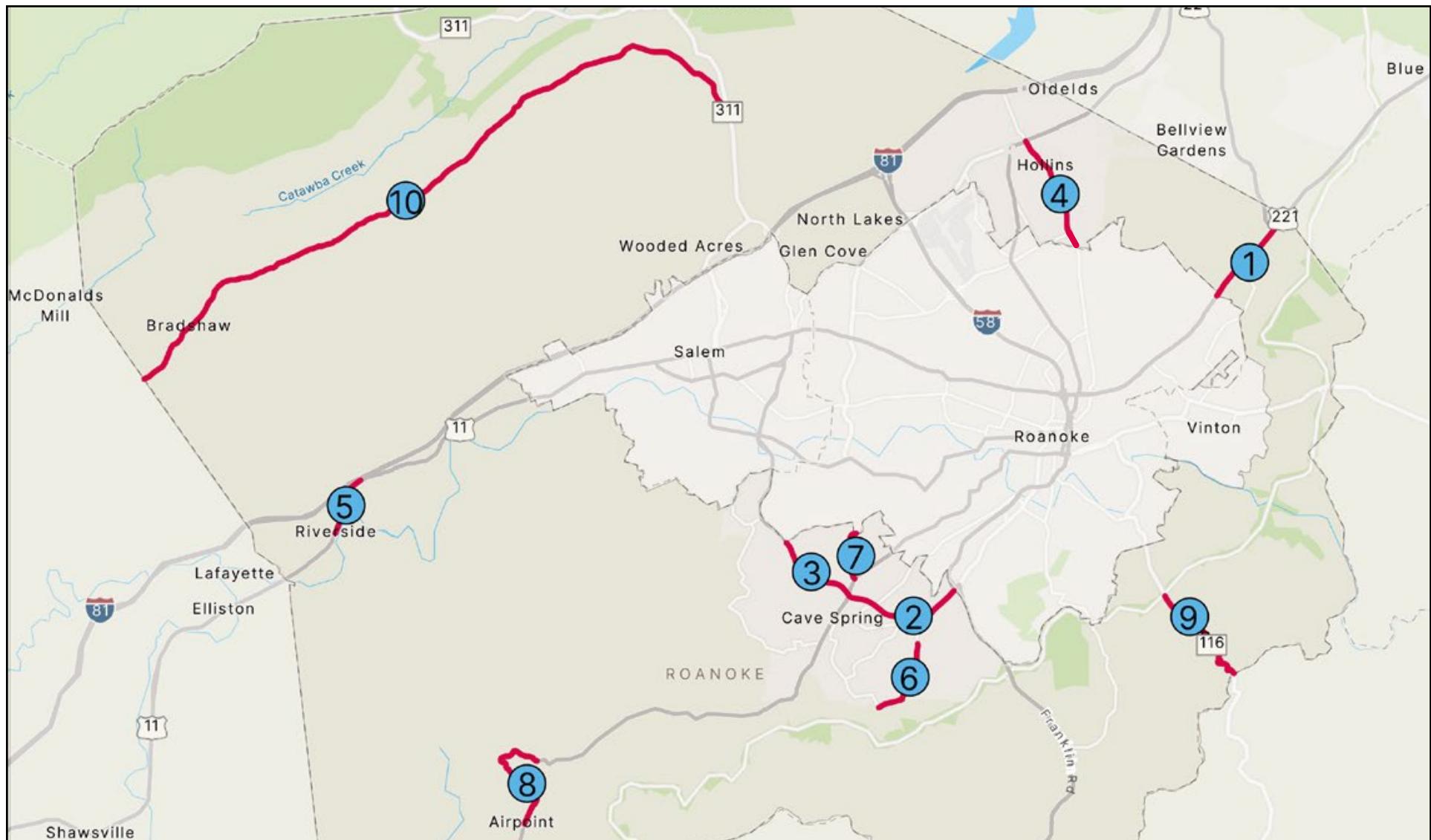


Figure 15. Roanoke County Observation Reporting App

Crash Patterns of Top Fatal and Serious Injury Corridors

Following the first round of community meetings, the locations of the highest fatal and serious injury crashes were finalized to study further. Locations that currently have an existing process to pursue funding or design were removed from analysis. Project exhibits for the areas already being addressed by the County are viewable in the appendix at the end of this document. The remaining locations were examined to determine why crashes were occurring and what kinds of crashes were taking place.

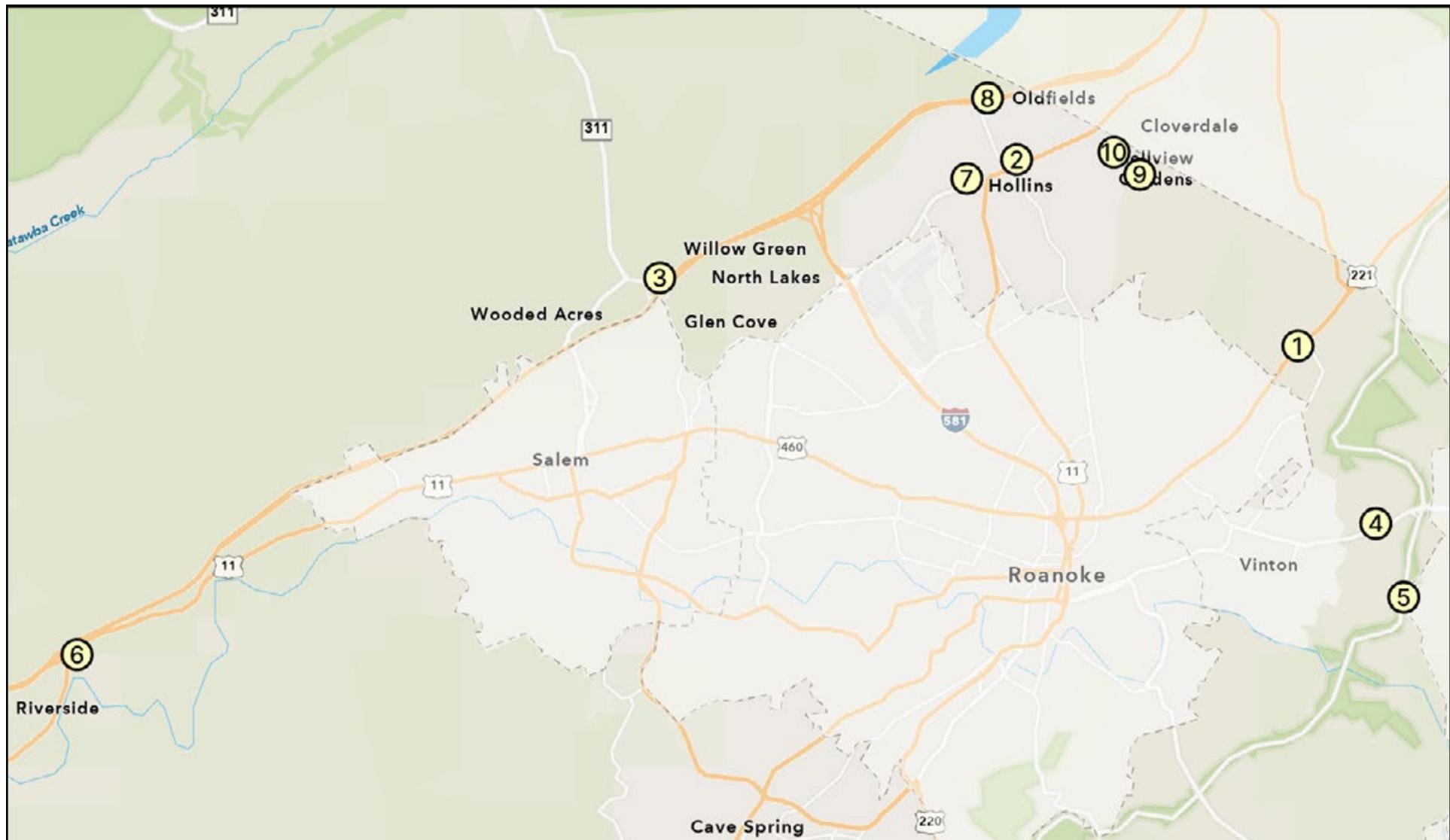


Map Label	Corridor Location	Serious Injury Crashes		Fatal Crashes		Prevalent Crash Characteristics					
		Crashes	Crashes	Crashes	Crashes	Rear End	Angle	Night ¹	Unbelted	Distracted	High Speeds
1	Challenger Avenue (From Roanoke City Line to Botetourt County Line)	29		4							
2	Electric Road East (From Brambleton Avenue to Roanoke City Line)	27		1							
3	Electric Road West (From Brambleton Avenue to Glen Heather Drive)	17		1							High Speeds
4	Plantation Road (From Williamson Road to Roanoke City Line)	20		2							Speeding
5	West Main Street (From West River Road to Pleasant Run Drive (East))	14		2					High Speeds		
6	Starkey Road (From Benois Road to Merriman Road)	7		0			Senior Driver				
7	Garst Mill Road (From Brambleton Avenue to Roanoke City Line)	7		1							
8	Bent Mountain Road (From Tinsley Lane to Back Creek Orchard Road)	10		2							
9	Jae Valley Road (From Blue Ridge Parkway to Franklin County Line)	11		1						High Speeds	
10	Bradshaw Road (From Catawba Valley Drive to Montgomery County Line)	11		1							

1. Mixture of lit/unlit roadway 2. 60% of FSI crashes at night occurred on unlit roadway 3. Only two night crashes occurred on unlit roadway

Crash Patterns of Top Fatal and Serious Injury Intersections

Following the first round of community meetings, the locations of the highest fatal and serious injury crashes were finalized to study further. Locations that currently have an existing process to pursue funding or design were removed from analysis. Project exhibits for the areas already being addressed by the County are viewable in the appendix at the end of this document. The remaining locations were examined to determine why crashes were occurring and what kinds of crashes were taking place.



Map Label	Intersection	Serious Injury Crashes	Fatal Crashes	Prevalent Crash Characteristics		
1	Challenger Avenue and Valley Gateway Boulevard	3	1			 Angle Distracted High Speeds
2	Williamson Road and Plantation Road	3	0			Angle Speeding
3	North Electric Road and I-81 Southbound Ramps at Exit 141	5	0			 Angle Senior Driver High Speeds
4	Washington Avenue and Food Lion Access (East Vinton Plaza Shopping Center)	6	0			Angle High Speeds
5	Hardy Road and Feather Road	5	1 ¹			 Angle Young Driver High Speeds
6	West Main Street and Dow Hollow Road	9	1			Angle High Speeds
7	Peters Creek Road and Barrens Road	3	0			Pedestrian Night ²
8	Plantation Road and McDonald's/Days Inn Access	4	0			Angle High Speeds
9	Shadwell Drive and Sanderson Drive	4	0			
10	Shadwell Drive and Hollins Road	4	0		Angle FOOR Night ³	

1. Fatal crash occurred in 2024 2. Both pedestrian crashes occurred at night - one indicates lit roadway, the other indicates unlit roadway 3. Mixture of lit/unlit roadway

A key outcome of the Comprehensive Safety Action Plan is a set of projects and strategies to address specific safety needs that can be implemented to reduce the frequency of fatalities and serious injuries. This section of the Plan highlights proven safety countermeasures and develops potential priority projects from the High Injury Network (HIN) that can positively impact roadway safety. The Safe System Approach encourages designing transportation systems with a multi-layered safety net. If one countermeasure fails, another will help prevent a crash or, in the event of a crash, reduce the likelihood of serious injury or death. The safety net utilizes proven countermeasures designed to protect all road users.

Safety Countermeasures Toolkit

Addressing safety in Roanoke County will require the deployment of proven safety countermeasures across the transportation network, starting with the HIN. To assist communities in taking action, the Federal Highway Administration (FHWA) designed the Proven Safety Countermeasures initiative (PCSi). The PCSi is a toolbox of 28 treatments and strategies that have been proven to reduce roadway fatalities and serious injuries nationwide. Each countermeasure addresses at least one safety focus area – speed management, intersections, roadway departures, or pedestrians/bicyclists – while others are crosscutting strategies that address multiple safety focus areas. Implementing these proven safety countermeasures

within Roanoke County's top locations for fatal and serious injury crashes can work towards reducing crash incidents as well as crash severity. The Virginia Department of Transportation (VDOT) owns and maintains public roads in Roanoke County, therefore County staff will collaborate with VDOT on selecting and implementing any of these countermeasures.

The FHWA's Proven Safety Countermeasures are listed below along with hyperlinks to provide a more detailed description of the effectiveness of the full safety countermeasure. The countermeasures represent a menu of possible safety improvements, and not all measures may be recommended for implementation.

Speed Management



[Appropriate Speed Limits for All Road Users](#)



[Variable Speed Limits](#)



[Speed Safety Cameras](#)

Bicycle and Pedestrian



[Bicycle Lanes](#)



[Crosswalk Visibility Enhancements](#)



[Leading Pedestrian Interval](#)



[Medians and Pedestrian Refuge Islands](#)



[Pedestrian Hybrid Beacons](#)



[Rectangular Rapid Flashing Beacons](#)



[Road Diets \(Roadway Reconfiguration\)](#)



[Sidewalks](#)

Roadway Departure



[Enhanced Delineation for Horizontal Curves](#)



[Longitudinal Rumble Strips and Stripes on Two-Lane Roads](#)



[Median Barriers](#)



[Roadside Design Improvements at Curves](#)



[SafetyEdgeSM](#)



[Wider Edge Lines](#)

Intersections



[Backplates with Retroreflective Borders](#)



[Corridor Access Management](#)



[Reduced Left-Turn Conflict Intersections](#)



[Roundabouts](#)



[Dedicated Left- and Right-Turn Lanes](#)



[Systemic Application of Multiple Low-Cost Countermeasures at Stop-Controlled Intersections](#)



[Yellow Change Intervals](#)

Crosscutting



[Lighting](#)



[Local Road Safety Plans](#)



[Pavement Friction Management](#)



[Road Safety Audit](#)

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Fall 2024 Engagement Summary

In September 2024, public outreach was directed towards collecting comments on the location-specific and systemic recommendations for the intersections and corridors with the highest number of fatal and serious injury crashes.

An online survey was available from September 3 to September 30, 2024. There were a total of 114 responses as part of the public outreach. Respondents were asked how much they would be willing to spend to improve each of the priority locations, and were then asked to rank and comment on a set of potential improvements for each priority location.

The table below shows the spending prioritization for each corridor in order of their average score. The mapped ranking is shown in Figure 16.

A detailed summary of the responses to each corridor is provided on the following pages.

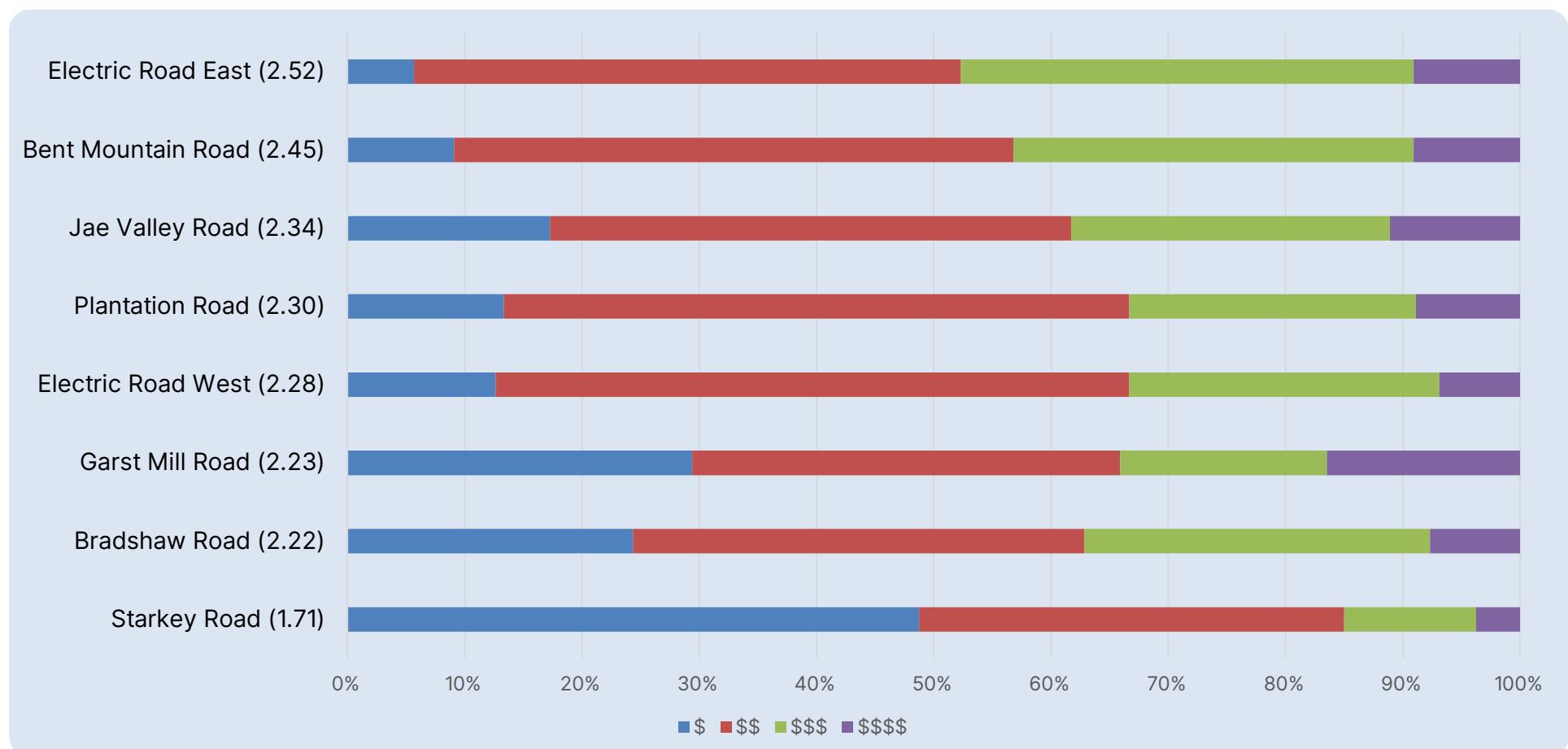


Table 3. Fall Community Engagement Corridor Spending

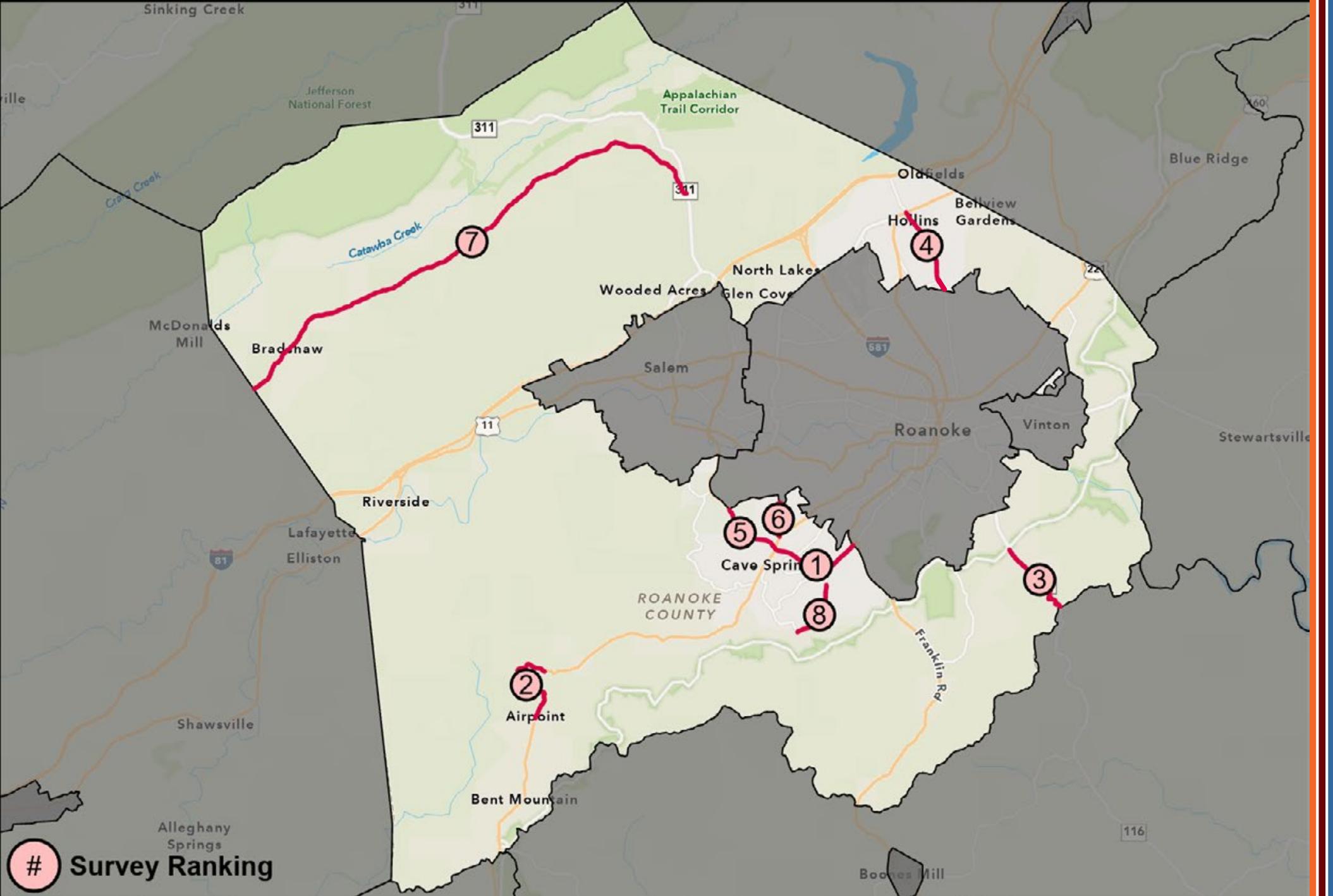
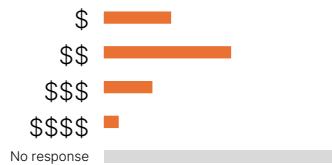


Figure 16. Fall Community Engagement: Corridor Spending Map

Corridor Recommendations & Community Input

Plantation Road

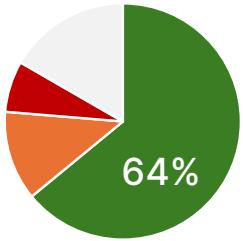


IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

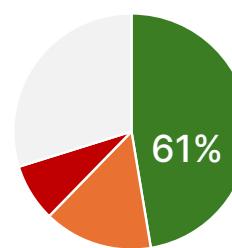
- 1 Consider increasing enforcement 

ENFORCEMENT AND POLICIES

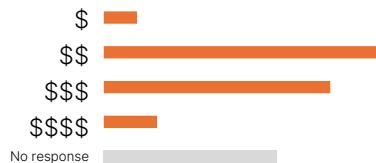


- 2 Conduct a multimodal corridor study 

INTERSECTION AND CORRIDOR STUDIES



Electric Road East

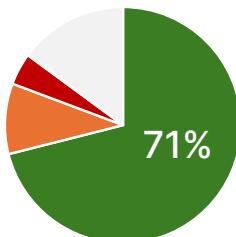


IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

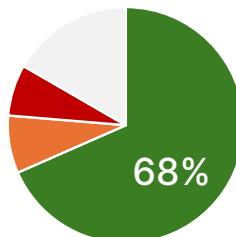
- 1 Conduct an intersection study at Colonial Avenue 

INTERSECTION AND CORRIDOR STUDIES



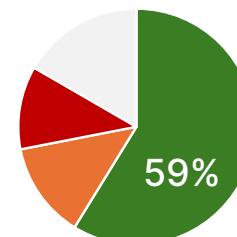
- 2 Evaluate Restricted Crossing U-Turn (RCUT) improvements east of Colonial Avenue 

ROAD AND INTERSECTION DESIGN



- 3 Evaluate Thru-Cut improvements east of Colonial Avenue 

ROAD AND INTERSECTION DESIGN



Free responses describe that as a high-volume commercial corridor, attention should be focused in this area to improve traffic flow and access to businesses while discouraging undesirable or illegal driving behavior. The intersection of Electric Road and Colonial Avenue is noted as an area of interest among respondents that warrants a focused study.



