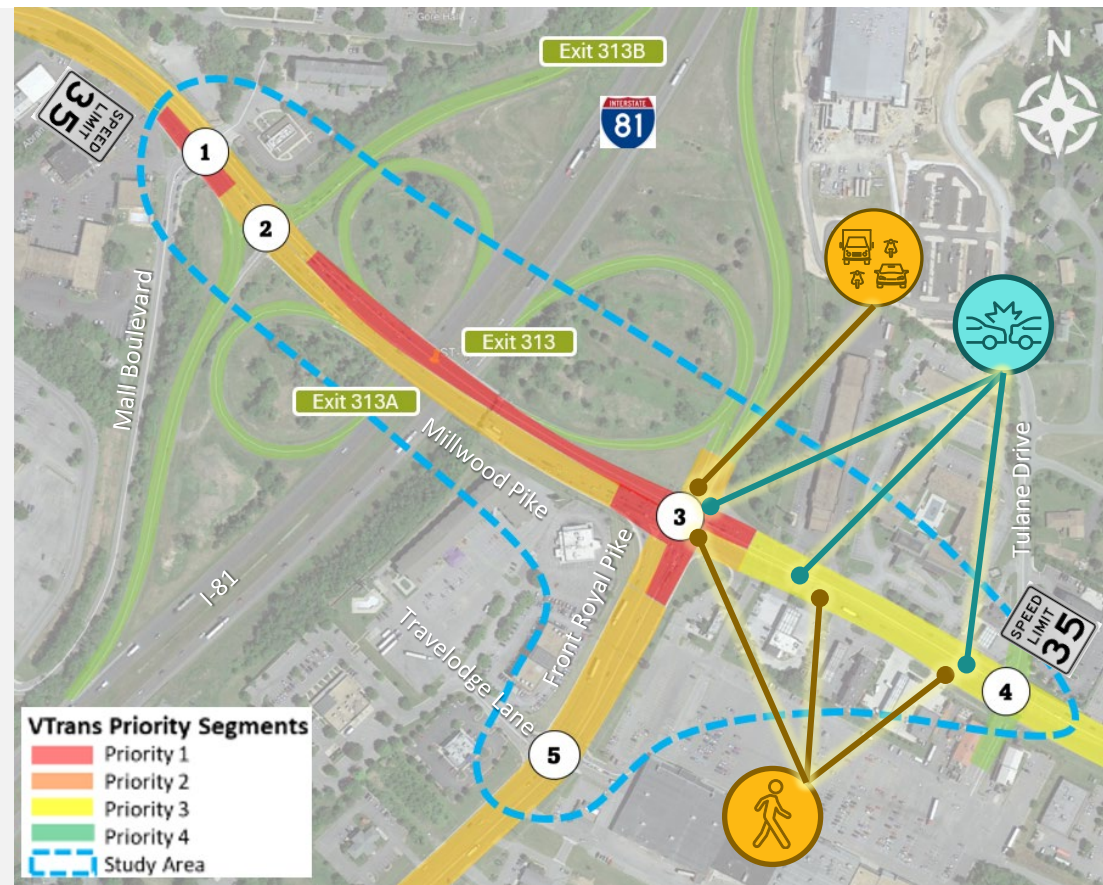


Project Overview | ST-23-10

Millwood Pike from Mall Boulevard to Tulane Drive



Rear-end crash incidents at Front Royal Pike and Millwood Pike (65 crashes). Crash hotspot at right-turn from Eastbound Millwood Pike to Front Royal Pike (17 crashes). Angle crash incidents between Tulane Drive and Front Royal Pike, primarily at Red Roof Inn, Shell, and Dunkin' access points (23 crashes). Rear-end crash incidents at Tulane Drive and Millwood Pike are likely due to congestion (9 crashes).



Insufficient crosswalks and inconsistent sidewalks within the study area. Two crashes involving pedestrians between Tulane Drive and Front Royal Pike. The crosswalk across Front Royal Pike and Southbound On-Ramp is currently worn off. No crosswalks are present at the Tulane Drive intersection. Existing Millwood Pike sidewalk ramps are not ADA-compliant.



