Plantation Road + Surrounding Area

Pedestrian Road Safety Assessment

Roanoke, VA

May 29, 2025

PATHS Prioritizing Active Transportation, Health, and Safety

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Acknowledgements

PATHS would like to thank the following organizations for providing valuable input throughout the RSA process:

- Virginia Department of Transportation
- Virginia Department of Health and their Virginia Walkability Action Institute
- Roanoke County

Introduction

Background

The purpose of this study was to complete a road safety assessment (RSA), focusing on active transportation safety, for Plantation Road and the surrounding area, as shown Figure 1, in Roanoke County, VA. Roanoke County is in southwest Virginia with a population of approximately 100,000 people. The RSA was commissioned by a joint collaboration between the Virginia Department of Health (VDH) and the Virginia Department of Transportation (VDOT) through their Prioritizing Active Transportation, Health and Safety (PATHS) initiative. The County accepted an invitation to partner with PATHS for a pedestrian-focused RSA in early 2025. The PATHS team and the County selected the corridors based on the combination of safety concerns, a low Heath Opportunity Index (HOI) score, a top 1% statewide VDOT Pedestrian and Bicycle Safety Action Plan (PBSAP) corridor ranking, and the mix of land-use and road users along the corridor.

The PATHS RSA approach seeks to enhance walkability for improved safety and more equitable health outcomes through a focused multidisciplinary review of a roadway. Health equity is when every person has the opportunity to attain their full health potential, and no one is disadvantaged because of their social position or socially determined circumstances. However, the 2024 update of the PBSAP confirmed that nearly half of Virginia's fatal pedestrian crashes and nearly two-thirds of all pedestrian injury crashes occurred in areas with Low or Very Low HOI scores, indicating inequitable health and safety outcomes. Further, the 2024 PBSAP update identified the HOI as a high indicator of pedestrian crash risk. Transportation safety affects health equity because reliance on transit, walking, and biking to access employment, health care, education, and general errands may increase one's risk of being involved in a serious crash – especially on roadways with high speeds and high vehicular volume.

RSA Process

RSA Team

The RSA team comprised the following people:

- Nathan Grim, Roanoke County
- Tyler Teer, Roanoke County
- Megan Cronise, Roanoke County
- Will King, Roanoke County Intern
- Robert Issem, City of Roanoke
- Carol Moneymaker, VDOT
- Ada Gibson, VDOT
- Jet Lilly, VDOT
- Emma Duff, VDH
- Christie Wills, VDH
- Kevin Cahoon, Roanoke County Police Department
- Greg Walter, Roanoke Valley Greenway Commission
- William Long, Valley Metro
- Jonathan Stanton, Roanoke Valley Alleghany Regional Commission
- Laura Hartman, Bus Riders of Roanoke Advocacy Group
- Tom Carr, Pedal Safe ROA
- Annette Oudom, VHB, on behalf of PATHS
- Taylor Bonner, VHB, on behalf of PATHS

RSA Agenda

The RSA was conducted over one day and featured the primary RSA activities and the full RSA team; it began with background on the RSA process, common pedestrian crash types, and a review of the study area context, characteristics, and health data. Following a briefing on the map packet and practicing safety in the field, the RSA team conducted the segment field reviews, beginning with Buckley Drive. After the field review, the RSA team debriefed on the observations made and various safety concerns for the corridor. Additionally, a nighttime field review to assess lighting conditions along the corridor was conducted by the PATHS team.

The Appendix includes the RSA agenda and other supporting items.

RSA Study Area

Geography, Roadway, and Traffic

The study area, illustrated in Figure 1, encompasses roughly 0.1 miles (490 ft) of Hershberger Road, 0.3 miles (1,650 ft) of Plantation Road, 0.1 miles (700 ft) of Hollins Road; along with the entirety John Richardson Road (2,050 ft) and Buckley Drive (930 ft). The area is a VDOT-maintained road that serves as a connection to Hershberger Road that leads to the Roanoke-Blacksburg Regional Airport, and the I-581 interchange west of the corridor.

Figure 1 – Overview of study area

The RSA reviewed the following four segments of the study area:

- Segment 1 – Hershberger Road, 140 Hershberger Road Driveway to Plantation Road
- Segment 2 – Plantation Road, 5012 Plantation Road Driveway to Hollins Road/John Richardson Road
- Segment 3 – Hollins Road, Plantation Road to Summerville Lane
- Segment 4 – Johns Richardson Road, Plantation Road to Carvin Creek
- Segment 5 – Buckley Drive, John Richardson Road to 140 Hershberger Road Driveway

A summary of the corridor characteristics is shown in Table 1.

Table 1 - Overview of Corridor Characteristics

Characteristics	Description
Orientation	Hershberger Road: East-West Plantation Road: North-South Hollins Road: East-West John Richardson Road: East-West Buckley Drive: North-South
Estimated Annual Average Daily Traffic (AADT) in 2023 vehicles per day (vpd)[1]	Hershberger Road: 8,400 vpd Plantation Road: 14,000 vpd Hollins Road: 6,100 vpd John Richardson Road: 1,100 vpd (east of Buckley Drive); 90 vpd (west of Buckley Drive) Buckley Drive: no estimate available
Speed Limit (miles per hour)	Hershberger Road: 40 Plantation Road: 40 Hollins Road: 45 John Richardson Road: 25 Buckley Drive: not posted
Number of Lanes	Hershberger Road: 2 (1 in each direction) Plantation Road: 2 (1 in each direction, north of Hollins Road; Widens to 2 lanes southbound, south of Hollins Road) Hollins Road: 4 (2 in each direction; Narrows to 1 in each direction north of American Tire Boulevard) John Richardson Road: 2 (1 in each direction, no centerline present) Buckley Drive: 2 lanes (1 in each direction, no centerline present)
Lane Widths (feet)	Hershberger Road: 12' (typical), 24' pavement width Plantation Road: 12' (typical), 37' pavement width (at narrowest) Hollins Road: 12' (typical), 60' pavement width (at narrowest) John Richardson Road: 20' pavement width Buckley Drive: 16' pavement width
Roadway Features	Undivided roadway for all roads within the study area Right and left turn lanes common at intersection on Plantation Road and Hollins Road
Land Uses	Medium- to Low-Density Residential, Commercial (Walmart Neighborhood Market and Food Lion)
Transit Presence	Hershberger Road: 2 bus stops Plantation Road: 2 bus stops No amenities available
Pedestrian Facilities	No sidewalks along the study area

[1] Estimated Annual Average Daily Traffic with Factored Short Term Traffic Count Data with Growth Element, per VDOT https://www.vdot.virginia.gov/doing-business/technical-guidance-and-support/traffic-operations/traffic-counts/

Characteristics	Description
Bicycle Facilities	Hollins Road, John Richardson Road, and Plantation Road are Bikeway Plan for the Roanoke Valley Area Metropolitan Planning Organizations (Bikeway Plan) corridors. Existing bike lanes south of the study area on Plantation Road.

Transit

There are two bus stops present along Hershberger Road and two along Plantation Road, which are locatable by sign but have no amenities such as benches, lighting, shelters, and no marked crosswalks. The bus stops are serviced by Valley Metro Routes 25 and 26 to Roanoke Blacksburg Regional Airport and from 3rd Street Station. Figure 2 shows a map of the routes.

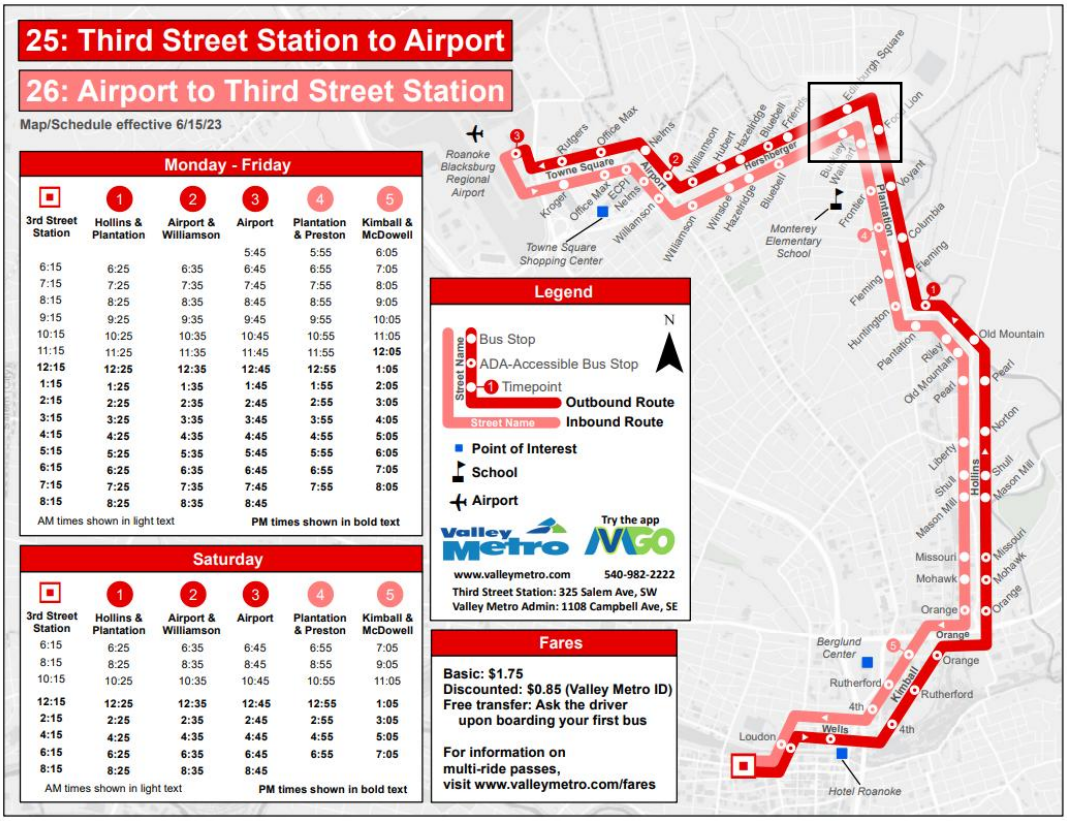

Figure 2 – Overview of Transit Route 25 & 26

Community Health and Assets

The west side of Plantation Road is within an area identified as "Low" HOI, while the east side of Plantation Road has "High" health opportunity to achieve good health. South of Hollins Road within the City of Roanoke, residents have a "Moderate" HOI score. The HOI score is made up of four profiles:

- Community Environmental – a measure of the natural, built, and social environment
- Consumer Opportunity – a measure of the consumer resources available within a community
- Economic Opportunity – a measure of the economic opportunities available within a community
- Wellness Disparity – a measure of the disparate access to health services within a community

Within the area west of Plantation Road where residents had lower health opportunity than residents east and south of Plantation Road, the low score is driven down predominantly by the Economic Opportunity measure. The VDOT HOI data viewer shows that low labor force participation is predominantly driving the economic measure down, ultimately driving down the HOI score. However, this is not surprising given the large percentage of the population within the census tract that is older than age 65 and likely retired.

Demographic and socioeconomic data showed a notable difference between the three intersecting census tracts within the study area. Table 2 below shows the observed demographic and socioeconomic data for each census tract within the study area (based on U.S. Census Bureau, American Community Survey 2019-2023):

Table 2. Demographic and Socioeconomic Data

	Cost Burdened Households	Households with No Vehicles	Pop. below Poverty Level	Population Age 65+	Population with Any Disability
West of Plantation Road (Roanoke County Census Tract 302.06)	39.5%	8.1%	8.8%	29.2%	18.3%
East of Plantation Road (Roanoke County Census Tract 302.06)	16.2%	10.6%	2.6%	22.9%	12.8
South of Study Area (Roanoke City Census Tract 4)	36.1%	5.2%	30.9%	20.0%	11.7%

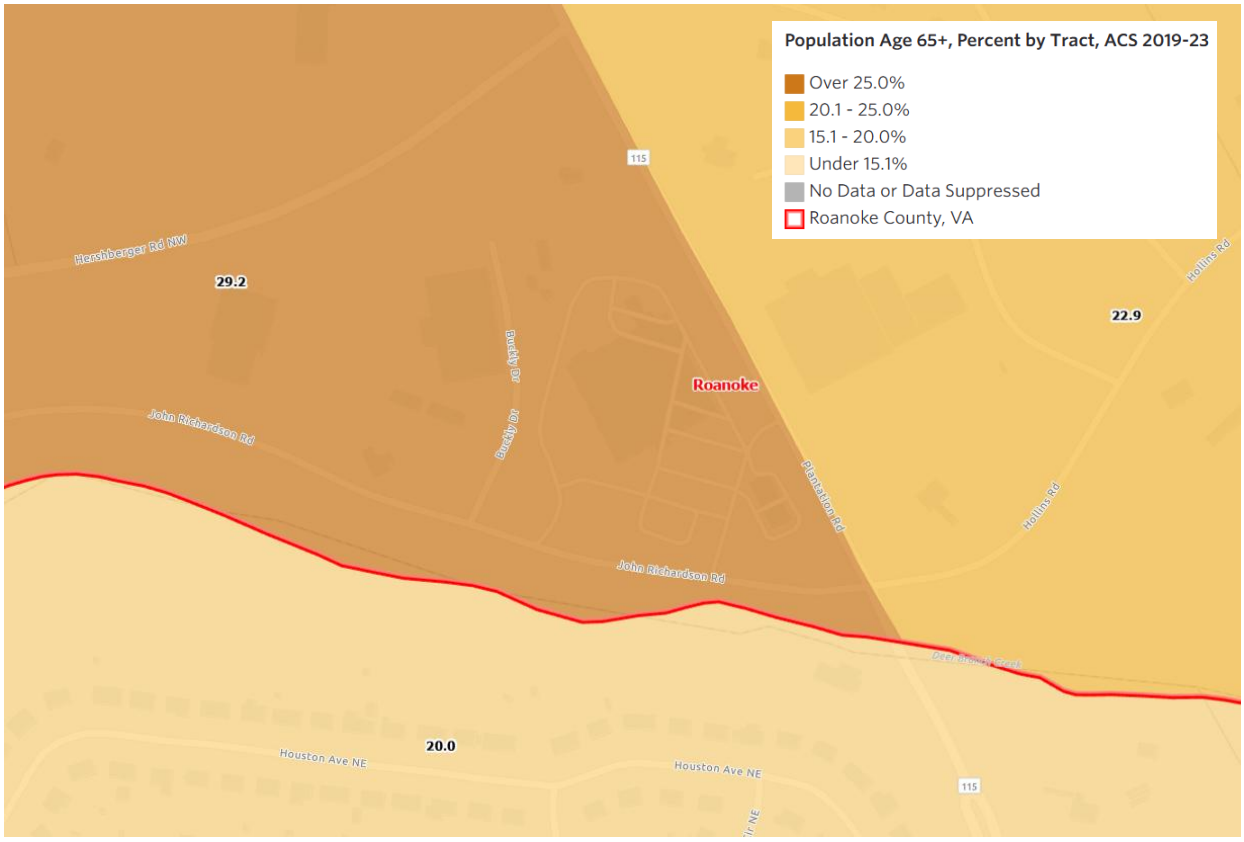

Figure 3 – Overview of Population Age 65+, Percent by Tract

When describing the corridor's community assets in relation to pedestrians, the RSA team identified the following attractions by segment:

- Segment 1 – Hershberger Road: Edinburgh Square Retirement Community
- Segment 2 – Plantation Road: Food Lion and Walmart Neighborhood Market
- Segment 3 – Hollins Road: Food Lion access via driveway
- Segment 4 – John Richardson Road: Walmart Neighborhood Market via southern driveway
- Segment 5 – Buckley Drive: N/A

Community Engagement Survey

In May 2025, Roanoke County conducted a community engagement survey as part of the Virginia Walkability Action Institute to assess walkability and safety concerns within the study area. Surveys were distributed in person to Edinburgh Square, Walmart Neighborhood Market, Food Lion, and 7-Eleven and by mail to property owners and occupants. Community members expressed a desire for safer pedestrian access to nearby destinations such as Walmart Neighborhood Market, Food Lion, and 7-Eleven. Engagement efforts also included meetings with Edinburgh Square management, where residents identified similar concerns and described reliance on traffic lights to determine safe crossing times due to the lack of pedestrian signals at all Hershberger Road and Hollins Road intersections. Business managers also noted increased crashes following the development of Walmart Neighborhood Market. Figure 4, Figure 5, and Figure 6 show the results of the community engagement surveys.

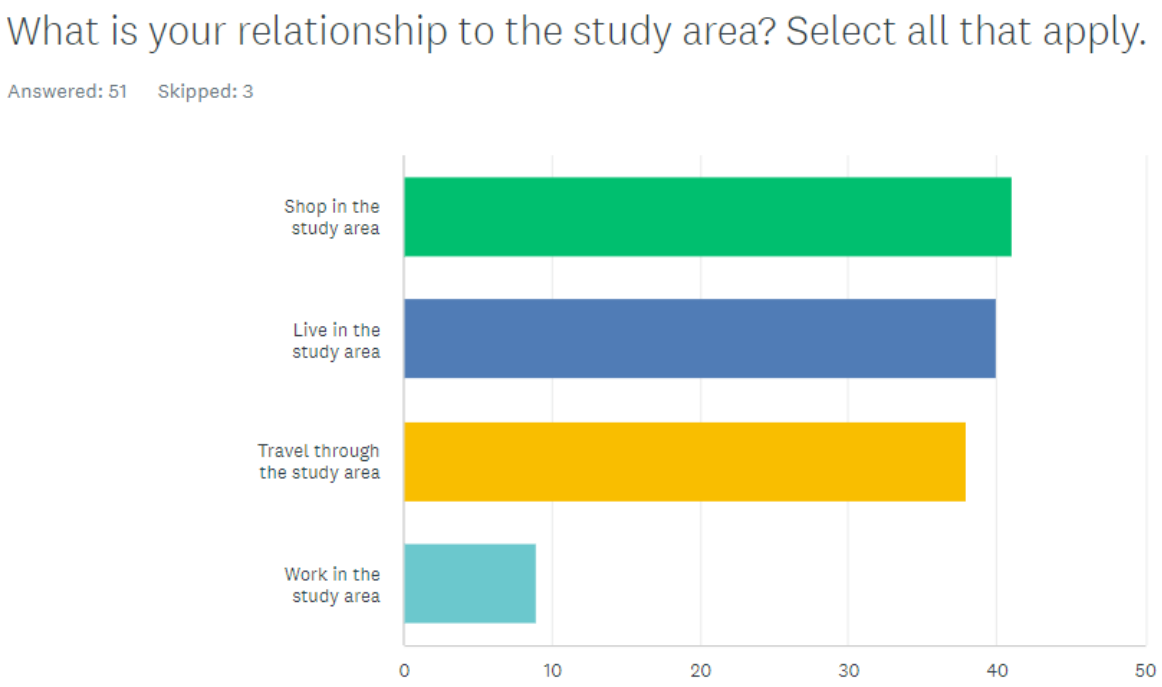

Figure 4 – Survey results of relationship to study area

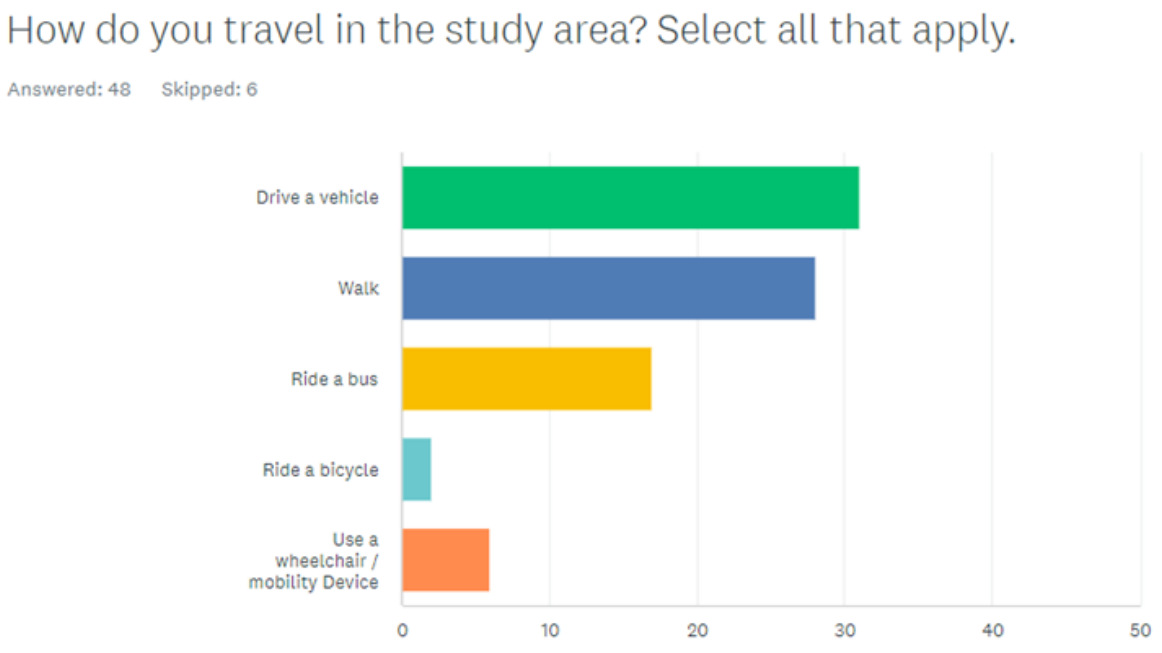

Figure 5 – Survey results of travel mode within study area

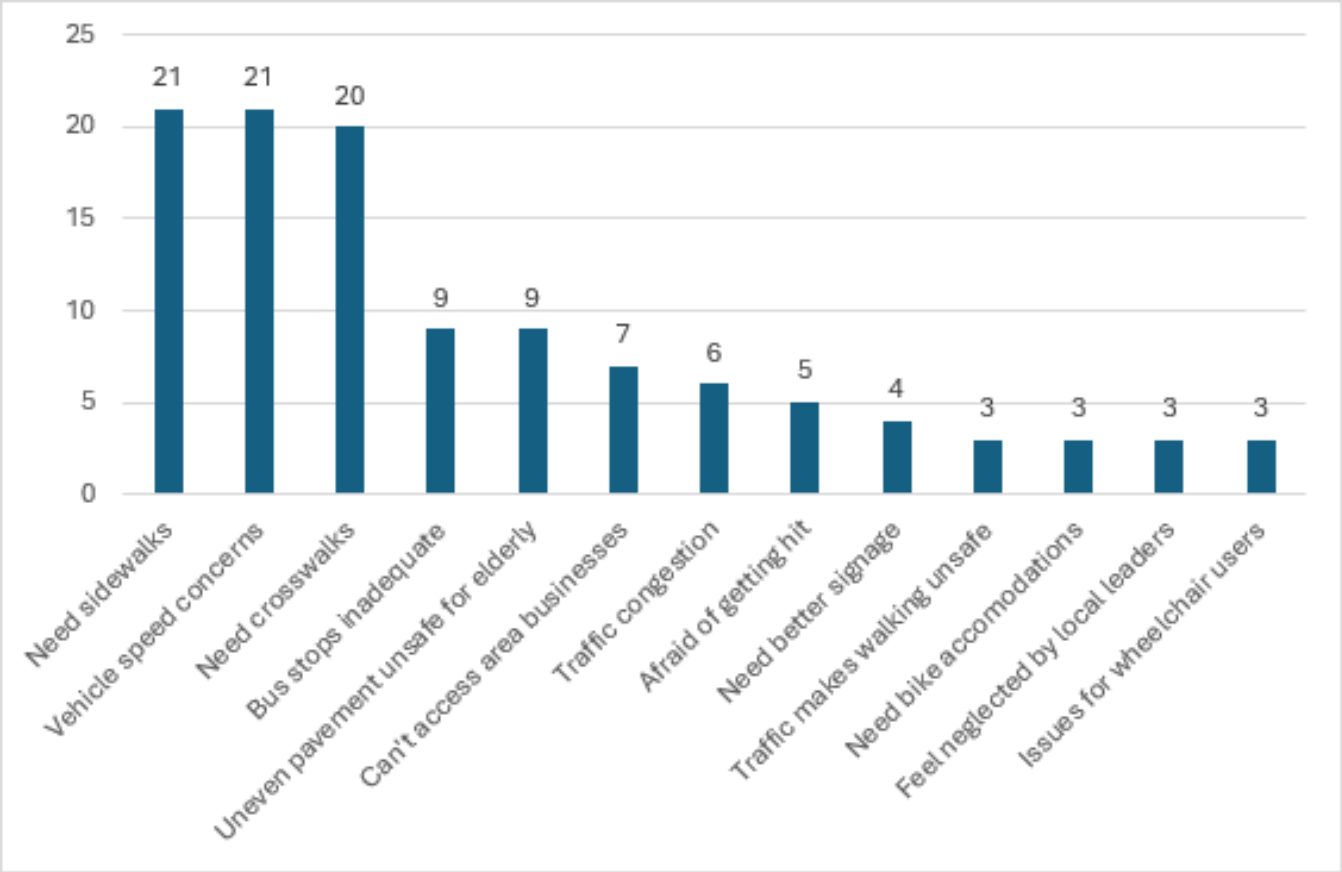

Figure 6 – Survey results of safety issues and difficulties within study area

VDOT Pedestrian and Bicycle Safety Action Plan

VDOT's Pedestrian and Bicycle Safety Action Plan (PBSAP) identifies high-priority corridors for pedestrian safety improvements based on crash risk and roadway conditions and was last updated in 2024 (PBSAP 4.0). The PBSAP considers a series of infrastructure, community, and built environment characteristics in addition to crash history to identify segments on Virginia's roadway system that have the highest risk of pedestrian and bicyclist crashes (shown in Figure 7).

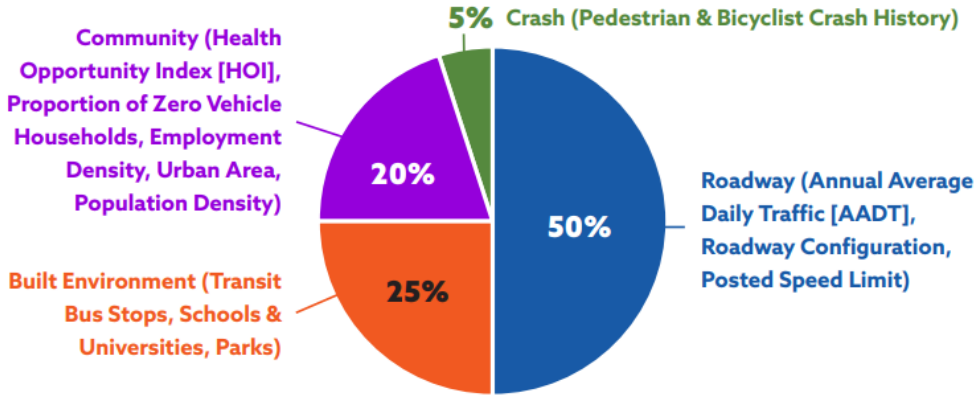

Figure 7 – Risk and Propensity Factor Categories and Weighting from PBSAP 4.0 (Source: 2024-2026 Virginia VRU Assessment)

Within the study area, three segments are ranked among the highest risk of pedestrian and bicyclist crashes (Figure 8):

- Plantation Road between Hershberger Road and Fleming Avenue is classified in the Top 1% of high-risk segments statewide.
- Hershberger Road (Friends Way to Plantation Road) and Hollins Road (Plantation Road to north of Tinker Creek Bridge) are both ranked in the Top 5%.

