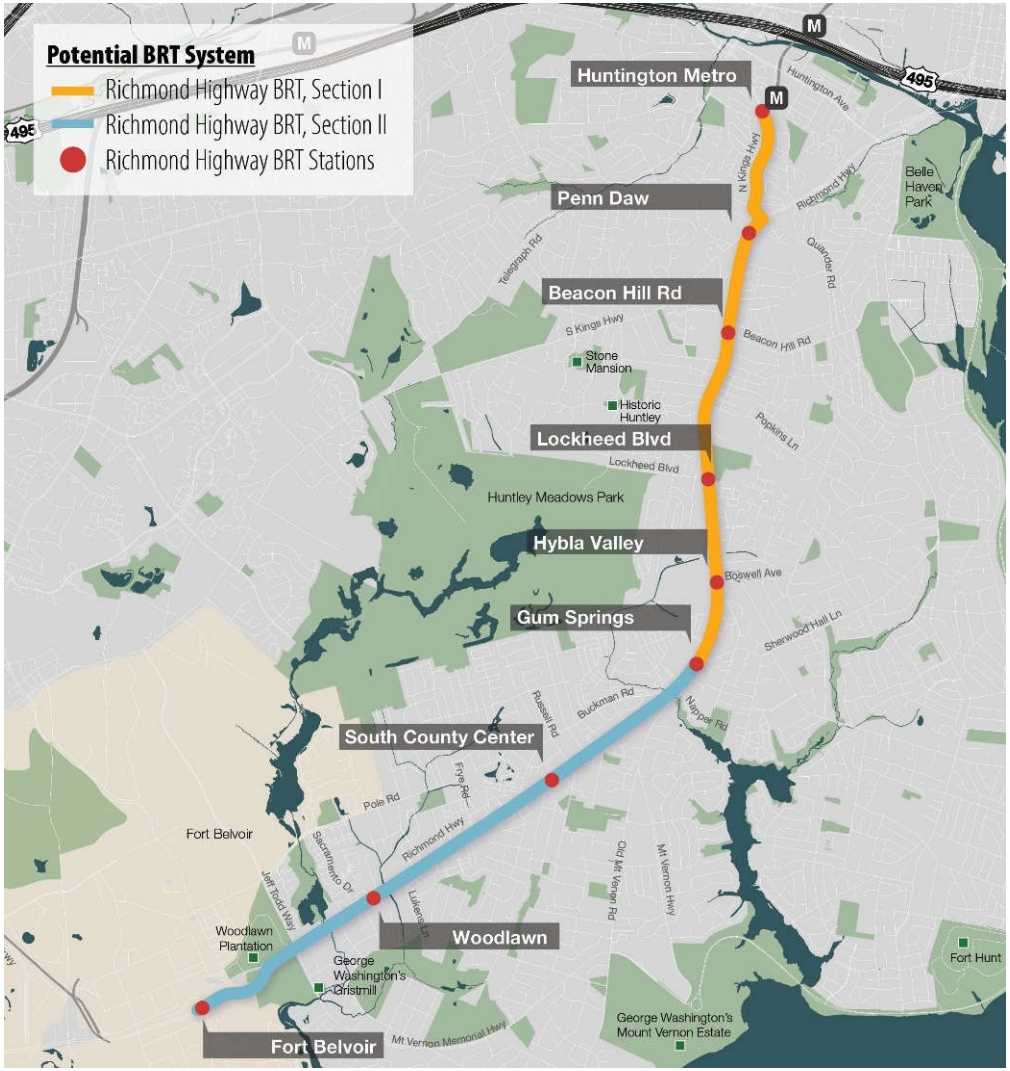
County of Fairfax, Virginia

FCDOT
Serving Fairfax County for 25 Years and More



Richmond Highway Bus Rapid Transit

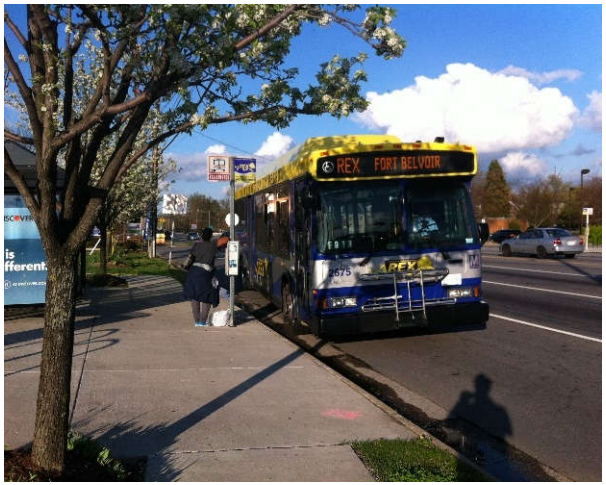
Executive Committee Meeting #15

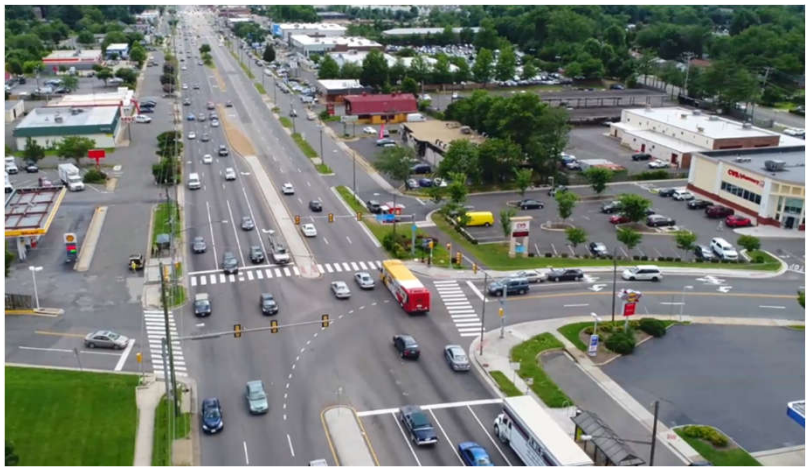
June 10, 2022

The Richmond Highway BRT project is funded in part by the Northern Virginia Transportation Authority.

Agenda

- **Project Status**
  - Design Progress
  - Zero emission Bus Evaluation
  - Third Party Coordination
  - Right-of-Way Acquisition
  - FTA Coordination
- **Station Design: Community Charm**
- **Action Item: Turn Lane Analysis**
  - **Survey Results**
  - **Recommendations**
- **12-Month Outlook**





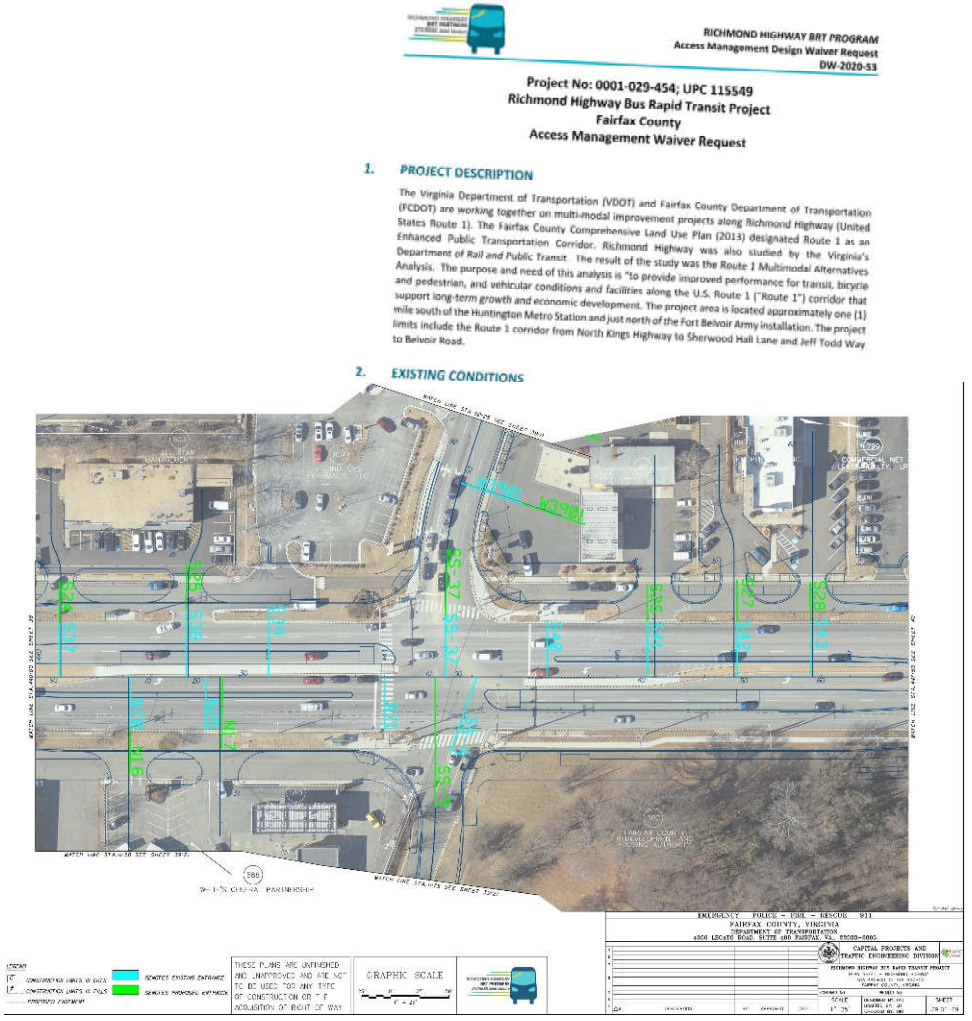
Project Progress

Richmond Highway Bus Rapid Transit

3

Civil Design Progress

- **60% design completed in Spring 2022**
- **Current focus:**
  - VDOT design waivers
  - Pedestrian safety features
  - Stormwater management & landscaping
  - Retaining walls
  - Construction phasing
  - Utility design coordination
  - Developing easement and right-of-way lines



RICHMOND HIGHWAY BRT PROGRAM
Access Management Design Waiver Request
DW-2020-53

Project No: 0001-029-454; UPC 115549
Richmond Highway Bus Rapid Transit Project
Fairfax County
Access Management Waiver Request

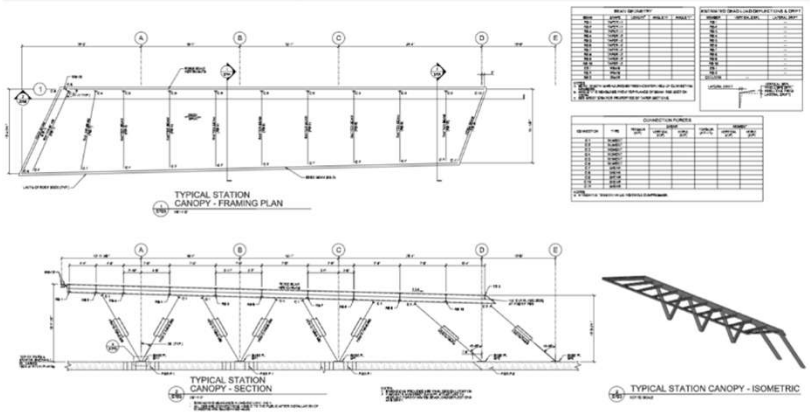
1. PROJECT DESCRIPTION

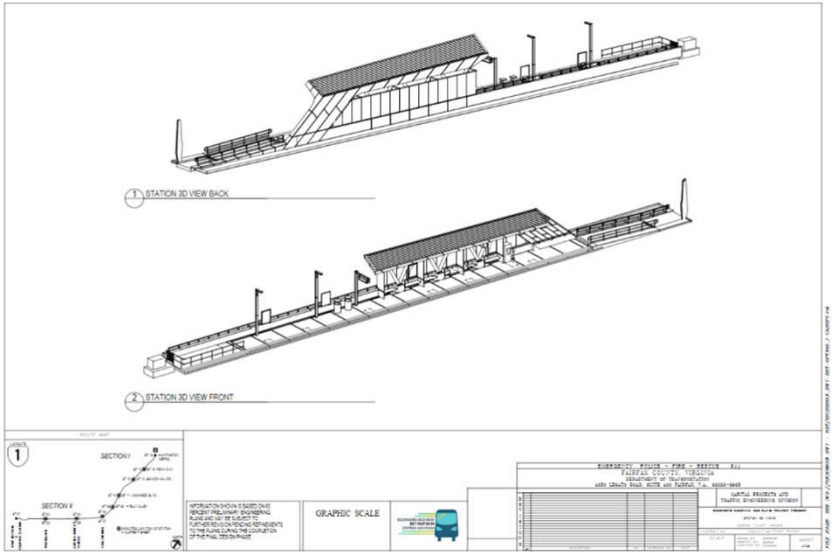
The Virginia Department of Transportation (VDOT) and Fairfax County Department of Transportation (FCDOT) are working together on multi-modal improvement projects along Richmond Highway (United States Route 1). The Fairfax County Comprehensive Land Use Plan (2013) designated Route 1 as an Enhanced Public Transportation Corridor. Richmond Highway was also studied by the Virginia's Department of Rail and Public Transit. The result of the study was the Route 1 Multimodal Alternatives Analysis. The purpose and need of this analysis is "to provide improved performance for transit, bicycle and pedestrian, and vehicular conditions and facilities along the U.S. Route 1 ("Route 1") corridor that support long-term growth and economic development. The project area is located approximately one (1) mile south of the Huntington Metro Station and just north of the Fort Belvoir Army installation. The project limits include the Route 1 corridor from North Kings Highway to Sherwood Hall Lane and Jeff Todd Way to Belvoir Road.

2. EXISTING CONDITIONS

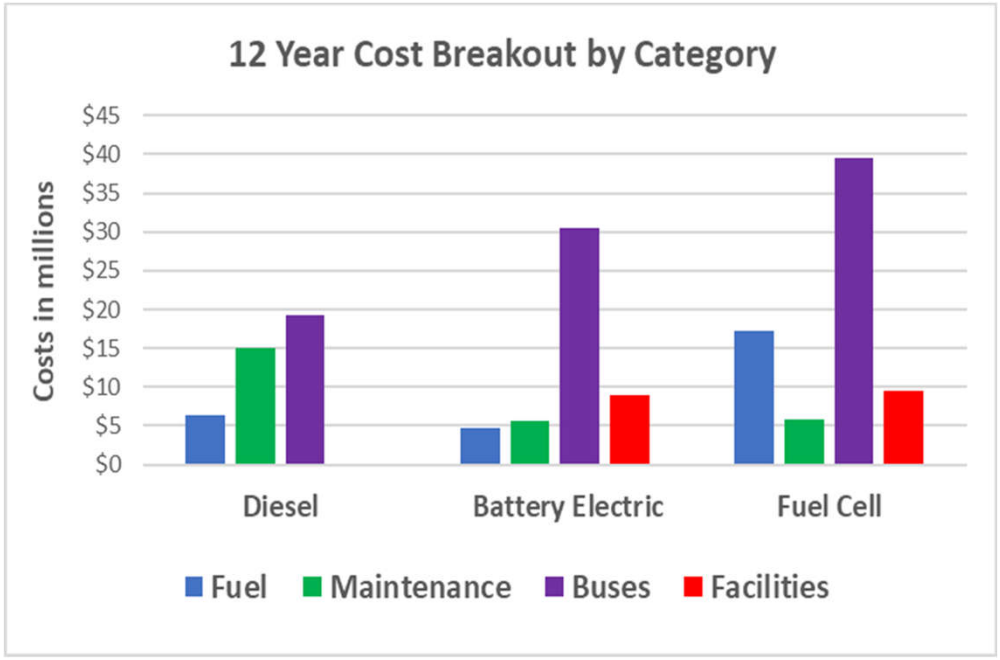
Station Design Progress

- **60% design to be complete in Summer 2022**
- **Current focus:**
  - Materials selection
  - Furnishings
  - Structural framing
  - Electrical and communications equipment
  - Pedestrian access
  - Safety and security





Zero Emissions Bus Evaluation (ZEB)



- **BRT Study Components**
  - Feasibility Analysis
  - Route/Range Modeling
  - Infrastructure Analysis
  - Cost Analysis
- **Battery Electric vs. Diesel**
  - 25% fuel savings
  - 60% maintenance savings
  - 105% higher capital costs
  - Requires field charging
  - No added facilities costs for diesel operation
- **Fuel Cell – Highest Operating/Capital Costs**

FCDOT Serving Fairfax County for 25 Years and More

ZEB Next Steps

1. **Develop design plans for the facility**
   - Bus storage location
   - Charging infrastructure
   - Power requirements
2. **Develop procurement specification & timeline**
3. **Include in scope, cost & schedule submittals to FTA**
4. **Briefing to the Board Transportation Committee (BTC) June 14, 2022**

