



PROJECT PIPELINE NEEDS AND EXISTING CONDITIONS SUMMARY

Sudley Manor Drive between Bethlehem Road and Sudley Road
VDOT District: Northern Virginia / Locality: Prince William County

NV-25-01
Sheet 1 of 3



Study Purpose, Goals, and Objectives

To identify safety, pedestrian and bike access, and operational deficiencies and make recommendations along Sudley Manor Drive, from Bethlehem Road to Sudley Road, with a focus on providing enhanced bicycle, pedestrian, and transit access, transportation demand management, safety improvements for vehicles and pedestrians, congestion mitigation and capacity preservation.

VTrans Needs

	Capacity Mitigation
	Capacity Preservation
	Safety Improvement
	Pedestrian Safety Improvement
	Transportation Demand Management
	Bicycle Access
	Transit Access

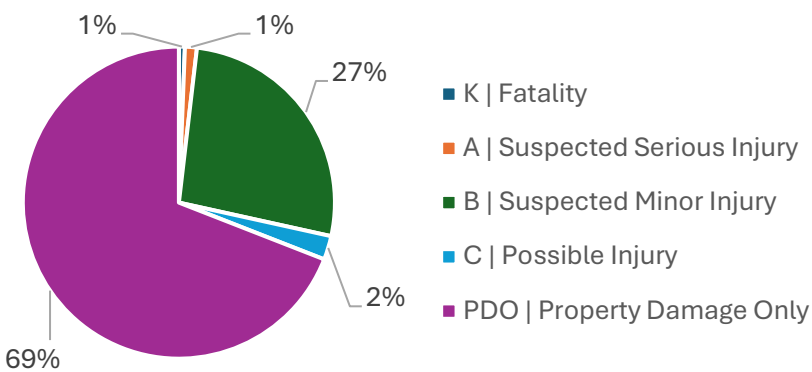
Study Facts

Major Study Intersections	2
Length of Study Area	1.64 mile(s)
Classification	Minor Arterial
2024 AADT (Average Annual Daily Traffic)	28,166 – 35,305
Speed Limit	35 mph – 45 mph

Safety Needs

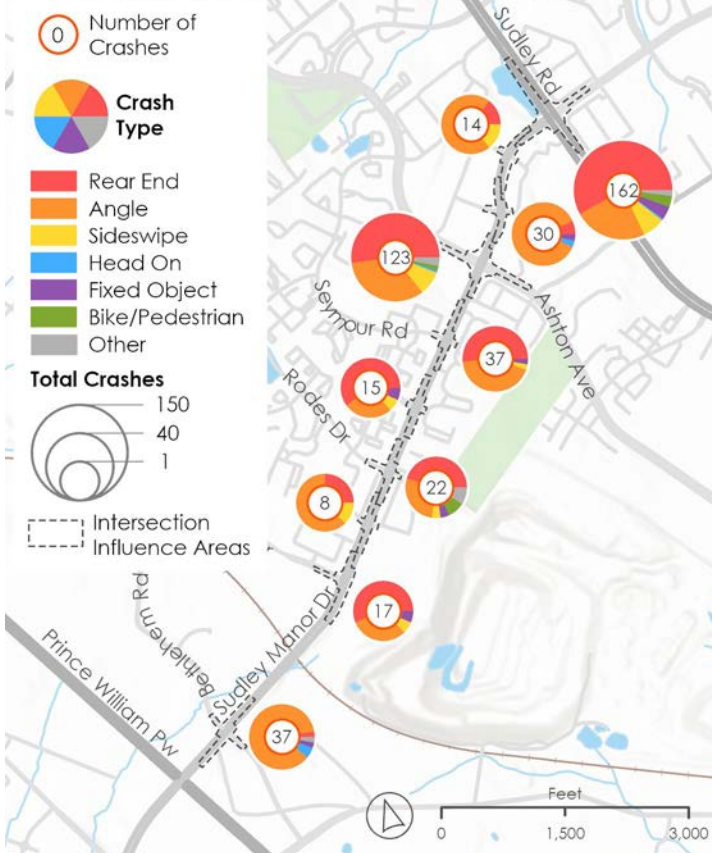
- 485 crashes were reported in 2019 and 2021 – 2024, of which 147 were injury related crashes.
- The majority of the crashes occurred at the signalized Sudley Road intersection (162 crashes) and Ashton Avenue intersection (123).
- There were three fatal crashes – one at the Sudley Road intersection, one at Seymour Road and one east of Chatsworth Drive.
- Rear end crashes (226) and angle crashes (186) were the most prevalent crash types.
- The entire corridor study area is identified as a Statewide Top 5% or Top 1% segment in VDOT's Pedestrian and Bicycle Safety Action Plan.

