



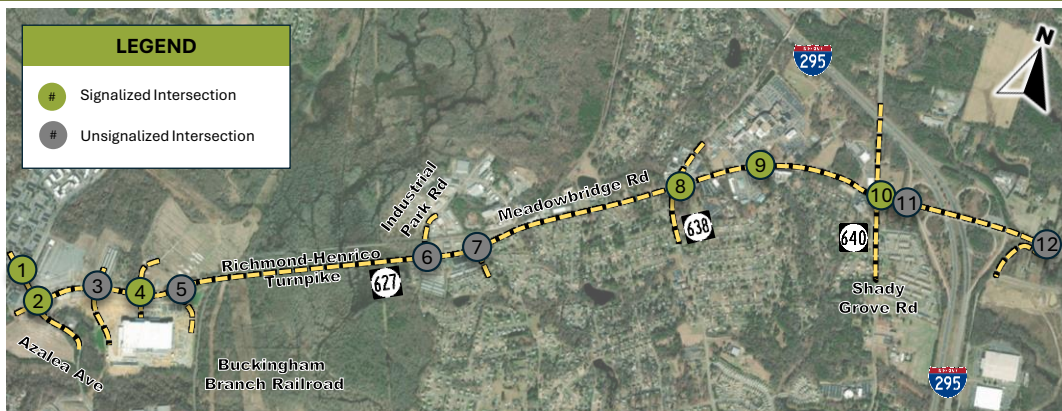
PROJECT PIPELINE NEEDS AND EXISTING CONDITIONS SUMMARY

Route 627 (Richmond-Henrico Turnpike/Meadowbridge Road) Corridor

VDOT District: Richmond District/ Locality: Henrico/Hanover Counties

RI-25-02

Sheet 1 of 6



Study Purpose, Goals, and Objectives

Analyze the operational and safety issues identified within the project area, with a focus on providing enhanced bicycle, pedestrian, and transit access.

Identify cost-effective preferred improvement alternatives that address the deficient conditions and prioritize safety for vulnerable users.

VTrans Needs

	Significant angle & rear-end crash trend at intersections. Fixed object off-road crash cluster near county line.
	Entire Corridor has VTrans Bicycle Access Need.
	The study area experiences peak-hour congestion due to commuter traffic between I-295 and major employment centers like Amazon, RIR, and the Medical Center.
	Entire corridor has VTrans Transit Access and TDM Need.

Study Facts

Major Study Intersections	12
Length of Study Area	3.9 miles
Classification	Minor Arterial
Speed Limit	45 mph

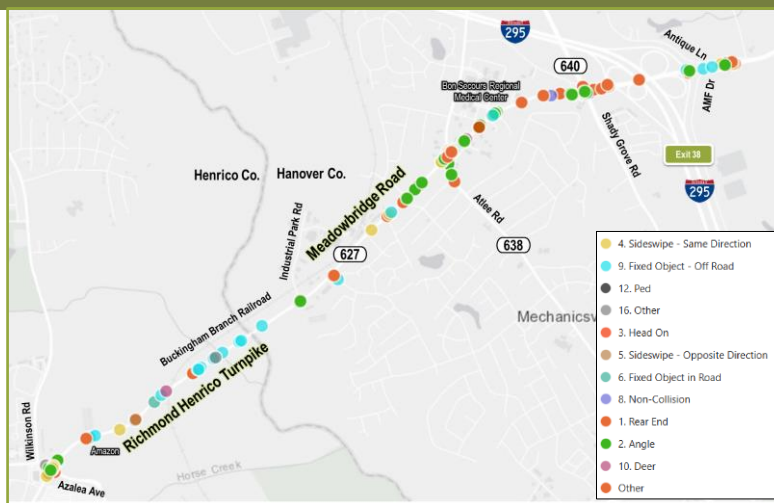
Safety Needs

Roadway Safety Improvement Summary:

- The **Roadway Safety Improvement** VTrans Need is based on "Areas with a higher calculated risk of crashes based on roadway characteristics and observed crash data.¹"

