



PRINCE WILLIAM PARKWAY & OLD BRIDGE ROAD SAFETY AND OPERATIONAL IMPROVEMENTS STUDY

Strategically Targeted and Affordable Roadway Solutions (STARS) Program



Presentation Outline

- **VDOT STARS Program Overview**
- **Study Overview**
- **Existing Traffic and Safety Conditions**
- **Study Progress**
- **Alternatives Summary**
- **Next Steps**



VDOT STARS Overview

STARS PROGRAM GOALS

- **Strategically Targeted and Affordable Roadway Solutions**
- **Develop alternatives to relieve congestion and solve critical safety challenges for SYIP funding requests**
- **Data driven approach**
- **Involve planners, traffic engineers, safety engineers, roadway designers, and local stakeholders**

STARS Project Stakeholders



Study Purpose

- Evaluate operational and safety conditions along Prince William Parkway and Old Bridge Road within the study area
- Consider and evaluate potential improvements to enhance safety and operations in the study area
- Develop cost estimates for the preferred alternatives
- Facilitate future funding applications for projects and improvements
- Localities may include improvements into comprehensive plans



Study Area

Prince William Parkway

Between Laurel Hills Drive/Ridgewood Center Drive and
Kenwood Drive/Jenkins Elementary School

Old Bridge Road

Between Prince William Parkway and Touchstone Circle/Titania Way

Intersections

- Five signalized intersections
- Two unsignalized intersections (right-in/right-out only)
- Five unsignalized driveways on Prince William Parkway/
Old Bridge Road (right-in/right-out only)



Prince William Parkway and Old Bridge Road Study Area

- **Study area encompasses approximately 1 mile of roadway**
- **2019 Roadway Data**
 - 50,000 vehicles/day on western portion of Prince William Parkway
 - 49,000 vehicles/day on southern portion of Prince William Parkway
 - 35,000 vehicles/day on Old Bridge Road
- **4-6 lane cross section with median and turn lanes**
- **45 mph speed limit on Prince William Parkway**
- **Signal at Kenwood Drive/Jenkins Elementary School was recently rebuilt as part of school construction**



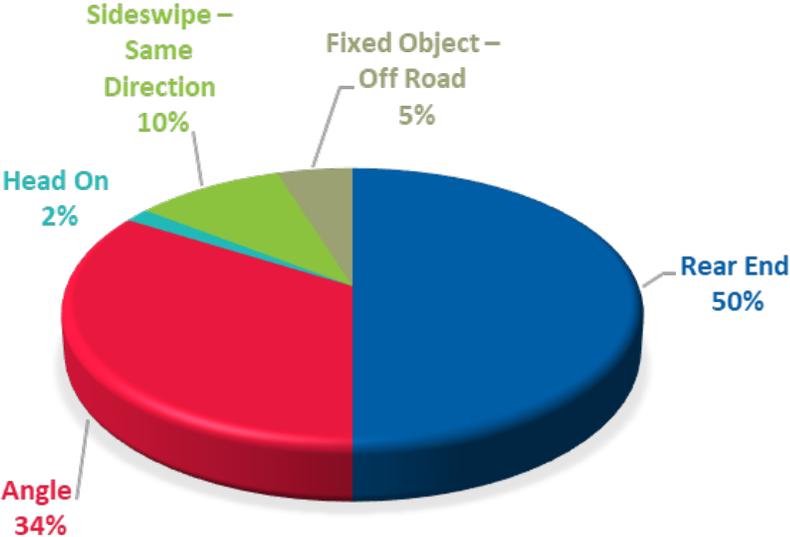
Existing Multi-Modal Accommodations

- Pedestrian facilities are present on both sides of Prince William Parkway and Old Bridge Road with sidewalk and multi-use path
- 15 marked crosswalks at intersections within study area
- Multiple bus stops various intersection approaches