Crash Severity



Crash Type

2019, 2021 – 2024





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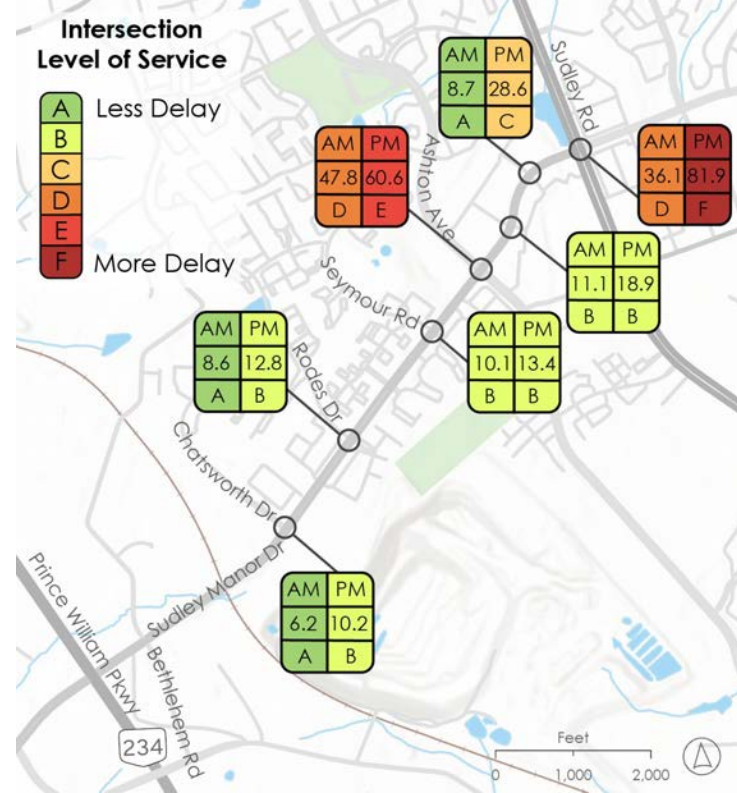
Operations Summary

- Four of the six signalized intersections are currently operating at LOS C or better in both peak hours. The three signalized intersections that are currently operating under failing conditions during at least one peak hour include the following:
 - Sudley Manor Drive and Ashton Avenue. This intersection operates at an overall LOS D in the AM peak hour and LOS E in the PM peak hour. Additionally, seven of the movements operate under failing conditions in at least one peak hour.
 - Sudley Manor Drive and Sudley Road. This intersection operates at an overall LOS D in the AM peak hour and LOS F in the PM peak hour. Additionally, six of the movement operate under failing conditions in at least one peak hour.
- The majority of the stop- and yield-controlled movements are currently operating at LOS D or better in both the AM and PM peak hours, with a few exceptions. At the Sudley Manor Drive and Bethlehem Road intersection, the southbound Bethlehem Road right-turn movement is currently operating at LOS F in the PM peak hour. At the Sudley Manor Drive and Humphrey Lane/Wallace Lane intersection, the northbound Wallace Lane through movement is currently operating at LOS F in the PM peak hour. The northbound Gambriel Drive left-turn lane and southbound Ravens Crest Court left-turn lane along Sudley Manor Drive are both operating at LOS E in the AM peak hour.
- The majority of the maximum queues are currently contained within the existing storages for all of the exclusive turn lanes at the study intersections, with exceptions noted at locations where the maximum queue reported in SimTraffic equaled the storage coded in the Synchro model. Since SimTraffic does not report maximum storage lengths longer than the available storage, the actual storage spills out of the available storage on the southbound left-turn lane and the northbound left-turn lane at the Sudley Manor Drive and Sudley Road intersection.