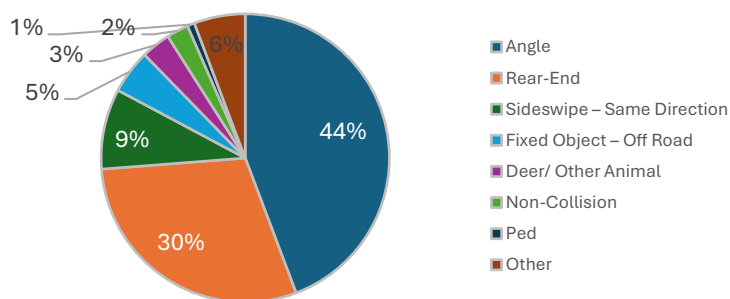
Pedestrian Safety Improvement Summary:

- The **Pedestrian Safety Improvement** VTrans Need is based on "Those roadway segments included in VDOT's Pedestrian Safety Action Plan (PSAP) Priority Corridors. These areas may require attention based on pedestrian safety factors.¹" The study area includes:
 - 1 pedestrian crash between 2020-2024 just east of Route 638 (Atlee Road).



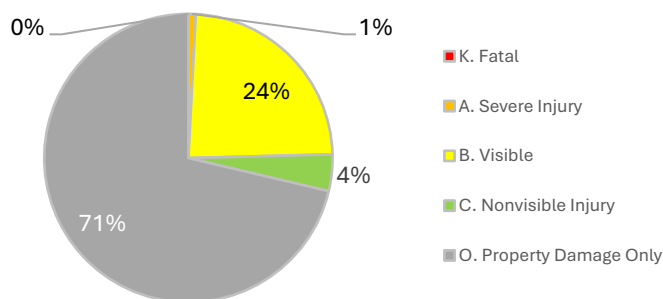
Crash Type

122 Total Crashes (2020 – 2024)



Crash Severity

122 Total Crashes (2020 – 2024)



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Bicycle/Pedestrian Access Needs Identification Summary



Bicycle Accessibility Summary

- The **Bicycle Access** VTrans Need is based on “Applicable roadway segments within biking distance (seven miles) of VTrans Activity Centers, fixed-guideway transit stations, or BRT lines.¹” The study area includes:
 - Shared-Use Path (southside) & Sidewalk (northside) from Azalea Ave to Amazon Ave.
 - No existing bike lanes along Route 627 or in the study area.
 - Route 638 (Atlee Road) is part of the US-76 Bicycle Route, but no bicycle accommodations currently exist.
 - No crashes involving a bicyclist between 2020-2024.

Pedestrian Accessibility Summary

- The **Pedestrian Access** VTrans Need is based on “Applicable roadway segments within walking distance (one mile) of VTrans Activity Centers, fixed-guideway transit stations, or BRT lines.¹” The study area includes:
 - Shared-Use Path (southside) & Sidewalk (northside) from Azalea Ave to Amazon Ave. Sidewalk (northside) continues to RIR parking lot access.
 - ADA compliant crosswalks with push-button signals at Azalea Ave and Amazon Ave. Crosswalks also across multiple unsignalized side streets in between.
 - 1 pedestrian crash between 2020-2024 just east of Route 638 (Atlee Road).

