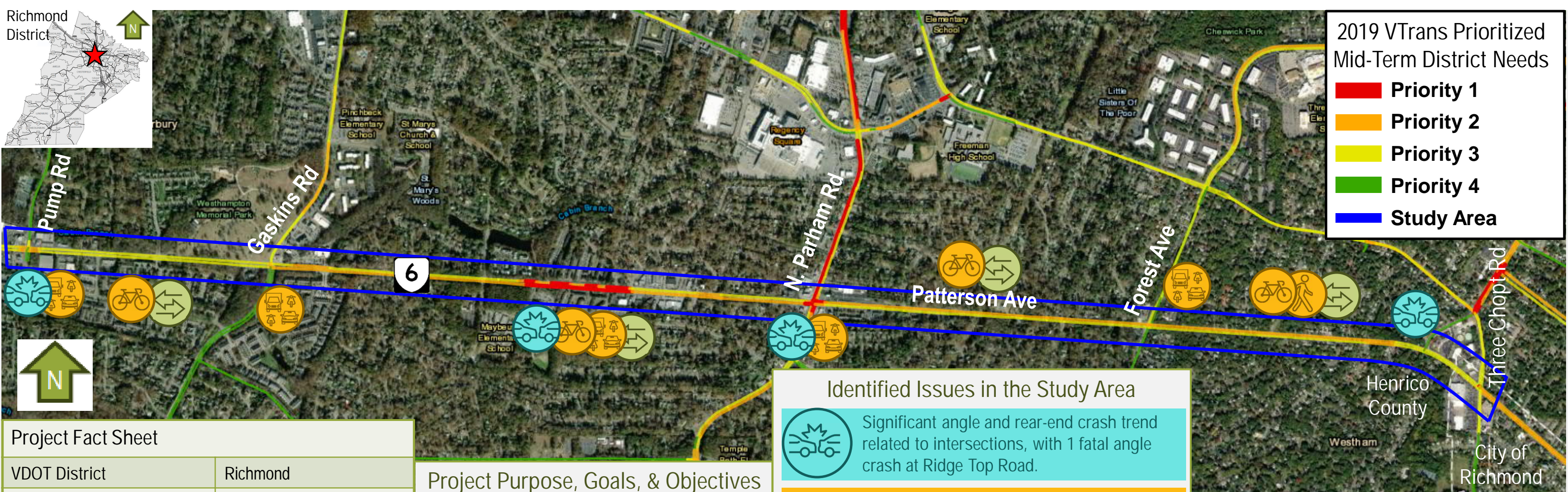


Project Overview | RI-23-07

VA-6 (Patterson Avenue) Corridor, 4.2 Miles

Study Corridor Includes:

- Patterson Avenue from Pump Road to Three Chopt Road



Project Fact Sheet	
VDOT District	Richmond
Locality	Henrico County & City of Richmond
# of Study Intersections	36
Transit Routes	GRTC 79 Greater Richmond Transit Company (GRTC)
Intermodal Connections	None
Nearby Bikeways	Raintree Drive Bike Lanes Towana Road Sharrows
Functional Classification	Other Principal Arterial
Speed Limit	35 mph to 45 mph

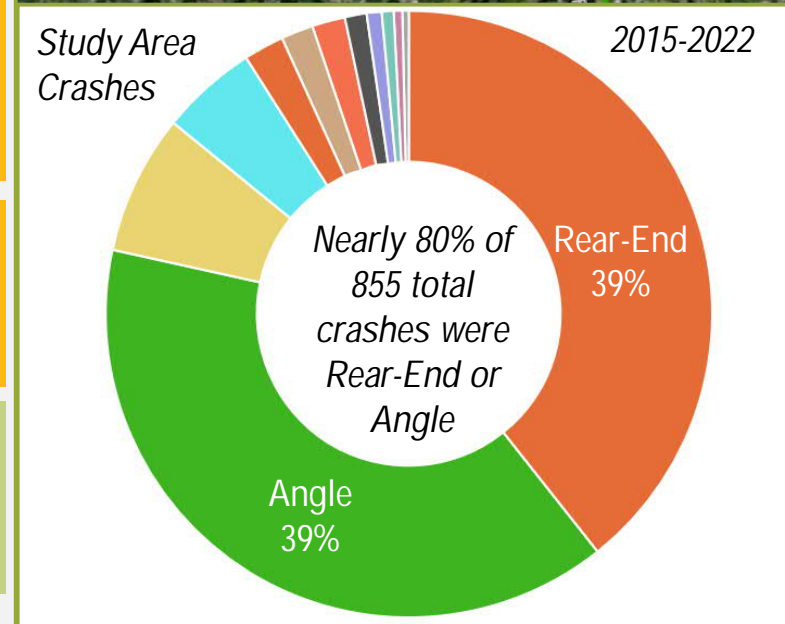
Project Purpose, Goals, & Objectives

Analyze the operational and safety issues identified along the Patterson Avenue study corridor, 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.

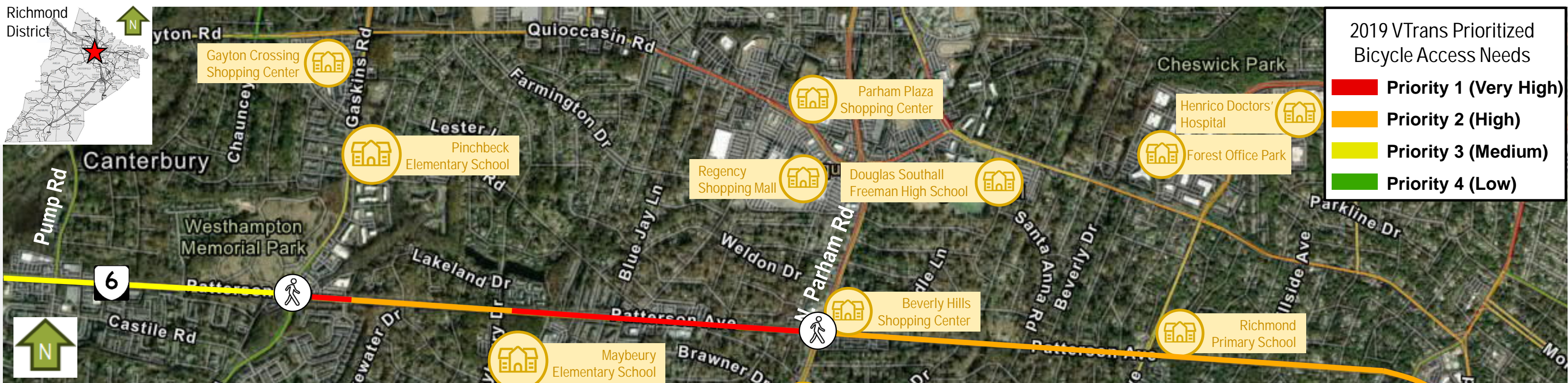
Identified Issues in the Study Area

- Significant angle and rear-end crash trend related to intersections, with 1 fatal angle crash at Ridge Top Road.
- 1% pedestrian collisions, including two fatal crashes. Limited crosswalks and sidewalks, no existing bike lanes or shared-use paths.
- Capacity preservation is a VTrans Need along the entire corridor. Congestion and Reliability Needs are related to the major intersections.
- One existing transit route runs near the study area, but only one stop exists along the corridor. There are no existing park and ride facilities present along the corridor.