Recommendations are ordered by community prioritization per September 2024 survey



I agree with this recommendation



I'm not sure how I feel about this recommendation



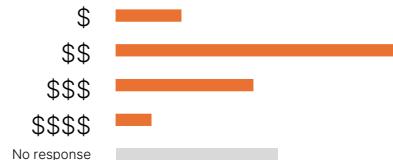
I disagree with this recommendation



No response

Corridor Recommendations & Community Input

Electric Road West

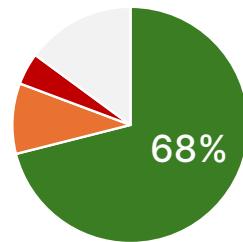


IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

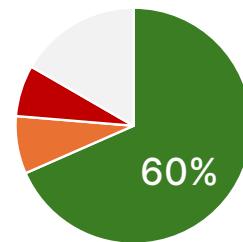
- 1 Conduct a corridor study or a road safety audit for Electric Road (from Bower Road to Brambleton Avenue)

INTERSECTION AND CORRIDOR STUDIES



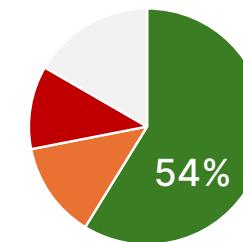
- 2 Evaluate Restricted Crossing U-Turn (RCUT) improvements at select intersections

ROAD AND INTERSECTION DESIGN



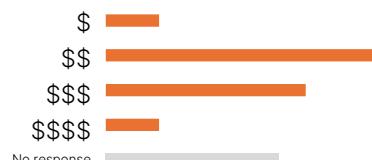
- 3 Evaluate Thru-Cut improvements at select intersections

ROAD AND INTERSECTION DESIGN



Free responses echoed concerns about specific intersections and access along the Electric Road corridor. Some commented about the curvature of the roadway and challenging sight distance contributing to the difficulty of these intersections.

Bent Mountain Road



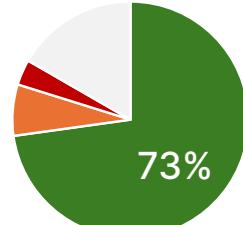
IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

- 1 Consider installing centerline or shoulder rumble strips

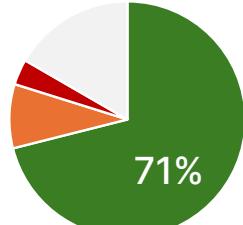
See corridor profile for additional discussion about rumble strips

ROAD AND INTERSECTION DESIGN



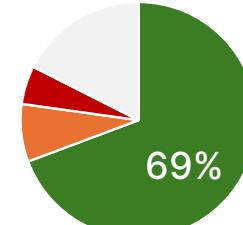
- 3 Evaluate condition and spacing of existing chevrons; consider signage upgrades

ROAD AND INTERSECTION DESIGN



- 2 Consider tree cutting at select curves, where possible

ROAD AND INTERSECTION DESIGN



Free responses and community meeting attendees expressed support for the rumble strips; however, both in-person and online feedback indicates that shoulder rumble strips prohibits bicyclists from utilizing the shoulder and noise generated by centerline rumble strips startles cyclists and prevents drivers from crossing them. Shoulder and centerline rumble strips are most effective in areas with significant roadway departure crashes and little bicycle traffic.



Recommendations are ordered by community prioritization per September 2024 survey



I agree with this recommendation



I'm not sure how I feel about this recommendation



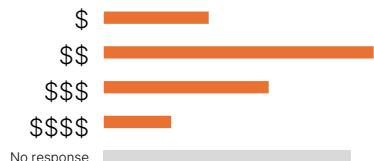
I disagree with this recommendation



No response

Corridor Recommendations & Community Input

Jae Valley Road

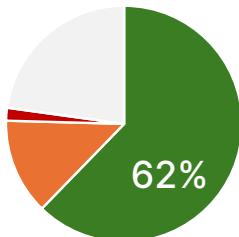


IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

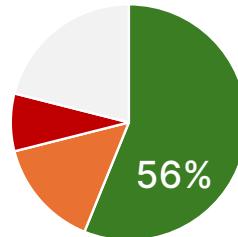
- 1 Evaluate condition and spacing of existing chevrons; consider signage upgrades 

ROAD AND INTERSECTION DESIGN



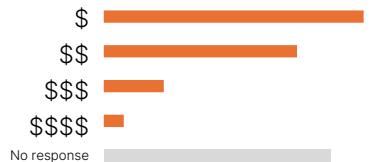
- 2 Consider installation of high friction surface treatment (HFST) at select curves 

ROAD AND INTERSECTION DESIGN



While the free responses generally supported the recommendations, others reported speeding along these corridors; because of this observation, some respondents expressed hesitation against the installation of HFST along the corridor as this may inadvertently encourage more speeding along curves.

Starkey Road

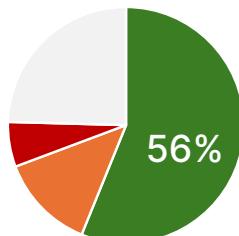


IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

- 1 Conduct a multimodal corridor study 

ROAD AND INTERSECTION DESIGN



Although the tree responses agreed with pursuing a multimodal corridor study, respondents suggest allocating less funding towards this corridor, likely due to the recent completion of the Starkey Road & Buck Mountain Road roundabout. Commenters describe seeing speeding along this corridor, which could be discouraged with bicycle-pedestrian infrastructure, reducing lane widths, or increased enforcement.



Recommendations are ordered by community prioritization per September 2024 survey



I agree with this recommendation



I'm not sure how I feel about this recommendation



I disagree with this recommendation



No response

Corridor Recommendations & Community Input

Garst Mill Road



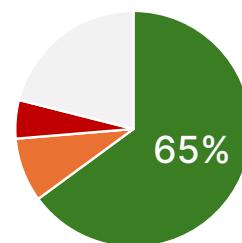
IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

- 1 Evaluate and install pedestrian improvements, specifically to the Brambleton Avenue commercial corridor



INTERSECTION AND CORRIDOR STUDIES



Bradshaw Road



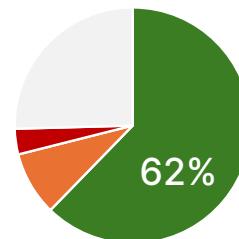
IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

- 2 Consider installing centerline or shoulder rumble strips

See corridor profile for additional discussion about rumble strips

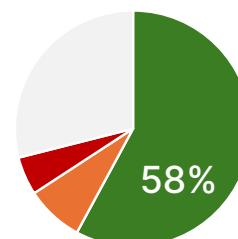
ROAD AND INTERSECTION DESIGN



- 1 Evaluate potential upgrades to existing advisory speed signage



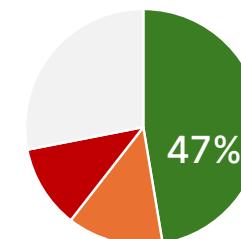
ROAD AND INTERSECTION DESIGN



- 3 Conduct a multimodal corridor study



INTERSECTION AND CORRIDOR STUDIES



Similar to comments on the Bent Mountain Road corridor, tree responses and community meeting attendees expressed support for centerline rumble strips, but not for shoulder rumble strips. Responses describe that shoulder rumble strips prohibits bicyclists from utilizing the shoulder and noise generated by centerline rumble strips startles cyclists and prevents drivers from crossing them. Shoulder and centerline rumble strips are most effective in areas with significant roadway departure crashes and little bicycle traffic.



Recommendations are ordered by community prioritization per September 2024 survey



I agree with this recommendation



I'm not sure how I feel about this recommendation



I disagree with this recommendation



No response

Intersection Recommendations & Community Input

The September 2024 survey additionally sought information about the priority intersections. Respondents were asked how much they would be willing to spend to improve each intersection, and then were asked to rank and comment on a set of potential improvements.

Understanding the public's willingness to spend on improving specific intersections is important in highlighting the community's priorities and the perceived value of these improvements. This information can guide decision-makers in prioritizing projects, allocating budgets effectively, and focusing resources on the intersections that matter most to the public. It also helps identify areas with the greatest perceived safety risks, allowing for targeted interventions that align with community needs.

The table below shows the summary of the responses for each intersection, provided on the following pages.



Intersection of Electric Road & Ogden Road

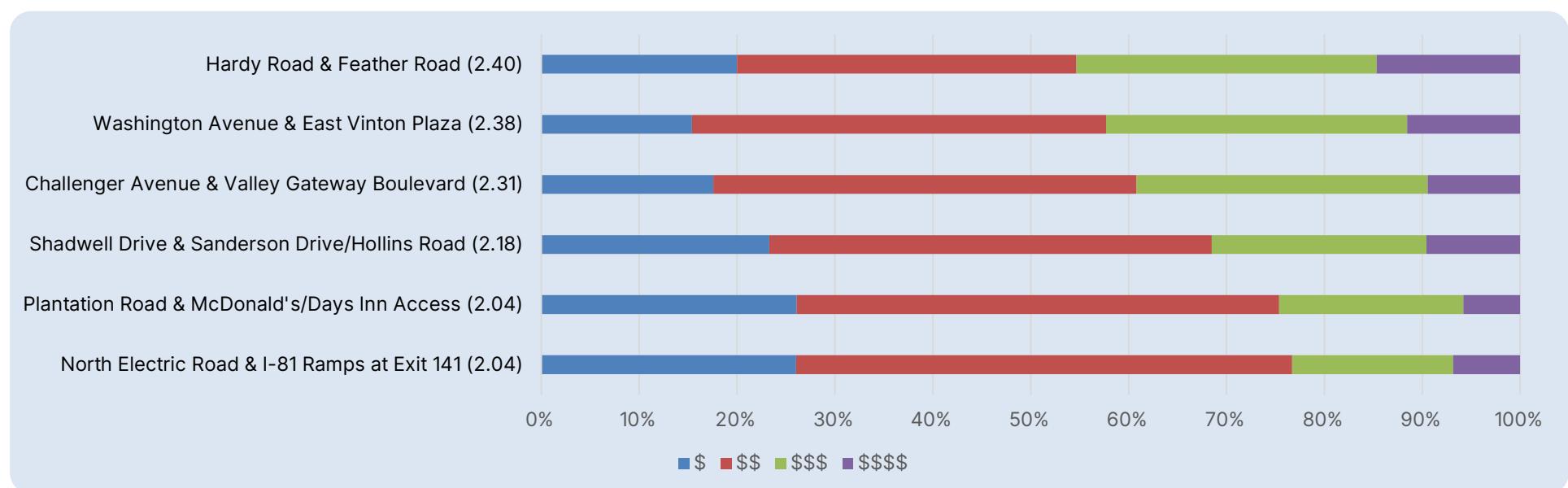


Table 4. Fall Community Engagement Intersection Spending

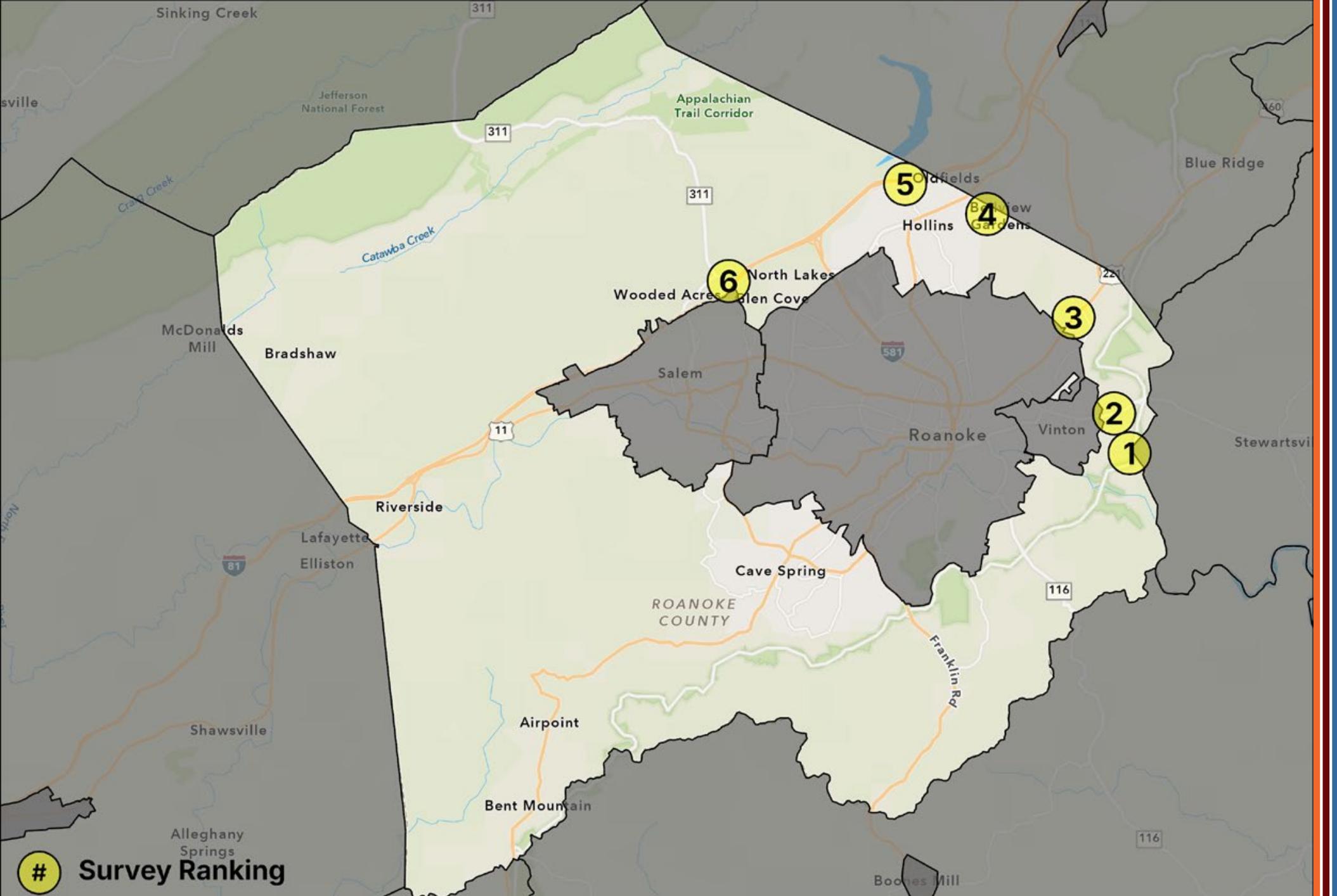
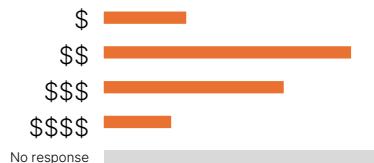


Figure 17. Fall Community Engagement: Intersection Spending Map

Intersection Recommendations & Community Input

Washington Avenue & East Vinton Plaza



IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

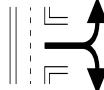
How would you rank the proposed improvements?

- 1 Consider left-turn offset



ROAD AND INTERSECTION DESIGN

- 2 Consider access management

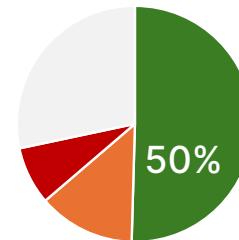
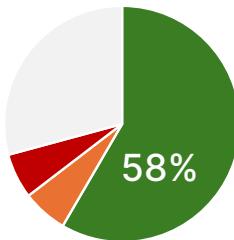
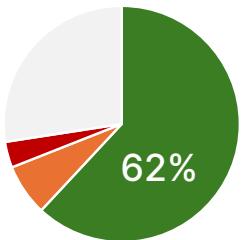


LAND USE

- 3 Conduct a speed study

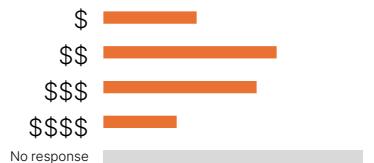


INTERSECTION AND CORRIDOR STUDIES



Free responses called for (1) adding bicycle and pedestrian infrastructure; (2) extending turn lane storage into East Vinton Plaza; and (3) increased enforcement. Notably, with the close proximity to William Byrd Middle and High School, any interventions should account for school zone safety and encouraging safe driving practices by young drivers.

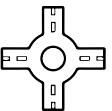
Hardy Road & Feather Road



IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

- 1 Evaluate a roundabout



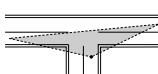
ROAD AND INTERSECTION DESIGN

- 2 Consider install of advance warning signage

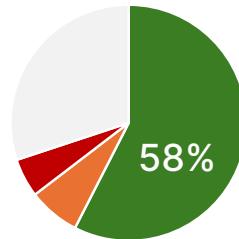
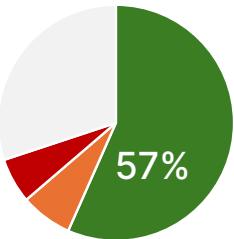
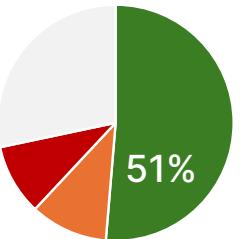


ROAD AND INTERSECTION DESIGN

- 3 Improve sight distance



ROAD AND INTERSECTION DESIGN



Free responses voiced (1) both support and opposition to roundabouts; (2) speed limit reductions; (3) increased enforcement; (4) adding bicycle and pedestrian infrastructure; and (5) improving sight distance.



Recommendations are ordered by community prioritization per September 2024 survey



I agree with this recommendation



I'm not sure how I feel about this recommendation



I disagree with this recommendation



No response

Intersection Recommendations & Community Input

North Electric Road & I-81 Ramps at Exit 141

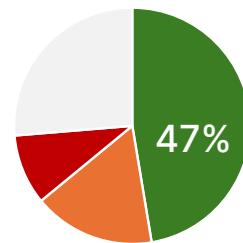
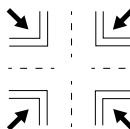


IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

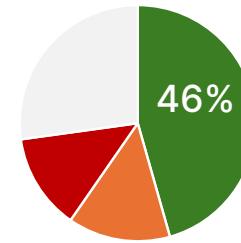
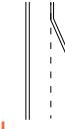
- 1 Evaluate intersection reconfiguration to reduce I-81 median, shortening the turning distance for northbound left turns

ROAD AND INTERSECTION DESIGN

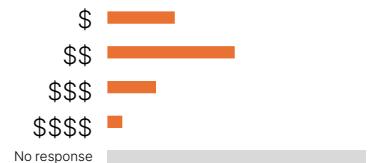


- 2 Evaluate reducing southbound approach to one through lane

ROAD AND INTERSECTION DESIGN



Plantation Road & McDonald's/Days Inn Access

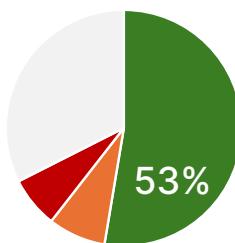
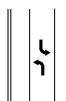


IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

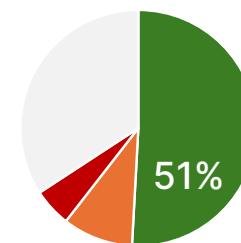
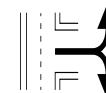
- 1 Evaluate extending the existing two-way left-turn lane

ROAD AND INTERSECTION DESIGN



- 2 Consider access management

LAND USE



Free responses included that the intersection could benefit from a speed study and traffic calming measures. Additionally, commenters suggested exploring ways to minimize distracted driving.



Recommendations are ordered by community prioritization per September 2024 survey



I agree with this recommendation



I'm not sure how I feel about this recommendation



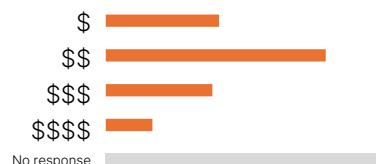
I disagree with this recommendation



No response

Intersection Recommendations & Community Input

Shadwell Drive & Sanderson Road/ Hollins Road

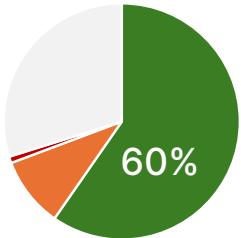


IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

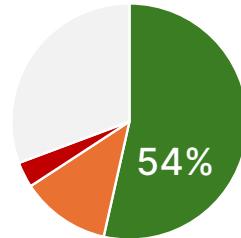
1 Improve sight distance

ROAD AND INTERSECTION DESIGN



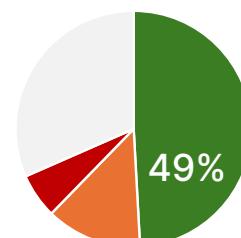
2 Consider installation of guardrail at SW corner of Hollins Road

ROAD AND INTERSECTION DESIGN



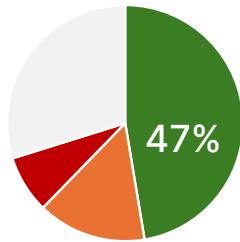
4 Evaluate a left-turn lane on Shadwell Drive onto Sanderson Drive

ROAD AND INTERSECTION DESIGN



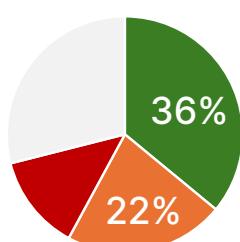
3 Conduct a speed study

INTERSECTION AND CORRIDOR STUDIES



5 Evaluate a peanut roundabout

ROAD AND INTERSECTION DESIGN



Free responses expressed concern about development projects in the pipeline that will create more volume at this intersection. Respondents were generally supportive of the recommendations.



Recommendations are ordered by community prioritization per September 2024 survey



I agree with this recommendation



I'm not sure how I feel about this recommendation



I disagree with this recommendation



No response

Intersection Recommendations & Community Input

Challenger Avenue & Valley Gateway Boulevard



IF YOU WERE IN CHARGE, HOW MUCH MONEY WOULD YOU BE WILLING TO SPEND TO IMPROVE THIS INTERSECTION?

How would you rank the proposed improvements?