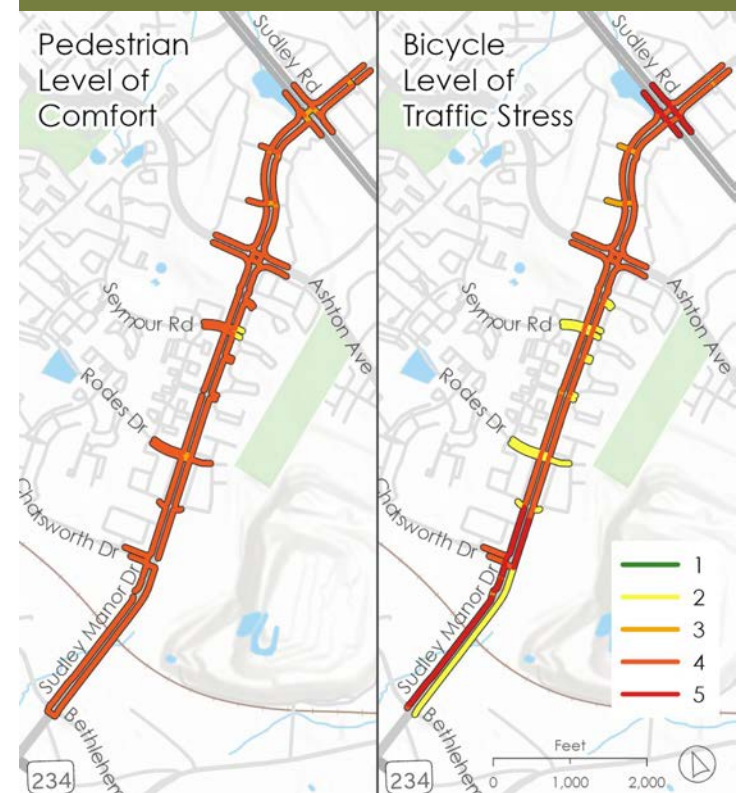
Bike and Pedestrian Access Needs

- Six pedestrian crashes have occurred between Chatsworth Drive and the Bull Run Plaza intersection
 - One crash resulted in a fatality at Chatsworth Drive
 - VDOT has recently installed high visibility cross-walks at most intersections within the last 3 years
- Most crosswalks are located along the 6-lane cross-section without pedestrian refuges.
- Most pedestrian activity was observed between Ashton Avenue and Sudley Road.
- There is a missing link between Chatsworth Drive and Wallace Lane. There is a worn path made by pedestrians walking in the grassy area.
- A shared use path on the eastside of the road does begin at Chatsworth Drive and extends beyond Prince William Parkway.

Operations Summary



Bike and Pedestrian Level of Service





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Summary of Needs Identified Through Public Outreach

- Survey date: June 2, 2025 to June 16, 2025.
- Number of participants: 1,150
- Highest ranked needs: Reducing traffic congestion, corridor safety/intersection safety, pedestrian safety and accessibility, speeding/aggressive driving and property pavement markings and signage.
- Mode(s) of travel: Personal vehicle (99%), walking (14%), cycling (11%)

Common Public Input Themes:

