Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

PLANNING COORDINATION ADVISORY COMMITTEE
Wednesday, February 28, 2024, 6:30pm

This meeting will be in-person at NVTA offices and live streamed via YouTube[1]

AGENDA

I.	**Call to Order/Welcome**	Chair Colbert
II.	**New Members Orientation**	Ms. Monica Backmon, CEO

Action

III.	**Summary Notes of November 16, 2022, Meeting** *Recommended action: Approve meeting notes*	Chair Colbert
IV.	**Approve the CY2024 Meeting Calendar**	Chair Colbert

Discussion/Information

V.	**FY2024-2029 Six Year Program Update**	Sree Nampoothiri, Senior Manager.
VI.	**NVTA Transportation Perception Survey**	Keith Jasper, Principal.
VII.	**Preliminary Deployment Plan – Bus Rapid Transit**	Keith Jasper

Adjournment

VIII. Adjourn

Next Meeting
To Be Determined

[1] *If technical difficulties arise, the meeting may be audio or video recorded. Any recordings will be made available on the Planning Coordination Advisory Committee meetings' webpage.*

Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

PLANNING COORDINATION ADVISORY COMMITTEE
Wednesday, November 16, 2022, 5:00 pm
Northern Virginia Transportation Authority

MEETING SUMMARY

I. Call to Order/Welcome

- Mayor Colbert (Town of Vienna), Chair of the Committee, welcomed committee members and called the meeting to order at 5:05 p.m.
- Attendees: This was a virtual meeting.
  - **PCAC Members:** Mayor Colbert (Chair, Town of Vienna); Board Member Karantonis (Arlington County); Supervisor Alcorn (Fairfax County); Supervisor Glass (Loudoun County); Council Member Bagley (City of Alexandria); Council Member Stehle (City of Fairfax); Council Member Friedrichs (Town of Herndon); Council Member Milan (Purcellville).
  - Alternate – Council Member Ralph Smith (City of Manassas, for Vice-Mayor Pamela Sebesky).
  - **NVTA Staff:** Monica Backmon (Chief Executive Officer); Keith Jasper (Principal, Planning and Programming); Sree Nampoothiri (Senior Transportation Planner); Harun Rashid (Regional Transportation Modeler).

    Consultant Staff: Dalia Leven (Cambridge Systematics).

II. Summary Notes of October 26, 2022 Meeting

- The October 26, 2022, meeting summary was approved, with abstentions from members who did not attend the October 26 meeting.

III. Approve the Recommendation to Adopt the TransAction Update

- Mr. Jasper, Principal, Transportation Planning and Programming at NVTA, presented on following topics:
  - Feedback from NVTA Committees on draft Plan document.
  - Updates and enhancements to the final draft Plan and Project List.
  - Next steps.

  In the first topic, NVTA staff addressed a number of questions and concerns raised by statutory and standing committee members during the September/October meetings. Following questions and comments were discussed during this section:

On the set of comments from TAC committee (slide #7), how do you respond to the "Concern that NVTA's legislation is outdated and should be revisited". - Ms. Backmon stated that currently there is no such direction from Authority members. In addition, although Congestion-Reduction-Relative-to-Cost is the primary evaluation metric, TransAction Plan evaluates projects in a holistic manner with three Core Values of Equity, Sustainability and Safety, and a set of ten performance measures.

TransAction is not a project cost planning tool. How do you justify the inclusion of WMATA's Blue Line realignment project (number 34 in Project List), with a price tag of $20 billion, especially when the stakeholders have not identified a preferred alternative yet? – Mr. Jasper explained that projects in TransAction do not have a funding commitment and are considered to address transportation needs of the entire Washington metro region. This inclusion will ensure future funding eligibility even if a portion of this project is advanced within Northern Virginia geography.

According to this plan, 76% of commuting trips originate, and end in Northern Virginia. That shows the need to build infrastructure to serve north-south/suburb-to-suburb trips within Northern Virginia, especially with transit services. At the same time, Northern Virginia being the economic engine of the region, TransAction should also address transportation needs of commuters that are travelling in from outer jurisdictions. – Mr. Jasper agreed to both of these points and stated NVTA will further the idea of building a regional bus rapid transit (BRT) system for this purpose.

- The second topic was a highlight of selected updates to the draft plan document. After a brief presentation on this topic, the motion to approve the TransAction Plan was passed unanimously.

IV. NVTA Update

- NVTA Chief Executive Officer, Ms. Backmon expressed her gratitude for committee members' diligence in this process to update TransAction. She also informed members of the anticipated adoption of NVTA's 2023 draft legislative program at the December Authority meeting. The primary focus of this year's program is to protect transportation revenues for the Northern Virginia region.

V. Adjourn

- The meeting was adjourned at 6:00 pm.

Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

PLANNING COORDINATION ADVISORY COMMITTEE

Proposed CY2024 Meeting Schedule

(Fourth Wednesdays, 6:30 pm, NVTA Offices)

March 27th

April 24th

May 22nd

June 26th

July 24th

August: No meeting

September 25th

October 23rd

November (to be determined due to holidays)

December (to be determined due to holidays)

FY2024-2029 Six Year Program

Sree Nampoothiri, Senior Manager, NVTA

Planning Coordination Advisory Committee

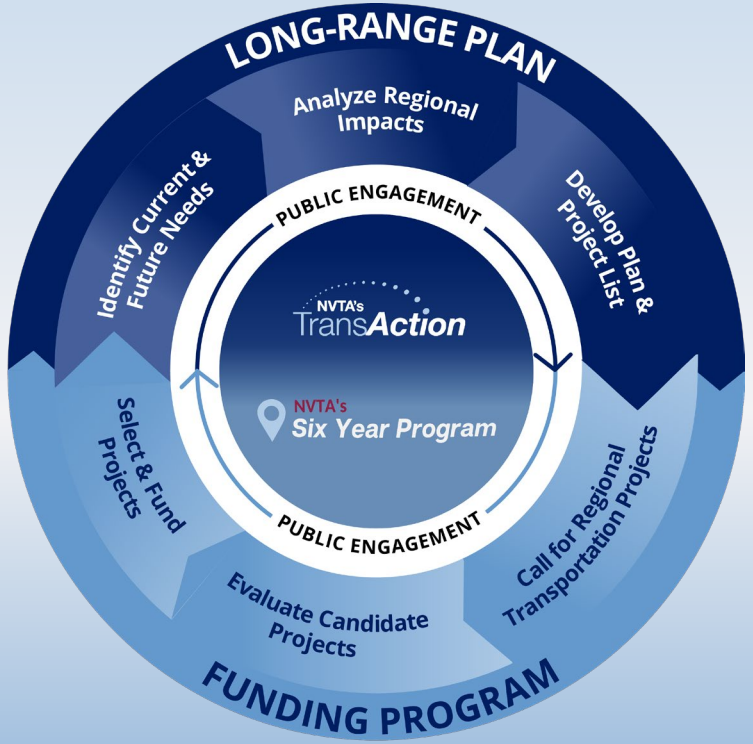
February 28, 2024

NVTA's Primary Responsibilities

NVTA's TransAction

Long-Range Plan

- Updated Every Five Years
- Fiscally and Geographically Unconstrained
- Identify Current and Future Transportation Needs & Priorities
- Analyze Regional Impacts
- Develop Plan and Project List
- Most Recent Update December 2022



NVTA's Six Year Program

Funding Program

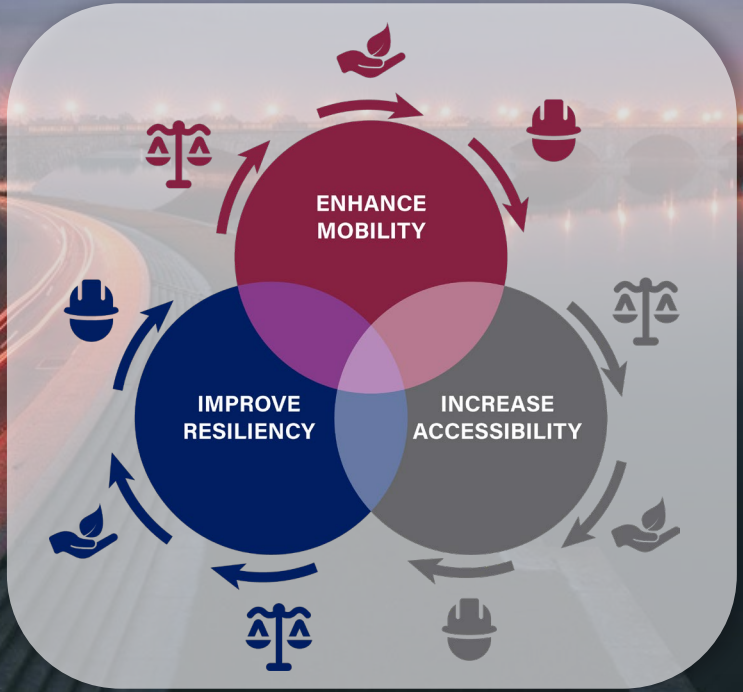
- Allocates NVTA's Regional Revenues to Regional, Multimodal, Congestion Reducing Transportation Projects
- Updated Every Two Years
- Most Recent SYP Adopted in July 2022
- Currently working on the next SYP (FY2024-2029)

NVTA's Vision, Goals and Core Values

"Northern Virginia will plan for, and invest in, a safe, equitable, sustainable, and integrated multimodal transportation system that enhances quality of life, strengthens the economy, and builds resilience."

Goals:
What we want to achieve

- **Enhance Mobility**
- **Increase Accessibility**
- **Improve Resiliency**



Core Values:
How we achieve the goals

- **Safety**
- **Equity**
- **Sustainability**

Goals, Objectives, Measures

Goal	Objective	Performance Measure	Weight	Alignment with Core Values
Mobility: Enhance quality of life of Northern Virginians by improving performance of the multimodal transportation system	A. Reduce congestion and delay*	A1. Total Person-Hours of Delay in autos	10	
		A2. Total Person-Hours of Delay on Transit	10	
	B. Improve travel time reliability*	B1. Duration of Severe Congestion	10	
		B2. Transit person-miles in dedicated/priority ROW	10	
Accessibility: Strengthen the region's economy by increasing access to jobs, employees, markets, and destinations for all communities	C. Improve access to jobs*	C1. Access to jobs by car, transit, and bike	10	
		C2. Access to jobs by car, transit, and bike for EEA populations	10	
	D. Reduce dependence on driving alone by improving conditions for people accessing transit and using other modes	D1. Quality of access to transit and the walk/bike network	15	
Resiliency: Improve the transportation system's ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.	E. Improve safety and security of the multimodal transportation system	E1. Potential for safety and security improvements	10	
	F. Reduce transportation related emissions	F1. Vehicle Emissions	10	
	G. Maintain operations of the regional transportation system during extreme conditions*	G1. Transportation System Redundancy	5	

Equity Safety Sustainability

Core Values - How NVTA Accomplishes Goals

Equity

An equitable transportation system ensures fairness in mobility and accessibility, to meet the needs of the region and all travelers, particularly underserved populations. (e.g., low-income, minority, elderly, children, women, people with Limited English Proficiency (LEP), people with disabilities.) It facilitates social and economic opportunities through reliable and affordable transportation options. It recognizes past inequities, commits to addressing them when possible, and actively avoids further injustices.

Safety

A safe transportation system minimizes fatalities and severe injuries, while increasing safe, healthy, and equitable mobility for all. It also addresses community perceptions of safety.

Sustainability

A sustainable transportation system meets the needs of the present, without compromising the ability of future generations to meet their needs. It considers sustainability to be comprised of three pillars, that focus on economic, environmental, and social impacts, and also addresses the interactions between these.

Overview of Six Year Program

NVTA adopted six funding programs so far.

Funding Program	Amount Requested ($)	Amount Approved ($)	Approved/Requested (%)
FY2014	339,693,000	188,993,000	56
FY2015-2016	467,124,215	336,944,000	72
FY2017	297,949,000	166,043,951	56
FY2018-2023	2,470,139,861	1,285,273,281	52
FY2020-2025	1,444,826,078	539,110,783	37
FY2022-2027	1,229,166,553	624,882,714	51
Total Funding To Date	**6,248,898,707**	**$3,121,078,666***	**50**
FY2024-2029	947,219,560	N/A	N/A

* The total doesn't add up due to withdrawal of some projects after approval

Project Selection Process

Multiple Components:

1. **Eligibility**
   - TransAction ID; project descriptions will be verified
   - Project location
   - Governing Body resolution(s)
2. **Quantitative Analyses**
   - Congestion Reduction Relative to Cost (CRRC) – initial ranking uses this measure
   - TransAction Project Ratings, formerly HB 599 (2012)
   - Long Term Benefit (LTB)
3. **Qualitative Considerations**
   - Past performance
   - Previous NVTA allocation
   - Funding gaps
   - External funding (committed sources only)
   - Alignment with Core Values
   - Geographic/modal balance
4. **Public Comment**

Congestion Reduction Relatve to Cost (CRRC)

VA Code requires NVTA to give priority to projects that achieve the greatest congestion reduction relative to cost (CRRC).

- Derive person hours of delay (PHD) reduced from individual project model runs for years 2030 and 2045 by comparing no-build and build networks.
- PHD reduction values for 2030 and 2045 are extrapolated from the year of expected project completion to 2045, and summed for each year.
- The cumulative PHD reduction is divided by total project cost.

TransAction Rating

- All eligible candidate projects will be coded into the TransAction ‘No Build’ network for 2045, and ratings calculated for individual projects using a single model run for 2045.
- Values for the 10 measures are calculated and are normalized with scores 0 (lowest) to 100 (highest).
- A weighted score is calculated for each project.

Goal	Objective	Performance Measure	Weight	Alignment with Core Values
Mobility: Enhance quality of life of Northern Virginians by improving performance of the multimodal transportation system	A. Reduce congestion and delay*	A1. Total Person-Hours of Delay in autos	10	Sustainability
		A2. Total Person-Hours of Delay on Transit	10	Equity
	B. Improve travel time reliability*	B1. Duration of Severe Congestion	10	Sustainability, Safety
		B2. Transit person-miles in dedicated/priority ROW	10	Equity, Sustainability
Accessibility: Strengthen the region’s economy by increasing access to jobs, employees, markets, and destinations for all communities	C. Improve access to jobs*	C1. Access to jobs by car, transit, and bike	10	Sustainability
		C2. Access to jobs by car, transit, and bike for EEA populations	10	Equity
	D. Reduce dependence on driving alone by improving conditions for people accessing transit and using other modes	D1. Quality of access to transit and the walk/bike network	15	Equity, Sustainability, Safety
Resiliency: Improve the transportation system’s ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.	E. Improve safety and security of the multimodal transportation system	E1. Potential for safety and security improvements	10	Safety
	F. Reduce transportation related emissions	F1. Vehicle Emissions	10	Equity, Sustainability
	G. Maintain operations of the regional transportation system during extreme conditions*	G1. Transportation System Redundancy	5	Equity, Safety

Equity Safety Sustainability

Long Term Benefit

VA Code requires that, over the long term, the allocation of benefit to member jurisdictions must be approximately equal to the share of the revenues attributed to each of the nine member jurisdictions. The Authority approved a set of LTB Principles in December 2014.

- Historic share of revenues (since FY2014) is known, and can be reliably projected through FY2027.
- 'Benefit' is subdivided into two components (includes projects thru FY2022-2027 SYP):
  - Physical location of each funded project (making some allowances for projects that cross jurisdictional boundaries or are considered 'system' level projects).
  - Geographic distribution of each funded project's transportation impact, using reduction in person-hours of delay as the performance measure. Congestion reduction will be calculated by comparing the 'total person-hours of delay' measure for 2045, with and without the funded projects in the TransAction 'No Build' network for 2045. This will be calculated for 'within jurisdictional boundaries' and 'experienced by jurisdictional residents' to provide a range.
- Note: Town projects will be combined with County projects for the purposes of LTB calculation.
- There is no guarantee that LTB imbalances (surpluses/deficits) will be fully eliminated in any single SYP update cycle.

Qualitative Considerations

Northern Virginia Transportation Authority

FY2024-29 Six Year Program Candidate Projects: Summary of Quantitative and Qualitative Evaluations

DRAFT TEMPLATE

Application ID	Jurisdiction / Agency	Project	Primary and supporting modal components	Fund request	Previously Approved NVTA Regional Funds	Other committed funds	Total project cost	Phases for which funds are requested	Funding Gap	Phases for which there is still a funding gap	Local priority	External funds	Past performance (% of expected funds reimbursed by FY2024 Q2) Continuation Projects	Past performance (% of expected funds reimbursed by FY2024 Q2) Jurisdiction /Agency	Policy 29 non compliance: # of projects - 18-month substantive progress	Policy 29 non-compliance: # of projects - SPA within three meetings	SPA with no invoices for 12+ months	First fiscal year of expected drawdown	Year of opening	Alignment with Core Values: Equity	Alignment with Core Values: Safety	Alignment with Core Values: Sustain-ability	Other	Long Term Benefit	TransAction project rating (incl. HB 599)	TransAction project rating rank (incl. HB 599)	CRRC (Reduction in annual person hours of delay / Total project cost in $1000's)	CRRC rank
ARL-023	Arlington County	CC2DCA Multimodal Connection (formerly known as CC2DCA Intermodal Connector)		$ 21,100,000	$ 18,000,000	$ 18,100,000	$ 57,200,000	CN																			
ARL-022	Arlington County	Shirlington Bus Station Expansion		$ 11,600,000		$ 200,000	$ 11,800,000	PE, ROW, CN																			
FFX-134	Fairfax County	Frontier Drive Extension and Intersection Improvements		$ 164,992,286	$ 27,000,000	$ 49,638,314	$ 241,630,600	PE, ROW, CN																			
FFX-136	Fairfax County	Braddock Road Multimodal Improvements Phase II (Humphries Drive to Southampton Drive)		$ 90,000,000		$ 5,286,334	$ 95,286,334	PE, ROW, CN																			
FFX-135	Fairfax County	Route 7 Multimodal Improvements (I-495 to I-66)		$ 210,000,000		$ 34,407,921	$ 244,407,921	PE, ROW, CN																			
FFX-138	Fairfax County	Seven Corners Ring Road Improvements		$ 122,229,417	$ 4,200,000	$ 6,261,000	$ 132,690,417	PE, ROW, CN																			
LDN-034	Loudoun County	Route 15 at Braddock Road Roundabout		$ 10,000,000		$ 15,655,000	$ 25,655,000	ROW, CN																			
LDN-033	Loudoun County	Sycolin Road Widening - Loudoun Center Place to Crosstrail Boulevard		$ 15,000,000		$ 17,861,000	$ 32,861,000	ROW, CN																			
LDN-029	Loudoun County	Old Ox Road Widening - Shaw Road to Oakgrove Road		$ 30,000,000		$ 19,350,000	$ 49,350,000	CN																			
PWC-040	Prince William	Route 234 and Sudley Manor Drive Interchange		$ 115,000,000		$ -	$ 115,000,000	PE, ROW, CN																			
PWC-041	Prince William	Route 234 Bicycle and Pedestrian Facility Over I-95		$ 12,000,000		$ -	$ 12,000,000	PE, ROW, CN																			
PWC-043	Prince William	The Landing at Prince William Transit Center		$ 25,000,000		$ -	$ 25,000,000	PE, ROW, CN																			
PWC-044	Prince William	Triangle Mobility Hub and First/Last Mile Connection		$ 10,000,000		$ -	$ 10,000,000	PE, ROW, CN																			
PWC-042	Prince William	Route 234 Operational Improvements		$ 10,000,000		$ -	$ 10,000,000	PE, CN, Acq																			
ALX-029	City of Alexandria	Safety Improvements at High-Crash Intersections		$ 3,000,000		$ 1,000,000	$ 20,500,000	PE	$ 16,500,000																		
ALX-033	City of Alexandria	Alexandria Metroway Enhancements		$ 7,000,000		$ 7,924,792	$ 14,924,792	ROW, CN																			
ALX-032	City of Alexandria	South Van Dorn Street Bridge Enhancements		$ 10,000,000	$ 5,000,000	$ 70,000	$ 15,070,000	CN																			
ALX-037	City of Alexandria	Smart & Connected Vehicle Infrastructure		$ 5,000,000		$ 50,000	$ 5,050,000	PE, CN																			
CFX-019	City of Fairfax	Old Lee Highway Multimodal Improvements		$ 5,400,000	$ 13,000,000	$ 12,000,000	$ 30,400,000	CN																			
CFX-018	City of Fairfax	Northfax Network Improvements: Northfax East-West Road		$ 18,332,754		$ -	$ 18,332,754	PE, ROW, CN																			
CFC-011	City of Falls Church	City of Falls Church Signal Prioritization Project		$ 1,400,000		$ -	$ 1,400,000	PE, CN																			
MAN-003	City of Manassas	Roundabout at Route 28 and Sudley Rd		$ 4,020,000		$ 1,475,000	$ 5,495,000	CN																			
CMP-001	City of Manassas Park	Route 28-Centreville Road Corridor Improvements		$ 40,000,000		$ -	$ 40,000,000	PE, ROW, CN																			
VRE-017	VRE	VRE Backlick Road Station Improvements		$ 6,145,103		$ 2,500,000	$ 8,645,103	CN																			
		TOTAL		**$ 947,219,560**	**$ 67,200,000**	**$ 191,779,361**	**$ 1,222,698,921**		**$ 16,500,000**																		

Modal Components

- New or improved roadway capacity and/or alignment
- New or improved intersection/interchange
- Improvement/access to Metrorail/VRE commuter rail
- New or improved bus/Bus Rapid Transit facility
- New or improved bicycle/pedestrian facility
- New or improved bicycle facility
- New or improved pedestrian facility
- Transportation Technology
- Parking

First symbol reflects the primary modal component; other symbols denote supporting modal components

Notes:

Phases

PE	Design/Engineering/Environmental
ROW	Right of Way/Utilities
CN	Construction
Acq	Asset Acquisition

See definition below*		See definition below#	% drawn down of expected drawdown	% drawn down of expected drawdown						
None	Top 3	Very high	> 100%	> 100%	0	0	0	FY28	FY28	
Very low	Next 3	High	>80-100%	>80-100%	1	1	1	FY29	FY29	
Low	All others	Medium	>60-80%	>60-80%	2	2	2	FY30	FY30	Low alignment
Medium		Low	>40-60%	>40-60%	3	3	3		FY31	Medium alignment
High		Very low	>20-40%	>20-40%	4	4	4		FY32	High alignment
Very high		None	0-20%	0-20%	5 or more	5 or more	5 or more		FY33	
			N/A	N/A						

Less than % share of revenue

Approx. equal to % share of revenue

More than % share of revenue

*** Funding Gap**

	Higher of % or $
Very high	Gap> 80% or >100M
High	Gap= >60-80% or >50-100M
Medium	Gap= >40-60% or >10-50M
Low	Gap= >20-40% or >1-10M
Very low	Gap= >0-20% or upto 1M
None	No gap

 # External Funds

	Higher of % or $
Very high	Non-NVTA> 80% or >100M
High	Non-NVTA= >60-80% or >10-100M
Medium	Non-NVTA= >40-60% or >1-10M
Low	Non-NVTA= >20-40% or >100K-1M
Very low	Non-NVTA= >0-20% or upto 100,000
None	No external funds

Anticipated next three SYP updates

Adopt
FY2026
FY2028
FY2030

This template is provided in the Committee meeting packet

Project Description Forms

Northern Virginia Transportation Authority
FY2024-2029 Six Year Program

CC2DCA Multimodal Connection (formerly known as CC2DCA Intermodal Connector)

Date Submitted: 07/26/2023

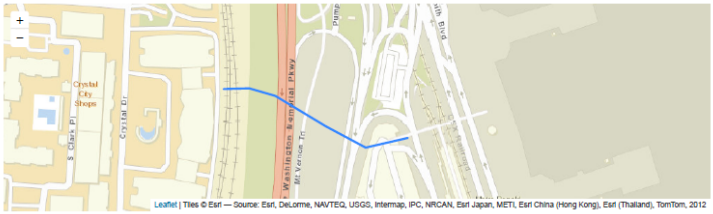
APPLICATION #: ARL-023
Crystal City to Ronald Reagan Washington National Airport Multimodal Connection

Project Description

The goal of the project is to create an intermodal connection designed to meet the needs of a broad range of pedestrians, bicyclists, and micro-mobility users of all ages and abilities between the core of Crystal City, the Mount Vernon Trail, and Ronald Reagan Washington National Airport (DCA). The Preferred Alternative would consist of a bridge extending from the future VRE Crystal City Station south entrance stair tower towards the northwest corner of the DCA Terminal 2 parking garage. The alignment and limits of disturbance of the Preferred Alternative is shown in Figure 4, attached. Access to Crystal Drive in Crystal City would be provided through the planned VRE stair tower, connecting bridge, and vertical circulation elements located at 2011 Crystal Drive. Access to the airport terminal would be determined at a later stage of design. The south stair tower connection would provide VRE and Amtrak passengers with direct access to CC2DCA. A link with the Mount Vernon Trail would be provided on the north side of the CC2DCA bridge. The Preferred Alternative is a girder style bridge that would connect to the east side of the south entrance of the future VRE Crystal City Station located at 2011 Crystal Drive. The Preferred Alternative would span the rail corridor perpendicularly before crossing the George Washington Memorial Parkway at a slight angle. A specific alignment across DCA property was not defined as part of the Preferred Alternative. Instead, across DCA property, the Preferred Alternative defined a broad limit of disturbance (LOD) area covering the range of potential alignments that could avoid impacts to existing and planned infrastructure on DCA property. Arlington County, the Virginia Department of Transportation (VDOT), and the Metropolitan Washington Airports Authority (MWAA) will continue coordinating through the preliminary engineering phase of the study to determine a final alignment and eastern terminus for CC2DCA that avoids or minimizes, as much as possible, impacts to DCA parking and future roadway improvement projects. The Preferred Alternative was endorsed by the Arlington County Board on May 13, 2023.