- 1 Review signal timings; potentially longer all-red times



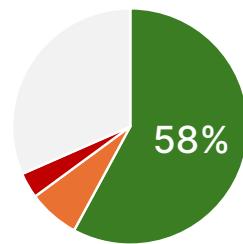
- 3 Evaluate moving existing stop bar and extend existing concrete median closer to intersection



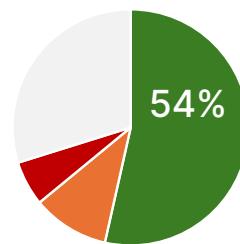
- 2 Consider lowering speed limit from City boundary to this intersection



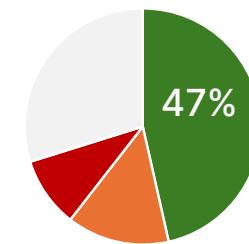
ROAD AND INTERSECTION DESIGN



ROAD AND INTERSECTION DESIGN



ROAD AND INTERSECTION DESIGN



Many responses described risky driving behavior due to driver frustration; coordinating timings between nearby signals and increasing all-red times could improve flow of through traffic and discourage running red lights.



Recommendations are ordered by community prioritization per September 2024 survey



I agree with this recommendation



I'm not sure how I feel about this recommendation



I disagree with this recommendation



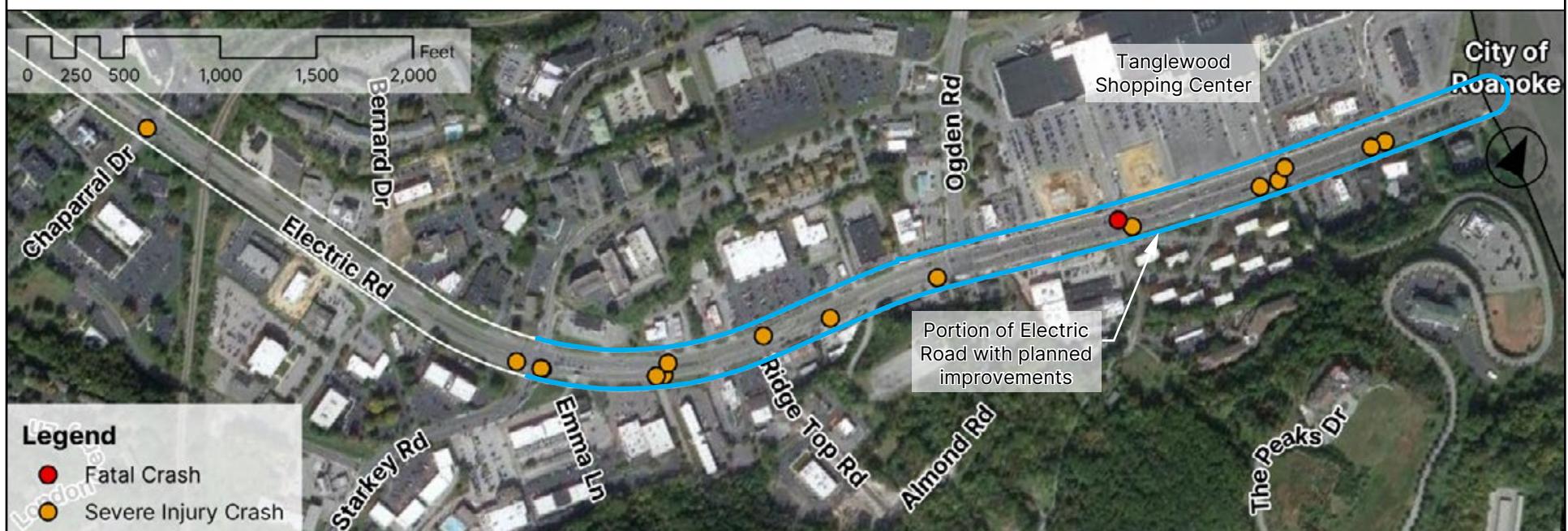
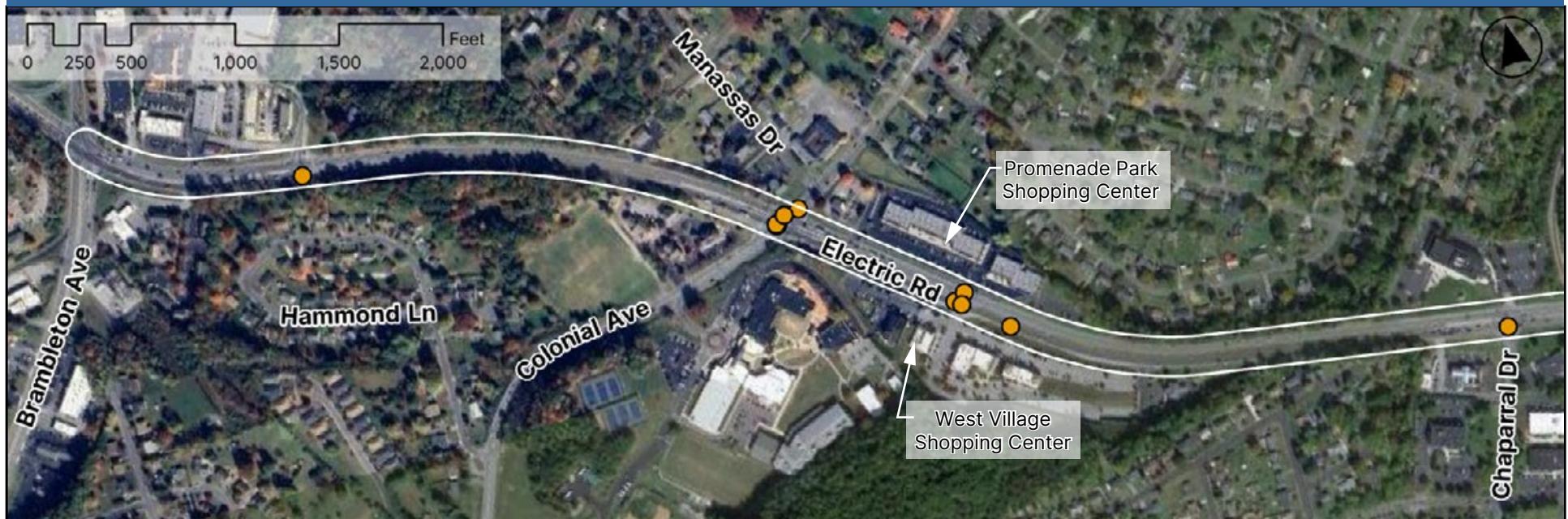
No response

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Corridor Profiles



ELECTRIC ROAD EAST

Brambleton Avenue to
Roanoke City Line

ELECTRIC ROAD EAST

Brambleton Avenue to
Roanoke City Line

Context

Electric Road is a major commercial corridor on the southern edge of the City of Roanoke. Electric Road provides an important connection between the City of Roanoke and Roanoke County. The corridor provides access to multiple shopping centers including Tanglewood, Promenade Park, and West Village, as well as industrial sites off of Starkey Road.

Several improvements have recently been completed along this eastern portion of Electric Road, between Ogden Road and the Route 220 interchange in 2021; a third lane was added between Ogden Road and Route 220 Southbound, with sidewalks and bicycle lanes on both sides of the road. Pedestrian signals and crosswalks were also installed on Electric Road, at South Peak Boulevard/Tanglewood Center Entrance, Elm View Road/Tanglewood Center Entrance, and Ogden Road.

In addition to the recently completed projects, a Diverging Diamond Interchange improvement at Route 220 is currently in progress.

There was one pedestrian crash at Atlantis Boulevard. The crash injured 2 pedestrians.



Average Daily Traffic: 27,000-39,000 vehicles/day



Speed Limit: 35 mph / 45 mph



Number of Lanes:
4 lanes / 6 lanes



2015-2023 Severe Injury Crashes: 27
Fatal Crashes: 1



Community Survey Rank: #2

Prevalent Crash Characteristics



Angle Crashes



Rear End



Senior Driver

Safety Analysis	Potential Strategies
<p>The severe crashes are predominately angle crashes on this roadway and indicate a pattern of conflicts arising from drivers turning to and from the commercial accesses and side streets along the corridor.</p>	<p>Evaluate Restricted Crossing U-Turns (RCUT) or Thru-Cut improvements east of Colonial Avenue</p> <ul style="list-style-type: none"> Because of the pattern of angle crashes at unsignalized intersections, RCUTs or thru-cuts east of the Colonial Avenue intersection could improve traffic safety and efficiency by reducing the number of conflict points. Additional study is required and should be evaluated following the construction and installation of the proposed improvements east of Starkey Road.
	<p>Consider an intersection study of Electric Road and Colonial Avenue</p> <ul style="list-style-type: none"> The Electric Road and Colonial Avenue intersection has experienced a cluster of severe crashes. Due to the existing grade, the existing intersection angle, nearby school operations, and the proximity to the Manassas Drive intersection, a focused intersection study is required to provide comprehensive improvement recommendations at this location.

ELECTRIC ROAD WEST

Glen Heather Drive to
Brambleton Avenue

ELECTRIC ROAD WEST

Glen Heather Drive to
Brambleton Avenue

Context

Electric Road is a major commercial corridor on the southern edge of the City of Roanoke. Electric Road provides an important connection between the City of Roanoke, the City of Salem, and Roanoke County. The corridor provides access to multiple shopping centers, including the Cave Spring Corners Shopping Center and Oak Grove Plaza, and connects to many residential communities.

Several improvements are already funded along the corridor, including pedestrian improvements at Postal Drive and Brambleton Avenue, and Restricted Crossing U-Turns at Glen Heather Drive and Stoneybrook Drive. Additionally, a SMART SCALE funded sidewalk project is in progress, from Glen Heather Drive to Grandin Road Extension, which will provide pedestrian access to Oak Grove Plaza.



Average Daily Traffic: 23,000 vehicles/day



Speed Limit: 45 mph



Number of Lanes:
4 lanes



2015-2023 Severe Injury Crashes: 17
Fatal Crashes: 1



Community Survey Rank: #3

Prevalent Crash Characteristics



Angle Crashes



Pedestrian¹



Senior Driver

Safety Analysis

The severe crashes are predominately angle crashes on this roadway and indicate a pattern of conflicts arising from drivers turning to and from the commercial accesses and side streets along the corridor.

Potential Strategies

Conduct a corridor study or a road safety audit for Electric Road (from Bower Road to Brambleton Avenue)

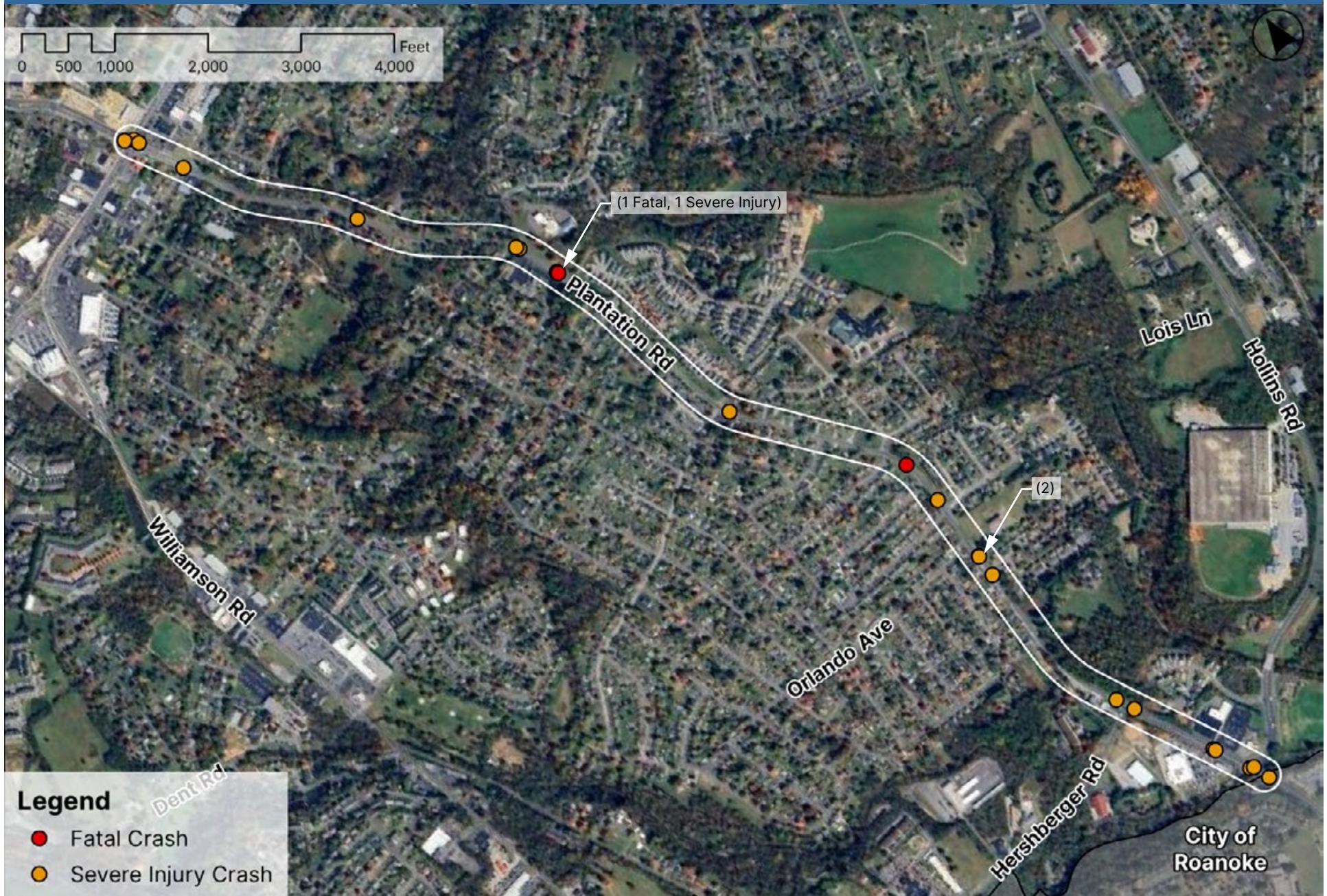
- A corridor study or Road Safety Audit (RSA) could be performed, south of the proposed RCUT improvements at Glen Heather Drive and Stoneybrook Drive. A study may be utilized to gather additional information, especially for hotspot locations that have experienced a cluster of serious crashes, for example, Cordell Drive and McVitty Road.

Evaluate Restricted Crossing U-Turns or Thru-Cut improvements

- This corridor currently has planned Restricted Crossing U-Turns to be installed at Glen Heather Drive and Stoneybrook Drive. Following construction, if crash severity and frequency is improved, similar implementations could be pursued at other intersections with additional study.

1. (1) pedestrian crash at Glen Heather Drive

PLANTATION ROAD

Williamson Road to
Roanoke City Line

PLANTATION ROAD

Williamson Road to
Roanoke City Line

Context

Plantation Road is a minor north-south arterial in Roanoke County. This corridor serves a primarily residential area lined by homes and churches. Plantation Road also provides access to Mountain View Elementary on Plantation Circle. There have been 20 serious crashes and 2 fatalities since 2015. The associated crashes are a mix of angle crashes, rear end collisions, and run off-road crashes; one third of the crashes occurred at night. Two of the serious crashes were bicycle or pedestrian collisions. Additionally, 6 of the 22 fatal and serious injury crashes involved drugs or alcohol, and 5 involved speeding.



Average Daily Traffic: 8,400-9,700 vehicles/day



Speed Limit: 40 mph



Number of Lanes:
2 lanes



2015-2023
Severe Injury Crashes: 20
Fatal Crashes: 2



Community Survey Rank: #4

Prevalent Crash Characteristics



Angle Crashes



Pedestrian¹



Speeding



Fixed Object Off Road

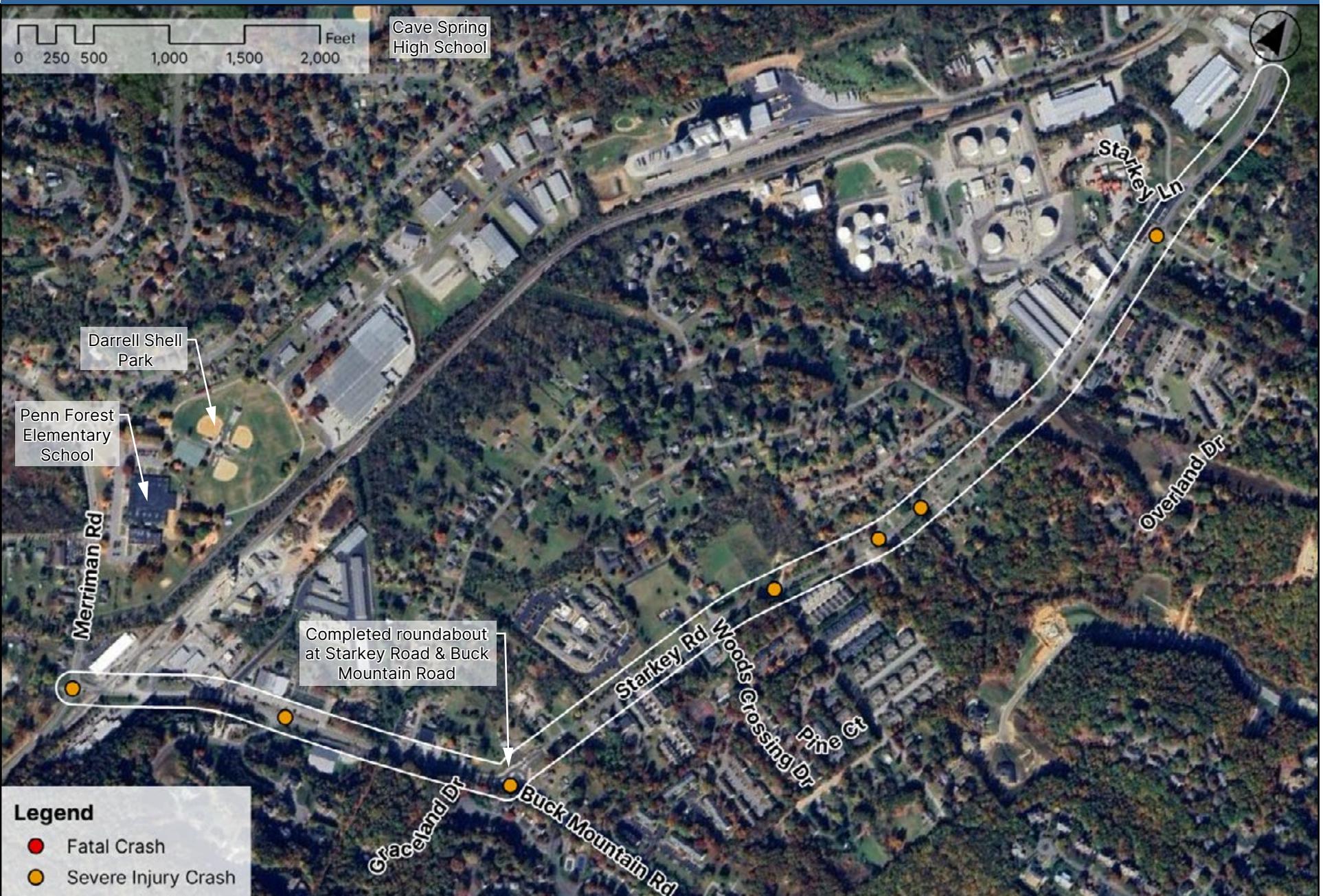


Alcohol/Drugs

Safety Analysis	Potential Strategies
<p>Given the varied nature of the crash patterns, a more focused corridor study is necessary for this segment of Plantation Road.</p>	<p>Conduct a multimodal corridor study</p> <ul style="list-style-type: none"> Considering the residential surroundings, presence of Mountain View Elementary School, and an existing lack of bicycle/pedestrian facilities along Plantation Road, there could be an opportunity to promote active transportation in the corridor. Installing these facilities and associated traffic calming could eliminate bicycle and pedestrian collisions in this location and improve overall roadway safety. A future corridor study is required to specifically evaluate Plantation Road, as well as residents' experiences, priorities, and overall vision for this segment.
	<p>Consider increasing enforcement along the corridor</p> <ul style="list-style-type: none"> There is a prevalent pattern of crashes related to drugs, alcohol, or speeding. Increasing traffic enforcement along the corridor may help alleviate this issue.

1. (1) pedestrian crash at Orlando Avenue

STARKEY ROAD

Benois Road to
Merriman Road

Context

Starkey Road is a major north-south collector in southern Roanoke County. This section of Starkey Road is predominately surrounded by a mixture of residential and industrial uses, with few commercial businesses; many residences have driveway access directly on Starkey Road. A roundabout was recently completed at the intersection of Starkey Road and Buck Mountain Road.

Given that the type of severe injury crashes are varied and do not cluster in any particular locations along the Starkey Road segment, a corridor study is needed to examine the existing conditions of Starkey Road and develop specific safety opportunities. There is potential to implement multimodal transportation through this corridor with traffic calming measures, if desired by the surrounding communities.