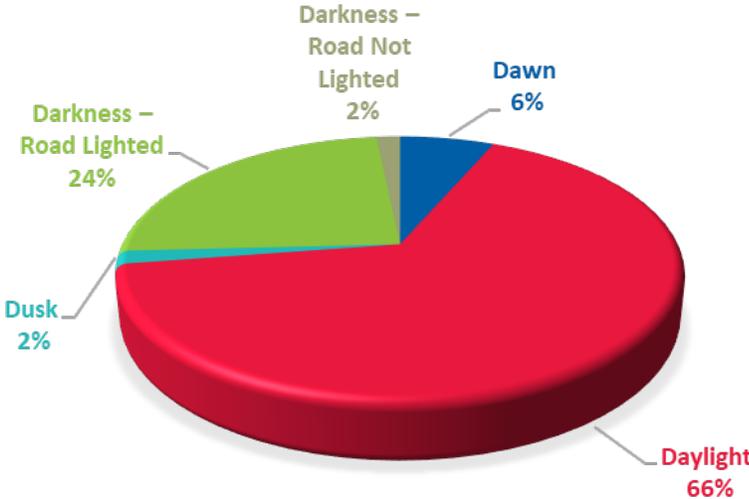


Safety Conditions

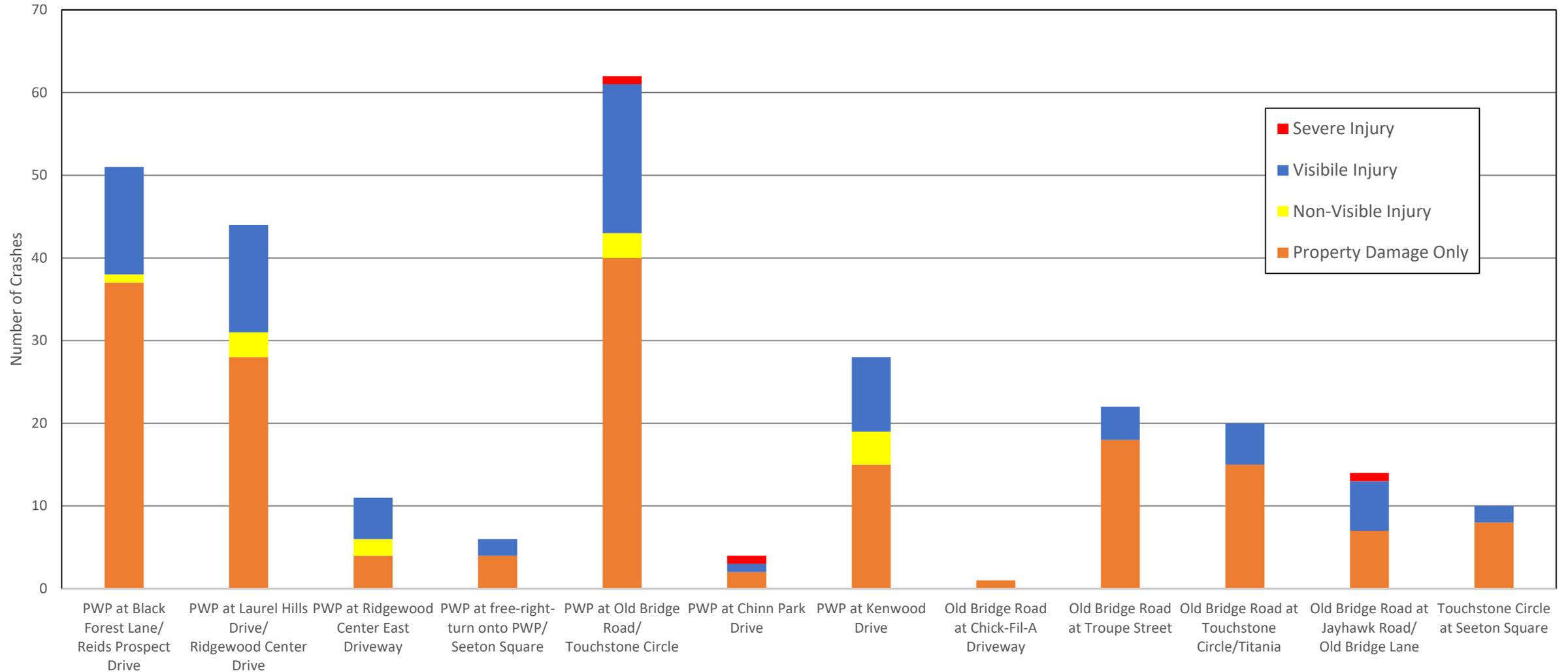
- **A total of 321 total crashes were reported within study area over five-year period from January 2015 to December 2019.**
 - 106 crashes, or approximately 1/3, involved injury
 - Most crashes occurred during daylight or in lit conditions
- **62 total reported crashes at the intersection of Prince William Parkway and Old Bridge Road/Touchstone Circle.**
 - 0 fatalities, 22 crashes involving injury, and 40 involving property damage only.
 - Majority rear end crashes.