Primary Mode(s)	Secondary Mode(s)
Application Number	ARL-023
Primary TransAction ID Number	89
Submitting Jurisdiction/Agency	Arlington County
Location	2011 Crystal Drive, Arlington VA 22202 to Ronald Reagan Washington National Airport, Arlington, VA 22202
Requested NVTA Funds	$21,100,000.00
NVTA Funds Approved	N/A
Previous NVTA Funds Received	$18,000,000.00
Total Cost to Complete Project	$57,200,000.00

Project Location



Project Milestones

	Study	Design / Engineering / Environmental	ROW and Utilities	Construction	Asset Acquisition
Earlier	X				
FY23	X	X			
FY24		X	X		
FY25		X	X		
FY26		X	X		
FY27		X			
FY28				X	
FY29				X	
Beyond				X	

Year of expected project completion: FY2030

Project Funding

Source	Study	Design / Engineering / Environmental	ROW and Utilities	Construction	Asset Acquisition	Total
Total Cost	$3,300,000	$7,200,000	$200,000	$46,500,000	$0	$57,200,000
NVTA Funds Applied	$0	$0	$0	$21,100,000	$0	$21,100,000
Previous NVTA 70%		$0	$0	$18,000,000		$18,000,000
CMAQ		$7,200,000		$2,300,000		$9,500,000
Local	$3,300,000	$0	$200,000	$5,100,000		$8,600,000
Total Other	$3,300,000	$7,200,000	$200,000	$25,400,000	$0	$36,100,000
Gap	$0	$0	$0	$0	$0	$0

Project Analysis Highlights

Congestion Reduction Relative to Cost (CRRC) Rating	N/A
Congestion Reduction Relative to Cost (CRRC) Rank	N/A
TransAction Project Rating	N/A
TransAction Project Rank	N/A
Project's Past Performance (Percentage of expected funds that was reimbursed by 12/31/2023)	N/A
Jurisdiction/Agency's Past Performance on All Projects (Percentage of expected funds that was reimbursed by 12/31/2023)	N/A
Percentage of Total Project Cost Covered by Funds from Sources Other than NVTA	31.64%
Local Priority	1
Number of Supporting Resolutions (does not include resolution from applicant's own Board/Council)	0
Number of NVTA-Funded Project(s) Nearby	0
Regional Funds allocated to NVTA-Funded Project(s) Nearby	$0

Application Notes

Evaluations underway.

This template is provided in the Committee meeting packet

Summary of Applications

Northern Virginia Transportation Authority
Summary of FY2024-2029 Six Year Program Candidate Projects

Updated on 12/15/2023

#	Project ID#	Jurisdiction / Agency	Project	Fund request	Previous NVTA funds	Other committed funds	Total project cost	Funding gap excluding NVTA request	Phases for which funds are requested	Phases for which there is still a funding gap	Primary and supporting modal components	Local Priority
1	ARL-023	Arlington County	CC2DCA Multimodal Connection (formerly known as CC2DCA Intermodal Connector)	$ 21,100,000	$ 18,000,000	$ 18,100,000	$ 57,200,000	$ -	CN			1
2	ARL-022	Arlington County	Shirlington Bus Station Expansion	$ 11,600,000		$ 200,000	$ 11,800,000	$ -	PE, ROW, CN			2
3	FFX-134	Fairfax County	Frontier Drive Extension and Intersection Improvements	$ 164,992,286	$ 27,000,000	$ 49,638,314	$ 241,630,600	$ -	PE, ROW, CN			1
4	FFX-136	Fairfax County	Braddock Road Multimodal Improvements Phase II (Humphries Drive to Southampton Drive)	$ 90,000,000		$ 5,286,334	$ 95,286,334	$ -	PE, ROW, CN			2
5	FFX-135	Fairfax County	Route 7 Multimodal Improvements (I-495 to I-66)	$ 210,000,000		$ 34,407,921	$ 244,407,921	$ -	PE, ROW, CN			3
6	FFX-138	Fairfax County	Seven Corners Ring Road Improvements	$ 122,229,417	$ 4,200,000	$ 6,261,000	$ 132,690,417	$ -	PE, ROW, CN			4
7	LDN-034	Loudoun County	Route 15 at Braddock Road Roundabout	$ 10,000,000		$ 15,655,000	$ 25,655,000	$ -	ROW, CN			1
8	LDN-033	Loudoun County	Sycolin Road Widening - Loudoun Center Place to Crosstrail Boulevard	$ 15,000,000		$ 17,861,000	$ 32,861,000	$ -	ROW, CN			2
9	LDN-029	Loudoun County	Old Ox Road Widening - Shaw Road to Oakgrove Road	$ 30,000,000		$ 19,350,000	$ 49,350,000	$ -	CN			3
10	PWC-040	Prince William County	Route 234 and Sudley Manor Drive Interchange	$ 115,000,000		$ -	$ 115,000,000	$ -	PE, ROW, CN			1
11	PWC-041	Prince William County	Route 234 Bicycle and Pedestrian Facility Over I-95	$ 12,000,000		$ -	$ 12,000,000	$ -	PE, ROW, CN			2
12	PWC-043	Prince William County	The Landing at Prince William Transit Center	$ 25,000,000		$ -	$ 25,000,000	$ -	PE, ROW, CN			3
13	PWC-044	Prince William County	Triangle Mobility Hub and First/Last Mile Connection Improvements	$ 10,000,000		$ -	$ 10,000,000	$ -	PE, ROW, CN			4
14	PWC-042	Prince William County	Route 234 Operational Improvements	$ 10,000,000		$ -	$ 10,000,000	$ -	PE, CN, Asset			5
15	ALX-029	City of Alexandria	Safety Improvements at High-Crash Intersections	$ 3,000,000		$ 1,000,000	$ 20,500,000	$ 16,500,000	PE	ROW, CN		1
16	ALX-033	City of Alexandria	Alexandria Metroway Enhancements	$ 7,000,000		$ 7,924,792	$ 14,924,792	$ -	ROW, CN			2
17	ALX-032	City of Alexandria	South Van Dorn Street Bridge Enhancements	$ 10,000,000	$ 5,000,000	$ 70,000	$ 15,070,000	$ -	CN			3
18	ALX-037	City of Alexandria	Smart & Connected Vehicle Infrastructure	$ 5,000,000	$ -	$ 50,000	$ 5,050,000	$ -	PE, CN			4
19	CFX-019	City of Fairfax	Old Lee Highway Multimodal Improvements	$ 5,400,000	$ 13,000,000	$ 12,000,000	$ 30,400,000	$ -	CN			1
20	CFX-018	City of Fairfax	Northfax Network Improvements - Northfax East-West Road	$ 18,332,754		$ -	$ 18,332,754	$ -	PE, ROW, CN			2
21	CFC-011	City of Falls Church	City of Falls Church Signal Prioritization Project	$ 1,400,000		$ -	$ 1,400,000	$ -	PE, CN			1
22	MAN-003	City of Manassas	Roundabout at Route 28 and Sudley Rd	$ 4,020,000		$ 1,475,000	$ 5,495,000	$ -	CN			1
23	CMP-001	City of Manassas Park	Route 28-Centreville Road Corridor Improvements	$ 40,000,000		$ -	$ 40,000,000	$ -	PE, ROW, CN			1
24	VRE-017	VRE	VRE Backlick Road Station Improvements	$ 6,145,103		$ 2,500,000	$ 8,645,103	$ -	CN			1
			TOTAL	**$ 947,219,560**	**$ 67,200,000**	**$ 191,779,361**	**$ 1,222,698,921**	**$ 16,500,000**				

Modal Components

- New or improved roadway capacity and/or alignment
- New or improved intersection/interchange
- Improvement/access to Metrorail/VRE commuter rail
- New or improved bus/BRT facility
- New or improved bicycle facility
- New or improved pedestrian facility
- Transportation Technology
- Parking

First symbol reflects the primary modal component, other symbols denote supporting modal components

Phases

PE	Design/Engineering/Environmental
ROW	Right of Way/Utilities
CN	Construction
Asset Acq	Asset Acquisition

This summary is provided in the Committee meeting packet

Summary of Applications

Northern Virginia Transportation Authority
Summary of FY2024-2029 Six Year Program Candidate Projects

Updated on 12/15/2023

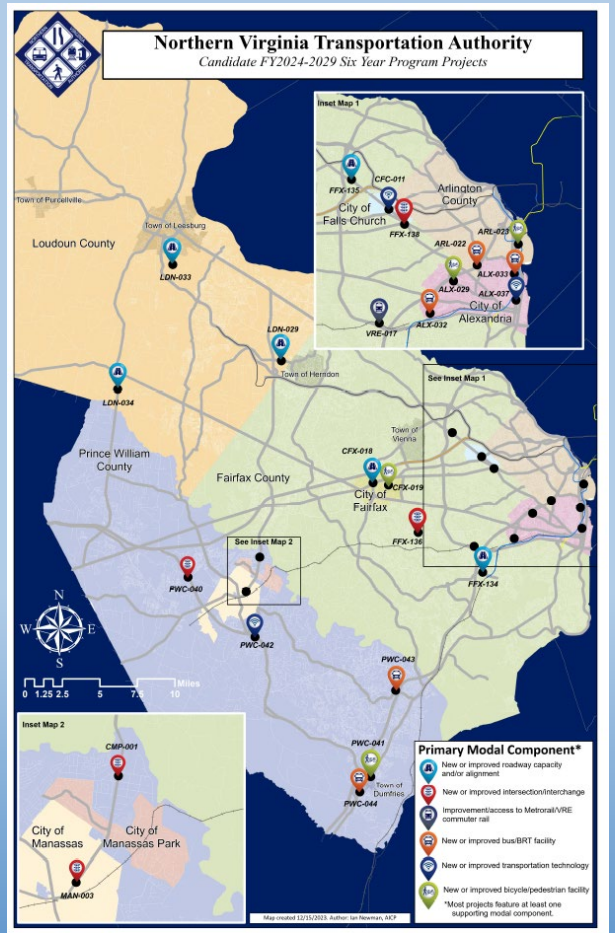
#	Jurisdiction	Number of applications	% of Total	Request	Previous NVTA 70% Funds	Other Funds	Total Cost	Gap	% of Total Request
1	Arlington County	2	8%	$ 32,700,000	$ 18,000,000	$ 18,300,000	$ 69,000,000	$ -	3%
2	Fairfax County	4	17%	$ 587,221,703	$ 31,200,000	$ 95,593,569	$ 714,015,272	$ -	62%
3	Loudoun County	3	13%	$ 55,000,000	$ -	$ 52,866,000	$ 107,866,000	$ -	6%
4	Prince William County	5	21%	$ 172,000,000	$ -	$ -	$ 172,000,000	$ -	18%
5	City of Alexandria	4	17%	$ 25,000,000	$ 5,000,000	$ 9,044,792	$ 55,544,792	$ 16,500,000	3%
6	City of Fairfax	2	8%	$ 23,732,754	$ 13,000,000	$ 12,000,000	$ 48,732,754	$ -	3%
7	City of Falls Church	1	4%	$ 1,400,000	$ -	$ -	$ 1,400,000	$ -	0%
8	City of Manassas	1	4%	$ 4,020,000	$ -	$ 1,475,000	$ 5,495,000	$ -	0%
9	City of Manassas Park	1	4%	$ 40,000,000	$ -	$ -	$ 40,000,000	$ -	4%
10	VRE	1	4%	$ 6,145,103	$ -	$ 2,500,000	$ 8,645,103	$ -	1%
	TOTAL	24	100%	$ 947,219,560	$ 67,200,000	$ 191,779,361	$ 1,222,698,921	$ 16,500,000	100%

#	Mode	Number of applications	% of Total	Request	% of Total Request	Other Funds	Total project cost
1	Roadway	6	25%	$ 448,325,040	47%	$ 136,912,235	$ 612,237,275
2	Interchange/Intersection	5	21%	$ 371,249,417	39%	$ 13,022,334	$ 388,471,751
3	Commuter Rail	1	4%	$ 6,145,103	1%	$ 2,500,000	$ 8,645,103
4	Bus	5	21%	$ 63,600,000	7%	$ 8,194,792	$ 76,794,792
5	Bike-ped	4	17%	$ 41,500,000	4%	$ 31,100,000	$ 120,100,000
6	Technology	3	13%	$ 16,400,000	2%	$ 50,000	$ 16,450,000
	Total	24	100%	$ 947,219,560	100%	$ 191,779,361	$ 1,222,698,921

Number of continuation projects	5	$ 323,721,703		$ 476,991,017

This summary is provided in the Committee meeting packet

Summary of Applications



This map is provided in the Committee meeting packet

FY2024-2029 SYP Schedule

- May 1, 2023: Call for regional Transportation Projects issued
- July 28, 2023: Application deadline
- October 27, 2023: Governing body resolution deadline
- Summer/Fall 2023: Eligibility review; one-on-one applicant meetings; coding
- Fall/Winter 2023: Evaluations and review with applicants
- March 2024: Review evaluations with TAC, PCAC, PPC
- March 2024: NVTA approves date for Public Hearing
- April 2024: NVTA releases candidate project list and evaluations for public comment
- April / May 2024: Public comment period
- May 2024: NVTA hosts Public Hearing
- June 2024: NVTA gets briefed on public comments
- June 2024: NVTA staff releases project recommendations for review and endorsement by TAC, PCAC, and PPC
- July 2024: NVTA adopts FY2024-2029 SYP

Thank You!

Scan the QR code to connect with us

NORTHERN VIRGINIA TRANSPORTATION AUTHORITY

Tracking Changes in Transportation Attitudes and Priorities

February 8, 2024

Methodology

PARTICIPANTS	**n=606** Residents 18 years or older within jurisdiction of Northern Virginia Transportation Authority
FIELD DATES	**November 28 – December 14, 2023**
MODE	**Online Survey**
LENGTH	**14 minutes**
GEOGRAPHY	**Northern Virginia** Arlington County, Fairfax County, Loudoun County, Prince William County and the Cities of Alexandria, Fairfax, Falls Church, Manassas, and Manassas Park
DATA WEIGHTING	**2023 No weighting required** 2021 data weighted by ethnicity 2019 data weighted by ethnicity 2016 data weighted by gender and ethnicity 2015 data weighted by ethnicity

Methodology: Reporting Notes - 2023 Survey

Survey Respondent Selection

- Scientific study using an opt-in online panel.
- Respondents must be age 18+ and residents of Northern Virginia, more specifically, residents of Arlington County, Fairfax County, Loudoun County, Prince William County, Alexandria, Fairfax City, City of Falls Church, Manassas, and Manassas Park.
- We aim for an overall representation of regional demographics based on age, gender, and race according to the US Census. We also aim for a proportionate sample that represents each county/city by population size according to the US Census. For the most part we use sample quotas to hit these demographic targets. Weighting was not needed for the 2023 wave.

Confidence Interval and Margin of Error

- All sample surveys and polls, whether or not they use probability sampling, are subject to multiple sources of error which are most often not possible to quantify or estimate. Online opt-in panels such as the one used for this study do not use probability sampling and accordingly the strict calculation of sampling error is not typically done. In the hypothetical case of a perfectly random sample and no response or measurement errors, a sample of this size (n=606) would produce a margin of error of ± 3.98% at a 95% confidence interval. Margins of error for subgroups would be higher.

Ethnicity clarification

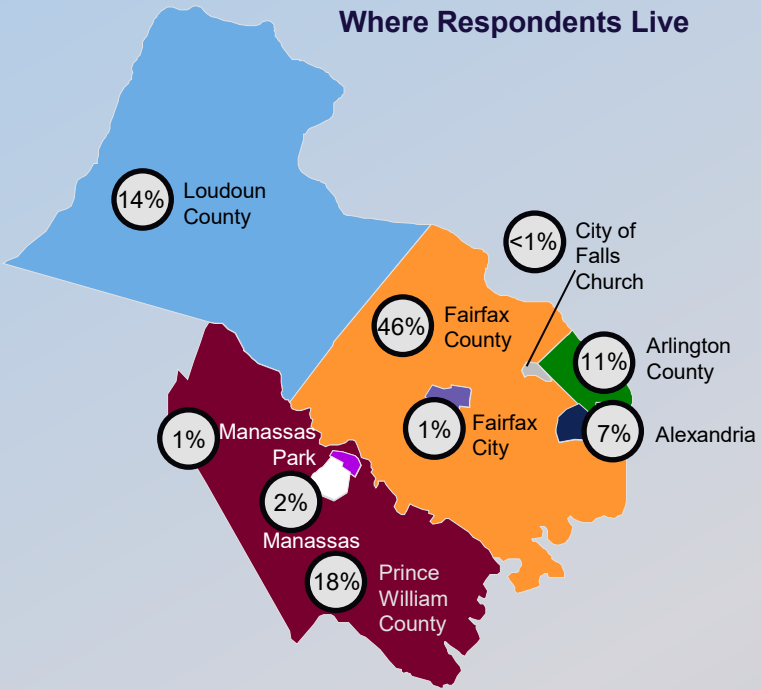
- Black, White, Asian refer to Non-Hispanic Black/White/Asians.

Statistical Testing Notations

Indicates statistically significant differences between 2021 and 2023 ($p<.05$). When appropriate, the report indicates these differences using green, red, and blue color coding wherein green = an increase or positive change; red = decrease or negative change; blue = may be construed as either positive or negative/or just a change that might be of interest.

- ( ) Numbers in parenthesis are of interest but are not statistically significant at $p<.05$ level. When shown these numbers are color coded in the same way as described in prior bullet.
- Some totals may not add to 100% and aggregation of the data may vary slightly due to rounding error.
- Abbreviations: T3B = Top 3 Box Score (rated 8-10 on a 10-point scale)

Resident Profile



County/City of Employment	2015	2016	2019	2021	2023
Fairfax County	37%	36%	35%	38%	**40%**
District of Columbia	18%	12%	11%	6%	**9%**
Arlington County	11%	11%	12%	14%	**9%**
Loudoun County	8%	13%	12%	13%	**13%**
Alexandria	7%	9%	9%	8%	**8%**
Prince William County	6%	8%	12%	11%	**11%**
Manassas	4%	2%	2%	2%	**2%**
Fairfax City	2%	2%	2%	3%	**2%**
City of Falls Church	1%	1%	1%	1%	**<1%**
Manassas Park	<1%	<1%	1%	<1%	**1%**
Other county in Virginia	1%	1%	2%	1%	**1%**
Other county in Maryland	3%	2%	1%	1%	**1%**
Other	1%	3%	2%	2%	**1%**
Years of Residency					
Less than 1 year	3%	2%	3%	5%	**2%**
1 to 5 years	19%	16%	17%	22%	**16%**
6 to 10 years	14%	12%	14%	12%	**12%**
11 to 15 years	12%	14%	11%	9%	**9%**
More than 15 years	51%	56%	55%	52%	**60%**
Own/Rent Home					
Own	65%	70%	64%	63%	**61%**
Rent	32%	26%	31%	31%	**33%**
Neither	2%	3%	3%	3%	**5%**
Decline	1%	1%	2%	3%	**1%**

KEY FINDINGS

Key Findings

Investing in regional transportation remains a priority. Traffic and congestion have the second highest impact on the quality of life in the region (trailing only affordability of housing).

Commuting habits are still impacted by the post-pandemic shift to work from home, but most residents are commuting to work at least a few days a week and are on the road even more for non-work purposes.

Safety is always a priority when it comes to transportation. Crime is on the rise and personal security is playing an increasingly important role in quality of life in the region. The increased attention on crime increases focus on safety (in general).

Opportunity for BRT - Despite limited familiarity with Bus Rapid Transit, residents have a favorable outlook, seeing many more benefits than drawbacks.

Transportation issues are a bit less top of mind. Recall of transportation issues in the news and awareness of NVTA have softened compared to the last wave. Perceptions of the region's performance in planning and implementing transportation solutions remains positive, but intensity has softened.

Executive Summary:

- **Regional transportation remains a priority and is a leading factor in influencing quality of life.**
  - Nine-out-of-ten agree that *Investing in the regional transportation* is a top priority in 2023. This is consistent with 2021 data and signals the continued importance of investing in our region's transportation system and infrastructure.
  - *Improving affordability of housing* and *Reducing traffic congestion & Improving transportation options* remain the top two factors that contribute to quality of life in the Northern Virginia region.
  - *Traffic flow and congestion* remains the biggest transportation factor impacting quality of life. Perceptions of how well the region addresses these concerns have improved, but there is still work to be done. The top priorities for future improvements include leveraging technology, expanding metro, improving roadways and offering Bus Rapid Transit (BRT) options.

Executive Summary:

- **A recent Washington Post article[1] noted how remote work continues to thrive in the region. This continues to shape commuting habits.**
  - The article does point out that the DC area may see more employees returning to office and shows evidence of decreases in work from home. Remote work is likely to remain part of the post-pandemic reality, but we can expect a continued shift to a hybrid that has a mix of work from home and work from the office.

- **Despite changing work habits, most residents are on the road on a weekly basis. Most are commuting at least a couple days a week and driving even more frequently for non-work purposes.**
  - Most residents use public transit, but daily usage has softened.

[1] https://www.washingtonpost.com/dc-md-va/2023/09/14/dc-remote-work-jobs-data-census-bureau/#

Executive Summary:

- **Safety remains an important part of the story as it is playing an increasing role in affecting quality of life.**
  - *Reducing crime and making neighborhoods safer* has increased 7 points to replace *Increasing access to high quality, affordable healthcare* as the third biggest factor impacting quality of life.
  - Safety improvements serve as an influential topic to engage and motivate regional residents. When looking at specific language, calling out benefits and how they connect to the individual hold the strongest equity (i.e., *Get you quickly and safely where you need to be*).
  - When looking specifically at transportation priorities, *Making our transportation system safe* remains the top priority and has increased in importance since 2021. It is the strongest performing attribute (80%) but continues to show a large gap when compared to importance (45%).

Executive Summary:

- **Bus Rapid Transit (BRT) offers the region an opportunity to further improve transportation options. Initial reactions are positive, but familiarity is lacking. Leveraging key benefits will help further strengthen interest.**
  - Most (69%) are *Not too or not at all familiar* with BRT, but views are *Favorable* (51%) or *Neutral* (41%).
  - More than half would consider using BRT (54% for commuting and 63% for recreational/personal travel).
  - The strong majority (84%) feel the positives associated with BRT outweigh any negatives and the most influential benefits are *Convenience* (15%); *Time savings compared to driving* (12%); *Faster and more reliable trips* (10%).

Executive Summary:

- **Awareness of regional transportation news, NVTA and TransAction have softened since 2021.**
  - Overall, respondents are less likely to recall hearing, reading or seeing news about transportation issues in the region and awareness of both NVTA and TransAction have both softened in 2023 (after seeing a steady growth trend from 2016-2021).
  - For those who do recall hearing, reading or seeing news about transportation issues in the region, it tends to be more of a balance of positives (39%) and negatives (40%) whereas 2021 data was more positive (57%) than negative (27%).

- **The region and NVTA both continue to maintain positive perceptions of their performance in planning and implementing transportation solutions in the region.**
  - Intensity of scores have softened - increase in GOOD scores while the EXCELLENT scores show a decline.

