

PROJECT PIPELINE NEEDS AND EXISTING CONDITIONS SUMMARY

US Route 522 from Echo Lane to Red Oak Road (Rural)

VDOT District: Staunton / Locality: Frederick County

ST-25-04

Sheet 1 of 2



Study Purpose, Goals, and Objectives

To analyze the operational and safety issues identified on the rural segment of N. Frederick Pike (US Route 522) from Echo Lane to Red Oak Road, with a focus on safety improvements and capacity preservation.

VTrans Needs

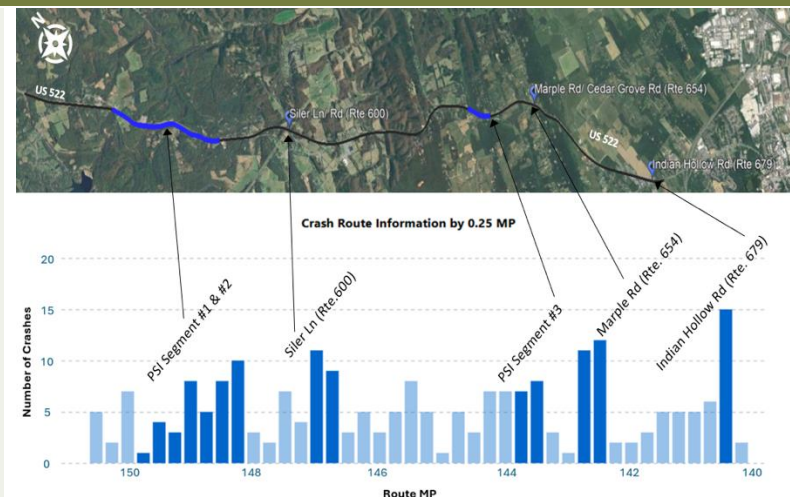
	Safety Improvement
	Capacity Preservation (Keep traffic flowing smoothly)
	Congestion Mitigation
	Transit Access
	Bicycle Access
	Transportation Demand Management (TDM)

Study Facts

Major Study Intersections	Siler Rd, Marple Rd, Indian Hollow Rd
Length of Study Area	10.7 miles
Classification	Other Principal Arterial
2022 AADT (Average Annual Daily Traffic)	17,000
Speed Limit	55/45 mph

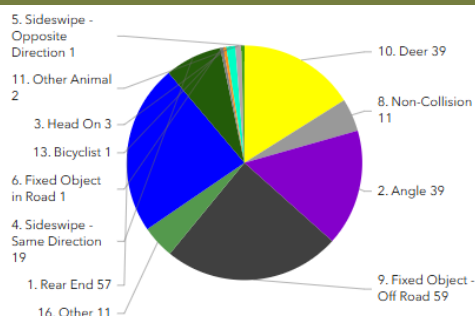
Safety Needs

- Sixty-one crashes involving a Fixed Object Off-Road vehicle occurred on this segment of US Route 522 between 2020 and 2024
- Fifty-three Rear End crashes occurred on this segment of US Route 522 between 2020 and 2024, with the most crashes occurring at the signalized intersections of Marple Road and Indian Hollow Road
- One Bicycle crash occurred at the Marple Road intersection due to the cyclist running the red light, resulting in visible injury



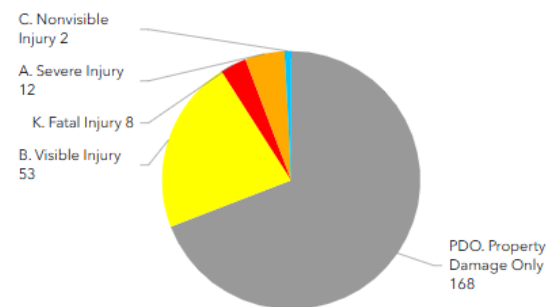
Crash Type

243 Total Crashes (2020 – 2024)



Crash Severity

243 Total Crashes (2020 – 2024)





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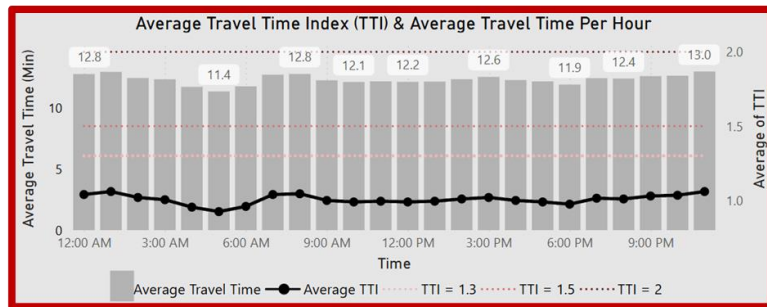
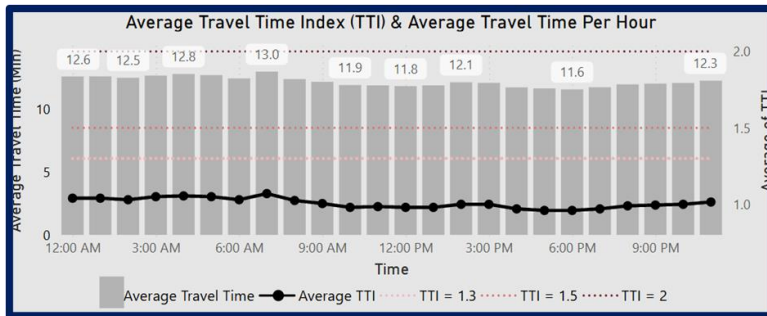
ST-25-04

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Operations Summary

- Mild delays at the signalized intersections of US 522 with Indian Hollow Road and Marple Road.
- No major delays at any unsignalized intersection studied on the corridor.
- Consistent travel time index over the course of the entire day.

Travel Time Index*



*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 freeflow conditions.

Transit and TDM Needs

- No existing transit access along any part of the corridor.
- Need is noted for transit access, but no suitable attractors and density exist within the corridor to make these facilities feasible.
- On-demand transportation via a regional transit service could serve this need should public request be received.

Bike and Pedestrian Access Needs

- No existing sidewalk network, bike lanes, or shared use paths along any part of the corridor.
- Need is noted for pedestrian access and bicycle access, but no suitable attractors and density exist within the corridor to make these facilities feasible.

Summary of Needs Identified Through Public Outreach

- Survey date: May 5th – May 19th, 2025
- Number of participants: 418
- 90% commute daily or weekly
- Highest ranked needs: corridor/intersection safety, reducing traffic congestion, aggressive driving/speeding, pavement marking and signing improvements
- Mode(s) of travel: Personal vehicle (97%), commercial vehicle or truck (15%)
- Corridor safety was the biggest concern in the study area
- Several comments wanted improvements to the Gainesboro school entrances for the elementary and middle school.

Solutions to Consider Under Phase 2

- Install countermeasures to mitigate run off the road crashes, including curve warning signs, chevrons, edge line rumble strips, and flashing beacons where necessary
- Systemic shoulder widening or targeted shoulder widening
- US-522 & Siler Road
 - Add left turn lane at US-522 southbound
 - Convert the intersection to an unsignalized Reduced Crossing Intersection (RCI)
- US-522 & Marple Road/Cedar Grove Road
 - Convert the signalized intersection to an unsignalized RCI
 - Convert the signalized intersection to an unsignalized Median U-Turn (MUT)
- US-522 & Indian Hollow Road
 - Install signalized intersection warning signs at the US-522 southbound approach.
 - Install right turn lane at the commercial entrance (Indian Farm Road)