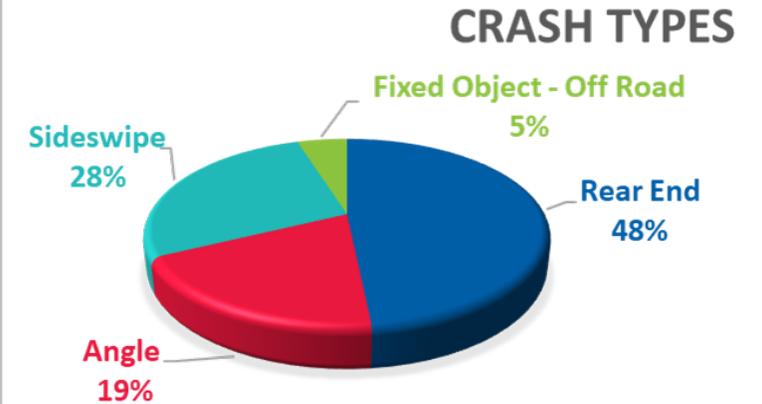
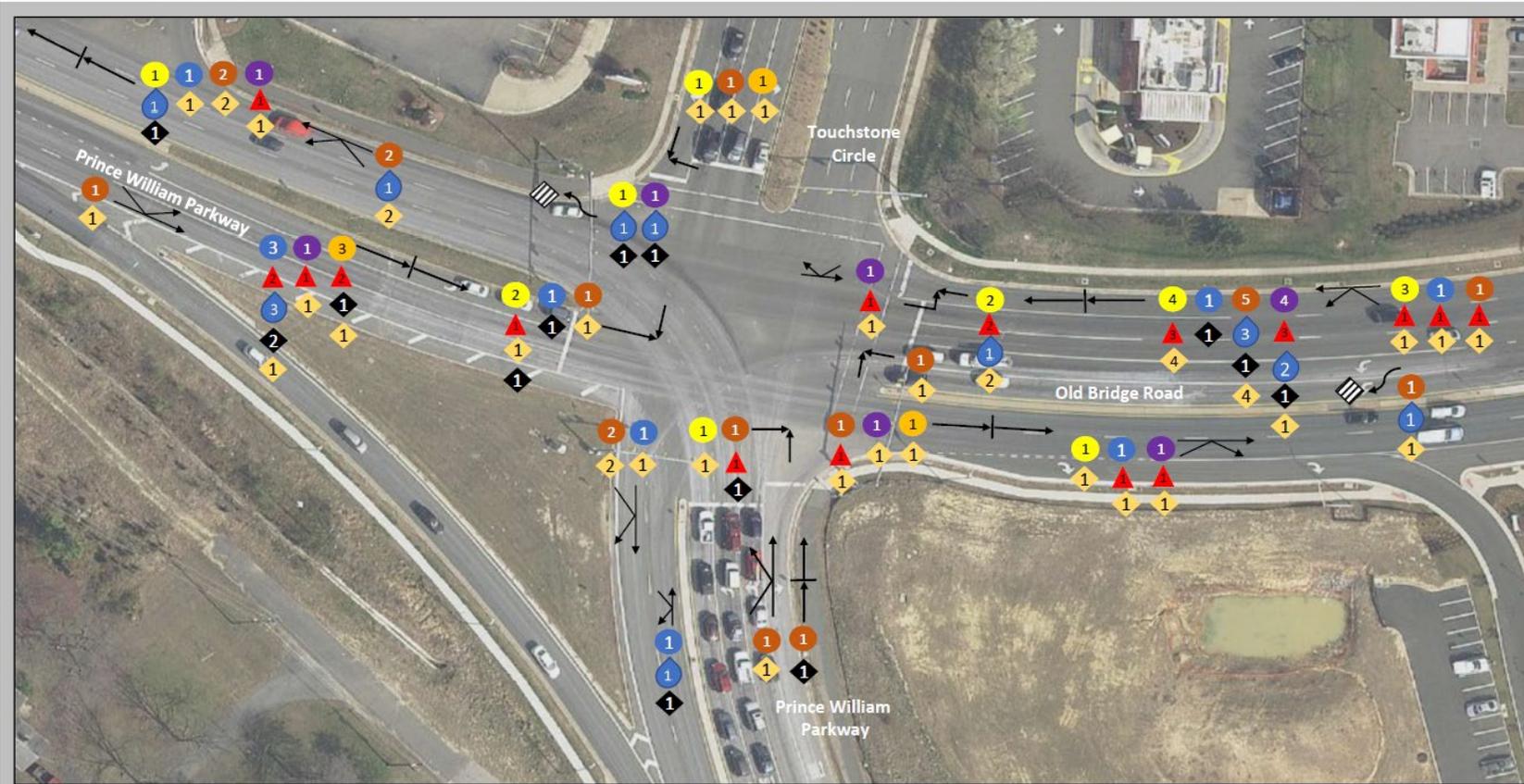
LIGHTING CONDITIONS