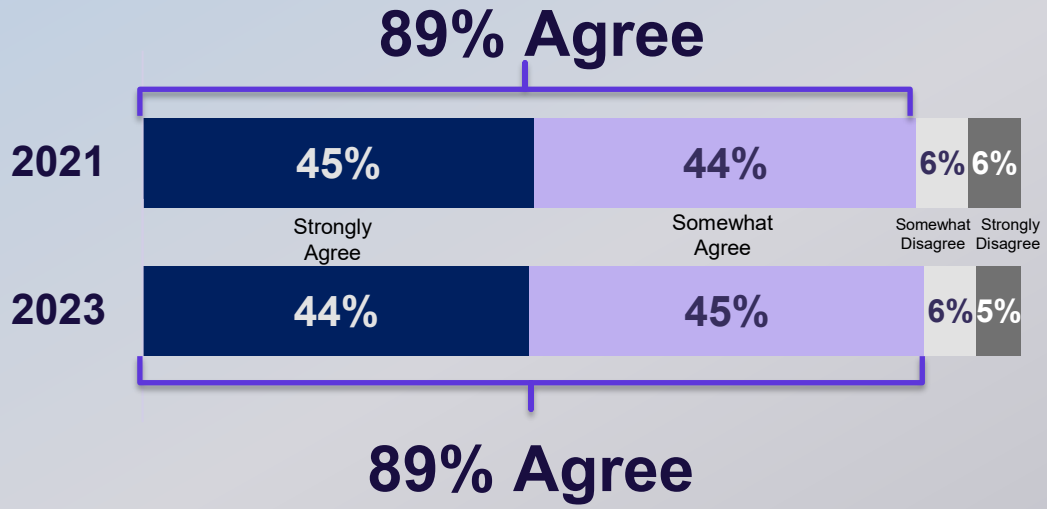
Transportation

REGIONAL TRANSPORTATION PERCEPTIONS AND EXPERIENCES

Investing in regional transportation remains an important priority.

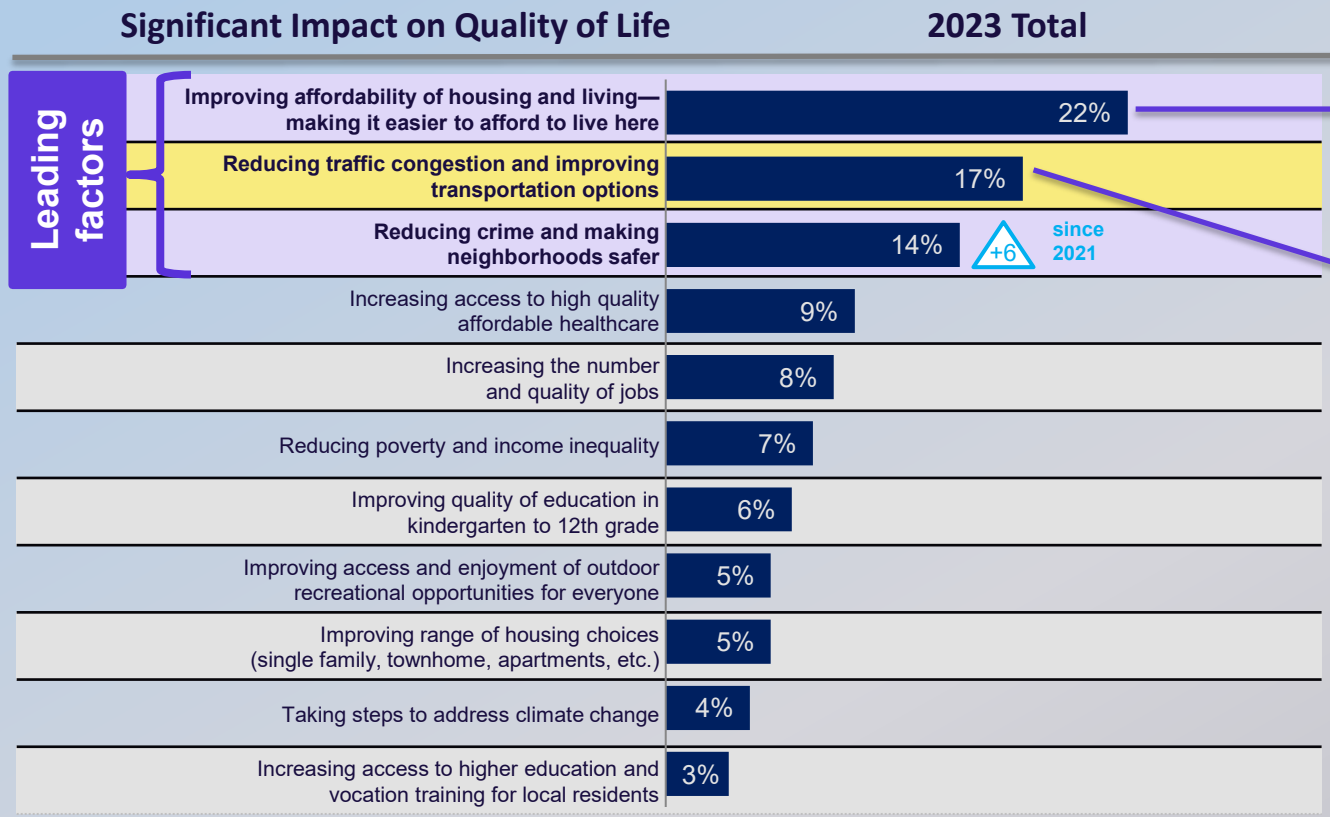
To what extent do you agree with the statement:

Investing in the regional transportation system is an important priority



BASE: ALL RESPONDENTS (2021 n=611, 2023 n=606)
Q310. To what extent do you agree with the statement: Investing in the regional transportation system is an important priority?

Transportation factors have a significant impact on quality of life.



Improving housing affordability is more imp. to (2023):

- Renters (32%)
- Females (29%)
- Single (29%)
- Divorced/Separated/Widow (29%)
- Never use public transit (28%)

When looking across groups, reducing traffic congestion is more important to (2023):

- Work in DC (36%)
- Ages 55+ (23%)
- Asian (23%)
- HHI $100K (22%)
- Homeowners (22%)

BASE: ALL RESPONDENTS (2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q156. People in different regions of the country mention many factors that contribute to their quality of life. Thinking about the quality of life specifically in the Northern Virginia region, please identify which one of the following factors has the most significant impact on the overall quality of life for you personally.

Denotes statistically significant differences between 2021 and 2023 (p<.05)

After a steady decline, impact of transportation factors has stabilized. The impact of crime, however, has seen a notable increase.

Significant Impact on Quality of Life	2016	2019	2021	2023
Improving affordability of housing and living—making it easier to afford to live here	18%	24%	21%	22%
Reducing traffic congestion and improving transportation options	**33%**	**26%**	**16%**	**17%**
Reducing crime and making neighborhoods safer	**8%**	**7%**	**8%**	**14%**
Increasing access to high quality affordable healthcare	6%	8%	10%	9%
Increasing the number and quality of jobs	12%	10%	9%	8%
Reducing poverty and income inequality	6%	7%	7%	7%
Improving quality of education in kindergarten to 12th grade	6%	4%	6%	6%
Improving access and enjoyment of outdoor recreational opportunities for everyone	4%	4%	7%	5%
Improving range of housing choices (single family, townhome, apartments, etc.)	4%	7%	6%	5%
Taking steps to address climate change			5%	4%
Increasing access to higher education and vocation training for local residents	4%	3%	6%	3%

+6 since 202

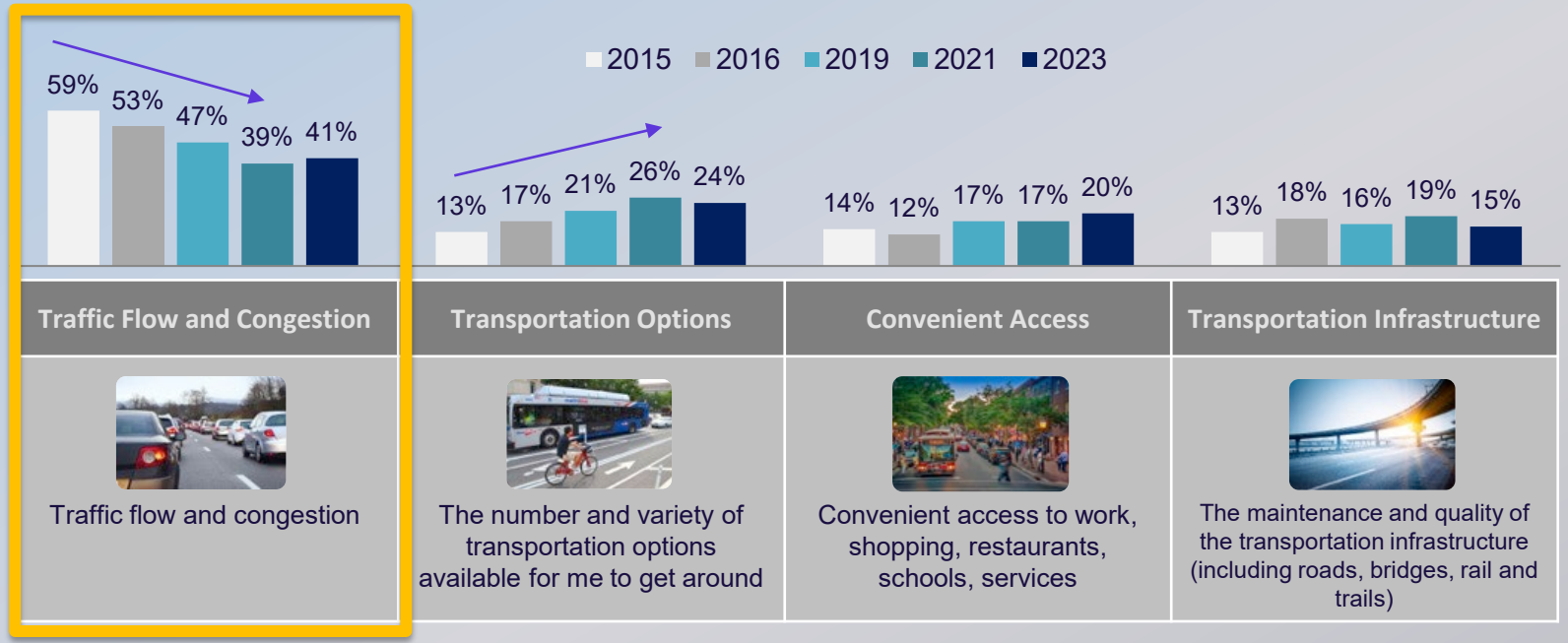
Affordability and transportation have always been the top two factors impacting quality of life. They are inter-related. Affordability has become the leading factor impacting quality of life as traffic/congestion have improved and are less of a priority.

BASE: ALL RESPONDENTS (2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q156. People in different regions of the country mention many factors that contribute to their quality of life. Thinking about the quality of life specifically in the Northern Virginia region, please identify which one of the following factors has the most significant impact on the overall quality of life for you personally.

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Looking specifically at transportation factors, *Traffic flow and congestion* continues to have the biggest impact followed by *Transportation options*.

Which Transportation Factor has the Biggest Impact on Quality of Life?



BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616), 2021 n=611, 2023 n=606)
Q520. Northern Virginia residents and workers have mentioned different factors relating to transportation—both positive and negative—that contribute to or detract from their quality of life. Thinking about transportation here in this region and your personal quality of life, please identify which one of the following you feel has the biggest impact on you and your family personally?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

When looking at which transportation factor has the biggest impact on quality of life, some unique demographic and behavioral profiles emerge.

Biggest Impact on Your Quality of Life – Subgroup Analysis

Traffic Flow and Congestion (41%)
• 54% Ages 55+ • 52% Never uses public transit • 48% Unemployed • 47% White • 47% Prince William County • 47% Occasionally uses public transit • 46% Have not lived in region majority of life

Traffic plays a bigger role among older, white, non-public transportation users.

Transportation Options (24%)
• 39% Uses public transit daily/weekly • 35% HHI <$50K • 29% Arlington County • 29% Ages 35-54

Transportation options have a bigger impact on middle aged commuters who use public transportation.

Convenient Access (20%)
• 31% Black • 28% Lived in region less than 5yrs • 27% Ages 18-34 • 26% Asian • 26% Single • 26% Renter

Convenient access is important for younger, single, minorities.

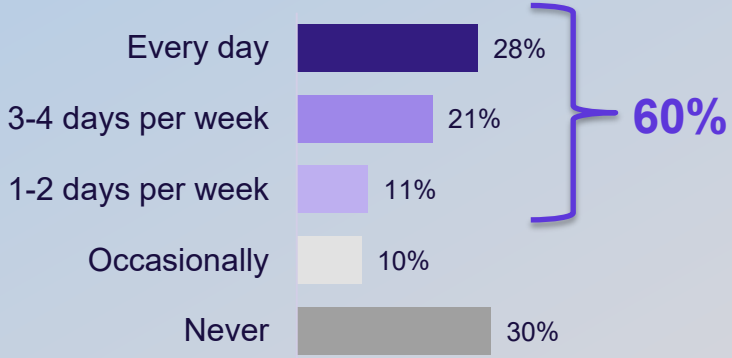
Transportation Infrastructure (15%)
• 26% Aware of TransAction • 20% Aware of NVTA

Infrastructure has a bigger impact among those who follow developments related to regional transportation.

BASE: ALL RESPONDENTS (2021 n=611, 2023 n=606)
Q520. Northern Virginia residents and workers have mentioned different factors relating to transportation—both positive and negative—that contribute to or detract from their quality of life. Thinking about transportation here in this region and your personal quality of life, please identify which one of the following you feel has the biggest impact on you and your family personally?

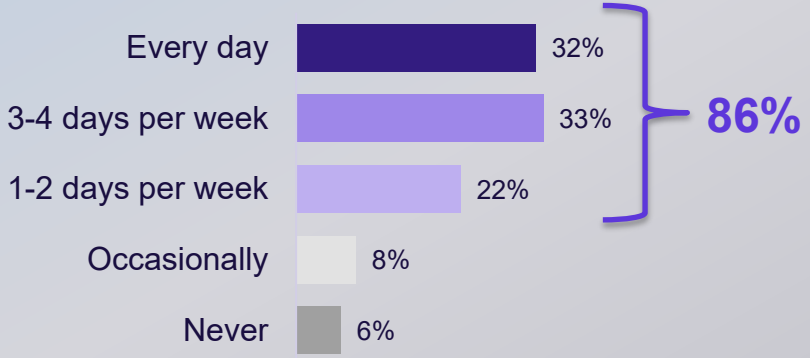
Traffic impacts quality of life because most participants are driving on a regular basis. While driving to work is common, driving is more frequent for non-work purposes.

How often do you drive to work?



Drives to work regularly/at least once a week
2023: 60%
2021: NA
2019: 59%
2016: 62%

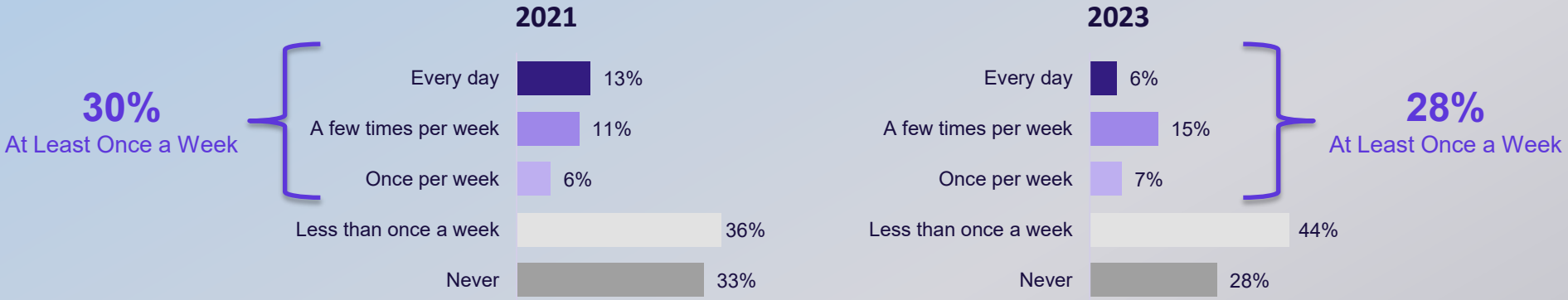
How often do you drive for non-work purposes?



BASE: ALL RESPONDENTS, (2023 n=606)
Q572a. How often do you drive to work?
Q572b. How often do you drive for non-work purposes (for example running errands, the store, travel for leisure, etc.)?

Most residents use public transportation, but daily usage has softened (which may be a function of a post pandemic shift to working from home/hybrid schedules).

How Often do you Use Public Transit?



The Washington Post
Democracy Dies in Darkness

D.C., MD. & VA. | The District | Maryland | Virginia | Crime & Public Safety | Local Education | Obituaries | Transportation | Capital Weather Gang

Remote work thrived again in 2022, new data show, with D.C. a top hub

By Tara Bahrampour

Updated September 14, 2023 at 6:36 p.m. EDT | Published September 14, 2023 at 6:00 a.m. EDT

D.C. and the Washington metro area showed some of the highest rates in the nation. Just over a third of the District's residents (33.8 percent) worked from home in 2022, down from 48.3 percent the year before, when the city topped the list, according to the American Community Survey, conducted annually by the Census Bureau. Only Seattle had a higher share of remote workers last year among cities, at 36 percent.

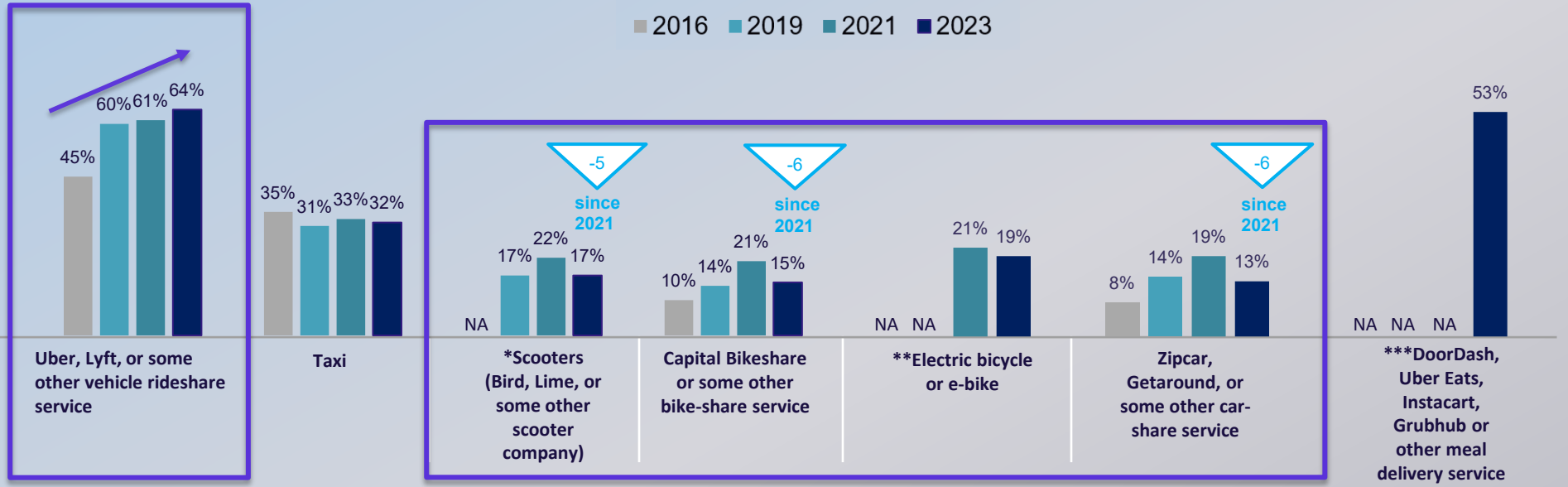
BASE: ALL RESPONDENTS (2021 n=611, 2023 n=606)
Q581a. How often do you use public transit?

Transportation

CAR OWNERSHIP ALTERNATIVES AND PERCEPTIONS OF SELF-DRIVING VEHICLES

Rideshare services remain the dominant alternative to car ownership and continue to show a growth trend. Declines are observed in scooters, bikes and car share services.

Usage of Car Ownership Alternatives



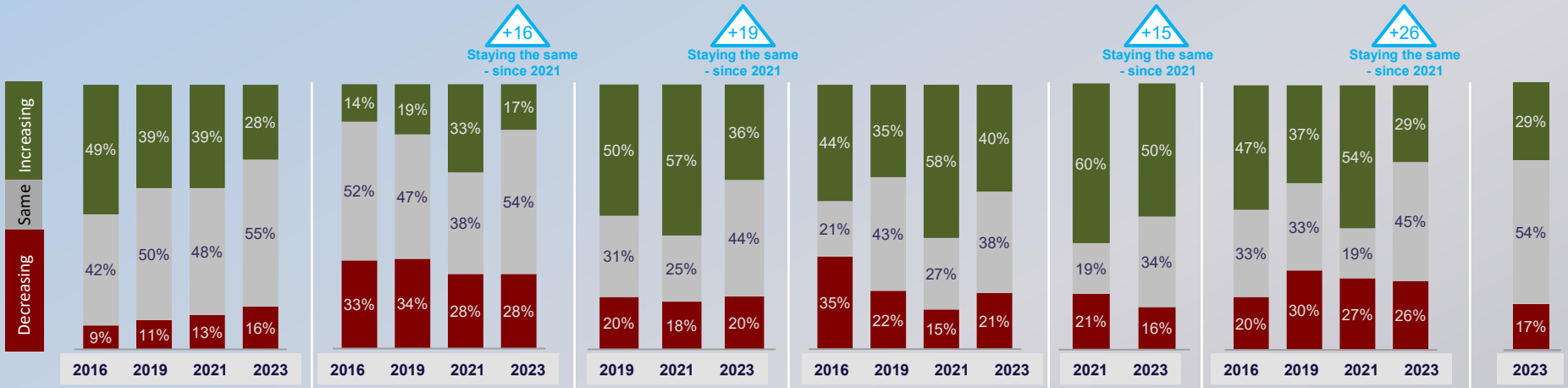
BASE: ALL RESPONDENTS (2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606).
Q740. There are a number of alternatives to owning a car that are being used by people living in the region. Which of the following do you currently use?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

*Scooters added in 2019,
**E-bikes added in 2021
***Meal delivery services added in 2023

Reported changes in usage show growth rates tapering off. The most commonly used alternatives (rideshare and taxi) are the most stable.

Reported Change in Usage of Car Ownership Alternatives

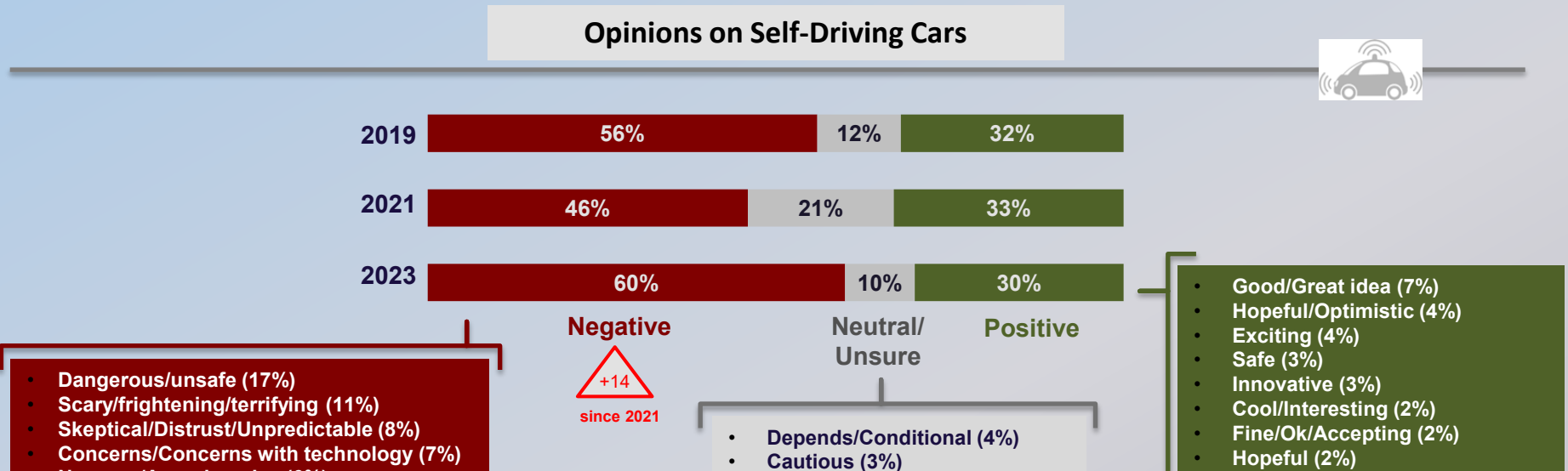


BASE: AMONG THOSE USING EACH SERVICE - UBER/LYFT (2016 n=265, 2019 n=352, 2021 n=370, 2023 n=389); Taxi (2016 n=208, 2019 n=189, 2021 n=199, 2023 n=195); Scooters (2019 n=94, 2021 n=134, 2023 n=100); Zipcar/Car2go/Getaround (2016 n=46, 2019 n=80, 2021 n=118, 2023 n=78*); Capital Bikeshare (2016 n=55, 2019 n=84, 2021 n=129, 2023 n=89*); Electric Bike/E-bike (2021 n=127, 2023 n=116); Meal Delivery Service (2023 n=322)
Q745. Do you anticipate your usage increasing, decreasing or staying the same over the next 12 months for each of the following?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

*Scooters added in 2019,
**E-bikes added in 2021
***Meal delivery services added in 2023

Opinions on self-driving vehicles have grown increasingly more negative with concerns about safety and how well the technology can be trusted.