Operations / Access Needs

Bicycle/Pedestrian Access Needs Identification Summary



2019 VTrans Prioritized Bicycle Access Needs

- █ Priority 1 (Very High)
- █ Priority 2 (High)
- █ Priority 3 (Medium)
- █ Priority 4 (Low)

Pedestrian Accessibility Summary

- A sparse, inconsistent network of existing sidewalks.
- Crosswalks present at 3 signalized intersections, all of which have pedestrian push buttons:
 - VA-6 (Patterson Ave.) & Three Chopt Road
 - VA-6 (Patterson Ave.) & N. Parham Road (Crosswalks only on the west and south legs).
 - VA-6 (Patterson Ave.) & Gaskins Road (Crosswalk only on the east leg).
- 10 total (2 fatal) pedestrian crashes have occurred (2015-2022).
 - 1 fatal in 2017 near VA-6 (Patterson Ave.) & Westhampton Glen Drive.
 - 1 fatal in 2018 near VA-6 (Patterson Ave.) & the Publix Access west of Three Chopt Road.
- The Pedestrian Access VTrans Need ranges from Low to High between Forest Ave. and Three Chopt Rd. based on "Applicable roadway segments within walking distance (one mile) of VTrans Activity Centers, fixed-guideway transit stations, or BRT lines."¹

Bicycle Accessibility Summary

- No existing bike lanes,
- No existing shared-use paths,
- No crashes involving a bicyclist between 2015-2022.
- The Bicycle Access VTrans Need ranges from Medium to Very High across the study corridor based on "Applicable roadway segments within biking distance (seven miles) of VTrans Activity Centers, fixed-guideway transit stations, or BRT lines."¹

¹ Technical Guide for the Identification and Prioritization of the VTRANS Mid-Term Needs, Office of Intermodal Planning and Investment (OIPI), November 2021.

Access Needs	
VTRANS NEED	PRIORITY
Bicycle Access (RN)	Very High
Pedestrian Access (RN)	High
IEDA (UDA) Access (State)	No Need

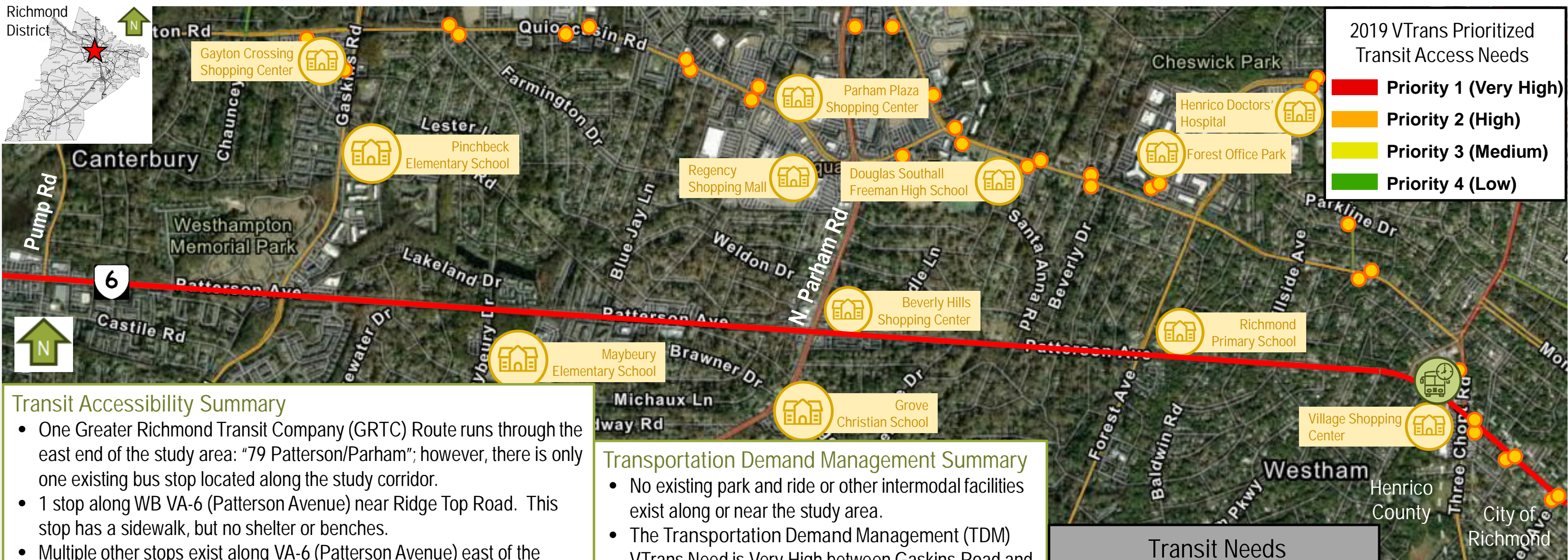
Legend

- Activity Center
- Signalized Pedestrian Crossing w/Crosswalks

ACCESS MANAGEMENT SUMMARY	ACCESS POINTS/MILE
Corridor-Wide	20.1
VA-6 (Patterson Avenue) Eastbound	17.6
VA-6 (Patterson Avenue) Westbound	22.6

Operations / Access Needs

Transit Access Needs Identification Summary



Transit Accessibility Summary

- One Greater Richmond Transit Company (GRTC) Route runs through the east end of the study area: "79 Patterson/Parham"; however, there is only one existing bus stop located along the study corridor.
- 1 stop along WB VA-6 (Patterson Avenue) near Ridge Top Road. This stop has a sidewalk, but no shelter or benches.
- Multiple other stops exist along VA-6 (Patterson Avenue) east of the study area, and along Three Chopt Road north of the study area.
- The Transit Access VTrans Need is Very High for the entire corridor 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 Transit Access for Equity Emphasis Areas (EEAs) VTrans Need varies from Low to High Priority between Pump Road and N. Parham Road. These are "Areas identified as EEAs, considered transit viable, and underserved by transit."¹

Transportation Demand Management Summary

- No existing park and ride or other intermodal facilities exist along or near the study area.
- The Transportation Demand Management (TDM) VTrans Need is Very High between Gaskins Road and Forest Avenue 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

1. Technical Guide for the Identification and Prioritization of the VTRANS Mid-Term Needs, Office of Intermodal Planning and Investment (OIP), November 2021.

Transit Needs		Legend
VTRANS NEED	PRIORITY	
Rail On-Time Performance (CoSS)	No Need	Activity Center Bus Stop along Study Corridor Other Bus Stop
Transit Access (RN)	Very High	
Transit Access for Equity Emphasis Areas (RN)	High	
Transportation Demand Management (RN)	Very High	

Operations / Access Needs

Operations/Reliability Needs Identification Summary



Operations Along VA-6 (Patterson Ave.)