PROJECT PIPELINE NEEDS AND EXISTING CONDITIONS SUMMARY

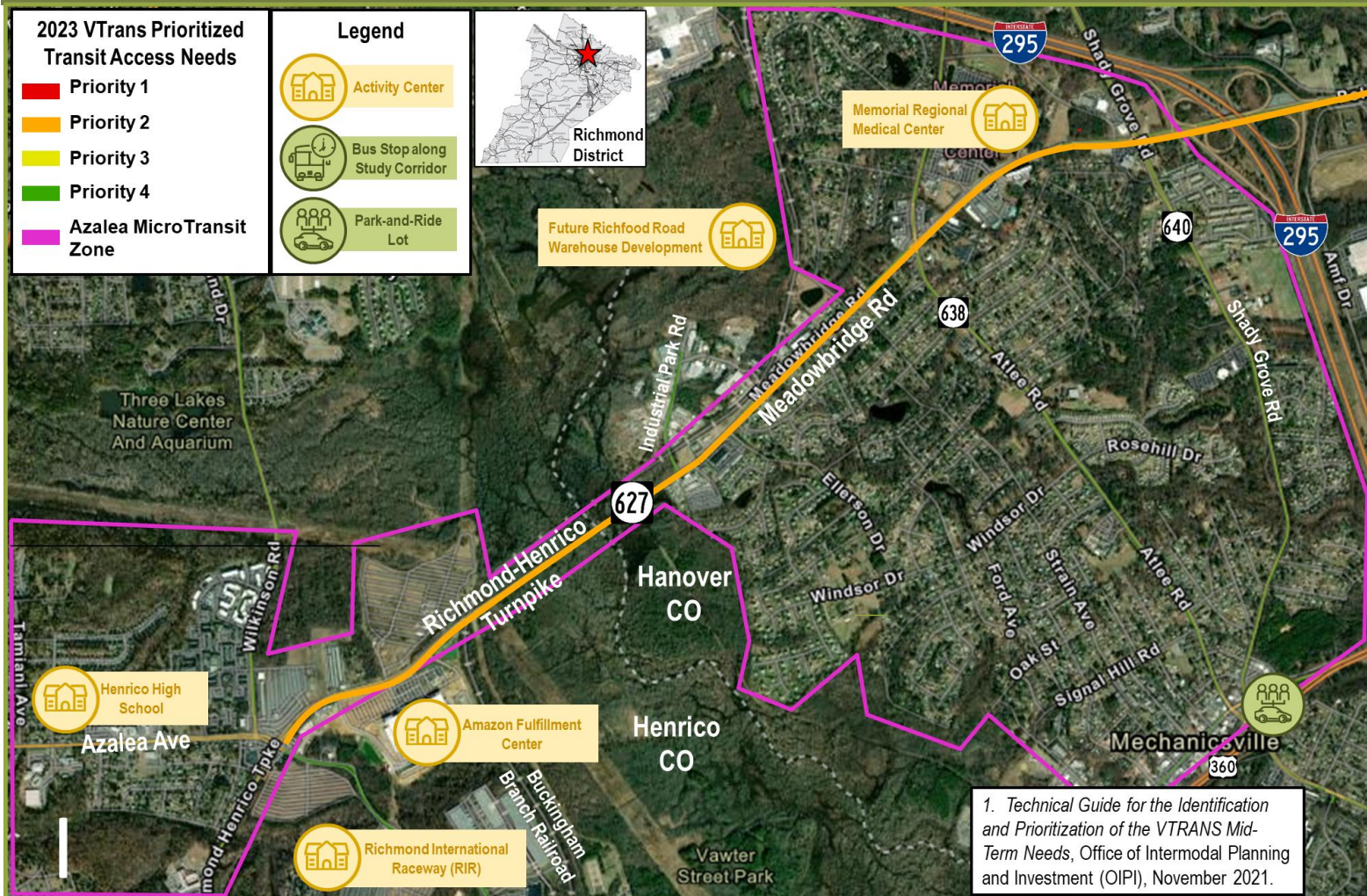
Route 627 (Richmond-Henrico Turnpike/Meadowbridge Road) Corridor

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Transit Access Needs Identification Summary



Transit Accessibility Summary

- The **Transit Access** VTrans Need is based on “The number of workers that can access a given VTrans Activity Center via public transit within 45 minutes versus a private automobile. Any transit deficit greater than zero constitutes a need.¹” The study area includes:
- No Existing GRTC Fixed Routes or Stops along the Study Corridor.
- LINK Azalea MicroTransit Zone serves the majority of the study area. This zero-fare on-demand public transportation service provides free curb-to-curb rides between any two locations within the zone at the push of a button.

Transportation Demand Management (TDM) Summary

- The **TDM VTrans** Need is based on “Roadway segments where TDM strategies such as new or expanded public transportation services/facilities, new or expanded bicycle and pedestrian facilities, or coordination of commuter assistance programs can be beneficial to reduce vehicle miles traveled.¹”
- No existing Park-and-Ride or other intermodal facilities exist along the study corridor.
- Mechanicsville Park-and-Ride #282 is located approximately 1.8-miles south of Route 627 along Route 638 (Atlee Road) at US-360.