There are no existing bike facilities within the study area.



Current transit service provided by the WinTran; Laurel Ridge Route departs downtown Winchester every 70 minutes connecting to Laurel Ridge Community College. There are no existing bus stops in the study area.



The closest existing Park & Ride lot is north of I-66 at Riverton Commons Shopping Center (~7.5 miles to the east). There are no existing park-and-ride lots in the study area.



One Logistics Park-approved development will have a significant traffic impact. The I-81/Route 50 bridge reconstruction project will shift Millwood Pike to the north. The Millwood Pike and Front Royal Pike intersection is projected to operate at an LOS grade F by 2028 as per One Logistics Park TIA Study.

Project Purpose, Goals, & Objectives

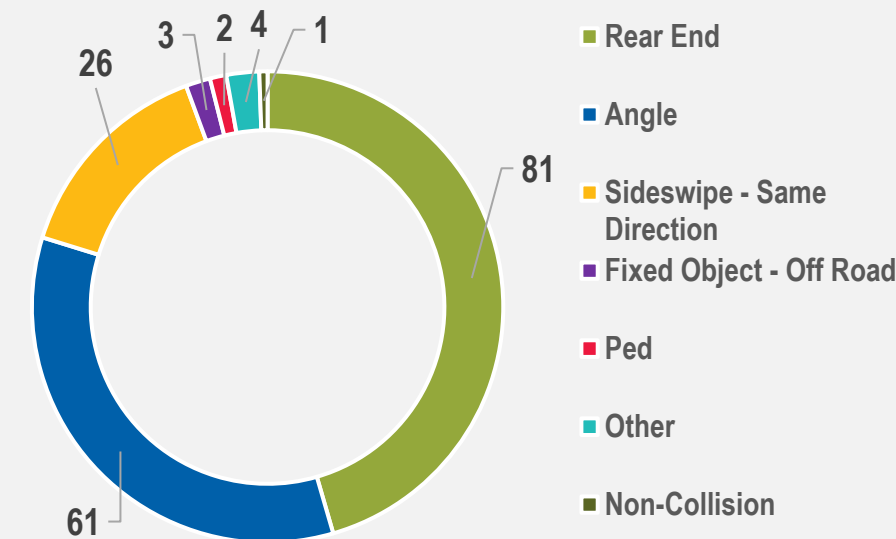
Analyze the operational and safety issues identified along US 50 (Millwood Pike) near I-81, focusing on providing operational improvements.