Operations Summary

- VA-6 (Patterson Ave.) has a Low Capacity Preservation VTrans Need along the entire corridor with a High Need near Pump Road, between Maybeury Drive and Starling Drive, and near N. Parham Road. "Roadway segments along Regional Networks (RNs) or Corridors of Statewide Significance (CoSS), and included in VDOT's Arterial Preservation Network, are identified as those with a Capacity Preservation Need."¹
- The Congestion Mitigation and Reliability VTrans Needs are located near the major intersections. "Congestion Mitigation Needs are based on Travel Time Index (TTI), travel speeds, and the percentage of travel taking place in excessively congested conditions. Reliability Needs are based on the Level of Travel Time Reliability (LOTTR)."¹

Travel Time Index Summary

- Travel Time Index (TTI) is the ratio of travel time during a specified time period to the time required to make the same trip at typical speeds. A higher value indicates more congestion.
- Along Patterson Ave., a maximum TTI of 1.12 occurs in the 5 PM hour in the westbound direction. In the eastbound direction, a maximum TTI of 1.10 occurs in the 8 AM hour.
- The speed limit along Patterson Ave. is 45 mph with a 1/2 mile segment on the far east end posted at 35 mph. In the westbound direction, average speeds drop below 35 mph between 4 PM and 6 PM, with a low of 32.4 mph occurring in the 5 PM hour. In the eastbound direction, average speeds drop below 35 mph during only the 8 AM hour with an average speed of 34.5 mph.

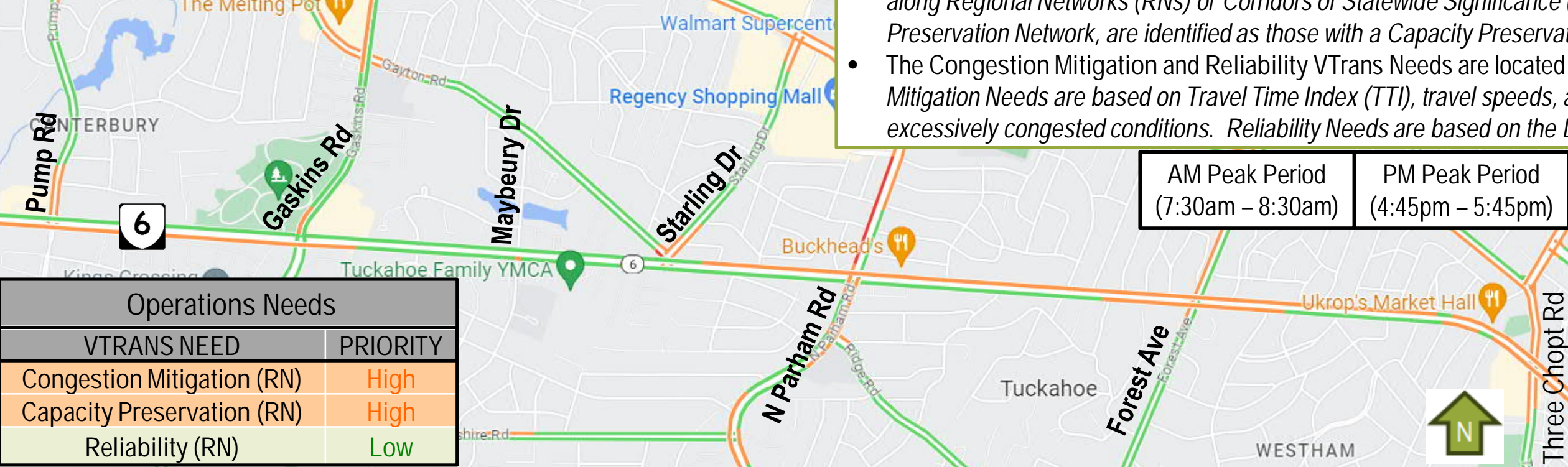
AM Peak Period (7:30am – 8:30am)
PM Peak Period (4:45pm – 5:45pm)

Typical traffic ▾ Fast ■ ■ ■ Slow ■

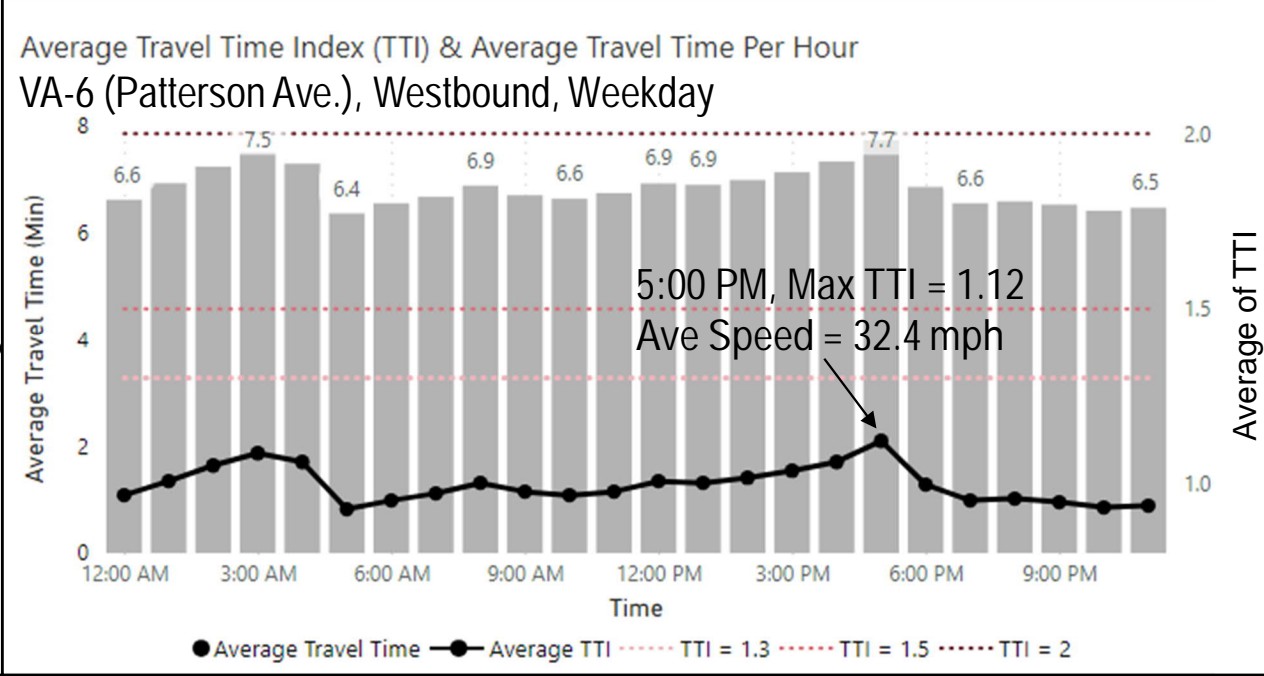
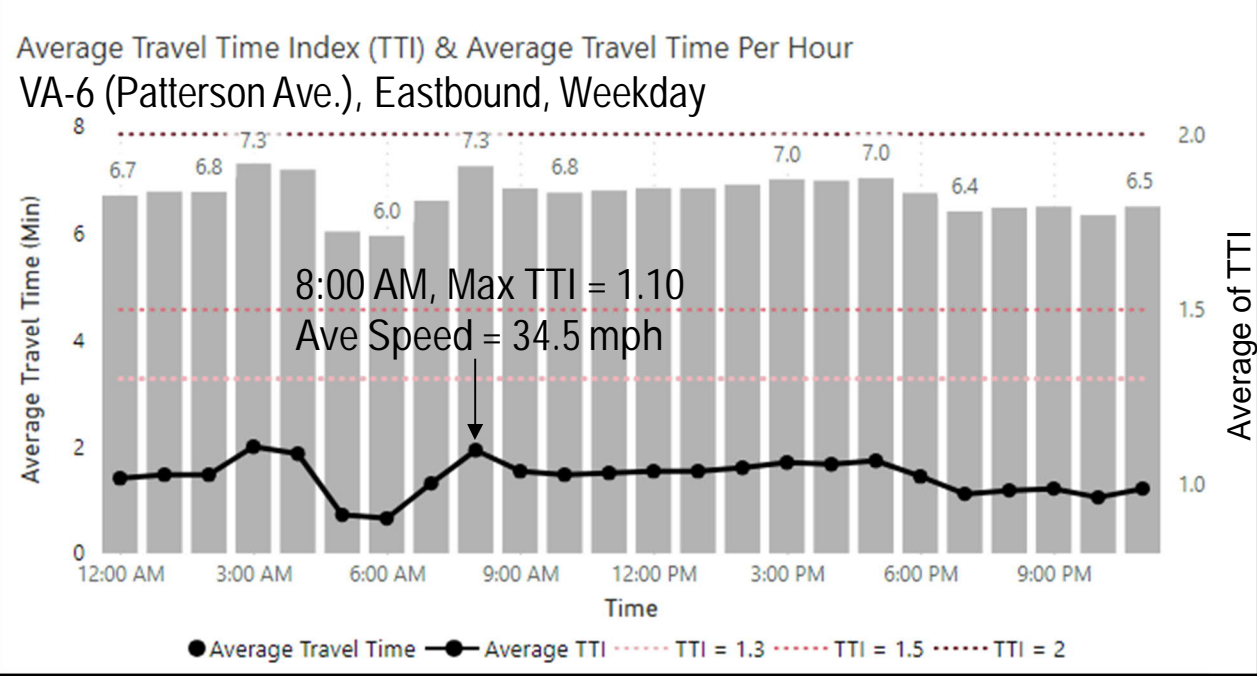
S M T **W** T F S