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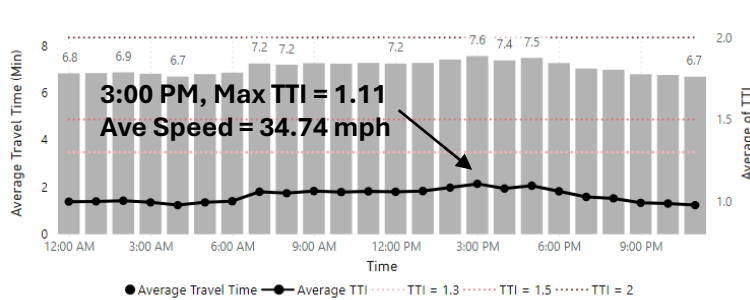
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Operations Summary

- **Congestion Mitigation** VTrans Needs are "identified utilizing Travel Time Index (TTI) data.1"
- VTrans Congestion Mitigation Needs are concentrated near I-295 & Route 640 (Shady Grove Road) on the east end of the corridor and near Azalea Ave on the west end. This congestion is a result of commuters traveling to/from I-295 and the employment centers (Amazon, RIR, Medical Center, Virginia ABC, & AMF) located on either end of the study corridor.

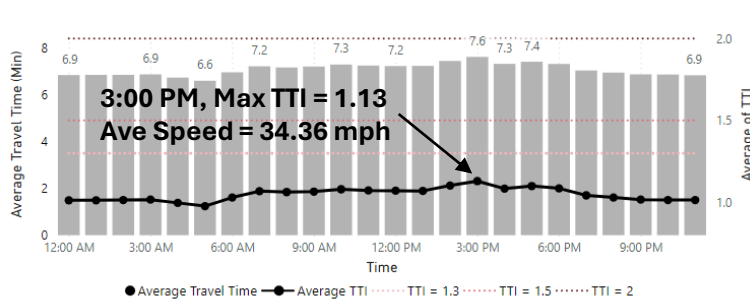
Travel Time Index Summary*

Average Travel Time Index (TTI) & Average Travel Time Per Hour



(Richmond Henrico Turnpike/Meadowbridge Road, Eastbound, Weekday)

Average Travel Time Index (TTI) & Average Travel Time Per Hour



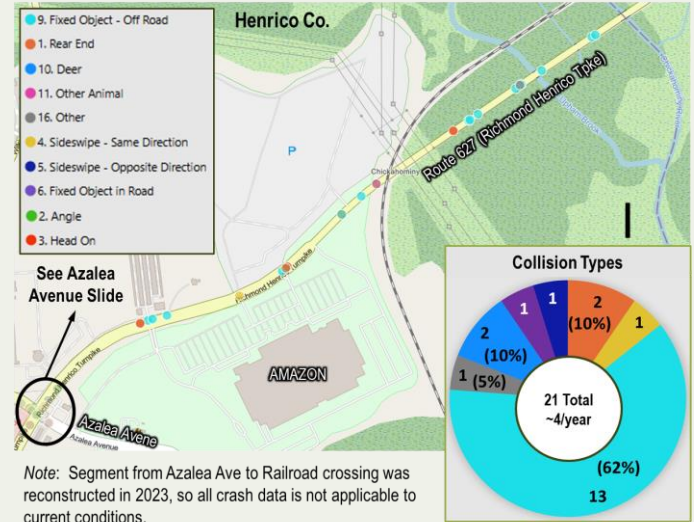
(Richmond Henrico Turnpike/Meadowbridge Road, Westbound, Weekday)

- Travel Time Index (TTI) is the ratio of travel time during a specified time period to the time required to make the same trip under uncongested conditions. A higher value indicates more congestion. Along Route 627 on a Typical Weekday:
- EB: Max TTI of 1.11 occurs in the 3 PM hour with an average speed of 34.7 mph.
- WB: Max TTI of 1.13 occurs in the 3 PM hour with an average speed of 34.4 mph.

*Travel Time Index (TTI) is the ratio of the travel time during the referenced time period to the travel time during typical conditions. For example, a TTI of 1.5 means a trip takes 50% longer than it would in free-flow conditions.

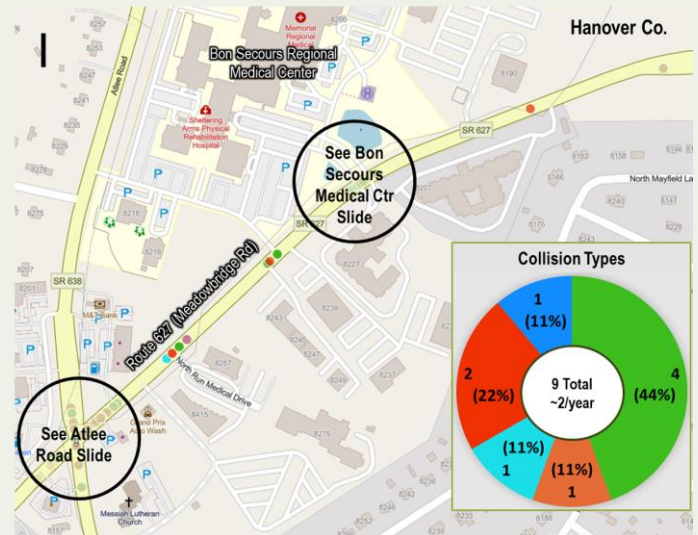
Detailed PSI Segment Crash Analysis (2020 – 2024 Data)