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

Project Fact Sheet

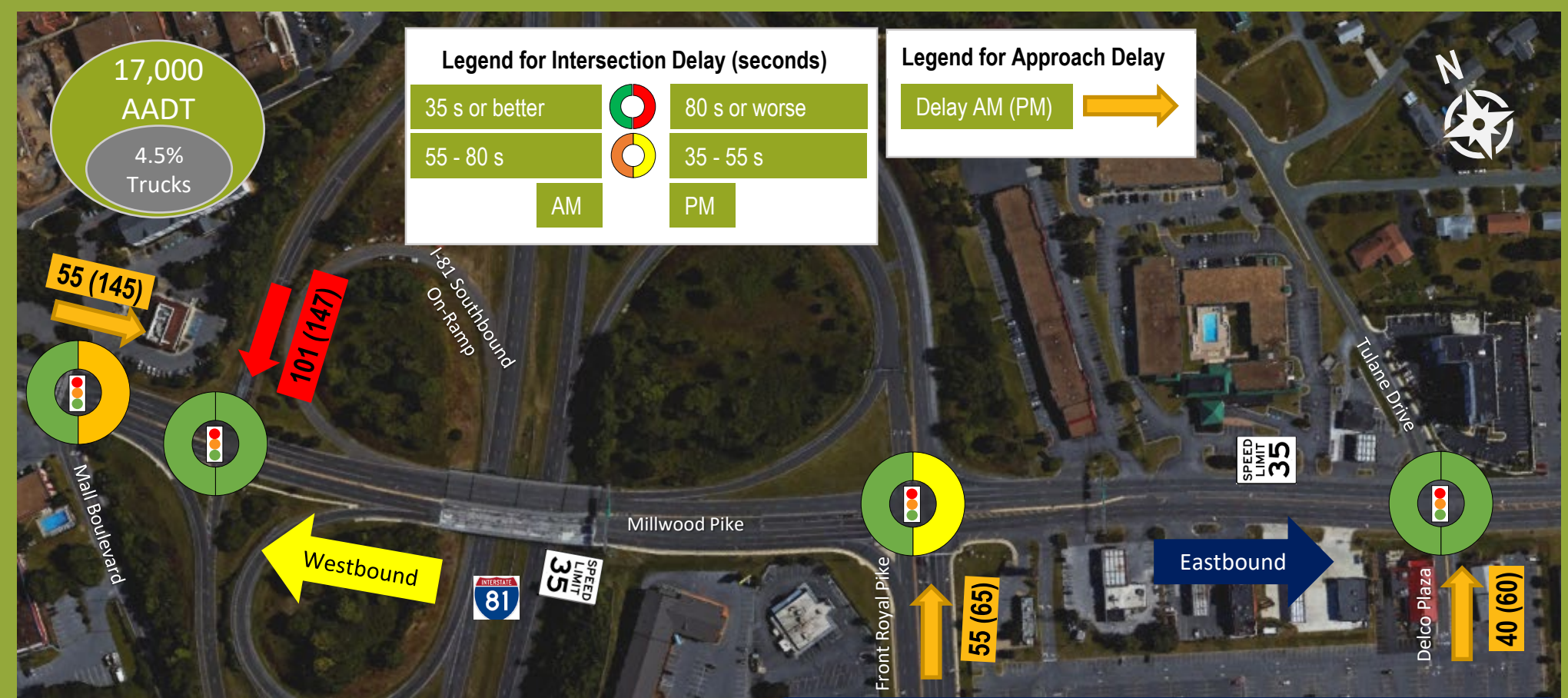
VDOT District	Staunton
Locality	Frederick
# of Study Intersections	5
Transit Routes	WinTran Route: Laurel Ridge
Nearby Transit Connections	Oranda Park and Ride (~ 9 miles to the south) Waterloo Park and Ride (north of I-66 at Riverton Commons Shopping Center, ~7.5 miles to the east) Double Tollgate/White Post Park and Ride (~ 8 miles to the south)
Functional Classification	Minor Arterial/Other Principal Arterial
Speed Limit	35 mph

Study Area Crashes (2015-2022 Data)