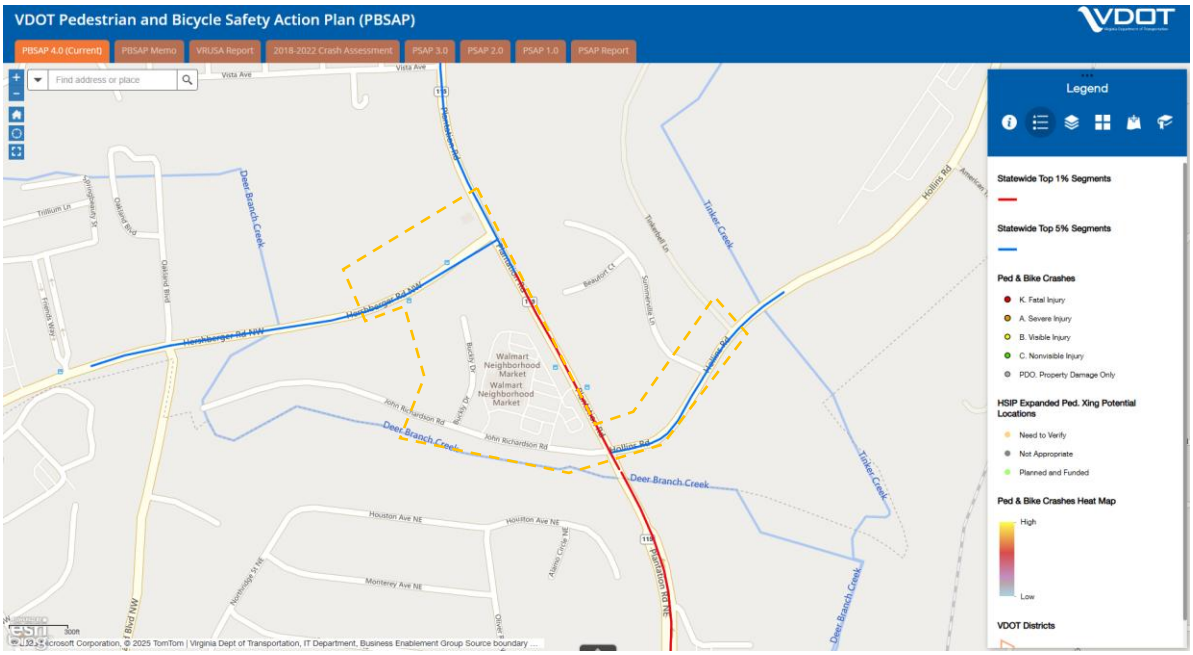

Figure 8 – Overview of VDOT PBSAP for Study Area

Crash Data

VDOT's PowerBI tool provided the crash data. There was one bicycle crash and no pedestrian crashes within the 5-year time frame of the data sourcing, however all crashes (including persons driving vehicles) were considered for the RSA analysis. Between 2020 and 2024, there were five severe injury crashes, 7 visible injury crashes, and 14 nonvisible injury crashes, as shown in Figure 9.

An overview of the injury crashes within the study area are shown in Figure 10. There were also no fatal injury crashes on the corridor and two visible injury crashes involving a bicyclist in 2024. However, the address indicated in publicly available data indicates that one of the bike crashes on Hershberger Road may have occurred west of the study area. The other occurred at the Food Lion driveway entrance off Hollins Road.

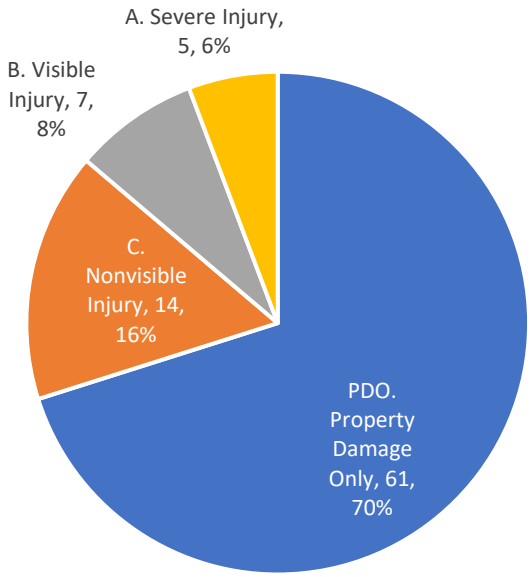

Figure 9 – Breakdown of crash severity (2020-2024)

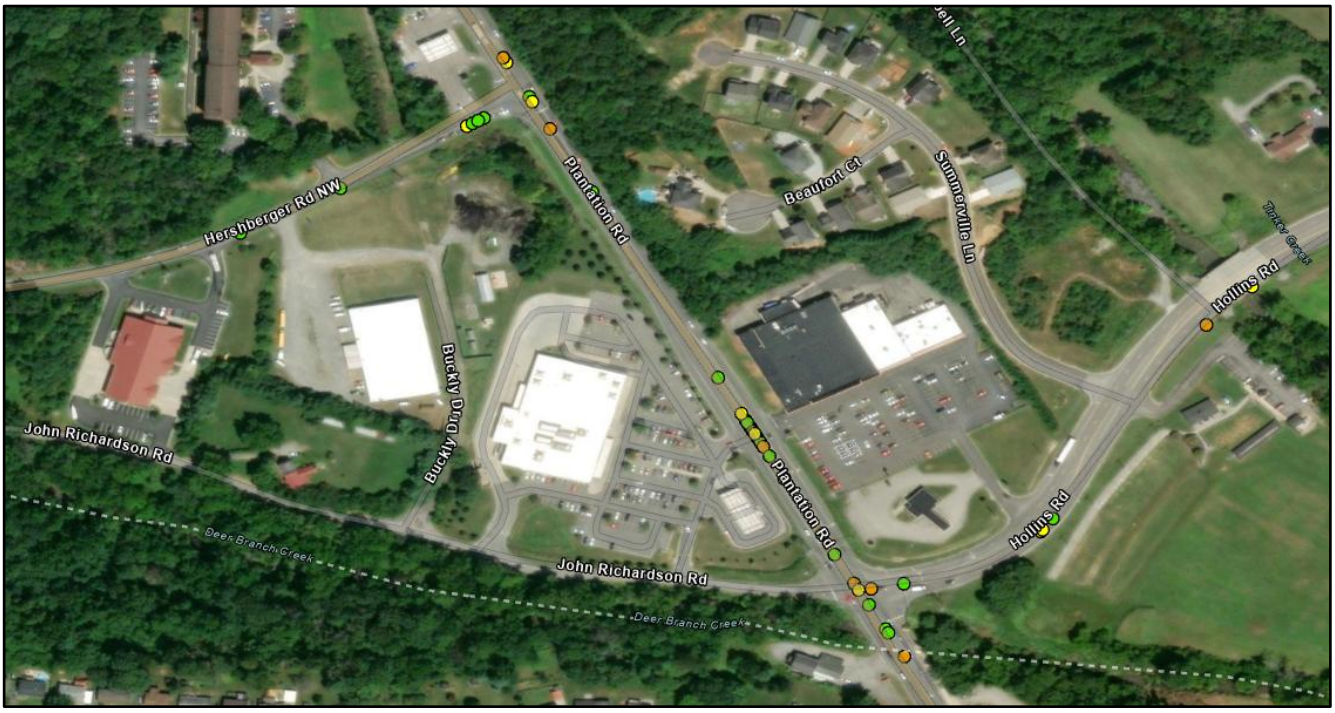

Figure 10 – Overview of Study Area with injury crashes, 2020-2024

Table 3 and Table 4 show an overview of crash severity and crash type location. The three highest crash locations within the study area include Hershberger Road and Plantation Road intersection (24 of 87 crashes), 4950 Plantation Road Driveway (24 of 87 crashes), and Plantation Road and Hollins Road intersection (22 of 87 crashes). Notably, Plantation Road and Hollins Road intersection had two of the five severe injury crashes and 4950 Plantation Road driveway had predominantly angle crashes (21 of 24 crashes).

Table 3 – Crash Severity by Location, 2020-2024

Location	A. Severe Injury	B. Visible Injury	C. Nonvisible Injury	PDO. Property Damage Only	Grand Total
Hershberger Road			**1**	**4**	**5**
Hershberger Road and Plantation Road	1	2	4	17	**24**
4812 Hollins Road Driveway (Food Lion Shopping Center Driveway)		1	1	2	**4**
4950 Plantation Road Driveway (Walmart Neighborhood Market)	1	2	3	18	**24**
Plantation Road		1	1	5	**7**
Hollins Road	1				**1**
Plantation Road and Hollins Road	2	1	4	15	**22**
Grand Total	**5**	**7**	**14**	**61**	**87**

Table 4 – Crash Type by Location, 2020-2024

Location	Rear End	Deer	Backed Into	Bicycle	Angle	Head On	Sideswipe – Same Direction	Sideswipe – Opposite Direction	Fixed Object – Off Road	Grand Total
Hershberger Road	2			1				1		**4**
Hershberger Road and Plantation Road	11				8	1	1		3	**24**
4812 Hollins Road Driveway (Food Lion Shopping Center Driveway)					4					**4**
4950 Plantation Road Driveway (Walmart Neighborhood Market)	2				21				1	**24**
Plantation Road	2				1		1		3	**7**
Hollins Road		1				1				**2**
Plantation Road and Hollins Road	13	1	1	1	4		1	1		**22**
Grand Total	**30**	**2**	**1**	**2**	**38**	**2**	**3**	**2**	**7**	**87**

Table 5 shows an overview of the severe crashes where there were two fixed object – off road, one angle, and two rear end crashes.

Table 5 – Overview of Severe Injury Crashes, 2020-2024

Year	Location	Crash Type	Lighting	Weather
2020	Hollins Road	Fixed Object – Off Road	Clear/Cloudy	Daylight
2021	4950 Plantation Road Driveway (Walmart Neighborhood Market)	Fixed Object – Off Road	Clear/Cloudy	Daylight
2023	Plantation Road and Hollins Road	Angle	Clear/Cloudy	Dusk
2023	Plantation Road and Hershberger Road	Rear End	Rain	Darkness
2023	Plantation Road and Hollins Road	Rear End	Clear/Cloudy	Daylight

Figure 11 shows the crash type by year where 2023 had the most crashes (21 of 87 crashes) within the study period. Initial data review showed that showed that 63 (73 percent) of the crashes occurred during daylight hours and 72 (82 percent) occurred during clear/cloudy conditions, as shown in Figure 12.

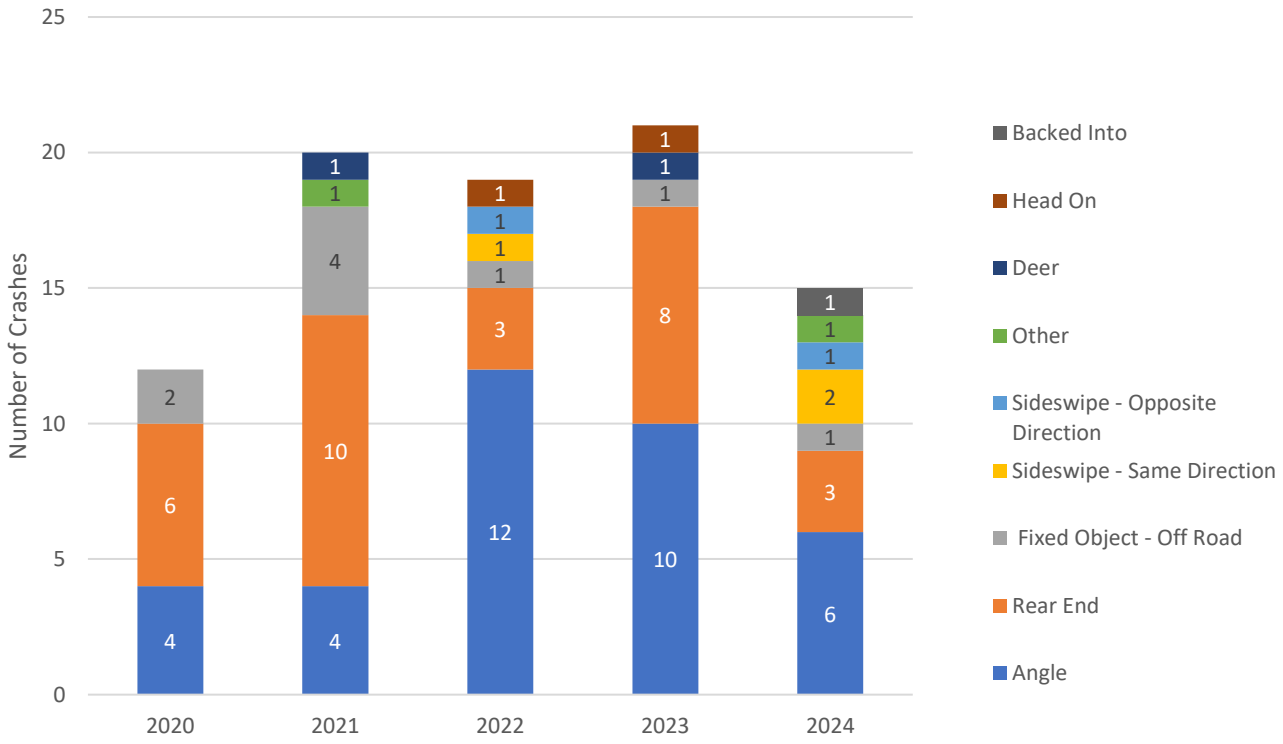

Figure 11 – Crash Type by Year

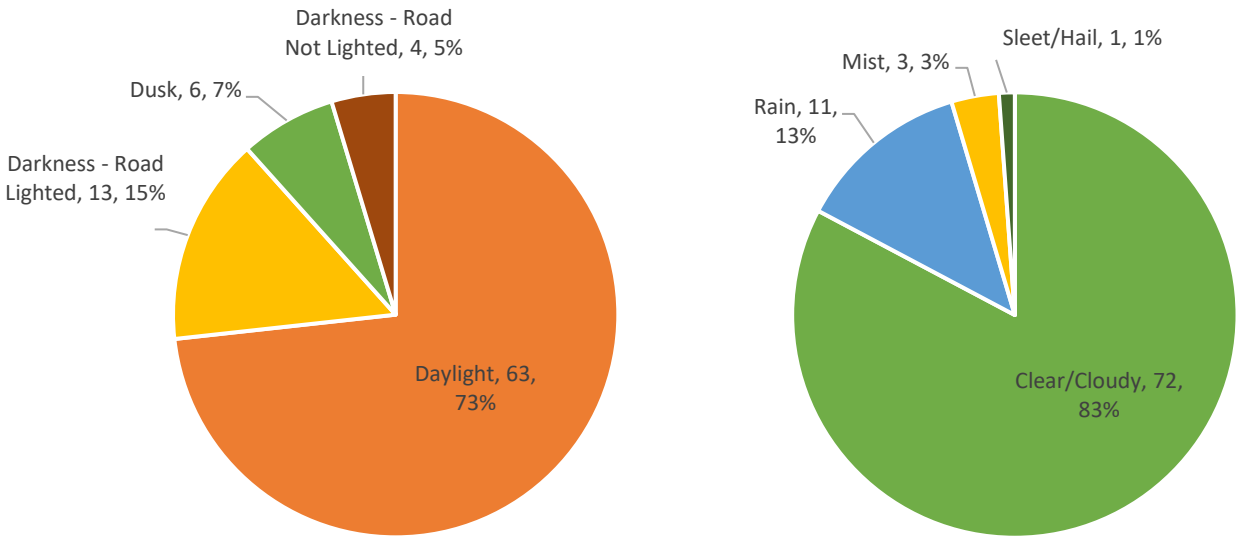

Figure 12 – Lighting and weather conditions for crashes

Assessment Findings

Area-Wide Positive Features

The study area includes some features that promote safety including traffic signals at busy intersections such as Plantation Road/Hershberger Road and Plantation Road/Hollins Road/John Richardson Road. Also, there are guardrails present along Plantation Road where side shoulder slopes are steep to prevent roadway departures. Both signalized intersections have upgraded signal heads with retroreflective backplates, and the Plantation Road/Hollins Road/John Richardson Road intersection has Flashing Yellow Arrows (FYA) for left turns all four approaches. The RSA participants interviewed pedestrians who expressed that the community within the study area have a desire to walk, bike, and use transit more often. Another notable enhancement is the installation of a signal at the fire station that allows officers to activate the green light at the Plantation Road/Hershberger Road intersection from the fire station, thereby clearing traffic queues that could obstruct fire trucks exiting the station.

Area-Wide Issues

The RSA team observed the following issues affecting pedestrian safety along the study corridor:

- *Pedestrian Facilities* – Throughout the entire study area there were no existing sidewalks alongside any of the corridors or marked crosswalks at the intersections or near transit stops. Several pedestrians were observed walking along the road in the grass or in the roadway on Plantation Road. While the law enforcement representative was able to stop traffic for the RSA team to cross at Hollins Road and Plantation Road, people crossing at that intersection must use the traffic green light to gauge when to safely cross the intersection. There were also many pedestrians crossing midblock across Plantation Road at the Walmart Neighborhood Market/Food Lion driveways.
- *Bicyclist Facilities* – There are currently no bicyclist facilities within the study area. However, according to the Roanoke Valley Bikeway Plan, both Hollins Road and John Richardson Road are designated as priority corridors and Plantation Road is designated as a vision corridor, indicating potential for future facility development. During the RSA, Roanoke County representatives mentioned the Tinker Creek Greenway, a shared-use path with multiple proposed alignments that could extend along Hollins Road and Plantation Road within the study area. Additionally, a marked bike lane currently exists on Plantation Road south of the study area within Roanoke City.
- Motor Vehicles Speeds – During the daytime field visit, vehicle speeds appeared to be above the posted 40 mph speed limit. RSA participants reported feeling uncomfortable due to the lack of pedestrian facilities and the high vehicles speeds along Hershberger Road and Plantation Road. On Plantation Road, the distance between signalized intersections, the cross-section width, the eastbound downhill grade of the roadway, and minimal traffic congestion may contribute to the vehicular speeds greater than 40 mph. The roadway has one through lane and turn lanes at the Walmart Neighborhood Market/Food Lion driveway and Hollins Road/John Richardson Road intersections that allow for higher speeds in the through lanes. Additionally, during the nighttime field visit (8:30 to 9:30 pm), RSA participants observed slower speeds during dark hours.
- *Lighting* – The RSA team reported that overall roadway lighting infrastructure is dated and not using best practice materials or design. The existing lighting appeared to be high-pressure sodium (HPS) lights,

which have largely been phased out due to poor color rendering, shorter service life, and lower energy efficiency compared to LED systems.[2]

- *Vegetation Affecting Sight Distance and Sign Visibility* – The RSA team identified numerous locations along the corridor where encroaching vegetation limited the sight distance of vehicles and covered existing signs.
- *Access to Transit* – None of the transit bus stops have boarding and alighting areas that are ADA compliant or marked crosswalks (with appropriate visibility enhancements) to facilitate passengers crossing Plantation Road and Hershberger Road to access those stops. Segment-specific recommendations for crossing improvements are noted later in the report.
- *Land Use and Network Connectivity* – The study area has several features that concentrate vehicle trips contributing to elevated roadway use. Plantation Road is a north/south minor arterial into the City of Roanoke. Plantation Road and Hollins Road are heavily used vehicular routes for commuters and trucks.

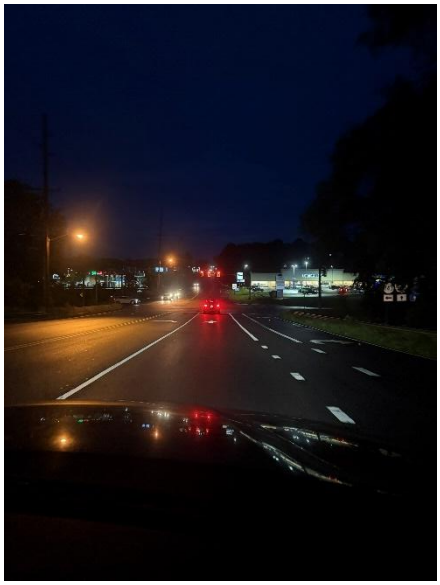

*Figure 13 (Left) – Photo of Plantation Road during darkness conditions (*Credit: VDOT)

Figure 14 (Right) – Picture of Plantation Road and Hershberger Road intersection (Credit: VDOT)

Area-Wide Suggestions

The following suggestions are recommended within three implementation timeframes to promote pedestrian, bicyclist, and vehicular safety throughout the corridor. **These suggestions are dependent on funding availability, project feasibility, other local constraints, and coordination between local, state, regional, and private entities**. They should be revisited depending on funding availability and for compatibility with concurrent improvement opportunities (e.g., roadway overlay schedules, new development, new community facilities, and intersection upgrades). Segment-based recommendations, implementation timeframes, and responsible parties are described later in this report and summarized in the Appendix. Concept plans for the entire study area are shown in the Appendix.

[2] Federal Highway Administration, Roadway Lighting Handbook, U.S. Dept. of Transportation, May 2023. https://highways.dot.gov/sites/fhwa.dot.gov/files/2023-05/FHWA-Lighting-Handbook_0.pdf

Near-term (0-2 years)

- Roanoke County to work with VDOT to trim vegetation encroaching upon existing signs and interfering with vehicle sight distance.
- Roanoke County to work with VDOT to fund and install marked crosswalks on all legs of signalized intersections.
    - For each crosswalk, all curb ramps, push button locations, and accessible pedestrian signals along the corridor need upgrades to be compliant with ADA and Public Right-of-Way Accessibility Guidelines (PROWAG) requirements.
    - Evaluate the signal for the installation of Leading Pedestrian Intervals (LPI).
- Roanoke County to work with VDOT to evaluate existing transit stop locations and add transit stop amenities such as shelters, benches, signage, and lighting. Consider the installation of solar lights at existing transit stops as an immediate recommendation.
- Roanoke County to work with VDOT to investigate and fund the potential for roadway reconfigurations with pavement markings on each corridor to implement pedestrian/bicyclist facilities. See discussion for each segment for potential roadway reconfiguration.

Long-term (5+ years)

- Roanoke County to work with VDOT to:
    - Install pedestrian and bicyclist facilities, such as sidewalks, along Plantation Road. Truck aprons can be installed at intersections to tighten the effective curb radii with the installation of sidewalks.
    - Install bicyclist facilities along Hollins Road.
    - Create a connected pedestrian/bicyclist facility network by reestablishing a trail with the abandoned bridge via John Richardson Road west of the study area.

Figure 15 (left) – Photo of Plantation Road from Hershberger Road (Credit: VDOT)

Figure 16 (right) – Photo of pedestrian walking along Plantation Road (Credit: VDOT)

Segment 1 – Hershberger Road, 140 Hershberger Road Driveway to Plantation Road

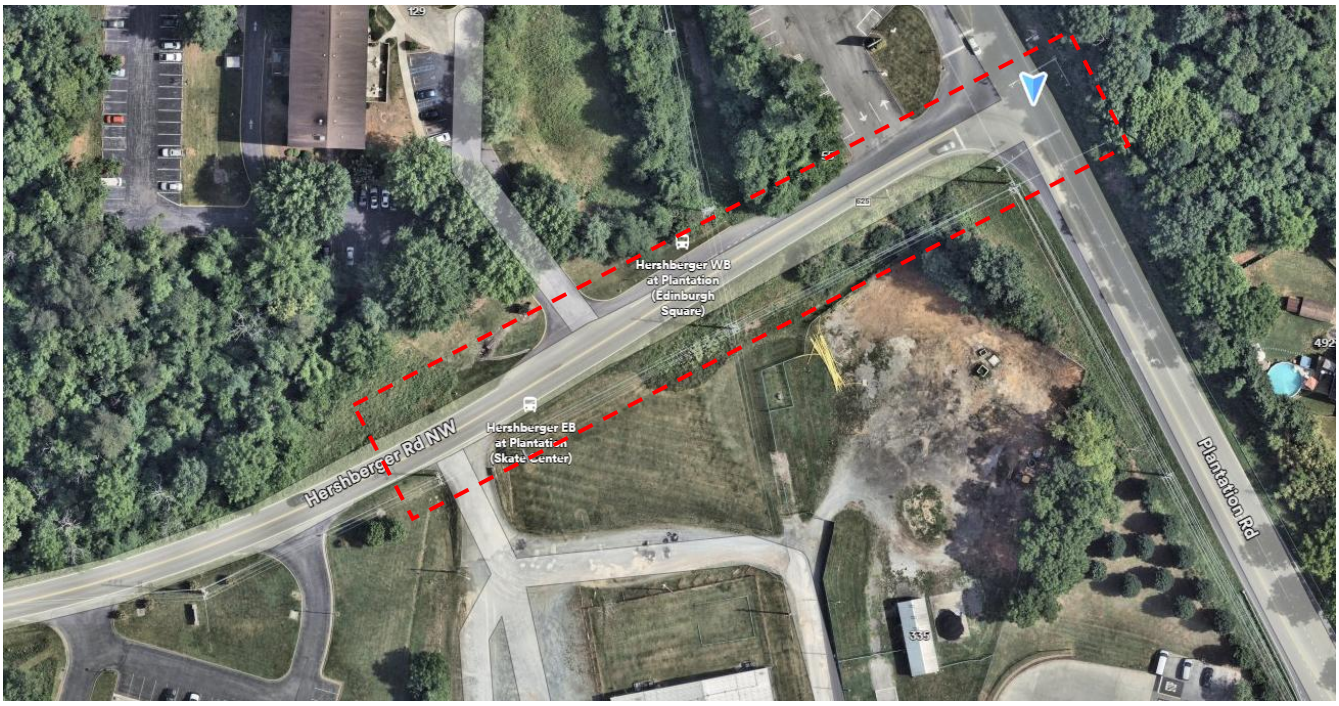

Figure 17 – Overview of Hershberger Road study area

Observations and Related Issues Affecting Safety

- Roadway
  - The posted speed limit is 40 mph, and vehicle volumes are estimated in the 8,000 AADT range. The roadway is two-lane undivided.
  - Vertical curve north of the study area obstructs Hershberger Road/Plantation Road traffic signal visibility for vehicles travelling southbound on Plantation Road.
- Road User Behavior
  - RSA participants noticed a potential risk for pedestrian crashes adjacent to Edinburgh Square (129 Hershberger Road) due to crossings for transit stops and to access Buckley Drive.
  - West of the study area approximately 0.5 miles, Hershberger Road has a posted speed limit of 25 mph.
- Transit
  - There are two transit stops on Hershberger Road at the Edinburgh Square driveway with locatable only by signpost.
- Land Use
  - Edinburgh Square retirement community is locating on the Hershberger Road and represents most of the residents in the study area. RSA participants mentioned people aged 65+ having difficulties using their mobility devices (e.g., wheelchairs, electric scooters) along the roadway due to lack of sidewalk and shoulder.
  - 7-Eleven convenience store is located at the intersection of Plantation Road and Hershberger Road. RSA participants interviewed a bicyclist at the store who stated that he bikes to the convenience store every day using Plantation Road.

    - Hershberger Road can be used to access the Friendship assisted living facility, Crossroads Shopping Center, and Roanoke-Blacksburg Regional Airport.
- Bicycle and Pedestrian Facilities
    - There are no pedestrian or bicyclist facilities present.
- Intersection(s) and Driveway(s)
    - The traffic signal is upgraded with retroreflective backplates.
    - 129 Hershberger Road Driveway (Unsignalized) – No marked crosswalks, despite transit stop.
    - 140 Hershberger Road Driveway (Unsignalized) – No marked crosswalks, despite transit stop.
    - Plantation Road (Signalized) – No marked crosswalks, pedestrian signal heads, ADA ramps, or push buttons.
        - North-South
            - One through lane per direction
            - One dedicated left-turn lane per direction
        - East-West (single approach)
            - One through lane per direction (no turn lanes)
- Lighting
    - Lighting present at intersection, though limited to two luminaires on northeast and southwest corners. No lighting along the roadway.