Route 627 (Richmond-Henrico Tpke) from Azalea Ave to County Line



- 62% of crashes were fixed-object off-road, 10% were rear-end collisions, and 10% were deer or other animal collisions.
- 72% of crashes were PDO, 14% were INJ-A, 14% INJ-B, 0 Fatal.
- Other Trends: 86% No Adverse Conditions, 48% Night-time, 10% Speeding, and 33% Guardrail Related.

Route 627 (Meadowbridge Rd) from Atlee Rd to West of Shady Grove Rd



- Segment has 22 crashes, 13 of which occurred at Bon Secours Medical Center Access.
- Of the remaining 9 crashes, 44% were angle, 22% were head-on, 11% were rear-end.
- Of the remaining 9 crashes, 78% were PDO, 22% were INJ-B, 0 Fatal.
- Other Trends: 100% No Adverse Conditions, 11% Night-time, 0% Speeding.



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Route 627 (Richmond-Henrico Turnpike/Meadowbridge Road) Corridor

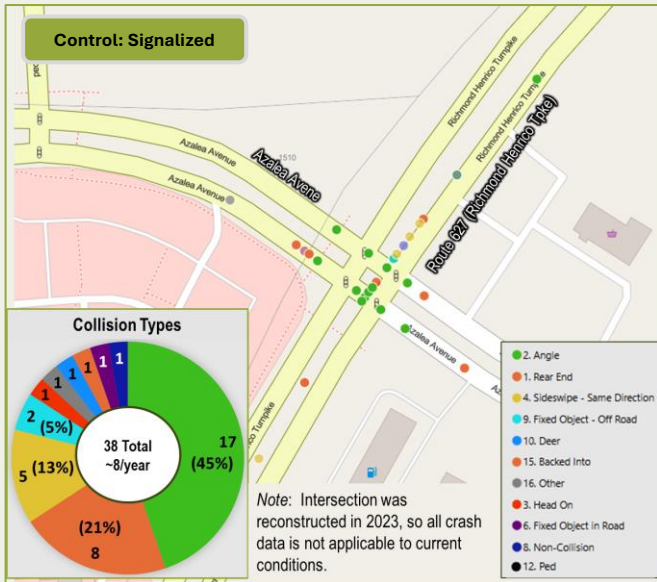
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Detailed Intersection Crash Analysis (2020 – 2024 Data) (1/3)

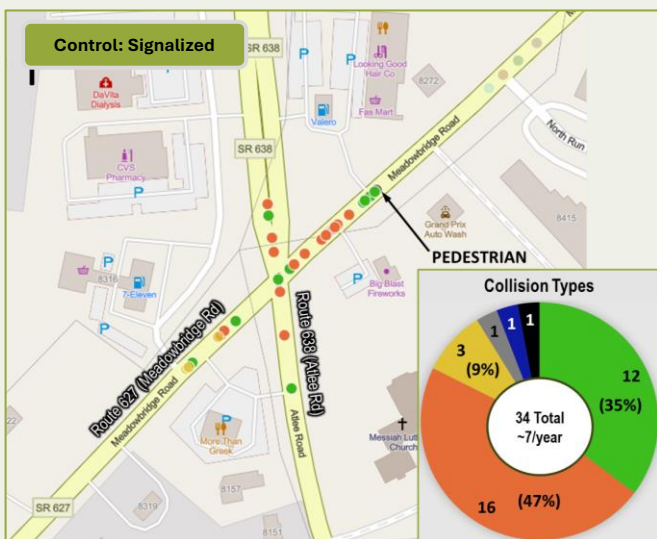
Route 627 (Richmond-Henrico Tpke) & Azalea Avenue



(PSI Intersection, Part of PSI Segment)

- 45% of crashes were angle collisions, 21% were rear-end collisions, and 13% were sideswipe same-direction.
- 79% of crashes were PDO, 16% were INJ-B, 2.5% INJ-A, 2.5% INJ-C, 0 Fatal.
- Other Trends: 82% No Adverse Conditions, 16% Night-time, 13% Speeding.