Average Daily Traffic: 7,000-8,500 vehicles/day



Speed Limit: 35 mph



2015-2023 Severe Injury Crashes: 7



Number of Lanes:
2 lanes

Community Survey Rank: #6

Prevalent Crash Characteristics



Angle Crashes



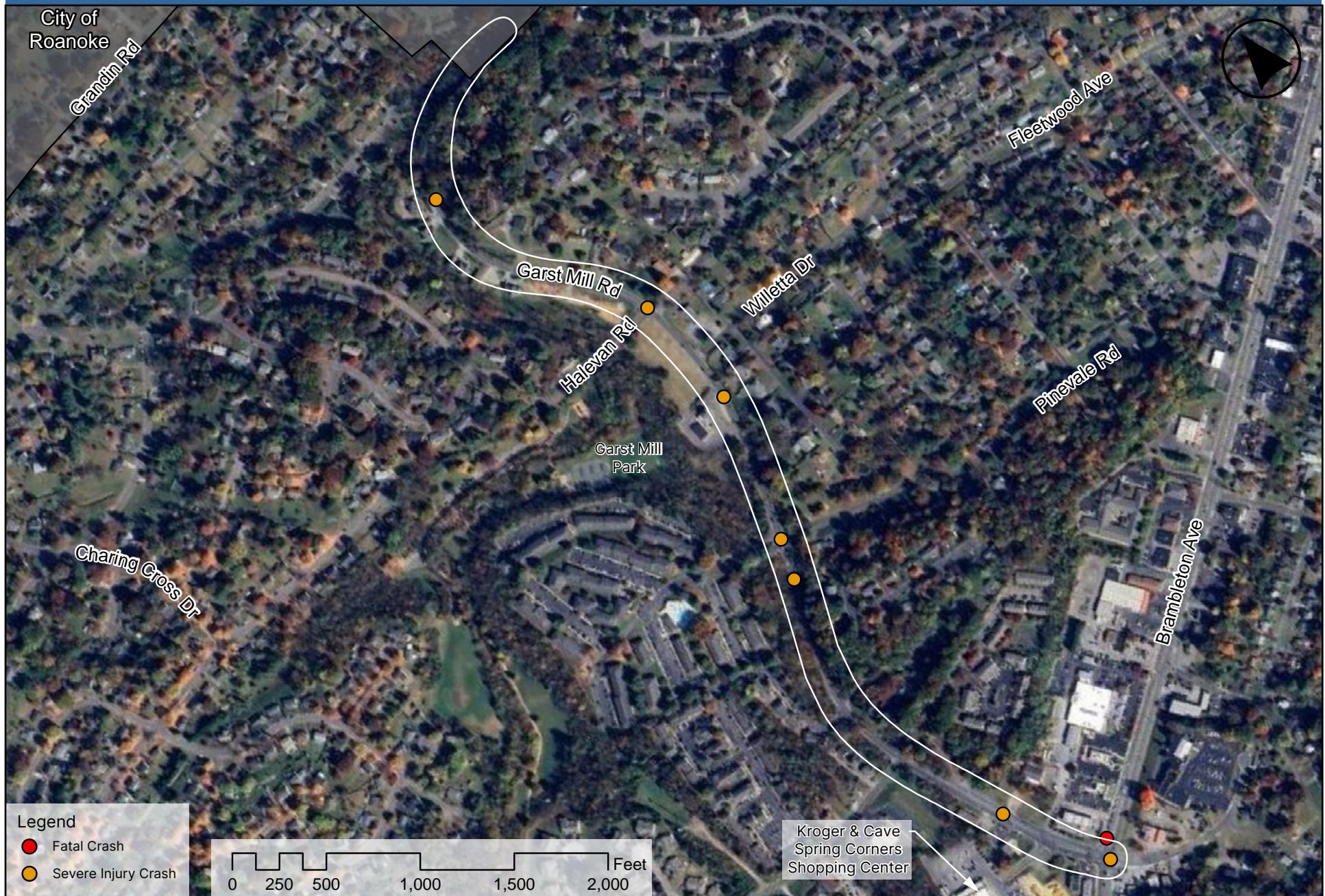
Rear End



Senior Driver

Safety Analysis	Potential Strategies
<p>Crashes along this corridor are typically angle crashes, rear end crashes, and involve senior drivers. Crashes do not cluster at a specific location and instead, are dispersed along the roadway.</p>	<p>Conduct a multimodal corridor study</p> <ul style="list-style-type: none"> Given that the type of severe injury crashes are varied and do not cluster in any particular locations along the Starkey Road segment, a corridor study is needed to examine the existing conditions of Starkey Road and develop specific safety opportunities. Particularly with the recent completion of the Starkey Road and Buck Mountain Road roundabout, a corridor study would establish the existing conditions of Starkey Road, inclusive of the new roundabout, and other complementary implementations to improve the number and severity of crashes. A corridor study would provide an opportunity to collect user experiences along Starkey Road, determine commercial and industrial businesses' operational needs, and compile residents' goals for transportation in this area.

GARST MILL ROAD

Roanoke City Line to
Brambleton Avenue

GARST MILL ROAD

Roanoke City Line to
Brambleton Avenue

Context

Garst Mill Road is a major north-south collector in Roanoke County, leading into the City of Roanoke. The corridor runs through a predominantly residential area, with single-family detached and attached homes, as well as apartments. Garst Mill Road provides access to Garst Mill Park, the Cave Spring Corners Shopping Center, and the Brambleton Avenue commercial corridor.

There is a present demand for a sidewalk connection from the surrounding multifamily communities to the Cave Spring Corners Shopping Center and Brambleton Avenue.



Average Daily Traffic: 6,800 vehicles/day



Speed Limit: 35 mph



2015-2023 Severe Injury Crashes: 7
Fatal Crashes: 1



Number of Lanes:
2 lanes



Community Survey Rank: #7

Prevalent Crash Characteristics



**Fixed Object
Off Road**



Night



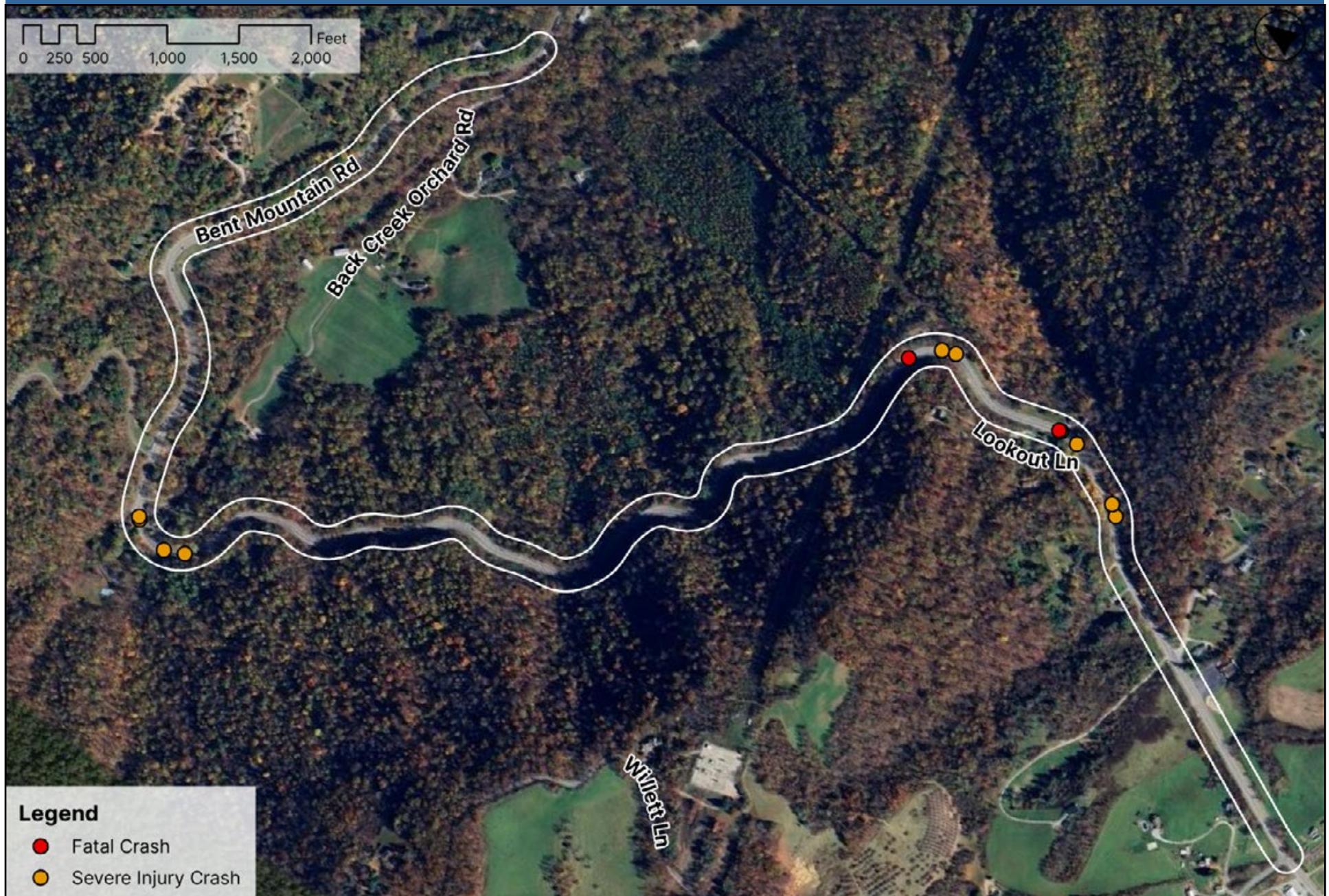
Pedestrian¹

Safety Analysis	Potential Strategies
<p>With the surrounding residences and existing lack of bicycle and pedestrian facilities along Garst Mill Road, there is an opportunity to create multimodal connections along this corridor.</p>	<p>Evaluate and install pedestrian improvements, specifically for a pedestrian connection to the Brambleton Avenue commercial corridor</p> <ul style="list-style-type: none"> At a future time, additional sidewalks, bike lanes, or similar facilities could be considered as well, with complementary traffic calming interventions. Providing multimodal infrastructure along Garst Mill Road could prevent bicycle and pedestrian collisions in the future and promote active transportation options for these neighborhoods.

1. (1) pedestrian crash near Brambleton Avenue

BENT MOUNTAIN ROAD

Back Creek Orchard Road
to Tinsley Lane



BENT MOUNTAIN ROAD

Back Creek Orchard Road
to Tinsley Lane

Context

Bent Mountain Road is a mountainous north-south corridor in southwestern Roanoke County. The roadway has sharp curves and steep elevation changes. The corridor experienced 47 total crashes from 2015 to 2023 and over 25% resulted in a fatal or serious injury. The fatal and serious injury crashes are predominately single-vehicle run off-road crashes, and all occurred at curves in the roadway.



Average Daily Traffic: 7,000 vehicles/day



Speed Limit: 55 mph



Number of Lanes:
2 lanes / 3 lanes



Severe Injury Crashes: 10
Fatal Crashes: 2
2015-2023



Community Survey Rank: #8

Prevalent Crash Characteristics



**Fixed Object
Off Road**



Speeding



Motorcycle

Safety Analysis

Potential Strategies

The severe crashes on this roadway are predominately the result of vehicles leaving the roadway.

Evaluate condition and spacing of existing chevrons; consider upgrades (such as reflective yellow strips) as necessary

- According to the VDOT Preferred CMF List, upgrading chevrons with fluorescent sheeting has a Crash Modification Factor of 0.65. Chevrons are present along much of the roadway, however, their condition should be evaluated in dim or dark conditions, and they may not be spaced to optimally delineate curves.

Consider shoulder or centerline rumble strips

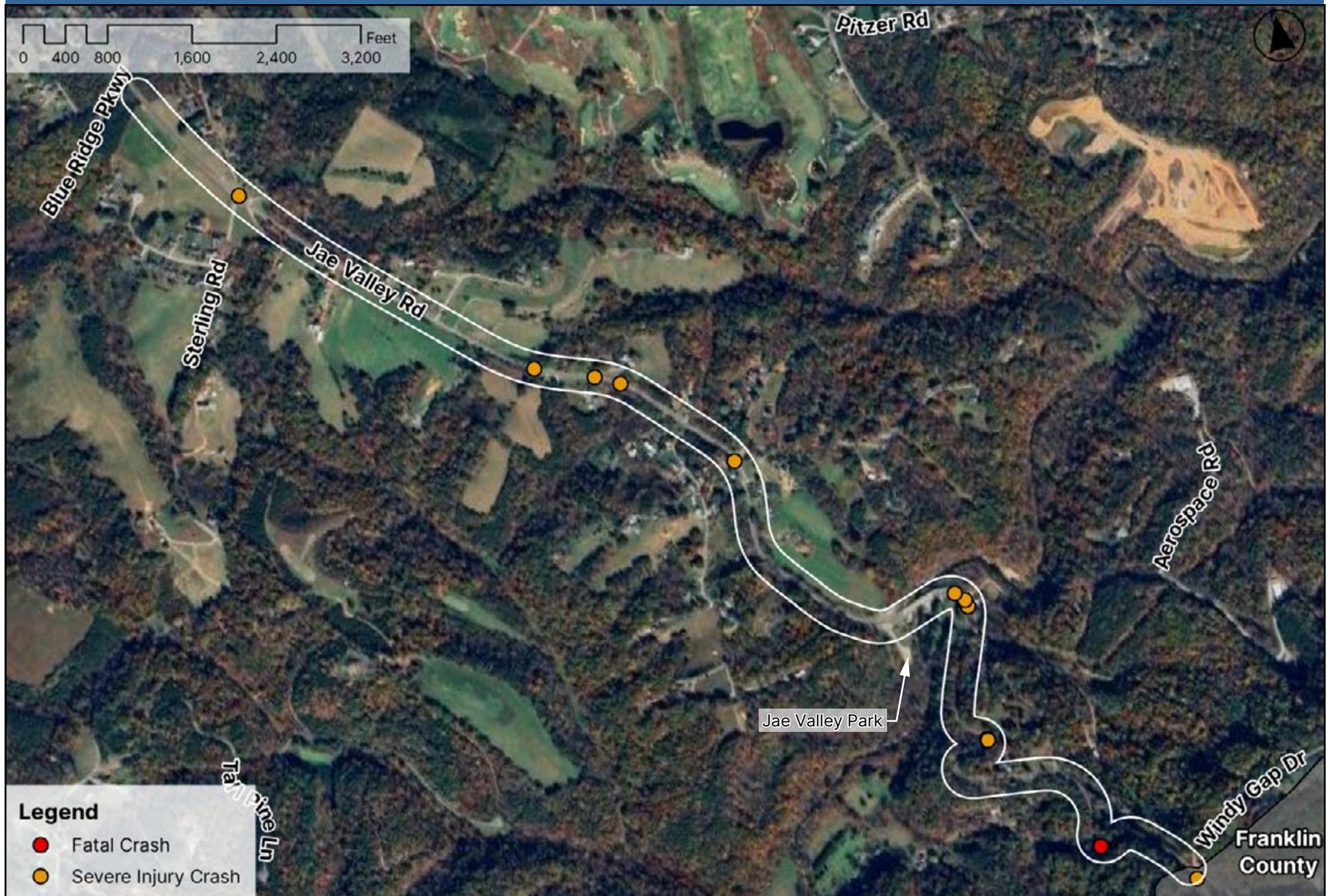
- Installing shoulder or centerline rumble strips have associated CMFs of 0.83 and 0.55, respectively and could prevent run off-road collisions.
- Application of shoulder or centerline rumble strips should be limited to locations where there are significant roadway departure crashes and little, if any, bicycle traffic

Consider tree cutting at select curves, where possible (existing steep topography adjacent to roadway)

- Some of the curves are surrounded by thick foliage which may obscure the road ahead. Select tree cutting may help drivers better judge the severity of upcoming changes in roadway alignment and adjust their speed accordingly.

JAE VALLEY ROAD

Blue Ridge Parkway to
Franklin County Line



JAE VALLEY ROAD

Blue Ridge Parkway to
Franklin County Line

Context

Jae Valley Road is a mountainous north-south corridor with steep elevation changes and sharp curves in southeastern Roanoke County. The fatal and serious injury crashes are predominately single-vehicle run off-road crashes. While these crashes are somewhat distributed along the corridor, three of the 12 serious crashes occurred at one sharp curve, near Jae Valley Park.



Average Daily Traffic: 7,900 vehicles/day



Speed Limit: 55 mph



Number of Lanes:
2 lanes

Prevalent Crash Characteristics



**Fixed Object
Off Road**



Speeding



Rain



Severe Injury Crashes: 11
Fatal Crashes: 1
2015-2023

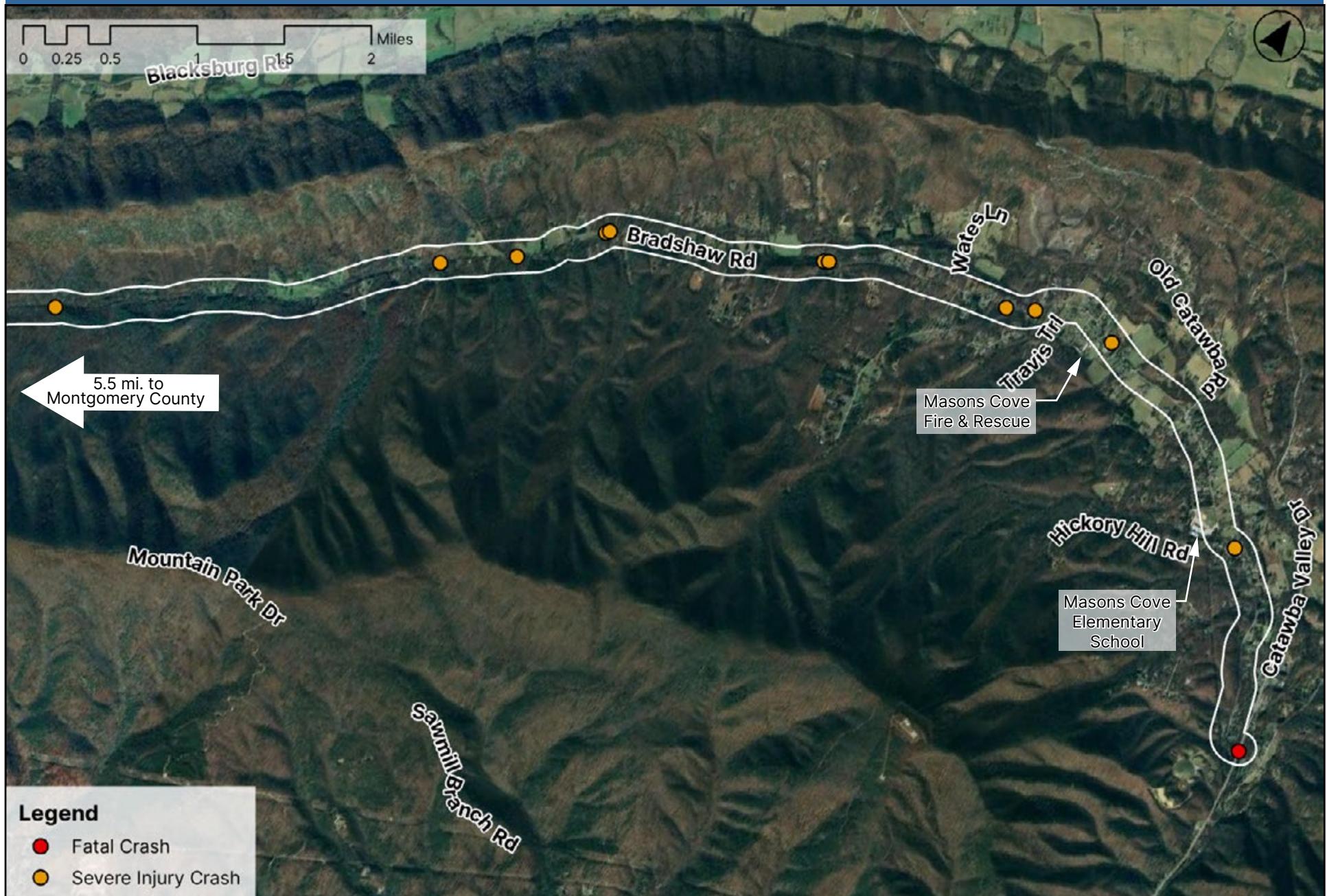


**Community
Survey Rank:** #9

Safety Analysis	Potential Strategies
<p>The severe crashes on this roadway are predominately the result of vehicles leaving the roadway.</p>	<p>Evaluate condition and spacing of existing chevrons; consider upgrades (such as reflective yellow strips) as necessary</p> <ul style="list-style-type: none"> According to the VDOT Preferred CMF List, upgrading chevrons with fluorescent sheeting has a Crash Modification Factor of 0.65. Chevrons are currently present along some of the roadway, however it does not appear that the current signage has fluorescent sheeting.
	<p>Consider installation of high friction surface treatment (HFST) at select curves</p> <ul style="list-style-type: none"> High friction surface treatments (HFST) are pavement treatments that directly address crashes associated with friction demand issues, such as wet conditions or sharp roadway curves. FHWA reports show that HFST is estimated to reduce wet crashes by 83 percent and total crashes by 57 percent. HFST involves the application of high quality aggregate to the pavement using a polymer binder to restore and/or maintain pavement friction at high crash areas. The higher pavement friction helps motorists maintain better control in both dry and wet driving conditions. This corridor should be further studied to evaluate whether HFST would be an appropriate countermeasure; where over 70% of the 11 fatal/serious injury crashes were fixed object, run off-road collisions, improving driver control and braking capacity could reduce overall crash severity.

BRADSHAW ROAD

Catawba Valley Drive to
Montgomery County Line



Context

Bradshaw Road is a rural corridor in the northwestern portion of the county. The roadway is narrow and lacks a shoulder. The road is typically straight which may encourage speeding, and crashes tend to cluster around curves.



Average Daily Traffic: 2,700 vehicles/day



Speed Limit: 40 mph / 55 mph



Number of Lanes:
2 lanes



Severe Injury Crashes: 11
Fatal Crashes: 1
2015-2023



Community Survey Rank: #10

Prevalent Crash Characteristics



Fixed Object Off Road



Speeding



Pedestrian¹

Safety Analysis

Potential Strategies

Crashes are predominately the result of vehicles leaving the roadway.

- Evaluate condition and spacing of existing chevrons; consider upgrades (such as reflective yellow strips) as necessary
- The most common severe injury crashes along this corridor are from colliding with a fixed object, off road. If existing signage is in need of improvement, upgrades could better alert drivers of changing road conditions.
- Consider installing centerline or shoulder rumble strips
 - At the community meetings, several residents noted that bicyclists frequently travel on this corridor. Because they use the shoulder to allow vehicles to pass, bicyclists recommended against shoulder rumble strips. If shoulder rumble strips are considered, additional shoulder width beyond the rumble strip could accommodate bicycle travel.
 - If additional shoulder width beyond the rumble strip cannot be achieved, application of shoulder or centerline rumble strips should be limited to locations where there are significant roadway departure crashes and little, if any, bicycle traffic.
- Conduct a multimodal corridor study
 - At the community meetings, several residents noted that bicyclists frequently travel on this corridor. Due to the length of the corridor, the use of bicyclists, and the pedestrian collision, this roadway would benefit from a corridor study to better understand the existing conditions and appropriate implementations for Bradshaw Road.

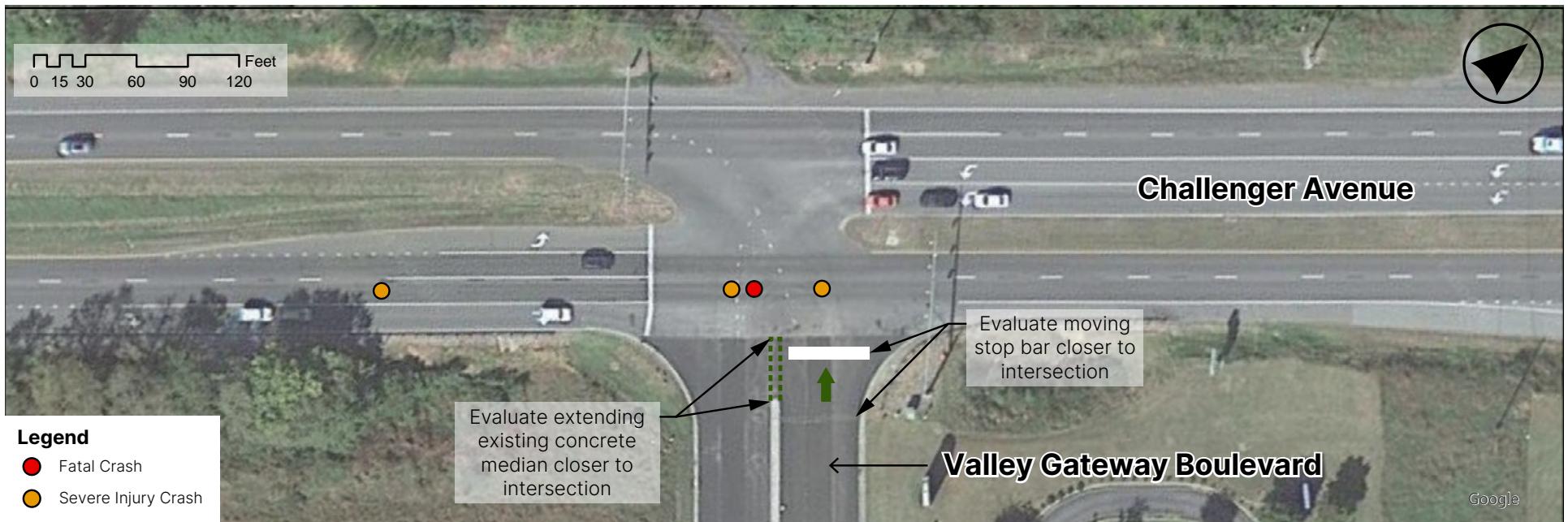
1. (1) pedestrian crash at Fire Station #10

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Intersection Profiles



Challenger Avenue & Valley Gateway Boulevard



Challenger Avenue & Valley Gateway Boulevard

Context

Challenger Avenue (Route 460) is a principal arterial in the northeastern portion of Roanoke County. Challenger Avenue provides an important connection between the City of Roanoke, Roanoke County, Botetourt County, and other locations to the east and west across the state.