BUSINESS

California orders Cruise driverless cars off the roads because of safety concerns

OCTOBER 24, 2023 · 4:34 PM ET

10/23 NPR Article

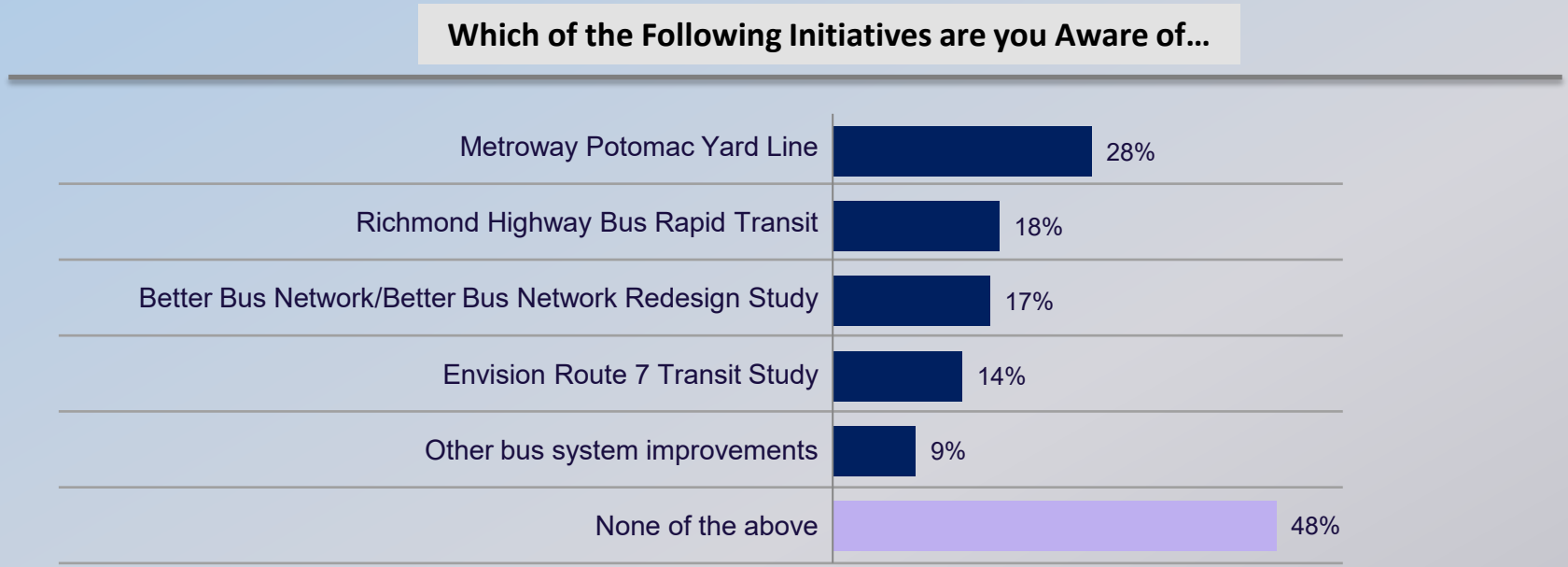
BASE: ALL RESPONDENTS (2019 n=616; 2021 n=611, 2023 n=606)

Q725. What one word or phrase would you use to describe your overall feelings of self-driving cars being on the road in Northern Virginia in the near future?

Transportation

REGIONAL BUS SYSTEMS

There is limited awareness of bus system initiatives.



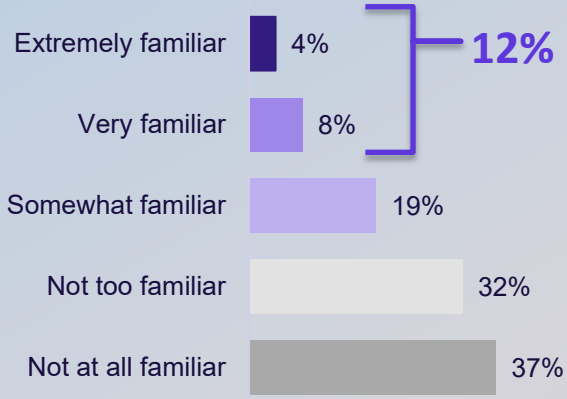
BASE: ALL RESPONDENTS (2023 n=606)
Q422. Are you aware of any of the following initiatives to improve the bus system either in your home jurisdiction or in Northern Virginia?

Familiarity is limited and respondents tend to have either neutral or positive views toward BRT.

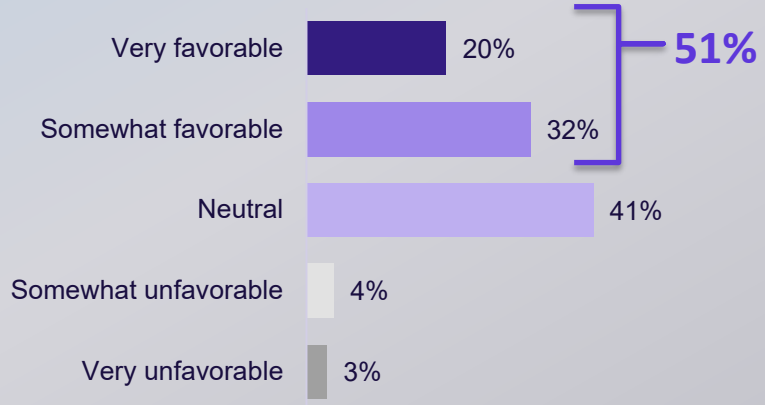
BRT – Bus Rapid Transit

Bus Rapid Transit (BRT) is a high-quality bus-based transit system that delivers fast, frequent and reliable service that may include dedicated lanes, busways, transit signal priority, off-board fare collection, elevated platforms and enhanced stations.

How familiar are you with Bus Rapid Transit (BRT)?

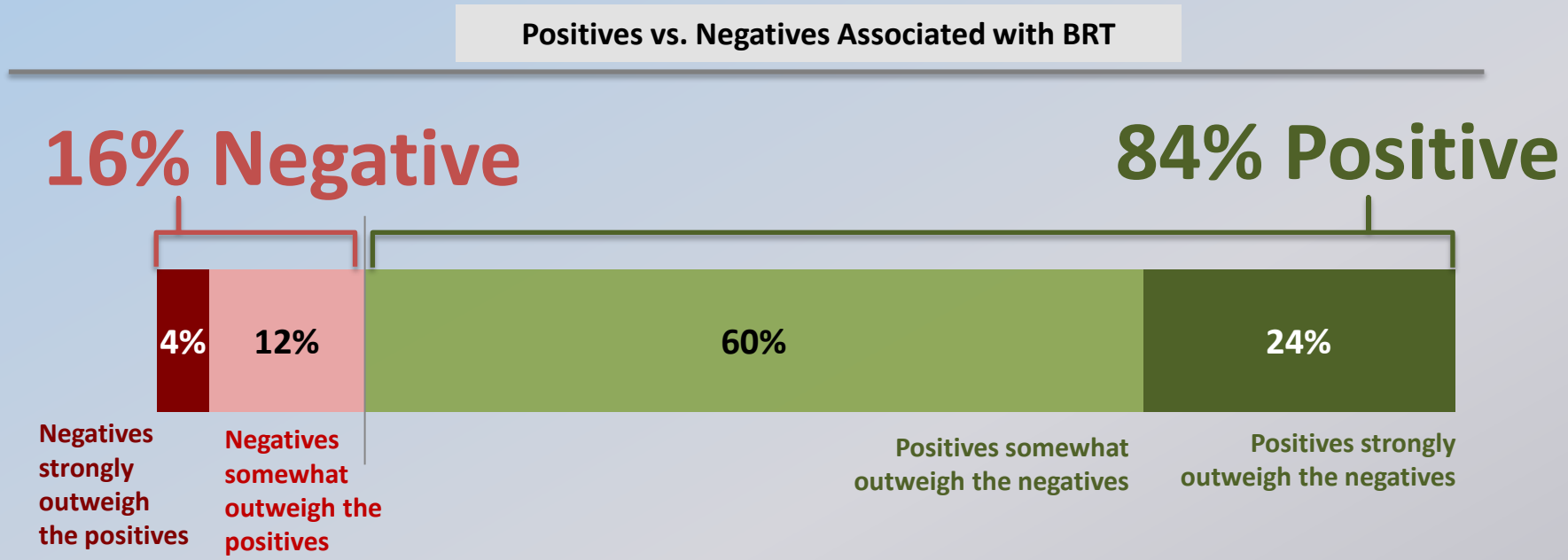


How favorable are you towards Bus Rapid Transit (BRT) operating in Northern Virginia?



BASE: ALL RESPONDENTS (2023 n=606)
Q450. Bus Rapid Transit (BRT) is a high-quality bus-based transit system that delivers fast,
frequent and reliable service that may include dedicated lanes, busways, transit signal priority, off-board fare collection, elevated platforms and enhanced stations. How familiar are you with Bus Rapid Transit (BRT)?
Q455. How favorable are you towards Bus Rapid Transit (BRT) operating in Northern Virginia?

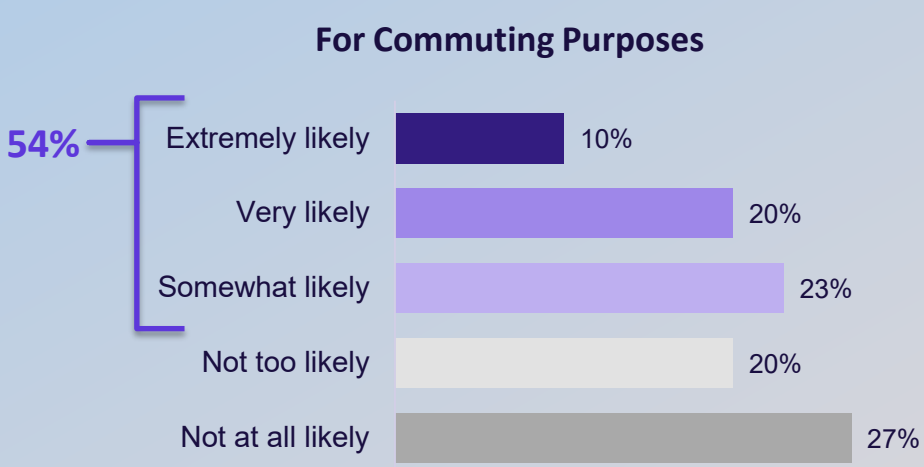
Residents are much more likely to see positive benefits of BRT than negatives.

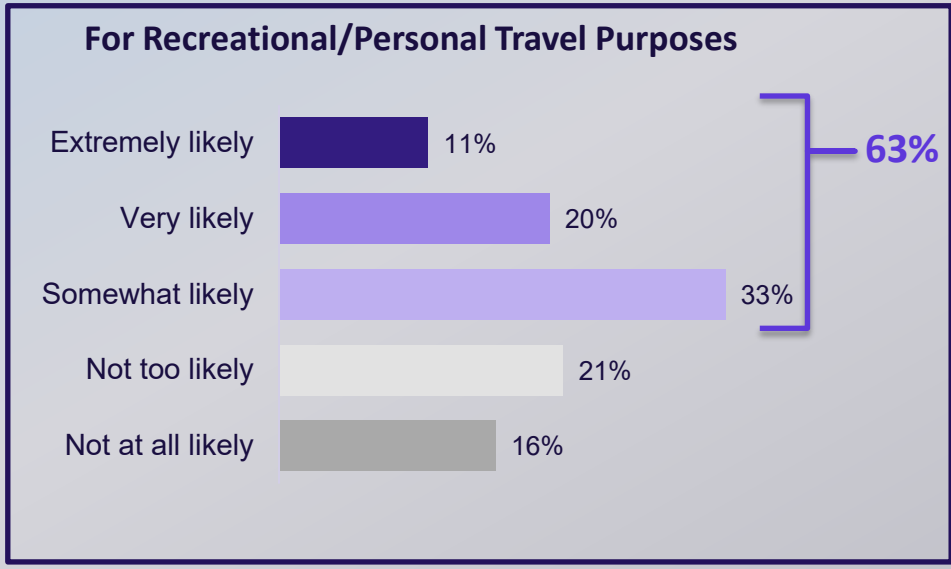


BASE: ALL RESPONDENTS (2023 n=606)
Q470. Thinking of all positives and negatives associated with Bus Rapid Transit (BRT), would you say the positives outweigh the negatives? Or the negatives outweigh the positives?

Residents are more likely to use BRT for personal purposes (about two thirds). Half are likely to use BRT for commuting purposes.

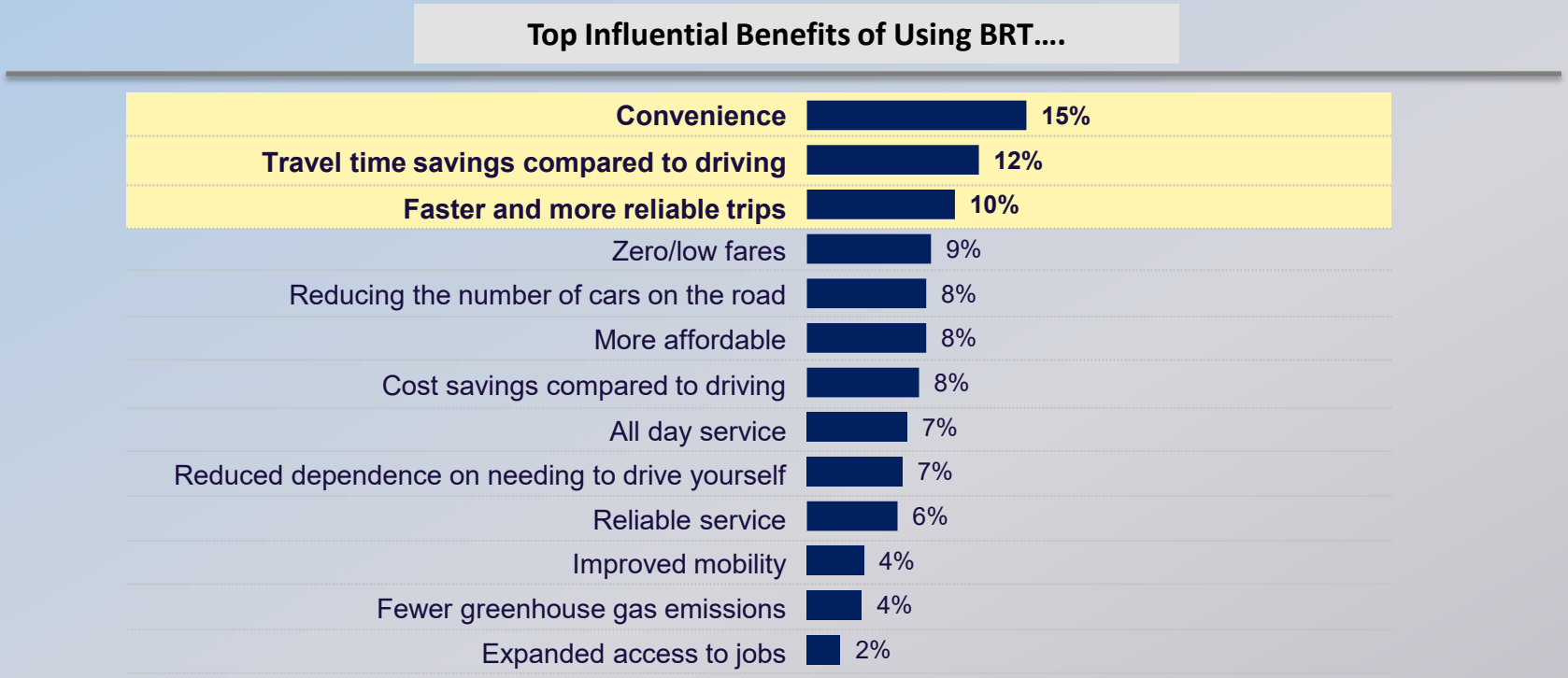
Likelihood to Consider Using BRT….





BASE: ALL RESPONDENTS (2023 n=606)
Q460. How likely would you be to consider using Bus Rapid Transit (BRT) if it were available?

Convenience, Saving time, and Reliability are the top influential benefits of using BRT.



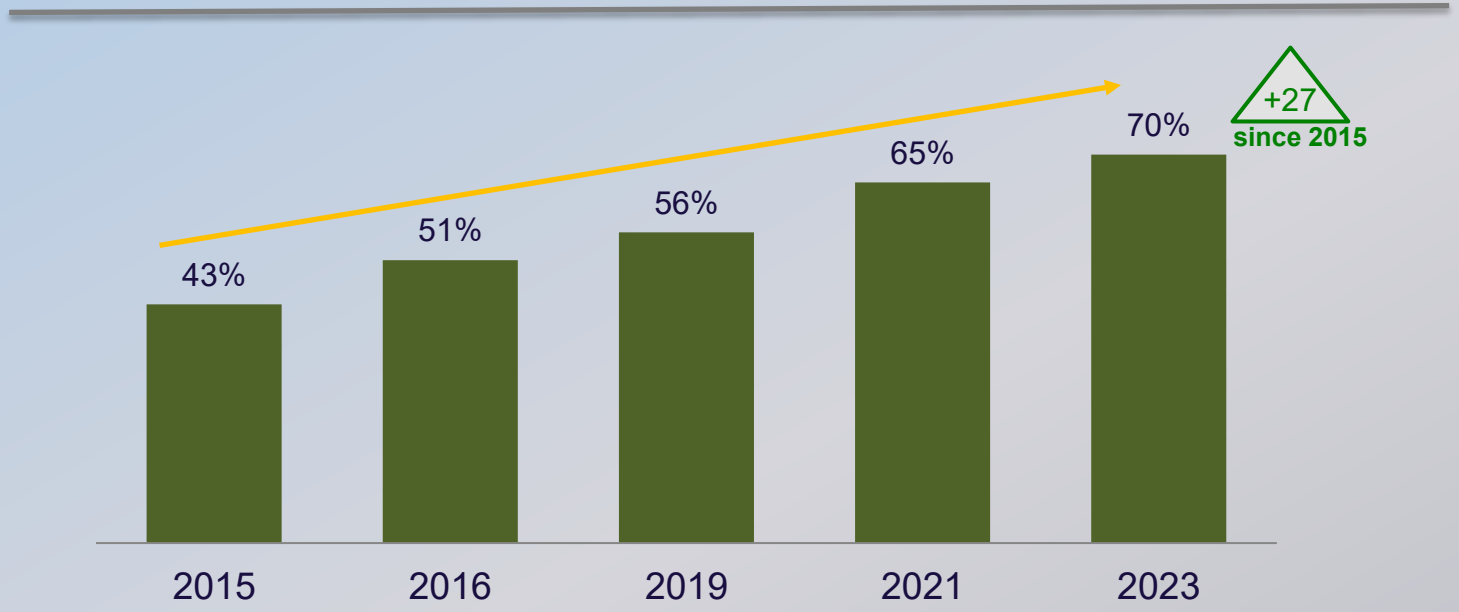
BASE: ALL RESPONDENTS (2023 n=606)
Q465. Which of the following benefits would be MOST influential in your decision to using Bus Rapid Transit (BRT) if it were available?

Transportation

REGIONAL PRIORITIES AND VALUES

The region continues to show increased perceptions of doing a good job on addressing top priorities.

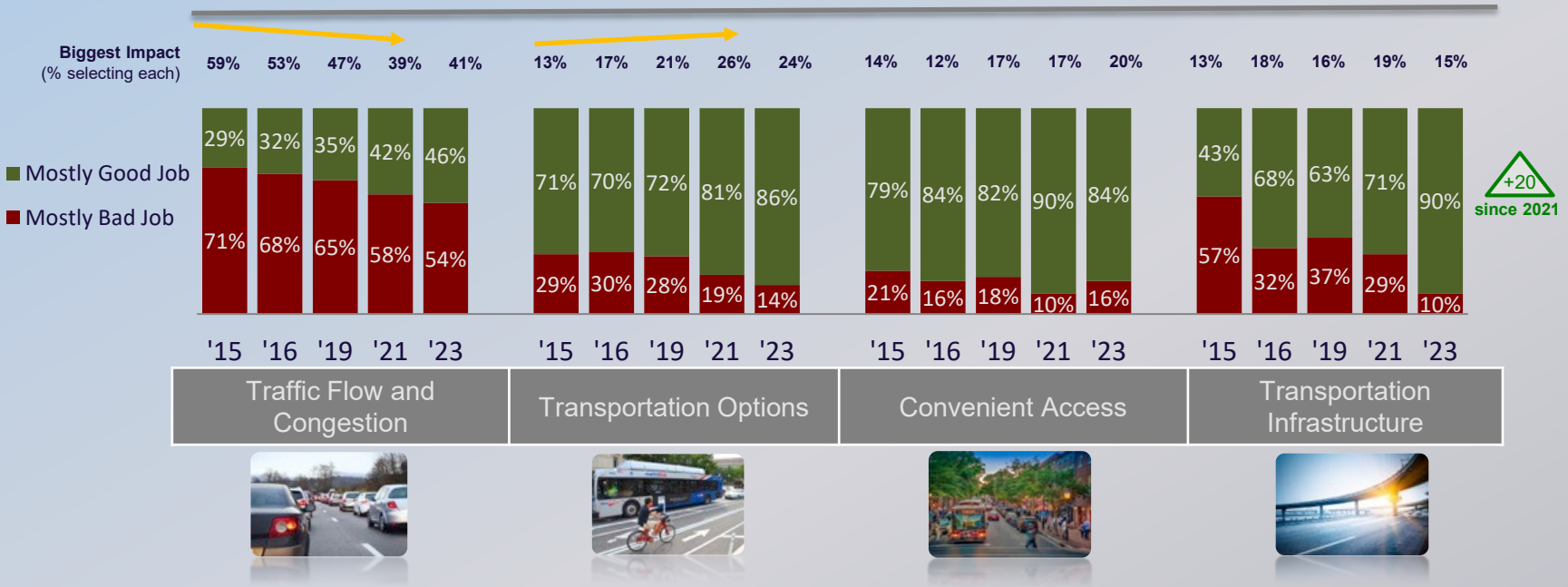
Region is Doing a *Mostly Good Job* on Top Priorities
(Total Respondents)



BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q530. Currently, when it comes to the number and variety of transportation options, do you feel that the region is doing a good job or a bad job?
Q540. Currently, when it comes to the maintenance and quality of the transportation infrastructure do you feel that the region is doing a good job or a bad job?
Q550. Currently, when it comes to convenient access to work, shopping, restaurants, schools and services, do you that like the region is doing a good job or a bad job?
Q560. Currently, when it comes to improving traffic flow and reducing congestion, do you feel that the region is doing a good job or a bad job?

The region continues to improve in terms of addressing *Traffic and congestion* while maintaining strong scores for other transportation priorities.

Which transportation factor has the biggest impact and how well is the region performing in that area?