*Figure 18 (Left) – Picture of truck turning from Hershberger Road to southbound Plantation Road (*Credit: VDOT)

*Figure 19 (Right) – Picture of Hershberger Road transit stop (*Credit: VDOT)

Recommendations

Near-term (0-2 years)

- Roanoke County to work with Valley Metro to fund and install transit stop improvements such as, boarding/alighting landing areas, shelters, solar lights, and benches.
- Roanoke County to work with VDOT to conduct a speed study to determine the appropriate speed limit.
    - The speed limit is 25-mph approximately 0.3 miles west of the study area.

Intermediate (2-5 years)

- Roanoke County to work with VDOT to evaluate the installation of a sidewalk from Plantation Road to Edinburgh Square.
- Roanoke County to work with VDOT to evaluate the possibility of a walking route to/from John Richardson Road and Edinburgh Square using Buckley Drive.
    - The connection would require right-of-way acquisition, repaving, and possibly regrading of Buckley Road to establish ADA compliance for pedestrians.
- Roanoke County to work with VDOT to install a crosswalk with curb ramps for pedestrians to access the transit stops. Crosswalk installation should be in line with treatments recommended in VDOT's IIM-TE-384.1 (Figure 20), which is a Rectangular Rapid Flashing Beacons (RRFB) for a 2-lane 40-mph roadway (Figure 21).

Roadway Configuration (# is total N of lanes)		Roadway ADT and Speed Limit											
		1,500 to 9,000 VPD			9,000 to 12,000 VPD			12,000 to 15,000 VPD			More than 15,000 VPD		
		≤ 30 MPH	35 MPH	≥ 40 MPH	≤ 30 MPH	35 MPH	≥ 40 MPH	≤ 30 MPH	35 MPH	≥ 40 MPH	≤ 30 MPH	35 MPH	≥ 40 MPH*
Single lane, one-way street		VE/TC	VE/TC	VE/TC	VE/TC	VE/TC	VE/TC	VE/TC	VE/TC	VE/TC	VE/TC	VE/TC	VE/TC
2 Lanes (undivided two-way street)		VE/TC	VE/TC	VE/RRFB	VE/TC	VE/TC	VE/RRFB	VE/TC	VE/RRFB	VE/RRFB	VE/RRFB	VE/RRFB	PHB
3 Lanes (center turn lane)		VE/TC	VE/RI	RI/RRFB	VE/RI	RI/RRFB	RI/RRFB	RI/RRFB	RI/RRFB	PHB/RD	RI/RRFB	PHB/RD	PHB/RD
4 Lanes (two-way street without median)		RD/RRFB	RD/RRFB	PHB/RD	RD/RRFB	RD/RRFB	PHB/RD	RD/RRFB	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD
5 Lanes (center turn lane)		RD/RRFB	PHB/RD	PHB/RD	RD/RRFB	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD
6 Lanes+ (two-way street without median)*		PHB/RD	PHB/RD	PHB/RD	RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD	PHB/RD

*all 15,000 vpd lane roadways with speeds 45 and 55 mph = Tier 4

Tier 1

High Visibility Crosswalk with W11-2, S1-1 (School), or W11-15 (Trail) signage is required and consideration of the following:

Recommended: Visibility Enhancements (VE)

Optional, if Recommended is not appropriate: Traffic Calming Measures (TC)

Tier 2

High Visibility Crosswalk with W11-2, S1-1 (School), or W11-15 (Trail) signage is required and consideration of the following:

Recommended: Refuge Island (RI), and/or

Recommended: Rectangular Rapid Flashing Beacon (RRFB)

Optional, if Recommended is not appropriate: Visibility Enhancements (VE)

Optional, if Recommended is not appropriate: Advance yield markings and R1-5 signs (ADV)

Tier 3

High Visibility Crosswalk with W11-2, S1-1 (School), or W11-15 (Trail) signage is required and inclusion of one or more of the following:

Recommended: Roadway Reconfiguration (RD), and/or

Recommended: Pedestrian Hybrid Beacon (PHB)

Optional, if Recommended is not appropriate: Advance yield markings and R1-5 signs (ADV)

Optional, if Recommended is not appropriate: Rectangular Rapid Flashing Beacon (RRFB)

Tier 4

High Visibility Crosswalk with W11-2, S1-1 (School), or W11-15 (Trail) signage is required and inclusion of one or more of the following:

Recommended: Pedestrian Hybrid Beacon (PHB), and/or

Recommended: Roadway Reconfiguration (RD)

Optional, if Recommended is not appropriate: Review for Signal

Figure 20 – VDOT's IIM-TE-384.1 Crosswalk Treatments for Undivided Roadways

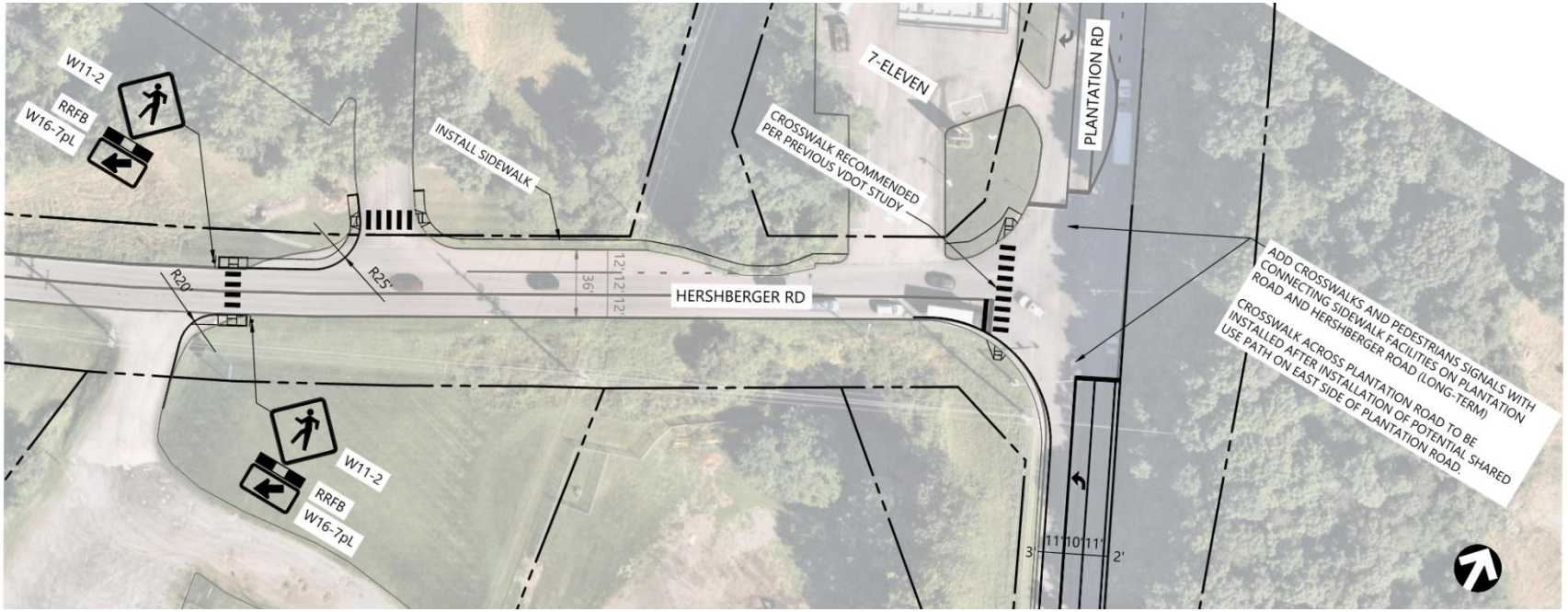

Figure 21 - Concept overview of Hershberger Road

Segment 2 – Plantation Road, 5012 Plantation Road Driveway to Hollins Road/John Richardson Road

Figure 22 – Overview of Plantation Road study area

Observations and Related Issues Affecting Safety

- Roadway
  - The posted speed limit is 40 mph, and vehicle volumes are estimated in the 14,000 AADT range. The roadway is a two-lane undivided with left and right turn lanes at driveways and intersections.
  - The current roadway configuration can be confusing for drivers travelling southbound near the Food Lion/Walmart Neighborhood Market driveways due to unmarked lanes to indicate turn or through lanes.
  - Significant amount of heavy vehicle turning movements (industrial area east on Hollins Road is a generator).
- Roadway User Behavior
  - A VDOT speed study has been requested by Roanoke County north of the study area on Plantation Road.
    - The speed limit changes to 35 mph south of the study area with Roanoke City limits.
    - City of Roanoke's Vision Zero plan aims to reduce kinetic energy system-wide, meaning that the future speed limit on Plantation Road may be changed to 30 mph.
  - RSA participants noticed drivers distracted by smartphones at Hollins Road/John Richardson Road intersection.
- Transit
  - There are two transit stops located near the Walmart Neighborhood Market/Food Lion driveways with no pedestrian facilities (crosswalk, curb ramps, sidewalk, etc.).
  - RSA participants witnessed transit users waiting in the right turn lane for the southbound Walmart Neighborhood Market transit stop due to steep landscape grade and blocking vegetation.

Figure 23 (Left) – Photo of Food Lion transit stop on Plantation Road (Credit: VDOT)

Figure 24 (Right) – Photo of pedestrian waiting at Walmart Neighborhood Market transit stop on Plantation Road (Credit: VDOT)

- Land Use
    - There are several pedestrian destinations within this segment, including Walmart Neighborhood Market, Food Lion, Domino's Pizza, and Wolf's Den Bar.
    - Monterey Elementary school is located off Plantation Road south of the study area.
    - New townhomes have been proposed for construction off Plantation Road north of the study area.
- Bicycle and Pedestrian Facilities and Behavior
    - There are no pedestrian or bicyclist facilities on this segment.
    - The Tinker Creek Greenway has proposed alignments that go along Plantation Road that are still in the planning phase.
    - RSA participants were reluctant to walk on the northern part of Plantation Road in the study area due to roadway grade, limited to no shoulders, high vehicle speeds, steep landscape shoulder grade on the west side, and overgrown vegetation on the east side.
    - RSA participants witnessed multiple pedestrians crossing midblock from transit stops to either Walmart Neighborhood Market or Food Lion.
    - Guardrails located at southwest corner of Hershberger Road intersection and northwest corner of Hollins Road/John Richardson Road intersection are blocking pedestrian crossings at the intersection.
- Intersection(s) and Driveway(s)
    - 4950 Plantation Road Driveway (Walmart Neighborhood Market) (unsignalized) – No marked crosswalks.
        - North-South
            - One dedicated right-turn lane per direction
            - One dedicated left-turn lane per direction
            - One through lane northbound
            - Two through lanes southbound

- Hollins Road/John Richardson Road (signalized) – Large intersection with no marked crosswalks. RSA participants needed police escort to comfortably cross Plantation Road from John Richardson Road to Hollins Road due to the lack of crosswalks, ADA ramps, pedestrian signal heads, and push buttons.
    - North-South
        - One through lane per direction (one northbound, one southbound)
        - One dedicated left-turn lane per direction
        - One dedicated right-turn lane northbound
    - East-West
        - One shared through left-turn lane westbound
        - One dedicated left-turn lane westbound
        - One dedicated right-turn lane westbound

- Lighting
    - During the nighttime portion of the RSA the lighting along the corridor was noted as older HPS lights.

Figure 25 (Left) – Photo of truck turning from John Richardson Road to southbound Plantation Road (Credit: VDOT)

Figure 26 (Right) – Photo of vehicle turning left into Walmart Neighborhood Market from northbound Plantation Road (Credit: VDOT)

Recommendations

Near-term (0-2 years)

- 4950 Plantation Road Driveway (unsignalized) – Roanoke County to work with VDOT to fund and evaluate the potential installation of a new crosswalk on the north or south leg of the intersection equipped with ADA curb ramps and a Pedestrian Hybrid Beacon (PHB) or RRFB (short to intermediate-term improvements) as shown in Figure 30.
- Roanoke County to evaluate curb extensions or truck aprons at Hershberger Road and Hollins Road/John Richardson Road intersections to reduce the large turn radii and slow turning speeds.

Intermediate (2-5 years)

- Roanoke County to work with VDOT to evaluate multiple alternatives at the Walmart Neighborhood Market/Food Lion driveway to accommodate for potential roadway reconfigurations:
    - Dropping a lane to designate right-in right-out configuration for the intersection with the installation of a median. VDOT had evaluated the possibility of installing a median at this intersection as shown in Figure 29. Figure 31 has a similar configuration with a continuous median with right-in right-out.
    - Narrowing the lanes to have separated left turn lanes into each establishment prohibiting left turns out as shown in Figure 30. This also creates a wider shoulder on the east side of Plantation Road for pedestrians to use.

Per VDOT IIM 384.1, the recommended crosswalk treatment for a roadway with 14,000 vpd, speeds greater than or equal to 40 mph, and crossing more than two lanes is a PHB. The concept previously developed with an RRFB may not be the most appropriate pedestrian crossing treatment without the reduction of an additional through lane or speed management to reduce operating speeds to 35 mph or less. Figure 27 shows the table from IIM 384.1 on crosswalk treatments for divided roadways with a red box to show the cross-section most closely related to the previous concept developed, and green boxes to show how changes to the lane configuration or speed management change the recommended treatment.

The proposed crosswalk is roughly 300 feet from the closest signal, meaning that the PHB may require coordination with the Plantation Road and Hollins Road signal. Depending on the signal cycle length and number of anticipated pedestrian activations, the PHB could potentially be coordinated on half cycle lengths. Further

investigation into the pedestrian crossing alternatives at the driveways is needed to determine the appropriate countermeasure based on pedestrian safety, driver compliance, and operational impact.

Roadway Configuration (# is total N of lanes)	Roadway ADT and Speed Limit											
	1,500 to 9,000 VPD			9,000 to 12,000 VPD			12,000 to 15,000 VPD			More than 15,000 VPD		
	≤ 30 MPH	35 MPH	≥ 40 MPH	≤ 30 MPH	35 MPH	≥ 40 MPH	≤ 30 MPH	35 MPH	≥ 40 MPH	≤ 30 MPH	35 MPH	≥ 40 MPH*
2 Lanes with raised median	VE/TC	VE/RI	RRFB/RI	VE/TC	VE/RI	RRFB/RI	VE/RI	RRFB/RI	RRFB/RI	RRFB/RI	RRFB/RI	PHB
2 Lanes One-Way	VE/ADV	ADV/RRFB	RD/RRFB	VE/ADV	RD/RRFB	RD/PHB	ADV/RRFB	RD/RRFB	RD/PHB	RD/RRFB	RD/RRFB	RD/PHB
4 Lanes (two-way street with median)	RD/RRFB	RD/RRFB	RD/PHB	RD/RRFB	RD/RRFB	RD/PHB	RD/RRFB	RD/RRFB	RD/PHB	RD/RRFB	RD/PHB	RD/PHB
3 Lanes One-Way	RD/RRFB	RD/RRFB	RD/PHB	RD/RRFB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB
6+ Lanes (two-way street with median)	RD/RRFB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB	RD/PHB

Tier 1

High Visibility Crosswalk with W11-2, S1-1 (School), or W11-15 (Trail) signage is required and consideration of the following:

Recommended: Visibility Enhancements (VE)
Optional, if Recommended is not appropriate: Refuge Island (RI)
Optional, if Recommended is not appropriate: Traffic Calming Measures (TC)
Optional, if Recommended is not appropriate: Advance yield markings and R1-5 signs (ADV)

Tier 2

High Visibility Crosswalk with W11-2, S1-1 (School), or W11-15 (Trail) signage is required and consideration of the following:

Recommended: Rectangular Rapid Flashing Beacon (RRFB)
Optional, if Recommended is not appropriate: Refuge Island (RI)
Optional, if Recommended is not appropriate: Advance yield markings and R1-5 signs (ADV)

Tier 3

High Visibility Crosswalk with W11-2, S1-1 (School), or W11-15 (Trail) signage is required and inclusion of one or more of the following:

Recommended: Roadway Reconfiguration (RD), and/or
Recommended: Pedestrian Hybrid Beacon (PHB)
Optional, if Recommended is not appropriate: Advance yield markings and R1-5 signs (ADV) not to be considered for 5 or 6 lane roads.
Optional, if Recommended is not appropriate: Rectangular Rapid Flashing Beacon (RRFB) with Refuge Island on 4 lane divded roads.

Tier 4

High Visibility Crosswalk with W11-2, S1-1 (School), or W11-15 (Trail) signage is required and inclusion of one or more of the following:

Recommended: Pedestrian Hybrid Beacon (PHB), and/or
Recommended: Roadway Reconfiguration (RD)
Optional, if Recommended is not appropriate: Review for Signal

Figure 27 – VDOT IIM 384.1 Crosswalk Treatments for Divided Roadways

Long-term (5+ years)

- Roanoke County to evaluate converting to alternative intersection design, potentially a 2-by-1 or turbo roundabout at the Plantation Road/Hollins Road/John Richardson Road intersection.

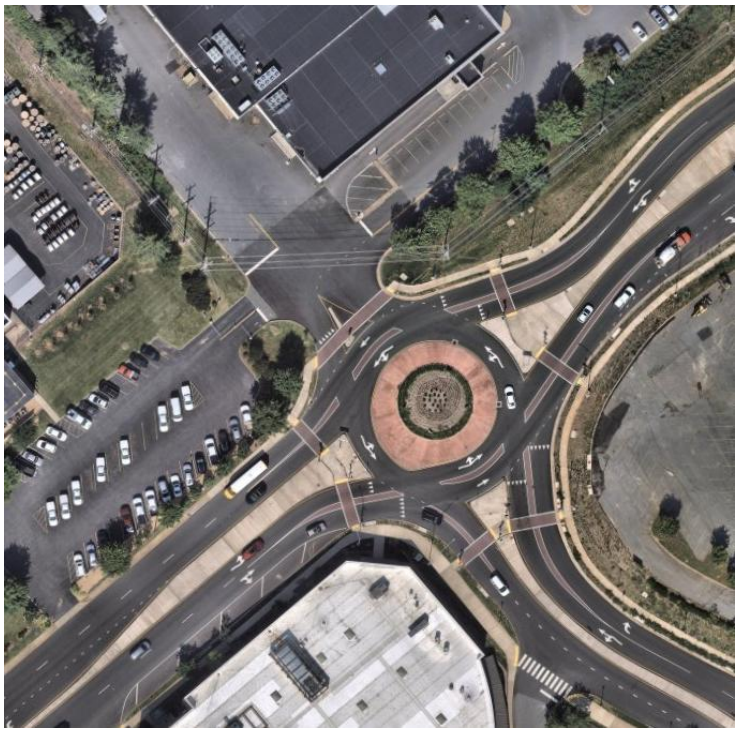

Figure 28 – 2-by-1 Roundabout on Hydraulic Road, Charlottesville, VA (Source: Nearmap)

Proposed Improvement on Route 115 (Plantation Road)
Concrete Median Option
Roanoke County
From: Roanoke City Line
To: Route 625 (Hershberger Road)
Length: 0.27 miles

Crash Analysis of Plantation Road (Route 115) - Roanoke County
From: Roanoke City Limit (MP 2.86)
To: 0.08 Mi. S. of Hershberger Road (Route 625) (MP 3.13)
Walmart Opening Date - January 2015

	Year							
Accident Movements	2015	2016	2017	2018	2019	2020	Totals Crashes after Walmart Opened (1/1/2015 - 10/31/2020)	Total Crashes before Walmart Opened (3/1/2009 - 12/31/2014)
Turning in and out of Walmart	5	3	3	5	8	1	25	
Turning in and out of Food Lion	2			1	1		4	
Total Crashes from Walmart & Food Lion	7	3	3	6	9	1	29	
Total # of Crashes	8	6	11	12	15	4	56	15
% of Related Crashes	88%	50%	27%	50%	60%	25%		

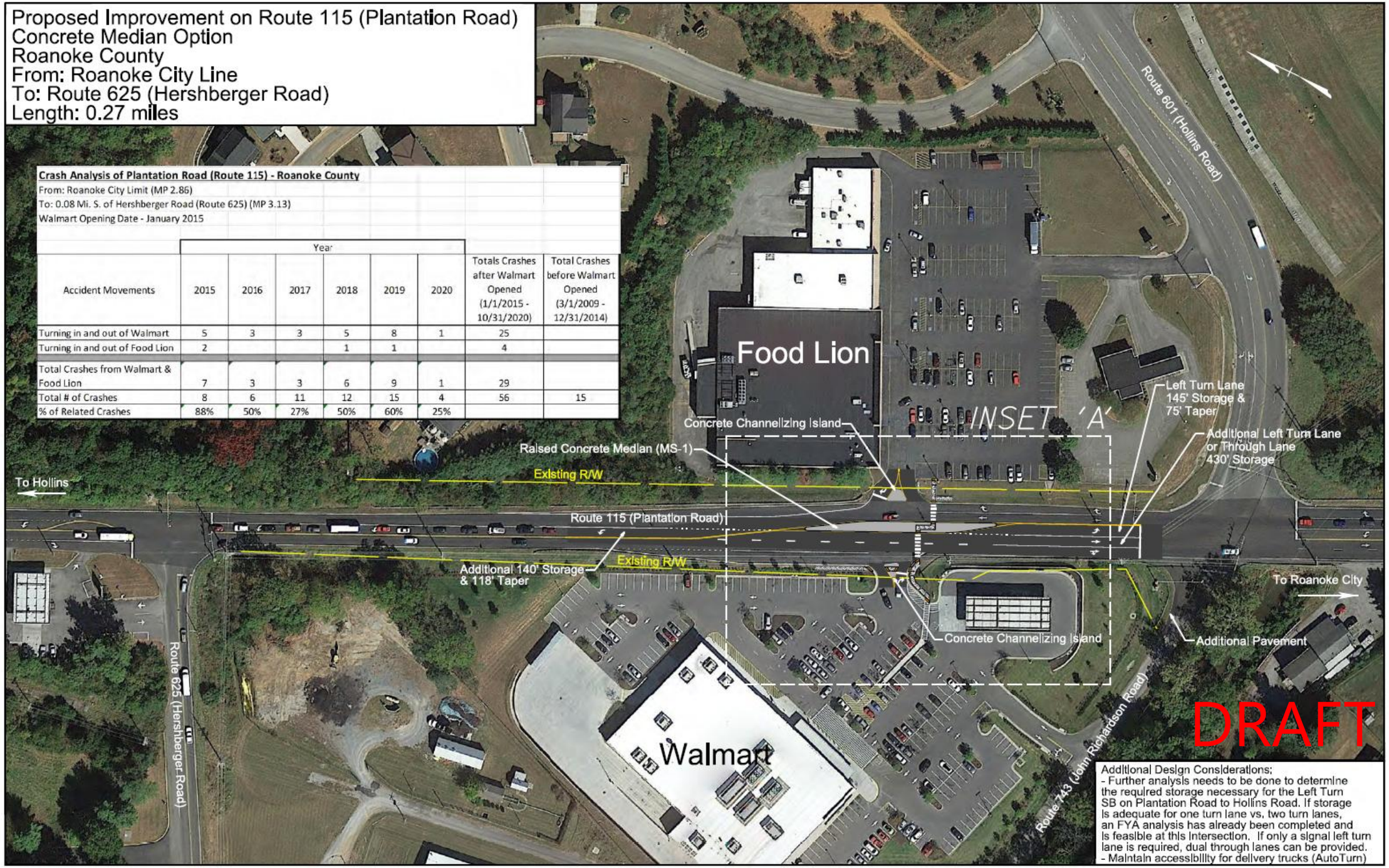

*Figure 29 – VDOT **DRAFT** concept for median with RRFB plan for Plantation Road (Source: Roanoke County)*