Intersection Crashes (2015-2019)



Crash Map – Prince William Parkway & Old Bridge Road



Crashes at Prince William Parkway and Old Bridge Road/Touchstone Circle

Crash Types	Crash Year	Crash Details
Angle	2015	Injury
Sideswipe	2016	Night Crash
Rear End	2018	Wet Road
Fixed Object	2017	Day Crash
	2019	

Crash Diagram at Prince William Parkway and Old Bridge Road/Touchstone Circle

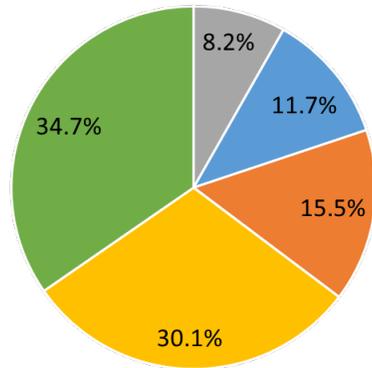
ATCS



Prince William Parkway and Old Bridge Road/Touchstone Circle Existing Operations

- High levels of delay on all left turn movements and northbound/southbound through movements.
- Main movements on Prince William Parkway (northbound left/eastbound right) experience heavy queues.
- The eastbound right turn lane is approximately 17% over capacity in the AM peak hour.

Existing PM Signal Time Proportion - Prince William Parkway/Old Bridge Road and Touchstone Circle



- Southbound Touchstone Circle
- Eastbound Prince William Parkway/Westbound Old Bridge Road Left Turns
- Yellow & All Red Time
- Northbound Prince William Parkway
- Eastbound Prince William Parkway and Westbound Old Bridge Road Through Movements

Peak Hour Delay, LOS, and Queue Summary								
Intersection	Roadway	Lane Group	AM Existing Conditions			PM Existing Conditions		
			Delay (Sec/Veh.)	LOS	Median Queue (Feet)	Delay (Sec/Veh.)	LOS	Median Queue (Feet)
Prince William Parkway and Old Bridge Road	Prince William Parkway	EBL	108.3	F	124	128.9	F	177
		EBT	27.6	C	502	63.9	E	757
		EBR	171.1	F	2430	6.8	A	1302
	Old Bridge Road	WBL	88.6	F	230	133.1	F	292
		WBTR	24.7	C	309	21.8	C	280
	Prince William Parkway	NBL	115.2	F	505	199.3	F	1200
		NBT	130.9	F	527	207.9	F	1245
		NBR	16.1	B	35	36.8	D	385
	Touchstone Circle	SBL	81.9	F	46	93.4	F	101
		SBT	84.0	F	82	104.0	F	152
		SBR	64.2	E	8	75.4	E	53
Overall			97.1	F	-	89.3	F	-

LOS	Average Control Delay (sec/veh)
A	10
B	> 10 and 20
C	> 20 and 35
D	> 35 and 55
E	> 55 and 80
F	> 80



Study Progress

- Analyzed existing conditions
- Developed improvement alternatives
- Analyzed future no-build and alternative conditions
- Prepared cost estimates for alternatives
- Currently soliciting public feedback on alternatives