Wednesday, 5:00 PM

8:00 AM 12:00 PM 4:00 PM 8:00 PM



Operations Needs	
VTRANS NEED	PRIORITY
Congestion Mitigation (RN)	High
Capacity Preservation (RN)	High
Reliability (RN)	Low



¹ Technical Guide for the Identification and Prioritization of the VTRANS Mid-Term Needs, Office of Intermodal Planning and Investment (OIP), November 2021.

Safety Needs

Safety Improvement Needs Identification Summary



Study Area Crashes (2015-2022 Data)



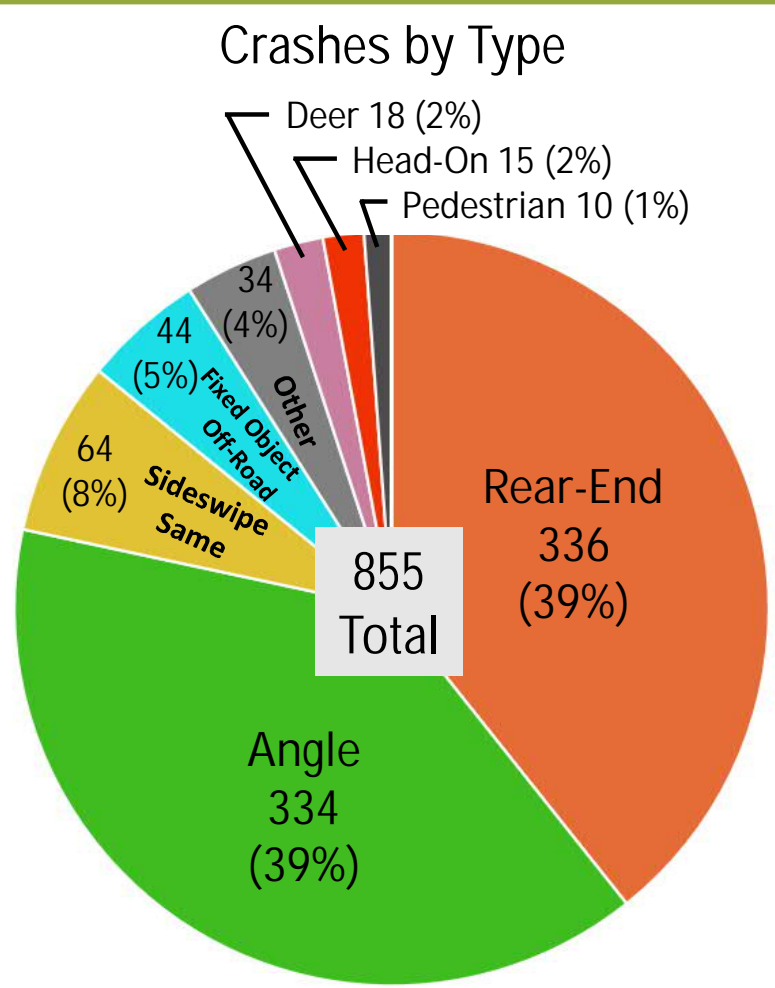
Roadway Safety Improvement Summary

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

1. Technical Guide for the Identification and Prioritization of the VTRANS Mid-Term Needs, Office of Intermodal Planning and Investment (OIPi), November 2021.



VDOT 2015-2022 Crash Data		Crashes by Severity					Total
Hot-Spot Intersections	K	A	B	C	O		
Patterson Ave. & N. Parham Road	0	1	31	1	102	135	
Patterson Ave. & Gaskins Road	0	1	17	1	61	80	
Patterson Ave. & Forest Avenue	0	2	16	0	55	73	
*Patterson Ave. & Pump Road	0	0	13	2	57	72	
Patterson Ave. & Starling Drive	0	1	7	0	29	37	
Patterson Ave. & Landmark at Patterson Apartments West Access	0	0	8	0	20	28	
Patterson Ave. & Horsepen Road	0	0	4	1	20	25	
Patterson Ave. & Three Chopt Road	0	0	2	0	23	25	
Patterson Ave. & Maybeury Drive	0	0	7	0	17	24	
Patterson Ave. & Nalla Road/ Santa Anna Road	0	1	3	0	20	24	



- ### Collision Type
- 4. Sideswipe - Same Direction
 - 9. Fixed Object - Off Road
 - 12. Ped
 - 16. Other
 - 3. Head On
 - 5. Sideswipe - Opposite Direction
 - 6. Fixed Object in Road
 - 8. Non-Collision
 - 1. Rear End
 - 2. Angle
 - 10. Deer