Third Party Coordination

- **Goal is written agreements with each party; should be completed during FTA Engineering phase so no issues are unresolved during construction**
- **VDOT**
  - Memorandum of understanding to confirm that parties agree to agree and work on project together
  - Followed by Joint Operations and Maintenance Program; process for drafting is established & meetings are scheduled for technical areas (e.g., SWM, traffic signals)
- **WMATA**
  - Starting process to negotiate lease agreements at Cinder Bed Road operations facility and Huntington bus loop
- **Ft. Belvoir**
  - Starting process to negotiated Record of Environmental Consideration; other issues to follow

Right-of-Way Acquisition

- **FTA-approved early acquisitions are complete**
  - Demolition of Alexandria Motel scheduled for Summer 2022
- **Group 1 Parcels**
  - Appraisals underway
  - Offers to owners going out this month
- **Group 2 Parcels**
  - Notice sent to owners
  - Appraisals underway
- **Information on process can be found on BRT website**
- **Additional meetings can be scheduled to assist property owners during the process, as requested**

FTA Coordination

- **Project accepted into "Project Development" stage in March 2020; entry into "Engineering" phase expected fall 2022**
  - ➔ FTA contribution is set at entry to Engineering
- **Approval to enter Engineering includes detailed review of:**
  - Scope
  - Schedule
  - Costs
- **FTA conducts risk assessment; may assign higher cost or longer schedule based on analysis of risks**
- **Monthly meetings with FTA staff; weekly meetings with oversights consultant**

Federal Transit Administration

FCDOT
Serving Fairfax County for 25 Years and More

Community Charm

Richmond Highway Bus Rapid Transit

11

Vision for Community Charm

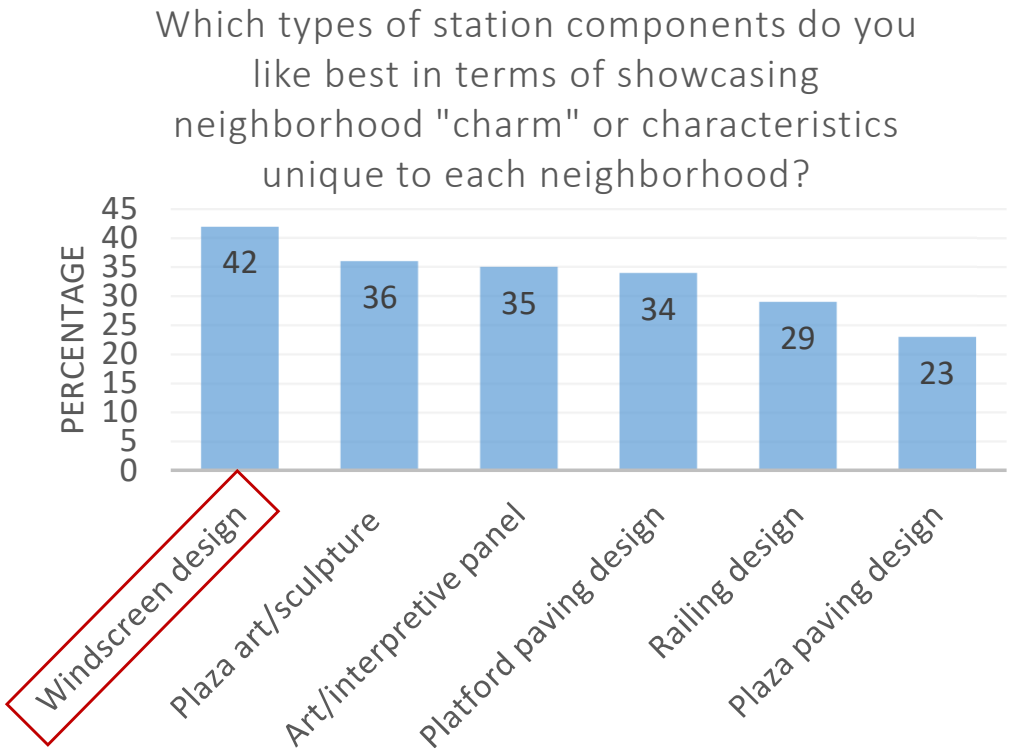
Reflect the history, identity and character of the neighborhoods surrounding each station area

Implement community representation by incorporating artwork from local high school students and youth.

Integrate artwork in each station that meets design parameters for an overall unified experience

Direction from BRT Executive Committee

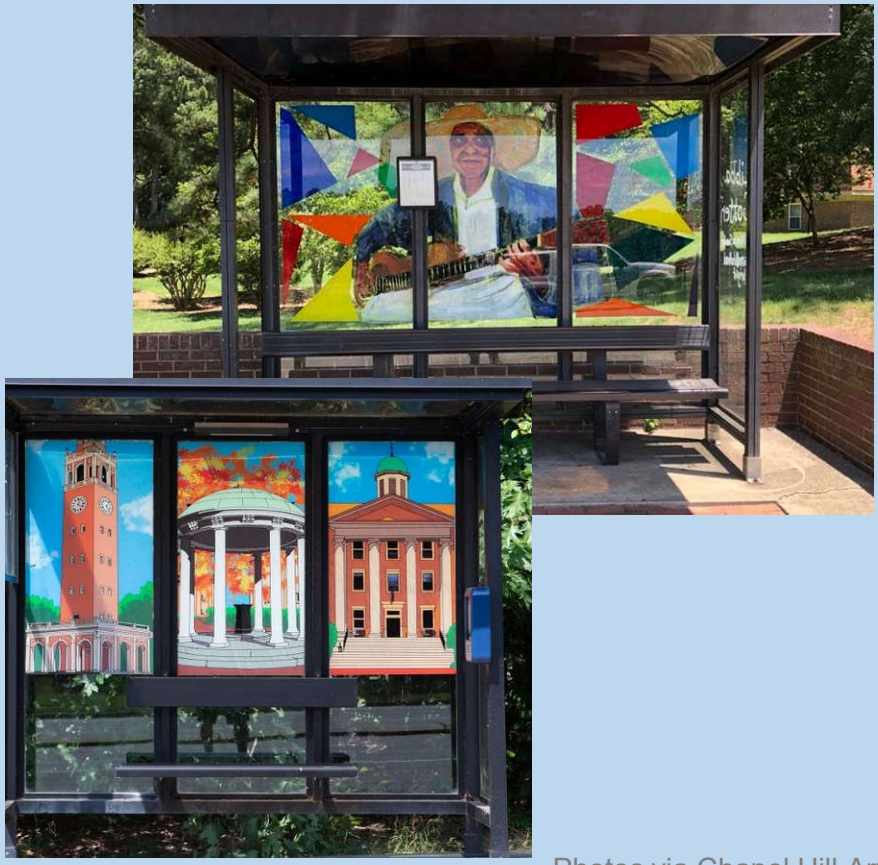
- On January 21, 2022, **FCDOT staff recommended windscreens** as the community charm element in the station design
- BRT team presented the overall themes & an initial outreach plan
- **BRT Executive Committee approved recommendation unanimously**



Per surveys taken in Nov. 2020 and March 2021

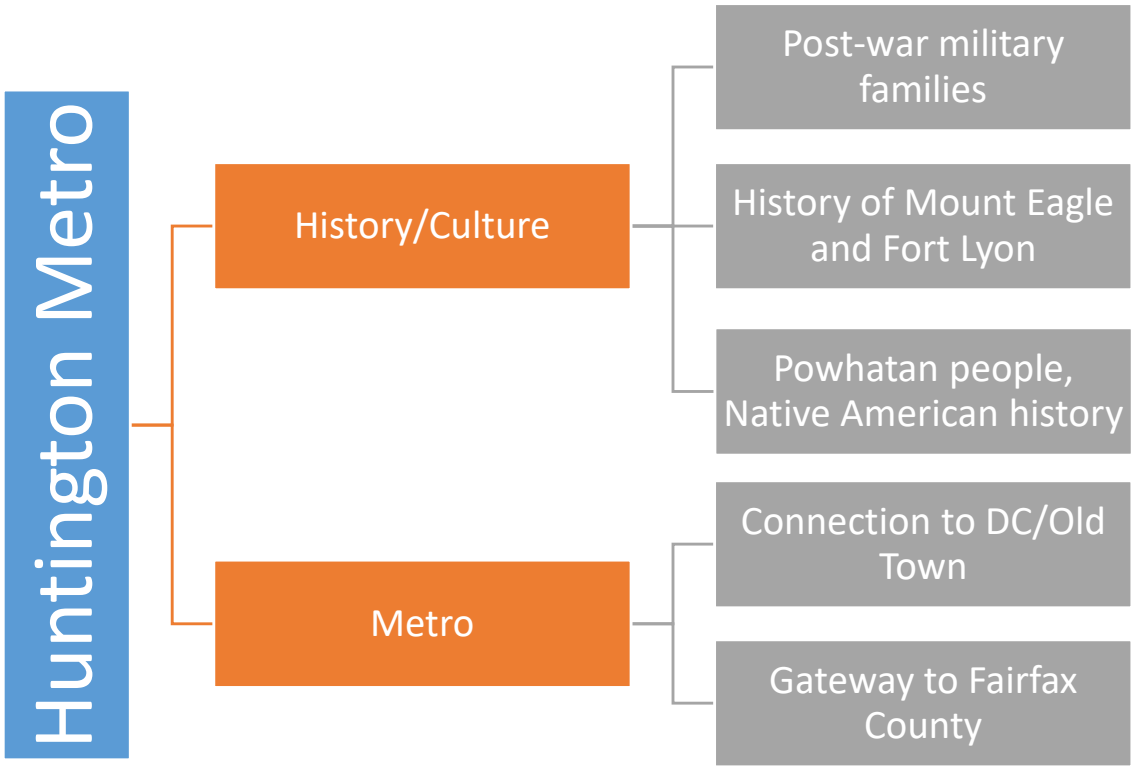
Station Windscreens

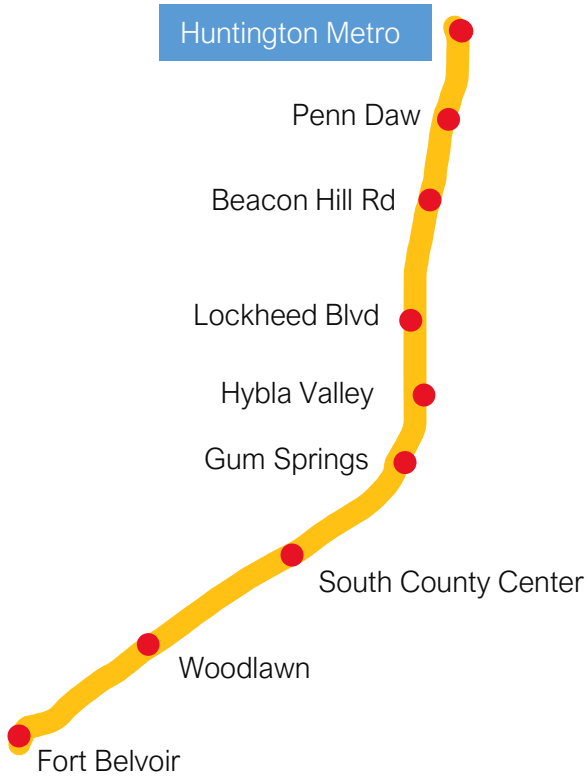
- Each station will have a unique artwork/design on the windscreen created by local high school students and youth
- Public outreach through the public information meeting and mini meetings will narrow down the theme for each station (from previous surveys)



Photos via Chapel Hill Arts

Example of Station Area Themes: Huntington Metro





Per surveys taken in Nov. 2020 and March 2021

FCDOT Serving Fairfax County for 25 Years and More

Community Outreach Process

PIM

Round 1 Mini Meetings
- Gather input on the specific theme(s) for the design
- Based on feedback, determine theme for each station

Narrative
- Planning Dept. (DPD) will develop narratives for each station
- DPD will collaborate with the History Commission

Design
- Students submit designs for each station based on the themes
- Work with Hayfield HS, Potomac HS and South County Teen Center

Round 2 Mini Meetings
- Present the narratives and designs to the public
- Community members offer feedback

Finalize
- Executive Committee votes on final designs

FCDOT Serving Fairfax County for 25 Years and More

Tentative Schedule

June/July 2022
Public Information Meeting

July/August 2022
Round 1 Mini Meetings

June to December 2022
DPD begins research and develops narratives

September to December 2022
Students work on designs

Late Winter/Early Spring 2023
Round 2 Mini Meetings

Late Spring 2023
Executive Committee votes on designs

FCDOT Serving Fairfax County for 25 Years and More

Current Status/Next Steps

1. Planning the public information meeting and mini meetings over late June and throughout the summer
2. Coordinating with Neighborhood Community Services (NCS) on upcoming summer events

Turn Lane Analysis

Richmond Highway Bus Rapid Transit

19

Background

- **As part of the BRT project design endorsement, the Board of Supervisors directed County staff to evaluate potential design modifications to narrow cross section along Richmond Highway**
- **Objectives were to enhance:**
  - BRT operations
  - Bicycle & pedestrian safety
  - Vehicular safety
  - Intersection Operations
  - Corridor Operations
- **13 intersections evaluated for potential left/right turn lane reductions**
- **Analysis was coordinated with VDOT**

FCDOT Serving Fairfax County for 25 Years and More

Intersections Studied

- **Intersections identified for potential turn lane reductions:**
  - Richmond Highway cross-section between Furman Lane and Shields Avenue
  - Richmond Highway & North Kings Highway/Shields Avenue
  - Richmond Highway & (New) Furman Lane Extension
  - Richmond Highway & Fordson Road/Boswell Avenue
  - Richmond Highway & Arlington Drive
  - Richmond Highway & Memorial Street
  - Richmond Highway & Beacon Hill Road
  - Richmond Highway & Southgate Drive
  - Richmond Highway & Sherwood Hall Lane
  - Richmond Highway & North Buckman Road/Mount Vernon Highway
  - Richmond Highway & Ladson Lane
  - Richmond Highway & Sacramento Drive/Cooper Road
  - Richmond Highway & Jeff Todd Way/Mount Vernon Memorial Highway

FCDOT Serving Fairfax County for 25 Years and More

Recommendations

Intersection with Richmond Highway	Potential Modification	Recommended for Implementation
Shields Avenue	Remove 2nd left turn lane along northbound Richmond Highway	No
	Reduce median width on north side of intersection	Yes
	Remove dedicated right turn lane along southbound Richmond Highway	Yes
	Remove 2nd dedicated right turn lane along eastbound Shields Avenue	No
	Replace asphalt with landscaped grass median along southbound Richmond Highway south of the intersection	Yes
	Remove/reduce the width of the grass medians south of the intersection	No
Entrance to Kings Crossing	Remove 4th through lane along northbound Richmond Highway	No
Furman Lane	Replace asphalt lane with grass median	Yes

FCDOT Serving Fairfax County for 25 Years and More

Recommendations

Intersection with Richmond Highway	Potential Modification	Recommended for Implementation
Southgate Drive	Remove through/right turn lane along southbound Richmond Highway	**Yes**
Beacon Hill Road	Remove dedicated right turn lane along southbound Richmond Highway	**No**
	Remove dedicated right turn lane along northbound Richmond Highway	**Yes**
Memorial Street	Remove dedicated right turn lane along eastbound Memorial Street	**No (dual purposed for future off-peak parking)**
	Remove dedicated right turn lane along southbound Richmond Highway	**No**
Arlington Drive	Remove dedicated right turn lane along westbound Arlington Drive	**No**
Fordson Road/Boswell Avenue	Remove dedicated right turn lane along eastbound Fordson Road	**No**
Sherwood Hall Lane	Remove dedicated right turn lane along northbound Richmond Highway	**No**
	Remove 2nd left turn lane along northbound Richmond Highway	**Yes**
	Remove dedicated right turn lane along southbound Richmond Highway	**Yes**
	Remove dedicated right turn lane along eastbound Sherwood Hall Lane	**No**

FCDOT
Serving Fairfax County for 25 Years and More

Recommendations

Intersection with Richmond Highway	Potential Modification	Recommended for Implementation
Ladson Lane	Remove through/right turn lane along southbound Richmond Highway	**No**
	Remove dedicated right turn lane along eastbound Ladson Lane	**Yes**
North Buckman Road/Mount Vernon Highway	Remove through/right turn lane along eastbound North Buckman Road	**Yes**
	Remove dedicated right turn lane along southbound Richmond Highway	**No**
	Remove 2nd left turn lane along southbound Richmond Highway	**No**
	Remove dedicated right turn lane along westbound Mount Vernon Highway	**No**
	Remove dedicated right turn lane along northbound Richmond Highway	**Yes**
	Remove dedicated northbound left turn lane along Richmond Highway	**Yes**
Sacramento Drive/Cooper Road	Remove dedicated right turn lane along eastbound Sacramento Drive	**No (dual purposed for future off-peak parking)**
Jeff Todd Way/Mount Vernon Memorial Highway	Remove dedicated right turn lane along westbound Mount Vernon Memorial Highway	**No**
	Remove 2nd left turn lane along westbound Mount Vernon Memorial Highway	**No**