From Challenger Avenue, Valley Gateway Boulevard provides access to the Kroger Shopping Center, as well as industrial businesses off of Integrity Drive. Since 2015, there have been 86 crashes at the Valley Gateway Boulevard intersection, including 3 severe injury crash and 1 fatal crash; three of the four severe injury crashes involved drivers running the red light.

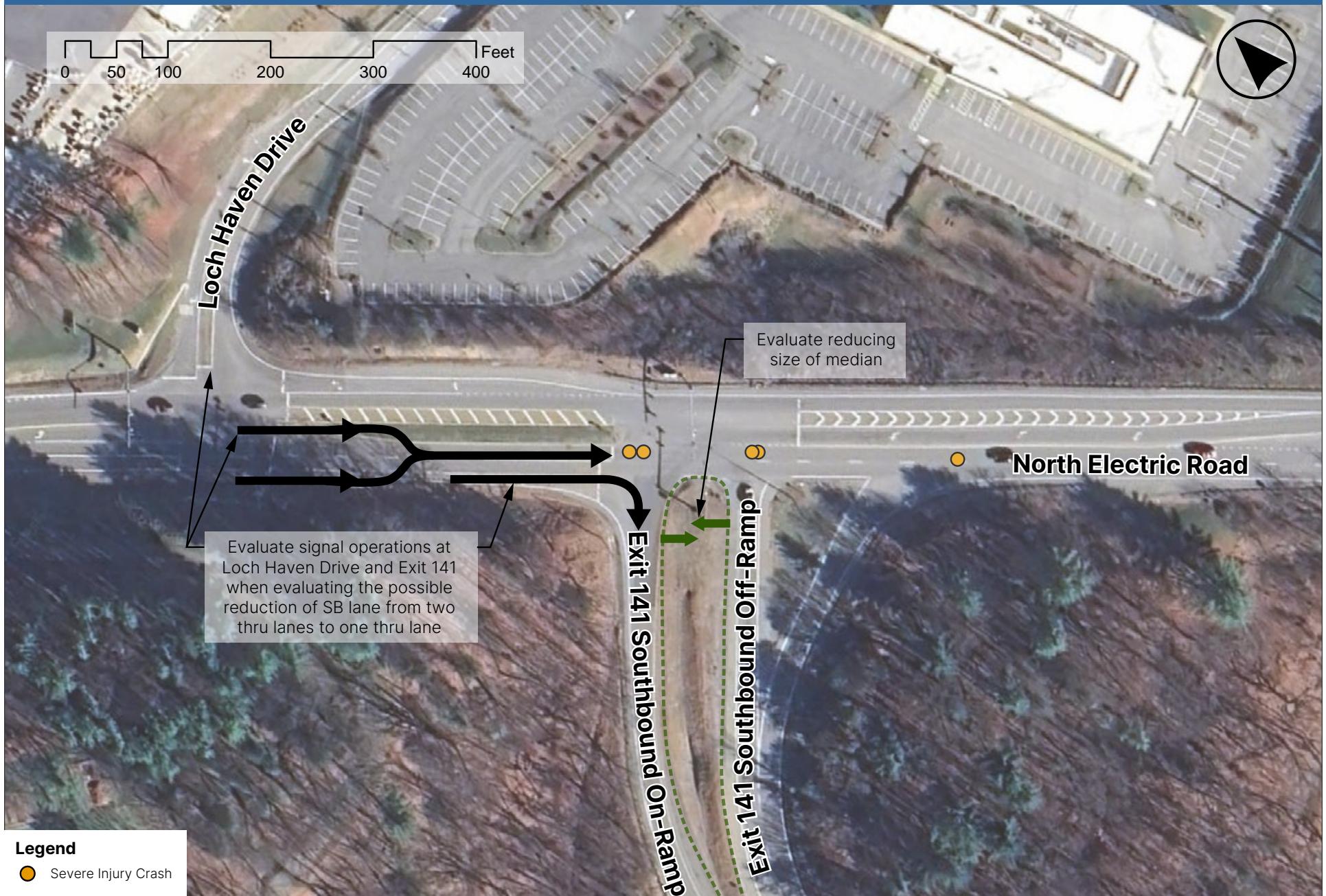


Prevalent Crash Characteristics



Safety Analysis	Potential Strategies
Three of the four crashes involved red-light running, including the fatal crash	<p>Review signal timings for Challenger Avenue corridor for potentially longer all-red times</p> <ul style="list-style-type: none"> The crash data indicates a pattern of red-light running at this intersection. Increasing the all-red time at a signalized intersection provides safety benefits by creating a buffer period during which all approaches to the intersection display a red signal. This reduces the likelihood of collisions caused by red-light-running, as it gives drivers who inadvertently enter the intersection late additional time to clear it before cross-traffic starts
	<p>Conduct a speed study to evaluate lowering the speed limit from the city boundary to this intersection</p> <ul style="list-style-type: none"> Conducting a speed study on a corridor provides safety benefits by identifying prevailing vehicle speeds and patterns of speeding behavior. This data helps determine whether speed limits are appropriately set, promoting uniform travel speeds and reducing crash risks. The study also highlights areas requiring interventions, such as traffic calming measures or enforcement strategies, to enhance safety for all road users, including pedestrians and cyclists
	<p>Evaluate moving the existing Valley Gateway Boulevard stop bar and extending the existing concrete median closer to the Challenger Avenue intersection</p> <ul style="list-style-type: none"> Moving the stop bar and median further into the intersection would reduce the distance to turn left from Valley Gateway Boulevard onto Challenger Avenue, which may reduce crashes

North Electric Road & I-81 Ramps at Exit 141



North Electric Road & I-81 Ramps at Exit 141

Context

North Electric Road is a major corridor and principal arterial that serves much of Roanoke County. The signalized intersection has seen 33 crashes since 2015, including 4 serious injury crashes. The serious injury crashes are from angle crashes associated with northbound vehicles on Electric Road, making the left-turn maneuver onto I-81.

Prevalent Crash Characteristics



Average Daily Traffic: 7,800 vehicles/day



Speed Limit: 45 mph



Number of Lanes:
3 lanes



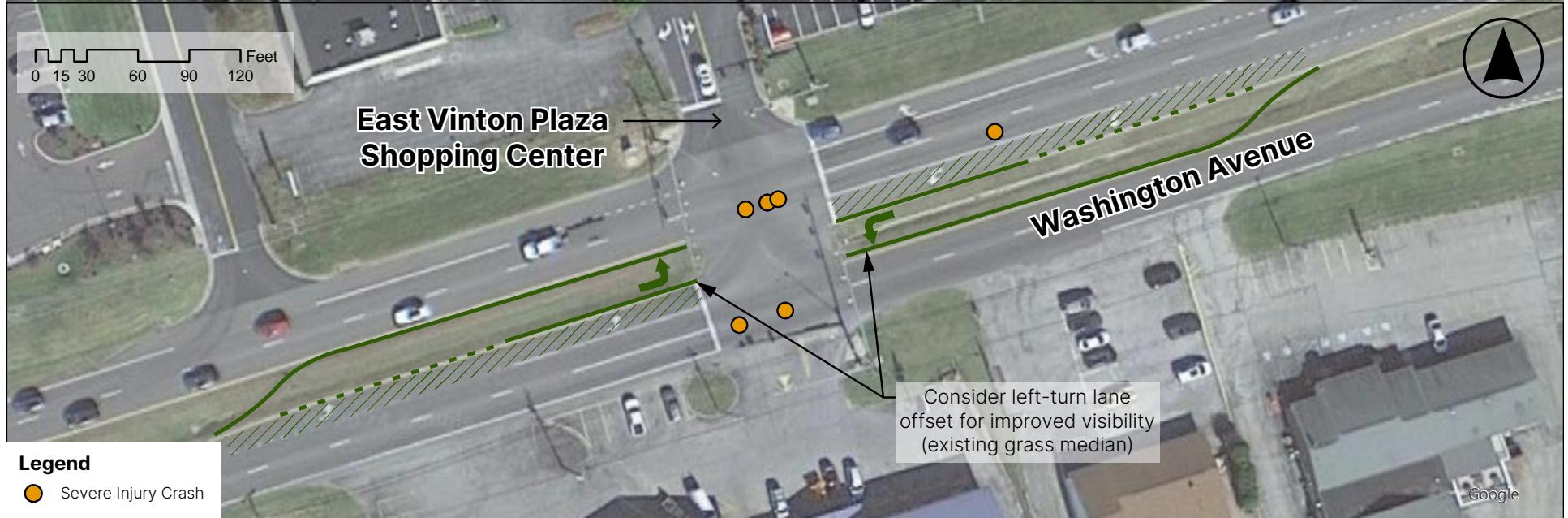
2015-2023 Severe Injury Crashes: 5
Fatal Crashes: 0



Community Survey Rank: #3

Safety Analysis	Potential Strategies
	<p>Consider reconfiguration of the intersection to reduce the width of the I-81 median, shortening the turning distance of NB left-turning movements</p> <ul style="list-style-type: none"> Existing intersection configuration is excessively wide with long crossing distances and times, which is likely a contributing factor to angle crashes Northbound vehicles making the left turn may not fully account for the median length in addition to crossing the southbound lanes
All four severe injury crashes were angle collisions	<p>Evaluate reduction of southbound approach to one through lane</p> <ul style="list-style-type: none"> Further north, beyond the Loch Haven Drive intersection, a second through lane is added to the southbound approach Maintaining only one through lane would reduce size of the intersection and allow drivers to more quickly clear the intersection Feedback from the Fall 2024 community meeting describes high peak hour volumes in this area and that the signal timings for the Loch Haven intersection and the Exit 141 intersection should be reviewed (especially if reducing southbound approach is studied)

Washington Avenue & Food Lion Access (East Vinton Plaza Shopping Center)



Washington Avenue & Food Lion Access (East Vinton Plaza Shopping Center)

Context

Washington Avenue is a major east/west corridor that serves as a primary entrance and thoroughfare for the Town of Vinton. The signalized intersection with the East Vinton Plaza shopping center has seen 51 crashes since 2015. The crashes are mostly angle crashes associated with left-turning movements, predominately from eastbound vehicles turning into the shopping center.

Prevalent Crash Characteristics



Angle Crashes



Average Daily Traffic: 19,000 vehicles/day



Speed Limit: 45 mph



Number of Lanes: 4 lanes



2015-2023
Severe Injury Crashes: 6
Fatal Crashes: 0



Community Survey Rank: #4

Safety Analysis

Potential Strategies

Five out of six severe injury crashes were angle collisions

Consider increasing left-turn lane offset to improve visibility for eastbound vehicles turning left into the East Vinton Plaza

- According to the VDOT Preferred CMF List, increasing the left-turn lane offset has a Crash Modification Factor of 0.644 across all crash types
- Increasing the offset improves driver visibility of oncoming traffic and reduces the time and distance a turning vehicle spends in the intersection

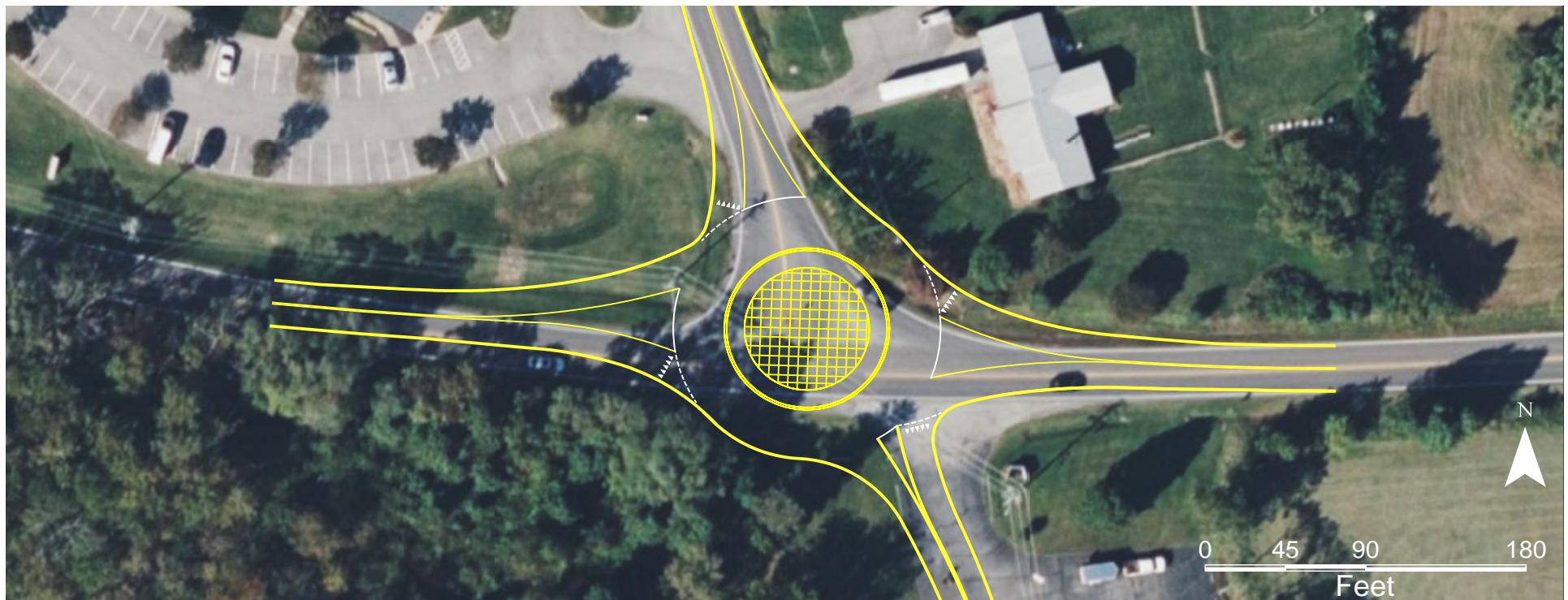
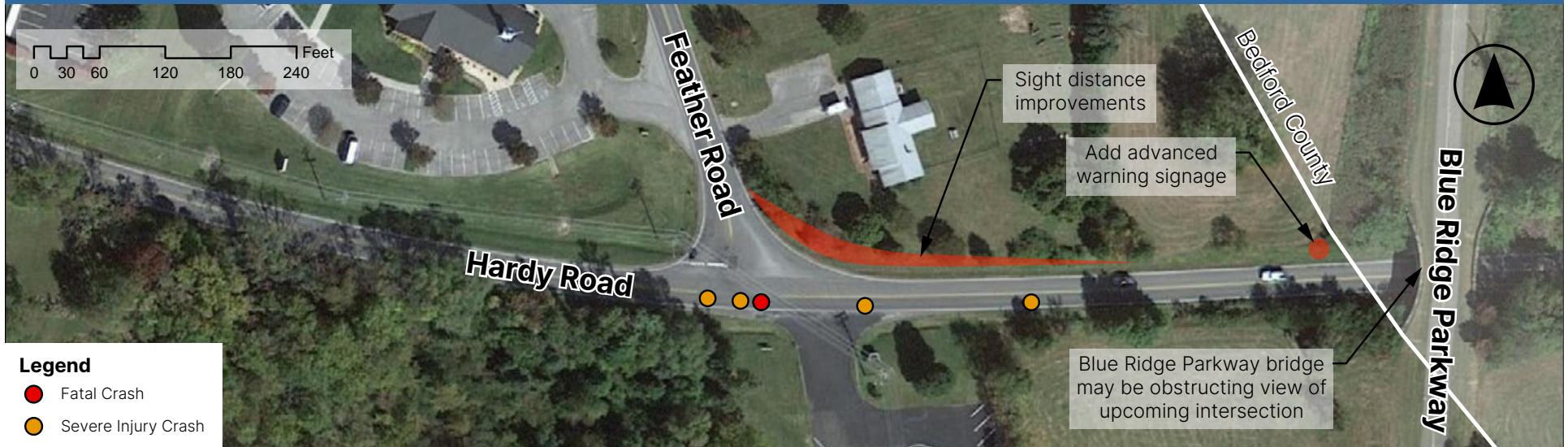
Consider access management improvements of commercial parcel on south leg of intersection

- There are three driveways to commercial properties in close proximity of the intersection. Access management improvement enhance safety by reducing conflict points, such as left-turns and driveways near the intersection, which lowers the risk of crashes. These changes also improve traffic flow by minimizing disruptions, reducing delays, and enhancing overall operational efficiency. Additionally, better access management can support safer pedestrian and cyclist movements and create a more predictable driving environment

Conduct a speed study of the Washington Avenue corridor

- Conducting a speed study on a corridor provides safety benefits by identifying prevailing vehicle speeds and patterns of speeding behavior. This data helps determine whether speed limits are appropriately set, promoting uniform travel speeds and reducing crash risks. The study also highlights areas requiring interventions, such as traffic calming measures or enforcement strategies, to enhance safety for all road users, including pedestrians and cyclists

Hardy Road & Feather Road



Hardy Road & Feather Road

Context

Hardy Road is a major east/west corridor that serves as a primary entrance and thoroughfare for the Town of Vinton. The unsignalized intersection has seen 21 crashes since 2015. The associated crash profiles indicate a pattern of drivers turning onto Hardy Road from Feather Road without yielding to oncoming traffic.

Prevalent Crash Characteristics



Angle
Crashes



Rear End
Crashes



Young
Driver



Average Daily Traffic: 11,000 vehicles/day



Speed Limit: 45 mph



Number of Lanes:
2 lanes



2015-2023*
Severe Injury Crashes: 5
Fatal Crashes: 1*

*1 fatal crash in 2024



**Community
Survey Rank:** #5

Safety Analysis	Potential Strategies
	<p>Install sight distance improvements</p> <ul style="list-style-type: none"> At the NE corner, the existing trees are present on an upward slope that could inhibit sight distance of westbound traffic on Hardy Road Addressing this issue by trimming the obstructive trees or regrading the slope is crucial to improving safety at this busy intersection
<p>Four of the six crashes were angle collisions from drivers traveling south on Feather Road disregarding the stop sign or not appropriately yielding and colliding with a vehicle on Hardy Road.</p>	<p>Add advanced warning signage</p> <ul style="list-style-type: none"> Advanced warning signage could be installed to alert oncoming traffic on Hardy Road about the upcoming intersection and traffic entering the roadway from Feather Road This advanced warning helps drivers prepare to slow down, stop, or yield, reducing the likelihood of crashes caused by sudden braking or failure to notice the intersection. It enhances awareness and reaction time, benefiting all road users
	<p>Evaluate a roundabout improvement</p> <ul style="list-style-type: none"> A roundabout would provide a reduction in necessary sight distance, a traffic calming measure through the intersection, and the ability to alert drivers in all directions to the presence of the intersection The circular design of a roundabout forces vehicles to slow down, lowering the likelihood of high-speed collisions. Roundabouts also reduce the potential for severe crashes, such as T-bone and head-on collisions, and improve pedestrian safety by shortening crossing distances and providing refuge islands

Plantation Road & McDonald's / Days Inn Access



Plantation Road & McDonald's / Days Inn Access

Context

Plantation Road is a principal arterial and major connection between I-81 and northern Roanoke County. The unsignalized intersection has seen 33 crashes since 2015, including 4 serious injury crashes. The associated crash profiles indicate a pattern of conflicts arising from drivers turning to and from the multiple commercial entrances.



Average Daily Traffic: 12,000 vehicles/day



Speed Limit: 45 mph



Number of Lanes:
4 lanes with a Two-Way Left-Turn Lane



2015-2023 Severe Injury Crashes: 4



Community Survey Rank: #8

Prevalent Crash Characteristics



Angle Crashes

Safety Analysis

Three of the four severe injury crashes were angle collisions from drivers turning into a commercial entrance

Potential Strategies

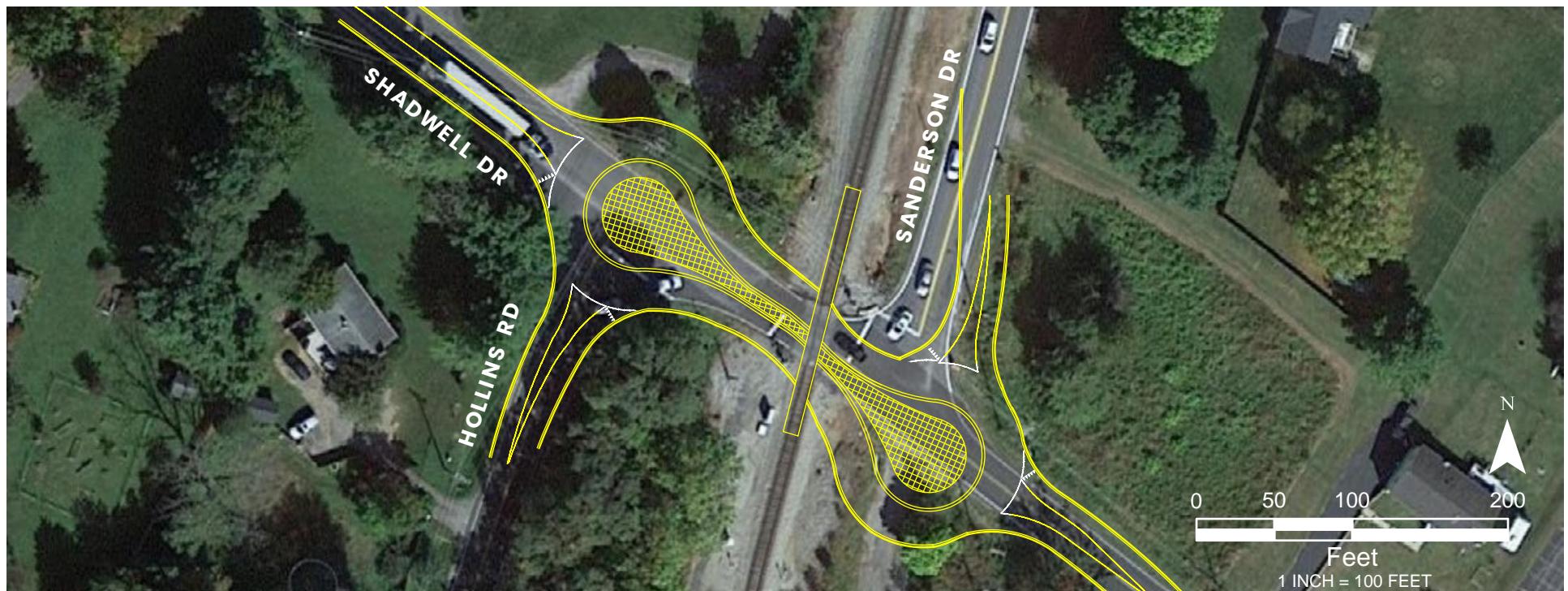
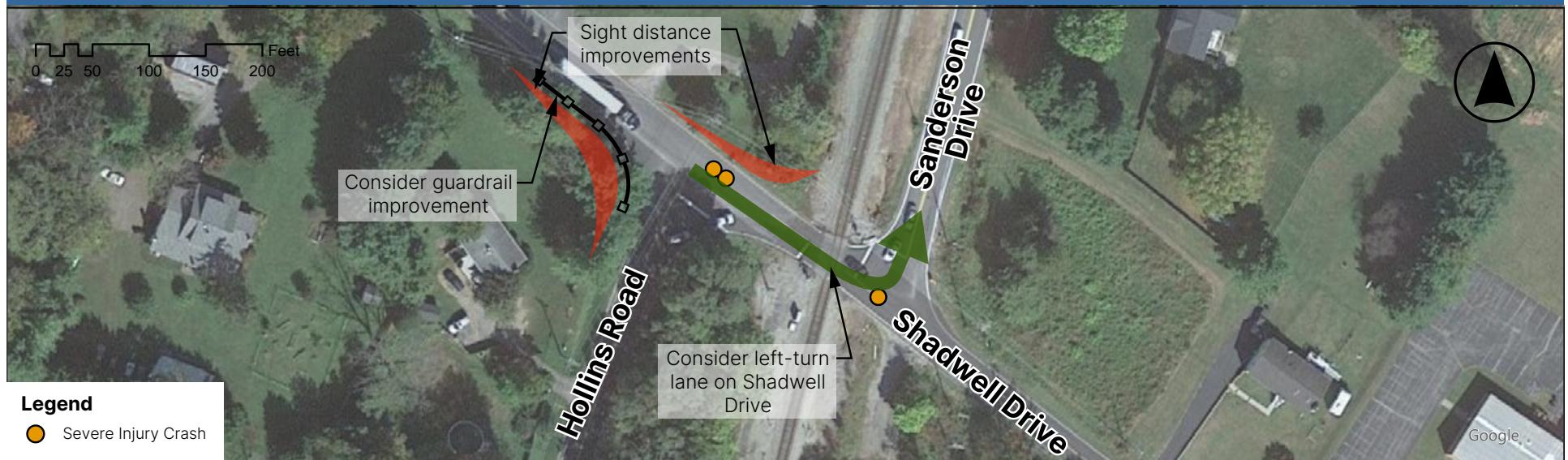
Evaluate extension of the existing two-way left-turn lane (TWLTL) further north

- There is an existing TWLTL on Plantation Road that begins to taper off 150' from the intersection. Extending the TWLTL will remove left-turning vehicles from the through lanes and store those vehicles in the median area until a safe gap in opposing traffic is available to complete the turn.
- According to the VDOT Preferred CMF List, the addition of a TWLTL on a four lane road has a Crash Reduction Factor of 55%.