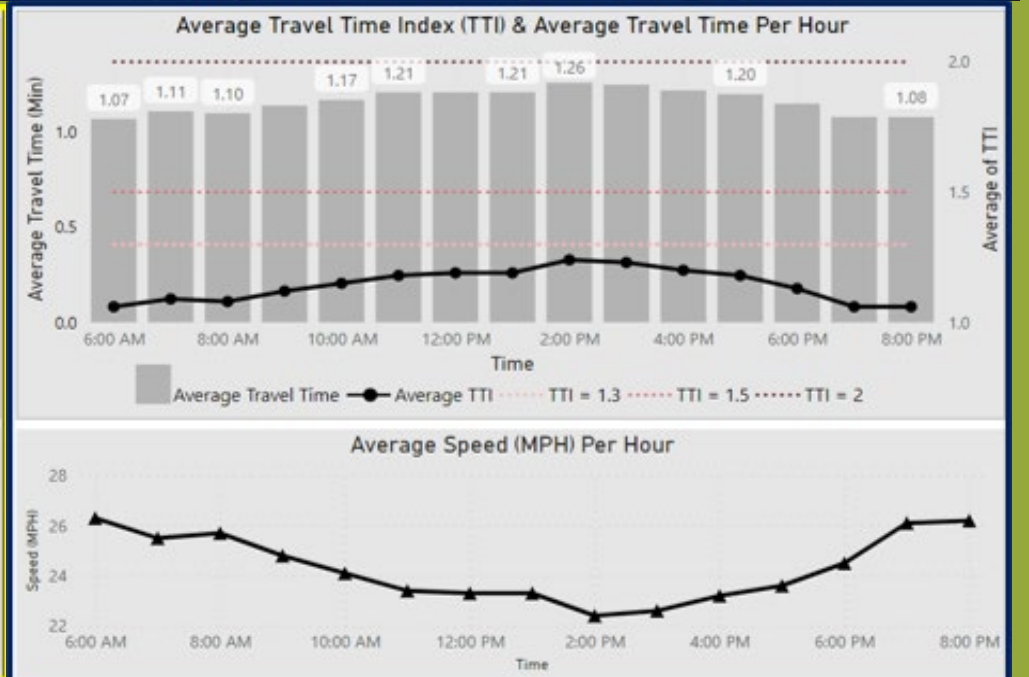
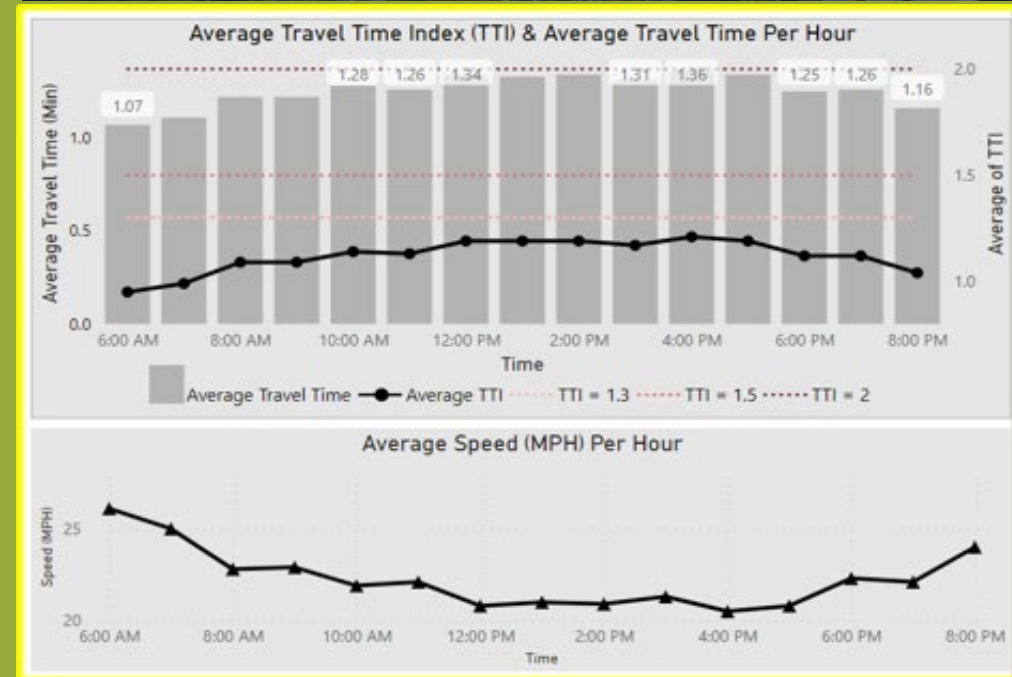


Existing Operations Needs

Needs Identification Summary



- ### Operations Summary
- All study intersections operate at a delay of 55 seconds or better during both AM and PM peak hours in 2023, apart from Millwood Pike and Mall Boulevard in the PM peak hour, which operates at a 70-second intersection delay.
 - The southbound exit ramp off I-81, northbound approach on Front Royal Pike, and eastbound approach on Millwood Pike at Mall Boulevard experience a delay of 55 seconds or greater in both peak hours. Northbound Delco Plaza experiences a delay of 60 seconds in the PM peak hour while maintaining a delay of 40 seconds in the AM peak hour.
 - The southbound exit ramp off I-81 experiences delays worse than 100 seconds during both AM and PM peak hours, posing a future risk for queue spillback onto the interstate.
 - Maximum queues at the following lane group are expected to extend beyond storage facilities during the PM peak hour:
 - Millwood Pike eastbound left turn to I-81 Northbound On-Ramp
 - Millwood Pike westbound right turn to I-81 Northbound On-Ramp
 - Millwood Pike westbound left turn to I-81 Southbound On-Ramp
 - Front Royal Pike northbound left turn to Millwood Pike (AM and PM Peak)



Safety / Reliability Needs	
NEED	PRIORITY
Congestion Mitigation	Low
Capacity Preservation	High
Reliability	No Need

Note: Travel Time Analysis is conducted along Millwood Pike, from Tulane Drive to Mall Boulevard. The yellow-outlined box represents vehicles traveling westbound while the blue-outlined box represents vehicles traveling eastbound.