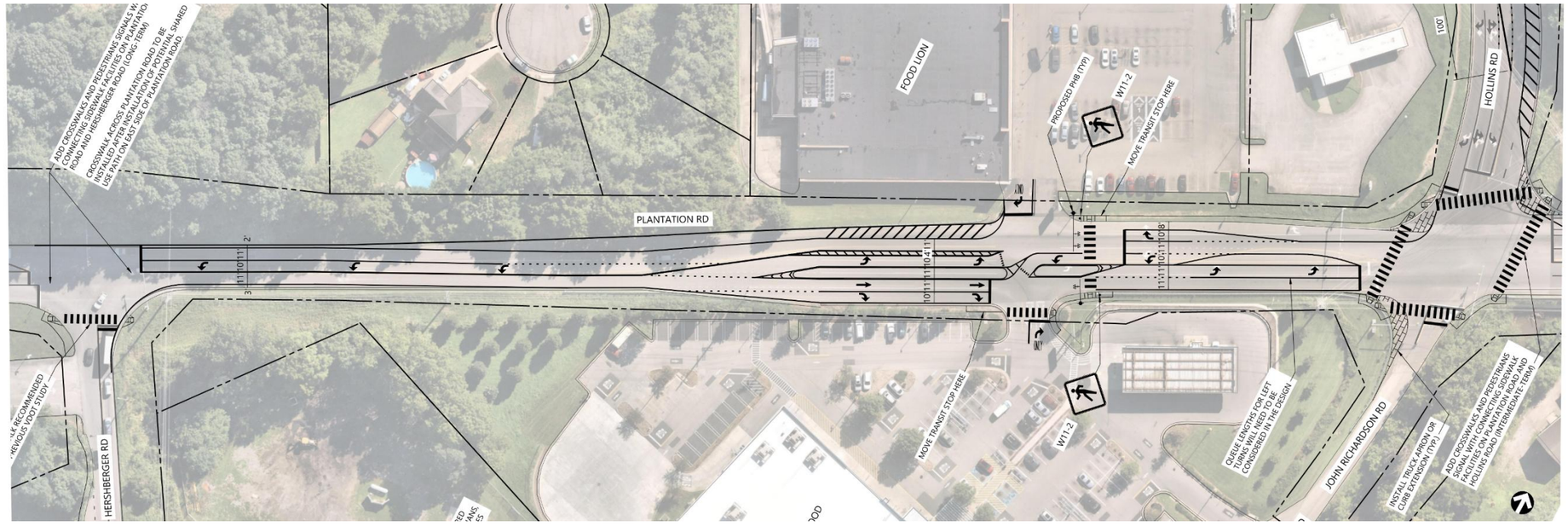

Figure 30 – Overview of Plantation Road Concept

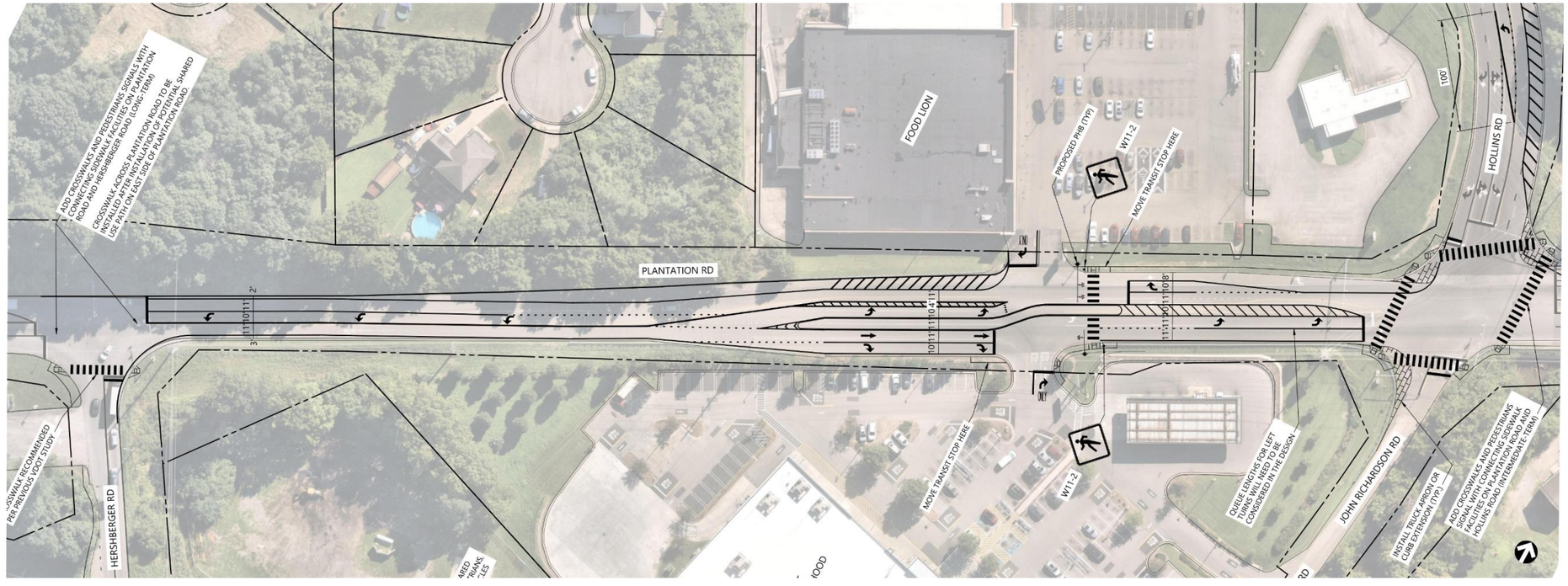

Figure 31 – Overview of Plantation Road Alternative Concept

Segment 3 – Hollins Road, Plantation Road to Summerville Lane

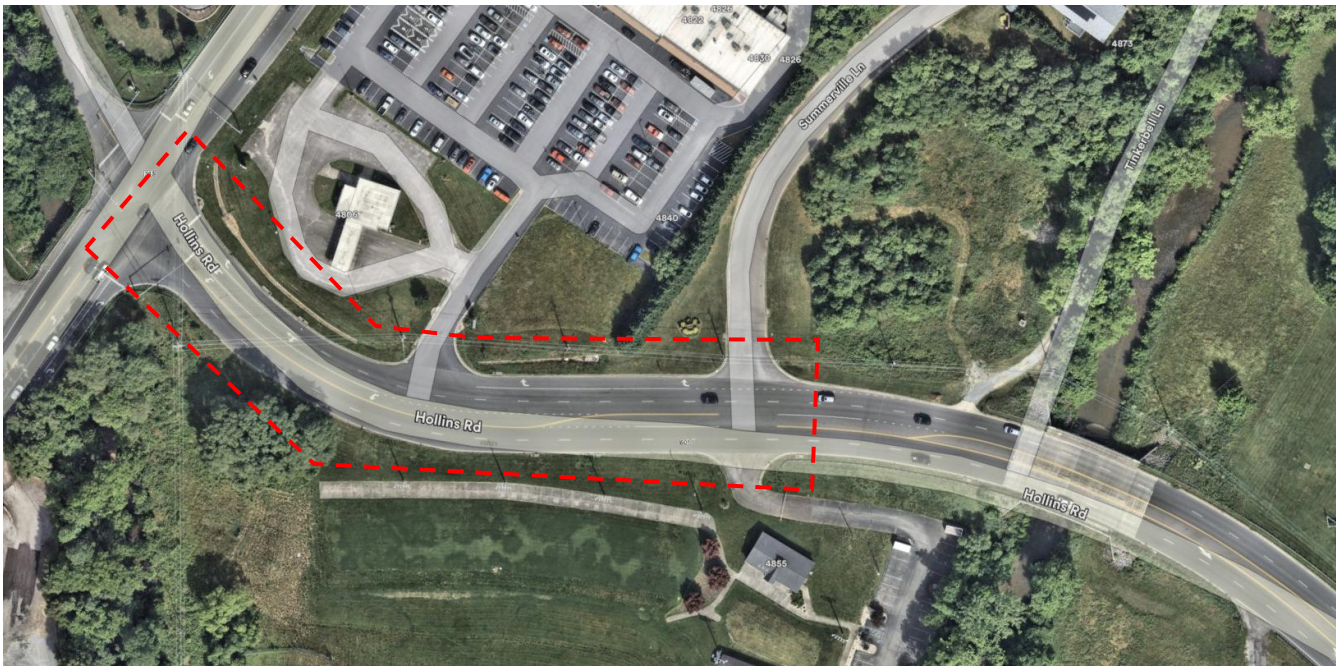

Figure 32 – Overview of Hollins Road within study area

Observations and Related Issues Affecting Safety

- Roadway
  - The posted speed limit is 45 mph, and vehicle volumes are estimated in the 6,000 AADT range.
  - The roadway is four-lane undivided with turn lanes common at intersections – traffic volumes are significantly less than what can be supported by a roadway of this configuration, allowing for high vehicular speeds due to low utilization.
- Road User Behavior
  - There is no left turn lane for drivers to use when entering the Food Lion southern driveway entrance.
- Land Use
  - There is a mix of residential and commercial in this segment, with the commercial concentrated on the north side with a Food Lion plaza.
  - There are new residential subdivisions planned about 2.3 miles northeast of the study area along both Sanderson Drive and Shadwell Drive.

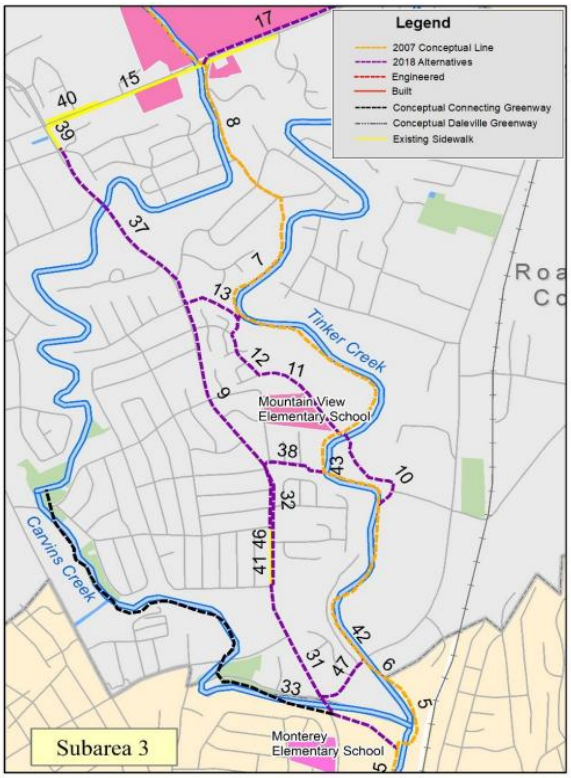

Figure 33 – Tinker Creek Greenway Subarea 3 option (2018 Roanoke Valley Greenway Plan)

    - The existing golf range on the south side of the corridor is for sale.
- Bicycle and Pedestrian Facilities
    - There are no pedestrian or bicycle facilities.
    - The Tinker Creek Greenway has a potential alignment along Hollins Road, but is still in planning as shown in Figure 33.
- Intersection(s)
    - Food Lion driveway (Unsignalized) – No marked crosswalks
    - Summerville Lane (Unsignalized) – No marked crosswalks

Figure 34 (Left) – Photo of Hollins Road from southern grass area (Credit: VDOT)

Figure 35 (Right) – Photo of Food Lion plaza driveway (Credit: VDOT)

Recommendations

Near-term (0-2 years)

- Roanoke County to work with VDOT to evaluate the roadway reconfiguration using pavement markings. Changes to the roadway configuration would likely be done alongside routine repaving.
    - Designate a left-turn lane into the Food Lion shopping center and reduce the lane eastbound as shown in Figure 36. The VDOT standard for turn lanes requires a 100-foot taper and 100 feet of storage length for vehicle queueing, though it is possible to shorten the storage length via a design waiver. Given the dual left turn lanes, reducing the storage length for the left turn lane may be feasible; or
    - Eliminate the left-turn only lane on Hollins Road and keep the shared left-thru and right-turn only lane. The volume eft turns and through movements on the eastbound approach of Hollins Road at Plantation Road are low and can likely be served by a single lane.

Long-term (5+ years)

- Roanoke County to work with VDOT to fund and evaluate roadway reconfiguration of lanes/lane widths to include sidewalks and bike lanes along Hollins Road.

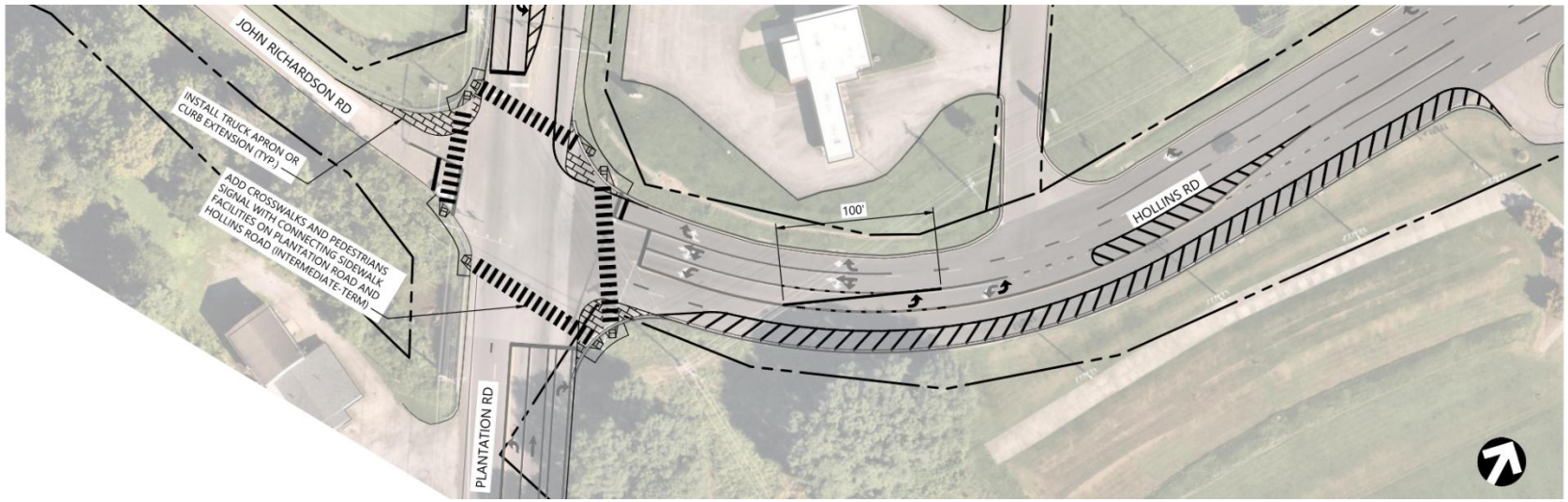

Figure 36 – Concept overview of Hollins Road

Segment 4 – John Richardson Road, Plantation Road to Carvin Creek

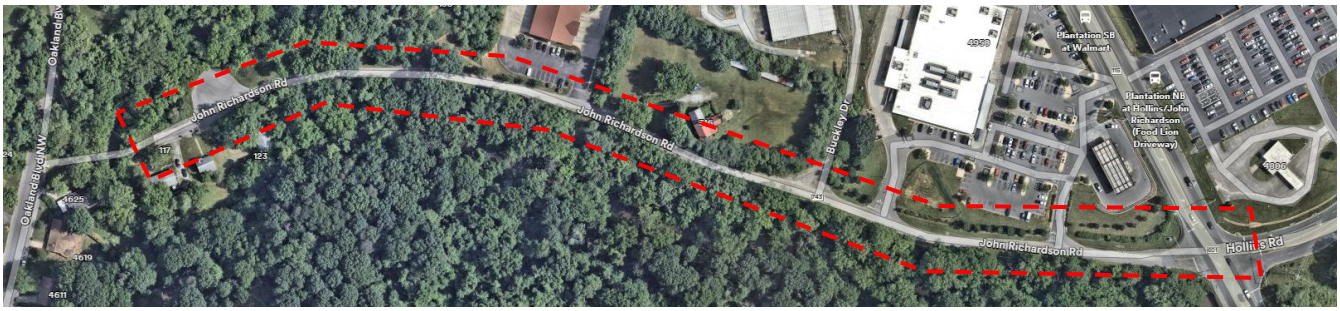

Figure 37 – Overview of John Richardson Drive within study area

Observations and Related Issues Affecting Safety

- Roadway
  - The posted speed limit is 25 mph (according to VDOT Speed Limit Maps), and vehicle volumes are estimated within the 1,100 AADT range. The roadway is two-lane undivided with no marked centerline.
- Land Use
  - The segment is commercial with Walmart Neighborhood Market being located on the north side.
- Bicycle and Pedestrian Facilities
  - There are no pedestrian or bicyclist facilities on the corridor.
- Intersection(s)
  - Plantation Road (Signalized) – No marked crosswalks. RSA participants found it difficult to cross for the northwest corner of the intersection due to the existing guardrail.
  - Buckley Drive (Unsignalized) – No marked crosswalks.

Figure 38 (Left) – Photo of truck turning from John Richardson Road onto southbound Plantation Road (Credit: VDOT)

Figure 39 (Right) – Photo of wide side street approach of Buckley Drive (Credit: VDOT)

Recommendations

Near-Term (0-2 years)

- Roanoke County to work with VDOT to install speed limit (25 mph) signs.

Long-Term (5+ years)

- Roanoke County to consider rebuilding abandoned bridge west of study area on John Richardson to provide direct access to Friendship assisted living facility and neighborhoods west.

Segment 5 – Buckley Drive, John Richardson Road to 140 Hershberger Road Driveway

Figure 40 – Overview of Buckley Drive

Observations and Related Issues Affecting Safety

- Roadway
  - There was no posted speed limit, and vehicle volume in the 90 AADT range. The roadway is two-lane undivided with no marked centerline.
  - The roadway is gravel/rough terrain making it difficult for pedestrians with disabilities to walk through.
  - Buckley Drive right-of-way ends near the west turning bend.
- Land Use
  - There is an unused facility located on the corridor that is for sale for commercial use.
- Bicycle and Pedestrian Facilities
  - There are no pedestrian or bicyclist facilities although RSA participants found signs of pedestrian use on the corridor.
- Intersection(s)
  - Hershberger Road (Unsignalized) – No marked crosswalks.
  - John Richardson Road (Unsignalized) – No marked crosswalks. RSA participants noticed very large side street approach.

Figure 41 (Left) – Photo of foliage covering signage on Buckley Drive (Credit: VDOT)

Figure 42 (Right) – Photo of roadway conditions on Buckley Drive (Credit: VDOT)

Recommendations

Near-Term (0-2 years)

- Roanoke County to work with VDOT to trim vegetation encroaching on existing signs and interfering with vehicle sight distance.
- Roanoke County to work with VDOT to install pedestrian warning signs when entering Buckley Drive.
- Roanoke County to evaluate the installation of curb extensions (temporary) at the Buckley Drive/John Richardson Road approach to reduce vehicle speeds when turning. This improvement can be paired with a new stop line and relocation of the stop sign.
- Roanoke County to work with VDOT to maintain the continued maintenance of Buckley Drive.

Intermediate (2-5 years)

- Roanoke County to work with VDOT to repave the intersection to eliminate potholes.
    - VDOT has noted Buckley Drive in their repaving needs.
- Roanoke County to work with VDOT to evaluate narrowing wide driveways and side street approaches using curb extensions as shown in Figure 43.

Long-Term (5+ years)

- Roanoke County to work with VDOT, Edinburgh Square, and Buckley Drive old skate center property owner to potentially convert the corridor for pedestrian/bicyclist use.
- Roanoke County to work with VDOT acquire right-of-way from 140 Hershberger Road property owner to connect Buckley Road and Hershberger Road.

Figure 43 – Curb extension pavement markings for Buckley Drive and John Richardson Road

Next Steps

The findings of the RSA should be revisited on a recurring basis. Roanoke County may consider refreshing or revising the RSA process every 5 years. By developing performance measures for ongoing evaluation and review, the County can track progress made at sites discussed by the RSA. Metrics can include the number of sites improved or the percent change in pedestrian crash rates over three or more years. The County and VDOT may also consider short-term and pilot projects to demonstrate and further evaluate concepts noted within this report. These may include the implementation of midblock crossings, rapid rectangular flashing beacons (RRFB) or a pedestrian hybrid beacon (PHB), and lane reconfigurations.

Funding Opportunities

In addition to local funding, the County should work with other agencies such as VDOT, VDH, DRPT, and other parties for funding opportunities—like transit route and facility updates and spot safety improvements—and the long-range planning process to bundle and coordinate project development of safety measures. See examples of previous projects in the SMART SCALE portal at https://smartportal.virginiahb2.org/#/public/apps.

Highway Safety Improvement Program (HSIP): The goal of the state-funded HSIP, is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads that focuses on performance. For more information see https://www.virginiadot.org/business/ted_app_pro.asp. In order for Roanoke County to apply funding for projects, they must be submitted through the correlating VDOT district.

SMART SCALE: SMART SCALE is about picking the right transportation projects for funding and ensuring the best use of limited tax dollars. It evaluates potential transportation projects based on key factors like how they improve safety, reduce congestion, increase accessibility, contribute to economic development, promote efficient land use, and affect the environment.

Transportation Alternatives Program (TAP): The TA program is intended to help local sponsors fund community-based projects that expand nonmotorized travel choices and enhance the transportation experience by improving the cultural, historical, and environmental aspects of the transportation infrastructure. The program does not fund traditional roadway projects or provide maintenance for these facilities. Instead, it focuses on providing pedestrian and bicycle facilities, community improvements and mitigating the negative impacts of the highway system. For more information see: https://www.virginiadot.org/business/prenhancegrants.asp.

Appendix

This appendix contains the following items related to the RSA:

- Segment Implementation Recommendations
- Concepts for Study Area
- RSA Agenda
- Presentation Slides

Segment Implementation Recommendations

Location	Timeframe	Recommendation	Responsible Group(s)
Corridor-wide	Near-term	Trim vegetation encroaching existing signs and interfering with vehicle sign distance.	VDOT
	Near-term	Install marked crosswalk with curb ramps, push buttons, accessible pedestrian signals on all legs of signalized intersections.	VDOT
	Near-term	evaluate existing transit stop locations relative to marked pedestrian crossings and add transit stop amenities such as shelters, benches, signage, and lighting.	Roanoke County and Valley Metro
	Near-term	Consider the installation of solar lights at existing transit stops as an immediate recommendation.	Roanoke County
	Near-term	Investigate the potential for roadway reconfigurations with pavement markings on each corridor to implement pedestrian/bicyclist facilities.	VDOT
	Long-term	Install pedestrian and bicyclist facilities, such as sidewalks, along Plantation Road. Truck aprons can be installed at intersections to tighten the effective curb radii with the installation of sidewalks.	VDOT and Roanoke County
	Long-term	Create a connected pedestrian/bicyclist facility network by reestablishing a trail with the abandoned bridge via John Richardson Road west of the study area.	VDOT
Segment 1: Hershberger Road, 140 Hershberger Road Driveway to Plantation Road	Near-term	Install transit stop improvements such as, boarding/alighting landings, shelters, and benches.	Roanoke County and Valley Metro
	Near-term	Conduct a speed study to determine the appropriate speed limit.	VDOT
	Mid-term	Evaluate the installation of a sidewalk from Plantation Road to Edinburgh Square.	VDOT
	Mid-term	Evaluate the possibility of a walking route to/from Edinburgh Square using Buckley Drive.	VDOT and Roanoke County
	Mid-term	Install a crosswalk for pedestrians to access the transit stops.	VDOT and Roanoke County
Segment 2: Plantation Road, 5012 Plantation Road Driveway to Hollins Road/John Richardson Road	Near-term	Evaluate the potential installation of a new crosswalk on the north or south leg of the intersection equipped with ADA curb ramps and a PHB or RRFB	VDOT and Roanoke County
	Near-term	Evaluate curb extensions at Hershberger Road and Hollins Road/John Richardson Road intersections	VDOT and Roanoke County
	Mid-term	Evaluate multiple alternatives at the Walmart Neighborhood Market/Food Lion driveway to accommodate for potential roadway reconfigurations	VDOT
	Long-term	Evaluate converting to alternative intersection design, potentially a roundabout at the Plantation Road/Hollins Road/John Richardson Road intersection	VDOT and Roanoke County
Segment 3: Hollins Road, Plantation Road to Summerville Lane	Near-term	Evaluate the roadway reconfiguration using pavement marking to: • Designate a left turn lane into the Food Lion shopping center; or • Eliminate left turn lane and maintain shared left-thru and right turn only lane.	VDOT
	Long-term	Evaluate roadway reconfiguration of lanes/lane widths to include sidewalks and bike lanes	VDOT
Segment 4: John Richardson Road, Plantation Road to Carvin Creek	Near-term	Install speed limit (25 mph) signs.	VDOT
	Long-term	Consider rebuilding abandoned bridge west of study area on John Richardson to provide direct access to Friendship assisted living facility	VDOT

Location	Timeframe	Recommendation	Responsible Group(s)
Segment 5: Buckley Drive, 140 Hershberger Road Driveway to John Richardson Road	Near-term	Trim vegetation encroaching on existing signs and interfering with vehicle sight distance.	VDOT
	Near-term	Install pedestrian warning signs when entering Buckley Drive.	VDOT
	Near-term	Evaluate the installation of curb extensions (temporary) at the Buckley Drive/John Richardson Road approach	Roanoke County
	Near-term	Continue maintenance of Buckley Drive.	VDOT and Roanoke County
	Mid-term	Evaluate the installation of curb extensions (temporary or permanent) at the Buckley Drive/John Richardson Road approach	VDOT
	Mid-term	Repave the intersection to eliminate potholes.	VDOT
	Mid-term	Evaluate narrowing wide driveways and side street approaches using curb extensions	VDOT
	Long-term	Acquire right-of-way from 140 Hershberger Road property owner to connect Buckley Road and Hershberger Road.	VDOT and Roanoke County
	Long-term	Work with Edinburgh Square and Buckley Drive old skate center property owner to potentially convert the corridor for pedestrian/bicyclist use	VDOT and Roanoke County


7-ELEVEN
ADD CROSSWALKS AND PEDESTRIANS SIGNALS WITH CONNECTING SIDEWALK FACILITIES ON PLANTATION ROAD AND HERSHBERGER ROAD (LONG-TERM)
CROSSWALK ACROSS PLANTATION ROAD TO BE INSTALLED AFTER INSTALLATION OF POTENTIAL SHARED USE PATH ON EAST SIDE OF PLANTATION ROAD.
CROSSWALK RECOMMENDED PER PREVIOUS VDOT STUDY
EDINBURGH SQUARE
INSTALL SIDEWALK
HERSHBERGER RD
W11-2
RRFB
W16-7pL
R25'
50'
W11-2
RRFB
W16-7pL
DESIGNATE AS SHARED STREET FOR PEDESTRIANS, BICYCLES, AND VEHICLES
PLANTATION RD
TINKER CREEK
TINKERBELL LN
SUMMERVILLE LN
FIRE STATION
OLD SKATE CENTER
WALMART NEIGHBORHOOD MARKET
FOOD LION
MOVE TRANSIT STOP HERE
PROPOSED PHB (TYP.)
W11-2
MOVE TRANSIT STOP HERE
W11-2
HOLLINS RD
SCHULTZ RD
120'
QUEUE LENGTHS FOR LEFT TURNS WILL NEED TO BE CONSIDERED IN THE DESIGN
JOHN RICHARDSON RD
INSTALL TRUCK APRON OR CURB EXTENSION (TYP.)
ADD CROSSWALKS AND PEDESTRIANS SIGNAL WITH CONNECTING SIDEWALK FACILITIES ON PLANTATION ROAD AND HOLLINS ROAD (INTERMEDIATE-TERM)
0 30 60 120 Feet


7-ELEVEN
ADD CROSSWALKS AND PEDESTRIANS SIGNALS WITH CONNECTING SIDEWALK FACILITIES ON PLANTATION ROAD AND HERSHBERGER ROAD (LONG-TERM)
CROSSWALK ACROSS PLANTATION ROAD TO BE INSTALLED AFTER INSTALLATION OF POTENTIAL SHARED USE PATH ON EAST SIDE OF PLANTATION ROAD.
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HOLLINS RD
0 30 60 120 Feet

PATHS Pedestrian Road Safety Assessment Agenda
May 29, 2025

Roanoke, VA (Plantation Road)

Thursday, May 29

Meeting Location: 150 Hershberger Rd, Hollins, VA 24019

9:00 – 10:30 AM	RSA Kick-Off Meeting • Introduction of stakeholders and RSA team • Introduction of RSA process • Pedestrian safety overview • Overview of study area
10:30 AM – 12:00 PM	Begin Detailed Field Observations
12:00 – 1:00 PM	Lunch
1:00 – 3:00 PM	Continued Detailed Field Observations
3:00 – 5:00 PM	Second half of field observations • Summarize issues by location • Identify potential countermeasures • Discuss next steps

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8:00 PM – 9:00 PM	Evening - Optional Nighttime Field Observations • Meet at Food Lion on Plantation Road • Wear PPE (i.e. high visibility vest, etc.) as directed by facilitator

Presentation

The following pages include the presentation slides used throughout both RSA sessions.

Agenda

9:00 – 10:30 AM	**RSA Kick-Off Meeting** • *Introduction of stakeholders and RSA team* • *Introduction to the RSA process* • *Pedestrian safety overview* • *Overview of study area*
10:30 – 12:00 PM	**Begin Detailed Field Observations**
12:00 – 1:00 PM	***Lunch break***
1:00 – 3:00 PM	**Continued Detailed Site Review**
3:00 – 5:00 PM	**Recap of Field Observations** • *Summarize issues by location* • *Identify potential countermeasures* • *Discuss next steps*
8:00 – 9:00 PM	**Nighttime Field Review (optional)**

What is PATHS?

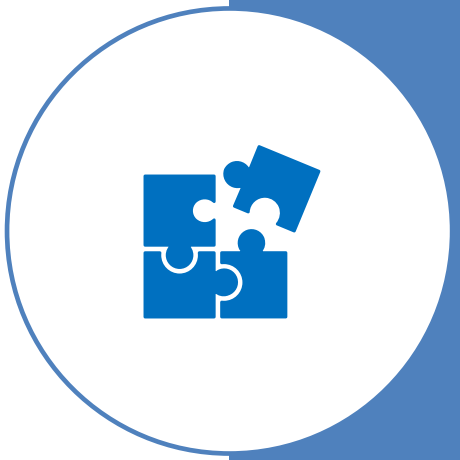
- PATHS (Prioritizing Active Transportation, Health and Safety) is the collaborative effort between the Virginia Department of Transportation and the Virginia Department of Health.