Consider opportunities for access management

- There are currently 6 full-access commercial driveways in close proximity in the vicinity of the intersection. The abundance of access points introduces undue opportunities for crashes and creates excessive conflict points.
- In addition, the existing driveways do not meet VDOT access management design standards which mandate a minimum distance of 1,320' between the end of an interchange off-ramp and four-legged intersections. Limiting the number of commercial driveways will improve safety and bring the intersection closer to current VDOT standards.

Shadwell Drive & Sanderson Drive / Hollins Road



Shadwell Drive & Sanderson Drive / Hollins Road

Context

Shadwell Drive, Sanderson Drive, and Hollins Road are major collectors that serve the north end of Roanoke County. The unsignalized intersections have seen 35 crashes since 2015, including 4 serious injury crashes. The 4 severe crashes were angle crashes and collisions with fixed-objects, off-road. Both angle crashes occurred on Shadwell Drive, with vehicles turning out of Hollins Road or Sanderson Drive; collisions with a fixed object occurred on each side of the railroad crossing.

A nearby October 2024 rezoning included a proffered condition indicating the developer would work with Roanoke County to construct a left turn lane from Sanderson Drive onto Shadwell Drive to help mitigate additional traffic that the new development will generate. A plan, timeline and funding for this improvement has not yet been determined.



Average Daily Traffic

Shadwell Drive: 7,200 vehicles/day

Sanderson Drive: 5,600 vehicles/day

Hollins Road: 5,300 vehicles/day



Speed Limit: 40 mph

2015-2023

Severe Injury Crashes: 4

Number of Lanes:
2 lanes

Community Survey Rank: #9

Prevalent Crash Characteristics



Angle Crashes



Fixed Object Off Road



Night

Safety Analysis	Potential Strategies
Two of the four severe injury crashes were angle collisions	<p>Consider installation of a left-turn lane on Shadwell Drive onto Sanderson Drive</p> <ul style="list-style-type: none"> The installation of a left-turn lane could reduce collisions by providing a designated space for vehicles waiting to turn. <p>Sight distance improvements</p> <ul style="list-style-type: none"> Hollins Road and Sanderson Drive would both benefit from tree cutting to improve driver visibility when turning onto Shadwell Drive.
Two of the four severe injury crashes involved hitting a fixed object, off road	<p>Consider guardrail installation</p> <ul style="list-style-type: none"> Guardrails act as a barrier to shield motorists from more severe outcomes in the event of a crash, reducing the risk of collisions with fixed objects. They also provide a visual cue to guide drivers and improve awareness of potential hazards.
Angle & fixed object - off road crashes	<p>Evaluate a peanut roundabout installation</p> <ul style="list-style-type: none"> A peanut roundabout would directly address angle collisions while providing a traffic calming effect to this intersection. <p>Conduct a speed study and evaluate a speed limit reduction</p> <ul style="list-style-type: none"> Lowering the speed limit to 35 mph can lead to fewer and less severe crashes, as lower speeds provide drivers with more time to respond to road conditions and other vehicles. Currently the speed limit drops from 45 to 40 mph as drivers travel west through the intersections.
Variety of crash types	<p>Consider bicycle and pedestrian accommodations as part of improvement projects at this intersection</p> <ul style="list-style-type: none"> A variety of crash types occur at this intersection. With future development, existing and new residents will be served by this intersection. Incorporating bike-ped infrastructure as part of the intersection improvement could contribute to traffic calming and slow down approaching vehicular traffic, as well as provide alternative transportation means.

The Safe Streets and Roads for All Notice of Funding Opportunity (NOFO) defines equity as:

Equity is the consistent and systematic fair, just, and impartial treatment of all individuals, including individuals who belong to underserved communities that have been denied such treatment, such as Black, Latino, Indigenous and Native Americans, Asian Americans and Pacific Islanders, and other persons of color; members of religious minorities; lesbian, gay, bisexual, transgender, and queer (LGBTQ+) persons; persons with disabilities; persons who live in rural areas; and persons otherwise adversely affected by persistent poverty or inequality.

Several federal tools are available to help identify disadvantaged communities, including the USDOT's Equitable Transportation Community (ETC) Disadvantaged Areas dataset and the Council on Environmental Quality's Climate and Economic Justice Screening Tool (CEJST).

Method 1: Equitable Transportation Community Explorer

The ETC dataset, managed by USDOT, uses census tracts to identify communities facing transportation insecurity and other transportation-related disadvantages. This tool provides insights into how limited access to transportation impacts marginalized communities, helping guide decisions toward more equitable solutions. According to USDOT, transportation insecurity occurs when "people are unable to get to where they need to go to meet the needs of their daily life regularly, reliably, and safely." The dataset incorporates data from the 2020 Census to assess the effects of transportation underinvestment on communities. Indicators from five areas of disadvantage serve as the basis of the ETC. The indicators include:

- Transportation Insecurity
- Environmental Burden
- Social Vulnerability
- Health Vulnerability
- Climate and Disaster Risk Burden

Each census tract is given an overall index score based on these indicators. A community is considered disadvantaged if the overall index score places it in the 65th percentile of all census tracts.

Figure 18 highlights disadvantaged communities in Roanoke County in blue, according to the ETC. The Plantation Road corridor and associated intersections fall in the highlighted area.

According to the explorer, there are 6,600 people in Roanoke County living in a disadvantaged census tract, approximately 7% of Roanoke County's 96,929 residents.



Figure 18. Roanoke County ETC Disadvantaged Areas

Method 2: Climate and Economic Justice Screening Tool

The CEJST is an alternative tool utilized to define disadvantaged populations. Developed by the Council on Environmental Quality, the dataset also uses 2020 Census data and census tracts to find indicators of overburdened or underserved communities. These communities are either located on Federally Recognized Tribal Lands or meet at least one of the eight burden categories, which include:

- Climate Change
- Energy
- Health
- Housing
- Legacy Pollution
- Transportation
- Water and Wastewater
- Workforce Development

Figure 19 highlights areas considered underserved by CEJST. In this instance, the ETC and CEJST areas overlap. Approximately 6,600 of the 96,929 residents in Roanoke County live in disadvantaged Census tracts, approximately 7%.



Figure 19. Roanoke County CEJST Underserved Communities

Method 3: Office of the Secretary of Transportation Defined Rural Areas

The Safe Streets and Roads For All NOFO includes people living in rural areas as individuals who belong to underserved communities. A rural area is defined as located outside of a U.S. Census-designated urban area with a population of 200,000 or more.

Figure 20 highlights the areas that do not fall into the U.S. Census urban areas, thus are defined as rural areas. Many of the High-Injury Network corridors and the priority project locations are located in rural areas. Approximately 19,000 of the 96,929 people in Roanoke County (or 20%) live in rural areas, according to the 2020 American Community Survey.

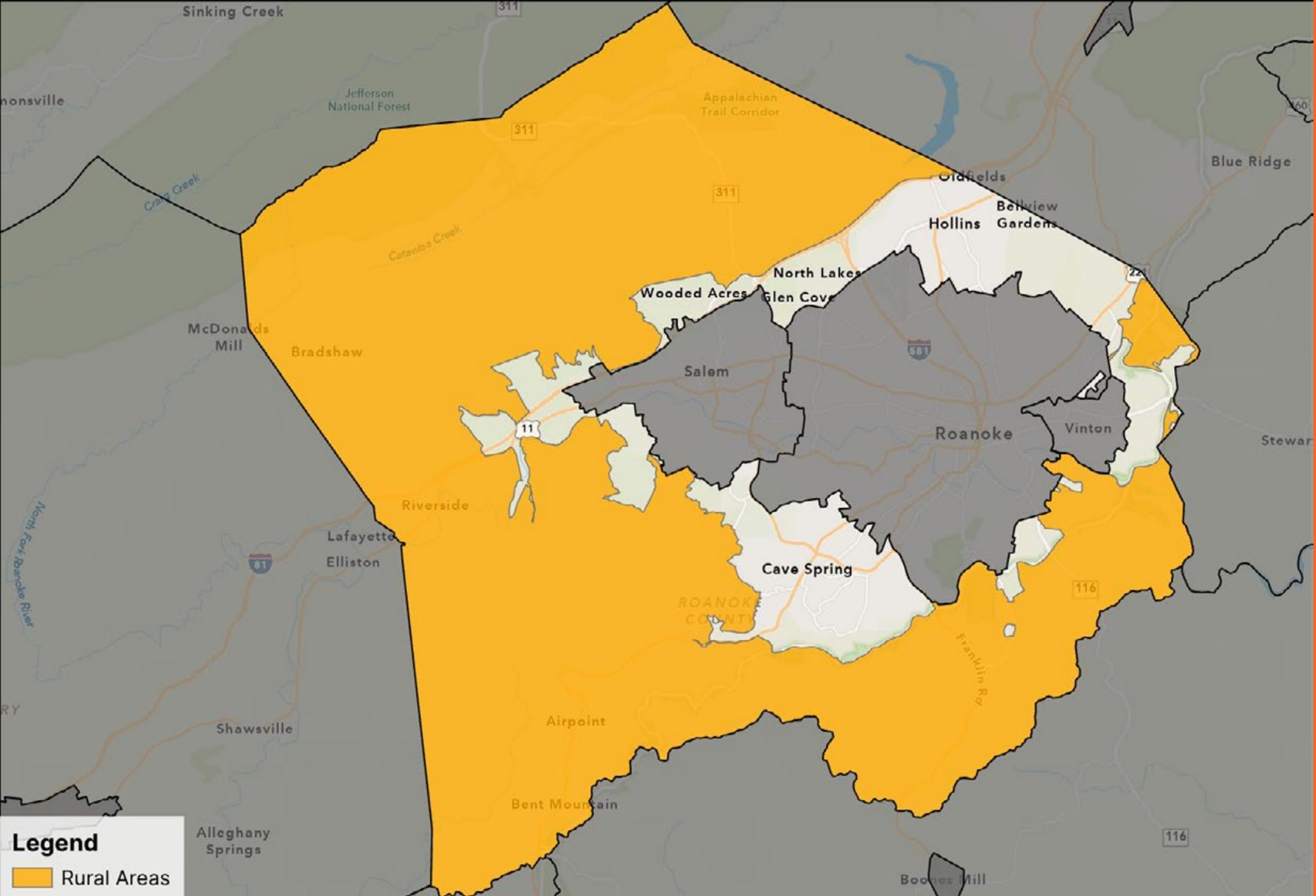


Figure 20. Roanoke County Rural Areas

Equity and Needs Areas

Figure 21 shows the intersection of the priority project locations based on this Safety Action Plan, feedback from the community surveys, and underserved communities. Three priority locations target areas identified by the Equitable Transportation Community Explorer and the Council on Environmental Quality's Climate and Economic Justice Screening Tool. Seven priority locations are in or closely border rural areas.

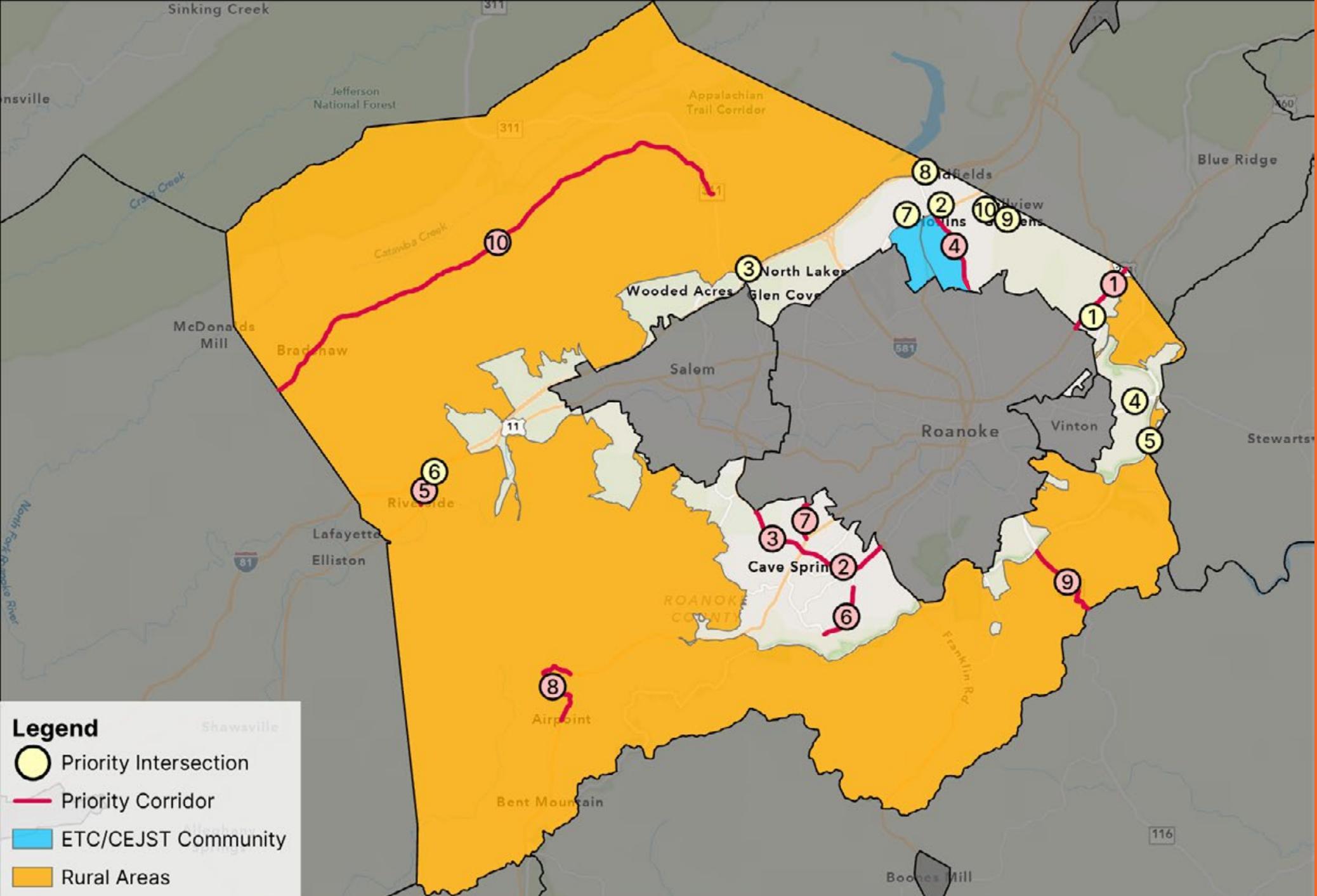


Figure 21. Priority Locations and Underserved Communities

As part of the Safe Streets and Roads For All (SS4A) process, it is important for Roanoke County to review its current plans and policies to identify opportunities for improvements. There are several regional plans that contribute to the development of Roanoke County's transportation system.

Roanoke County 200 Plan

Adopted by the Roanoke County Board of Supervisors in September 2024, the Roanoke County 200 Plan represents the first significant update to the Roanoke County Comprehensive Plan since 2005. The 200 Plan provides recommendations to guide natural and cultural resources, community facilities, land use and housing, and transportation in Roanoke County through the County's bicentennial anniversary in 2038. The 200 Plan contains numerous formal recommendations for improving the safety and functioning of Roanoke County's transportation system, including specific recommendations for each of Roanoke County's eleven (11) Community Planning Areas. These recommendations come in the form of both broad strategies and specific projects.

Roanoke Valley Transportation Plan

Prepared and adopted by the RVTPO with significant input from localities, the Roanoke Valley Transportation Plan serves as the federally required Long Range Transportation Plan (LRTP) for the RVTPO service area. The latest version of the Roanoke Valley Transportation Plan was adopted in 2023, with a plan horizon of 2045. This plan outlines regional transportation needs and priorities and serves as the foundation for the development of the RVTPO's Transportation Improvement Program (TIP).

Safety is discussed throughout the RVTP. Safety data trends since 2017 are shown with a focus on fatal and serious crashes as well as bicycle and pedestrian crashes. The Roanoke Valley Transportation Plan also includes a list of all transportation projects currently

funded in the RVTPO service area, and a list of short-term and long-term priority projects for localities and public agencies to pursue in the future. The plan identifies over 100 projects that align with the goal of SS4A to eliminate fatalities and reduce injuries on a multimodal transportation system. An opportunity is available to supplement this list with projects found in the SS4A Comprehensive Safety Action Plan.

Regional Pedestrian Vision Plan

RVTPO's 2015 Regional Pedestrian Vision Plan provides a coordinated and strategic approach for advancing walking as a means of transportation in the Roanoke Valley. This plan identifies where pedestrian infrastructure is most needed in the RVTPO service area based on the potential for residents, employees, shoppers, diners, and other visitors to access nearby destinations. The primary goal of the Pedestrian Vision Plan is listed as improving safety for pedestrians, and projects are provided that work towards this goal. The studies and projects recommended by this Action Plan can expand upon the Pedestrian Vision Plan and move Roanoke County towards a safer transportation network.

Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organization

The 2012 Bikeway Plan was prepared and adopted by the Roanoke Valley Area Metropolitan Planning Organization (RVAMPO), the precursor to RVTPO. This plan provides a coordinated and strategic approach to developing a regional bicycle network in the RVTPO service area. The Bikeway Plan provides recommendations for bicycle infrastructure that would advance bicycling as a means of transportation in the Roanoke Valley by enhancing connectivity between activity centers, cultural resources, and other points of interest.

Rural Bikeway Plan

The 2020 Rural Bikeway Plan was prepared and adopted by the Roanoke Valley-Alleghany Regional Commission (RVARC), as RVTPO only serves the urbanized area of the Roanoke Valley. This plan identifies bicycle infrastructure improvements for localities to consider in the rural parts of the RVARC service area. The Rural Bikeway Plan also identifies why people bicycle in these rural areas, where exactly they are bicycling, and the quality of existing bicycle facilities.

In addition to their existing plans, Roanoke County may look towards implementing additional policy and process changes to gather focused data at specific locations, encourage appropriate driver behavior, and initiating changes to land use.

Enforcement and Policies

Goal: Discourage undesirable or illegal behaviors that are not necessarily addressed through engineering countermeasures.

1.A: Increase Law Enforcement Patrol

Increasing law enforcement patrol would discourage or address dangerous or illegal driver behaviors. However, local law enforcement is constrained (with staffing shortages, budget, etc.) and additional collaboration is needed to identify feasibility and limitations.

1.B: Implement Speed Cameras

Based on survey responses and discussions with community meeting attendees, there is a high concern for speeding on County roadways. At the time of this report, Virginia legislation only permits speed cameras in school zones and work zones. The installation of speed cameras in these locations would provide enforcement without the physical presence of law enforcement and could encourage drivers to be more aware of their speeds elsewhere. Additional budget will need to be allocated to review and process violations. This recommendation will necessitate

changes to County Code and will require discussion with Roanoke County Police before adopting.

1.C: Implement Red Light Cameras

As described with reviewing signal timings, Roanoke County residents are very concerned with red-light running behavior at intersections. Red light cameras are permitted in Virginia localities, however, the quantity of cameras is restricted by population. Additional budget will need to be allocated to review and process violations. This recommendation will necessitate changes to County Code and will require discussion with Roanoke County Police before adopting.

Intersection and Corridor Studies

Goal: Dedicate time and budget for a focused and nuanced study of a specific intersection or corridor.

2.A: Conduct an Intersection or Corridor Study

Where an intersection or corridor experienced a high number of fatal and serious injury crashes without a clear crash pattern, further study is needed for developing recommendations. A specific intersection or corridor study would gather additional information about roadway conditions and learn about resident experiences, priorities, and future goals for that particular location.

2.B: Conduct a Speed Study

Speeding is a top concern for Roanoke County residents, and high vehicle speeds lead to more severe crashes. A speed study in select locations could identify areas where drivers tend to excessively exceed the posted speed limit and could serve as an element of project prioritization for design solutions. Changes to the roadway design and the implementation of traffic calming measures can also be used to facilitate lower speeds where speed limit reductions are needed.

Land Use

Goal: Coordinate with property owners to create safer conditions around high-priority intersections

3.A: Improve Access Management

Where several entrances are present near an intersection, there is an opportunity to consolidate these access driveways to reduce the number of conflict points. Ease of access would improve traffic flow of nearby intersections. Better access management would benefit not only drivers, but adjacent property owners and businesses. Implementation would require ongoing coordination and negotiation with private property owners.