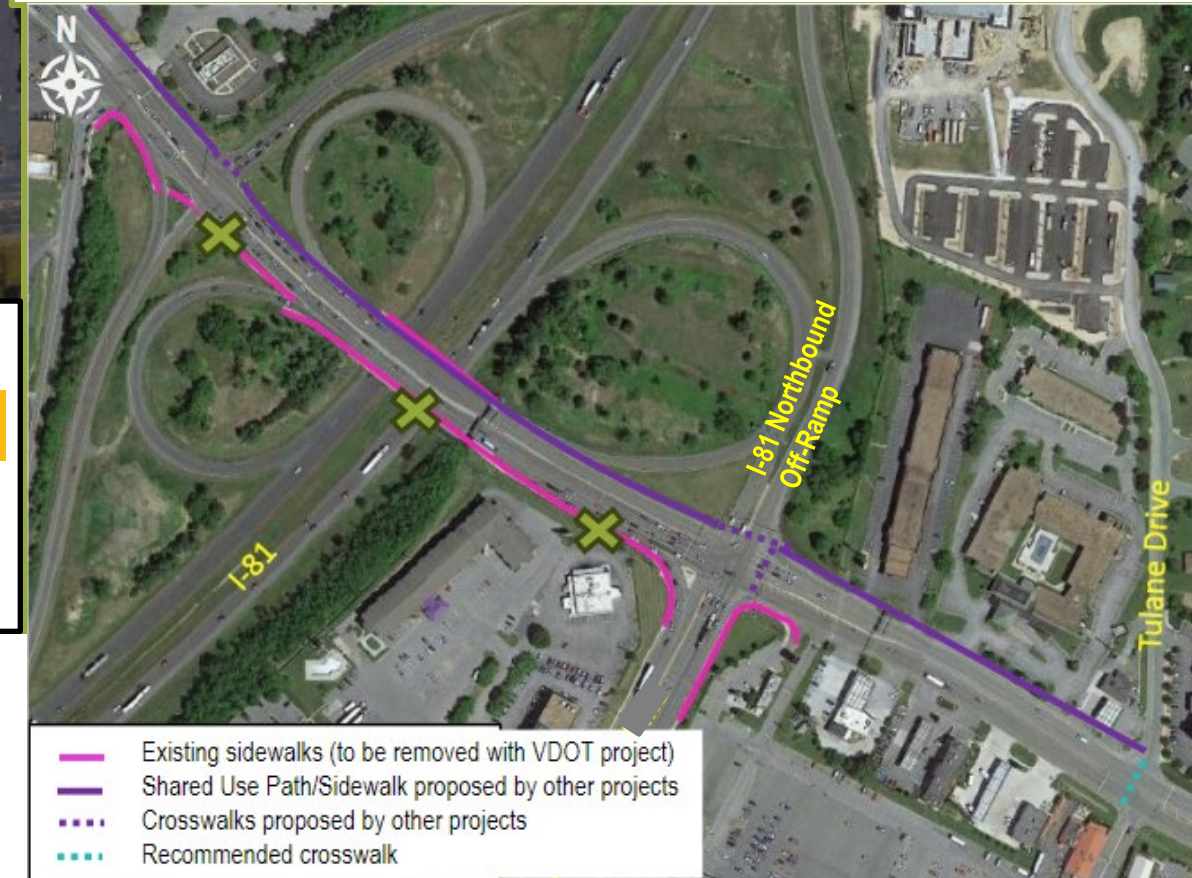
Pedestrian and Bicycle Safety and Accessibility Needs

Needs Identification Summary



Bicycle and Pedestrian Safety & Accessibility Summary

- VTrans Need VERY HIGH for bicycle and pedestrian access
 - Inconsistent sidewalks and crosswalks
 - No bicycle facilities