FCDOT Serving Fairfax County for 25 Years and More

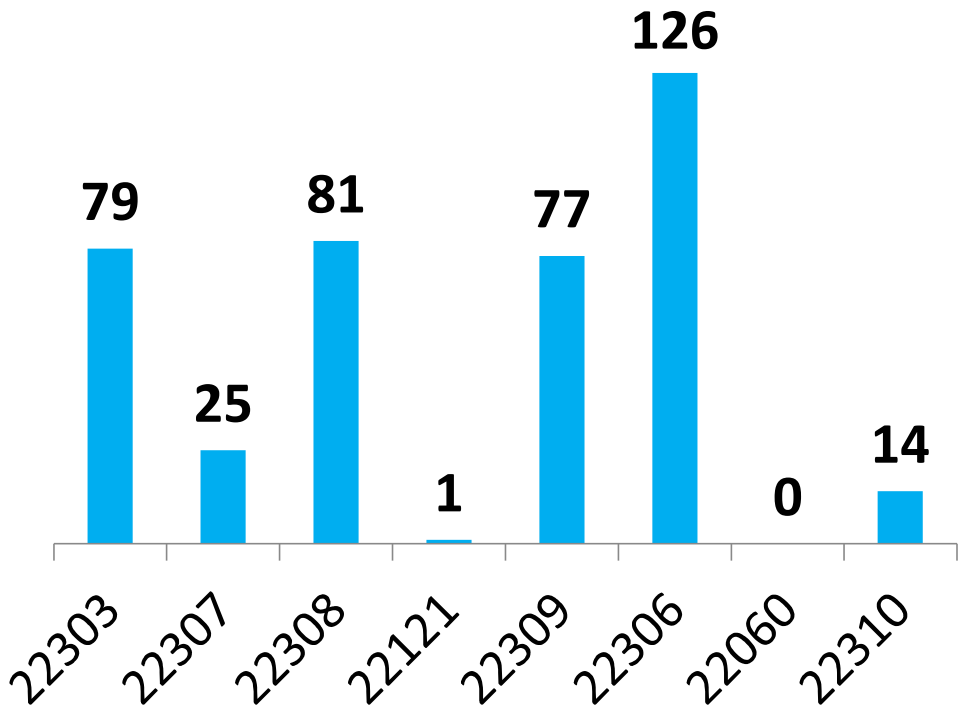
Survey Questions

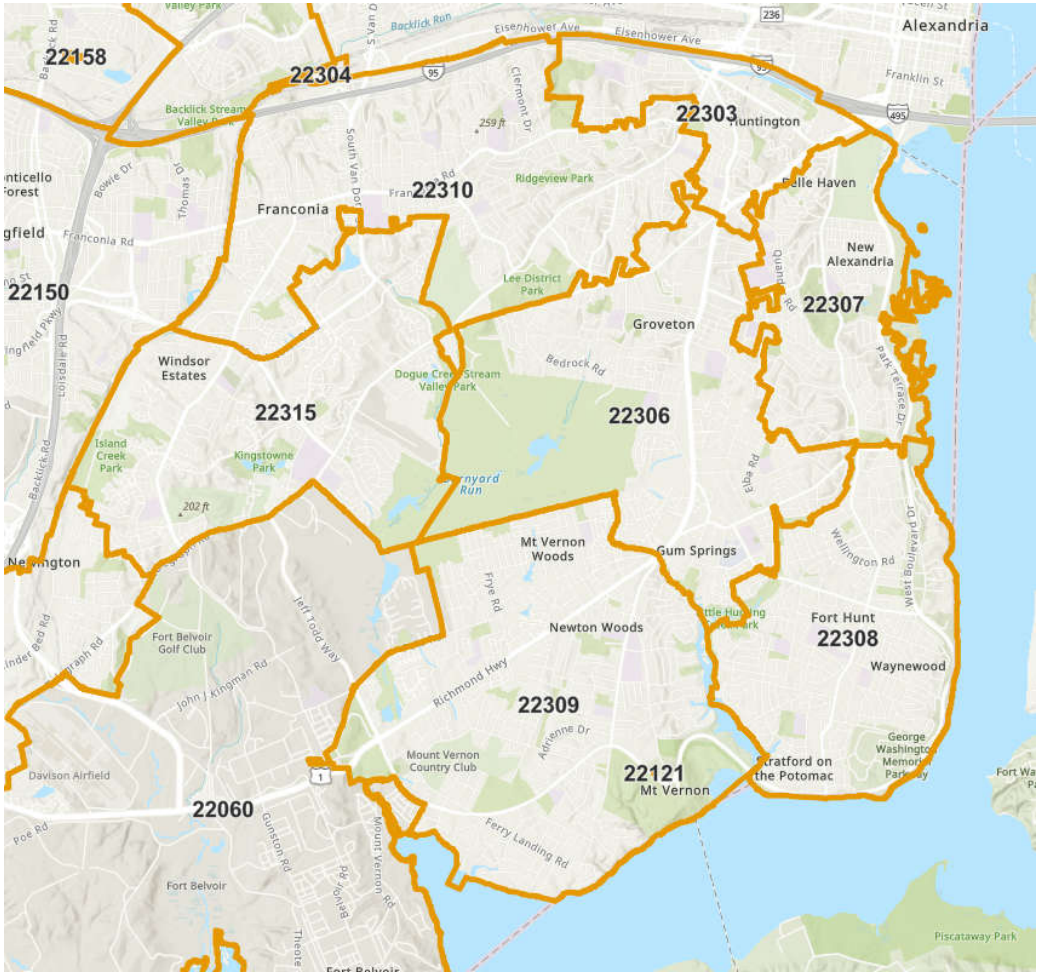
- **ZIP Code**
- **Neighborhood**
- **Age**
- **Transit riding frequency**
- **Driving frequency**
- **For each intersection studied:**
  - Listed the intersection change that was studied along with a note about whether or not the change is recommended by staff
  - Asked, “Do you agree with the staff recommendations about the potential modifications studied for the [intersection] area?”
  - Answer choices were “Yes” / “No” / “No opinion”, with opportunity to provide additional comments

Survey Responses

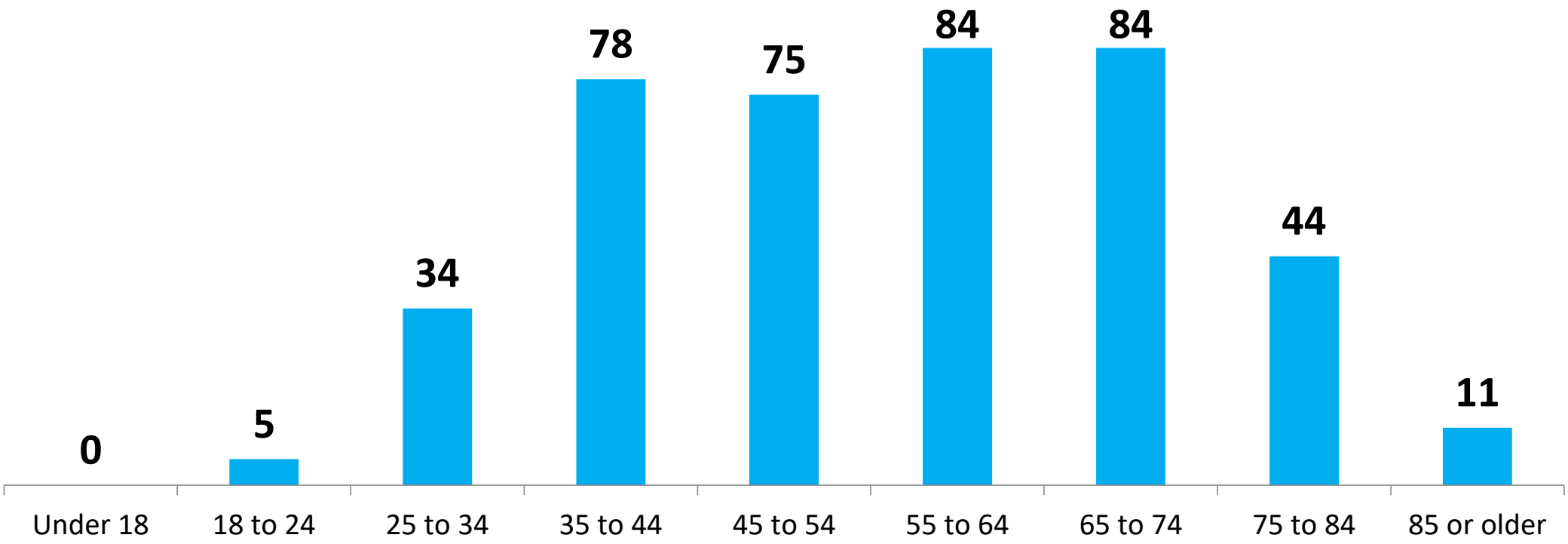
- **Survey and comment period were open May 3 - May 31, 2022.**
- **There were 430 responses overall, though not all respondents answered all questions.**
  - About 200-250 people responded to each of the intersection questions.
- **Surveys in English and Spanish were available online as well as on paper at the public meeting on May 3.**

ZIP code

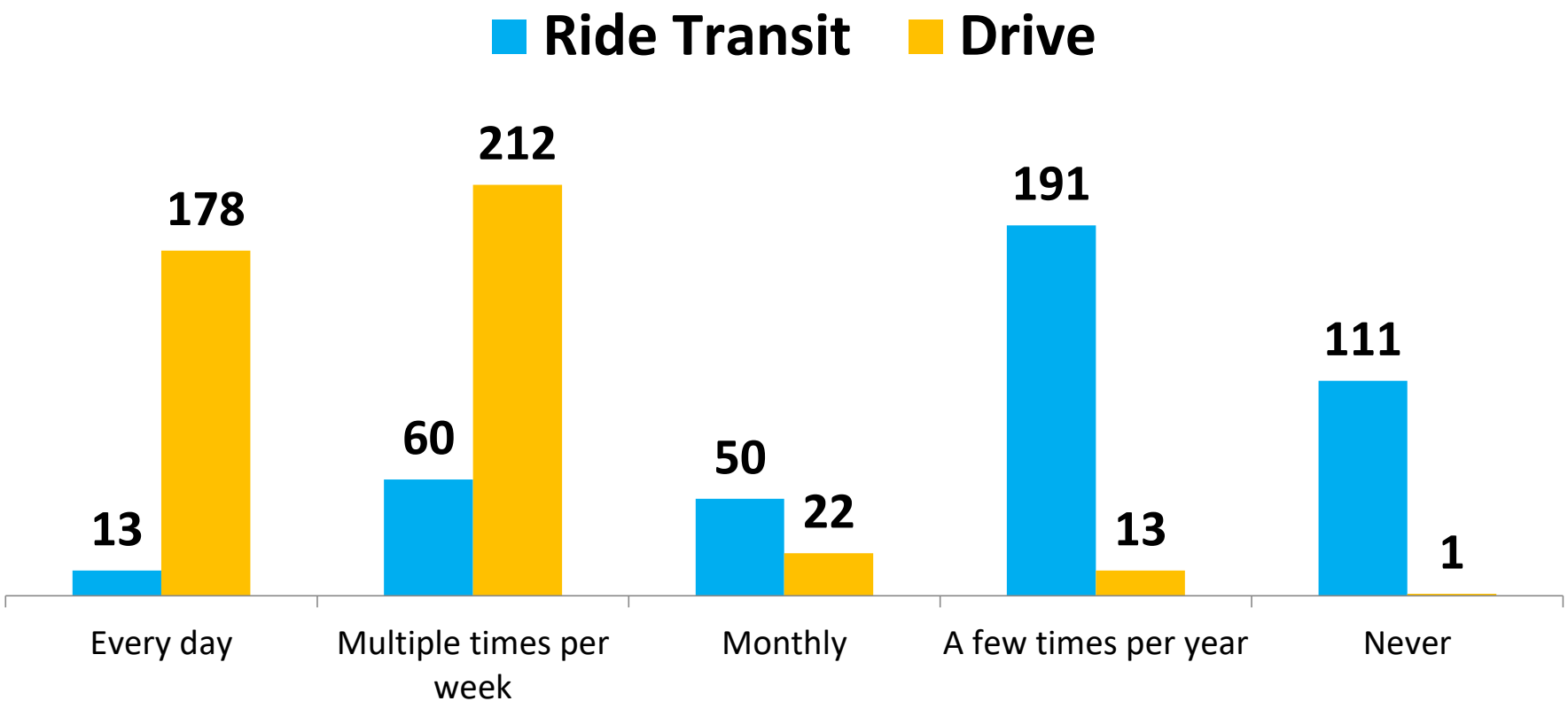

79
25
81
1
77
126
0
14
22303
22307
22308
22121
22309
22306
22060
22310


22158
22304
22303
Huntington
Alexandria
Franconia
22310
Belle Haven
New Alexandria
22150
22307
Groveton
Windsor Estates
22315
22306
Mt Vernon Woods
Gum Springs
Newton Woods
Fort Hunt
22308
Waynewood
22309
Fort Belvoir Golf Club
Mount Vernon Country Club
22121
Mt Vernon
Davison Airfield
22060
Fort Belvoir
Piscataway Park

Age


0
5
34
78
75
84
84
44
11
Under 18
18 to 24
25 to 34
35 to 44
45 to 54
55 to 64
65 to 74
75 to 84
85 or older

Travel Habits Today



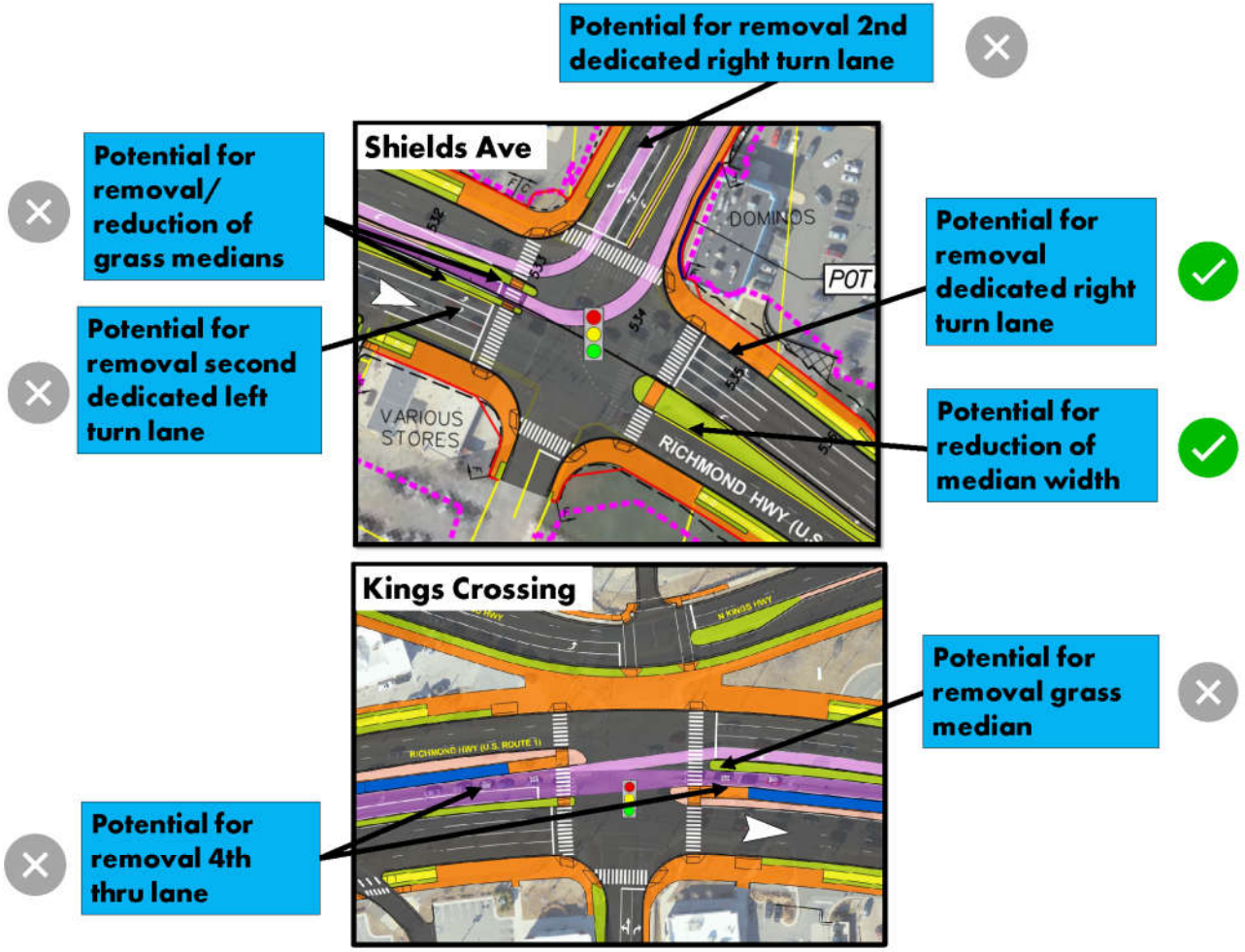
All Intersections

Design & Response

PENN DAW AREA – SHIELDS AVE & KINGS CROSSING

Potential modifications: Remove/ reduce the width of the grass medians north and south of the intersection at Shields Avenue