- The collaboration seeks to enhance walkability for improved safety and more equitable public health outcomes.

https://virginiapaths.org/

Overall PATHS RSA Objectives

- Enhance understanding about role of health equity, crash risk, and unique vulnerabilities of pedestrians
- Engage with a variety of stakeholders to expand perspectives on pedestrian safety needs
- Identify and prioritize specific locations, along a set of select roadways in the area, where crash risk may be highest for pedestrians
- Discuss potential countermeasures and safety improvements for priority locations
- Increase staff confidence and skills for future road safety assessments, focused on pedestrian safety

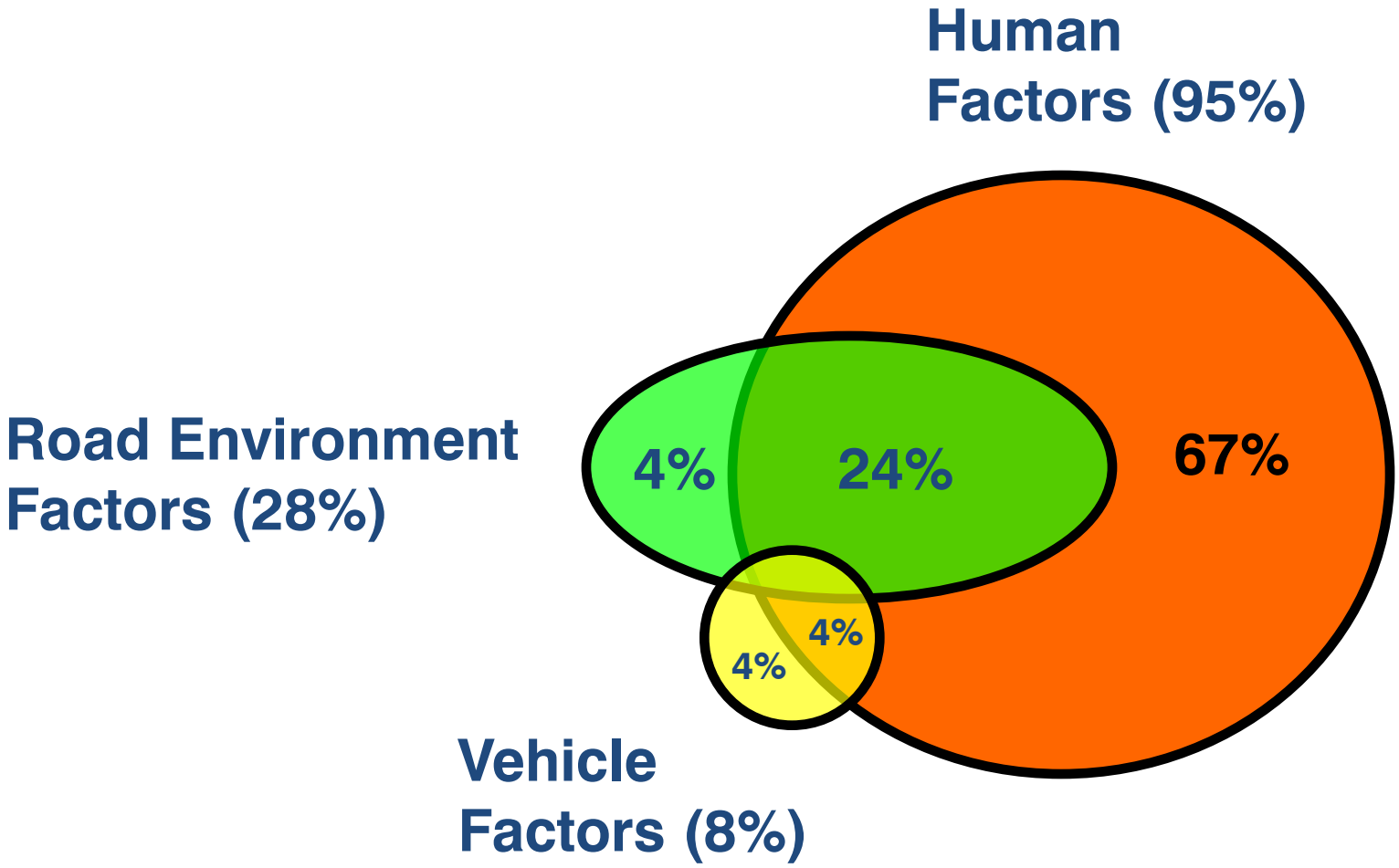


What is an RSA?

What is a Road Safety Audit / Assessment (RSA)?

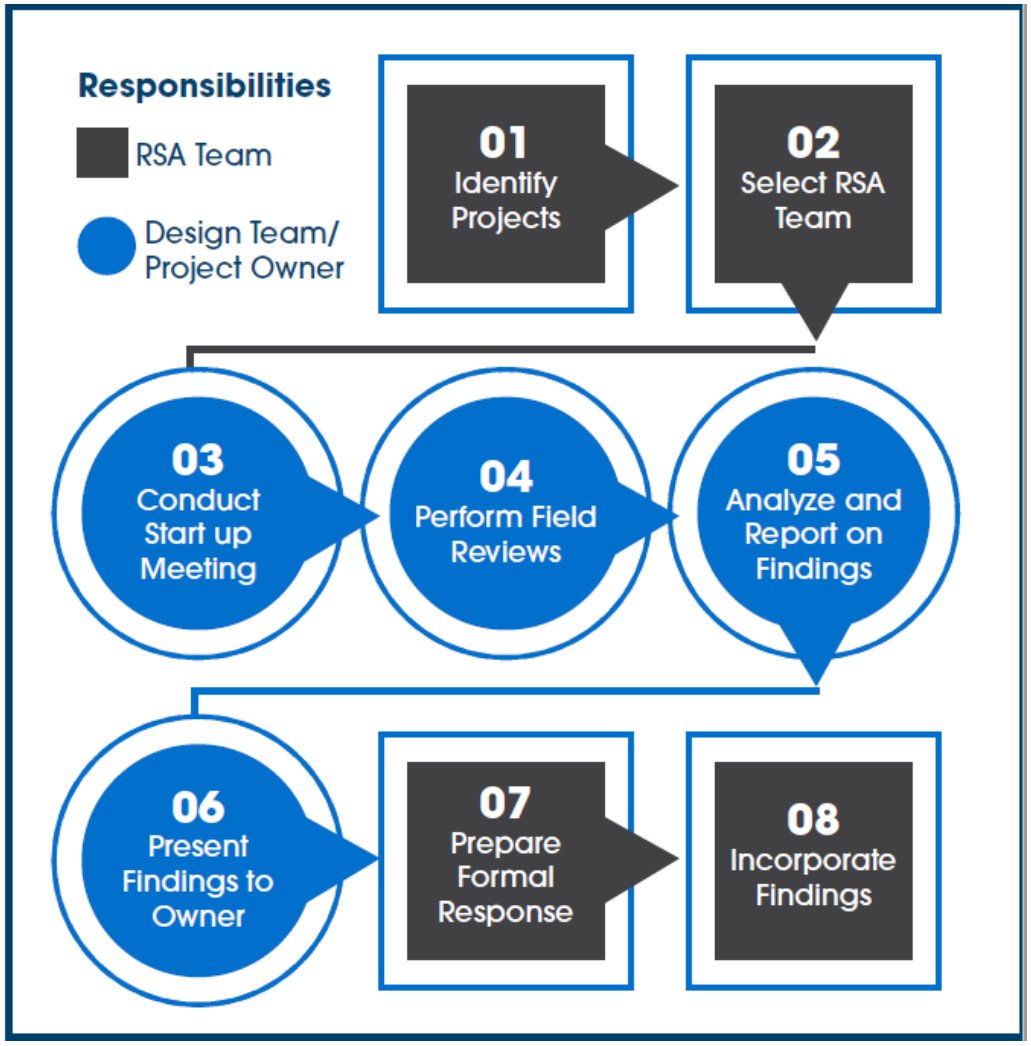
A formal safety performance evaluation of an existing or future road or intersection by an independent, multidisciplinary team.

Why do we need RSAs?



TYPICAL REPORTED CRASH CAUSES

How are RSAs conducted?

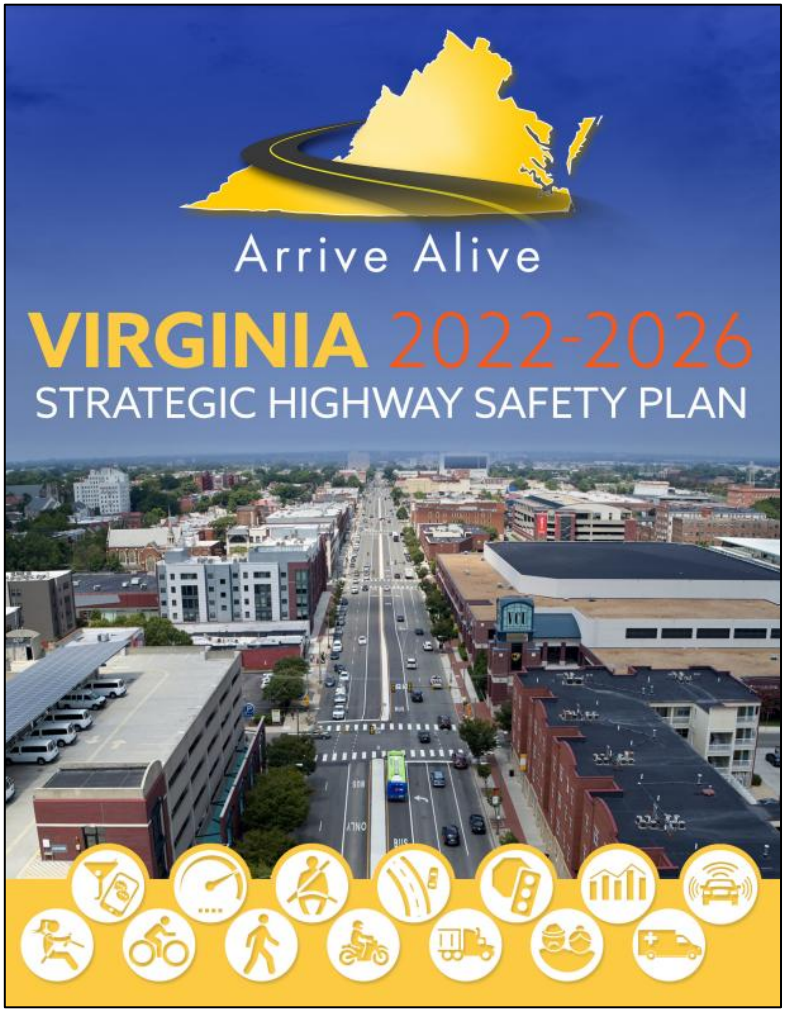


FHWA Resources for Remote/Hybrid RSA >> https://safety.fhwa.dot.gov/rsa/resources/docs/FHWA-SA-21-025_RSA_FHWA_STEP_preparation_packet_v4.pdf

RSAs are Different than other Safety or Walkability Evaluations

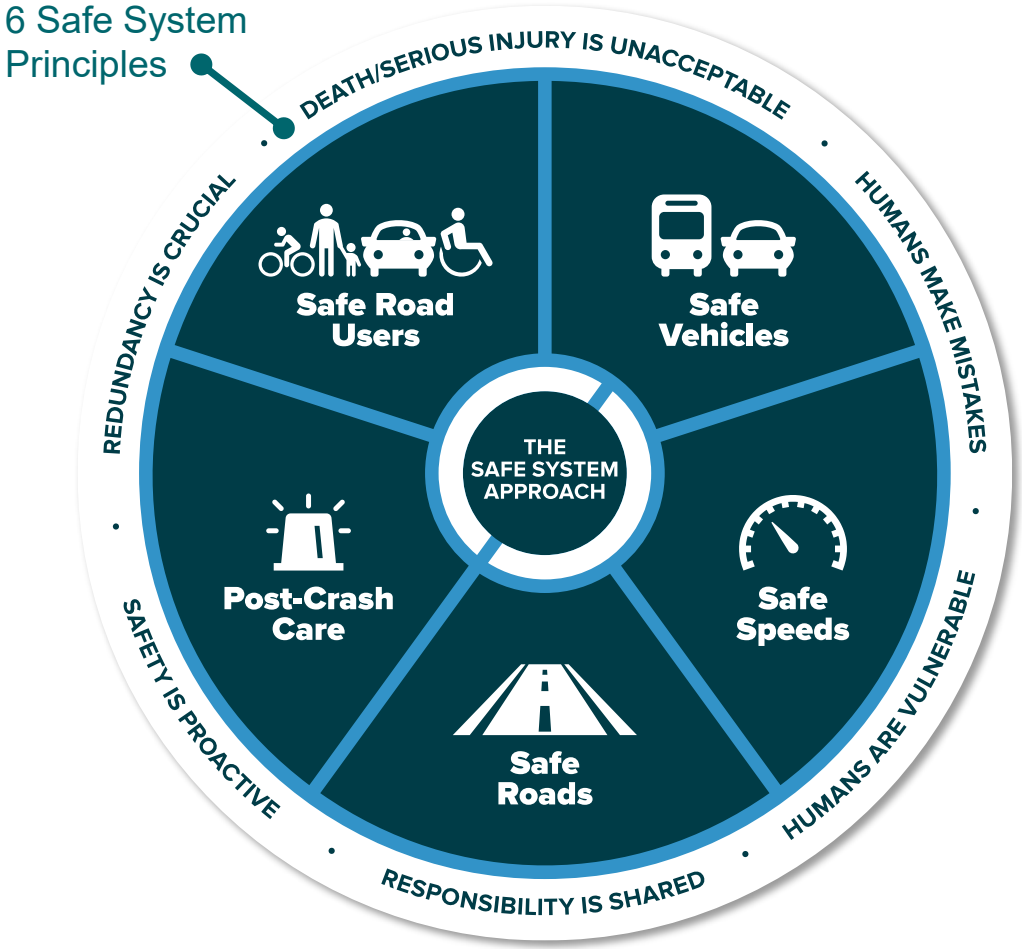
- There are key distinctions between tools like Walking Audits, corridor studies, etc.
- RSAs look for elements of the road that may present a safety concern: to what extent, to which road users, and under what circumstances?
- Identify opportunities exist to eliminate or mitigate identified safety concerns.
- Not focused on encouragement or enforcement activities and comfort (though may be acknowledged).
- All evaluations have their role, and one can inform the other and continue progress towards a safer roadway.

RSAs Support Other Goals



What is the Safe System Approach?

- Holistic approach to addressing safety on our roadway system
- Recognizes complexity of transportation safety
- Every element of our roadway system is intertwined



What's Different About Safe System?

Traditional approach	Safe System approach
Prevent crashes	Prevent death and serious injuries
Improve human behavior	Design for human mistakes/limitations
Control speeding	Reduce system kinetic energy
Individuals are responsible	Share responsibility
React based on crash history	Proactively identify and address risks

Source: FHWA Pedestrian and Bicyclist Focused Approach to Safety

Safer Road Users

Encourage safe and responsible behavior by all people who use our transportation system

- **Driving under the influence**
- **Seat belt use**
- **Speeding**
- **Yielding to pedestrians and bicyclists**
- **Distracted driving**

Certain road users are more vulnerable to impacts of a crash (pedestrians, bicyclists, older and younger road users)

Safer Speeds

Source: FHWA

What makes drivers feel like they are driving too slowly?

FACTORS THAT AFFECT SPEED PERCEPTION

Factors that May Cause Drivers to UNDERESTIMATE Their Travel Speed	Factors that May Cause Drivers to OVERESTIMATE Their Travel Speed
• Higher design standard • Greater roadway width • Divided, walled urban roads • Rural roads without roadside trees • Daylight compared to nighttime illumination conditions	• Two-lane narrow urban roads • Roads densely lined with trees • Transverse pavement markings

Source: NCHRP Report 600: Human Factors Guidelines for Road Systems

Safer Roads

Safe roads are designed and operated to:

1. **Prevent crashes among all users**
2. **Keep impacts on the human body at tolerable levels**

Avoiding crashes involves:

Separating users in space

Separating users in time

Increasing attentiveness and awareness

Safer Vehicles

Active safety

Measures to reduce the chance of a crash occurring

- Lane departure warning
- Autonomous emergency braking

Passive safety

Protective systems for when crashes do occur

- Seatbelts and airbags
- Crash-absorbing vehicle crumple zones

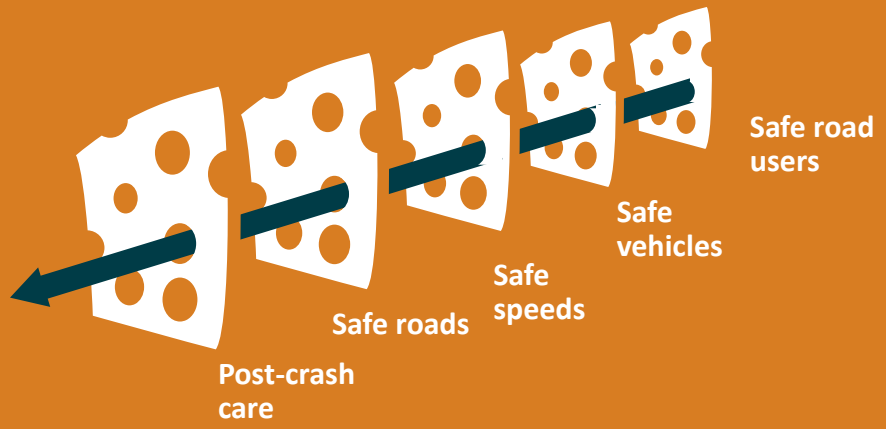
Post-Crash Care

Vital post-crash actions include:

Safe System Approach creates redundancy

The "Swiss Cheese Model" of redundancy creates layers of protection

Death and serious injuries only happen when all layers fail



Source: FHWA

2022-2026 Virginia State Highway Safety Plan

Key Terms

Walkability: Communities that encourage pedestrian activity and expand transportation access to people of all ages and abilities.

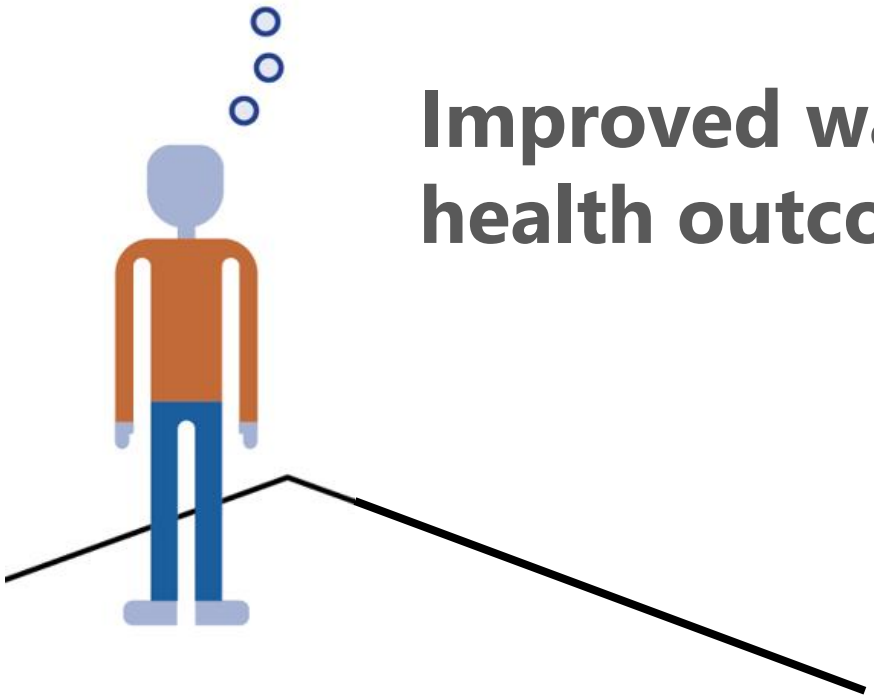
Active Transportation/Active Mobility: The transport of people or goods, through non-motorized means, based around human physical activity. The best-known forms of active mobility are walking and cycling, though other modes include running, skateboarding, kick scooters and roller skates.

Key Terms

Health Equity: Every person has the opportunity to attain their full health potential' and no one is disadvantaged from achieving this potential because of social position or other socially determined circumstances.

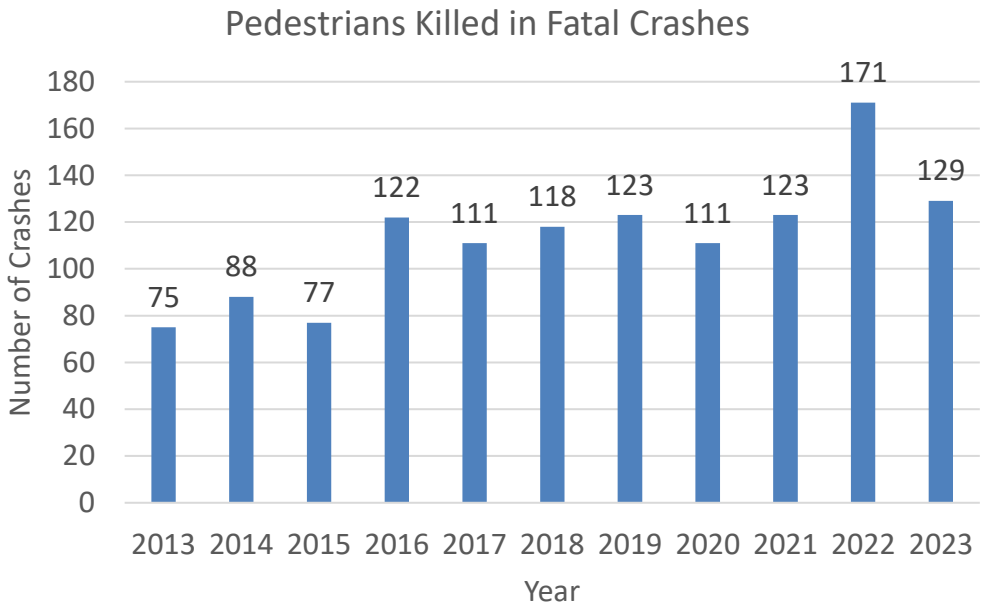
Transportation Justice: An equitable transportation system where all users have access to safe, reliable, and affordable modes of transportation including public transit, walking, biking, and other micro-mobility options such as e-scooters.

Active Transportation + Health Equity + **Transportation Safety =**



Improved walkability and public health outcomes

Why focus on **safety** as a key factor for improving walkability in Virginia?



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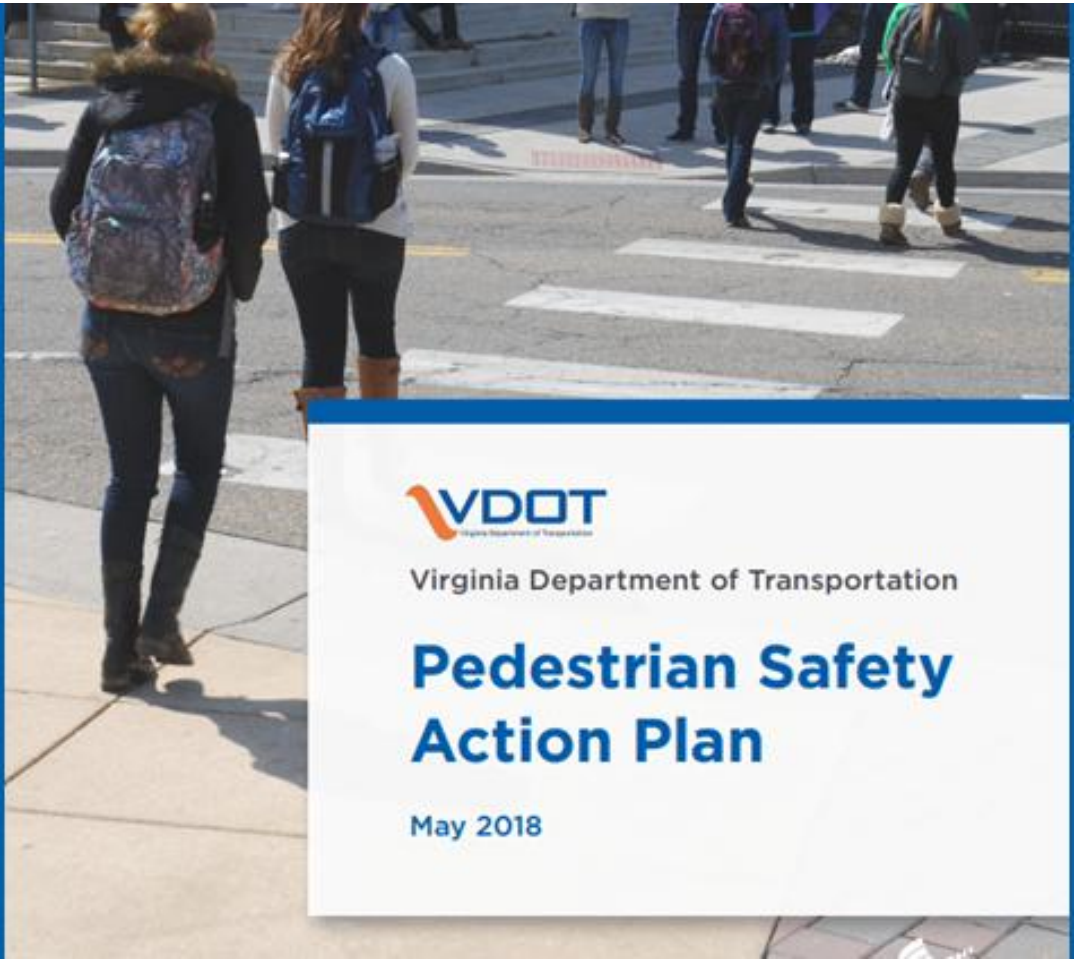


3 Major Components

1 – VDOT Policy Recommendations to ensure pedestrian safety

2 – Safety Analysis to determine which specific road locations pose the greatest risk for pedestrians

3 – Pedestrian safety countermeasure recommendations

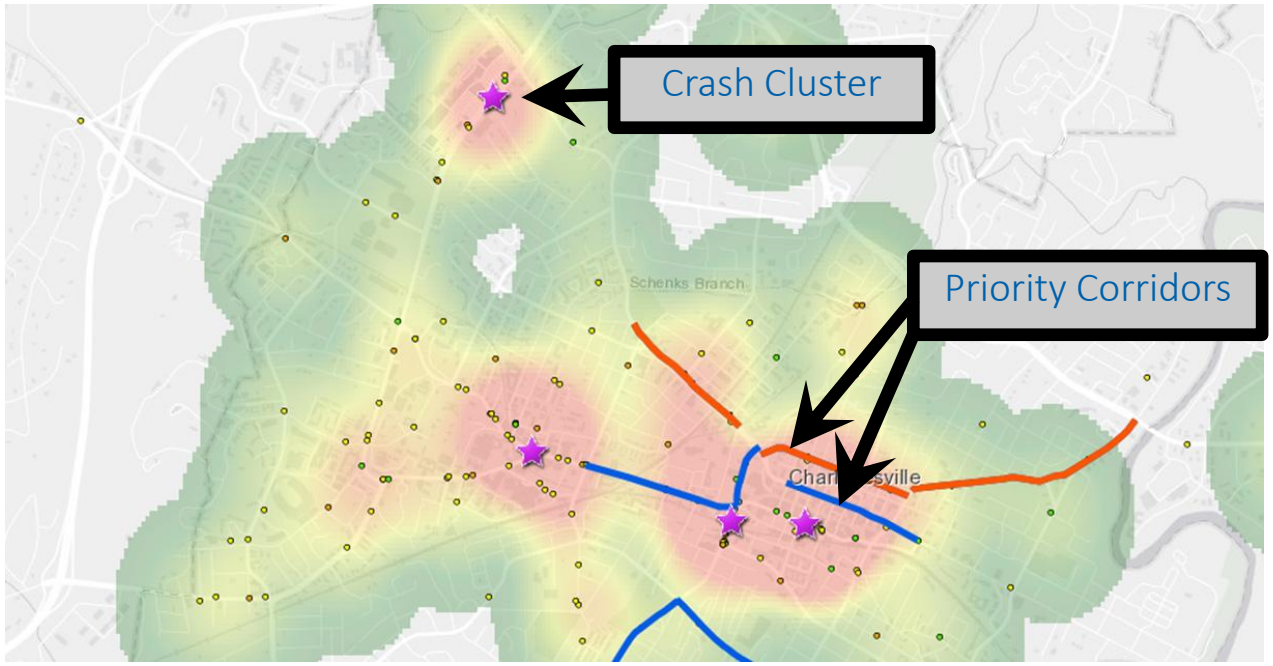
Safety Analysis – Crash Clusters and Priority Corridors