Safety Needs	
VTRANS NEED	PRIORITY
Safety Improvement (District)	High
Pedestrian Safety Improvement (State)	No Need

Safety Needs

Intersection Crash Analysis (2015 – 2022 Data)

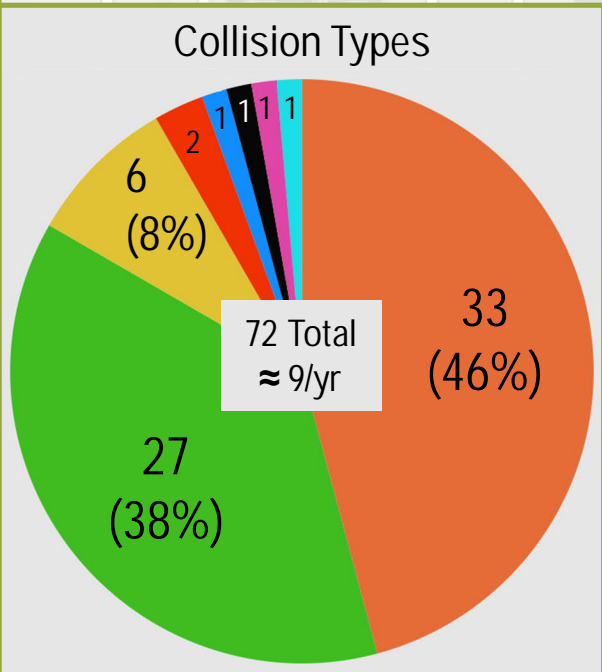
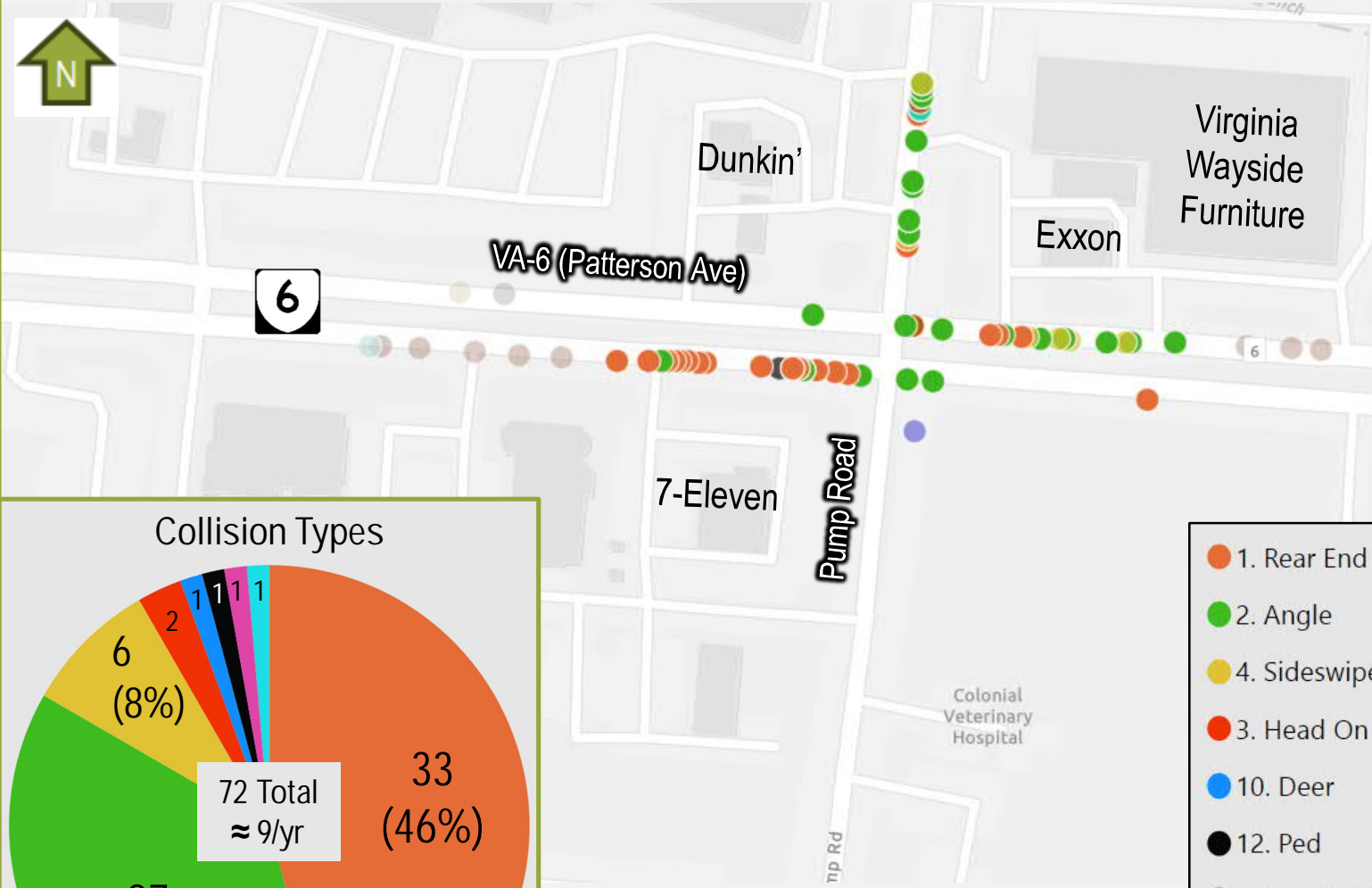


Crashes at VA-6 (Patterson Ave) & Pump Road
P4P Potential for Safety Improvement (PSI) Intersection