- Median width necessary for proper clearance behind the southbound Penn Daw BRT platform

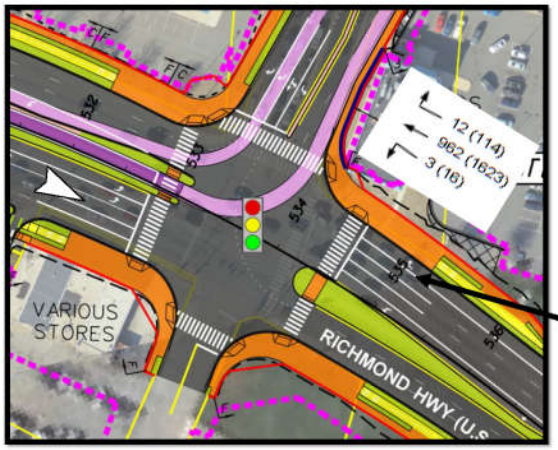


LEGEND	Potential modifications for analysis/evaluation	Change not proposed for inclusion in design	Change proposed for inclusion in design	Direction of Northbound Richmond Highway Travel

PENN DAW AREA – SHIELDS AVE

Potential modification: Removal of southbound right turn (SBR) lane along Richmond Highway

- **Impact to max queues:**
  - AM: 275′ to 300′
  - PM: 1400′ to 1600′



Potential for removal of southbound right turn lane

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	SB R	SB Approach	Overall Intersection	SB R	SB Approach	Overall Intersection
Base Design	23.5	28.9	32.2	112.5	79.0	85.3
Lane Reduction	27.7	29.2	32.3	99.9	73.9	78.2

Findings for Removal of Southbound Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	Potential 3 sec. reduction
Potential conflicts	Potential increase for rear-ends
Delay	No significant impact
Existing lane (Y/N)	Yes (shared thru/right)
Cost impacts/other considerations	VDOT Design Waiver
Recommendation	Remove

LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

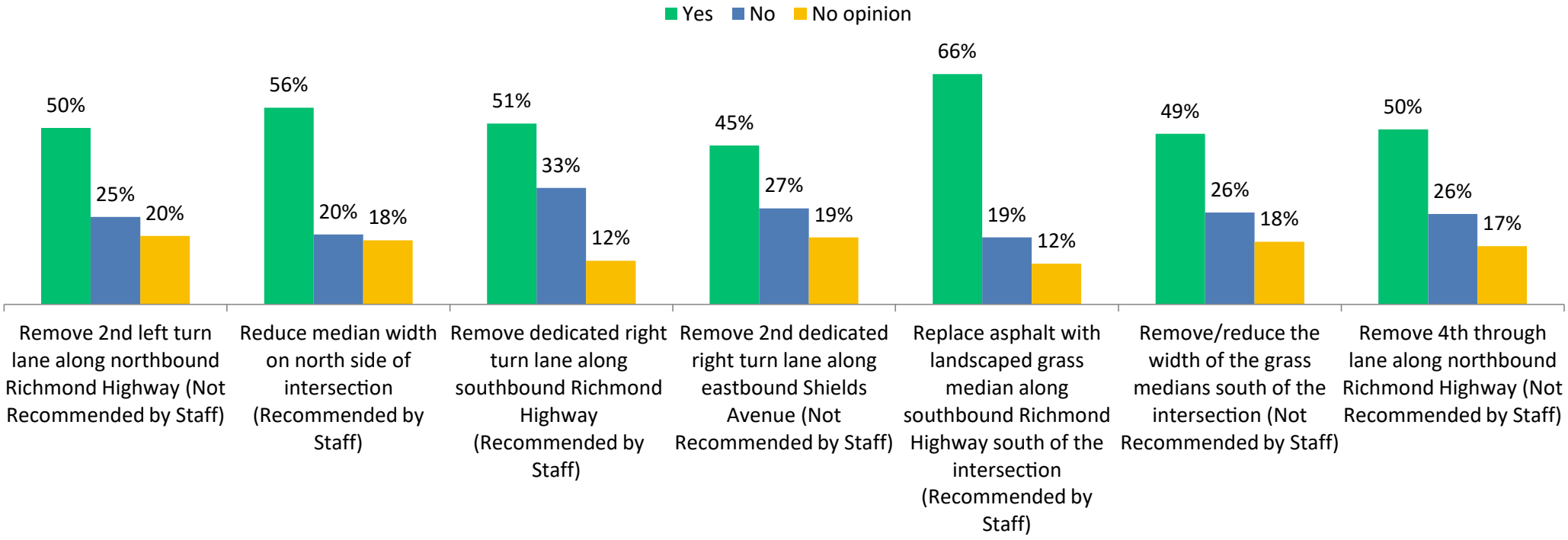
Change proposed for inclusion in design

Direction of Northbound Richmond Highway Travel

Penn Daw

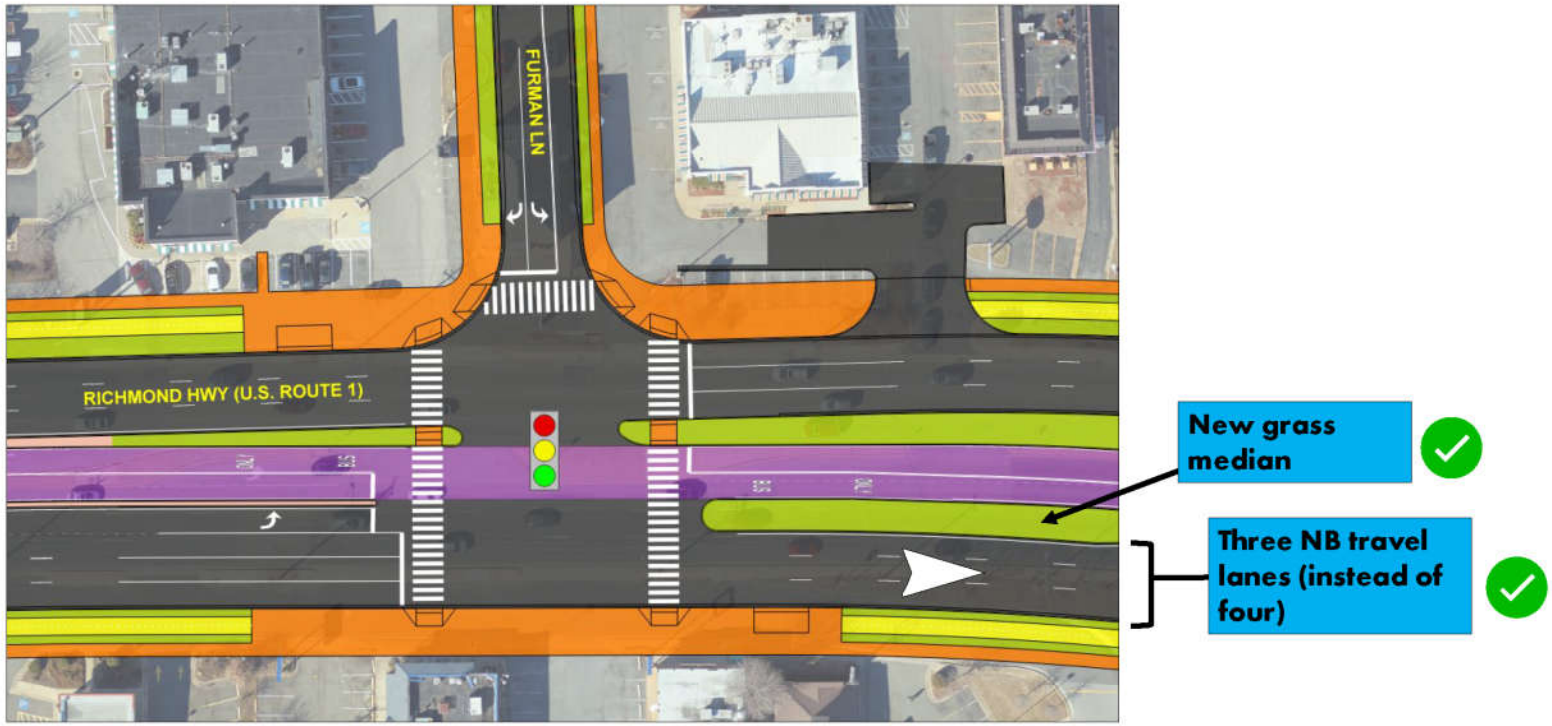
241 responses

Do you agree with the staff recommendations about the potential modifications studied for the Penn Daw area?



NEW FURMAN LANE EXTENSION

Potential modification: Grass median added to the design and 4th thru lane removed

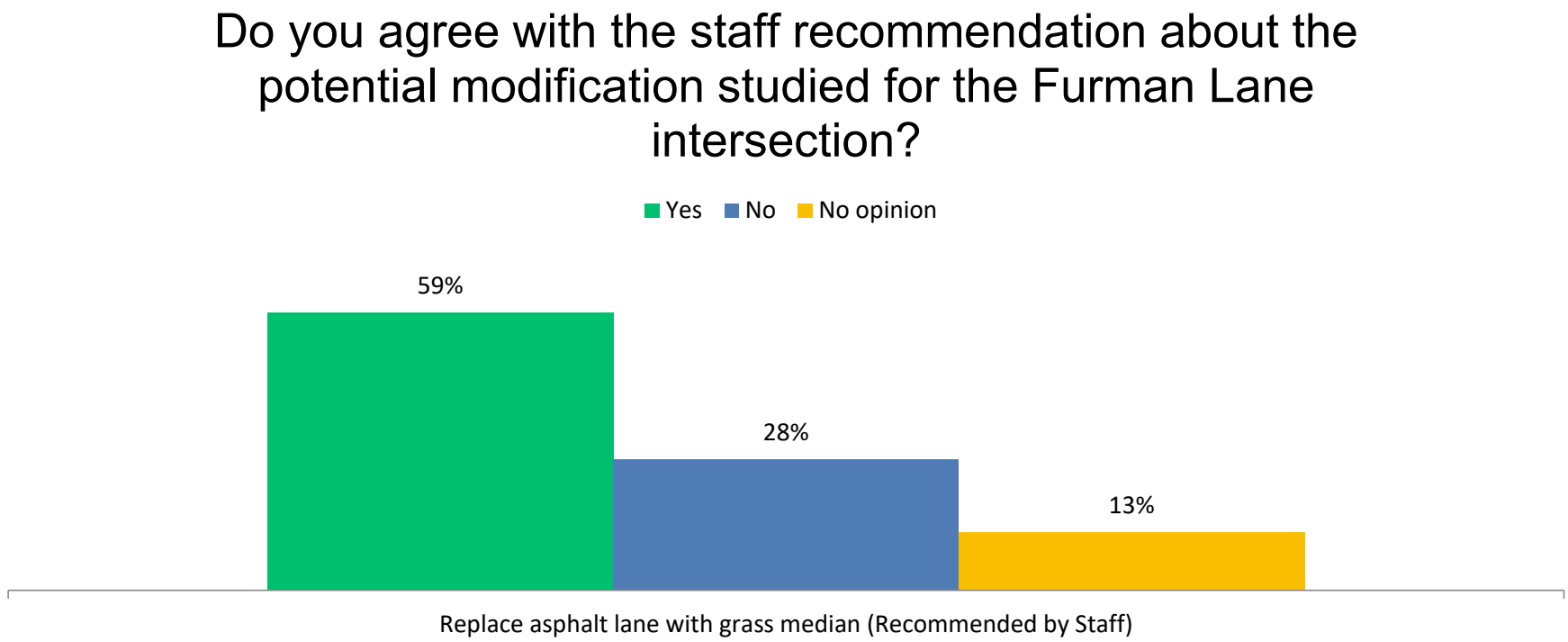


LEGEND

- Potential modifications for analysis/evaluation
- Change not proposed for inclusion in design
- Change proposed for inclusion in design
- Direction of Northbound Richmond Highway Travel

Furman Lane

232 responses

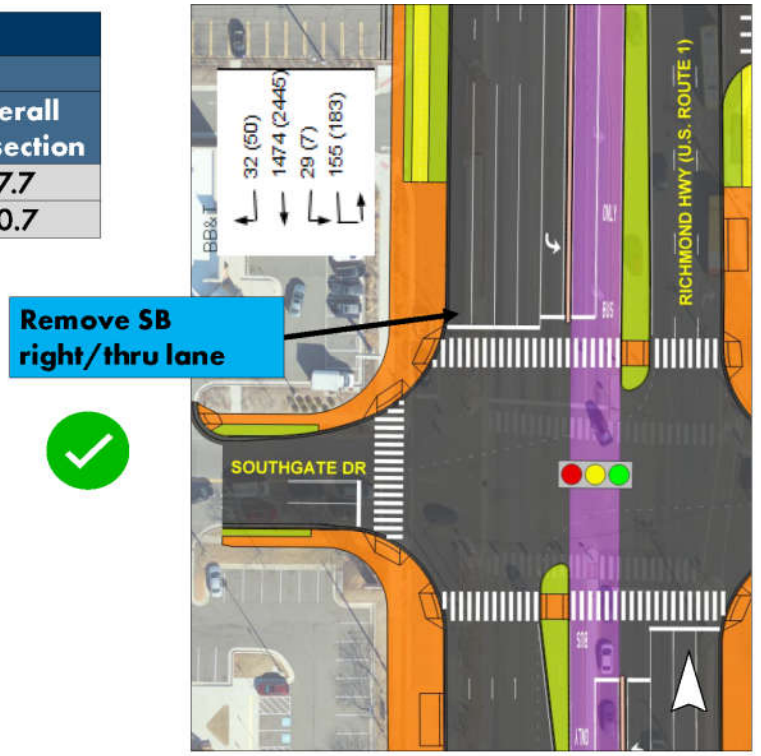


SOUTHGATE DRIVE

Potential modification: Removal of southbound thru/right turn lane (SBR) along Richmond Highway

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	SB R	SB Approach	Overall Intersection	SB R	SB Approach	Overall Intersection
Base Design	14.7	34.8	20.9	11.4	18.3	17.7
Lane Reduction	26.2	42.5	23.9	41.2	40.9	30.7

Findings for Removal of SB Thru/Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	Potential 3 sec. reduction
Potential conflicts	Potential increase for rear-ends
Delay	Increased SB delay (20+ sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	Additional project cost, VDOT Design Waiver
Recommendation	Remove

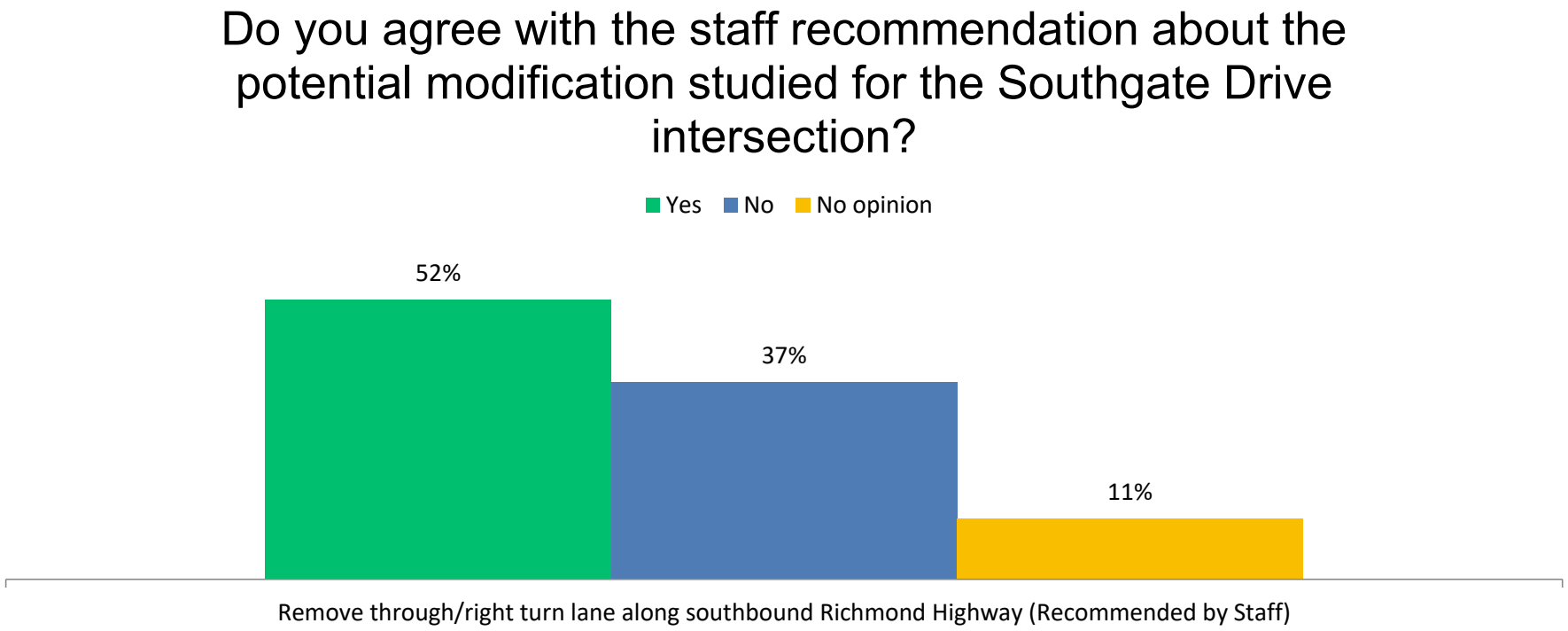


LEGEND

- **Potential modifications for analysis/evaluation**
- **Change not proposed for inclusion in design**
- **Change proposed for inclusion in design**
- **Direction of Northbound Richmond Highway Travel**

