



PROJECT PIPELINE NEEDS AND EXISTING CONDITIONS SUMMARY

Arcola Mills Drive | Stone Springs Boulevard to Loudoun County Parkway
VDOT District: Northern Virginia / Locality: Loudoun County

NV-25-02
Sheet 1 of 2



Study Purpose, Goals, and Objectives

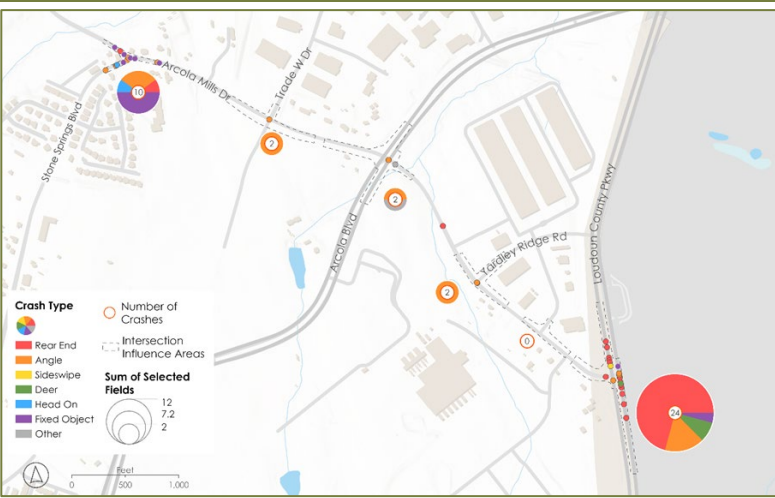
To analyze the operational and safety issues identified along Arcola Mills Drive, between Stone Springs Boulevard and Loudoun County Parkway, with a focus on providing enhanced bicycle and transit access, transportation demand management, safety improvements, and congestion mitigation.

VTrans Needs	
	Congestion Mitigation
	Safety Improvement
	Transportation Demand Management (TDM)
	Pedestrian Access
	Bicycle Access
	Transit Access

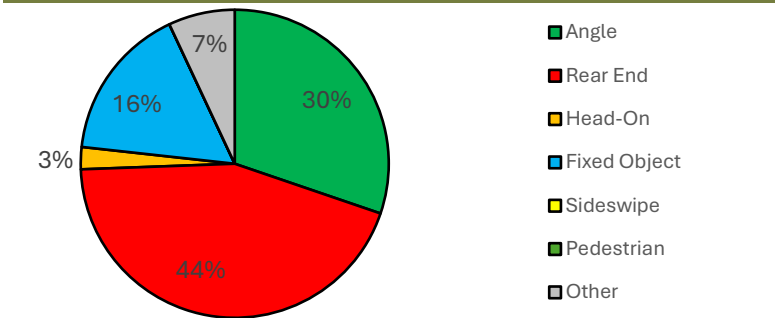
Study Facts	
Major Study Intersections	7
Length of Study Area	1.10 miles
Classification	Major Collector
2023 AADT (Average Annual Daily Traffic)	9,028 – 10,846
Speed Limit	35 mph

Safety Needs

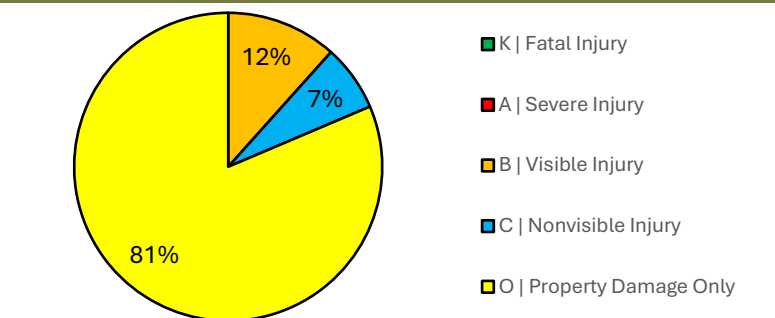
- Forty-three (43) total crashes, including 8 injury crashes.
 - Twenty-four (24) crashes (56%) occurred at the Arcola Mills Drive and Loudoun County Parkway intersection.
 - Ten (10) crashes (23%) occurred at the Arcola Mills Drive and Stone Springs Boulevard intersection.
 - Thirty-five (35) crashes (81%) were property damage only crashes (PDO).
 - Eight (8) crashes (19%) were injury crashes.
- Drivers were observed circumventing restricted movements at two intersections in particular:
 - Arcola Mills Drive and Stone Springs Boulevard
 - Arcola Mills Drive and Liberty Harvest Court.