Route 627 (Meadowbridge Road) & Route 638 (Atlee Road)

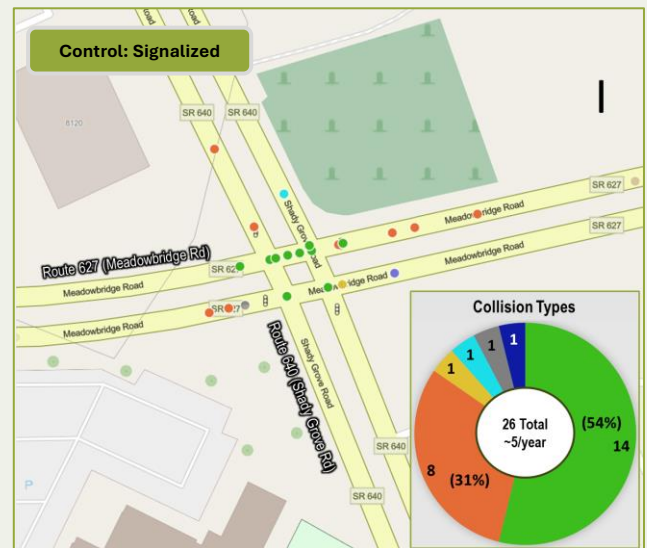


(PSI Intersection, Part of PSI Segment)

- 47% of crashes were rear-end collisions, 35% were angle collisions, 9% were sideswipe same-direction, and 3% were pedestrian (1 crash).
- 71% of crashes were PDO, 23% were INJ-B, 6% INJ-C, 0 Fatal.
- Other Trends: 88% No Adverse Conditions, 9% Night-time, 0% Speeding.

Detailed Intersection Crash Analysis (2020 – 2024 Data) (2/3)

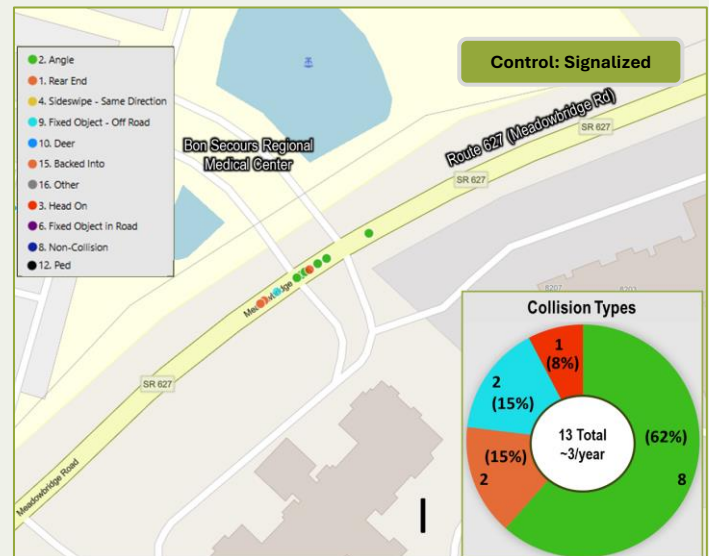
Route 627 (Meadowbridge Road) & Route 640 (Shady Grove Road)



(PSI Intersection, Part of PSI Segment)

- 54% of crashes were angle collisions, and 31% were rear-end collisions.
- 65% of crashes were PDO, 27% were INJ-B, 8% INJ-C, 0 Fatal.
- Other Trends: 88% No Adverse Conditions, 12% Night-time, 12% Speeding.

Route 627 (Meadowbridge Road) & Bon Secours Medical Center



(PSI Intersection, Part of PSI Segment)

- 62% of crashes were angle collisions, 15% were rear-end collisions, and 15% were fixed-object off-road.
- 62% of crashes were PDO, 38% were INJ-B, 0 Fatal.
- Other Trends: 85% No Adverse Conditions, 15% Night-time, 0% Speeding.