Southgate Drive

240 responses

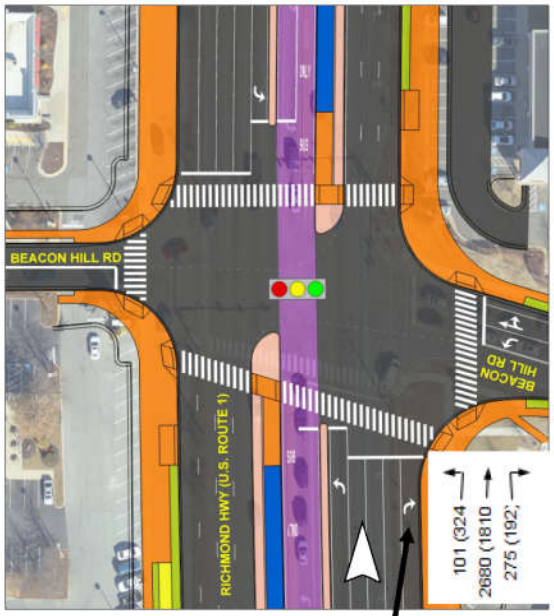


BEACON HILL ROAD - NORTHBOUND

Potential modification: Removal of northbound right turn (NBR) lane along Richmond Highway

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	NB R	NB Approach	Overall Intersection	NB R	NB Approach	Overall Intersection
Base Design	3.6	41.7	51.5	3.7	36.0	52.5
Lane Reduction	40.6	43.9	51.0	21.2	33.5	55.5

Findings for Removal of NB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	Potential 3 sec. reduction
Potential conflicts	Potential increase for rear-ends
Delay	Increased SBR delay (20+ sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	VDOT Design Waiver
Recommendation	Remove



LEGEND

- **Potential modifications for analysis/evaluation**
- **Change not proposed for inclusion in design**
- **Change proposed for inclusion in design**
- **Direction of Northbound Richmond Highway Travel**

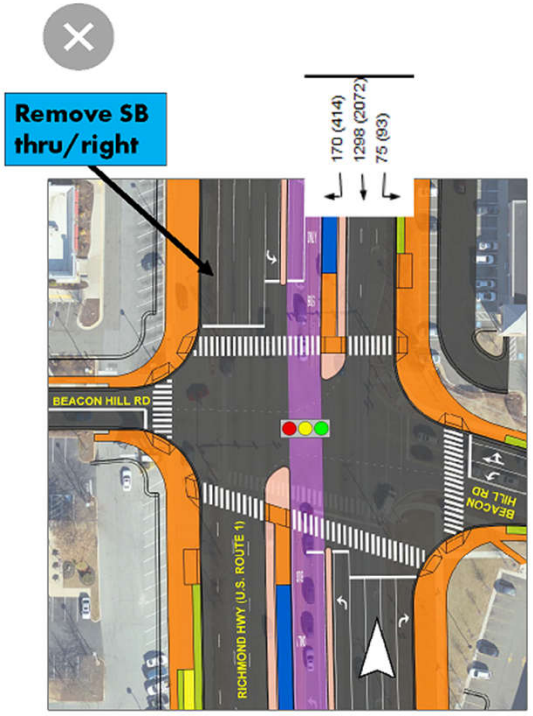
Still under review

BEACON HILL ROAD - SOUTHBOUND

Potential modification: Removal of southbound thru/right turn lane (SBR) along Richmond Highway

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	SB R	SB Approach	Overall Intersection	SB R	SB Approach	Overall Intersection
Base Design	18.7	22.6	51.5	32.0	35.0	52.5
Lane Reduction	16.1	20.3	51.0	46.4	42.6	55.5

Findings for Removal of SB Thru/Right Turn Lane	
BRT impact	Potential impact
Ped. crossing distance	11-foot reduction
Walk time for signal	Potential 3 sec. reduction
Potential conflicts	Potential increase for rear-ends
Delay	Increased SBR delay (20+ sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	Additional project cost, VDOT Design Waiver
Recommendation	Do not remove



Maximum Queue Lengths

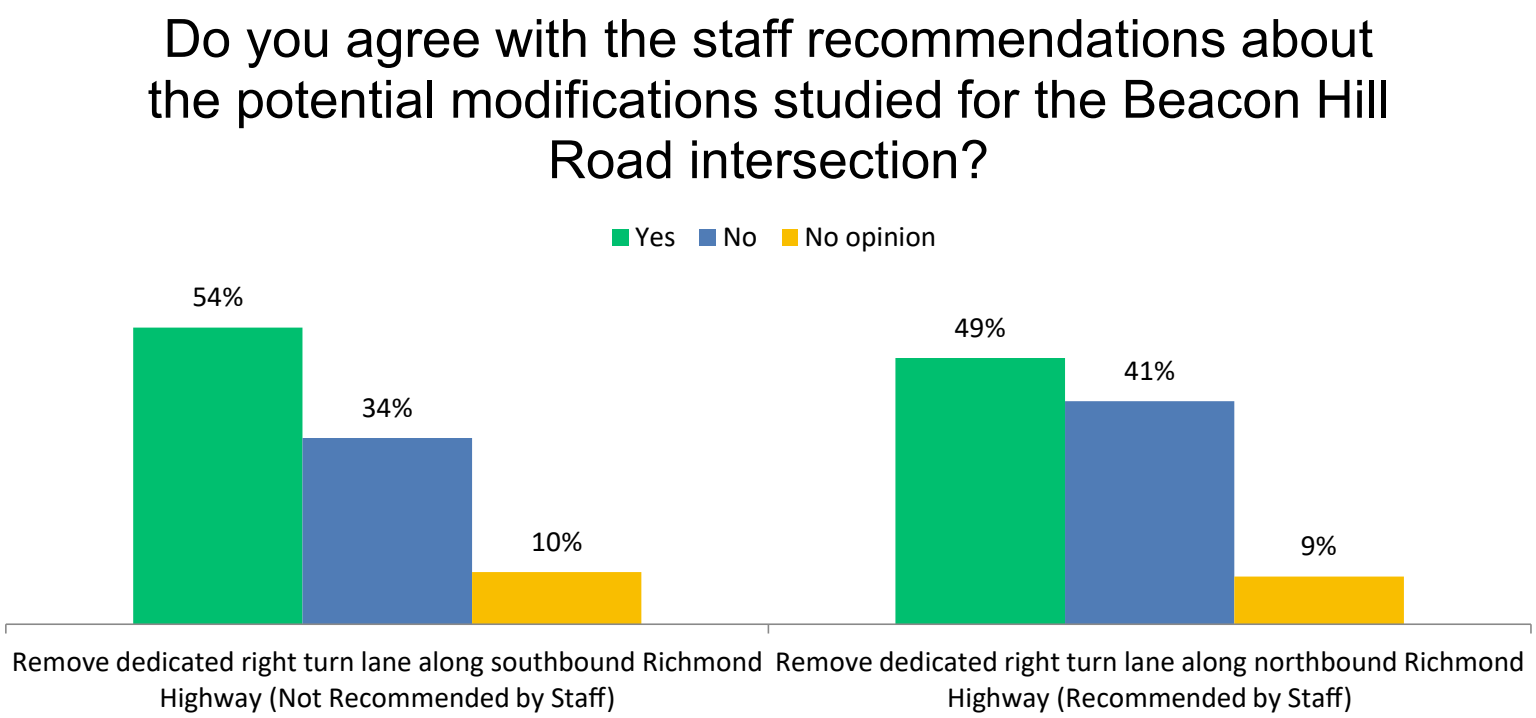
- Base Design AM
- Base Design PM
- Lane Reduction AM
- Lane Reduction PM
- Queue Length XXX (feet)

LEGEND

- **Potential modifications for analysis/evaluation**
- **Change not proposed for inclusion in design**
- **Change proposed for inclusion in design**
- **Direction of Northbound Richmond Highway Travel**

Beacon Hill Road

252 responses



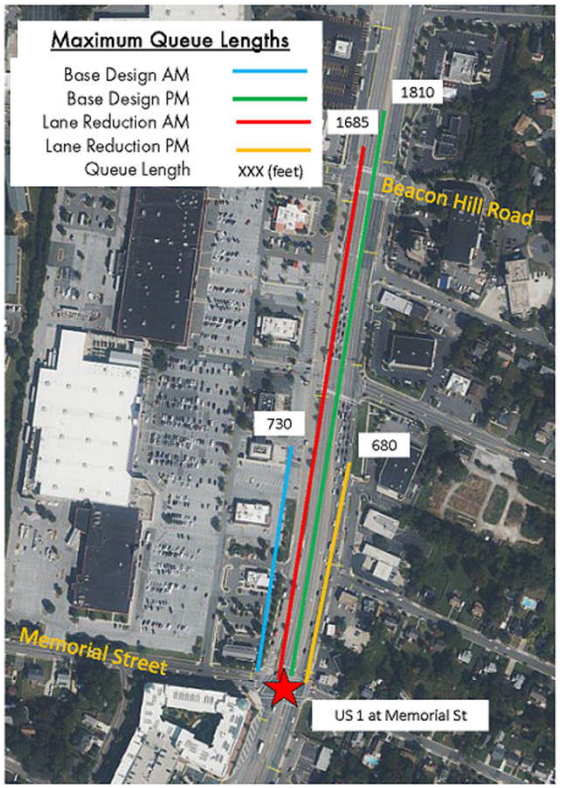
MEMORIAL STREET - SOUTHBOUND

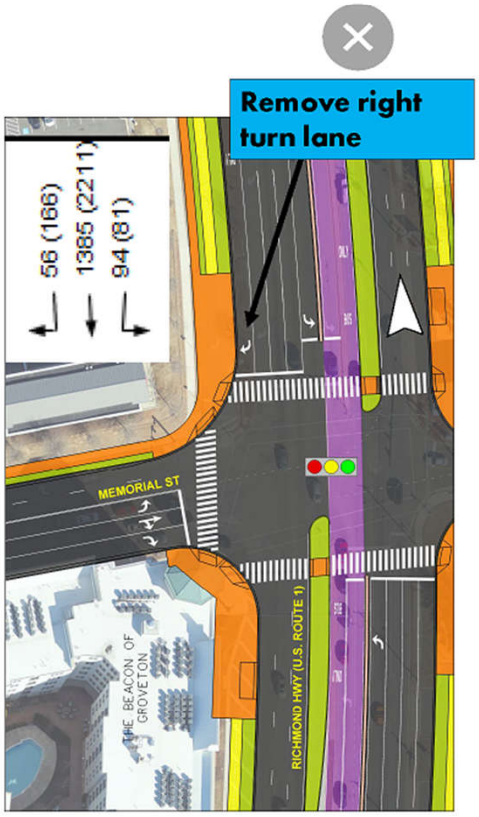
Potential modification: Removal of southbound right turn (SBR) lane along Richmond Highway

- Impacts at Beacon Hill Road affect the results for Memorial Street SB approach by metering in the PM

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	SB R	SB Approach	Overall Intersection	SB R	SB Approach	Overall Intersection
Base Design	8.5	25.8	27.0	7.5	26.2	26.1
Lane Reduction	15.1	26.3	33.5	31.2	28.1	38.0

Findings for Removal of SB Right Turn Lane	
BRT impact	Potential impact
Ped. crossing distance	11-foot reduction
Walk time for signal	Potential 3 sec. reduction
Potential conflicts	Potential increase for rear-ends
Delay	Increased SBR delay (20+ sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	Additional project cost
Recommendation	Do not remove





LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

Change proposed for inclusion in design

Direction of Northbound Richmond Highway Travel

MEMORIAL STREET - EASTBOUND

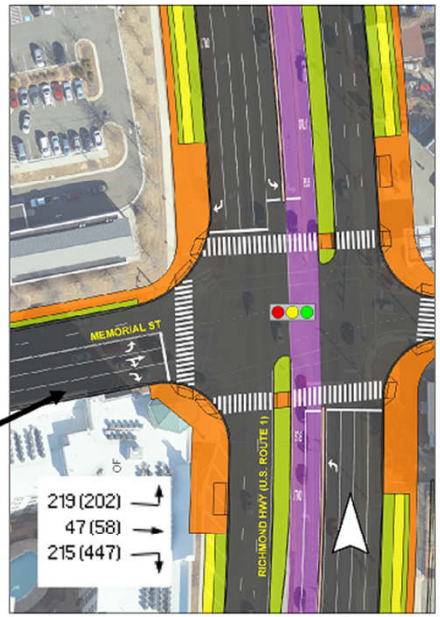
Potential modification: Removal of eastbound right turn

- As development occurs, lane will be dual purposed for future off-peak parking
-

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	EB R	EB Approach	Overall Intersection	EB R	EB Approach	Overall Intersection
Base Design	35.6	69.7	27.0	35.3	49.9	26.1
Lane Reduction	150.6	171.8	33.5	137.4	141.3	38.0

Findings for Removal of EB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	With mainline green
Potential conflicts	Potential increase for rear-ends
Delay	Increased EB delay (100+ sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	Additional project cost, possible VDOT design waiver
Recommendation	Do not remove

Potential for removal of right turn lane



LEGEND

Potential modifications for analysis/evaluation

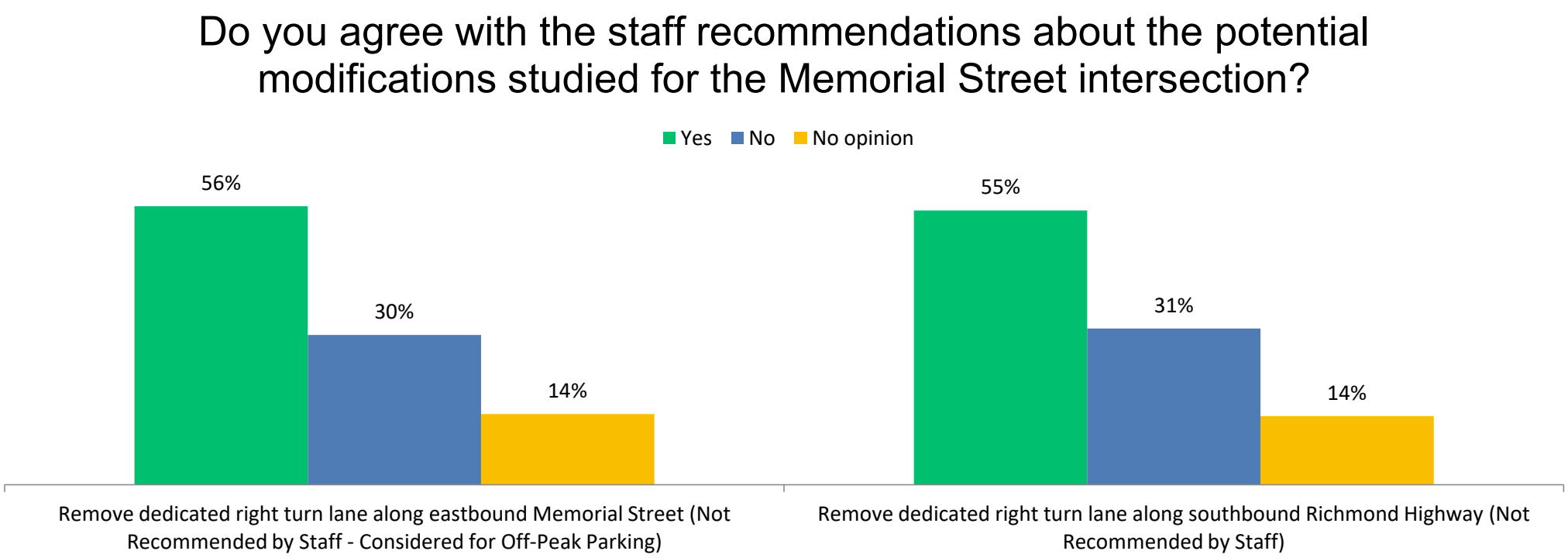
Change not proposed for inclusion in design