Crash clusters

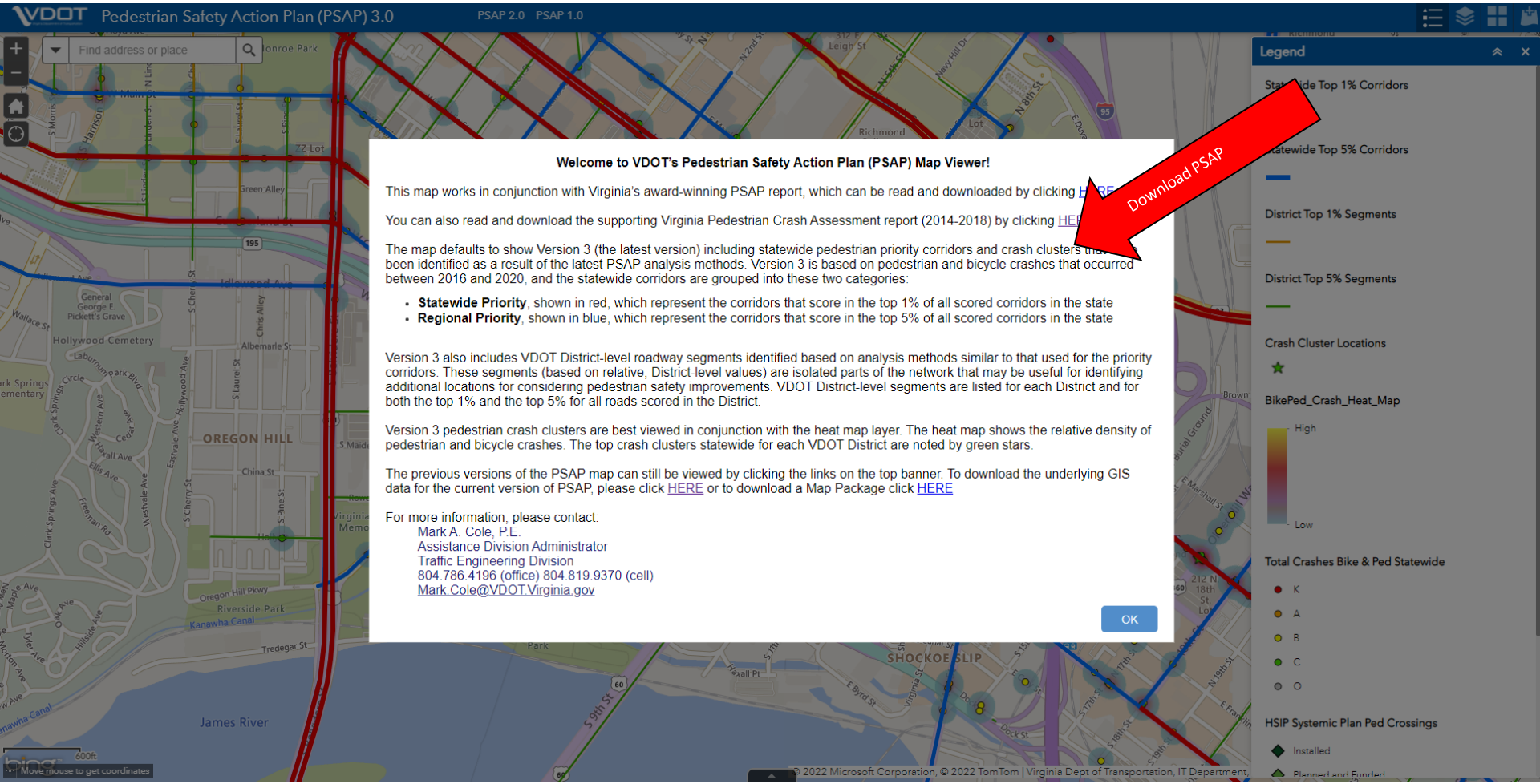
- Density map of actual crash locations
- Look back

Priority Corridors

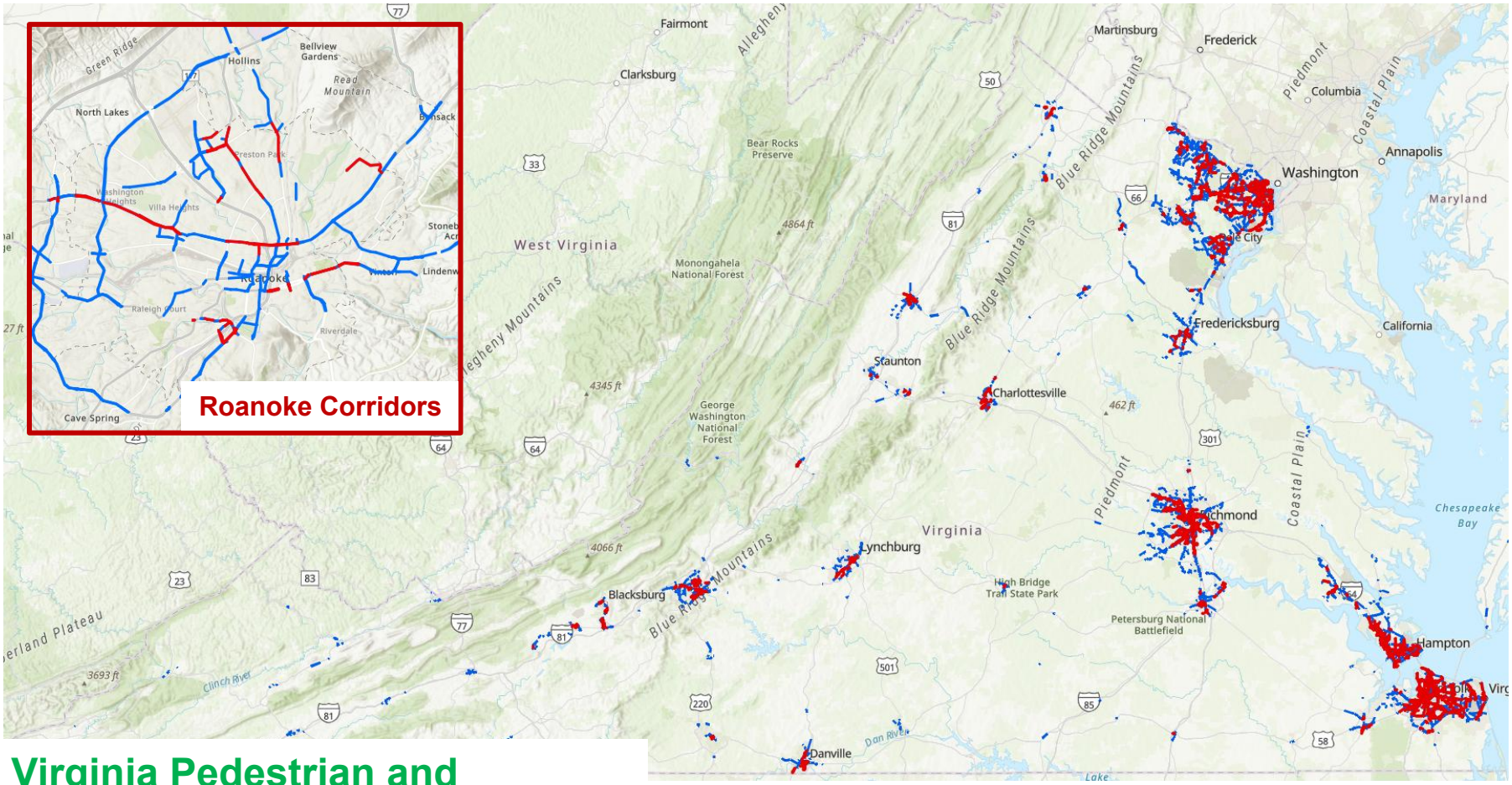
- Top ranked corridors based on scoring criteria that used various data sources indicating pedestrian presence or risk
- Predictive



PSAP Online Mapping Tool - http://bit.ly/VDOTPSAP

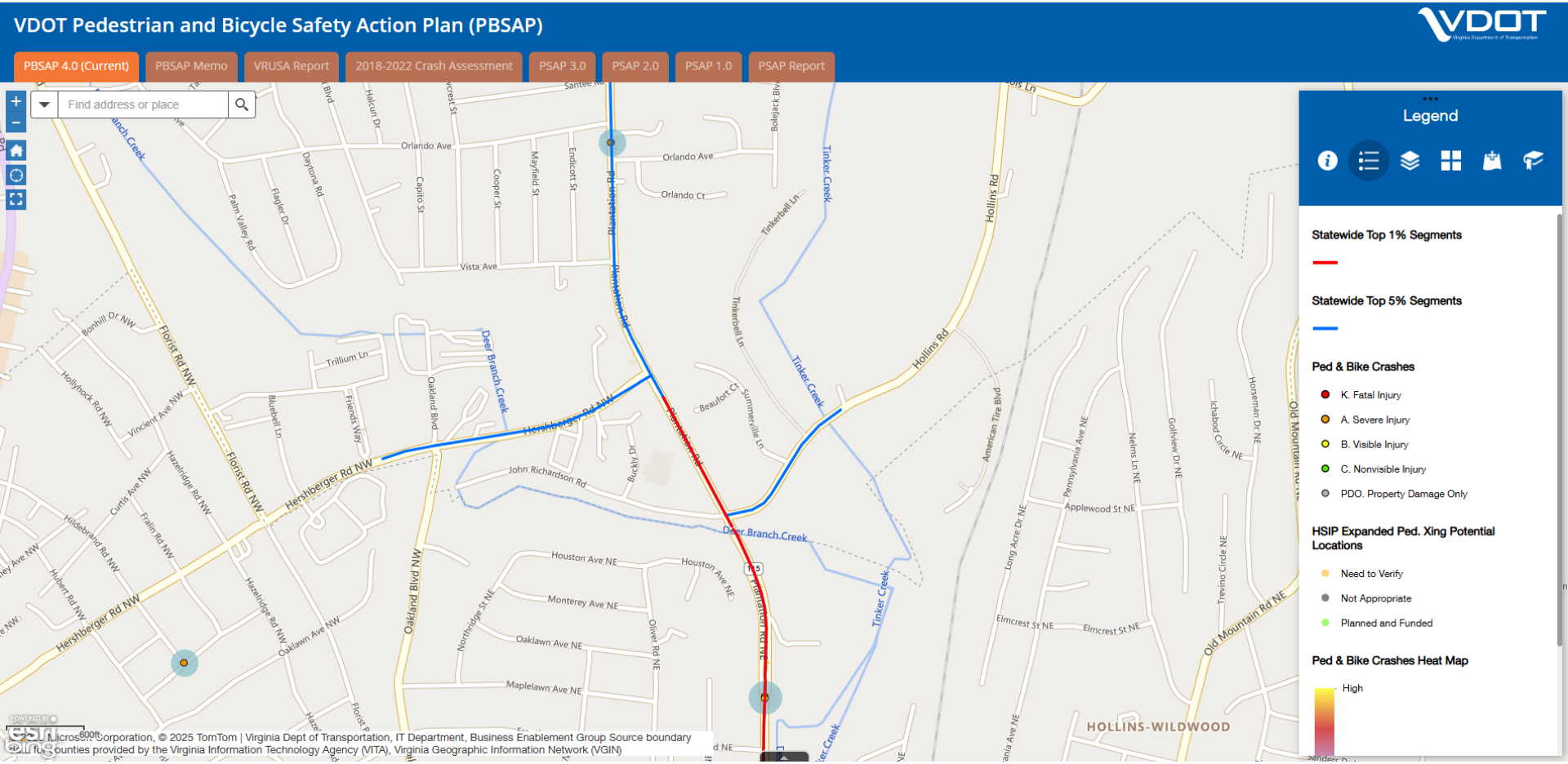


PSAP Corridors



Virginia Pedestrian and Bicyclist Safety Action Plan (PBSAP) Priority Corridors

Top 1% Statewide Corridors
Top 5% Statewide Corridors

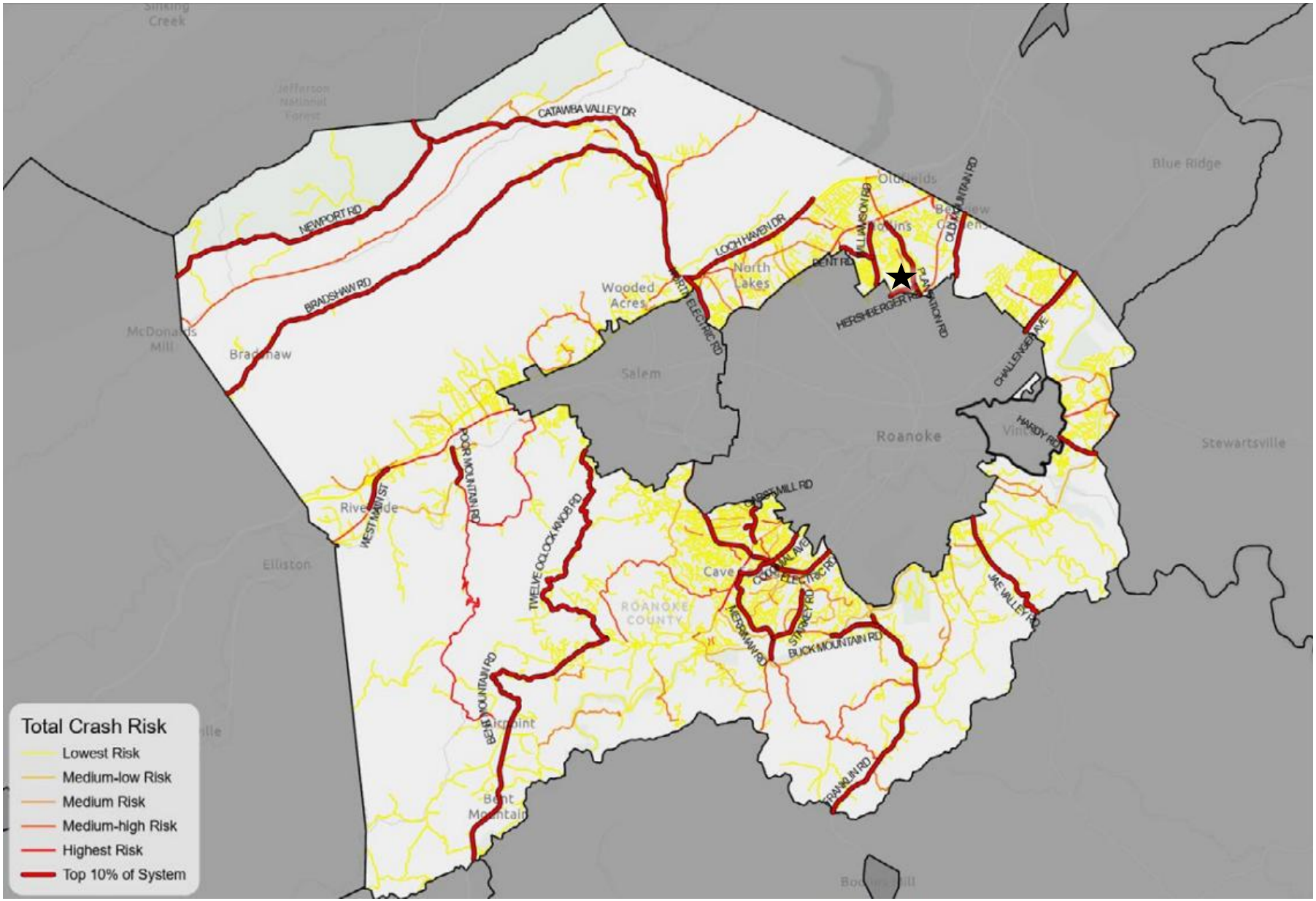


- **Hershberger Road is a Top 5% segment between Friends Way and Plantation Road**
- **Plantation Road is a Top 1% segment between Hershberger Road and Fleming Avenue**
- **Hollins Road is a Top 5% segment between Plantation Road and driveway north of Tinker Creek Bridge**

Questions?

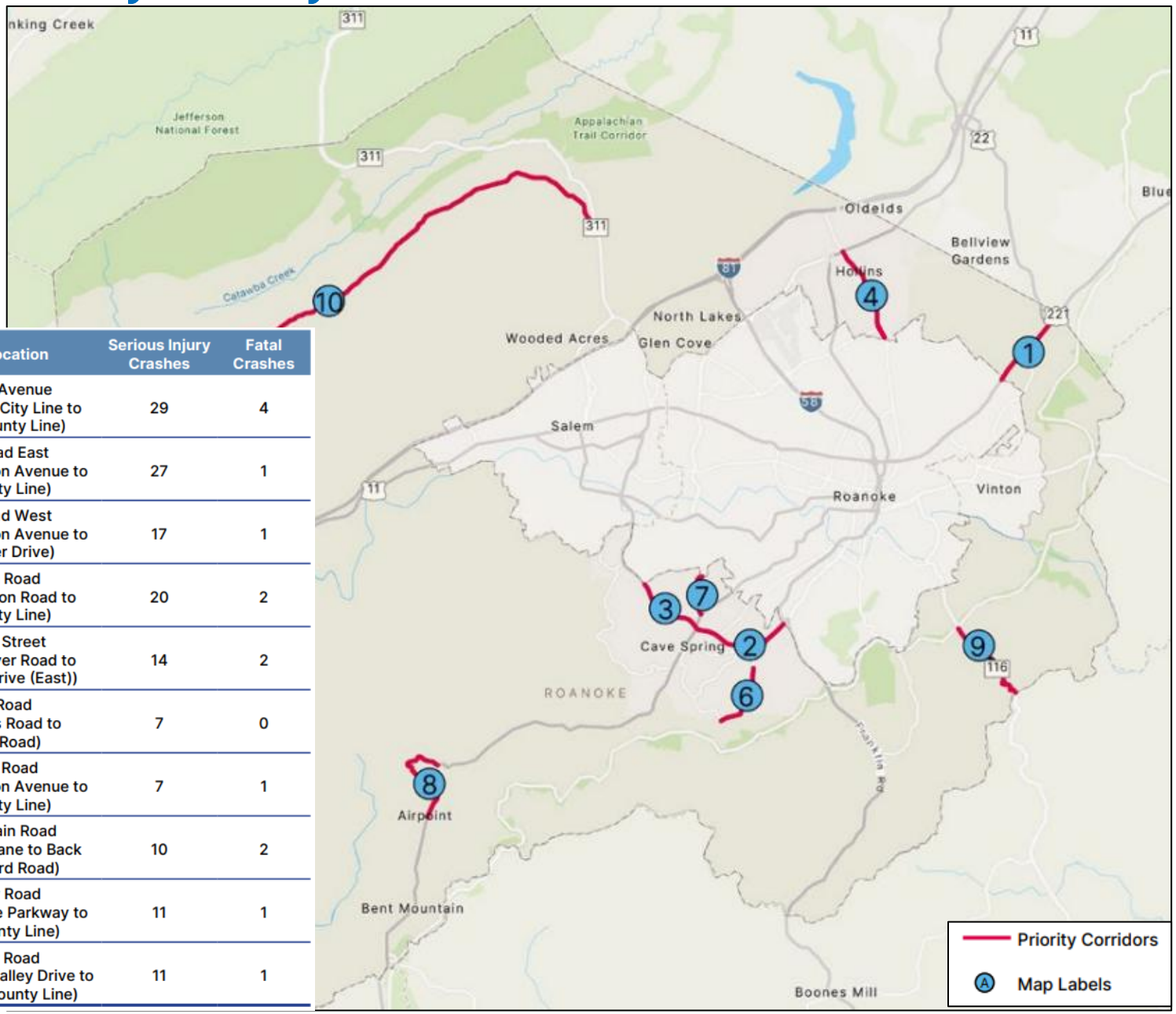
Plantation Road
RSA Site Overview

Roanoke County High Injury Network

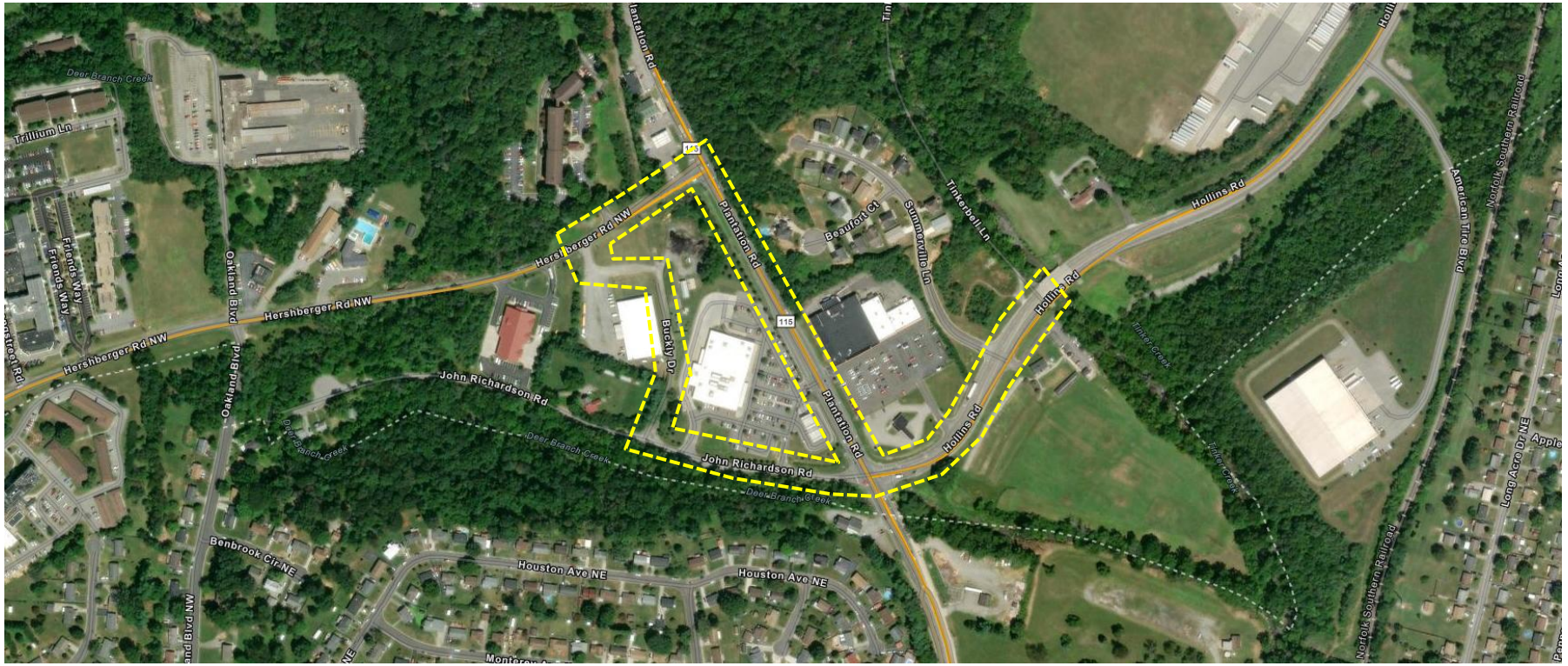


Roanoke County Priority Corridors

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



Getting to Know the Corridor



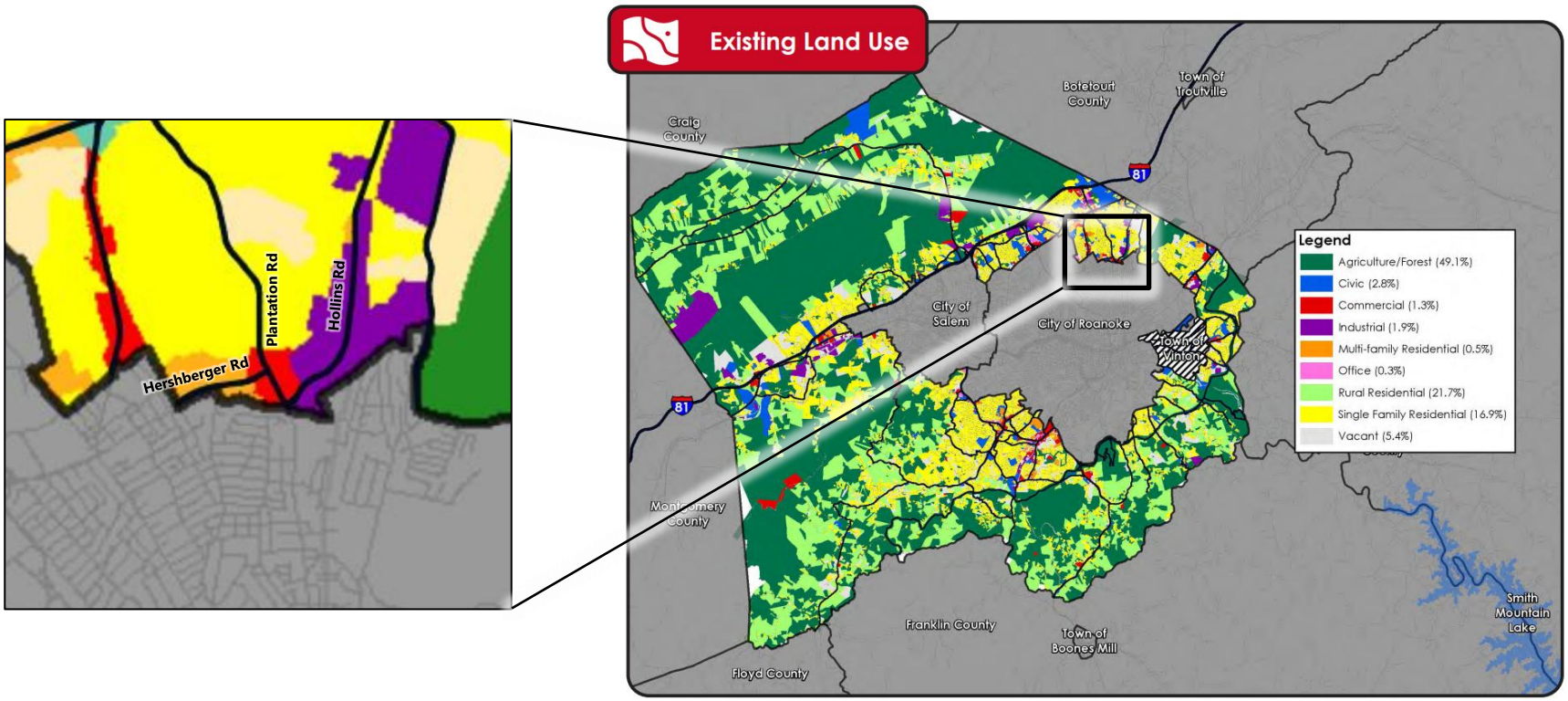
Legend

Traffic Volume (AADT)

- 0 - 1,715
- 1,716 - 4,478
- 4,479 - 8,092
- 8,093 - 13,560
- 13,561 - 20,635
- 20,636 - 28,548
- Corridor Area
- Railroad

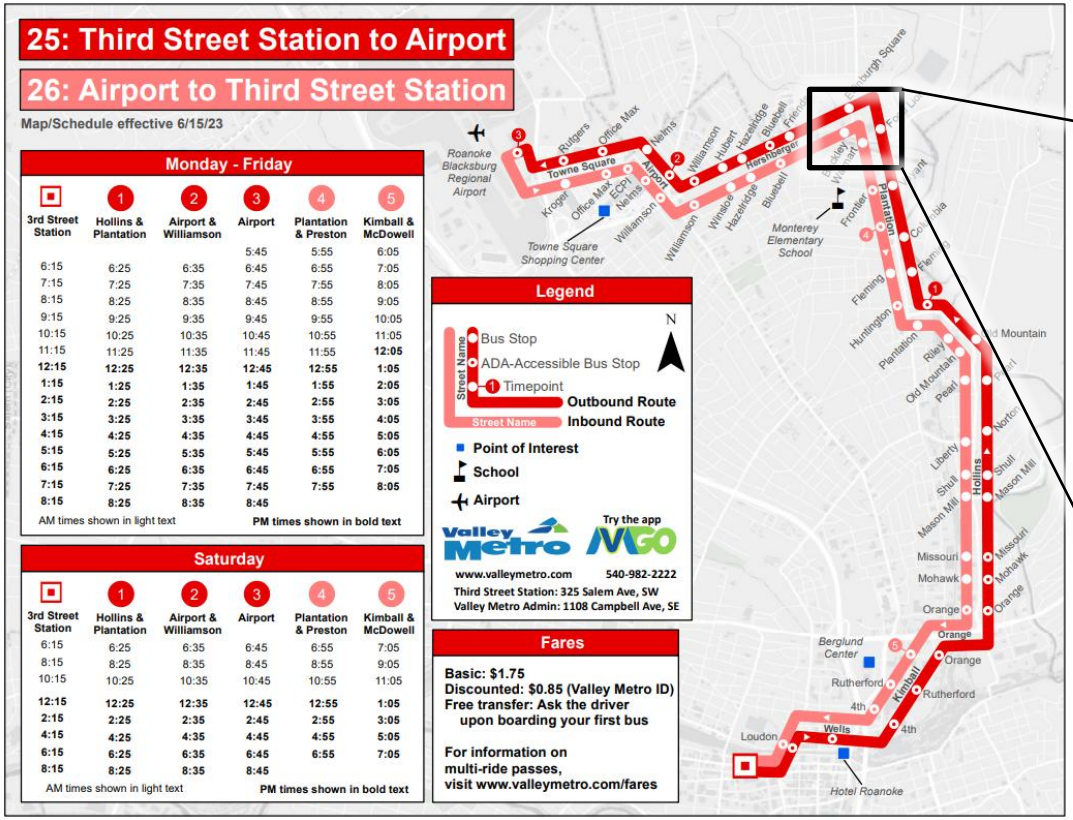
- Hershberger Rd: 490 ft, 2 thru lanes, 40 mph
- Plantation Rd: 1,180 ft, 2 thru lanes, 40 mph
- Hollins Rd: 1,000 ft, 4 thru lanes, 45 mph
- Johns Richardson Road: 760 ft, 2 thru lanes with no centerline present, no posted speed limit
- Buckley Dr: 930 ft, 2 thru lanes with no centerline present, no posted speed limit