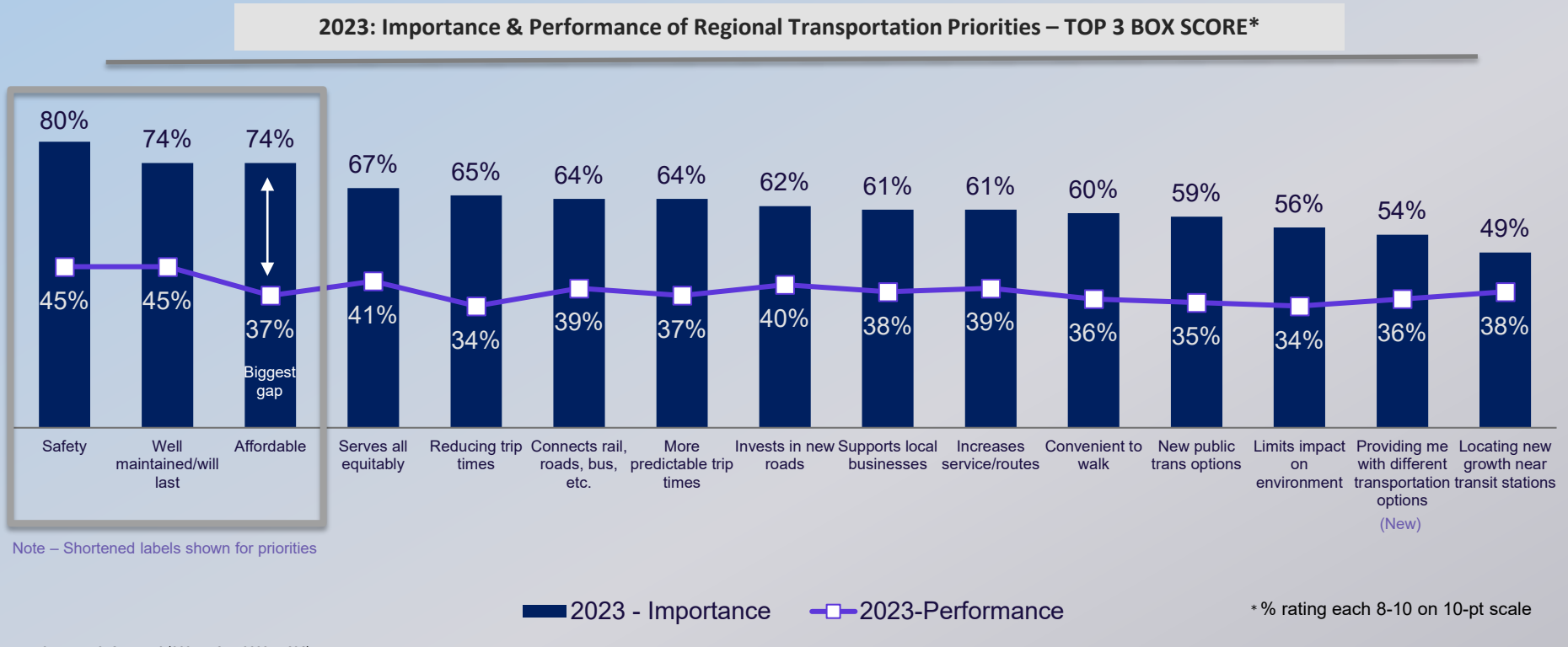
BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606). Q520. Northern Virginia residents and workers have mentioned different factors relating to transportation—both positive and negative—that contribute to or detract from their quality of life. Thinking about transportation here in this region and your personal quality of life, please identify which one of the following you feel has the biggest impact on you and your family personally? BASE: AMONG THOSE SELECTING EACH - TRANSPORTATION OPTIONS (2015 n=76, 2016 n=97, 2019 n=122, 2021 n=152, 2023 n=145); TRANSPORTATION INFRASTRUCTURE (2015 n=85, 2016 n=101, 2019 n=97, 2021 n=113, 2023 n=93*) CONVENIENT ACCESS (2015 n=84, 2016 n=71, 2019 n=97, 2021 n=105, 2023 n=122) TRAFFIC CONGESTION (2015 n=365, 2016 n=337, 2019 n=300, 2021 n=241, 2023 n=246). Q530–Q560. Currently, when it comes to [ANSWER FROM Q520], do you feel that the region is doing a good job or a bad job?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

What priorities are most important and how well does the region perform?

Short Label	Full Label
Connects rail, roads, bus, etc.	***Providing a transportation system that connects rail, roads, bus, biking and pedestrians***
Affordable	***Making sure that our transportation system is affordable***
Supports local businesses	***Building a transportation system that supports local businesses and the regional economy***
Reducing trip times	***Reducing trip times***
More predictable trip times	***More predictable trip times***
New public trans options	***Providing new public transportation options***
Invests in new roads	***Investing in new highways and road improvements***
Locating new growth near transit stations	***Locating new growth in the region near transit stations***
Increases service/routes	***Increasing existing service and routes of public transit systems***
Convenient to walk	***Making it convenient to walk or bike to neighborhood stores, businesses, and schools***
Safety	***NEW WORDING for 2021: Making sure our transportation system is safe*** *OLD WORDING: Making sure our transportation system takes advantage of the latest technologies to make it more efficient and safer*
Well maintained/Will last	***Building a transportation system that is well maintained and will be around for a long time (added in 2021)***
Limits impact on environment	***Limiting the transportation system's impact on the environment (added in 2021)***
Serves all equitably	***Building a transportation system that serves all members of the community equitably (added in 2021)***
Provides different transportation options	***Providing me with different transportation options that reduce the need for me to drive alone (added in 2023)***

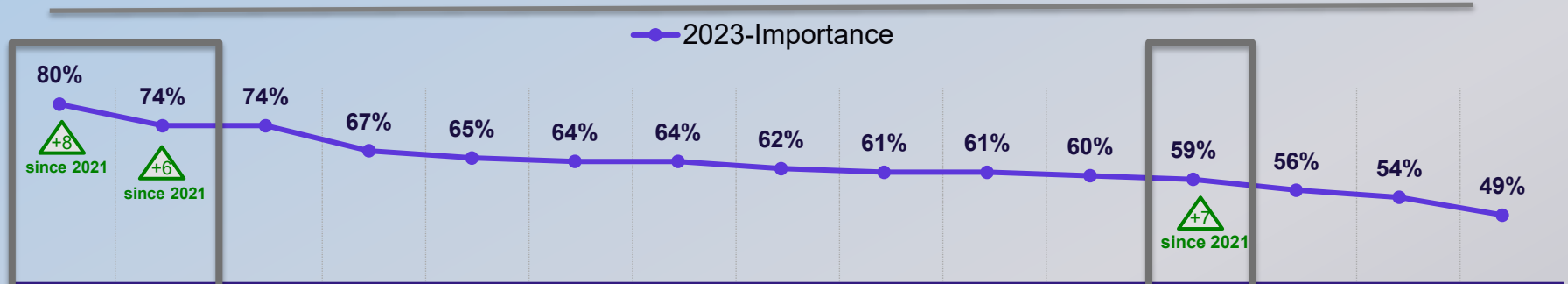
Safety, *Maintenance*, and *Affordability* are the three most important transportation priorities. Largest gap is with *Affordability*, but there is room for improved performance across the board.



BASE: ALL RESPONDENTS (2021 n=611, 2023 n=606)
Q600. Thinking specifically about transportation issues and priorities, please rate each of the following where 1 means 'Not at all important to the future of the region" and 10 means "Extremely important priority for the future of the region."
Q605. Please indicate how well you think Northern Virginia is performing on each of these priorities using the scale where 1 means the region is not performing well at all and 10 means the region is performing extremely well.

Safety, Affordability, and *New public transit options* have significantly grown in their importance since 2021. Other priorities remain comparable to 2021.

Importance Over Time in Regional Transportation Priorities - TOP 3 BOX SCORE*



	Safety	Affordable	Well maintained/ Will last	Serves all equitably	Reducing trip times	Connects rail, roads, bus, etc.	More predictable trip times	Invests in new roads	Supports local businesses	Increases service/routes	Convenient to walk	New public trans options	Limits impact on environment	Provides different transportation options (New)	Locating new growth near transit stations
2021	72%	68%	71%	64%	61%	62%	59%	59%	60%	60%	57%	52%	56%	NA	48%
2019	NA	67%	NA	NA	63%	57%	56%	59%	52%	52%	52%	50%	NA	NA	45%
2016	NA	71%	NA	NA	69%	56%	61%	62%	55%	58%	52%	56%	NA	NA	45%
2015	NA	73%	NA	NA	74%	56%	62%	65%	55%	51%	52%	47%	NA	NA	44%

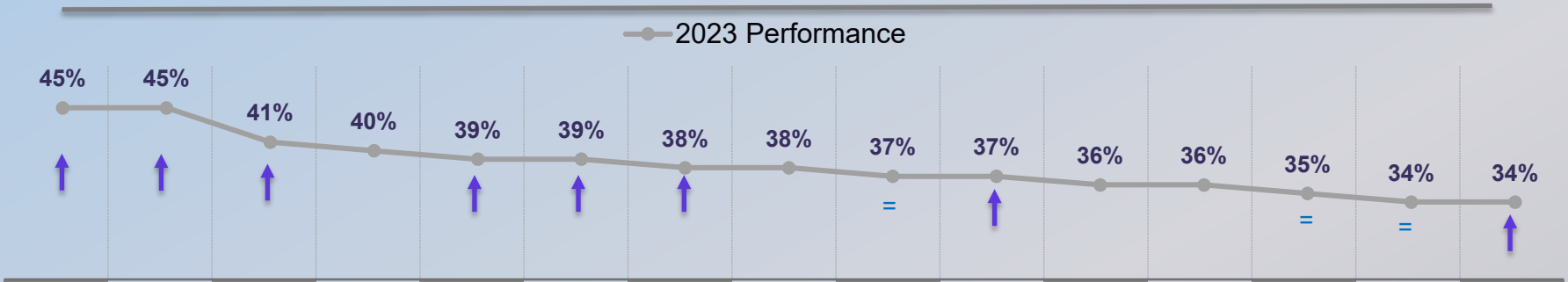
* % rating each 8-10 on 10-pt scale

BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q600. Thinking specifically about transportation issues and priorities, please rate each of the following where 1 means 'Not at all important to the future of the region" and 10 means "Extremely important priority for the future of the region."

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Performance ratings tend to be as good or better to 2021 for most priorities.

Performance Over Time in Regional Transportation Priorities - TOP 3 BOX SCORE*



	Safety	Well maintained / Will last	Serves all equitably	Invests in new roads	Connects rail, roads, bus, etc.	Increases service/routes	Supports local businesses	Locating new growth near transit stations	Affordable	More predictable trip times	Provides different transportation options (New)	Convenient to walk	New public trans options	Limits impact on environment	Reducing trip times
2021	43%	39%	40%	41%	37%	36%	37%	41%	37%	35%	NA	37%	35%	34%	31%
2019	NA	NA	NA	32%	29%	26%	28%	31%	31%	27%	NA	29%	29%	NA	28%
2016	NA	NA	NA	26%	25%	24%	27%	27%	23%	23%	NA	25%	22%	NA	24%
2015	NA	NA	NA	25%	23%	21%	22%	26%	20%	18%	NA	22%	20%	NA	21%

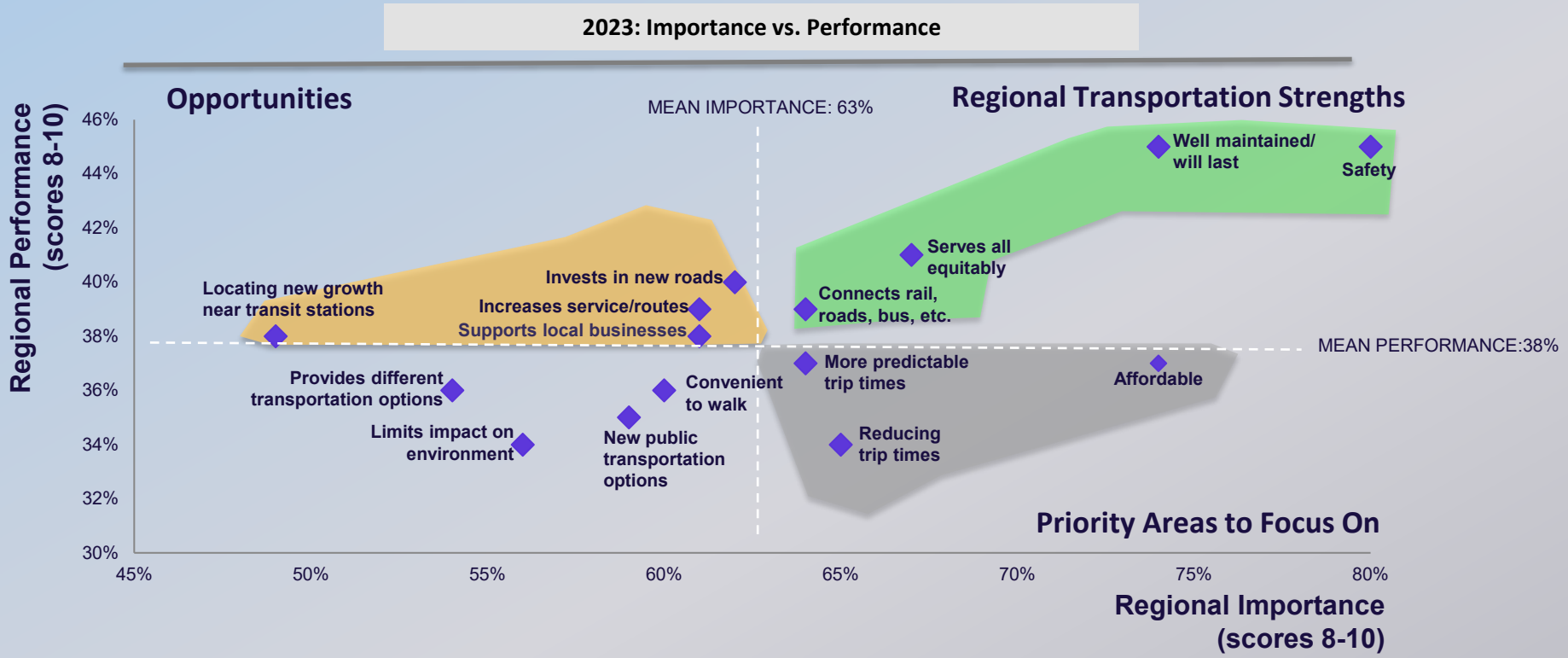
* % rating each 8-10 on 10-pt scale

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Arrows show directional increases

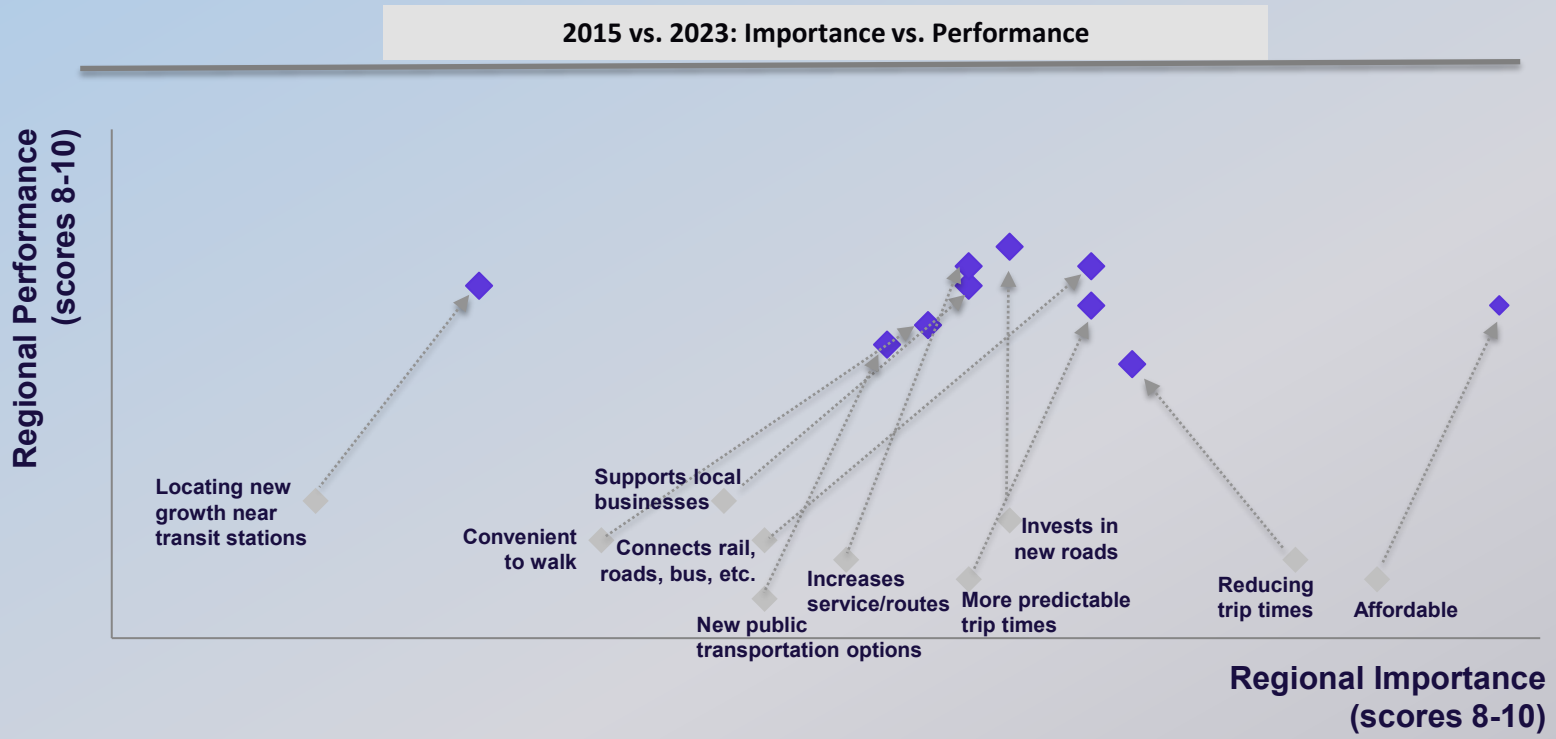
BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q605. Please indicate how well you think Northern Virginia is performing on each of these priorities using the scale where 1 means the region is not performing well at all and 10 means the region is performing extremely well.

Safety, *Equitable access*, *Connection*, and *Longevity* remain current regional transportation strengths. The priority areas to strengthen performance relate to *Affordability*, *Reducing trip times* and making them more *Predictable*.



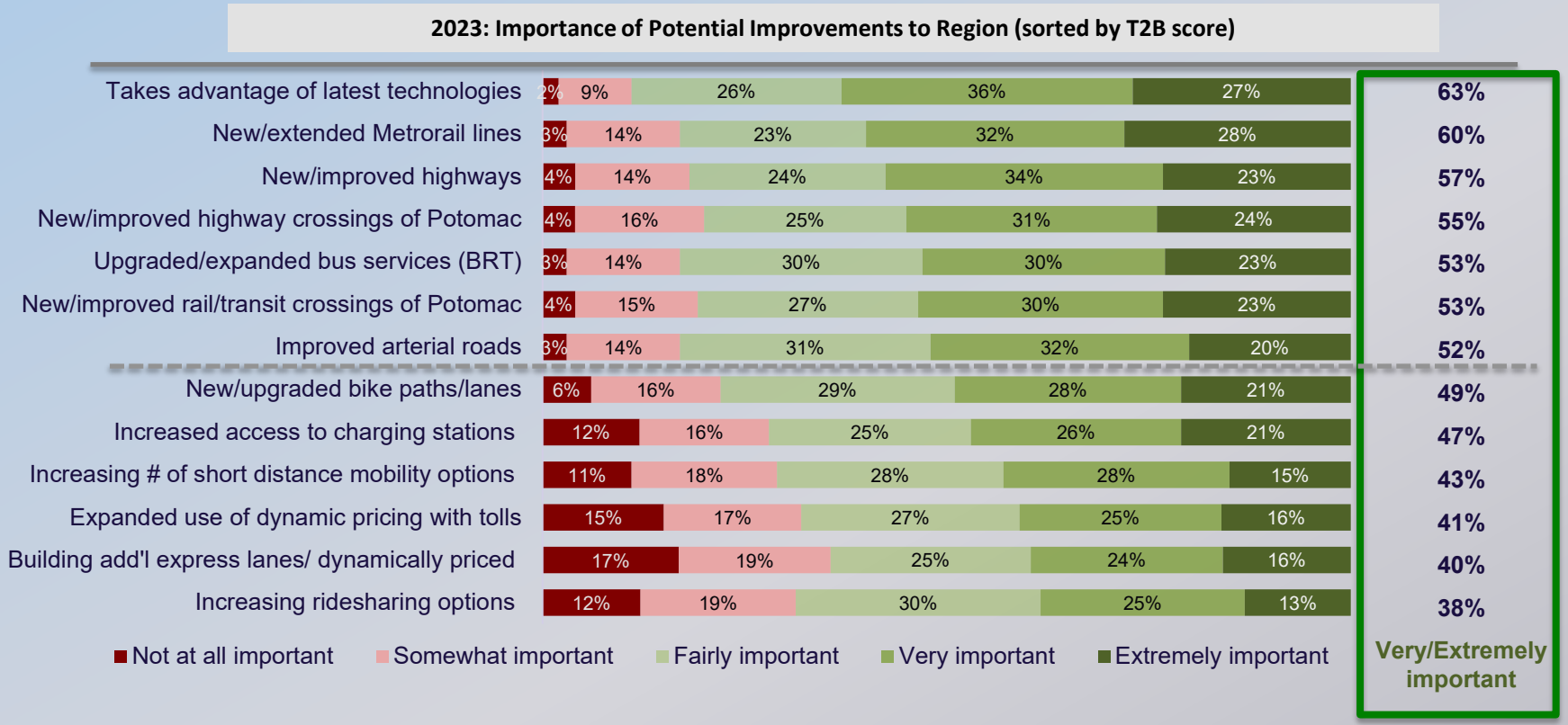
BASE: ALL RESPONDENTS (2021 n=611, 2023 n=606)
Q600. Thinking specifically about transportation issues and priorities, please rate each of the following where 1 means 'Not at all important to the future of the region" and 10 means "Extremely important priority for the future of the region."
Q605 Please indicate how well you think Northern Virginia is performing on each of these priorities using the scale where 1 means the region is not performing well at all and 10 means the region is performing extremely well.

Most of the movement in priorities comes from shifts in improved performance (items are moving higher on chart) as compared to the 2015 benchmark. Affordability shows a noticeable jump in performance, while reduced trip times shows the only decline.



BASE: ALL RESPONDENTS (2021 n=611, 2023 n=606)
Q600. Thinking specifically about transportation issues and priorities, please rate each of the following where 1 means 'Not at all important to the future of the region" and 10 means "Extremely important priority for the future of the region."
Q605 Please indicate how well you think Northern Virginia is performing on each of these priorities using the scale where 1 means the region is not performing well at all and 10 means the region is performing extremely well.

The most important potential improvements include leveraging technology, while making improvements to Metro & highways as well as offering expanded BRT.



BASE: ALL RESPONDENTS (2023 n=606)
Q620B. Now, thinking about potential projects and improvements in the region, please indicate how important you think each one is.

Denotes statistically significant differences between 2021 and 2023 (p<.05)

The most important potential improvements since previous year include leveraging technology, and improved highway crossings of Potomac.