Change proposed for inclusion in design

Direction of Northbound Richmond Highway Travel

Memorial Street

234 responses

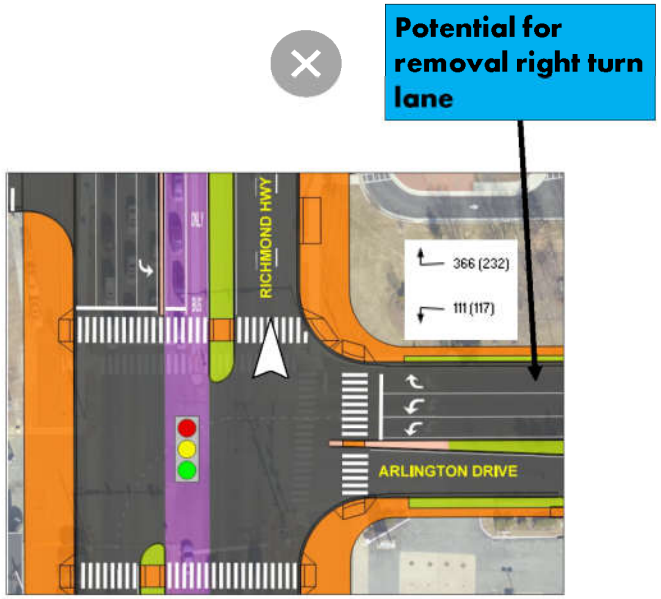


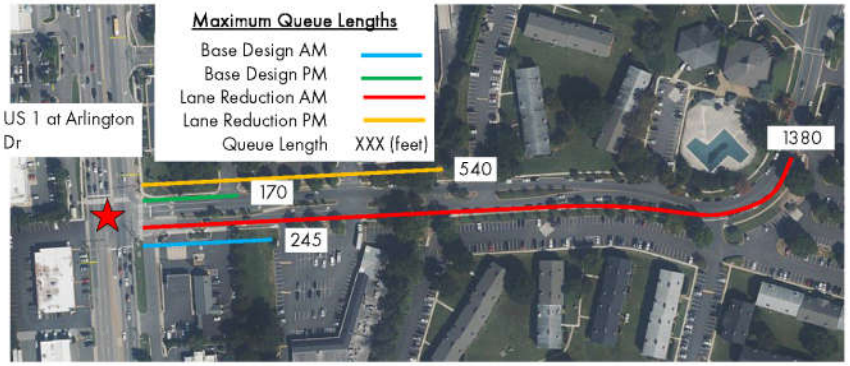
ARLINGTON DRIVE

Potential modification: Removal of westbound right turn (WBR) lane along Arlington Drive

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	WB R	WB Approach	Overall Intersection	WB R	WB Approach	Overall Intersection
Base Design	13.1	28.9	17.6	8.5	33.2	23.0
Lane Reduction	67.9	73.0	26.1	62.8	70.0	26.8

Findings for Removal of WB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	With mainline green
Potential conflicts	Potential increase for rear-ends
Delay	Increased WB delay (45 sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	Additional project cost, possible VDOT design waiver
Recommendation	Do not remove





LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

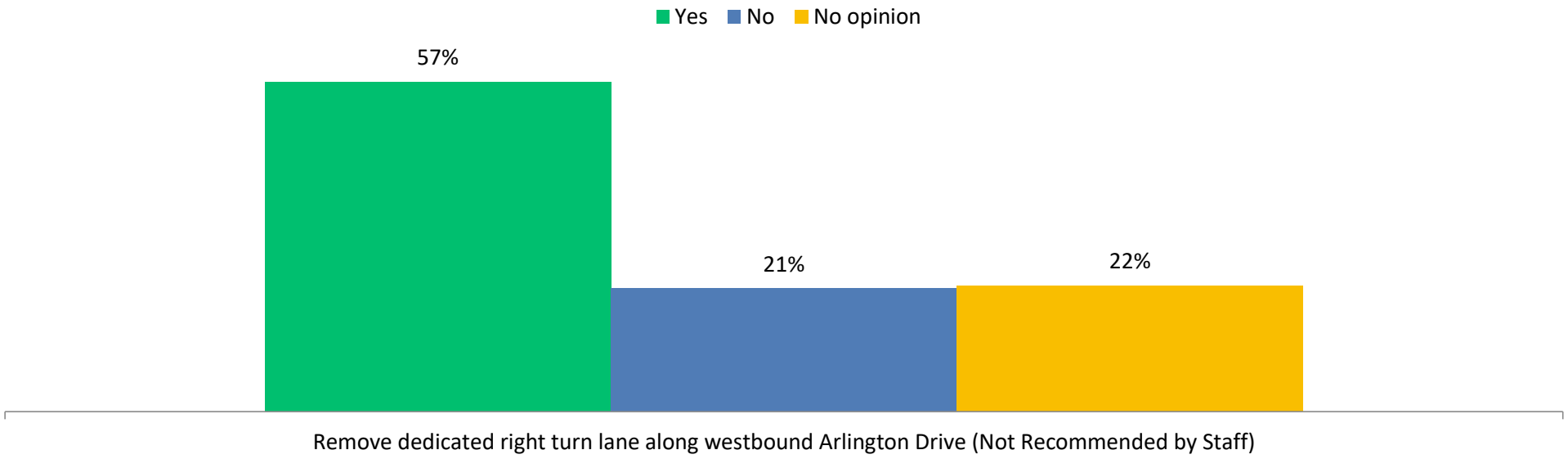
Change proposed for inclusion in design

Direction of Northbound Richmond Highway Travel

Arlington Drive

216 responses

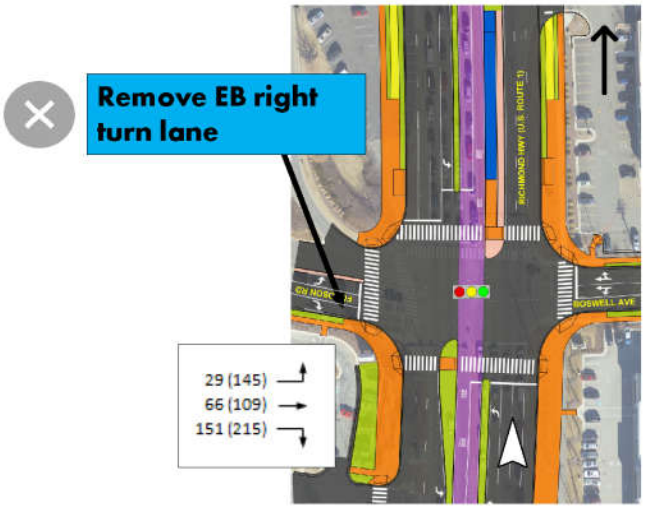
Do you agree with the staff recommendation about the potential modification studied for the Arlington Drive intersection?



FORDSON RD / BOSWELL AVE

Potential modification: Removal of eastbound right turn (EBR) lane along Fordson Road

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	EB R	EB Approach	Overall Intersection	EB R	EB Approach	Overall Intersection
Base Design	42.5	64.4	42.6	26.5	53.9	30.5
Lane Reduction	144.7	161.7	48.5	351.4	352.1	41.2



Findings for Removal of EB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	With mainline green
Potential conflicts	Potential increase for rear-ends
Delay	Increased EB delay (100-300 sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	Additional project cost, possible VDOT design waiver
Recommendation	Do not remove

LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

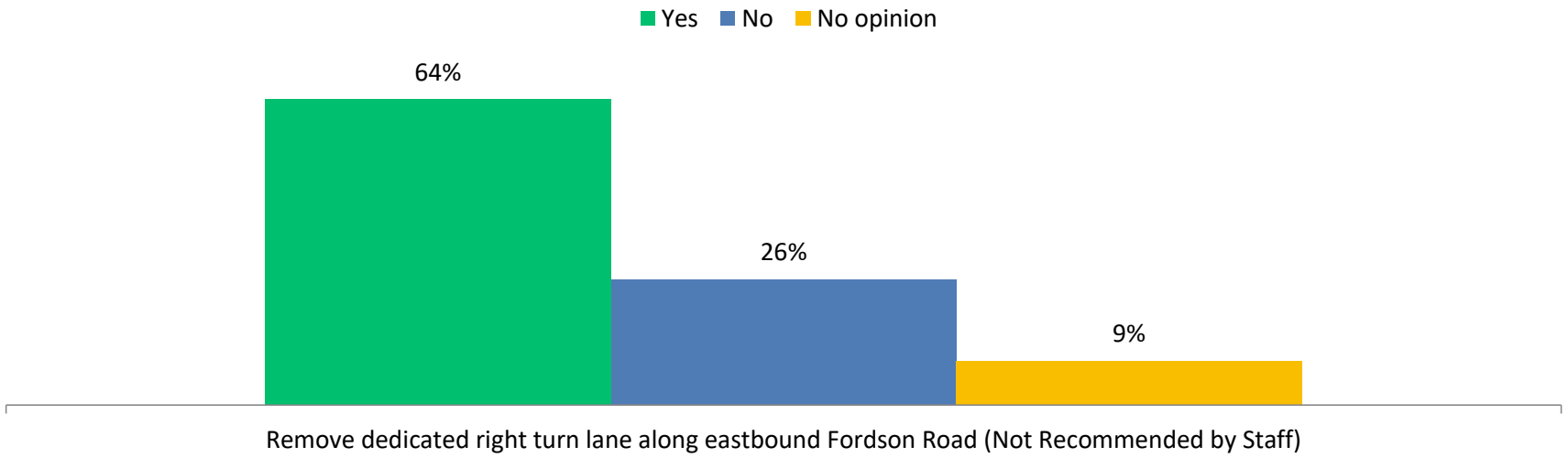
Change proposed for inclusion in design

Direction of Northbound Richmond Highway Travel

Fordson/Boswell

238 responses

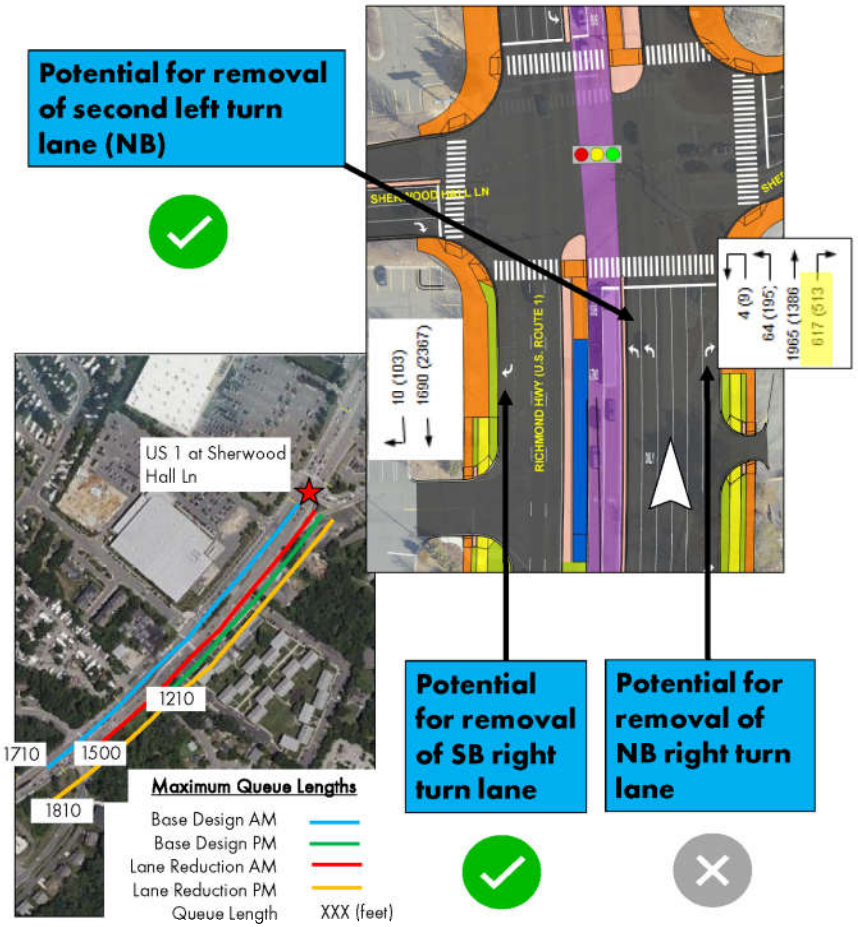
Do you agree with the staff recommendation about the potential modification studied for the Fordson Road/Boswell Avenue intersection?



SHERWOOD HALL LANE - NORTHBOUND

Intersection Delay (sec.)								
	AM Peak Hour				PM Peak Hour			
	NB R	NB L	NB Approach	Overall Intersection	NB R	NB L	NB Approach	Overall Intersection
Base Design	15.8	83.4	21.7	34.3	8.0	66.1	15.1	48.6
Lane Reduction	18.5	98.7	17.1	31.2	12.8	44.5	13.7	61.0

	Findings for Removal of SB Right Turn Lane	Findings for Removal of NB Left Turn Lane	Findings for Removal of NB Right Turn Lane
BRT impact	No impact	No impact	No impact
Ped. crossing distance	11-foot reduction	6-foot reduction	11-foot reduction
Walk time for signal	Potential 3 sec. reduction	Potential 2 sec. reduction	Potential 3 sec. reduction
Potential conflicts	Potential increase for rear-ends	Potential increase for rear-ends	Potential increase for rear-ends
Delay	N/A	Increased Overall delay (12 sec.)	Increased SBR delay (20+ sec.)
Existing lane (Y/N)	Yes	Yes	Yes (channelized turn)
Cost impacts/other considerations	Additional project cost	Additional project cost	Additional project cost, VDOT Design Waiver
Recommendation	Remove	Remove	Do not remove



LEGEND

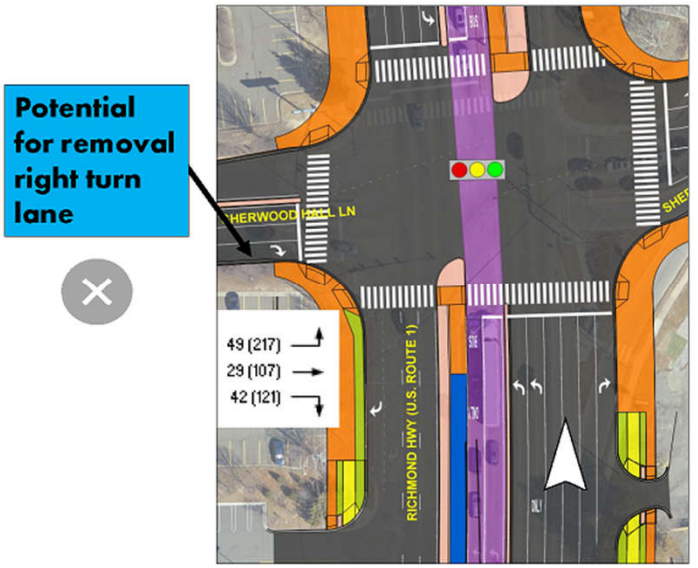
- **Potential modifications for analysis/evaluation**
- **Change not proposed for inclusion in design**
- **Change proposed for inclusion in design**
- **Direction of Northbound Richmond Highway Travel**

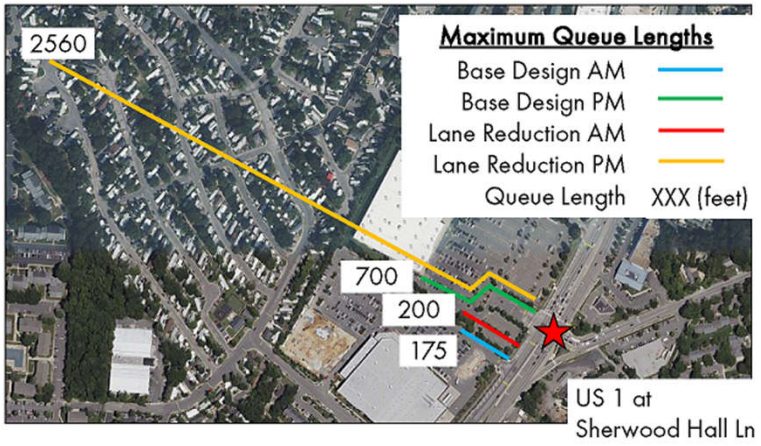
SHERWOOD HALL LANE - EASTBOUND

Potential modification: Removal of eastbound right turn lane (EBR) along Sherwood Hall Lane

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	EB R	EB Approach	Overall Intersection	EB R	EB Approach	Overall Intersection
Base Design	6.9	60.3	34.3	19.0	62.1	48.6
Lane Reduction	34.3	64.8	31.2	217.5	242.3	61.0

Findings for Removal of EB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	With mainline green
Potential conflicts	Potential increase for rear-ends
Delay	Increased EB delay (180 sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	Additional project cost
Recommendation	Do not remove





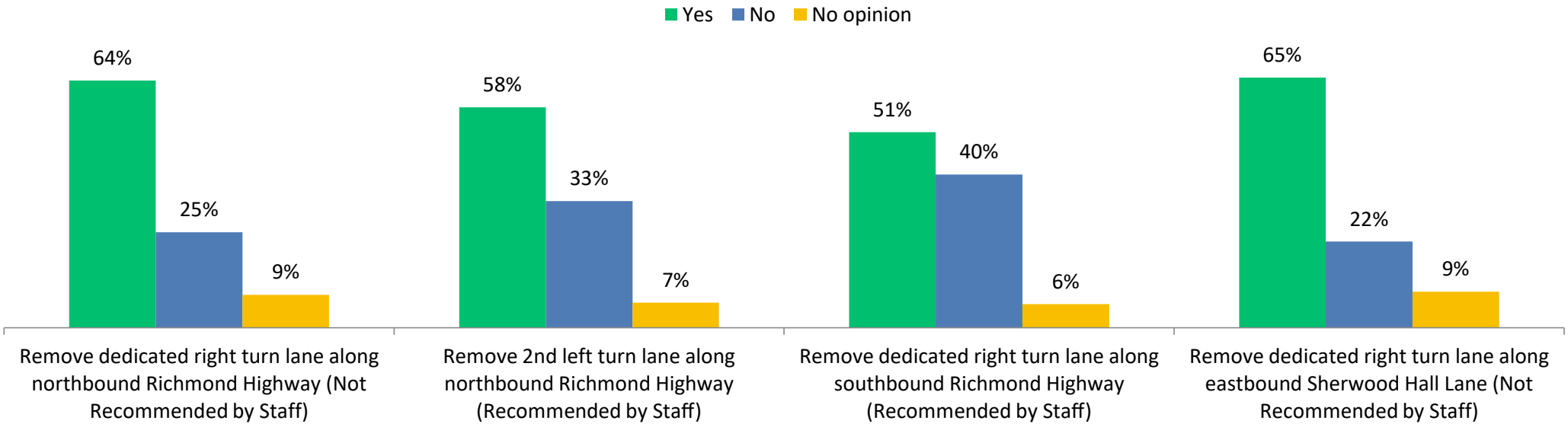
LEGEND

- **Potential modifications for analysis/evaluation**
- **Change not proposed for inclusion in design**
- **Change proposed for inclusion in design**
- **Direction of Northbound Richmond Highway Travel**

Sherwood Hall Lane

245 responses

Do you agree with the staff recommendations about the potential modifications studied for the Sherwood Hall Lane intersection?