Route 460 Challenger Avenue

The built environment plays a major role in roadway safety. This chapter highlights potential improvements to road and intersection design in Roanoke County, and provides a list of potential projects to address safety concerns at locations identified in this study.

Road and Intersection Design

Goal: Improve roads and intersections to increase driver visibility, encourage drivers to slow down and be aware of their surroundings, and facilitate safe bicycle and pedestrian movement.

1.A: Add New Signage or Improve Existing Signage

Installation of new signage or improving existing signage may alert drivers of upcoming road conditions. Signage improvements could include increasing the size of existing signs, adding flashing lights, or adding reflectivity to improve visibility to drivers.

1.B: Improve Sight Distance

Adequate sight distance is vitally important in creating safe intersections and entrances. In certain locations, there are short-term opportunities for improving sight distance by cutting back trees and landscaping. Improving sight distance through grading or other design interventions would require further study and additional coordination with involved parties.

1.C: Intersection Redesign

Intersections are often hotspots for collisions, as an area of changing traffic conditions. Safety can be improved at intersections through smaller projects (such as adding sidewalk, curb bumpouts, etc.) or larger projects (such as reducing the size of the intersection, installing a roundabout/Restricted Crossing U-Turn (RCUT)/Thru-Cut, etc.). Redesigning an intersection may vary in scope but should ultimately slow down drivers, improve visibility, and accommodate different modes of transportation, as applicable.

1.D: Add a Turn Lane or Improve Existing Turn Lane

Adding a turn lane or improving an existing turn lane could improve traffic flow and reduce collisions. Where there is not currently a turn lane, adding a turn lane would allow a vehicle to wait in a designated location before turning when there is adequate time to clear an intersection. An existing turn lane could be improved with the installation of a left-turn offset, which could improve visibility at intersections where the turning vehicle must yield to oncoming through traffic.

1.E: Install Guardrail and/or Rumble Strips

Where the majority of the fatal and serious injury crashes were run off-road incidents, the installation of a guardrail would be a direct solution for preventing future crashes at key locations. Similarly, the installation of centerline or shoulder rumble strips would alert drivers of lane departure and promote correction. Rumble strips should only be applied in areas where there are significant roadway departure crashes and little, if any, bicycle traffic. If bicycle traffic is present, additional shoulder width beyond the rumble strip should be considered.

1.F: Review Signal Timings

Reviewing and revising signal timings could improve traffic flow and alleviate pressure at certain intersections. Based on community input, uncoordinated signals may be contributing to driver frustration and potentially increasing risky and dangerous behavior. Along corridors with coordinated signals such as Challenger Avenue, the existing timing plan should be reviewed. Additionally, many survey respondents and community meeting attendees observed frequent red-light running behavior; longer all red timings could improve crashes due to red-light running. Enforcement and policy should additionally be considered to discourage dangerous driver behavior.

Potential Project Improvements Summary | Corridors

Location	Crashes		Potential Project	Community Ranking (Per Fall 2024 Survey)	Cost Estimate	Time Frame
	Serious Injury	Fatal				
Electric Road East <i>(Brambleton Avenue to Roanoke City Line)</i>	27	1	Conduct an intersection study at Colonial Avenue	1	\$	Short Term
			Evaluate Restricted Crossing U-Turn (RCUT) improvements east of Colonial Avenue	2	\$\$-\$\$\$\$	Long Term
			Evaluate Thru-Cut improvements east of Colonial Avenue	3	\$\$-\$\$\$\$	Long Term
Electric Road West <i>(Glen Heather Drive to Brambleton Avenue)</i>	17	1	Conduct a corridor study or a road safety audit for Electric Road (from Bower Road to Brambleton Avenue)	1	\$	Short Term
			Evaluate Restricted Crossing U-Turn (RCUT) improvements at select intersections	2	\$\$-\$\$\$\$	Long Term
			Evaluate Thru-Cut improvements at select intersections	3	\$\$-\$\$\$\$	Long Term
Plantation Road <i>(Williamson Road to Roanoke City)</i>	20	2	Consider increasing enforcement	1	\$\$	TBD following coordination with Roanoke County Police
			Conduct a multimodal corridor study	2	\$	Short Term
			Per the Equitable Transportation Community Explorer and the Climate and Economic Justice Screening Tool, the Plantation Road corridor is considered to be within a disadvantaged community.			

Potential Project Improvements Summary | Corridors

Location	Crashes		Potential Project	Community Ranking (Per Fall 2024 Survey)	Cost Estimate	Time Frame
	Serious Injury	Fatal				
Starkey Road (Benois Road to Merriman Road)	7	0	Conduct a multimodal corridor study	1	\$	Short Term
Garst Mill Road (Roanoke City Line to Brambleton Avenue)	7	1	Evaluate and install pedestrian improvements, specifically to the Brambleton Avenue commercial corridor	1	\$	Short Term
Bent Mountain Road (Back Creek Orchard Road to Tinsley Lane)	10	2	Consider installing centerline or shoulder rumble strips (Includes evaluating bicycle traffic and widening shoulder width beyond rumble strip area)	1	\$	Short Term To be coordinated with repaving schedule
			Consider tree cutting at select curves, where possible	2	\$	Short Term
			Evaluate condition and spacing of existing chevrons; consider signage upgrades	3	\$\$	Short Term
Jae Valley Road (Blue Ridge Parkway to Franklin County Line)	11	1	Evaluate condition and spacing of existing chevrons; consider signage upgrades	1	\$\$	Short Term
			Consider installation of high friction surface treatment (HFST) at select curves	2	\$\$	Short Term

Potential Project Improvements Summary | Corridors

Location	Crashes		Potential Project	Community Ranking (Per Fall 2024 Survey)	Cost Estimate	Time Frame
	Serious Injury	Fatal				
Bradshaw Road <i>(Catawba Valley Drive to Montgomery County Line)</i>	11	1	Evaluate potential upgrades to existing advisory speed signage	1	\$-\$	Short Term
			Consider installing centerline or shoulder rumble strips (Includes evaluating bicycle traffic and widening shoulder width beyond rumble strip area)	2	\$	Short Term To be coordinated with repaving schedule
			Conduct a multimodal corridor study	3	\$	Short Term

Potential Project Improvements Summary | Intersections

Location	Crashes		Potential Project	Community Ranking (Per Fall 2024 Survey)	Cost Estimate	Time Frame
	Serious Injury	Fatal				
Challenger Avenue & Valley Gateway Boulevard	3	1	Review signal timings; potentially longer all-red times	1	\$-\$	Short Term Consider potential coordination with City of Roanoke
			Consider lowering speed limit from City boundary to this intersection	2	\$	Short Term To be coordinated with repaving schedule
			Evaluate moving existing stop bar and extend existing concrete median closer to intersection	3	\$	Short Term
North Electric Road & I-81 Southbound Ramps at Exit 141	5	0	Consider reconfiguration of the intersection to reduce the width of the I-81 median, shortening the turning distance of NB left-turning movements	1	\$-\$-\$	Long Term
			Evaluate reducing southbound approach to one through lane	2	\$-\$	Long Term
			Consider reviewing signal timings for the Loch Haven intersection and the Exit 141 intersection, especially if reducing the southbound approach is studied	Free response feedback from the Fall 2024 community meeting describes high peak hour volumes	\$-\$	Short Term

Potential Project Improvements Summary | Corridors

Location	Crashes		Potential Project	Community Ranking (Per Fall 2024 Survey)	Cost Estimate	Time Frame
	Serious Injury	Fatal				
Washington Avenue & Food Lion Access (East Vinton Plaza Shopping Center)	6	0	Consider left-turn offset	1	\$\$	Long Term
			Consider access management	2	Varies by scope	Long Term Requires coordination and agreements with private property owners
			Conduct a speed study	3	\$	Short Term
Hardy Road & Feather Road	5	1*	Evaluate a roundabout	1	\$\$\$\$-\$\$\$\$	Long Term
		*1 fatal crash occurred in 2024	Consider install of advance warning signage	2	\$	Short Term
			Improve sight distance	3	\$	Short Term
Plantation Road & McDonald's/Days Inn Access	4	0	Evaluate extending the existing two-way left-turn lane	1	\$\$	Short Term
			Consider access management	2	Varies by scope	Long Term Requires coordination and agreements with private property owners

Potential Project Improvements Summary | Intersections

Location	Crashes		Potential Project	Community Ranking (Per Fall 2024 Survey)	Cost Estimate	Time Frame
	Serious Injury	Fatal				
Shadwell Drive & Sanderson Drive / Hollins Road	4	0	Improve sight distance	1	\$\$	Long Term
			Consider installation of guardrail at SW corner of Hollins Road	2	\$\$	Long Term Requires coordination and agreements with private property owners
			Conduct a speed study	3	\$	Short Term
			Evaluate a left-turn lane on Shadwell Drive onto Sanderson Drive	4	\$\$-\$\$\$\$	Long Term
			Evaluate a peanut roundabout	5	\$\$\$\$-\$\$\$\$\$	Long Term
			Consider incorporating bicycle-pedestrian accommodations as part of improvement projects	This recommendation was incorporated after the January 2025 public comment period of the draft Safety Action Plan	\$\$	Long Term

Supplemental Planning & Demonstration Activities

Under the Safe Streets and Roads For All (SS4A) grant program, localities may apply for funding to explore supplemental planning and demonstration activities. Planning activities aim to gather more information through studies, plans, or audits and demonstration activities include implementations related to infrastructure, behavior, or technology. Infrastructure activities could include conducting temporary 'quick-build' projects, temporary street or lane closures (road diets), or MUTCD engineering studies. Localities that would like to address driver behavior and education may pilot educational campaigns, provide training (such as focusing on bus drivers and bike-pedestrian awareness), or develop projects around Safe Routes to School, encouraging best practices in student pick-up and drop-off. A variety of technological implementations could be pursued, such as signal timings and upgrades for bike-pedestrian prioritization or signal preemption for emergency vehicles, installation of red-light and speed cameras, and data collection.

Type	Activity	Location	Cost	Notes
Supplemental Planning	Corridor/intersection study or road safety audit	Electric Road & Colonial Avenue (intersection)	\$\$	High incidences of crashes at this intersection, however, no clear crash pattern. Intersection study required to collect and analyze data
		Electric Road (From Bower Road to Brambleton Avenue)	\$\$	Planned RCUTs towards City of Roanoke, however, no current plans for Electric Road from Bower Road to Brambleton Avenue
		Plantation Road	\$\$	Pattern of FSI crashes involve speeding as well as involving a pedestrian. Corridor study to gather information on bicycle-pedestrian needs of predominately residential area.
		Starkey Road	\$\$	Consider corridor study to evaluate if newly constructed roundabout at Buck Mountain Road improved crashes along this corridor
		Bradshaw Road	\$\$	Feedback from community members described bicyclists frequenting this corridor. Corridor study to gather information regarding this rural corridor, bicyclist routes, and other challenges/opportunities (see sheet X for more information).
Speed study	Washington Avenue (Area around the East Vinton Shopping Center and William Byrd School campus)	Washington Avenue (Area around the East Vinton Shopping Center and William Byrd School campus)	\$	If warranted by speed study, consider speed limit reduction in the area approaching intersection; see sheets 60-61 for Washington Avenue and sheets 66-67 for Shadwell Drive
		Shadwell Drive & Sanderson Drive/Hollins Road (intersection)	\$	

Type	Activity	Location	Cost	Notes
Demonstration Infrastructure	Quick-Build Projects	Challenger Avenue & Valley Gateway Boulevard	\$	Use flex-post and/or temporary curb to extend existing concrete median on Valley Gateway Boulevard closer to intersection; see sheets 56-57 Requires coordination with and approval by VDOT
Demonstration Behavioral	Educational or Training Campaigns	Electric Road (Both eastern and western corridors)	\$	Pattern of senior drivers involved in the FSI crashes Opportunities include education, training and information on the CORTRAN program which is a curb-to-curb rideshare program for Roanoke County residents who are 65 or older or who are disabled.
		Starkey Road	\$	
		Bent Mountain Road	\$	Pattern of motorcyclists involved in the FSI crashes
Demonstration Technology	Data Collection	Plantation Road	\$\$	Pattern of speeding in FSI crashes as well as involving pedestrians Collect data on vehicle speed and pedestrian counts/location (only short segment of sidewalk on Plantation Road)
		Challenger Avenue & Valley Gateway Boulevard	\$\$	Review signal timings at this intersection and adjacent intersections (including southern intersections in City of Roanoke) Requires coordination with VDOT and the City of Roanoke
	Signal timings	North Electric Road & I-81 Ramps at Exit 141	\$\$	Review signal timings at this intersection & Loch Haven Drive Requires coordination with VDOT

Funding Options

Administering Agency	Program Name	Description	Eligible Projects	Source of Funds	Local Match Required	Level of Funding Available
VDOT	SMART SCALE	SMART SCALE evaluates proposed transportation projects based on certain criteria (improving safety, reducing congestion, increasing accessibility, contributing to economic development, promoting efficient land use, and affecting the environment). The scored criteria determines prioritization of funds.	<ul style="list-style-type: none"> Highway improvements Transit- and rail-capacity expansion Bicycle and pedestrian improvements Transportation Demand Management (Park & Ride facilities) 	Federal and State	No	Varies based upon the application year
	Highway Safety Improvement Program (HSIP)	<p>The Highway Safety Improvement Program (HSIP) is intended to facilitate the goals of the Strategic Highway Safety Plan. The purpose of this plan is to implement safety improvements in Virginia.</p> <p>Roanoke County is ineligible to apply directly for HSIP funds and must work with VDOT to request VDOT submit projects on behalf of Roanoke County</p>	<ul style="list-style-type: none"> Projects consistent with Virginia's Strategic Highway Safety Plan Correcting or improving a hazardous road location or feature, or address a highway safety problem Projects based on crash experience, crash potential, crash rate, or other relevant safety data Curve delineation Pedestrian Crossings Edge/centerline rumble strips 	Federal	No	No maximum, but award amount likely under \$1M

Administering Agency	Program Name	Description	Eligible Projects	Source of Funds	Local Match Required	Level of Funding Available
VDOT	HSIP (cont.)		<ul style="list-style-type: none"> • Be listed under 23 U.S.C. 148(a)(4)(B) or (a)(11); and • Comply with other Title 23 requirements 			
	Transportation Alternatives Program (TAP)	Expanded under the Bipartisan Infrastructure Law (BIL), the Transportation Alternatives Program (TAP) is intended to provide funding for non-motorized transportation.	<ul style="list-style-type: none"> • Projects pertaining to non-motorized transportation • Expand travel choice for daily needs, strengthens local economy, improves quality of life, and protects the environment 	Federal	Yes, 20%	Funding awards between \$200,000 and \$600,000

Administering Agency	Program Name	Description	Eligible Projects	Source of Funds	Local Match Required	Level of Funding Available
VDOT	Safe Routes to School (Part of TAP)	The Safe Routes to School (SRTS) initiative is part of the VDOT TAP program. SRTS program's purpose is to encourage students, including those with disabilities, to walk or bike to school, by establishing safer bike-ped connections and reducing traffic	<ul style="list-style-type: none"> Walkabout mini-grants to assess existing walking and biking conditions Program grants Infrastructure grants 	Federal	The Virginia SRTS Program is a locally-administered reimbursement program. For new applicants, provides 100% of total funding with no match required. However, applicants are still encouraged to leverage funding from other sources.	Varies
	Revenue Sharing	VDOT'S Revenue Sharing program enables localities to match investment with the state, in order to fund construction and/or improvement of highway systems	<ul style="list-style-type: none"> Bicycle and pedestrian improvements Corridor widening and stormwater management improvements Traffic calming Green infrastructure 	State	Yes, 50%	<p>A locality may apply for a maximum of \$10M per biennial cycle (or \$5M per fiscal year) and the maximum lifetime matching per project is \$10M. This limitation includes any allocations transferred to the project.</p> <p>Up to \$2.5M per fiscal year of these requested funds may be specified for maintenance projects.</p>

Administering Agency	Program Name	Description	Eligible Projects	Source of Funds	Local Match Required	Level of Funding Available
DMV	Virginia Highway Safety Office (VAHSO)	The intent of the VAHSO grant program is to reduce the number of fatalities, injuries, and related economic losses from traffic collisions in Virginia.	<p>Initiatives to:</p> <ul style="list-style-type: none"> Reduce alcohol/impaired driving Promote occupant protection Reduce aggressive driving and speeding Collect and analyze traffic records/data Promote bicycle-pedestrian safety Promote motorcycle safety Promote roadway safety 	State	Yes, 25%	<p>Minimum award: \$5,000</p> <p>No maximum award</p>
USDOT & Local MPO	Surface Transportation Block Grant (STBG) Program	As part of the Bipartisan Infrastructure Law (BIL), the Surface Transportation Block Grant (STBG) program provides flexible funding for transportation improvement needs.	<ul style="list-style-type: none"> Installation/deployment of current and emerging intelligent transportation technologies Protective features, including natural infrastructure, to improve the experience of an eligible facility Projects to enhance travel and tourism 	Federal	No	Funding is based on population ratio
	Carbon Reduction Program (CRP)	As part of the Bipartisan Infrastructure Law (BIL), the CRP provides funding to develop carbon reduction strategies and for projects to reduce transportation carbon dioxide emissions. Strategies must be developed in consultation with MPOs.	<ul style="list-style-type: none"> Bike lanes Traffic management Public transportation Pedestrian facilities Alternative fueling/charging infrastructure 	Federal	No	<p>Virginia is expected to receive nearly \$166 million in CRP funding from fiscal year (FY) 2022 to FY 2026.</p> <p>Funds are awarded in proportion to population.</p>

Administering Agency	Program Name	Description	Eligible Projects	Source of Funds	Local Match Required	Level of Funding Available
USDOT	Rebuilding American Infrastructure with Sustainability and Equity (RAISE) Grant	As part of the Bipartisan Infrastructure Law (BIL), the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) program provides investment towards transportation initiatives that create a significant local or regional impact.	<ul style="list-style-type: none"> Highway, bridge, or other road projects Public transportation projects Any other surface transportation infrastructure project that the Secretary considers to be necessary to advance the goals of the program 	Federal	Yes, 20%	<p>Minimum award: Capital projects (urban) - \$5M Capital projects (rural) - \$1M Planning projects - no minimum</p> <p>Maximum award: \$25M</p>
	Safe Streets and Roads For All (SS4A) Supplemental Planning and Demonstration Activities Grant	See sheets 100-101 for expanded description and possible activities directly applicable to this Safety Action Plan		Federal	Yes, 20%	Varies significantly
	Safe Streets and Roads For All (SS4A) Implementation Grant	The SS4A Implementation Grant provides funding towards project and strategy implementation as outlined in this Action Plan.		Federal	Yes, 20%	Varies significantly

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The Roanoke County Comprehensive Safety Action Plan is a commitment along with strategies and actions to reduce fatal and serious injury crashes on roadways across the County. This Plan can serve people across agencies, departments, organizations, and interest groups to unite around the importance of roadway safety and a positive traffic safety culture.

Action items identified by this plan should be used by the County and partners on projects, policies, and programs. Additionally, the County should consistently measure how actions are making roadways safer and saving lives.

Performance Measures and Dashboard

Roanoke County should monitor the progress and impact of individual actions related to each strategy. Evaluation is essential for the data-driven approach of the Comprehensive Safety Action Plan. There must be accountability to the commitment of eliminating traffic deaths and severe injuries. If certain actions are not successful, not moving fast enough, or not working for another reason, the County and partnering agencies should assess and modify actions as needed. Measuring progress and success can be accomplished using a data dashboard. Routine updates can be made to the dashboard when new projects are funded, designed, and implemented to highlight changes and mark milestone efforts related to increasing roadway safety. This tool can provide insight into a number of metrics, including, but not limited to:

- Number of fatal and serious injury crashes
- Total Crashes
- Crashes along the HIN and changes in crash rates over time
- Crashes involving bicycles and pedestrians
- Crashes resulting from high posted speeds
- Crashes occurring during particular weather conditions

- Crashes in each context area (Urban, Rural)

The dashboard is available for public viewing [here](#), or by using the following link:

<https://www.arcgis.com/apps/dashboards/a85a20fee3104a60b8355544a654578f>

Annual Reporting

Along with tracking several performance measures and the use of a data dashboard, annual reporting will provide the County an opportunity to reflect on accomplishments and communicate steps toward eliminating fatal and severe injury crashes.

Roanoke County will publish an annual report on the progress of the SS4A Comprehensive Safety Action Plan. The report will be published in January or February of each year and may include the following:

- Updated crash statistics with a focus on fatal and serious injury crashes
- Projects completed or beginning construction
- Proven Safety Countermeasures deployed
- Funding associated with safety projects

Transparency

Roanoke County has developed the Comprehensive Safety Action Plan with the goal of full transparency. The Action Plan will be publicly available on [Roanoke County's website](#). Interim documents like the annual report will also be posted on the website.