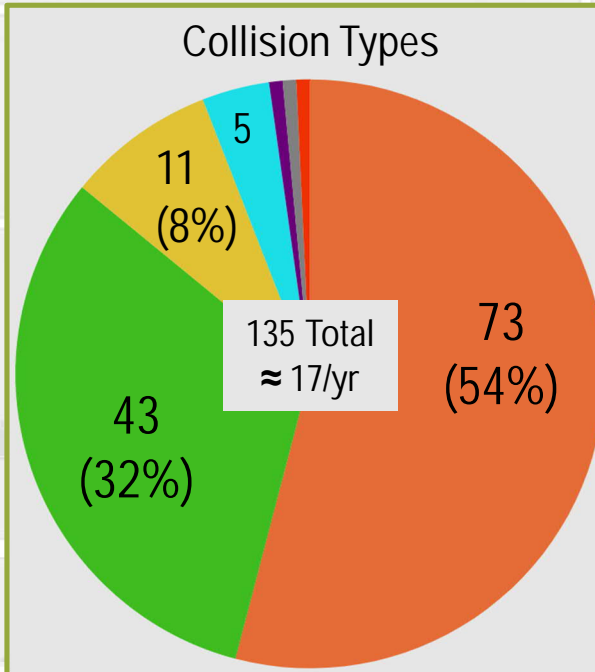
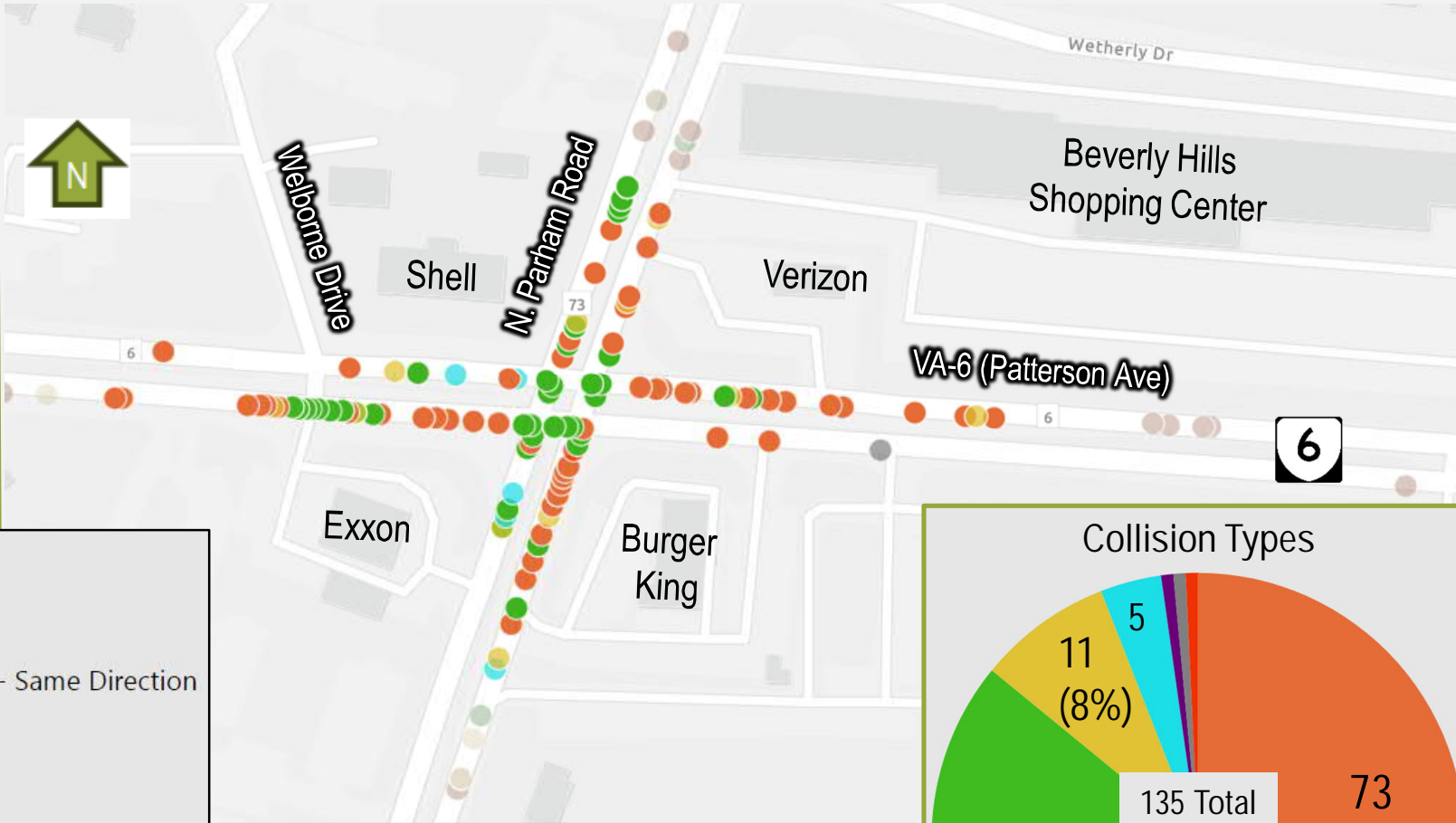
Control: Signalized

Crashes at VA-6 (Patterson Ave) & N. Parham Road
VTrans Need for Safety Improvement Node*

Control: Signalized



- 1. Rear End
- 2. Angle
- 4. Sideswipe - Same Direction
- 3. Head On
- 10. Deer
- 12. Ped
- 8. Non-Collision
- 9. Fixed Object - Off Road
- 15. Backed Into
- 16. Other



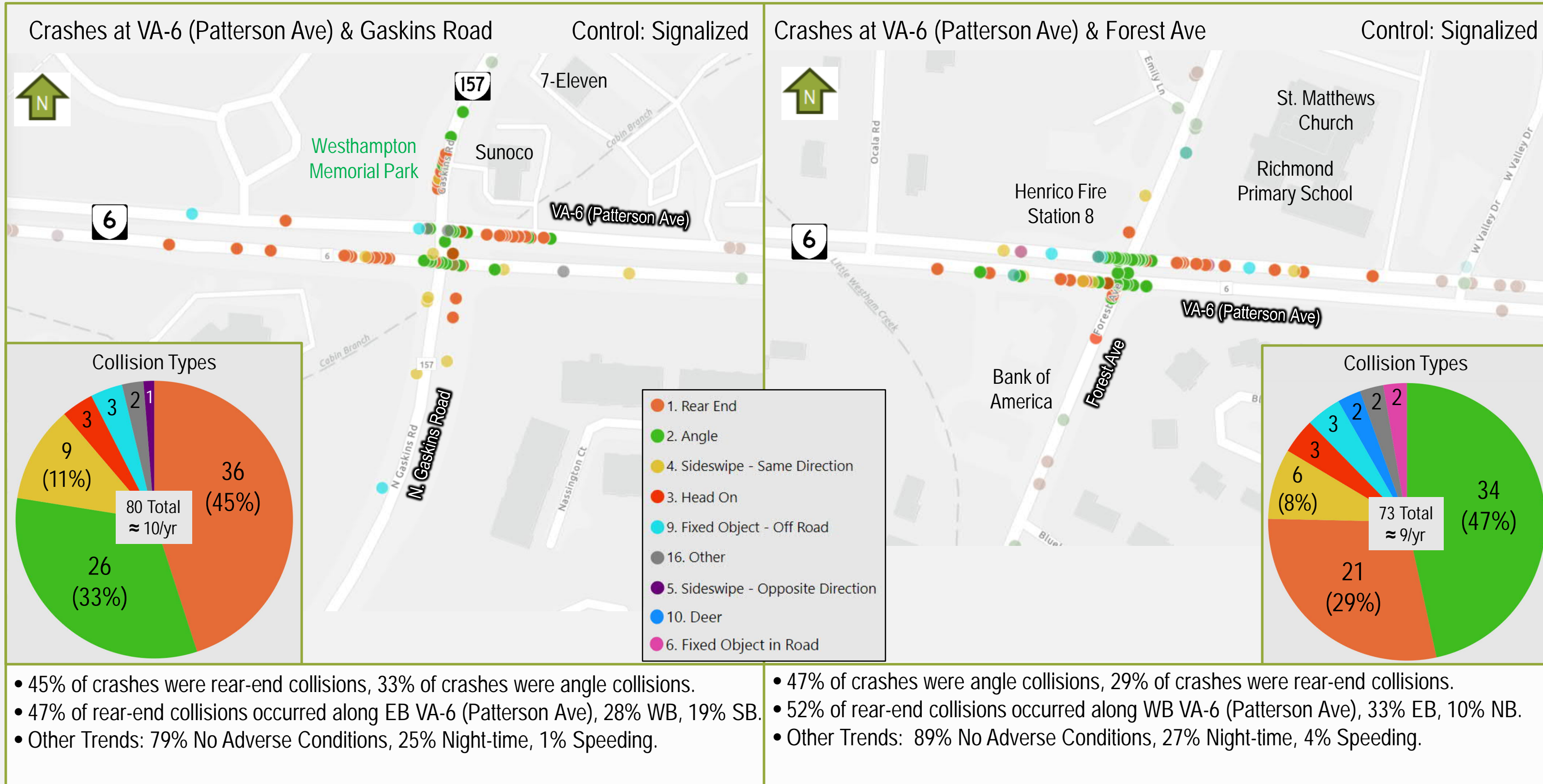
*Note: Based on 2019 VTrans Needs. Intersection configuration was changed with 2021/2022 construction project, so VTrans Safety Need may not be accurately reflected at this location.