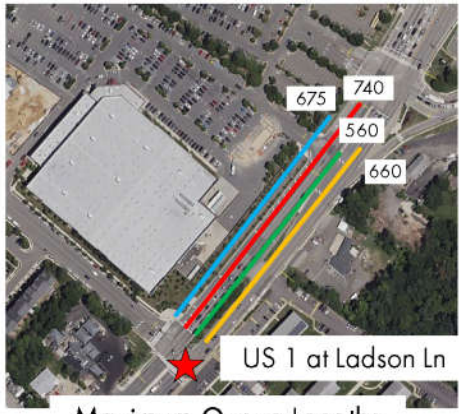


LADSON LANE - SOUTHBOUND

Potential modification: Removal of southbound thru/right lane (SBR) along Richmond Highway

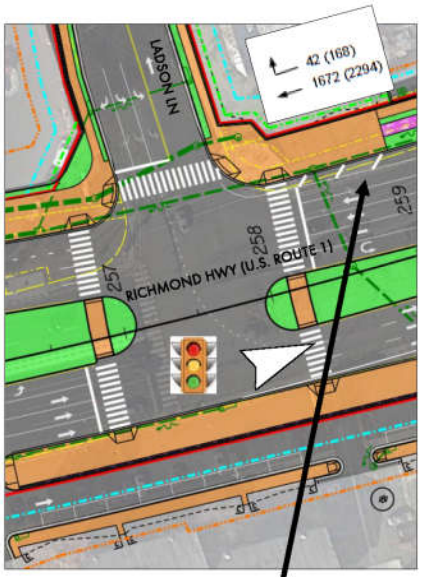
Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	SB R	SB Approach	Overall Intersection	SB R	SB Approach	Overall Intersection
Base Design	5.9	6.0	12.2	15.0	12.4	14.5
Lane Reduction	6.3	11.0	14.7	11.7	11.4	23.5

Findings for Removal of SB Thru/Right Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	Potential 3 sec. reduction
Potential conflicts	Potential increase for rear-ends (50% increase)
Delay	Increased SBR delay (20+ sec.)
Existing lane (Y/N)	Yes (right turn only lane)
Cost impacts/other considerations	Additional project cost, VDOT Design Waiver
Recommendation	Do not remove



Maximum Queue Lengths

Base Design AM
Base Design PM
Lane Reduction AM
Lane Reduction PM
Queue Length XXX (feet)



Remove thru/right turn lane

Note: SB right/thru lane provides storage for heavy SB right turn at Buckman.

LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

Change proposed for inclusion in design

Direction of Northbound Richmond Highway Travel

LADSON LANE - EASTBOUND

Potential modification: Removal of eastbound right turn (EBR) lane along Ladson Lane

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	EB R	EB Approach	Overall Intersection	EB R	EB Approach	Overall Intersection
Base Design	56.6	76.1	12.2	45.0	55.6	14.5
Lane Reduction	96.6	92.2	14.7	50.1	64.2	23.5

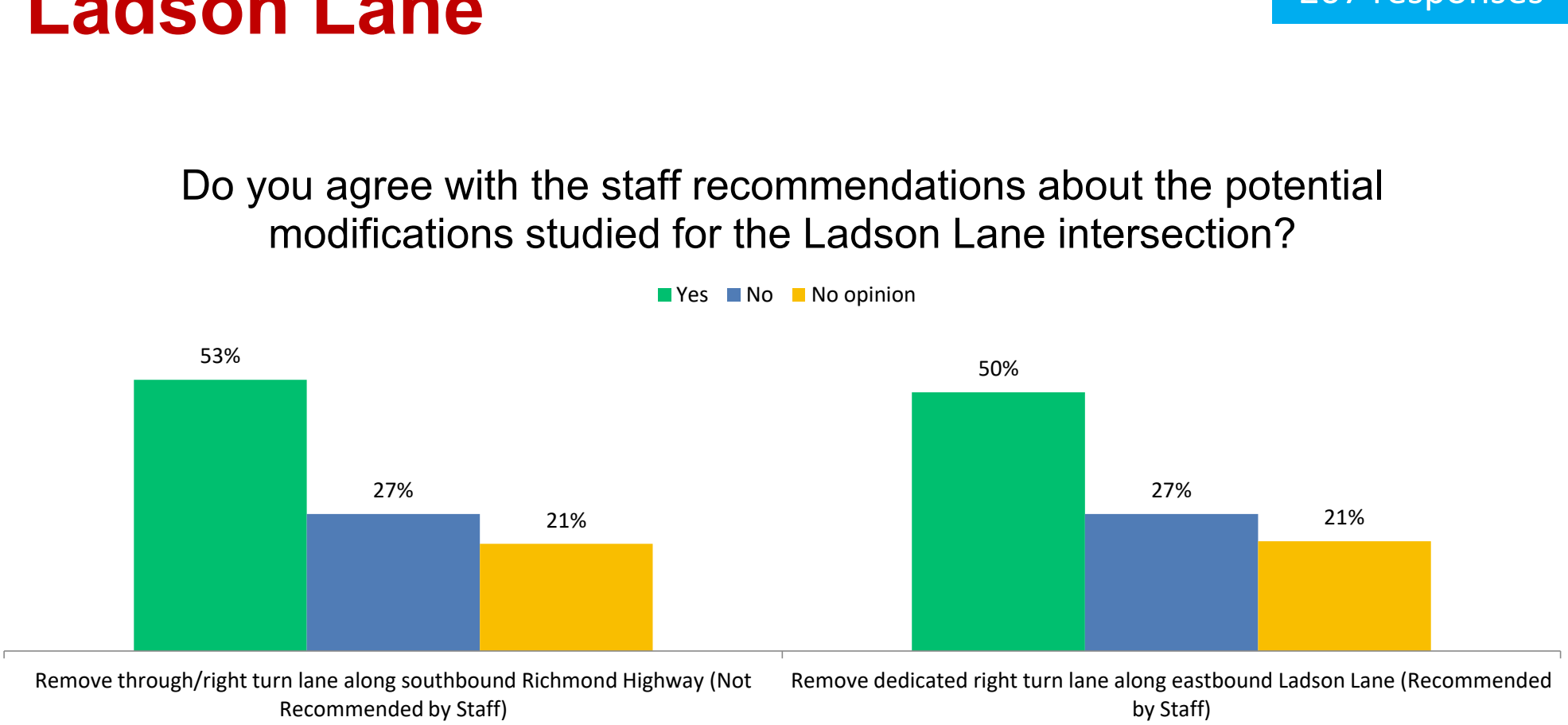
Findings for Removal of EB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	With mainline green
Potential conflicts	Potential increase for rear-ends
Delay	Increased EBR delay (40 sec.)
Existing lane (Y/N)	Yes
Cost impacts/other considerations	Additional project cost, possible VDOT design waiver
Recommendation	Remove

LEGEND

- **Potential modifications for analysis/evaluation**
- **Change not proposed for inclusion in design**
- **Change proposed for inclusion in design**
- **Direction of Northbound Richmond Highway Travel**

Ladson Lane

207 responses



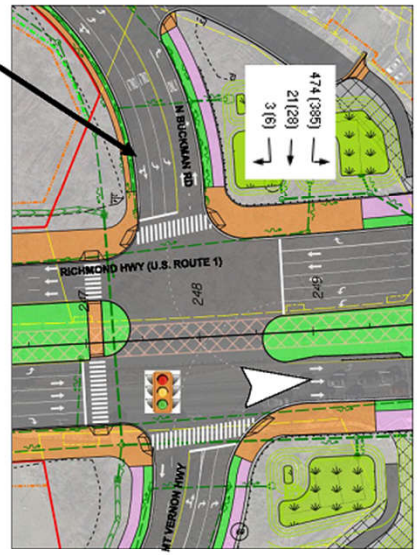
BUCKMAN RD/MT VERNON HWY - EASTBOUND

Potential modification: Removal of eastbound lane (EBR) along Mt Vernon Hwy

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	EB R	EB Approach	Overall Intersection	EB R	EB Approach	Overall Intersection
Base Design	12.5	76.3	47.2	21.1	74.4	33.9
Lane Reduction	43.2	75.5	59.0	60.3	76.3	39.8

Findings for Removal of EB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	With mainline green
Potential conflicts	Potential increase for rear-ends
Delay	Increased EBR delay (30-40 sec.)
Existing lane (Y/N)	No
Cost impacts/other considerations	Blocking of driveways
Recommendation	Remove

Potential for removal thru/right and reduce to 4 lanes



LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

Change proposed for inclusion in design

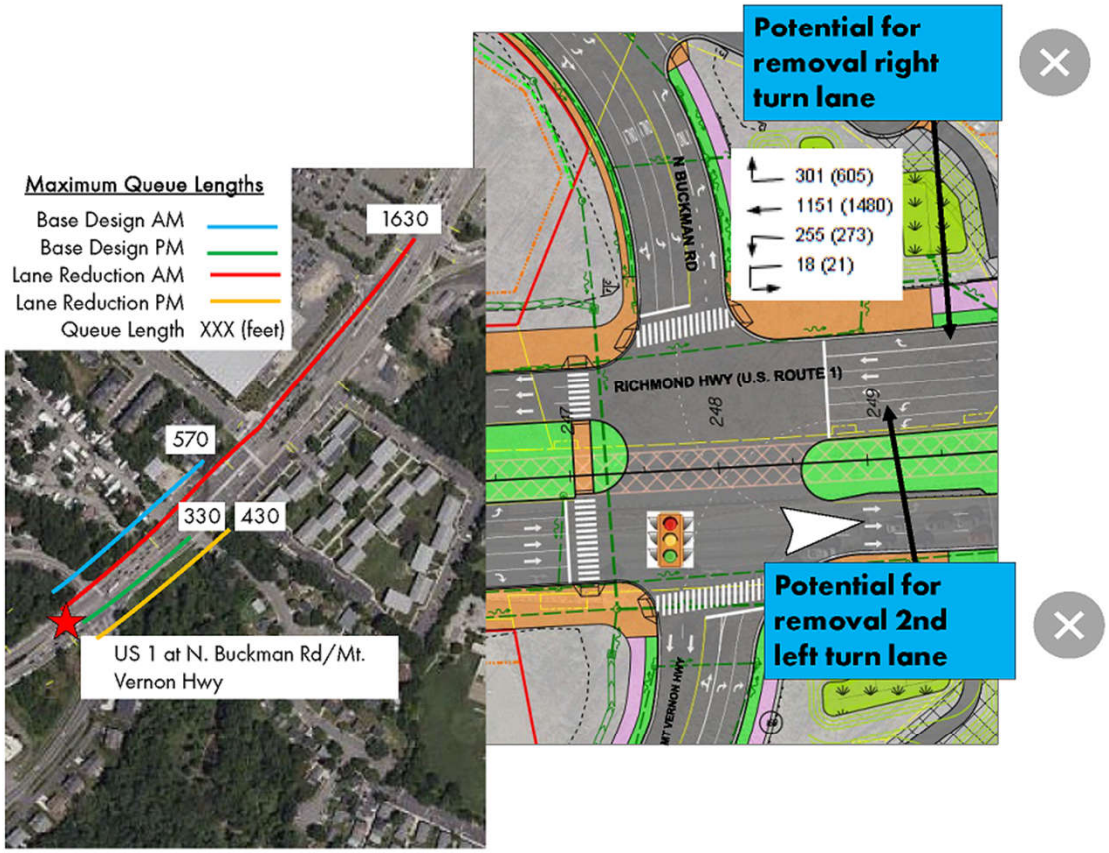
Direction of Northbound Richmond Highway Travel

BUCKMAN RD/MT VERNON HWY - SOUTHBOUND

Potential modifications: Removal of southbound right (SBR) and left turn (SBL) lanes along Richmond Highway

Intersection Delay (sec.)								
	AM Peak Hour				PM Peak Hour			
	SB R	SB L	SB Approach	Overall Intersection	SB R	SB L	SB Approach	Overall Intersection
Base Design	11.9	66.8	29.8	47.2	9.6	96.3	23.0	33.9
Lane Reduction	27.0	197.9	51.0	59.0	17.1	99.1	26.8	39.8

	Findings for Removal of SB Left Turn Lane	Findings for Removal of SB Right Turn Lane
BRT impact	No impact	No impact
Ped. crossing distance	11-foot reduction	11-foot reduction
Walk time for signal	Potential 3 sec. reduction	Potential 3 sec. reduction
Potential conflicts	Potential increase for rear-ends	Potential increase for rear-ends
Delay	Increased LT delay (130 sec.)	Increased SBR delay (17 sec.)
Existing lane (Y/N)	No	Yes
Cost impacts/other considerations	N/A	VDOT Design Waiver
Recommendation	Do not remove	Do not remove



LEGEND

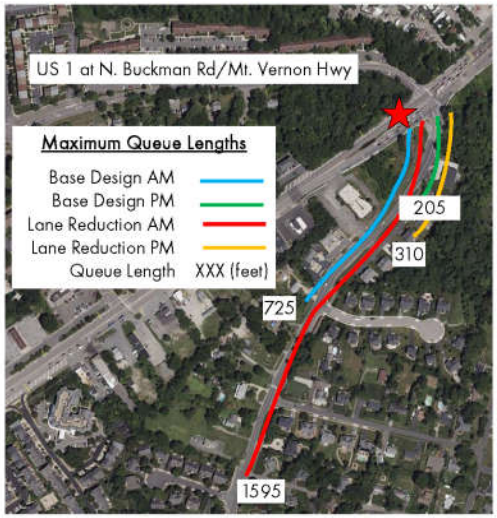
- **Potential modifications for analysis/evaluation**
- **Change not proposed for inclusion in design**
- **Change proposed for inclusion in design**
- **Direction of Northbound Richmond Highway Travel**

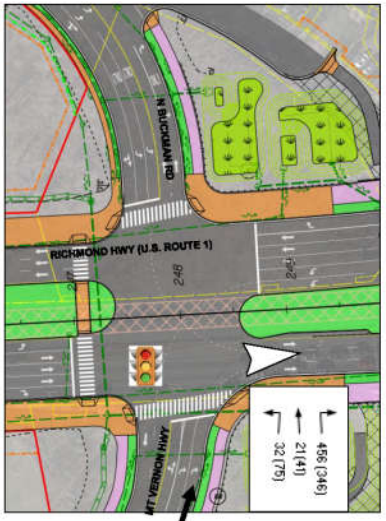
BUCKMAN RD/MT VERNON HWY - WESTBOUND

Potential modification: Removal of westbound right turn (WBR) lane along Mt Vernon Hwy