Historical Comparison of Potential Improvements to Region
Rated Very/Extremely Important

	2019	2021	**2023**
Takes advantage of latest technologies	NA	58%	**63%**
New/extended Metrorail lines	61%	59%	**60%**
New/improved highways	55%	55%	**57%**
New/improved highway crossings of Potomac	51%	50%	**55%**
Upgraded/expanded bus services (BRT)	53%	57%	**53%**
New/improved rail/transit crossings of Potomac	51%	53%	**53%**
Improved arterial roads	51%	53%	**52%**
New/upgraded bike paths/lanes	34%	50%	**49%**
Increased access to charging stations	NA	48%	**47%**
Increasing # of short distance mobility options	NA	41%	**43%**
Expanded use of dynamic pricing with tolls	32%	39%	**41%**
Building add'l express lanes/ dynamically priced	NA	38%	**40%**
Increasing ridesharing options	NA	39%	**38%**

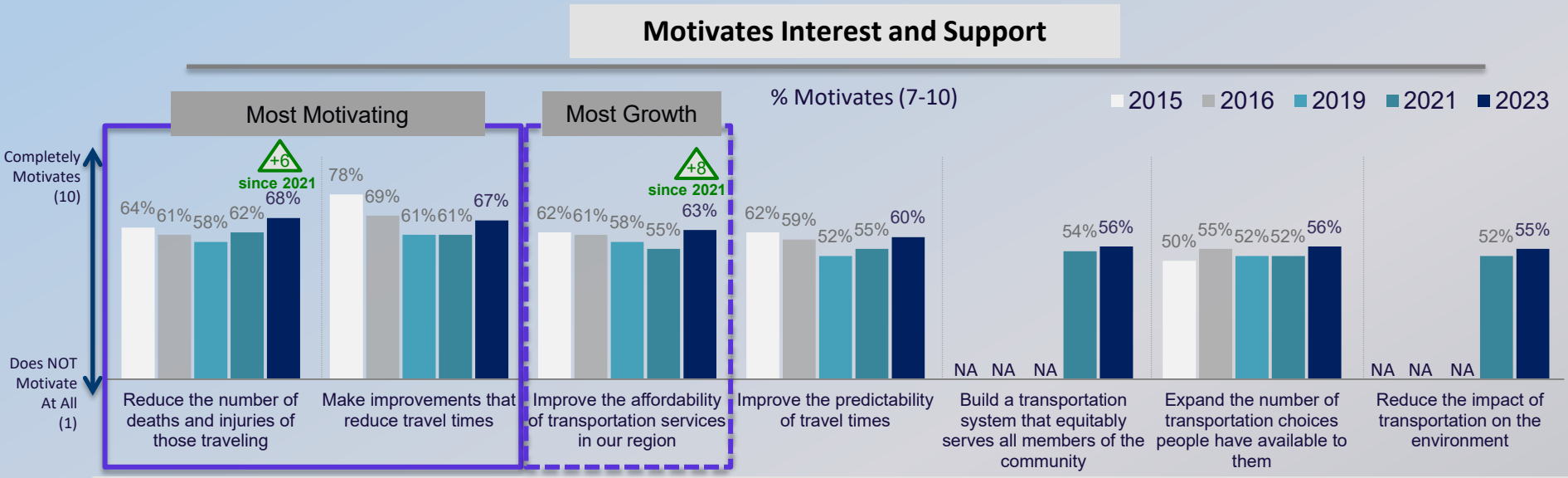
BASE: ALL RESPONDENTS (2023 n=606)
Q620B. Now, thinking about potential projects and improvements in the region, please indicate how important you think each one is.

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Transportation

MESSAGING

Messaging should center on benefits tied to safety and reduced travel times. Affordability concerns has grown in more than any other theme and should also be considered.



- 77% Small Business Owner in NoVA
- 74% Aware of NVTA

- 73% Ages 35-54
- 73% Aware of NVTA
- 72% HHI $100K

- 70% Uses Public Transit Daily/Weekly
- 69% Aware of NVTA
- 68% Ages 35-54
- 68% HHI $50K-<$100K

- 71% Aware of NVTA
- 70% Aware of TransAction
- 69% Uses Public Transit Daily/Weekly
- 66% Ages 35-54

- 70% Aware of TransAction
- 67% Prince William County
- 66% Uses Public Transit Daily/Weekly
- 65% Aware of NVTA
- 64% Ages 35-54
- 61% Female

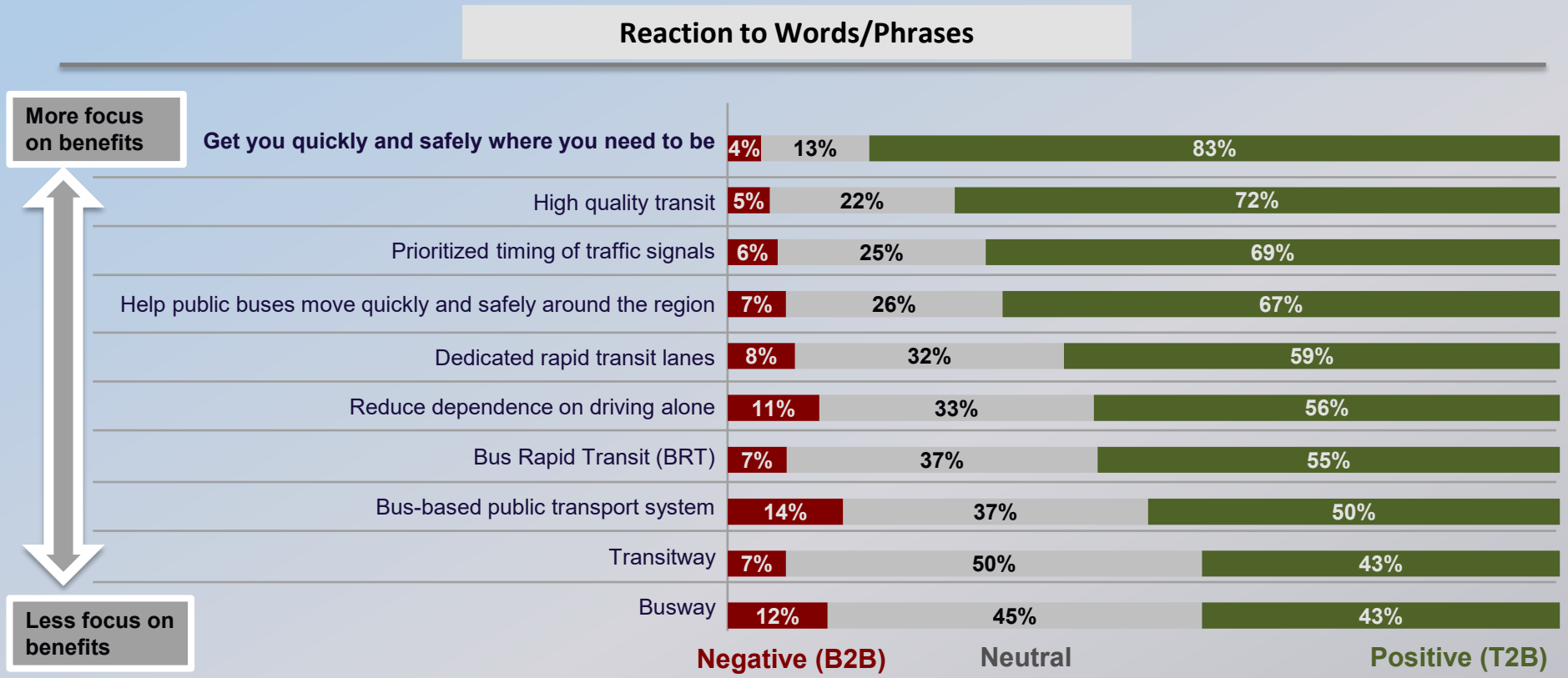
- 75% Aware of TransAction
- 67% Uses Public Transit Daily/Weekly
- 65% Aware of NVTA
- 64% Ages 35-54
- 62% Drives for work Daily/Weekly

- 67% Uses Public Transit Daily/Weekly
- 67% Aware of TransAction
- 63% Aware of NVTA

BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q705. The following are strategies to help fulfill the regional values and priorities we have been talking about. There are different ways to talk about these priorities and goals. Please indicate the degree to which the goal captures and motivates your interest and support by rating the statements from 1 to 10 where 1 means "does not motivate your interest and support at all" and 10 means "completely motivates your interest and support".

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Word choice matters when talking about transportation solutions. When transportation words/phrases are connected to personal benefits, they are much more positively received.



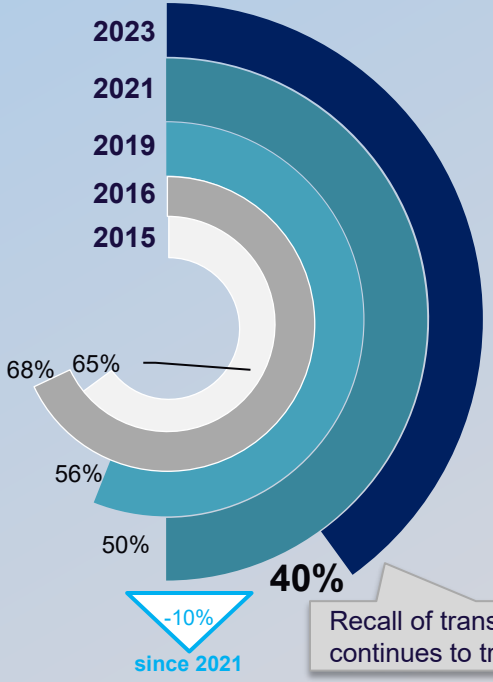
BASE: ALL RESPONDENTS (2023 n=606)
Q730. There are lots of different words and phrases that are used when discussing transportation options, their features and benefits. For each of the following words or phrases, please indicate if you have a positive, negative, or neutral feeling.

Transportation

NEWS RECALL

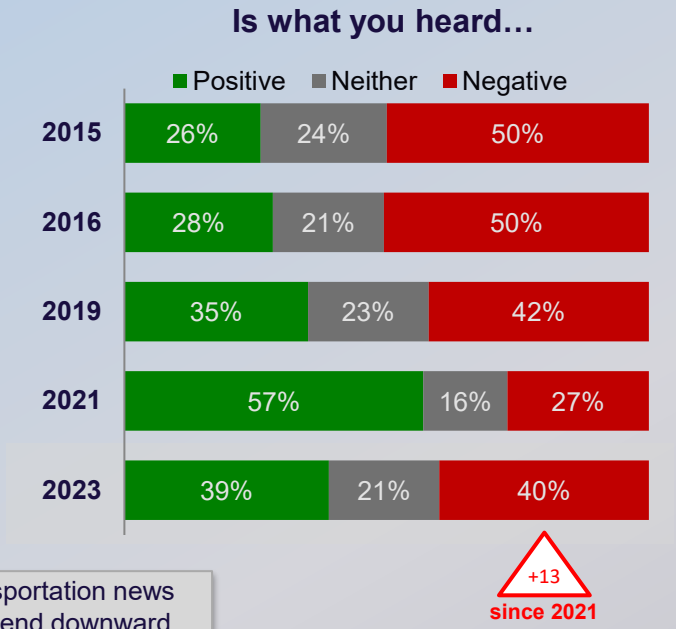
Recall of transportation related news continues to decrease. The ratio of positive to negative news falls back to 2019 levels.

Heard Something Recently



Recall of transportation news continues to trend downward

Top-of-Mind Transportation Issues



Most Likely to Hear Something *Positive in 2023*:
39% TOTAL

- 64% Aware of TransAction
- 56% High School degree or less
- 56% Loudoun County
- 48% Ages 35-54
- 48% Aware of NVTA
- 46% Male
- 46% Married/Living with partner

Most Likely to Hear Something *Negative in 2023*:
40% TOTAL

- 62% Work in DC
- 51% Ages 18-34
- 47% Not aware of NVTA
- 45% Prince William County

BASE: : ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q400. What, if anything, have you heard, read or seen recently regarding transportation issues, actions or news in the Northern Virginia region?
BASE: HEARD, READ, SEEN TRANSPORTATION ISSUES (2023 n=245); Consider it Positive 2023 (n=96), Consider it Negative 2023 (n=97)
Q405. Would you consider what you have heard, read, or seen positive or negative?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Transportation news most commonly recalled relates to Metro/WMATA, but also includes news about congestion, roadways, tolls and buses.

Positive

30% Metro/WMATA Expansion
- Expansion of the metro/stations (Ashburn, Potomac Yard, Tysons Corner, etc.)
- Opening of the Silver Line

20% Improved roads
- The expansion of roads to reduce congestion
- Widening the roads that are heavily populated (Route 28, I-64, I-66, Route 15N)
- Reopening of roads (US 340)
- Reconstruction for increased accessibility for pedestrians/bike lanes
- Increased funding for road improvements (I-95 corridor, US Highway 1, Route 28, bridges, rotaries, etc.)

14% Reduced congestion
- Reduced congestion by added express lanes/widened roads/tolls during rush hour (Centreville Road, I-95, DC Metroplex, and DMV area in general)
- Saturday service of VRE to ease traffic
- People working remote results in reduced traffic

10% Bus Expansion
- Expansion of bus lines
- Fairfax Connector adding electric busses

8% I-66 Improvements
- Extension of express lanes
- Completion of I-66 projects

Negative

55% Metro/WMATA Issues
- Funding for the metro system
- Reduced metro service (service hours, scheduling, reduced routes, delays, etc.)
- Increased crime at stations/stops
- Metro repairs/broken trains (derailment)
- Increased fee/fare
- Decreased ridership
- Metro rail expansion delays
- Transit worker strikes

31% Traffic Congestion
- Heavy traffic/Rush hour/Traffic jams
- Accidents
- Congestion due to drivers trying to avoid toll lanes
- Number one worst traffic in the country

15% Road closures/Construction delays
- Construction causing accidents and delays/congestion
- Road closures (roads not finished in Arlington)

10% Increased tolls
- Toll fees/EZ pass increasing
- Overpriced express lanes

The decline in recall is further reflected in specific channels. TV/News remains the dominant source followed by social media and print sources.

Most Recent Information Sources for Transportation Issues

	2015 (n=400)	2016 (n=411)	2019 (n=363)	2021 (n=311)	2023 (n=245)	
Television/News story	54%	57%	49%	58%	**46%**	-12 since 2021
Social Media	24%	31%	38%	49%	**36%**	-13 since 2021
Print article or ad In newspaper, magazine, flyer or information packet	46%	45%	36%	34%	**28%**	
Radio ad/news/discussion	41%	38%	32%	36%	**27%**	-9 since 2021
Community Meeting	7%	9%	10%	21%	**11%**	-10 since 2021
Website	5%	2%	4%	7%	**9%**	

Source	2021	2023
Facebook	32%	22%
X (Twitter)	24%	14%
Instagram	24%	NA
LinkedIn	NA	4%
Other social media	8%	11%

Other Sources Mentioned in 2023

- Personal experience 5%
- Word of mouth 3%

Websites Mentioned in 2023

- ArlNow.com
- WashingtonPost.com

BASE: HEARD, READ, SEEN TRANSPORTATION ISSUES (2015 n=400, 2016 n=411, 2019 n=363, 2021 n=311, 2023 n=245)
Q410. Where did you hear or see this information? Choose all that apply.

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Social media is an effective channel to reach younger residents along with people who are more engaged with public transportation.

More Likely to Use Social Media

36% TOTAL

- 59% Lived in region 5 years or less
- 58% Ages 18-34
- 57% Aware of TransAction
- 54% Uses public transport weekly/daily
- 51% HHI $50-$100K
- 48% Hispanic
- 48% Lived in region 6-10 years
- 46% HHI <$50K
- 46% Renter
- 45% Single
- 45% Children at home
- 44% Drives for work weekly/daily
- 44% Live and work in same region
- 41% Employed/Student

BASE: HEARD, READ, SEEN TRANSPORTATION ISSUES (2023 n=245)
Q410. Where did you hear or see this information? Choose all the apply.

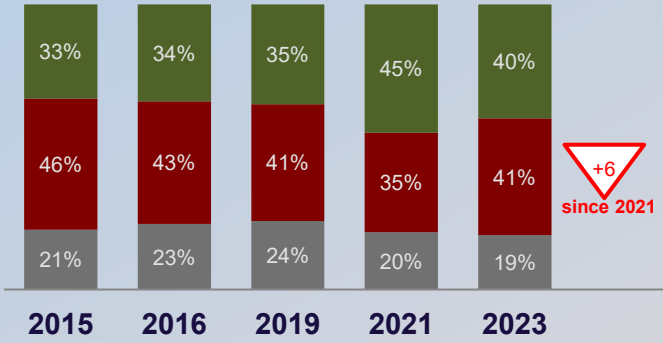
Transportation

AWARENESS LEVELS AND PERFORMANCE RATINGS FOR THE REGION AND REGIONAL AGENCIES

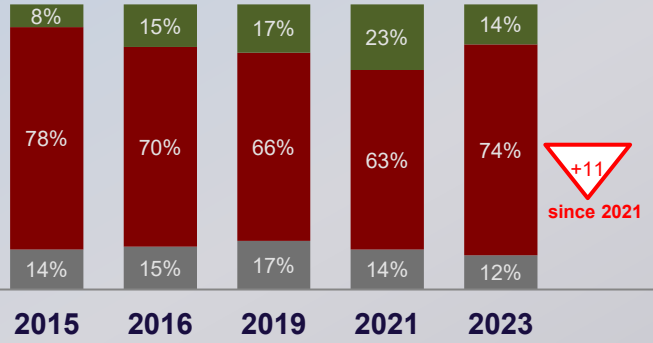
Awareness of NVTA and TransAction has softened after seeing a steady increase from 2016-2021.

Have you Ever Heard of…

…an organization called the **Northern Virginia Transportation Authority,** also known as NVTA?



…the **TransAction** long range transportation plan?



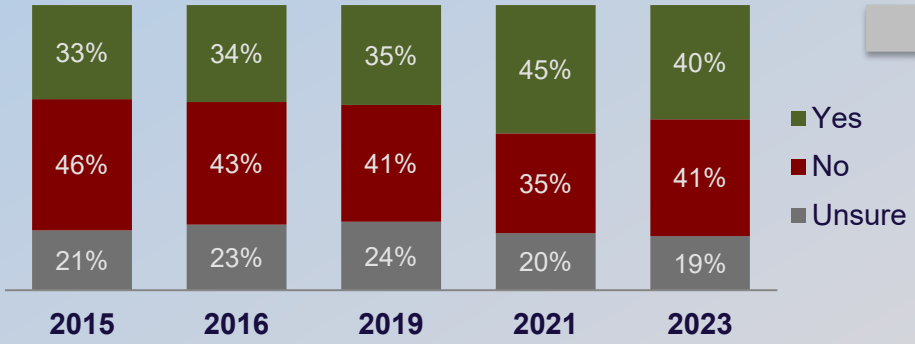
% Most Likely to Have Heard of NVTA (2023)		% Most Likely to Have Heard of TransAction (2023)	
• 75% Aware of TransAction • 57% Loudoun County • 47% Drives for work weekly/daily	• 46% Uses public transit weekly/daily • 46% HHI $100K+ • 46% Homeowner • 45% NoVA performance – excellent/good	• 35% NVTA performance – excellent/good • 29% Uses public transit weekly/daily • 26% Aware of NVTA • 24% Top Transport Factor – Quality of Infrastructure	• 20% Children at home • 20% Drives for work weekly/daily • 20% NoVA performance – excellent/good • 19% Asian

BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q417. Have you ever heard of an organization called the Northern Virginia Transportation Authority also known as NVTA?
Q420. Have you ever heard of the TransAction long range transportation plan?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Levels of familiarity with NVTA (among those who are aware) are fairly stable and tend to be limited to name recognition.

Have you Ever Heard of…



…an organization called the **Northern Virginia Transportation Authority,** also known as NVTA?

Familiarity with NVTA
(among those who are aware)

BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q417. Have you ever heard of an organization called the Northern Virginia Transportation Authority also known as NVTA?
BASE: AWARE OF NVTA (2021 n=283, 2023 n=243)
Q417b. How familiar are you with the Northern Virginia Transportation Authority?

While *Excellent* scores declined, the region and NVTA are both historically highest for *Good/Excellent* for performance in planning and implementing transportation solutions. Scores are highest among residents using public transit frequently (81%).

Performance on Planning and Implementing Transportation Solutions

Northern VA region

NVTA (Among those aware of NVTA)

	Poor/Fair	Poor	Fair	Good	Excellent	Good/Excellent
2015	73%	22%	51%	25%	2%	27%
2016	70%	15%	55%	26%	4%	30%
2019	61%	13%	48%	34%	5%	39%
2021	52%	12%	40%	35%	12%	48%
2023	49%	8%	41%	44%	7%	51%
2015	65%	17%	48%	32%	3%	35%
2016	66%	17%	49%	28%	6%	34%
2019	53%	9%	44%	31%	16%	47%
2021	42%	12%	31%	35%	23%	58%
2023	41%	7%	34%	47%	12%	59%

* Small base sizes less than 30/50. Data are directional only.

BASE: ALL RESPONDENTS (2015 n=610, 2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q630. How would you rate the performance of Northern Virginia region when it comes to planning and implementing transportation solutions in the region?
BASE: HAVE HEARD OF NVTA (2015 n=207, 2016 n=212, 2019 n=222, 2021 n=276, 2023 n=243)
Q645. How would you rate the performance of Northern Virginia Transportation Authority (NVTA) when it comes to planning and implementing transportation solutions in the region?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

NOVA Region Performance, those rating it higher (as good/excellent) (2023):

51% - Total

- 74% Aware of TransAction
- 72% Uses Public Transit weekly/daily
- 69% Never drives for work
- 64% Loudoun County
- 58% Ages 35-54
- 58% Aware of NVTA
- 57% Alexandria
- 57% Live and work in same region
- 57% Uses public transit (NET Yes)

NVTA Performance, those rating it higher (as good/excellent) (2023):

59% - Total

- 81% Uses public transit weekly/daily
- 80% Asian
- 80% Alexandria
- 79% Aware of TransAction
- 72% Ages 35-54
- 70% High School degree or less
- 69% Arlington County
- 65% Married/Living with partner
- 65% Live and work in same region
- 64% Loudoun County

Conclusions + Opportunities

Conclusions + Opportunities

Transportation is an important factor shaping quality of life and most believe investing in regional transportation is a priority. Recall of transportation content in the news has declined and awareness of NVTA and TransAction have softened (after seeing a sustained growth trend over several years).

Consider additional opportunities to partner with other agencies to help promote progress on on-going transportation initiatives (and the role NVTA plays). One potential strategy is to enhance communications to embrace how transportation is linked to other regional priorities - affordability, safety, access to healthcare.

Conclusions + Opportunities

Safety and well being are foundational to having a thriving region. Crime is featured prominently in the media and is a growing concern in the region and impacts quality of life. This increased attention on personal security elevates focus on safety more broadly. Safety has always been and continues to be a top priority for transportation.

Reinforce existing commitment to safety when creating new transportation solutions. When updating the public on transportation projects, highlight the specific ways new offerings will make our region a safer place to travel.

Conclusions + Opportunities

Work and commuting habits remain impacted by the post-pandemic shift to working from home. Most residents are back in the office and traveling for work at least a few times a week. Travel for non-work purposes is even more common.

Residents are still driving frequently. Decreases in work related driving may be offset to some extent by increased driving for non-work-related purposes. This means traffic is still a concern and the region needs to continue to find ways to ease congestion.

Conclusions + Opportunities

Despite low levels of familiarity with BRT –residents have more favorable than negative views. There is evidence of interest in having access to expanded BRT transportation options. Highlighting specific benefits will be helpful to influence usage.

Promote the benefits of BRT as a transportation option in the region. The most influential benefits found in the survey are convenience (it is accessible and easy to use); efficient (fast – speed comparable to driving, more frequent service), and reliable (this can be helpful in offsetting the variable of time in traffic). Also consider including any relevant safety benefits.