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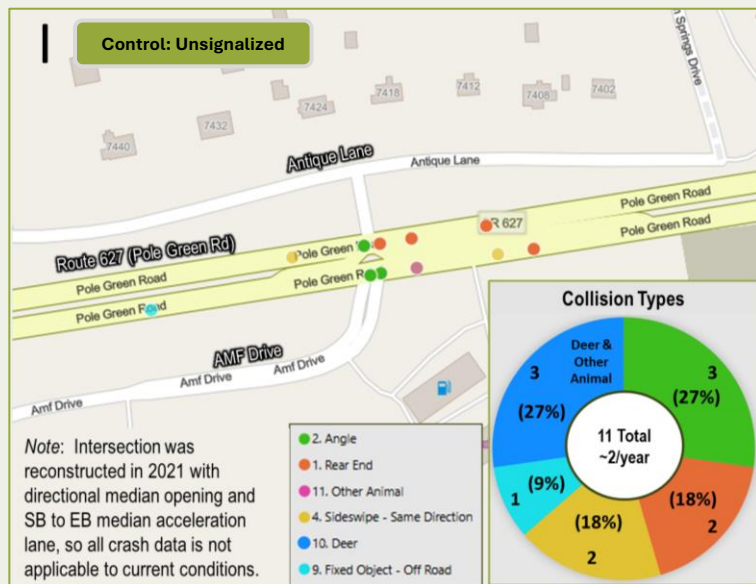
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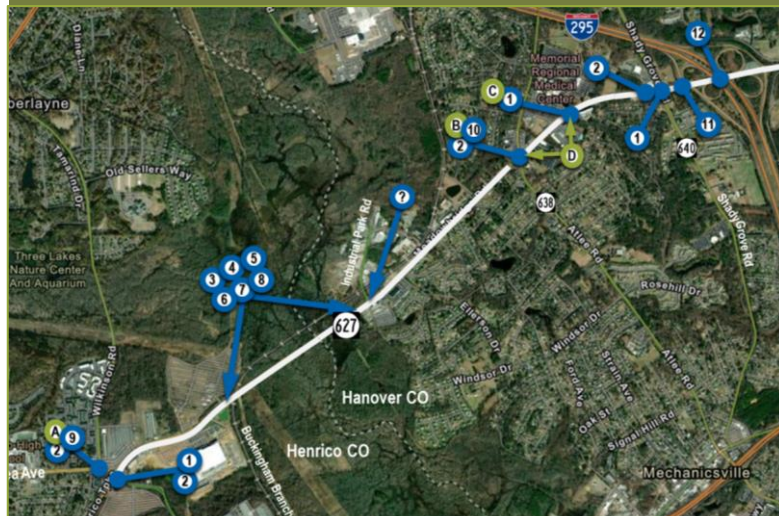
Detailed Intersection Crash Analysis (2020 – 2024 Data) (3/3)

Route 627 (Pole Green Road) & AMF Drive/Antique Lane



- 27% of crashes were angle collisions, 27% were animal collisions, 18% were rear-end,
- and 18% were sideswipe same-direction collisions.
- 73% of crashes were PDO, 27% were INJ-B, 0 Fatal.
- Other Trends: 100% No Adverse Conditions, 36% Night-time, 9% Speeding.

Phase 1 Scoping-Level Improvement Concepts



Pedestrian/Bicycle Improvements

- A** Improve Existing Crosswalk(s)
- B** Install Crosswalk(s) w/ADA Curb Ramps
- C** Install Crosswalks w/ADA Curb Ramps & Pedestrian Signals
- D** Install Shared-Use Path

Safety and Operations Improvements

- | | |
|---|--|
| 1 Conventional | 9 *Restricted Crossing U-Turn |
| 2 Access Management | 10 *Roundabout |
| 3 Install Roadway Lighting | 11 *Continuous Green-T |
| 4 Add 2-ft Paved Shoulder | 12 Partial Cloverleaf Interchange |
| 5 Install Shoulder Rumble Strips | 13 *Bowtie |
| 6 Install Centerline Rumble Strips | 14 *Thru-Cut |
| 7 Install No Passing Zone Markings | 15 *Quadrant Roadway |
| 8 Guardrail Improvement | 16 *Full/Partial Median U-Turn |

* Denotes an innovative intersection concept. More information on innovative intersections and real-world examples can be found at:
<https://www.virginiadot.org/innovativeintersections/>