Crash Type 43 Total Crashes (2022 – 2024)



Crash Severity 43 Total Crashes (2022 – 2024)





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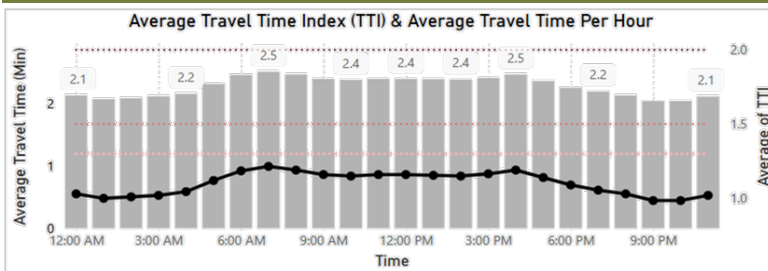
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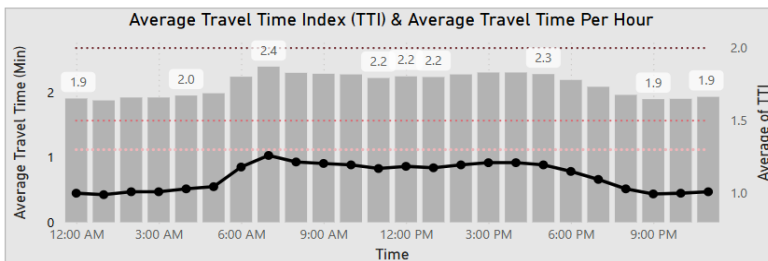
Operations Summary

- Synchro analysis indicated that all signalized intersections are currently operating at an overall LOS D or better in both the AM and PM peak hours.
- All 95th percentile queues are currently contained within the existing storages for all of the exclusive turn lanes at the study intersections.
- During the May 2025 site visit, vehicles making the restricted westbound left-turn movement at the Silver Springs Blvd intersection was observed.
- Illegal left turns into and out of Liberty Harvest Ct were observed during the site visit, despite median island.

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 free-flow conditions. Top graph displays TTI for the eastbound direction; bottom graph displays westbound direction of travel.



Transit and TDM Needs

- Two weekday bus routes that traverse portions of the study area – Route 382 (Stone Ridge) and Route 381 (South Riding). There are no bus stops within the study area.
- Three park-and-ride lots in the north (1) and south (3) of the study area.
- Loudoun County is conducting a Shared Mobility Devices Pilot (SMD) program in the area.

Bicycle and Pedestrian Access Needs

- Low bicycle and pedestrian VTrans needs along the Arcola Mills Drive corridor.
- Sidewalks and/or a shared-use path are present at all intersections between Trade W Drive and Loudoun County Parkway; however, there is a missing section of connectivity between Trade W Drive and Main Marconi Lane.
- Loudoun County Parkway is identified as a Statewide Top 5% VDOT Pedestrian and Bicycle Safety Action Plan (PBSAP) priority corridor.

Summary of Needs Identified Through Public Outreach

- Survey date: June 2, 2025 – June 16, 2025
- Number of participants: 532
- Highest ranked needs: reducing traffic congestion, corridor safety/intersection safety and pedestrian safety and accessibility.
- Highest ranked safety issues: lack of sidewalks/missing sidewalks, insufficient/missing crosswalks and pedestrian signal timing, speed/aggressive driving.
- Mode(s) of travel: Personal vehicle (98%), walking (18%), cycling (15%)

Proposed Solutions to Evaluate in Phase 2

- Widen Arcola Mills Drive to a 4-lane typical section including a sidewalk and SUP through Trade Wind Drive to tie into Arcola Mills Drive Segment 1 widening.
- Widen Arcola Mills Drive to a 3-lane typical section with a two-way left-turn lane (TWLTL) including a sidewalk and SUP through Trade Wind Drive to tie into Arcola Mills Drive Segment 1 widening.
- Consider roundabout or other innovative intersection at Trade West Drive intersection
- Add delineator posts or improve concrete island at Liberty Harvest Court intersection to prevent restricted movements
- Re-stripe pavement marking at Loudoun County Parkway based on volume forecasting.