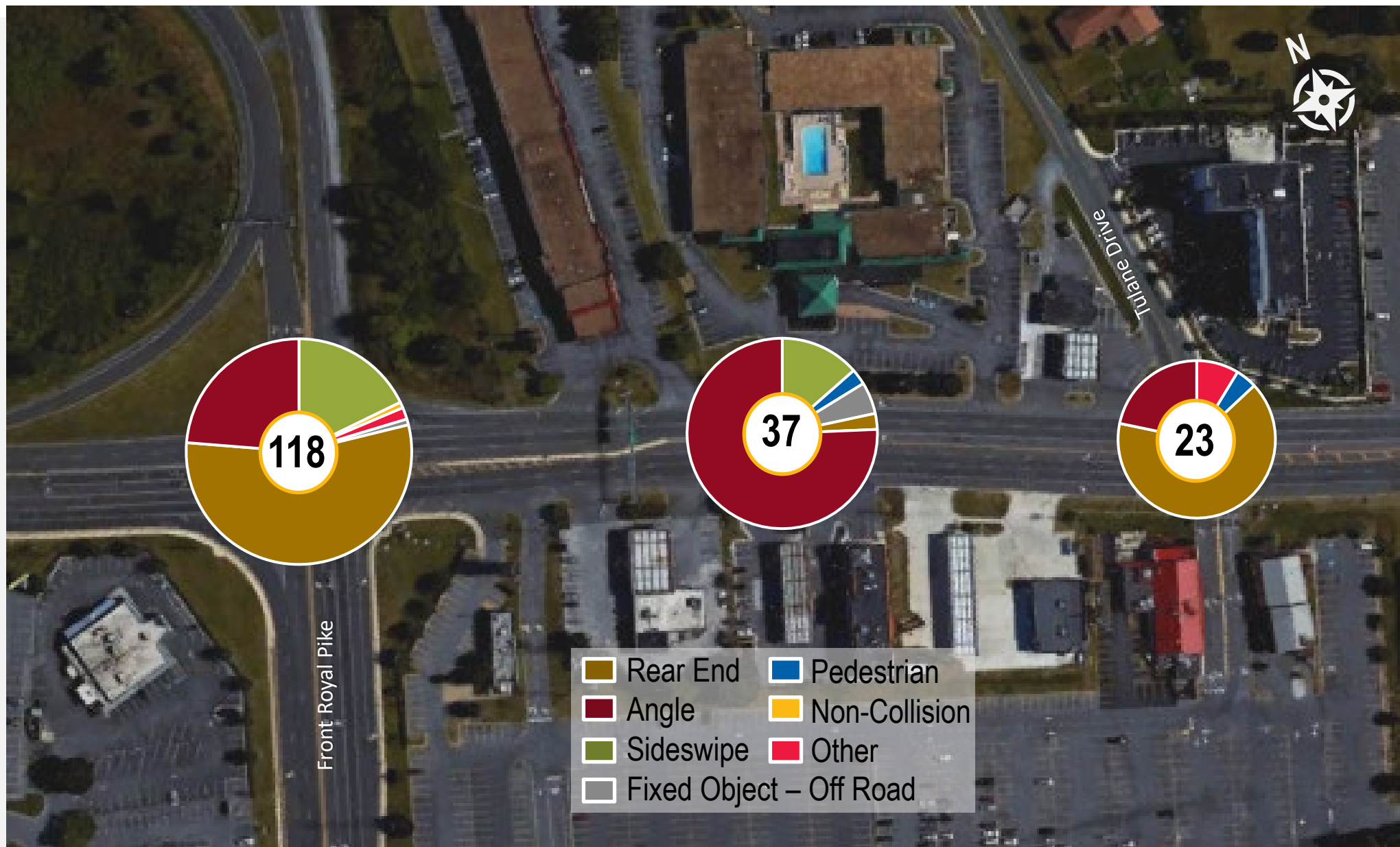
Bicycle and Pedestrian Improvements

- Extend sidewalk/Shared Use Path from I-81 Northbound Off Loop to Tulane Drive intersection.
- Maintain the following Pedestrian facilities proposed as part of the US 17/ US 50 bridge replacement project
 - Sidewalks on the east and west sides of US 522
 - Crosswalk across US 50 at US 50/ I-81 Northbound Off Loop intersection