<https://www.roanokecountyva.gov/>



Route 220 & Franklin Road (220 Business)

©Mark Morrow

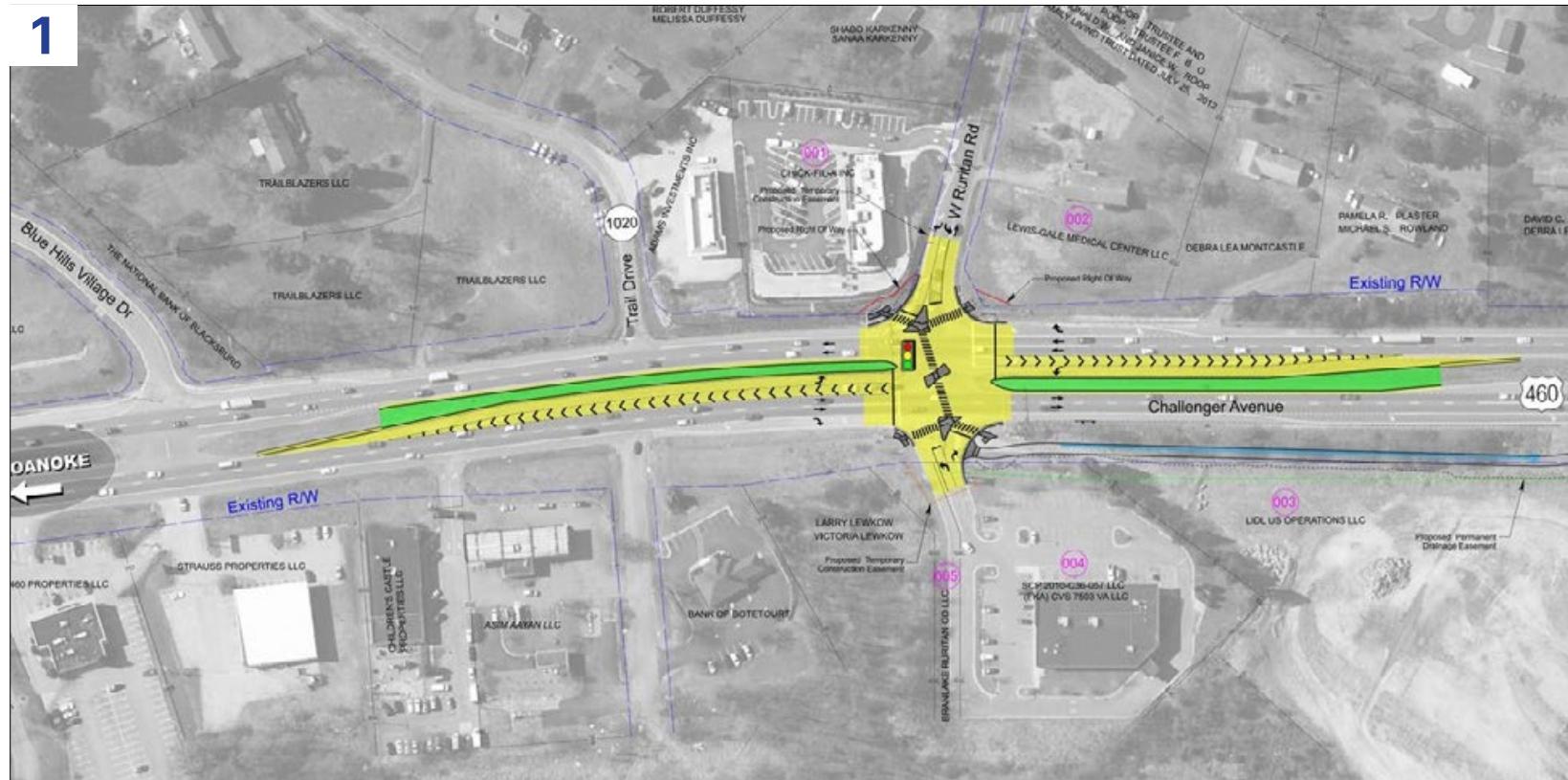
Priority Corridor #1

Challenger Avenue (Route 460) - Roanoke City Line to Botetourt County Line

Three projects along this corridor were funded in 2021:

1. Route 460 at West Ruritan Road Intersection Improvements: \$7.5 million SMART SCALE/STBG award
 2. Route 460 Intersections from Carson Road to Huntridge Road: \$2.8 million SMART SCALE/STBG award
 3. Route 460 and Alternate Route 220 Intersection Improvements: \$21.8 million SMART SCALE/STBG award

Construction for all projects is anticipated in 2026 and 2027.

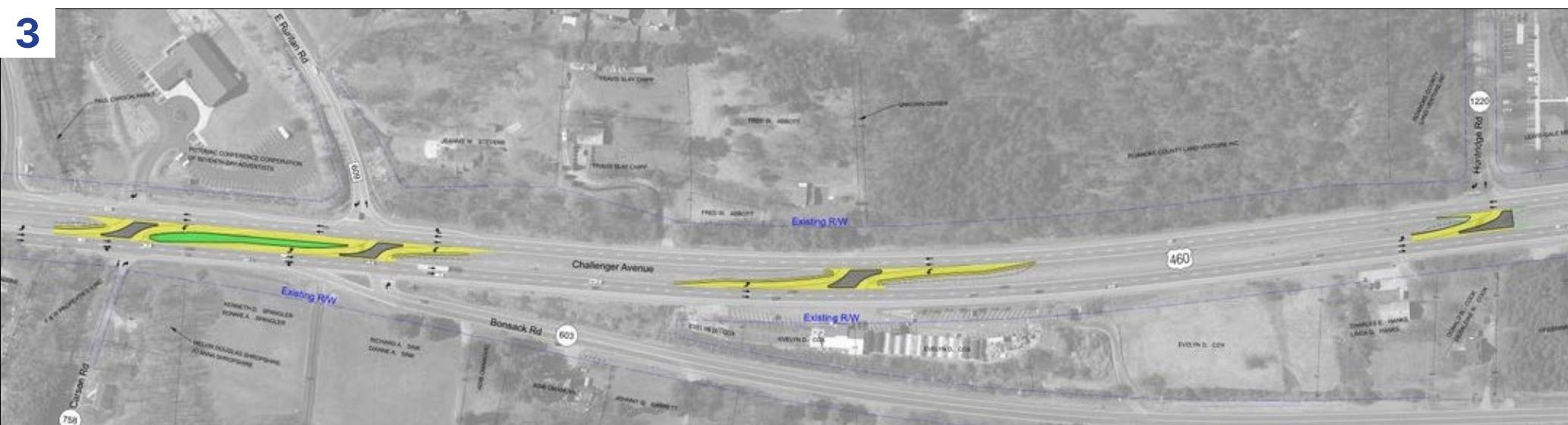


2

WAL-MART



3



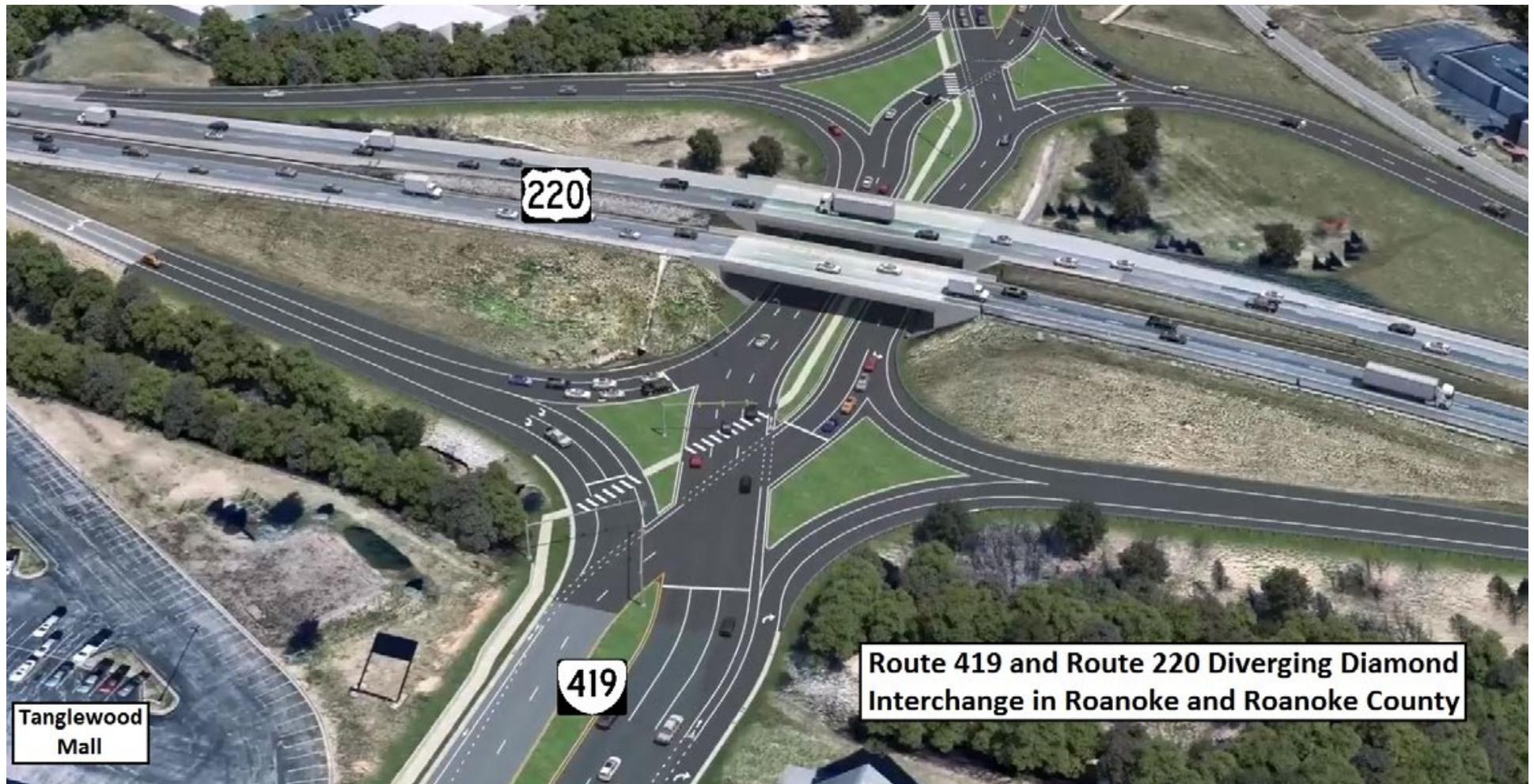
Priority Corridor #2

Electric Road (Route 419) - Brambleton Avenue to the Roanoke City Line (East)

Three projects along this corridor were funded in 2019 and 2021:

1. Route 419/Route 220 Diverging Diamond Interchange: \$17.5 million SMART SCALE/STBG award
2. Route 419 Streetscape Improvements, Phase 2 (Ogden Road to Starkey Road): \$18.5 million SMART SCALE/STBG award

Construction for the Diverging Diamond Interchange is anticipated in early 2025 and construction for the streetscape improvements is anticipated in 2026.





MATCHLINE



Priority Corridor #3

Electric Road (Route 419) - Brambleton Avenue to Glen Heather Drive (West)

Three projects along this corridor were funded in 2023:

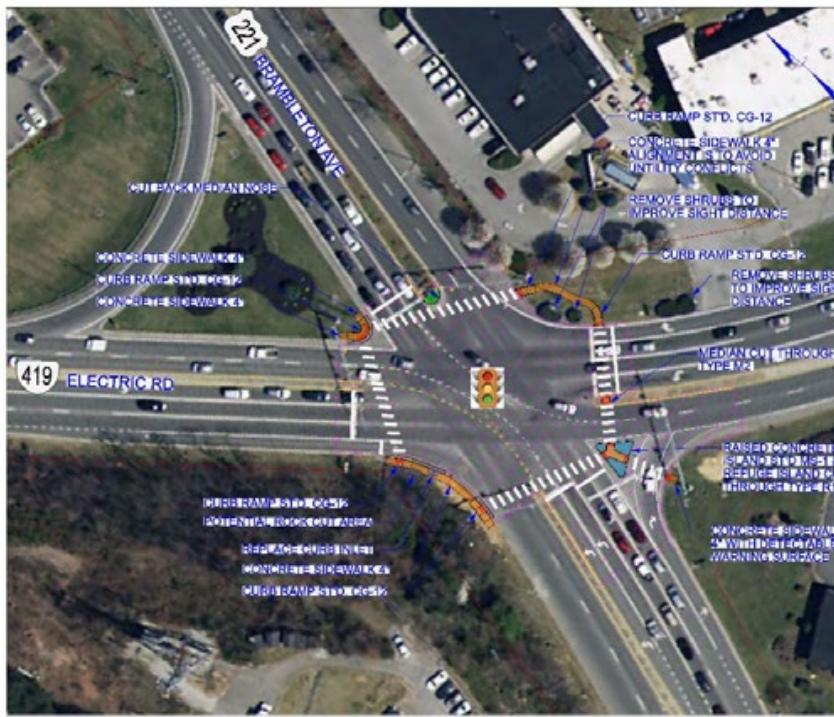
1. Route 419/Electric Road Safety Improvements (Stoneybrook Drive to Grandin Road Extension): \$6.6 million SMART SCALE award
2. Route 419 Pedestrian Crossing Improvements at Brambleton Avenue and Postal Drive: \$3.9 million SMART SCALE award

Construction for all projects is anticipated in 2027.

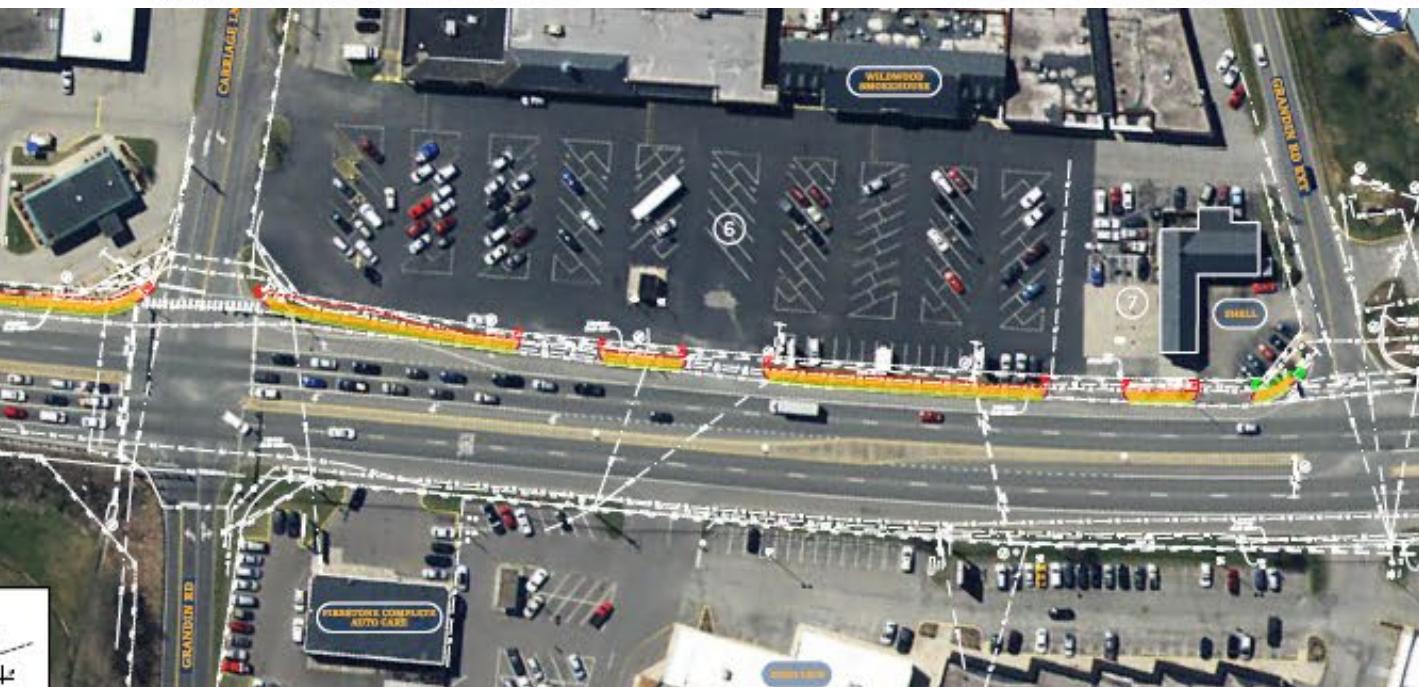




INTERSECTION OF ELECTRIC ROAD & POSTAL DRIVE



INTERSECTION OF ELECTRIC ROAD & BRAMBLETON AVENUE



Priority Corridor #10

Starkey Road - Benois Road to Merriman Road

Construction is completed on a project to convert the previously existing "T" intersection at Starkey Road and Buck Mountain Road to a roundabout.

Total project funding: \$5.8 million in Surface Transportation Block Grant, Revenue Sharing, Secondary Six-Year Program and SMART SCALE funding



Priority Intersection # 1/Corridor #5

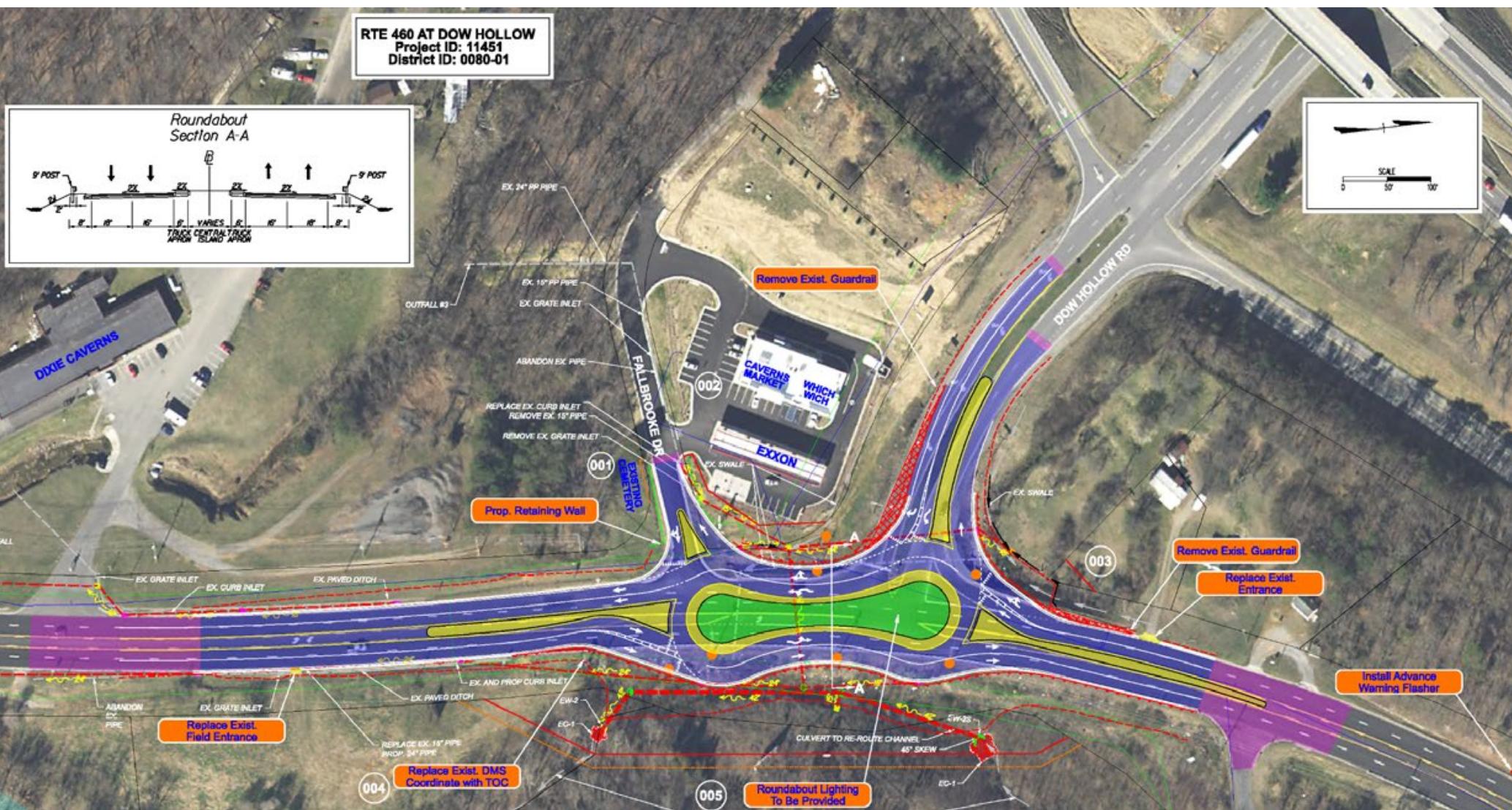
West Main Street - West River Road to Pleasant Run Drive

SMART SCALE application submitted in August 2024 for West Main Street (Route 11/460) at Dow Hollow Road Safety Improvements

STBG Leverage: \$4 million | SMART SCALE Request: \$36.1 million

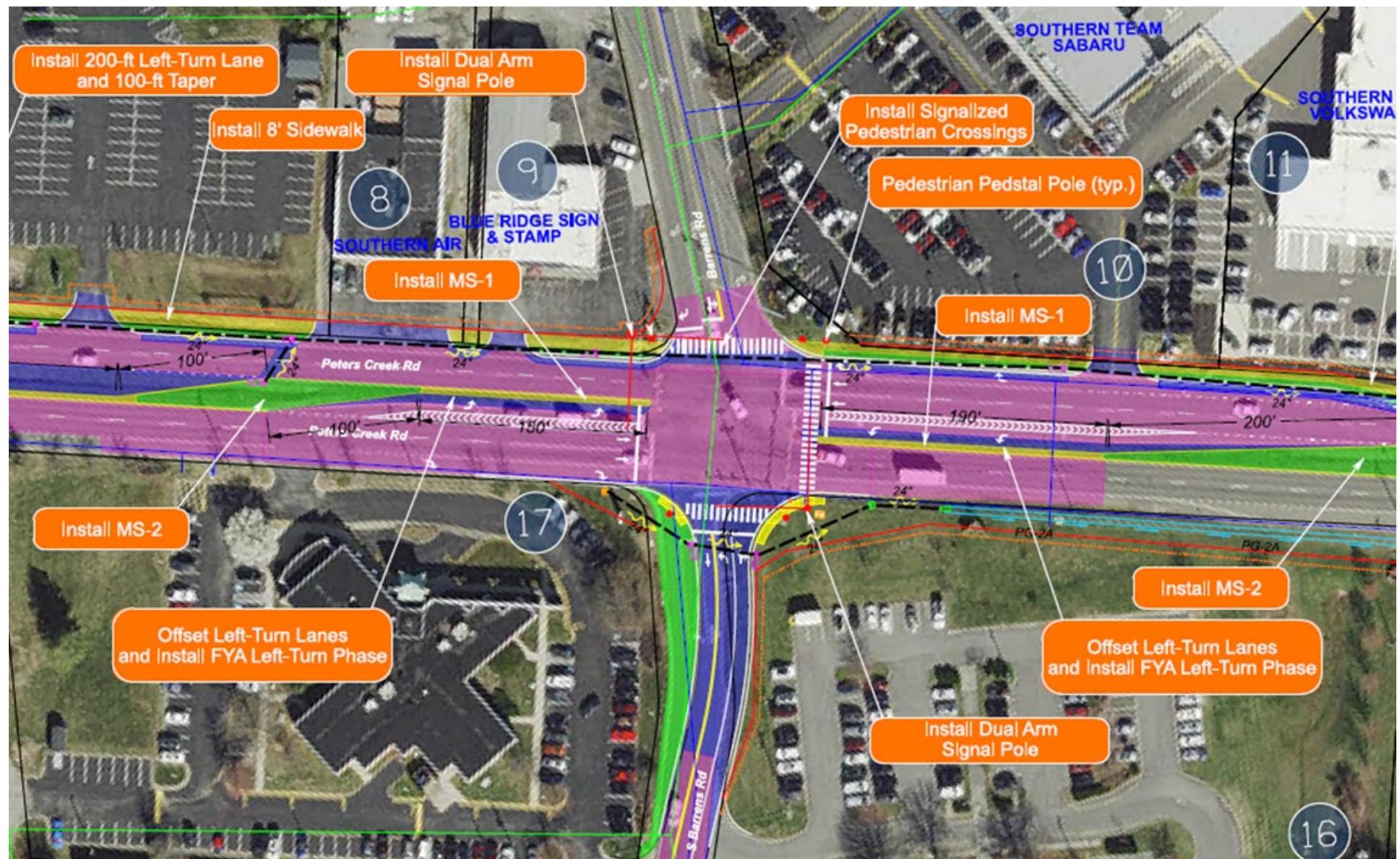
Total Estimate: \$40.1 million

RTE 460 AT DOW HOLLOW
 Project ID: 11451
 District ID: 0080-01



Priority Intersection # 9

Peters Creek Road at Barrens Road



Priority Intersection # 10/Corridor #4

Plantation Road - Williamson Road to Hershberger Road

SMART SCALE Application submitted in August 2024 for Peters Creek Road/ Williamson Road Multimodal Safety Improvements (Wood Haven Road to Plantation Road) including the Peters Creek Road/Barrens Road and Williamson Road/ Plantation Road intersections.

Total estimate: \$107.7 million