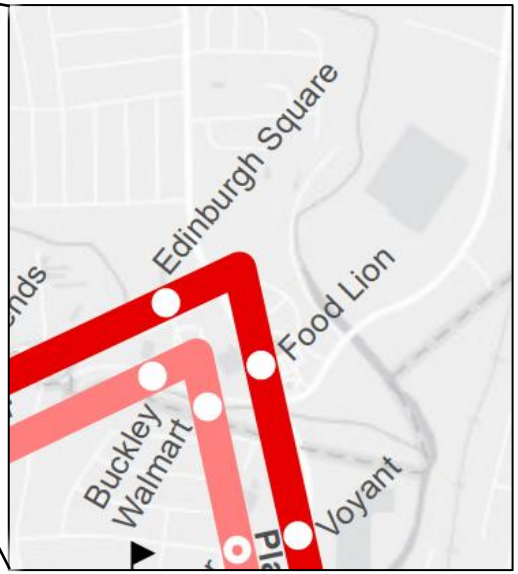
Land Use



- Land use adjacent to corridors – Commercial, Civic, Single Family Residential

Transit Routes & Stops



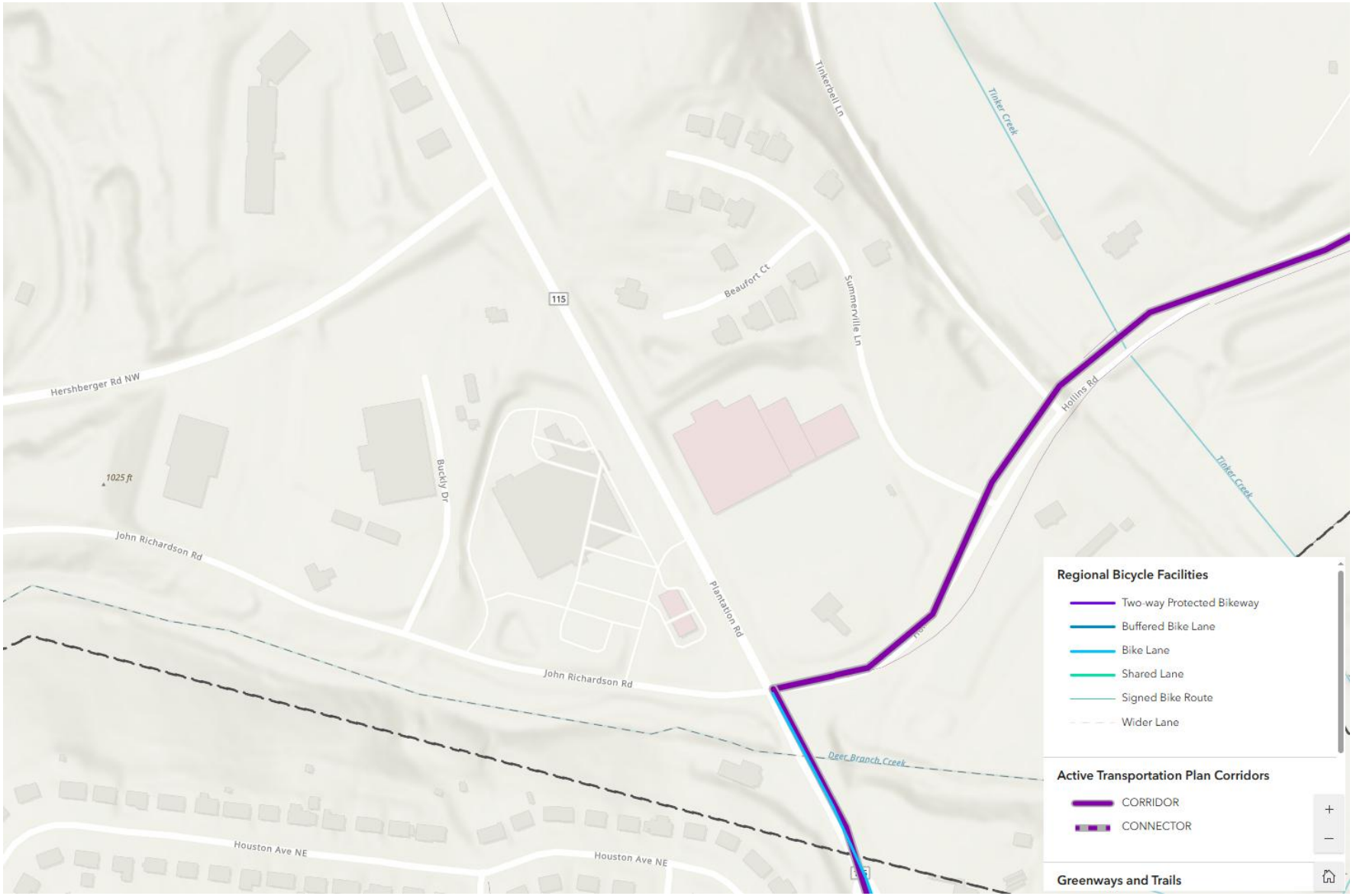


- 2 Bus Stops along Hershberger Road
- Transit Route 25
- Transit Route 26

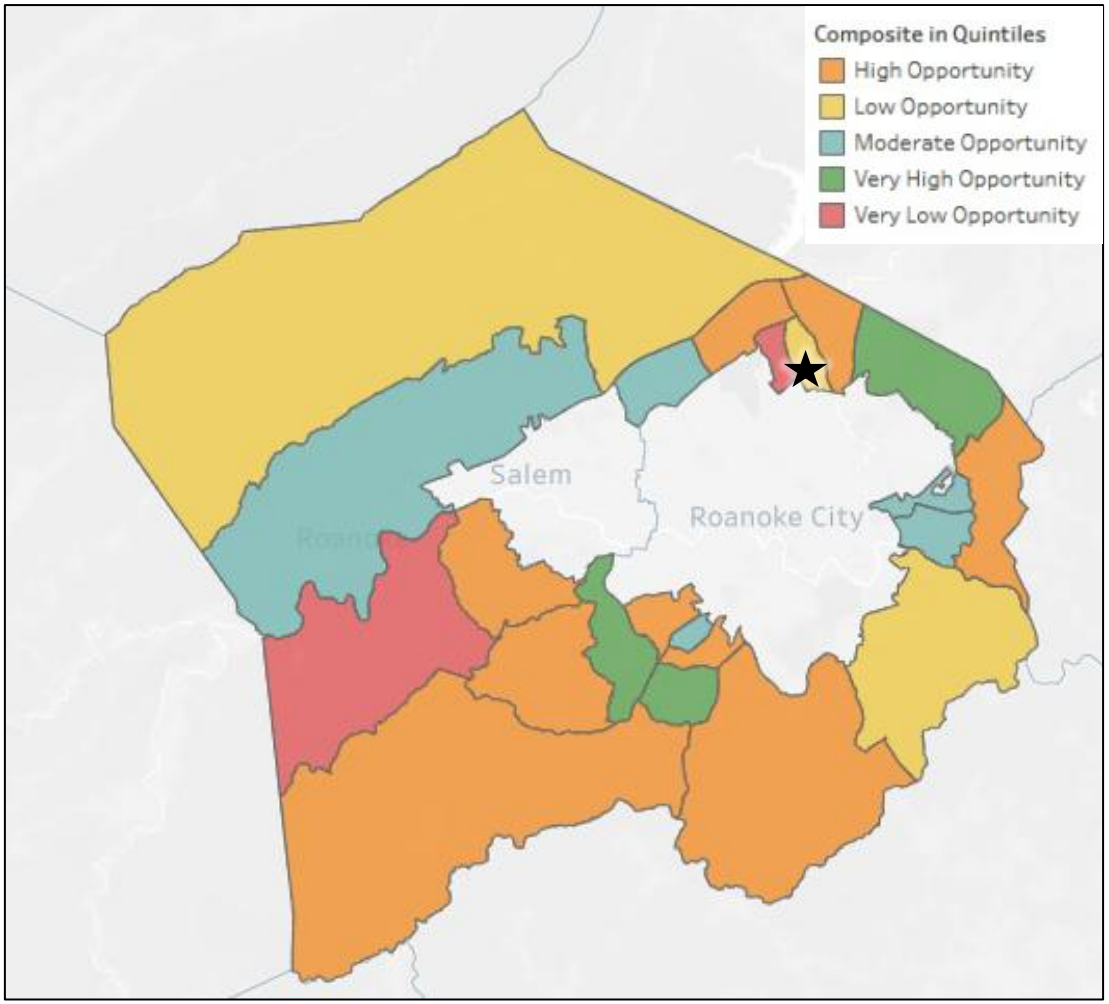
Pedestrian Facilities

- No pedestrian facilities present

Bicyclist Facilities

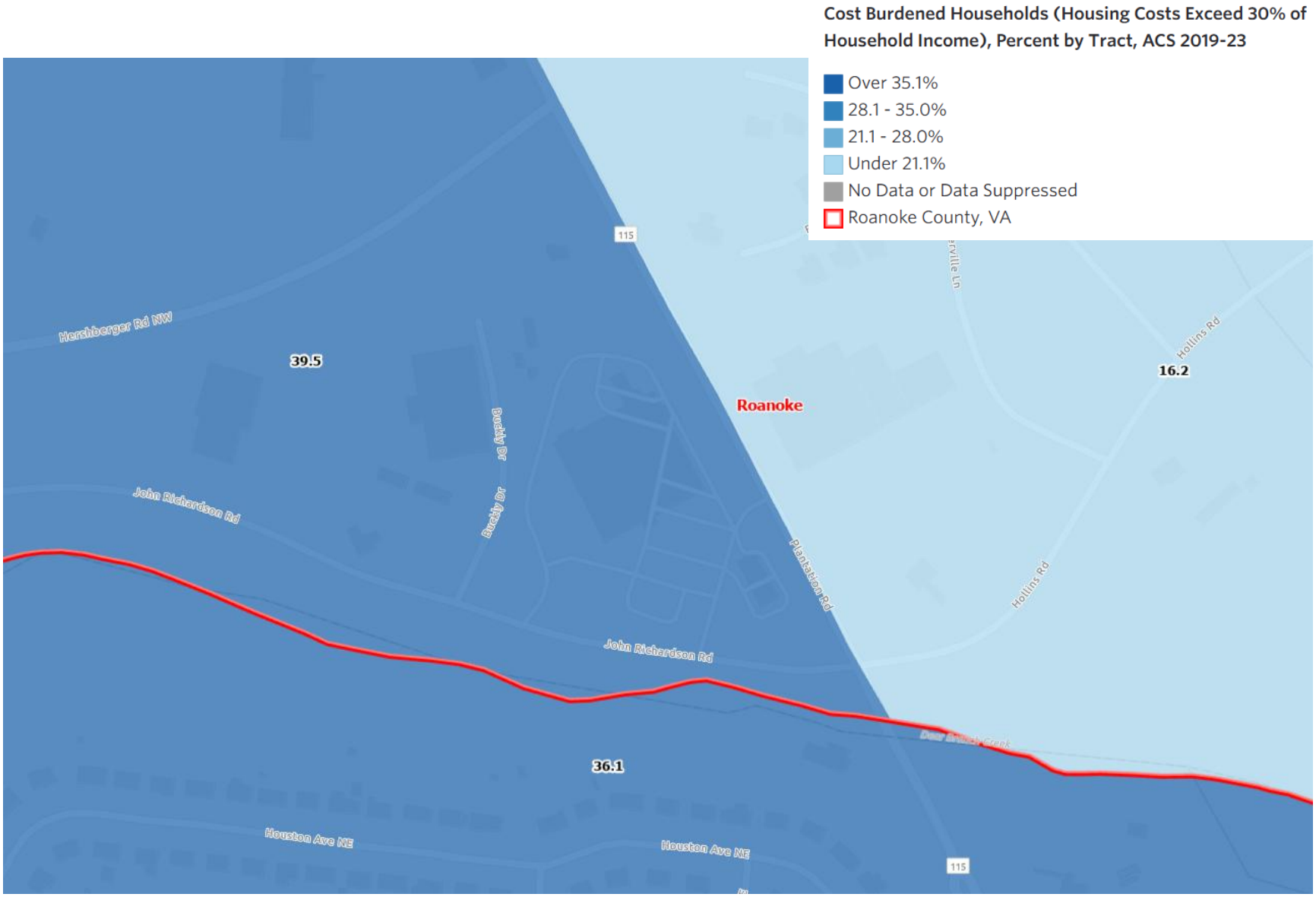


Health Opportunity Index

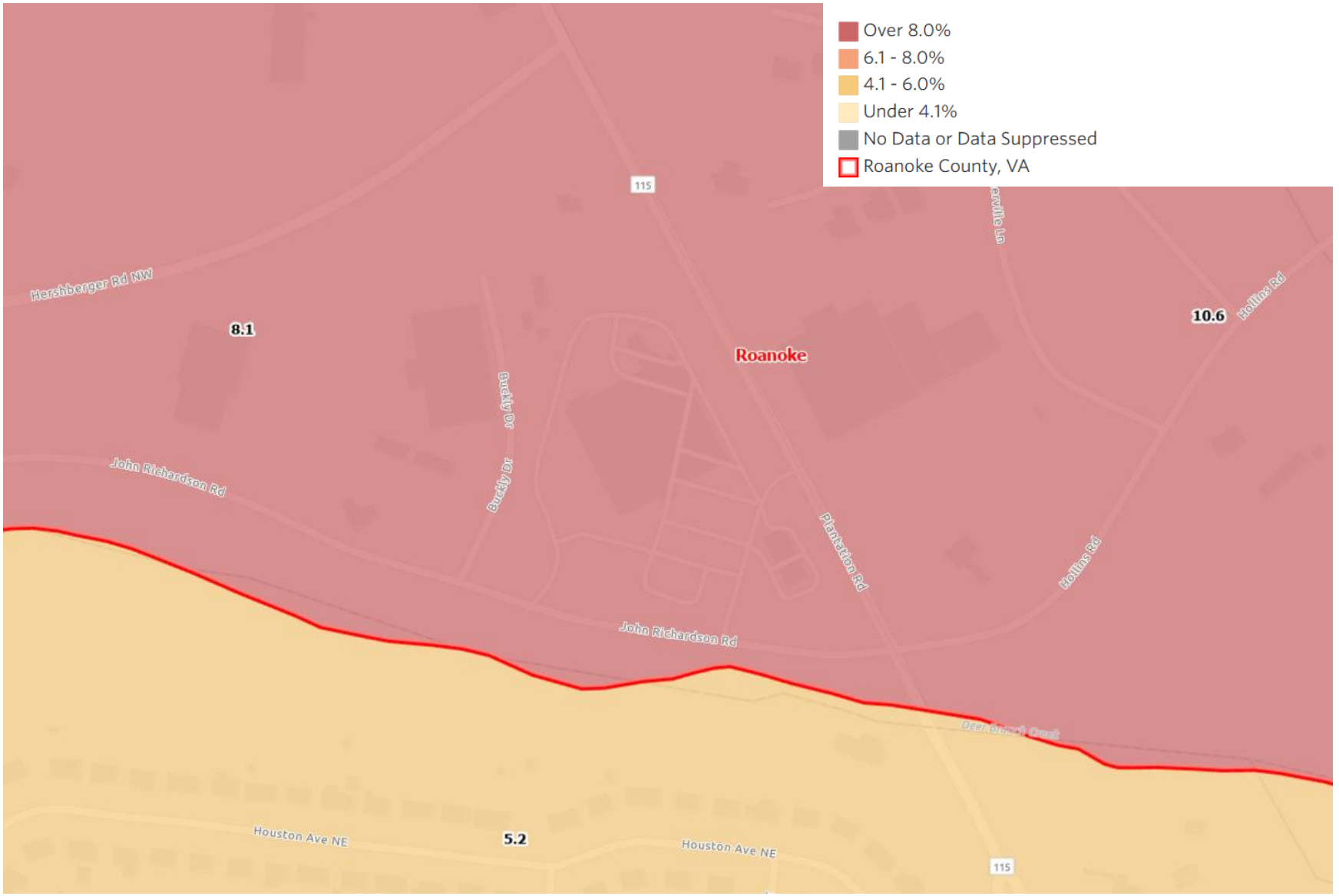


- Corridor's adjacent census tracts showing 'Very Low' levels of HOI
- Index made of four profiles – Community Environmental, Consumer Opportunity, Economic Opportunity, and Wellness Disparity

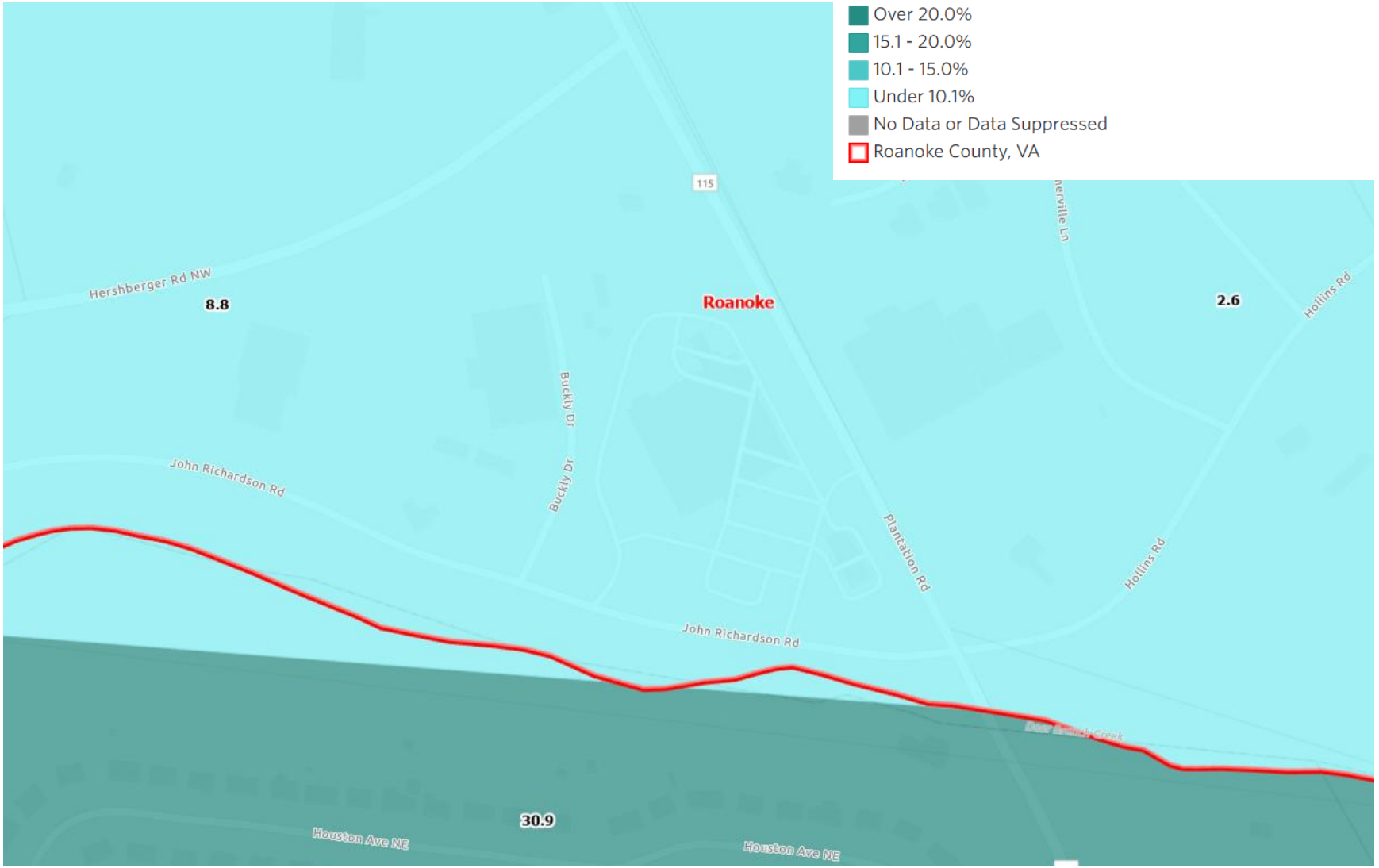
Cost Burdened Households



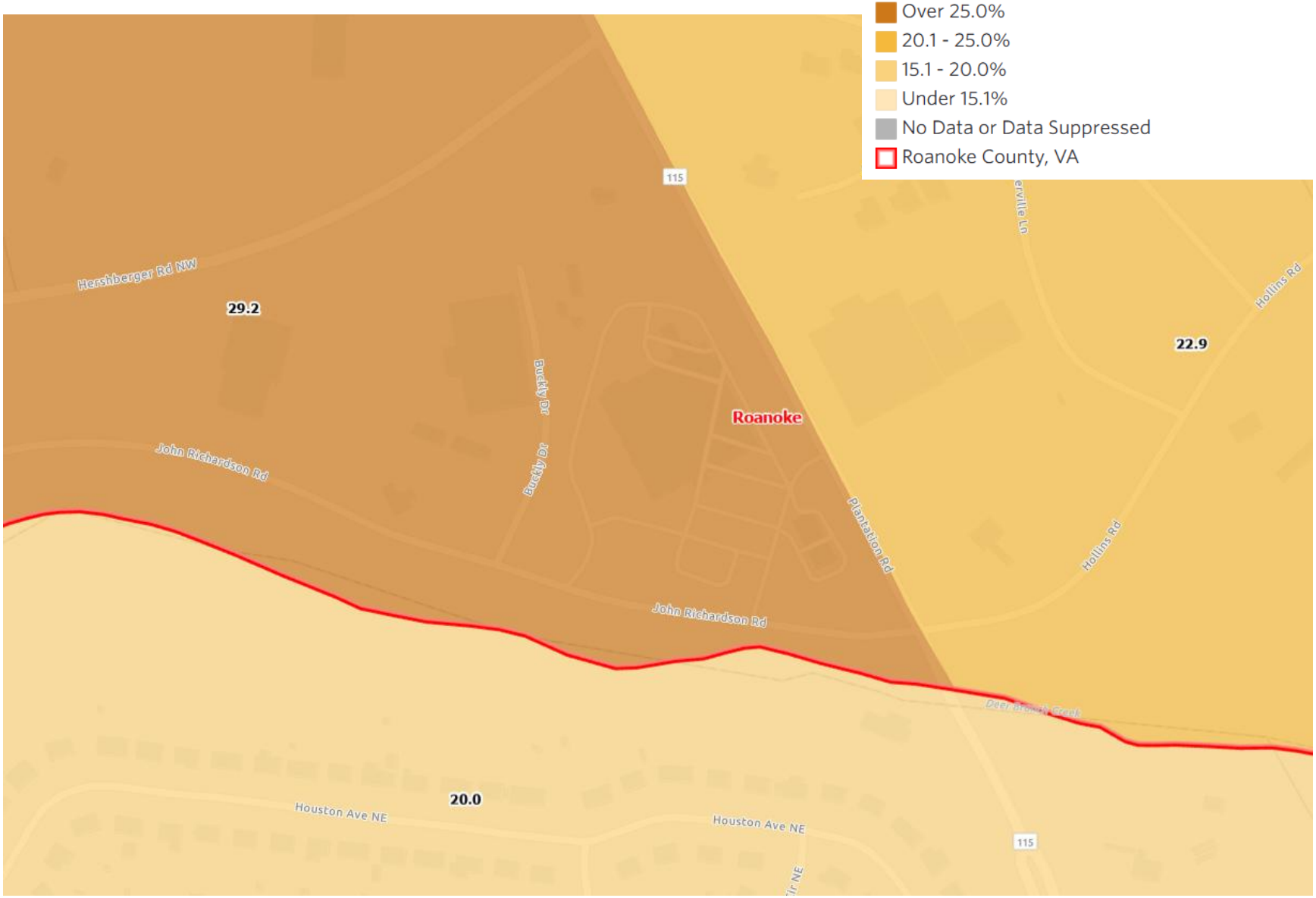
Households with No Vehicles



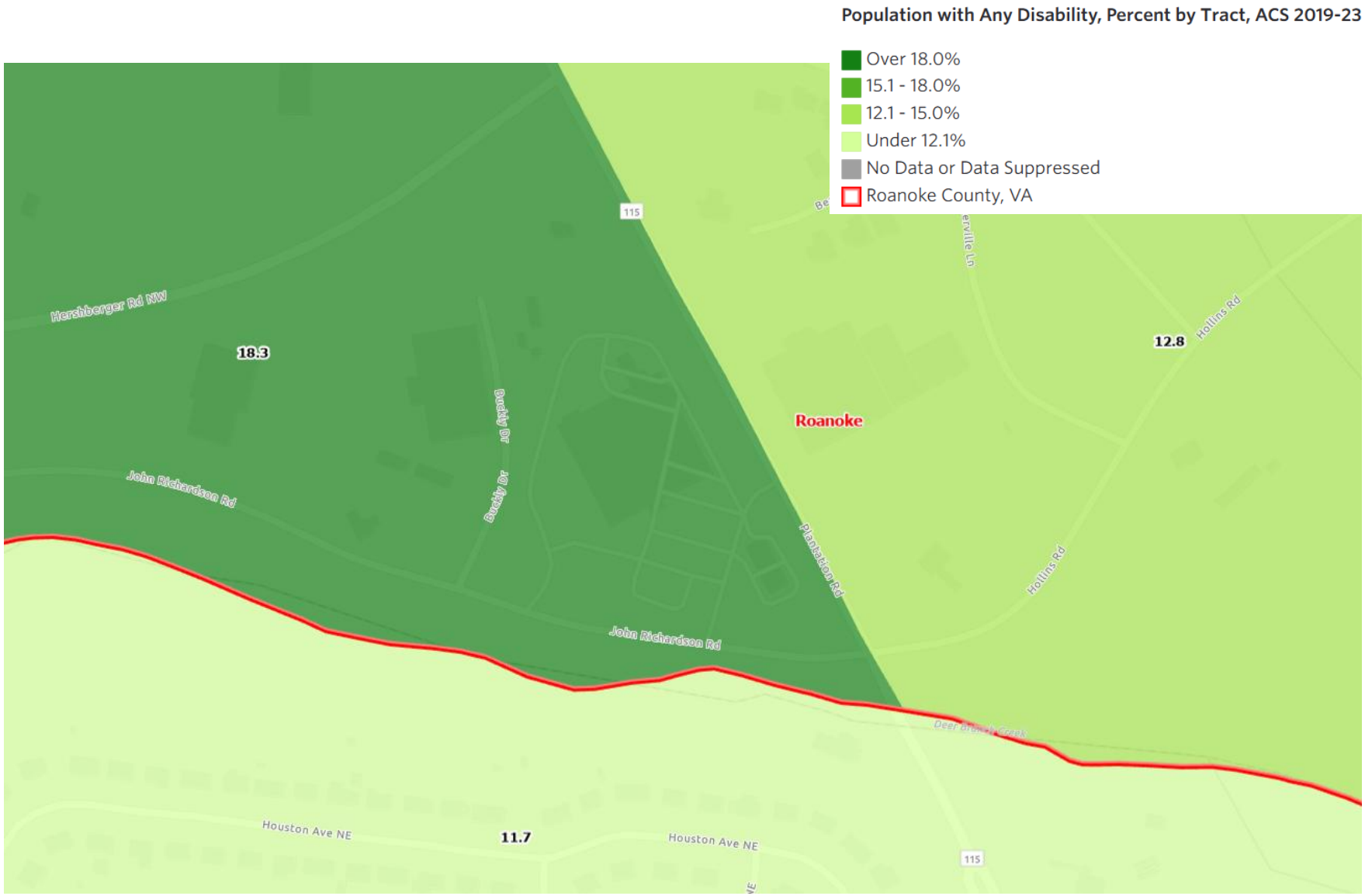
Population below Poverty Level



Population Age 65+



Population with Any Disability



What else do we know about the community's health profile?