Summary of Recommended Corridor-wide Improvements

- **Install Flashing Yellow Arrows for Left Turn Movements**
- **Remove Side Street Split Phasing to improve efficiency**
- **Implement Consistent Left Turn Phases at all Study Area intersections**
- **Implement Lead/Lag Phasing for smoother coordination**
- **High Visibility Backplates**
- **Right Turn Overlaps phases**
- **Pedestrian Equipment Improvements**



Summary of Alternatives at Prince William Parkway and Old Bridge Road/Touchstone Circle

- **No Build/Minor System Improvements**
 - Make only minor signal re-timing and approach improvements
- **Traditional T Intersection**
 - Realignment of Prince William Parkway and Old Bridge Road to a T geometric configuration
 - Prince William Parkway realigned to main through movement
- **“Thru-Cut” Intersection**
 - Removal of through movements across the intersection to/from Touchstone Circle and Prince William Parkway
 - Northbound/southbound movements operate at the same time
- **Grade Separation**
 - Provide a flyover or interchange of a to be determined configuration to make Prince William Parkway a free flow movement



Standard/Traditional “T” Intersection Concept Design



“Through-Cut” Intersection Concept Design



Grade Separation Alternative Examples



Examples



Evaluation of Alternatives

2019 Peak Hour Delay, LOS, and Queue Summary							
Intersection	Approach	AM No-Build	AM Alternative 1	AM Alternative 2	PM No-Build	PM Alternative 1	PM Alternative 2
		LOS (Delay (s/veh))					
Prince William Parkway and Old Bridge Road	Prince William Parkway (EB/SB)	F (119.4)	C (27.3)	D (44.9)	D (37.3)	D (35.6)	C (20.9)
	Old Bridge Road (WB)	D (47.4)	C (33.9)	E (55.3)	D (52.5)	D (46.8)	C (28.0)
	Prince William Parkway (NB)	F (99.7)	D (46.0)	B (13.1)	F (174.7)	D (40.5)	C (33.1)
	Touchstone Circle (SB)	F (76.9)	N/A	C (25.8)	F (90.9)	N/A	C (32.0)
	Overall	F (97.1)	C (33.4)	D (38.8)	F (89.3)	D (40.4)	C (27.1)
2040 Peak Hour Delay, LOS, and Queue Summary							
Intersection	Approach	AM No-Build	AM Alternative 1	AM Alternative 2	PM No-Build	PM Alternative 1	PM Alternative 2
		LOS (Delay (s/veh))					
Prince William Parkway and Old Bridge Road	Prince William Parkway (EB/SB)	F (223.8)	C (22.4)	E (73.9)	F (180.5)	F (80.5)	E (76.9)
	Old Bridge Road (WB)	E (65.7)	D (49.3)	E (75.1)	F (104.40)	E (69.7)	E (65.1)
	Prince William Parkway (NB)	F (89.1)	D (58.8)	C (30.8)	F (139.1)	F (100.9)	F (82.7)
	Touchstone Circle (SB)	F (126.2)	N/A	D (35.6)	F (146.0)	N/A	D (35.6)
	Overall	F (153.1)	D (37.6)	E (63.2)	F (147.1)	F (84.3)	E (74.5)

Projected Cost Estimates				
Estimate	No-Build/Minor Improvements	Alternative 1	Alternative 2	Alternative 3
Total	\$100,000	\$29,110,000	\$8,420,000	\$100,000,000+

LOS	Average Control Delay (sec/veh)
A	10
B	> 10 and 20
C	> 20 and 35
D	> 35 and 55
E	> 55 and 80
F	> 80



Next Steps

- **Provide responses to public input survey at the following link:**
 - www.virginiadot.org/princewilliamparkwayatoldbridgeroadstudy
- **Metroquest Survey opens June 29th, 2020 and closes July 17th, 2020**
- **VDOT and Prince William County to identify preferred alternative and refine based on public feedback**
- **SMART SCALE funding application expected to be submitted in August, 2020**
- **Study recommendations and final report are expected to be finalized and posted online in September, 2020**



THANK YOU!

Your input is essential as we evaluate potential improvement alternatives.

Please take our survey located on our project website!

[SURVEY LINK](#)

**Comments may also be sent to:
meetingcomments@vdot.virginia.gov**