- 46% of crashes were rear-end collisions, 38% of crashes were angle collisions.
- 67% of rear-end collisions occurred along EB VA-6 (Patterson Ave), 12% WB, 15% SB.
- Angle collisions appear to be access management related.
- Other Trends: 97% No Adverse Conditions, 11% Night-time, 0% Speeding, 4% Alcohol.

- 54% of crashes were rear-end collisions, 32% of crashes were angle collisions.
- 34% of rear-end collisions occurred along EB VA-6 (Patterson Ave), 28% WB, 22% NB.
- Angle collisions appear to be somewhat access management related.
- Other Trends: 87% No Adverse Conditions, 17% Night-time, 0% Speeding.

Safety Needs

Intersection Crash Analysis (2015 – 2022 Data)



- 45% of crashes were rear-end collisions, 33% of crashes were angle collisions.
- 47% of rear-end collisions occurred along EB VA-6 (Patterson Ave), 28% WB, 19% SB.
- Other Trends: 79% No Adverse Conditions, 25% Night-time, 1% Speeding.

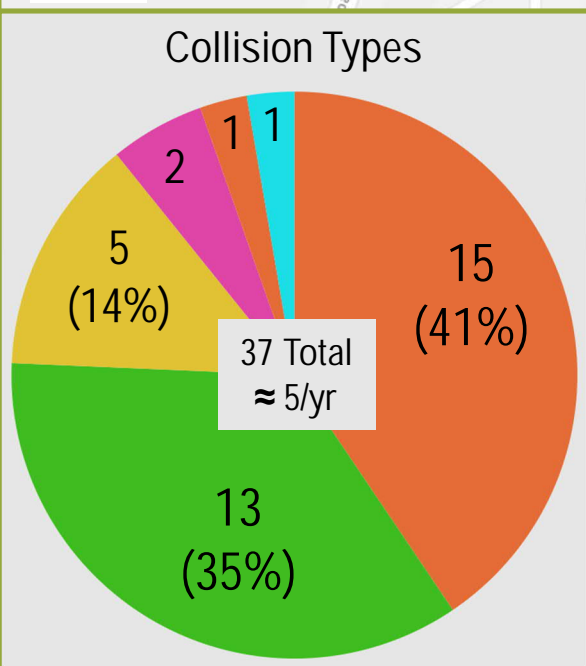
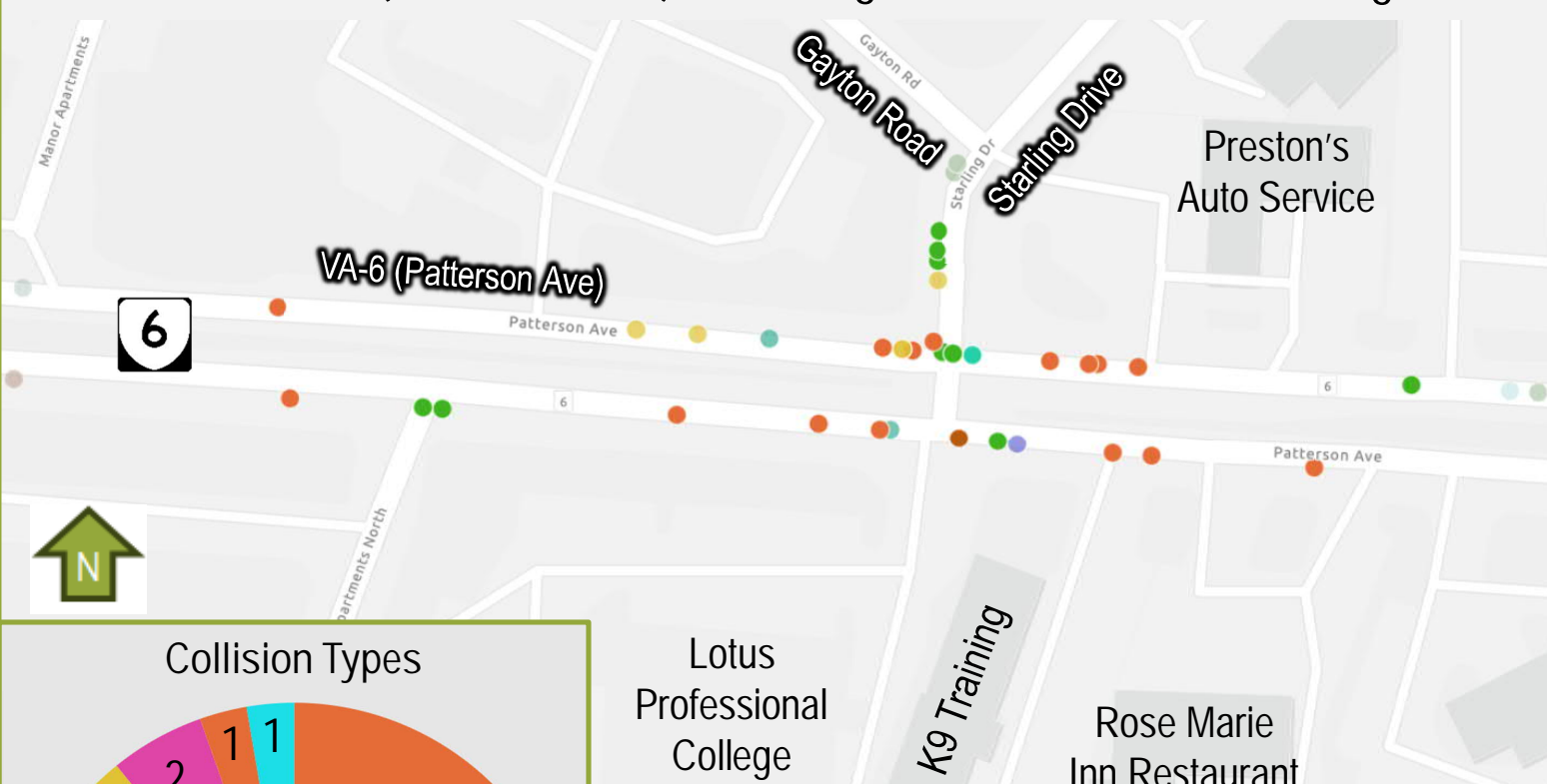
- 47% of crashes were angle collisions, 29% of crashes were rear-end collisions.
- 52% of rear-end collisions occurred along WB VA-6 (Patterson Ave), 33% EB, 10% NB.
- Other Trends: 89% No Adverse Conditions, 27% Night-time, 4% Speeding.