Appendix

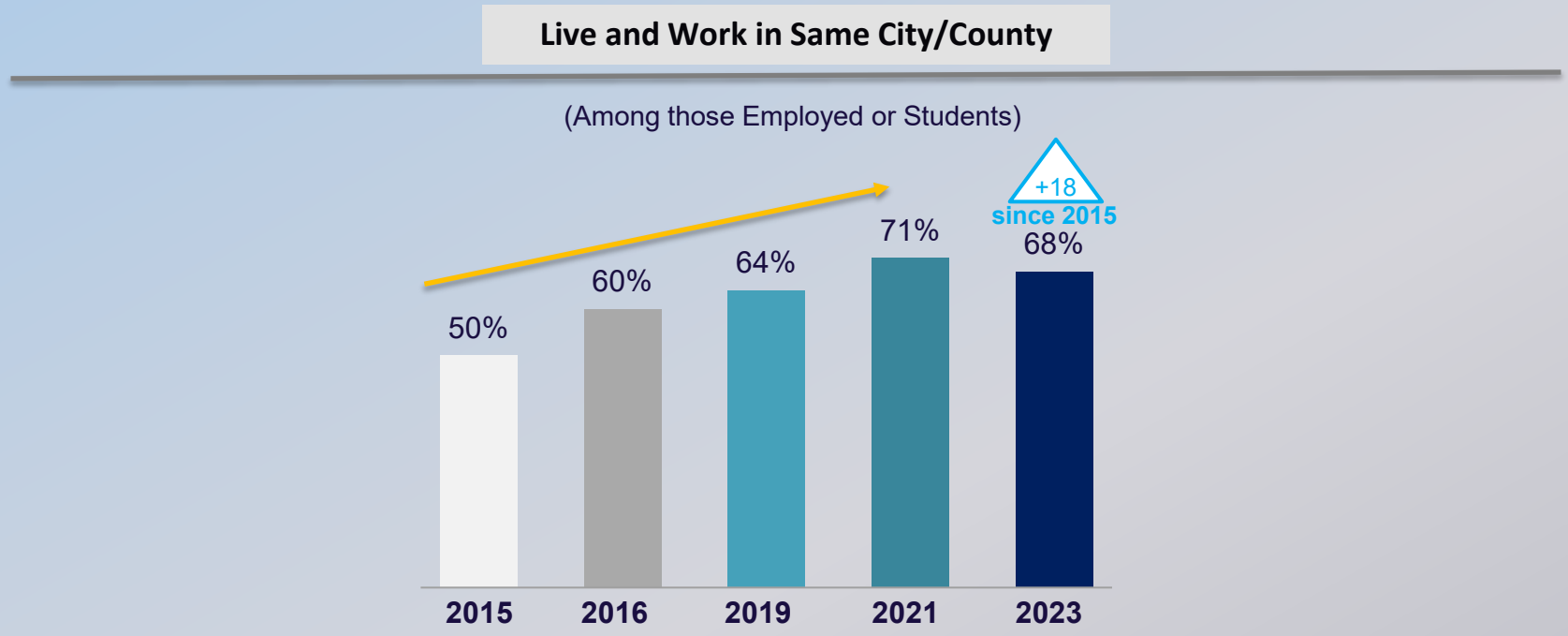
DEMOGRPAHICS AND ADDITIONAL SLIDES

Demographics

		2015	2016	2019	2021	2023
Gender	Male	48%	48%	47%	48%	49%
	Female	52%	52%	53%	52%	51%
Age	18-24	7%	11%	15%	13%	12%
	25-34	22%	22%	22%	21%	22%
	35-44	24%	21%	21%	25%	21%
	45-54	20%	21%	15%	12%	18%
	55-64	15%	14%	15%	15%	14%
	65+	12%	11%	13%	14%	13%
Ethnicity	White	58%	58%	52%	52%	53%
	Hispanic	15%	15%	17%	17%	17%
	Black	11%	11%	12%	12%	12%
	Asian	14%	14%	15%	15%	15%
	Hawaiian/Pacific Islander	<1%	<1%	<1%	<1%	<1%
	Native American/ Alaskan native	<1%	<1%	<1%	<1%	<1%
	Multi-race	2%	2%	4%	4%	3%
	Other	<1%	<1%	<1%	<1%	<1%
Marital	Married/Civil Union	60%	56%	51%	52%	48%
	Single, never married	24%	32%	31%	29%	32%
	Divorced/Separated/Widowed	11%	14%	12%	10%	11%
	Living with Partner	5%	3%	6%	5%	7%
	Decline to answer	<1%	<1%	<1%	<1%	1%

		2015	2016	2019	2021	2023
Education	HS or less	5%	7%	13%	15%	11%
	Some college	15%	14%	16%	14%	14%
	Associates Degree	6%	6%	7%	7%	9%
	Bachelor's Degree	35%	37%	31%	30%	35%
	Master's Degree	28%	27%	25%	24%	23%
	Professional Degree	7%	5%	4%	6%	5%
	Doctorate Degree	4%	4%	4%	4%	3%
	Decline to answer	<1%	<1%	<1%	1%	<1%
Employment	Employed (NET)	73%	72%	71%	71%	70%
	Full-time	64%	58%	55%	59%	55%
	Part-time	5%	9%	11%	8%	8%
	Self-employed	4%	5%	6%	4%	6%
	Not employed (NET)	15%	16%	20%	18%	21%
	Not employed, looking	2%	1%	3%	3%	5%
	Not employed, not looking	<1%	1%	1%	1%	1%
	Not employed, unable	<1%	1%	2%	2%	2%
	Retired	13%	13%	14%	12%	14%
	Student	3%	7%	4%	5%	4%
	Stay home spouse/ partner	8%	5%	4%	5%	4%
	Decline to answer	<1%	1%	<1%	1%	-
Household Income	<$50,000	13%	16%	24%	21%	19%
	$35,000-$74,999	22%	22%	20%	23%	21%
	$75,000-$99,999	17%	18%	14%	14%	16%
	$100,000-$149,999	25%	21%	19%	18%	21%
	$150,000-$199,999	11%	11%	13%	11%	12%
	$200,000+	11%	10%	13%	19%	13%
	Decline	9%	8%	6%	4%	5%

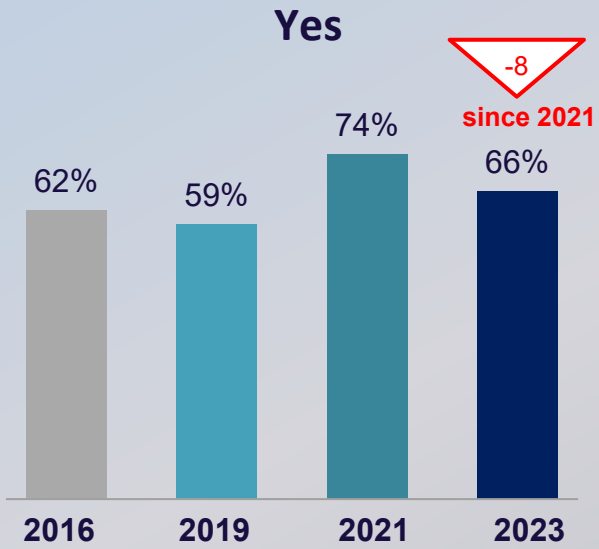
Slight decrease in the percentage of residents who live/work in the same area post-pandemic.



BASE: EMPLOYED OR STUDENT (2015 n=460, 2016 n=470, 2019 n=454, 2021 n=467, 2023 n=446)
Q115. In which county or city do you currently live?
Q142. In which county or city do you currently work or attend school?

Most respondents drive to work (when going to a non-home worksite), but the proportion has softened after peaking in 2021.

When you go to a Non-Home Worksite, do you Drive to Work?

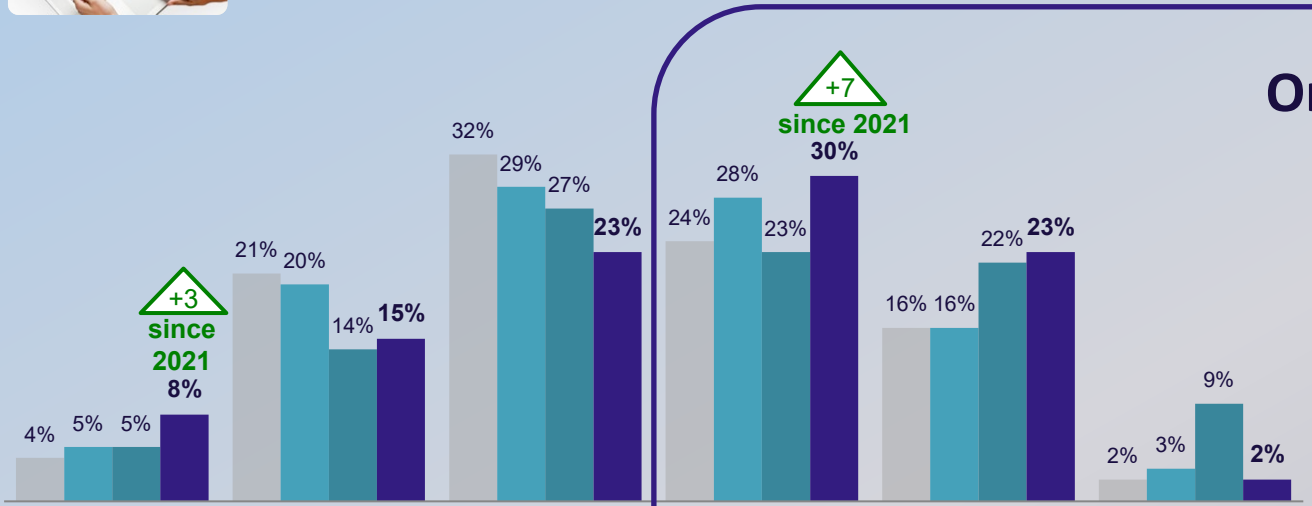


BASE: ALL RESPONDENTS, (2023 n=606)
Q580. When you go to a non-home worksite, do you drive to work?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Over half (55%) of residents continue to shop online at least once a week.

Frequency of Online Shopping



Once a week or more

2016: 42%

2019: 47%

2021: 54%

2023: 55% +1 since 2021

BASE: ALL RESPONDENTS (2016 n=606, 2019 n=616, 2021 n=611, 2023 n=606)
Q750. Many people are taking advantage of online shopping today. Over the past year, how many times have you placed an online order for food or goods to be delivered to your home?

Denotes statistically significant differences between 2021 and 2023 (p<.05)

Preliminary Deployment Plan - Regional Bus Rapid Transit System

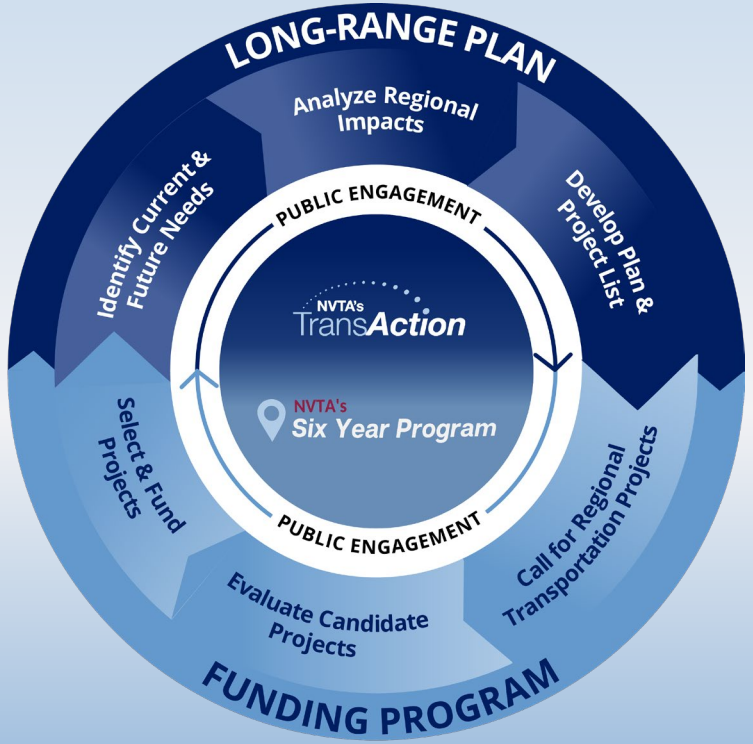
Presented by: Keith Jasper, Principal, NVTA

NVTA's Primary Responsibilities

NVTA's TransAction

Long-Range Plan

- Updated Every Five Years
- Fiscally and Geographically Unconstrained
- Identify Current and Future Transportation Needs & Priorities
- Analyze Regional Impacts
- Develop Plan and Project List
- Most Recent Update December 2022



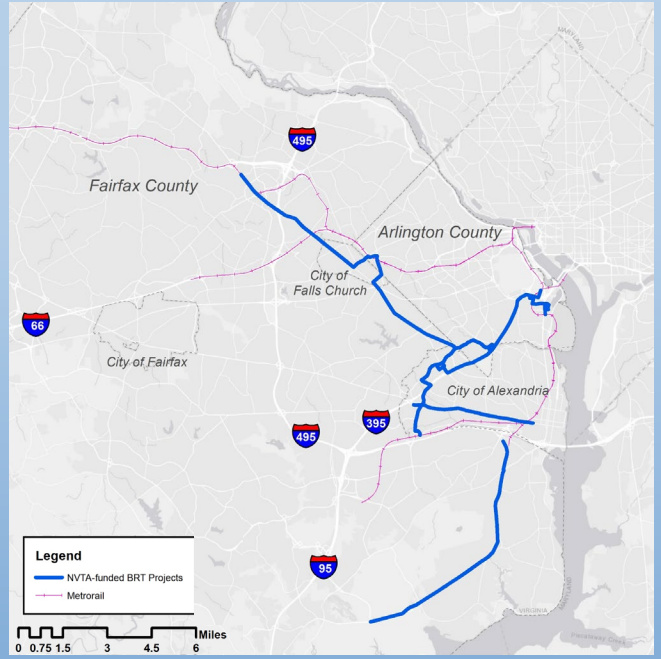
NVTA's Six Year Program

Funding Program

- Allocates NVTA's Regional Revenues to Regional, Multimodal, Congestion Reducing Transportation Projects
- Updated Every Two Years
- Most Recent SYP Adopted in July 2022
- Currently working on the next SYP (FY2024-2029)

BRT in SYP and TransAction

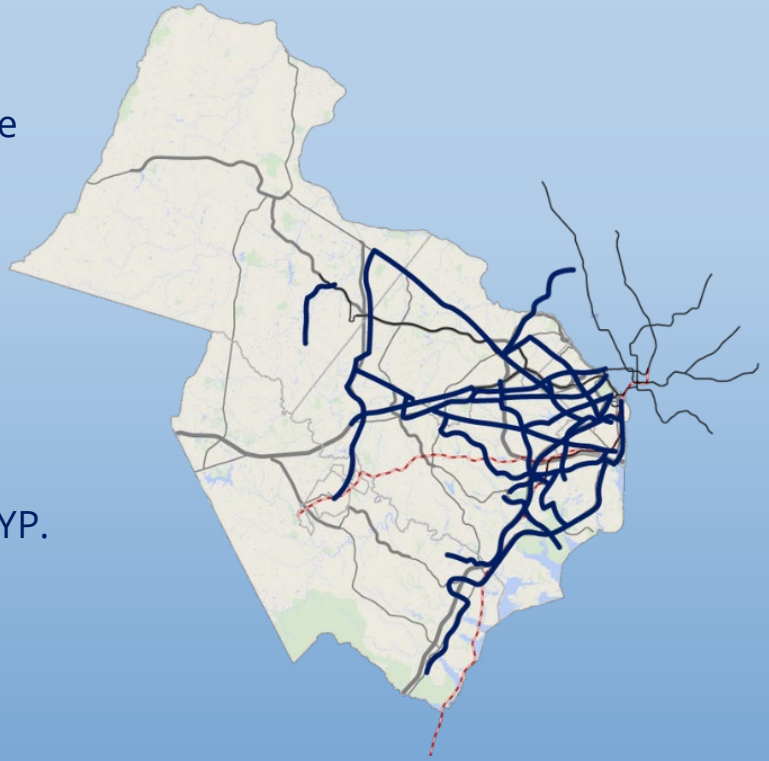
- Nearly **$0.5 billion** allocated to five BRT projects to date
- Approximately **$10 billion** in BRT/High-Capacity Transit (HCT) projects included in TransAction
- Under varying stages of development from conceptual to design, but as **standalone** lines
- TransAction has established initial eligibility for future funding using NVTA's regional revenues
- FY2024-2029 SYP; CfRTP issued on May 1, 2023; adoption anticipated July 2024
- FY2026-2031 SYP; CfRTP anticipated May 2025; adoption anticipated July 2026
- Approved projects in the SYP can potentially **leverage** NVTA's regional revenues to secure other funding sources



Purpose of the Preliminary Deployment Plan

Think Big, Start Small, Build Momentum

- Offers potential regional solutions that will reduce/reverse our dependency on driving alone, decades before we will see new Metrorail extensions.
- Provides a vision and action plan for incremental deployment of a regional BRT system; thereby protecting **$0.5 billion** investment by ensuring Northern Virginia establishes a BRT system rather than a series of loosely related BRT lines.
- Builds from, and bridges gap between, TransAction and SYP.
- Includes a detailed analysis of ridership, congestion reduction impacts, operations, capital/operating costs, funding opportunities, governance considerations; fully aligned with NVTA's Core Values.



PDP-BRT Schedule

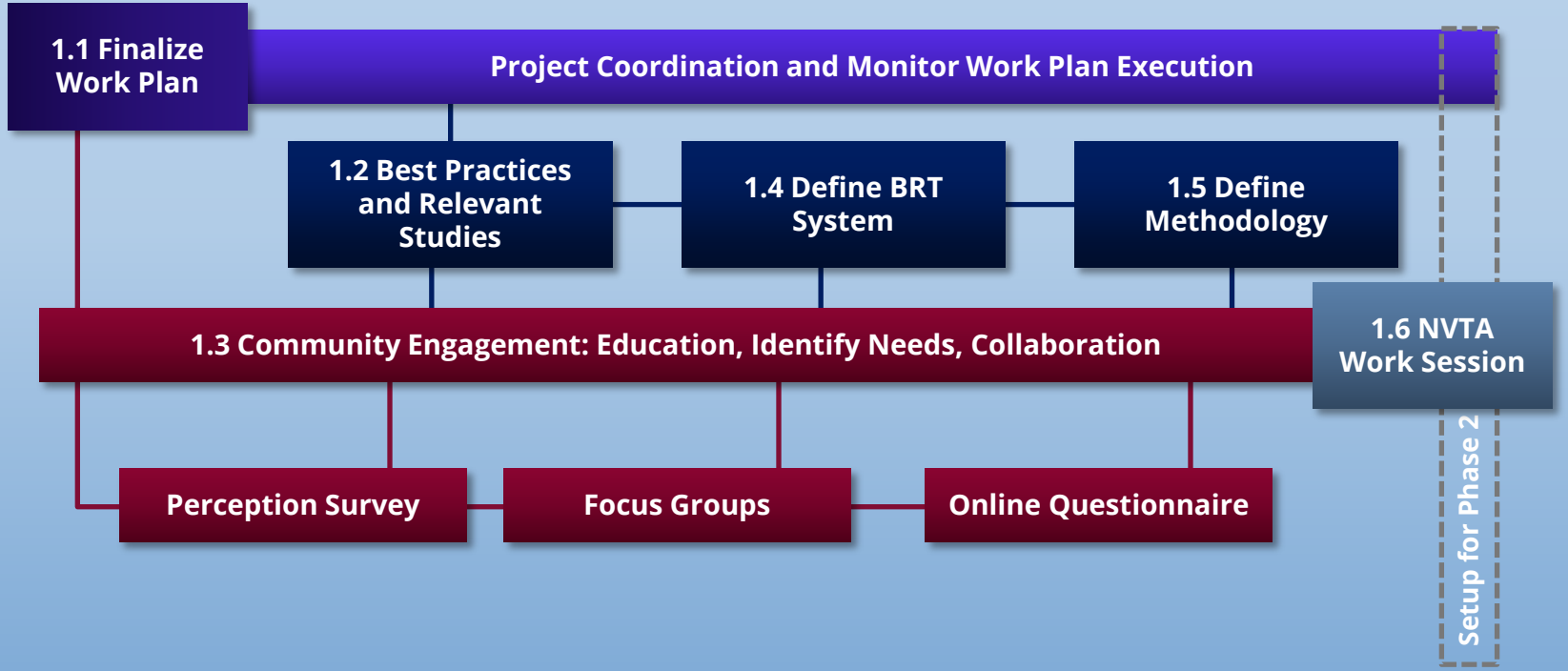
Phase 1: Data Gathering
Nov 2023-Jun 2024

Phase 2: Analysis
Jul 2024-Feb 2025

Phase 3: Public Engagement
Mar 2025-Jul 2025

Phase 4: Reporting
Aug 2025-Oct 2025

Phase 1 Approach



Thank You!

Scan the QR code to connect with us

Northern Virginia Transportation Authority

DRAFT TEMPLATE

FY2024-29 Six Year Program Candidate Projects: Summary of Quantitative and Qualitative Evaluations

Application ID	Jurisdiction / Agency	Project	Primary and supporting modal components	Fund request	Previously Approved NVTA Regional Funds	Other committed funds	Total project cost	Phases for which funds are requested	Funding Gap	Phases for which there is still a funding gap	Local priority	External funds	Past performance (% of expected funds reimbursed by FY2024 Q2) Continuation Projects	Past performance (% of expected funds reimbursed by FY2024 Q2) Jurisdiction /Agency	Policy 29 non-compliance: # of projects - 18-month substantive progress	Policy 29 non-compliance: # of projects - SPA within three meetings	SPA with no invoices for 12+ months	First fiscal year of expected drawdown	Year of opening	Alignment with Core Values			Other	Long Term Benefit	TransAction project rating (incl. HB 599)	TransAction project rating rank (incl. HB 599)	CRRC (Reduction in annual person hours of delay / Total project cost in $1000's)	CRRC rank
																				Equity	Safety	Sustain-ability						
ARL-023	Arlington County	CC2DCA Multimodal Connection (formerly known as CC2DCA Intermodal Connector)		$ 21,100,000	$ 18,000,000	$ 18,100,000	$ 57,200,000	CN																				
ARL-022	Arlington County	Shirlington Bus Station Expansion		$ 11,600,000		$ 200,000	$ 11,800,000	PE, ROW, CN																				
FFX-134	Fairfax County	Frontier Drive Extension and Intersection Improvements		$ 164,992,286	$ 27,000,000	$ 49,638,314	$ 241,630,600	PE, ROW, CN																				
FFX-136	Fairfax County	Braddock Road Multimodal Improvements Phase II (Humphries Drive to Southampton Drive)		$ 90,000,000		$ 5,286,334	$ 95,286,334	PE, ROW, CN																				
FFX-135	Fairfax County	Route 7 Multimodal Improvements (I-495 to I-66)		$ 210,000,000		$ 34,407,921	$ 244,407,921	PE, ROW, CN																				
FFX-138	Fairfax County	Seven Corners Ring Road Improvements		$ 122,229,417	$ 4,200,000	$ 6,261,000	$ 132,690,417	PE, ROW, CN																				
LDN-034	Loudoun County	Route 15 at Braddock Road Roundabout		$ 10,000,000		$ 15,655,000	$ 25,655,000	ROW, CN																				
LDN-033	Loudoun County	Sycolin Road Widening - Loudoun Center Place to Crosstrail Boulevard		$ 15,000,000		$ 17,861,000	$ 32,861,000	ROW, CN																				
LDN-029	Loudoun County	Old Ox Road Widening - Shaw Road to Oakgrove Road		$ 30,000,000		$ 19,350,000	$ 49,350,000	CN																				
PWC-040	Prince William	Route 234 and Sudley Manor Drive Interchange		$ 115,000,000		$ -	$ 115,000,000	PE, ROW, CN																				
PWC-041	Prince William	Route 234 Bicycle and Pedestrian Facility Over I-95		$ 12,000,000		$ -	$ 12,000,000	PE, ROW, CN																				
PWC-043	Prince William	The Landing at Prince William Transit Center	P	$ 25,000,000		$ -	$ 25,000,000	PE, ROW, CN																				
PWC-044	Prince William	Triangle Mobility Hub and First/Last Mile Connection		$ 10,000,000		$ -	$ 10,000,000	PE, ROW, CN																				
PWC-042	Prince William	Route 234 Operational Improvements		$ 10,000,000		$ -	$ 10,000,000	PE, CN, Acq																				
ALX-029	City of Alexandria	Safety Improvements at High-Crash Intersections		$ 3,000,000		$ 1,000,000	$ 20,500,000	PE	$ 16,500,000																			
ALX-033	City of Alexandria	Alexandria Metroway Enhancements		$ 7,000,000		$ 7,924,792	$ 14,924,792	ROW, CN																				
ALX-032	City of Alexandria	South Van Dorn Street Bridge Enhancements		$ 10,000,000	$ 5,000,000	$ 70,000	$ 15,070,000	CN																				
ALX-037	City of Alexandria	Smart & Connected Vehicle Infrastructure		$ 5,000,000		$ 50,000	$ 5,050,000	PE, CN																				
CFX-019	City of Fairfax	Old Lee Highway Multimodal Improvements		$ 5,400,000	$ 13,000,000	$ 12,000,000	$ 30,400,000	CN																				
CFX-018	City of Fairfax	Northfax Network Improvements: Northfax East-West Road		$ 18,332,754		$ -	$ 18,332,754	PE, ROW, CN																				
CFC-011	City of Falls Church	City of Falls Church Signal Prioritization Project		$ 1,400,000		$ -	$ 1,400,000	PE, CN																				
MAN-003	City of Manassas	Roundabout at Route 28 and Sudley Rd		$ 4,020,000		$ 1,475,000	$ 5,495,000	CN																				
CMP-001	City of Manassas Park	Route 28-Centreville Road Corridor Improvements		$ 40,000,000		$ -	$ 40,000,000	PE, ROW, CN																				
VRE-017	VRE	VRE Backlick Road Station Improvements	P	$ 6,145,103		$ 2,500,000	$ 8,645,103	CN																				
		TOTAL		**$ 947,219,560**	**$ 67,200,000**	**$ 191,779,361**	**$ 1,222,698,921**		**$ 16,500,000**																			

Modal Components

- New or improved roadway capacity and/or alignment
- New or improved intersection/interchange
- Improvement/access to Metrorail/VRE commuter rail
- New or improved bus/Bus Rapid Transit facility
- New or improved bicycle/pedestrian facility
- New or improved bicycle facility
- New or improved pedestrian facility
- Transportation Technology
- Parking