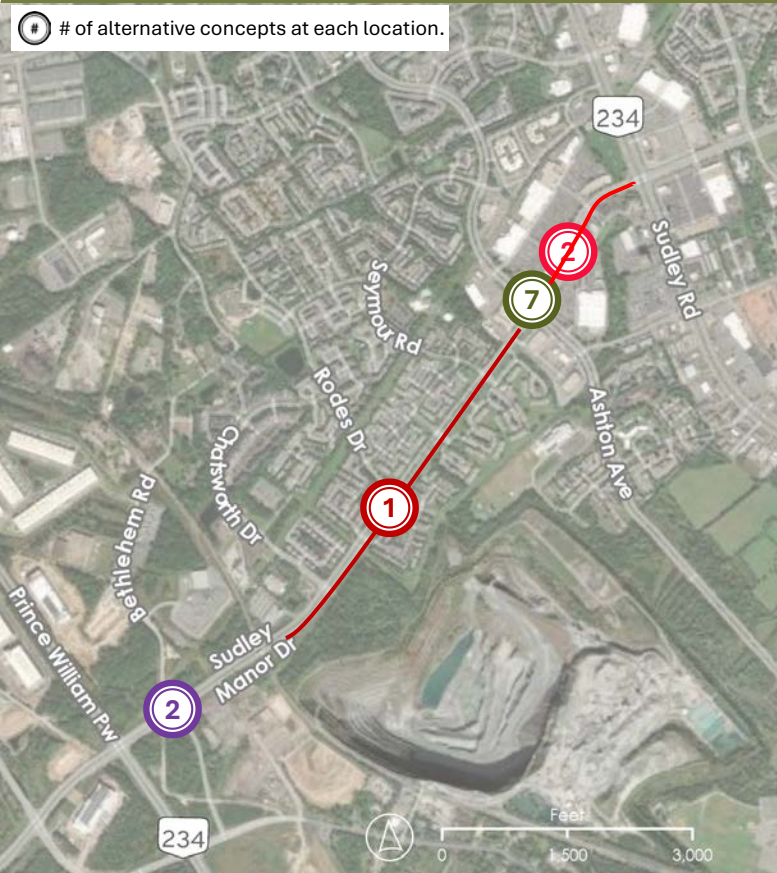
- Operations – Heavy congestion noted during the peak hours, particularly in the PM peak hours. Bottlenecks identified at the intersections.
- Safety – Speeding and aggressive driving. Frequent rear-end and side-impact crashes. Running red lights and sudden stops.
- Pedestrian and Bicycle Accessibility – Lack of sidewalks or missing sidewalk segments. Inadequate or missing crosswalks and pedestrian signals. Poor lighting and ADA accessibility issues. Limited or unsafe bicycle facilities.
- Transit Access – Inadequate or poorly located bus stops. Limited public transit options along the corridor.
- Intersection and Corridor Design – Closely spaced driveway causing issues with vehicles entering and exiting the corridor. Poor pavement markings and signage. Difficult making left turns or accessing businesses.

Public Input on Safety Issues

58%	Speeding / aggressive driving	413 ✓
50%	Running red lights	357 ✓
49%	Sudden stopping / rear-end crashes	349 ✓
33%	Lack of sidewalks / missing sidewalks	233 ✓
33%	Difficulty weaving / merging	232 ✓
31%	Insufficient / missing crosswalks and pedestrian signal timing	222 ✓
26%	Inadequate lighting	182 ✓
26%	Inadequate pavement marking and signage	181 ✓
25%	Side-impact crashes	178 ✓
19%	Inadequate bicycle facilities	137 ✓
15%	Inadequate transit / bus stops	103 ✓
9%	Lack of ADA ramps and accessibility	62 ✓
8%	Closely spaced driveways	55 ✓
5%	Other	34 ✓

Concepts Evaluated in Phase 2

of alternative concepts at each location.



Concepts Evaluated in Phase 2

- ① Flashing Intersection Warning Slides
- ② Offset Left-Turns
- ① Construct Shared-Use Path on Sudley Manor Drive
- ① Lighting
- ② Extend Left-Turn Lanes
- ③ Reduce Radii or Eliminate Right-Turn Slip Lanes
- ④ Construct Right-Turn Lanes
- ⑤ Reconfigure Sudley Manor Drive to Meet Driver Expectation/Lane Usage
- ⑥ Construct Northbound Dual Left-Turn Lanes on Northbound Ashton Avenue
- ⑦ Upgrade ADA Curb Ramps
- ① Improve Right-turn access into Costco Entrance
- ② Construct Shared-Use Path on Sudley Manor Drive