Safety Needs

Intersection Crash Analysis (2015 – 2022 Data)



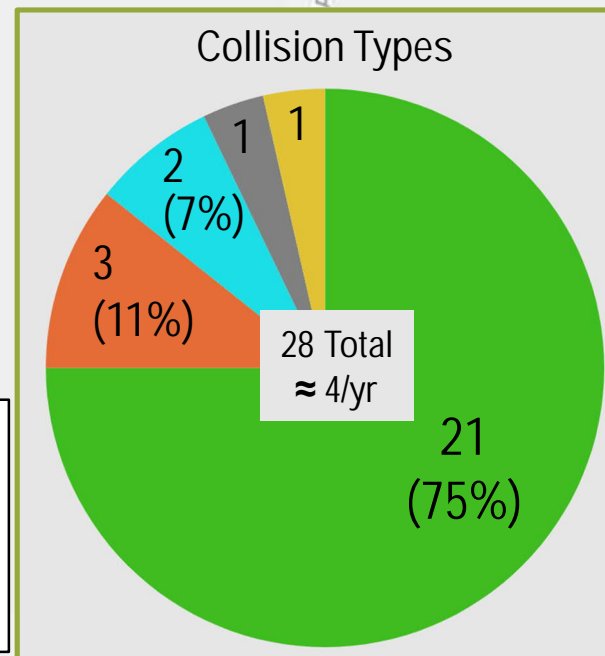
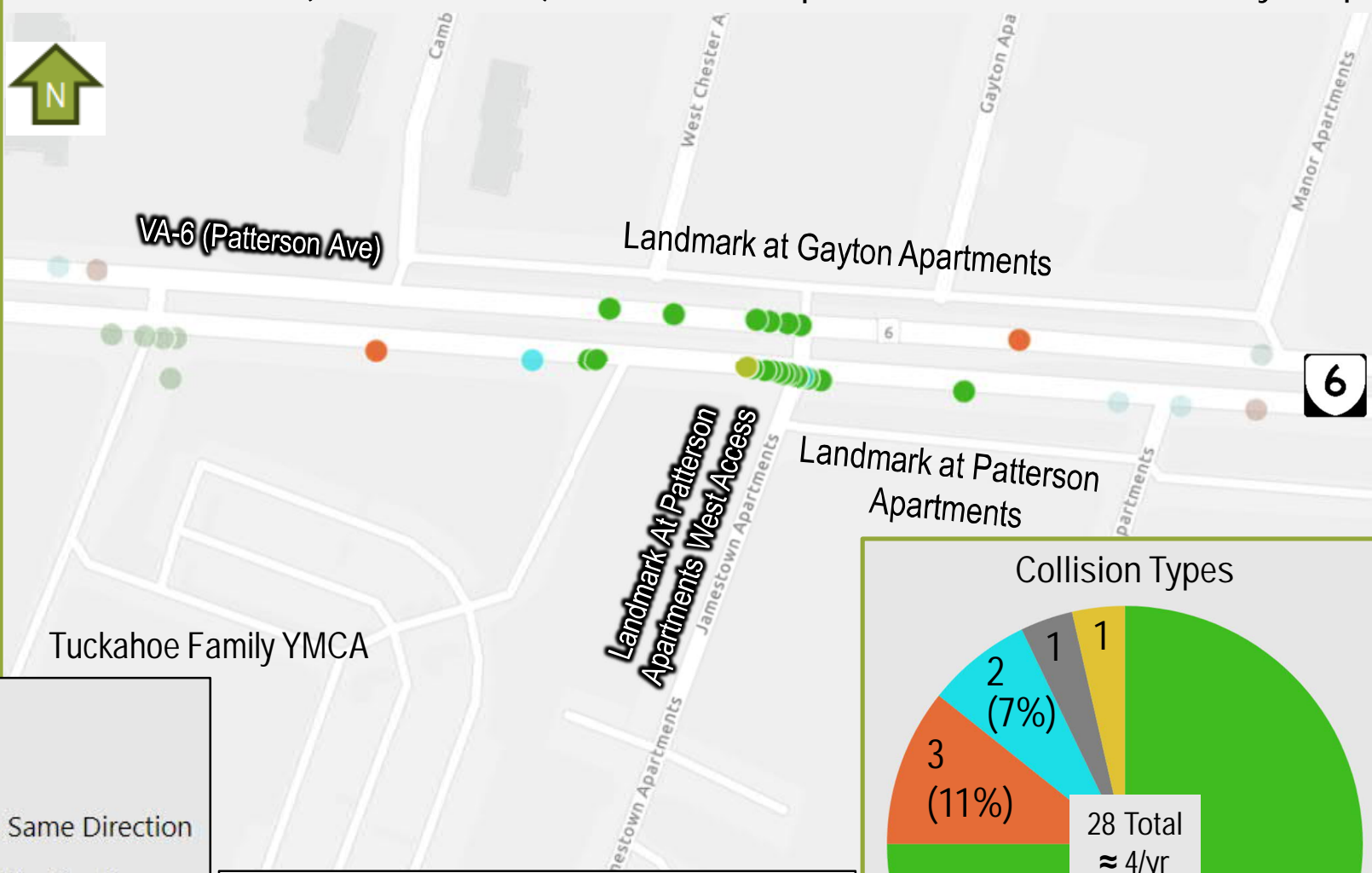
Crashes at VA-6 (Patterson Ave) & Starling Drive Control: Signalized



- 1. Rear End
- 2. Angle
- 4. Sideswipe - Same Direction
- 6. Fixed Object in Road
- 8. Non-Collision
- 9. Fixed Object - Off Road
- 16. Other

- 41% of crashes were rear-end collisions, 35% of crashes were angle collisions.
- 47% of rear-end collisions occurred along EB VA-6 (Patterson Ave), 47% WB, 6% SB.
- Other Trends: 86% No Adverse Conditions, 14% Night-time, 0% Speeding.

Crashes at VA-6 (Patterson Ave) & Landmark Apartments Control: 2-Way Stop



Note: No Stop Signs or Stop Bars are present on the minor road and median width of 16-ft only allows for one-stage left-turn and crossing movements.

- 75% of crashes were angle collisions, 11% of crashes were rear-end collisions.
- 67% of rear-end collisions occurred along EB VA-6 (Patterson Ave), 33% WB.
- Angle collisions appear to be access management related.
- Other Trends: 86% No Adverse Conditions, 21% Night-time, 0% Speeding.