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	WB R	WB Approach	Overall Intersection	WB R	WB Approach	Overall Intersection
Base Design	67.0	67.4	47.2	27.1	38.7	33.9
Lane Reduction	102.9	100.8	59.0	28.9	41.0	39.8

Findings for Removal of WB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	With mainline green
Potential conflicts	Potential increase for rear-ends
Delay	Increased WB delay (35 sec.)
Existing lane (Y/N)	No
Cost impacts/other considerations	None
Recommendation	Do not remove





Potential for removal of right turn lane

LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

Change proposed for inclusion in design

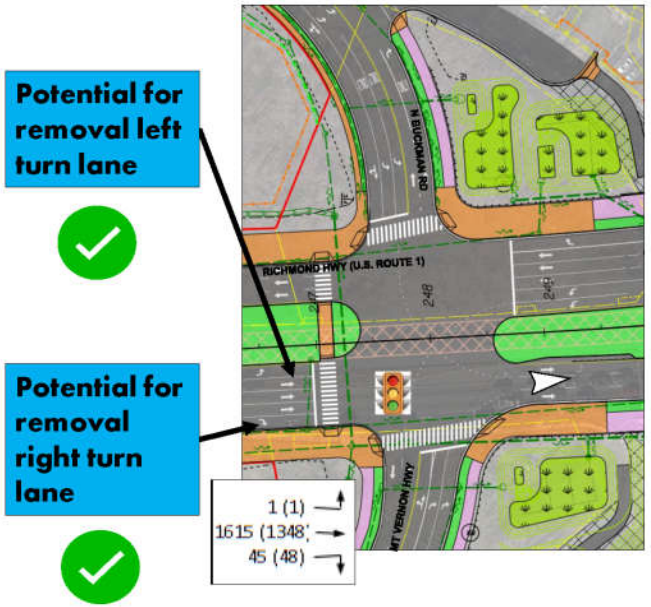
Direction of Northbound Richmond Highway Travel

BUCKMAN RD/MT VERNON HWY - NORTHBOUND

Potential modifications: Removal of northbound right (NBR) and left turn (NBL) lanes along Richmond Highway

Intersection Delay (sec.)								
	AM Peak Hour				PM Peak Hour			
	NB R	NB L	NB Approach	Overall Intersection	NB R	NB L	NB Approach	Overall Intersection
Base Design	13.9	57.7	50.0	47.2	11.4	91.7	38.5	33.9
Lane Reduction	50.0	N/A	50.9	59.0	42.9	N/A	48.9	39.8

	Findings for Removal of NB Left Turn Lane	Findings for Removal of NB Right Turn Lane
BRT impact	No impact	No impact
Ped. crossing distance	6-foot reduction	11-foot reduction
Walk time for signal	Potential 2 sec. reduction	Potential 3 sec. reduction
Potential conflicts	N/A	Potential increase for rear-ends
Delay	Increased LT delay (130 sec.)	Increased SBR delay (35 sec.)
Existing lane (Y/N)	Yes	Yes
Cost impacts/other considerations	Left turns would be restricted, volumes would need to shift to Janna Lee or Ladson	Additional project cost, VDOT Design Waiver
Recommendation	Remove	Remove



LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

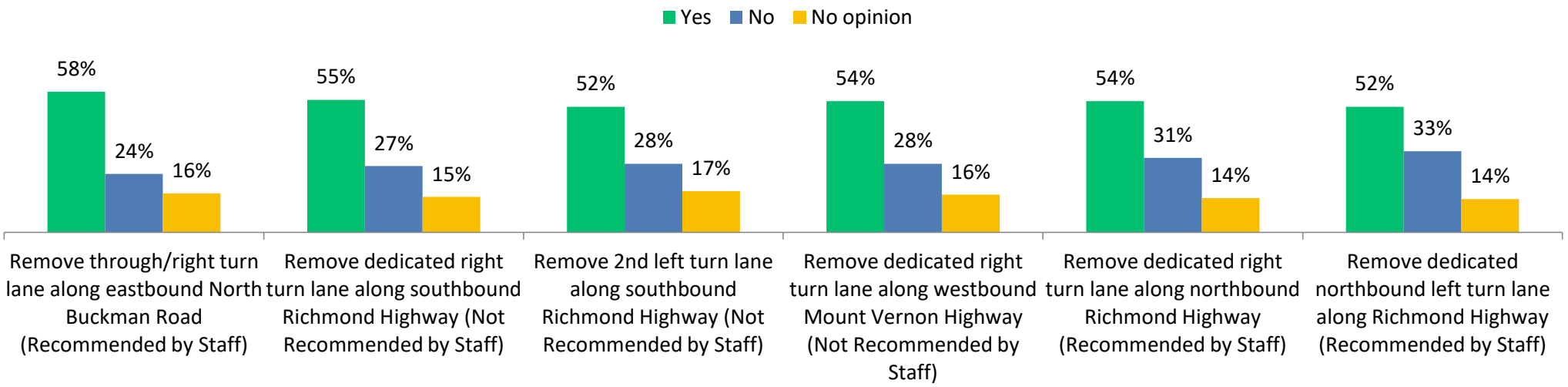
Change proposed for inclusion in design

Direction of Northbound Richmond Highway Travel

North Buckman Rd/Mount Vernon Hwy

212 responses

Do you agree with the staff recommendations about the potential modifications studied for the North Buckman Road/Mount Vernon Highway intersection?



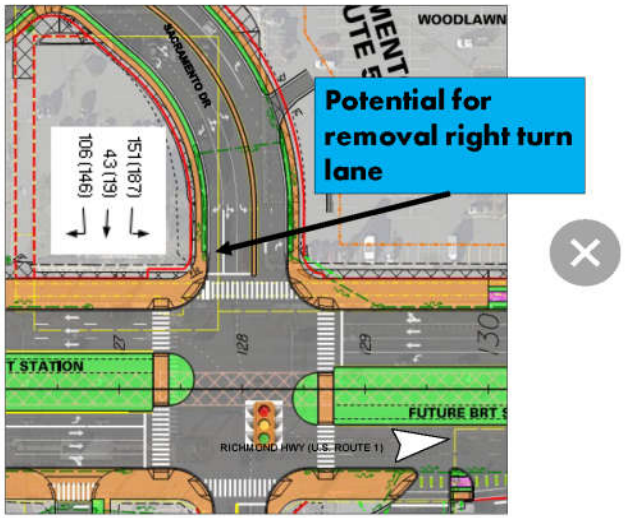
SACRAMENTO DR/COOPER RD - EASTBOUND

Potential modification: Removal of eastbound right turn

- As development occurs, lane will be dual purposed for future off-peak parking -
-

Intersection Delay (sec.)						
	AM Peak Hour			PM Peak Hour		
	EB R	EB Approach	Overall Intersection	EB R	EB Approach	Overall Intersection
Base Design	39.0	58.8	39.9	53.5	88.2	42.8
Lane Reduction	41.0	58.9	40.3	56.1	90.9	47.9

Findings for Removal of EB Right Turn Lane	
BRT impact	No impact
Ped. crossing distance	11-foot reduction
Walk time for signal	With mainline green
Potential conflicts	Potential increase for rear-ends
Delay	Increased northbound left/southbound left delay (35 sec.)
Existing lane (Y/N)	No (combining intersections)
Cost impacts/other considerations	Blocking of driveways, economic development impact
Recommendation	Do not remove



LEGEND

Potential modifications for analysis/evaluation

Change not proposed for inclusion in design

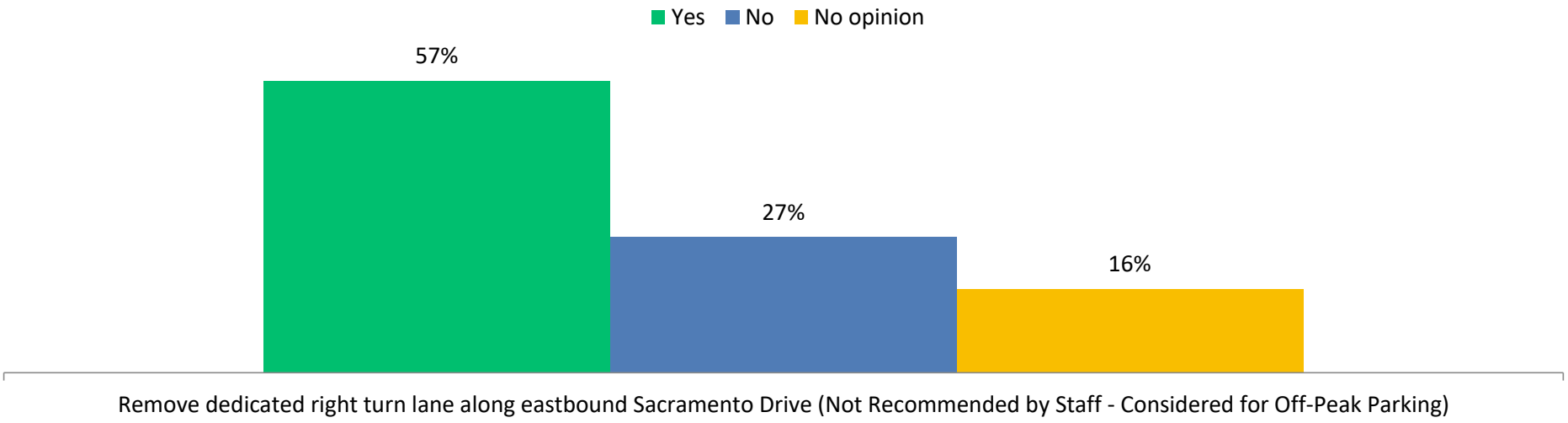
Change proposed for inclusion in design

Direction of Northbound Richmond Highway Travel

Sacramento Dr/Cooper Rd

196 responses

Do you agree with the staff recommendation about the potential modification studied for the Sacramento Drive/Cooper Road intersection?

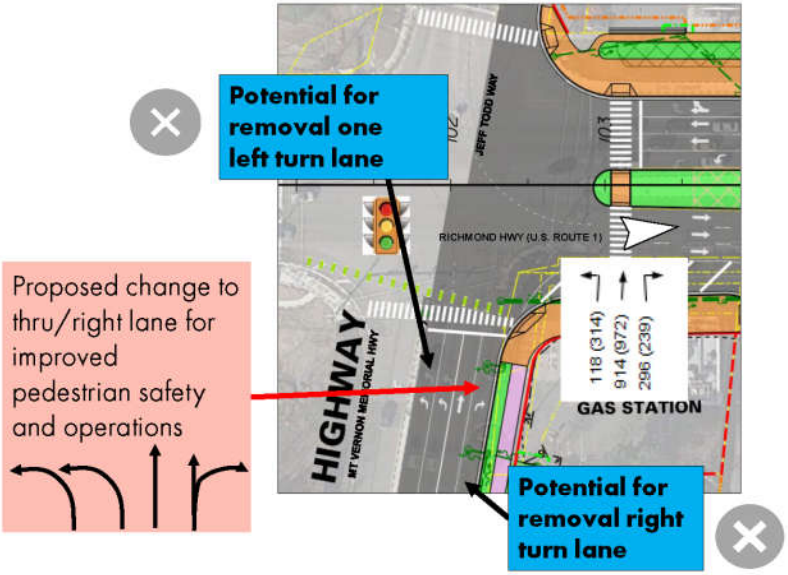


JEFF TODD WAY/MT VERNON - WESTBOUND

Potential modifications: Removal of westbound left (WBL) and right turn (WBR) lanes along Mt Vernon Hwy

Intersection Delay (sec.)								
	AM Peak Hour				PM Peak Hour			
	WB R	WB L	WB Approach	Overall Intersection	WB R	WB L	WB Approach	Overall Intersection
Base Design	6.0	83.1	73.3	33.4	9.0	88.9	58.0	44.6
Lane Reduction	48.6	127.9	94.3	37.0	81.2	128.4	103.0	49.0

	Findings for Removal of WB Left Turn Lane	Findings for Removal of WB Right Turn Lane
BRT impact	No impact	No impact
Ped. crossing distance	11-foot reduction	11-foot reduction
Walk time for signal	With mainline green	With mainline green
Potential conflicts	Potential increase for rear-ends	Potential increase for rear-ends
Delay	Increased WBL delay (40-45 sec.)	Increased WBR delay (40-70 sec.)
Existing lane (Y/N)	Yes	No
Cost impacts/other considerations	Additional project cost	Previously requested by the public
Recommendation	Do not remove	Do not remove/Lanes reconfigured



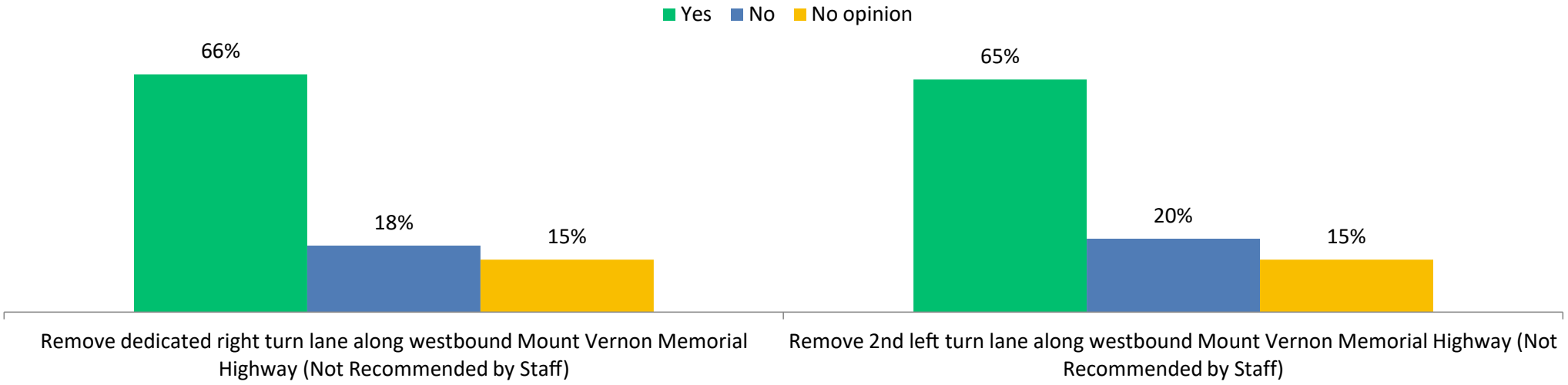
LEGEND

- **Potential modifications for analysis/evaluation**
- **Change not proposed for inclusion in design**
- **Change proposed for inclusion in design**
- **Direction of Northbound Richmond Highway Travel**

Jeff Todd Way/Mount Vernon Memorial Hwy

206 responses

Do you agree with the staff recommendations about the potential modifications studied for the Jeff Todd Way/Mount Vernon Memorial Highway intersection?



Public Response

- **Preliminary recommendations presented at a public meeting followed by on-line survey**
- **Survey questions**
  - Zipcode
  - Neighborhood
  - Age
  - Transit riding frequency
  - Driving frequency
  - For each intersection studied:
    - Do you agree with the staff recommendations about the potential modifications studied for the [intersection] area?
    - Answer choices were “Yes” / “No” / “No opinion”, with opportunity to provide additional comments

➔**Survey responses generally support staff recommendations**

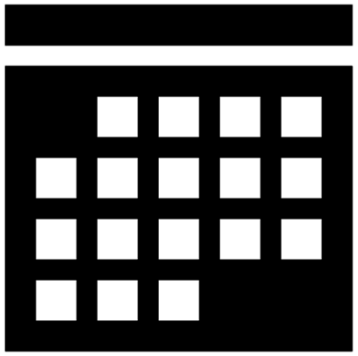
Executive Committee Action

Adoption of resolution approving the updated designs for the following intersections as recommended by staff.

- Richmond Highway cross-section between Furman Lane and Shields Avenue
- Richmond Highway and North Kings Highway/Shields Avenue
- Richmond Highway and (New) Furman Lane Extension
- Richmond Highway and Fordson Road/ Boswell Avenue
- Richmond Highway and Arlington Drive
- Richmond Highway and Memorial Street
- Richmond Highway and Southgate Drive
- Richmond Highway and Beacon Hill Road-Northbound
- Richmond Highway and Sherwood Hall Lane
- Richmond Highway and North Buckman Road/Mount Vernon Highway
- Richmond Highway and Ladson Lane
- Richmond Highway and Sacramento Drive/Cooper Road
- Richmond Highway and Jeff Todd Way/Mount Vernon Memorial Highway

FCDOT Serving Fairfax County for 25 Years and More

12-Month Outlook



- FTA Risk Assessment (June-September 2022)
  - Risk Workshop June 21-23, 2022
- Community Charm public information meeting and mini-meetings (Summer 2022)
- Approval to Enter FTA Engineering (November 2022)
- 90% Design milestone (March 2023)
- Right-of-way acquisition/demolition (Ongoing)
- Third Party coordination (Ongoing)
- Utility coordination (Ongoing)