What are the corridor's community assets? Key destinations, services, and resources?

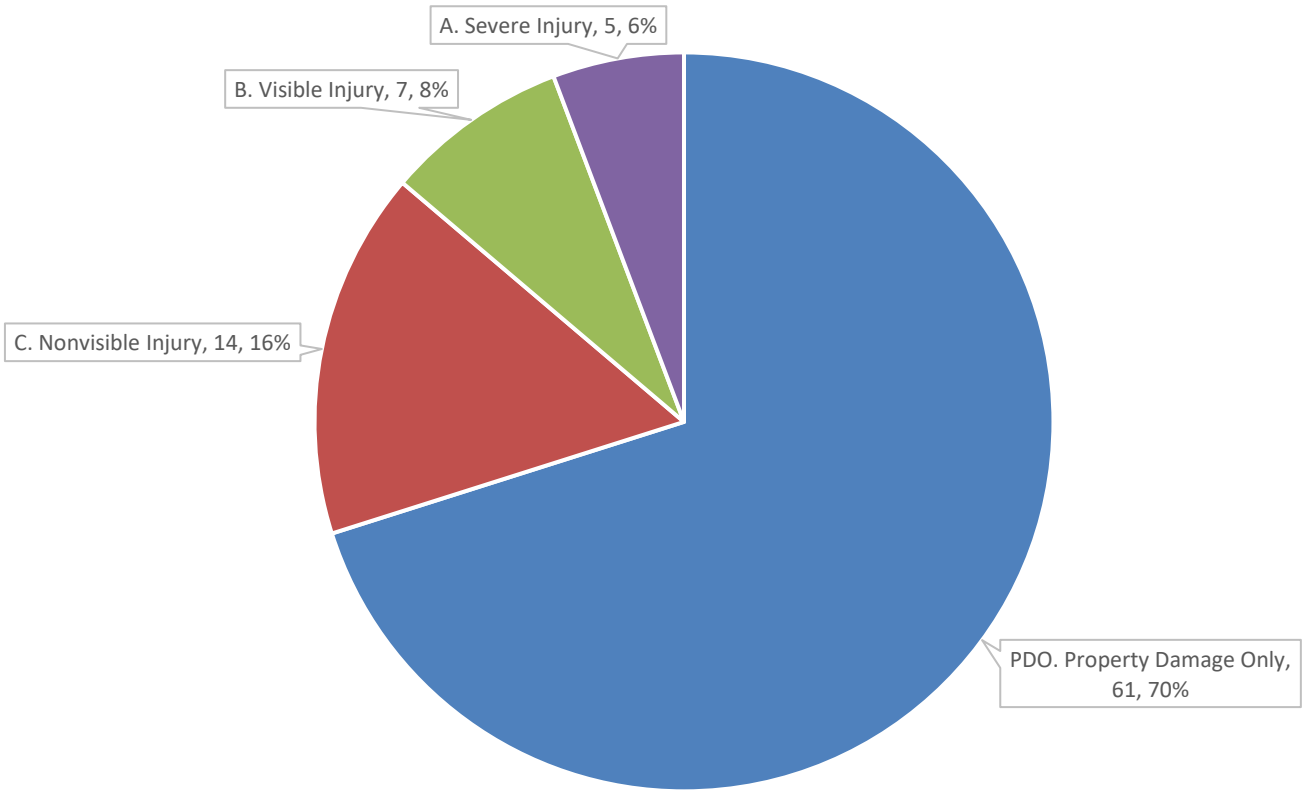
What do we know about pending development(s)?

Plantation Road RSA Crash Data Review

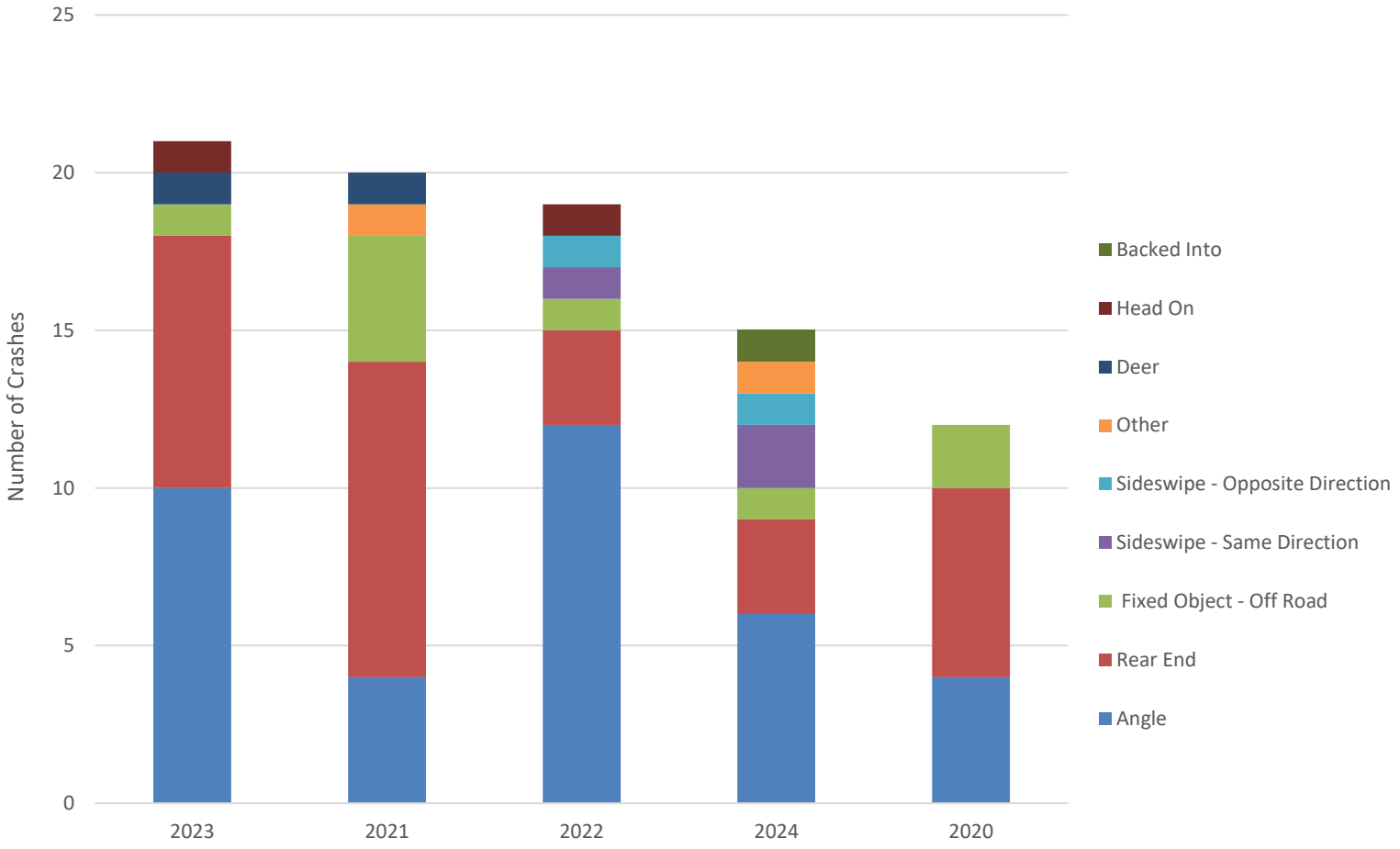
Total Crashes Along Corridor (January 2020 – December 2024)

- 87 total crashes
- 26 injury crashes
- 4 severe injury crashes
- No fatal crashes

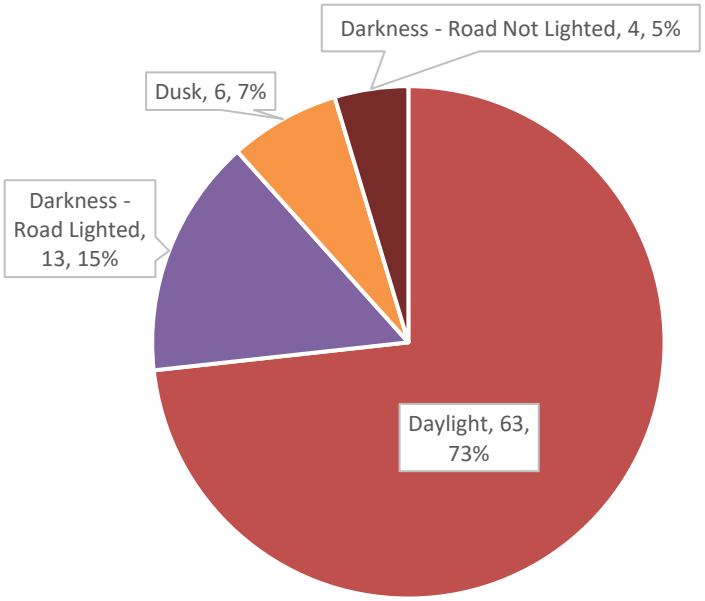
Crashes by Severity (January 2020 – December 2024)

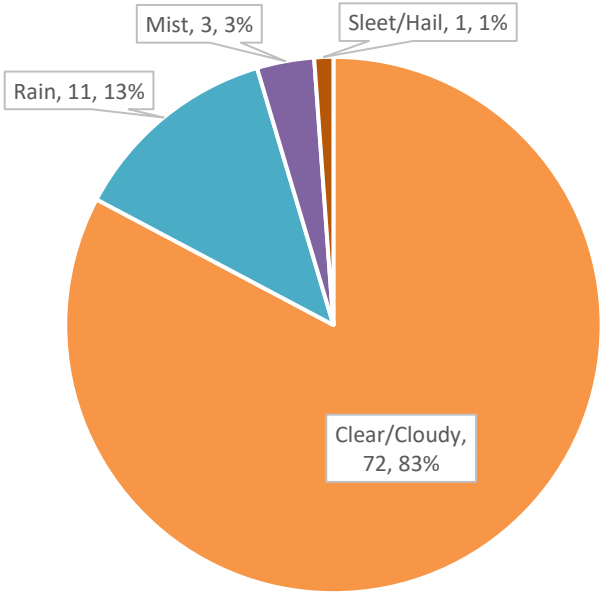


Crash Type by Year (January 2020 – December 2024)



Crash Type Light and Weather Condition (January 2020 – December 2024)





Plantation Road RSA Field Map Packet

Site Observations

- What do you see?
- Who is travelling along or crossing the roadway(s)?
- Where are people going?
- Are conditions likely to change along the sites? If so, how?
- What are the better existing design features or design elements for pedestrian/bicycle safety at the sites?
- What safety issues are you observing?
- Do you need additional information?

Field Visit Guidance

Observe and record what you see for physical elements and behaviors that may affect pedestrian safety along Plantation Road:

- ❑ Presence and continuity of facilities (ped and transit)
  - ❑ Sidewalks
  - ❑ Curb ramps
  - ❑ Bus stop
  - ❑ Bus stop shelter
  - ❑ Paved trail
  - ❑ Informal paths (e.g. "goat paths")
- ❑ Quality of facilities (ped and transit)
- ❑ Overhead lighting
- ❑ Visibility of expected pedestrians
- ❑ Driveways and other conflicts
- ❑ Signs
- ❑ Pavement markings
- ❑ Signals: pedestrian signals and phase timing
- ❑ Destinations (e.g. businesses, schools, recreation, homes)
- ❑ Observed traffic behaviors, including speeding, turning movements, and gaps in traffic
- ❑ Observed pedestrian behaviors (travel and crossings)

Location	Physical Environment / Infrastructure					
	Presence/Placement	Quality/Condition	Connectivity/ Consistency	Visibility	Lighting	Transit
Universal Considerations for Study Area	• Do facilities address ped and bike needs, including those with disabilities? • If future changes are proposed to the transportation system or surrounding land use, will those needs still be met?	• Are ped and bike facilities in good condition and accommodate users with disabilities?	• Are safe, continuous, and convenient ped and bike routes provided throughout the study area?	• Do obstructions block the view of roadway users? • What obstructions block the view of pedestrian and bicycle facilities (e.g., crosswalks, traffic control devices, signs)? • Does the sun create visibility issues at certain times of day?	• Are ped and bike facilities well-lit? • Can peds and bikes be seen by motorists during dark conditions?	• How does transit infrastructure interact with ped and bike facilities?
Along Street (including driveways)	• How are peds and bikes accommodated on both sides of the road? • Are facilities shared, separate, or buffered? • What is the comfort level for users? • Are ped and bike facilities appropriate for the adjacent land use? • Do parked vehicles obstruct ped paths? • Does parking adversely affect bike safety?	• Are the bike/ped facilities in good condition and well-maintained? • Are there obstacles (e.g. utility poles or signs) in the middle of the sidewalk? • Are the sidewalks wide enough for two people to walk together? • Does vegetation or debris infringe on pedestrian or bicyclists facilities? • Is the pavement free of obstacles (e.g., potholes, drainage grates, longitudinal joints)?	• How are peds accommodated at driveways/ access points? • Are ped walkways continuous? • Are bike routes continuous?	• Are there obstructions blocking the driver's view of peds and bikes? • Are driveways designed with peds and bikes in mind (e.g., less driveway density, access management, proper signage, pavement markings, etc.)?	• Are sidewalks and bicycle facilities adequately lit?	• Are there sufficient boarding areas (5 feet along curb, 8 feet perpendicular to curb line) and visibility at transit stops? • Do ped and bike facilities connect to transit stops?

Location	Physical Environment / Infrastructure					
	Presence/ Placement	Quality/Condition	Connectivity/ Consistency	Visibility	Lighting	Transit
Mid-Block Crossing (marked)	• Are there crossing enhancements? • What are the distances between the mid-block crossing and other marked crosswalks?	• Are signs and pavement markings in good condition and visible/legible?	• Does this crossing lead to/from a ped/bike generator?	• Are there obstructions blocking the view of signs or pavement markings? • Do horizontal or vertical curves impede adequate sight distance between drivers and peds/bikes?	• Are pedestrian crossings adequately lit?	• Is there a transit stop located mid-block? • Are transit users crossing mid-block to get to/from the transit stop?
Observed Mid-Block Crossings (unmarked)	• Are crossings isolated or a frequent route used by pedestrians or bicyclists?	N/A	• How far is it to the nearest controlled crossing? • Why are peds/ bikes crossing mid-block and not at the closest marked crossing? • Are there generators that lead to pedestrians and bicyclists crossing mid-block?	• Are there obstructions blocking the view of pedestrians and bicyclists?	• Does this section of roadway have lights?	• Are mid-block crossings occurring near transit stops?

Location	Physical Environment / Infrastructure					
	Presence/ Placement	Quality/Condition	Connectivity/ Consistency	Visibility	Lighting	Transit
Intersections	• How are peds and bikes accommodated (e.g., accessible ped signal, bike box, high-vis crosswalks, bike signal)? • What intersection characteristics increase/decrease ped and bike safety (e.g., channelized right turns, large cub radii, wide crossing distances, right-turn-on-red)?	• How many legs have a crosswalk and what is the condition? • Are ped push buttons accessible, with a locator tone, properly located and connected to the walkway, and functioning correctly? • Are curb ramps in good condition and ADA-compliant for each crosswalk or does a single curb ramp serve both crosswalks?	• Are intersection enhancements to signs, pavement markings, and signals consistent across intersections in the study area? • Do crosswalks line up with sidewalks?	• Can peds, bikes, and drivers see each other at all intersection legs? • Are there utility poles, signs or other objects blocking the view of traffic? • Do skewed intersections direct drivers' focus away from peds?	• Is the lighting adequate at all corners of the intersection?	• Do ped and bike facilities connect to transit stops? • Are transit stops on the near or far side of the intersection?
Shared Use Paths and Grade-Separated Crossings	• Do bicyclists have adequate space to ride comfortably (e.g., horizontal and vertical clearance at tunnels and bridges, construction zones, guardrails, fences)? • Do pedestrians have sufficient width to walk comfortably and is access to the facility accessible to individuals with disabilities?	• Does the condition of the facility promote personal safety? • What material is the structure (freeze/thaw)? • Are the grades and cross slopes accessible to individuals with disabilities? • Is there adequate drainage? • Does wildlife affect comfort levels? • Are sideslopes adequate for bicycles to return to the roadway in the event of a lane departure? • Are facilities properly maintained	• Are bike facility transition areas designed appropriately with logical termini or do they end abruptly, potentially contributing to sudden and difficult merges, uncontrolled crossings, or behaviors such as wrong-way riding? • How is access provided to destinations if grade-separated? • Is the facility connected to other ped facilities in the area?	• Does poor visibility compromise personal safety? • Does the speed of users affect their ability to see and react to shared use path connections?	• Is adequate lighting provided?	• Are connections to transit provided?

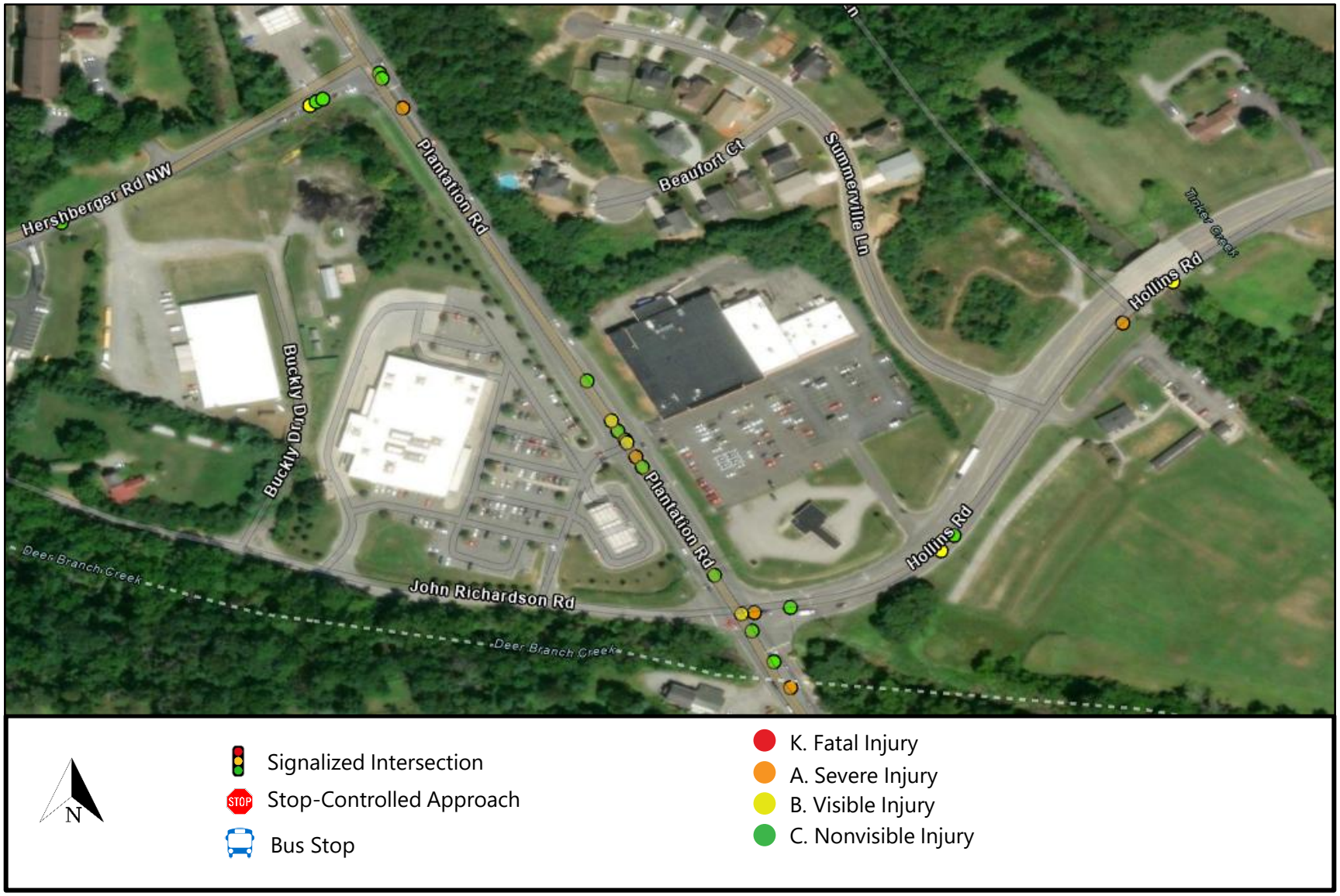
Location	Traffic Control Devices		
	Signs and pavement markings	Signals	Compliance?
Universal Considerations for Study Area	• Are signs and pavement markings for pedestrian and bicycle facilities present and effective?	• Are pedestrians and bicyclists accommodated at signals through adequate signal timing and phasing? • Are pedestrian push buttons accessible, with a locator tone, properly located and connected to the walkway, and functioning correctly?	• Do motorists, pedestrians, and bicyclists follow traffic laws?
Along Street (including driveways)	• Are bicycle pavement markings adequate?	N/A	N/A
Mid-Block Crossing (marked)	• Are crossing points for pedestrians properly signed and/or marked? Are curb ramps provided? • Are there signage enhancements for the crossing, such as RRFBs or flashing beacons?	• Are there any devices (i.e., PHB or signalization) to control the crossings? • If so, are pedestrian push buttons accessible, with a locator tone, properly located and connected to the walkway, and functioning correctly?	• Are drivers, pedestrians, and bicyclists compliant with traffic control devices? • Are drivers yielding to pedestrians? • Are bicyclists yielding to pedestrians?
Intersections	• Is paint on stop bars and crosswalks worn, or are signs worn, missing, or damaged? • Are there sign or pavement marking enhancements?	• How long is the pedestrian or bicycle signal? Is there enough time to cross? • Is there a pedestrian countdown and/or bicycle signal? • Do pedestrians and bicyclists use push buttons to actuate a crossing? • Is there a leading pedestrian interval (LPI)? Is it accessible to pedestrians with vision disabilities? Are bikes allowed to utilize the early start? • Are there restrictions on turning-movements, like no right-turn-on-red? • How long do pedestrians have to wait in between signals? • Do vehicles have protected or permitted left-turn control?	• Are drivers, pedestrians, and bicyclists compliant with traffic control devices? • Are drivers yielding to pedestrians (especially at right-turn)? • Are bicyclists yielding to pedestrians?
Shared Use Paths and Grade-Separated Crossings	• Do signs provide wayfinding or advance warning of at-grade intersections?	N/A	N/A

Location	Operations / Interactions / Behaviors		
	Characteristics	Mode Behavior	Interactions of Modes
Universal Considerations for Study Area	• Are design, posted, and operating traffic speeds compatible with pedestrian and bicyclist safety? • Is the safety of children in school zones adequately considered?	• Do pedestrians or motorists regularly misuse or ignore pedestrian facilities? • Are drivers, pedestrians, and bicyclists behaving in a safe, compliant manner? • Are behaviors systemic across the network or at isolated locations?	• Do roadway users look/scan for other travel modes? • Are drivers and bicyclists yielding to pedestrians at crossings? • Do drivers allow extra space or reduce speeds when overtaking or driving near bicyclists? • How do pedestrians and bicyclists interact with transit facilities?
Along Street (including driveways)	• Do scooters, bicycles, skateboards, or non-motorized vehicles create hazards for pedestrians (e.g., operating or parking on sidewalk)? • Are vehicles traveling at appropriate speeds?	• If available, are bicyclists using their dedicated facilities?	• Are drivers yielding to pedestrians at driveways? • Are there conflicts between bicycles and pedestrians on sidewalks?
Mid-Block Crossing (marked)	• What are vehicle speeds? • What are traffic volumes?	• Are people using the mid-block crossing? • Are drivers yielding to pedestrians or bicyclists in the crosswalk?	• Are the physical environment and traffic control devices adequate for a safe crossing?
Observed Mid-Block Crossings (uncontrolled)	• What are vehicle speeds?	• Are pedestrians and bicyclists waiting for gaps?	• Are drivers expecting crossing pedestrians or bicyclists?
Intersections	• What are vehicle speeds? • What are vehicle, pedestrian, and bicycle volumes at the intersection?	• Are drivers stopping in the crosswalk? • Are pedestrians crossing with or against the pedestrian signal, if present? • Do pedestrians and bicyclists use push buttons to actuate a crossing?	• Is it clear between roadway users who has the right-of-way and is there compliance? • Do drivers yield to pedestrians and bicyclists when turning right or left?
Shared Use Paths and Grade-Separated Crossings	• Is there a mix of grade-separated and at-grade crossings?	• Do pedestrians walk in a way that blocks the path for other users? • Are bicyclist speeds too fast for conditions? • Does a mix of grade-separated and at-grade intersections influence behavior (e.g., higher speeds, less expectancy of crossing conflicts)?	• Are there pavement markings that separate users? How are such separations communicated to pedestrians with vision disabilities? • What are the levels of comfort for users?

Crash Records by Crash ID and Map Segment

(Reported Injury Crashes, 2020-2024)

Crash ID	Type	Date	Time	Injury Severity	Location	Lighting Condition
1	Angle	05/04/2020	17:39	Visible Injury	Driveway	Daylight
2	Fixed Object	07/15/2021	16:54	Severe Injury	Main-Line Roadway	Daylight
3	Head On	05/10/2022	19:29	Visible Injury	Main-Line Roadway	Dusk
4	Angle	08/05/2022	14:08	Visible Injury	Intersection Related	Daylight
5	Angle	01/07/2023	12:41	Visible Injury	Main-Line Roadway	Daylight
6	Rear End	01/31/2023	19:46	Severe Injury	Intersection Related	Darkness
7	Angle	05/03/2023	5:49	Severe Injury	Intersection Related	Dawn
8	Rear End	07/24/2023	17:47	Severe Injury	Intersection Related	Daylight
9	Angle	07/24/2023	15:25	Visible Injury	Intersection Related	Daylight
10	Fixed Object	10/10/2024	17:25	Visible Injury	Main-Line Roadway	Dusk


Hershberger Rd NW
Plantation Rd
Beaufort Ct
Summerville Ln
Hollins Rd
Buckly Dr
Plantation Rd
Hollins Rd
Deer Branch Creek
John Richardson Rd
Deer Branch Creek
N
Signalized Intersection
STOP
Stop-Controlled Approach
Bus Stop
K. Fatal Injury
A. Severe Injury
B. Visible Injury
C. Nonvisible Injury

Reminders in the Field

- Wear your PPE
- Stay within visible range of the facilitator and with the group
- If you must leave, notify the facilitators
- Do not create unsafe situations
- Ask passersby to complete survey (1-2 minutes)
- Meet at identified locations