Operations / Access Needs	
NEED	PRIORITY
Bicycle Access (RN)	Very High
Pedestrian Access (RN)	Very High

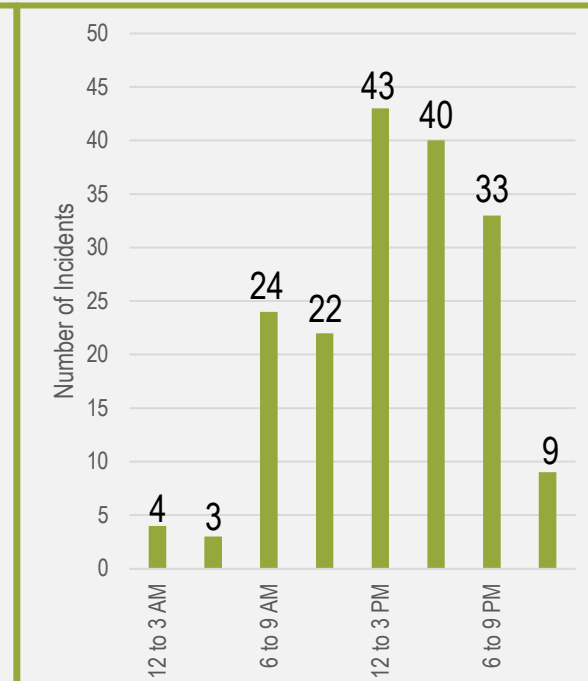
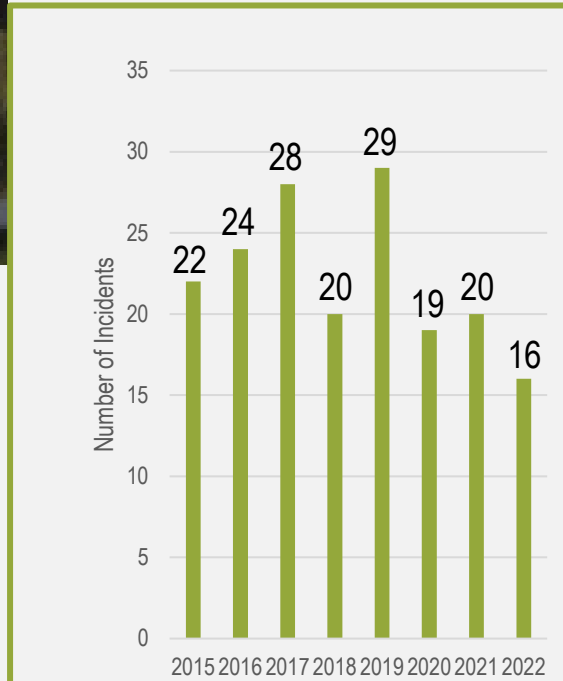
Safety Needs

Needs Identification Summary



Safety Summary

- Total of **178 crashes** from **2015 to 2022**.
- Average number of annual crashes: ~ 23 crashes/year
- Angle and rear end crashes: ~ 80% of total crashes
- About 21% of crashes resulted in injuries.
- 65 of the 118 crashes at the Millwood Pike intersection with Front Royal Pike were rear end crash incidents
 - Twenty (20) of the rear end crash incidents at Millwood Pike and Front Royal Pike occurred while one vehicle was waiting at the intersection's traffic light
- Rear ends were the predominant crash type at the Millwood Pike and Tulane Drive intersection (15 of the 23 crashes).
- Thirty-seven (37) crashes occurred between Front Royal Pike and Tulane Drive; the abundance of development's access points was a contributing factor to most of these crashes.
 - Angle crashes were the predominant crash type, accounting for twenty-eight (28) crashes.



Safety / Reliability Needs

NEED	PRIORITY
Reliability (RN)	No Need
Safety Improvement	High
Pedestrian Safety Improvement	No Need