First symbol reflects the primary modal component; other symbols denote supporting modal components

Notes:

Phases

PE	Design/Engineering/Environmental
ROW	Right of Way/Utilities
CN	Construction
Acq	Asset Acquisition

See definition below*	See definition below#	% drawn down of expected drawdown	% drawn down of expected drawdown					
None	Top 3	Very high	> 100%	> 100%	0	0	0	FY28	FY28
Very low	Next 3	High	>80-100%	>80-100%	1	1	1	FY29	FY29
Low	All others	Medium	>60-80%	>60-80%	2	2	2	FY30	FY30
Medium		Low	>40-60%	>40-60%	3	3	3	FY31	
High		Very low	>20-40%	>20-40%	4	4	4	FY32	
Very high		None	0-20%	0-20%	5 or more	5 or more	5 or more	FY33	
			N/A	N/A					

	*** Funding Gap**	**# External Funds**
	Higher of % or $	Higher of % or $
Very high	Gap> 80% or >100M	Non-NVTA> 80% or >100M
High	Gap= >60-80% or >50-100M	Non-NVTA= >60-80% or >10-100M
Medium	Gap= >40-60% or >10-50M	Non-NVTA= >40-60% or >1-10M
Low	Gap= >20-40% or >1-10M	Non-NVTA= >20-40% or >100K-1M
Very low	Gap= >0-20% or upto 1M	Non-NVTA= >0-20% or upto 100,000
None	No gap	No external funds

Low alignment	
High alignment	

Less than % share of revenue

Approx. equal to % share of revenue

More than % share of revenue

Anticipated next three SYP updates

Adopt

FY2026

FY2028

FY2030

Northern Virginia Transportation Authority
FY2024-2029 Six Year Program

CC2DCA Multimodal Connection (formerly known as CC2DCA Intermodal Connector)

Date Submitted:
07/26/2023

APPLICATION #: ARL-023

Crystal City to Ronald Reagan Washington National Airport Multimodal Connection

Project Description

The goal of the project is to create an intermodal connection designed to meet the needs of a broad range of pedestrians, bicyclists, and micro-mobility users of all ages and abilities between the core of Crystal City, the Mount Vernon Trail, and Ronald Reagan Washington National Airport (DCA). The Preferred Alternative would consist of a bridge extending from the future VRE Crystal City Station south entrance stair tower towards the northwest corner of the DCA Terminal 2 parking garage. The alignment and limits of disturbance of the Preferred Alternative is shown in Figure 4, attached. Access to Crystal Drive in Crystal City would be provided through the planned VRE stair tower, connecting bridge, and vertical circulation elements located at 2011 Crystal Drive. Access to the airport terminal would be determined at a later stage of design. The south stair tower connection would provide VRE and Amtrak passengers with direct access to CC2DCA. A link with the Mount Vernon Trail would be provided on the north side of the CC2DCA bridge. The Preferred Alternative is a girder style bridge that would connect to the east side of the south entrance of the future VRE Crystal City Station located at 2011 Crystal Drive. The Preferred Alternative would span the rail corridor perpendicularly before crossing the George Washington Memorial Parkway at a slight angle. A specific alignment across DCA property was not defined as part of the Preferred Alternative. Instead, across DCA property, the Preferred Alternative defined a broad limit of disturbance (LOD) area covering the range of potential alignments that could avoid impacts to existing and planned infrastructure on DCA property. Arlington County, the Virginia Department of Transportation (VDOT), and the Metropolitan Washington Airports Authority (MWAA) will continue coordinating through the preliminary engineering phase of the study to determine a final alignment and eastern terminus for CC2DCA that avoids or minimizes, as much as possible, impacts to DCA parking and future roadway improvement projects. The Preferred Alternative was endorsed by the Arlington County Board on May 13, 2023.

Primary Mode(s)	Secondary Mode(s)
	
Application Number	ARL-023
Primary TransAction ID Number	89
Submitting Jurisdiction/Agency	Arlington County
Location	2011 Crystal Drive, Arlington VA 22202 to Ronald Reagan Washington National Airport, Arlington, VA 22202
Requested NVTA Funds	$21,100,000.00
NVTA Funds Approved	N/A
Previous NVTA Funds Received	$18,000,000.00
Total Cost to Complete Project	$57,200,000.00

Project Location

Project Milestones

	Study	Design / Engineering / Environmental	ROW and Utilities	Construction	Asset Acquisition
Earlier	X				
FY23	X	X			
FY24		X	X		
FY25		X	X		
FY26		X	X		
FY27		X			
FY28				X	
FY29				X	
Beyond				X	

Year of expected project completion: FY2030

Project Funding

Source	Study	Design / Engineering / Environmental	ROW and Utilities	Construction	Asset Acquisition	Total
Total Cost	$3,300,000	$7,200,000	$200,000	$46,500,000	$0	$57,200,000
NVTA Funds Applied	$0	$0	$0	$21,100,000	$0	$21,100,000
Previous NVTA 70%		$0	$0	$18,000,000		$18,000,000
CMAQ		$7,200,000		$2,300,000		$9,500,000
Local	$3,300,000	$0	$200,000	$5,100,000		$8,600,000
Total Other	$3,300,000	$7,200,000	$200,000	$25,400,000	$0	$36,100,000
Gap	$0	$0	$0	$0	$0	$0

Project Analysis Highlights

Congestion Reduction Relative to Cost (CRRC) Rating	N/A
Congestion Reduction Relative to Cost (CRRC) Rank	N/A
TransAction Project Rating	N/A
TransAction Project Rank	N/A
Project's Past Performance (Percentage of expected funds that was reimbursed by 12/31/2023)	N/A
Jurisdiction/Agency's Past Performance on All Projects (Percentage of expected funds that was reimbursed by 12/31/2023)	N/A
Percentage of Total Project Cost Covered by Funds from Sources Other than NVTA	31.64%
Local Priority	1
Number of Supporting Resolutions (does not include resolution from applicant's own Board/Council)	0
Number of NVTA-Funded Project(s) Nearby	0
Regional Funds allocated to NVTA-Funded Project(s) Nearby	$0

Application Notes

Evaluations underway.

Northern Virginia Transportation Authority
Summary of FY2024-2029 Six Year Program Candidate Projects

Updated on 12/15/2023

#	Project ID#	Jurisdiction / Agency	Project	Fund request	Previous NVTA funds	Other committed funds	Total project cost	Funding gap excluding NVTA request	Phases for which funds are requested	Phases for which there is still a funding gap	Primary and supporting modal components	Local Priority
1	ARL-023	Arlington County	CC2DCA Multimodal Connection (formerly known as CC2DCA Intermodal Connector)	$ 21,100,000	$ 18,000,000	$ 18,100,000	$ 57,200,000	$ -	CN			1
2	ARL-022	Arlington County	Shirlington Bus Station Expansion	$ 11,600,000		$ 200,000	$ 11,800,000	$ -	PE, ROW, CN			2
3	FFX-134	Fairfax County	Frontier Drive Extension and Intersection Improvements	$ 164,992,286	$ 27,000,000	$ 49,638,314	$ 241,630,600	$ -	PE, ROW, CN			1
4	FFX-136	Fairfax County	Braddock Road Multimodal Improvements Phase II (Humphries Drive to Southampton Drive)	$ 90,000,000		$ 5,286,334	$ 95,286,334	$ -	PE, ROW, CN			2
5	FFX-135	Fairfax County	Route 7 Multimodal Improvements (I-495 to I-66)	$ 210,000,000		$ 34,407,921	$ 244,407,921	$ -	PE, ROW, CN			3
6	FFX-138	Fairfax County	Seven Corners Ring Road Improvements	$ 122,229,417	$ 4,200,000	$ 6,261,000	$ 132,690,417	$ -	PE, ROW, CN			4
7	LDN-034	Loudoun County	Route 15 at Braddock Road Roundabout	$ 10,000,000		$ 15,655,000	$ 25,655,000	$ -	ROW, CN			1
8	LDN-033	Loudoun County	Sycolin Road Widening - Loudoun Center Place to Crosstrail Boulevard	$ 15,000,000		$ 17,861,000	$ 32,861,000	$ -	ROW, CN			2
9	LDN-029	Loudoun County	Old Ox Road Widening - Shaw Road to Oakgrove Road	$ 30,000,000		$ 19,350,000	$ 49,350,000	$ -	CN			3
10	PWC-040	Prince William County	Route 234 and Sudley Manor Drive Interchange	$ 115,000,000		$ -	$ 115,000,000	$ -	PE, ROW, CN			1
11	PWC-041	Prince William County	Route 234 Bicycle and Pedestrian Facility Over I-95	$ 12,000,000		$ -	$ 12,000,000	$ -	PE, ROW, CN			2
12	PWC-043	Prince William County	The Landing at Prince William Transit Center	$ 25,000,000		$ -	$ 25,000,000	$ -	PE, ROW, CN			3
13	PWC-044	Prince William County	Triangle Mobility Hub and First/Last Mile Connection Improvements	$ 10,000,000		$ -	$ 10,000,000	$ -	PE, ROW, CN			4
14	PWC-042	Prince William County	Route 234 Operational Improvements	$ 10,000,000		$ -	$ 10,000,000	$ -	PE, CN, Asset			5
15	ALX-029	City of Alexandria	Safety Improvements at High-Crash Intersections	$ 3,000,000		$ 1,000,000	$ 20,500,000	$ 16,500,000	PE	ROW, CN		1
16	ALX-033	City of Alexandria	Alexandria Metroway Enhancements	$ 7,000,000		$ 7,924,792	$ 14,924,792	$ -	ROW, CN			2
17	ALX-032	City of Alexandria	South Van Dorn Street Bridge Enhancements	$ 10,000,000	$ 5,000,000	$ 70,000	$ 15,070,000	$ -	CN			3
18	ALX-037	City of Alexandria	Smart & Connected Vehicle Infrastructure	$ 5,000,000	$ -	$ 50,000	$ 5,050,000	$ -	PE, CN			4
19	CFX-019	City of Fairfax	Old Lee Highway Multimodal Improvements	$ 5,400,000	$ 13,000,000	$ 12,000,000	$ 30,400,000	$ -	CN			1
20	CFX-018	City of Fairfax	Northfax Network Improvements - Northfax East-West Road	$ 18,332,754		$ -	$ 18,332,754	$ -	PE, ROW, CN			2
21	CFC-011	City of Falls Church	City of Falls Church Signal Prioritization Project	$ 1,400,000		$ -	$ 1,400,000	$ -	PE, CN			1
22	MAN-003	City of Manassas	Roundabout at Route 28 and Sudley Rd	$ 4,020,000		$ 1,475,000	$ 5,495,000	$ -	CN			1
23	CMP-001	City of Manassas Park	Route 28-Centreville Road Corridor Improvements	$ 40,000,000		$ -	$ 40,000,000	$ -	PE, ROW, CN			1
24	VRE-017	VRE	VRE Backlick Road Station Improvements	$ 6,145,103		$ 2,500,000	$ 8,645,103	$ -	CN			1
			TOTAL	**$ 947,219,560**	**$ 67,200,000**	**$ 191,779,361**	**$ 1,222,698,921**	**$ 16,500,000**				

Modal Components

- New or improved roadway capacity and/or alignment
- New or improved intersection/interchange
- Improvement/access to Metrorail/VRE commuter rail
- New or improved bus/BRT facility
- New or improved bicycle facility
- New or improved pedestrian facility
- Transportation Technology
- Parking

First symbol reflects the primary modal component, other symbols denote supporting modal components

Phases

PE	Design/Engineering/Environmental
ROW	Right of Way/Utilities
CN	Construction
Asset Acq	Asset Acquisition

Northern Virginia Transportation Authority
Summary of FY2024-2029 Six Year Program Candidate Projects

Updated on 12/15/2023

#	Jurisdiction	Number of applications	% of Total	Request	Previous NVTA 70% Funds	Other Funds	Total Cost	Gap	% of Total Request
1	Arlington County	2	**8%**	$ 32,700,000	$ 18,000,000	$ 18,300,000	$ 69,000,000	$ -	**3%**
2	Fairfax County	4	**17%**	$ 587,221,703	$ 31,200,000	$ 95,593,569	$ 714,015,272	$ -	**62%**
3	Loudoun County	3	**13%**	$ 55,000,000	$ -	$ 52,866,000	$ 107,866,000	$ -	**6%**
4	Prince William County	5	**21%**	$ 172,000,000	$ -	$ -	$ 172,000,000	$ -	**18%**
5	City of Alexandria	4	**17%**	$ 25,000,000	$ 5,000,000	$ 9,044,792	$ 55,544,792	$ 16,500,000	**3%**
6	City of Fairfax	2	**8%**	$ 23,732,754	$ 13,000,000	$ 12,000,000	$ 48,732,754	$ -	**3%**
7	City of Falls Church	1	**4%**	$ 1,400,000	$ -	$ -	$ 1,400,000	$ -	**0%**
8	City of Manassas	1	**4%**	$ 4,020,000	$ -	$ 1,475,000	$ 5,495,000	$ -	**0%**
9	City of Manassas Park	1	**4%**	$ 40,000,000	$ -	$ -	$ 40,000,000	$ -	**4%**
10	VRE	1	**4%**	$ 6,145,103	$ -	$ 2,500,000	$ 8,645,103	$ -	**1%**
	TOTAL	**24**	**100%**	**$ 947,219,560**	**$ 67,200,000**	**$ 191,779,361**	**$ 1,222,698,921**	**$ 16,500,000**	**100%**

#	Mode	Number of applications	% of Total	Request	% of Total Request	Other Funds	Total project cost
1	Roadway	6	25%	$ 448,325,040	47%	$ 136,912,235	$ 612,237,275
2	Interchange/Intersection	5	21%	$ 371,249,417	39%	$ 13,022,334	$ 388,471,751
3	Commuter Rail	1	4%	$ 6,145,103	1%	$ 2,500,000	$ 8,645,103
4	Bus	5	21%	$ 63,600,000	7%	$ 8,194,792	$ 76,794,792
5	Bike-ped	4	17%	$ 41,500,000	4%	$ 31,100,000	$ 120,100,000
6	Technology	3	13%	$ 16,400,000	2%	$ 50,000	$ 16,450,000
	Total	**24**	**100%**	**$ 947,219,560**	**100%**	**$ 191,779,361**	**$ 1,222,698,921**

Number of continuation projects	**5**	**$ 323,721,703**		**$ 476,991,017**

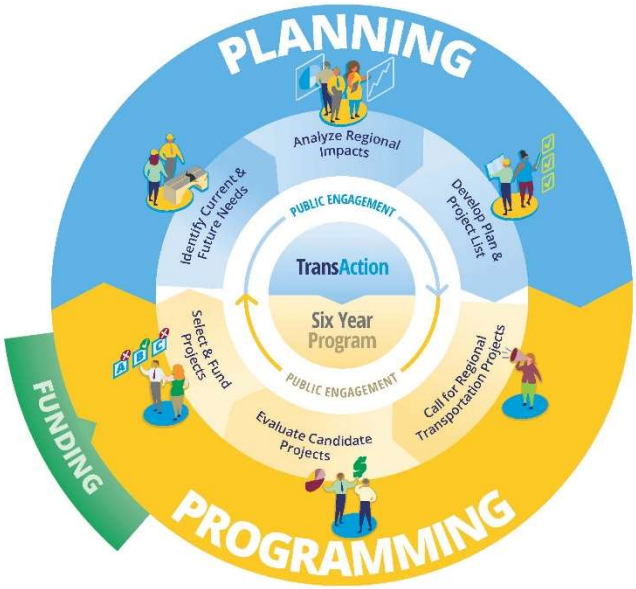
Task 1.5 Technical Memorandum

Performance Measures Methodology

February 2022

The Northern Virginia Transportation Authority (NVTA) is a regional body that is focused on delivering transportation solutions and value for Northern Virginia's transportation dollars by bringing NoVA jurisdictions and agencies together to plan and program regional multimodal transportation projects focused on relieving congestion. As shown in Figure 1, NVTA has two main functions in the planning and programming of the multimodal transportation network in Northern Virginia. TransAction is Northern Virginia's long range multimodal transportation plan, which is a financially and geographically unconstrained plan, that is updated every five years. As part of TransAction, NVTA analyzes the regional impacts of a slate of multimodal transportation projects using a set of performance measures designed to capture the range of potential benefits of all types of improvements.

Figure 1: NVTA's Planning and Programming Process



NVTA also is responsible for allocating regional transportation funds to specific projects as part of the programming process. Every two years, NVTA updates their Six Year Program to include projects selected to receive funding. These programming decisions are also based, in part, on an evaluation of candidate projects based on the same set of performance measures used in TransAction.

TransAction is currently being updated, which includes revisions to the TransAction Vision, Goals, Objectives, and Performance Measures. These new performance measures will be used to analyze the impacts of transportation projects as part of TransAction, and for at least the next three Six Year Program evaluations beginning with the FY2022-2027 Six Year Program. This memo outlines the methodology that is being used to calculate each of the ten performance measures based on results of the modeling process and/or other inputs, and how they will be combined in order to develop a combined TransAction rating.

Performance Measures

On November 18, 2021, NVTA approved the goals, objectives, and ten performance measures as shown in Table 1.

Table 1: Approved Goals, Objectives and Performance Measures

Goal	Objective	Performance Measure
Mobility: Enhance quality of life of Northern Virginians by improving performance of the multimodal transportation system	A. Reduce congestion and delay*	A1. Total Person-Hours of Delay in autos
		A2. Total Person-Hours of Delay on Transit
	B. Improve travel time reliability*	B1. Duration of Severe Congestion
		B2. Transit person-miles in dedicated/priority ROW
Accessibility: Strengthen the region's economy by increasing access to jobs, employees, markets, and destinations for all communities	C. Improve access to jobs*	C1. Access to jobs by car, transit, and bike
		C2. Access to jobs by car, transit, and bike for EEA populations
	D. Reduce dependence on driving alone by improving conditions for people accessing transit and using other modes	D1. Quality of access to transit and the walk/bike network
Resiliency: Improve the transportation system's ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.	E. Improve safety and security of the multimodal transportation system	E1. Potential for safety and security improvements
	F. Reduce transportation related emissions	F1. Vehicle Emissions
	G. Maintain operations of the regional transportation system during extreme conditions*	G1. Transportation System Redundancy

*Objectives align with HB599 requirements Transit may include High Occupancy Vehicles (HOV)

Proposed Calculation Methodology

Each measure will need to be calculated on its own scale based on the methodology set out in the following sections. Regardless of the methodology used, the results of each measure will be normalized and reported on a scale of 1 to 100. The normalization process will assign the highest performance in each measure a score of 100; all other projects will be assigned a score based on how close they are to this highest performance. For example, if Project A reduces delay by the most of any project, it will be assigned 100 points as shown in Table 2 below. The other projects will be assigned a score relative to Project A. While projects will receive scores across all ten performance measures, the same project may not be the highest scoring project across each of the performance measures.

Table 2: Sample of Score Normalization

Project	Person-Hours of Delay in Autos Reduced	% Relative to Highest Performing Project	Performance Measure A1 Score
Project A	10,000	100%	100
Project B	1,018	10.18%	10.18
Project C	8,101	81.01%	81.01

A1. Total Person-Hours of Delay in Autos

Calculated for each link, as the difference between the number of person-hours spent traveling and the hypothetical person-hours that would be spent traveling if all roads were able to operate at free-flow speed. This is summed over the whole day.

$$\sum_{j=1}^{j} (TravelTime_j - TravelTime_{FreeFlow}) * AutoVolume * AutoOccupancy$$

Where *j*=number of time periods in the day.

Only people in autos (drivers and passengers) are included in this calculation. Projects of all modes are considered for their impact on congestion, including pedestrian and bike projects. Transit and highway projects can be easily represented within the confines of the mode choice model and the dynamic traffic assignment[1]. However, bike and pedestrian projects will also have some impact on congestion levels, by encouraging more people to switch to non-motorized modes.

To account for these impacts, after the mode choice model has created modal trip tables, some additional trips will be shifted from motorized to non-motorized modes. Since most non-motorized trips are short (pedestrian trips tend to be less than a mile and bicycle trips tend to be less than two miles long[2]) shorter trips will be more likely to be shifted than longer trips. These non-motorized trips (along with the other non-motorized trip productions developed by the model as part of the Trip Generation step) will not be assigned to the network. The number of trips that will be shifted into non-motorized modes will vary by the type/scale of project, and the location of the proposed improvements. There is limited data available on how many trips are shifted to non-motorized modes when improvements to the bike/walk infrastructure are made, but the most complete example comes from California. As shown in Table 3, the number of trips shifted is dependent on the length of the proposed enhancement and the amount of travel occurring on the adjacent/ parallel facilities.

[1] See the Modeling Strategy Memo for a more complete description of how the dynamic traffic assignment will be connected to other modeling steps.

[2] National Survey of Bicyclist and Pedestrian Behavior and Attitudes, National Highway Traffic Safety Administration (NHTSA), 2008. https://rosap.ntl.bts.gov/view/dot/1845.

Table 3: Active Transportation Adjustment Factors

Average Daily Traffic (ADT)	Project Length (one- direction)	Adjustment Factors
ADT ≤12,000 vehicles per day	≤1 mile	.0019
	>1 mile & ≤2 miles	.0029
	>2 miles	.0038
12,000<ADT ≤24,000 vehicles per day	≤1 mile	.0014
	>1 mile & ≤2 miles	.0020
	>2 miles	.0027
24,000<ADT vehicles per day	≤1 mile	.0010
	>1 mile & ≤2 miles	.0014
	>2 miles	.0019

Source: California Air Resources Board (2020) Quantification Methodology for the CARB STEP Pilot.

The CARB methodology also includes bonus adjustments for improvements located near "key destinations" – although no definition is provided. In a similar spirit, the adjustment factors will be scaled up by 0.003 if the improvement is located within a Regional Activity Center or a Transit Access Focus Area as defined by TPB. The total number of trips shifted from motorized to non-motorized travel will therefore be calculated as:

$$Trips\ Shifted = ADT * (AdjFactor + RACFactor)$$

A2. Total Person-Hours of Delay on Transit

This measure calculates congestion's impact on delaying transit passengers. It is not meant to account for delay caused by incidents on the transit system, nor as a measure of on-time performance for transit. Because this measure is tied to congestion, it only needs to be calculated on roadway links where bus transit operates in mixed traffic, or for HOVs in dedicated HOV/HOT facilities. Similar to the formulation of A1, it is calculated as the difference in travel times traveling at free-flow speed as compared to actual conditions.

$$\sum_{j=1}^{j} (TravelTime_j - TravelTime_{FreeFlow}) * TransitPassengerVolume$$

Where *j*=number of time periods in the day.

Delay for HOVs traveling in dedicated HOV lanes will be included in this measure. Delay incurred by SOVs using HOT facilities will not be included as transit delay, and will instead be included in the auto delay (Performance Measure A1). Travel on rail transit, including Metrorail, are not included in the measure. Projects of all modes are considered for their impact on congestion, including pedestrian and bike projects. The same process outlined for Performance Measure A1 will be conducted to account for the impacts of increased use of non-motorized modes on congestion.

B1. Duration of Severe Congestion

Duration of severe congestion is being used as a proxy for locations on the highway system with major reliability issues. As such, the measure calculates the portion of the day (number of hours) that each link experiences severe congestion – defined as a travel time ratio of 2.0 or higher.

$$Congestion\ Duration = \sum Hours_{SC} * FacilityMiles$$

Where $Hours_{sc}$=number of hours with a travel time ratio ≥ 2.0.

Projects of all modes should be considered for their impact on congestion, including pedestrian and bike projects. The same process outlined for Measure A1 will be conducted to account for the impacts of increased use of non-motorized modes on congestion.

B2. Transit Person-Miles in Dedicated/Prioritized ROW

To measure improvements in transit reliability, this measure quantifies the person-miles of travel occurring on transit in dedicated and prioritized right of way. This will essentially sum the person-miles dedicated/prioritized transitway across the network, including HOVs traveling in dedicated HOV lanes. Links on the network will need to be identified in advance using an attribute that categorizes their level of prioritization. Transit person-miles will then be calculated and summed as shown in Table 4. As shown in the table, travel on fully dedicated running-way is counted as 100 percent of the passenger miles traveled in the calculation. Other treatments, in which prioritization is provided for transit vehicles use a factor to discount the person-miles calculation to account for the fact that prioritized transit must still interact with congestion and other vehicles between intersections (in the case of TSP and queue jumps) or at intersections (in the case of BAT lanes). The factors in Table 4 have been developed based on a literature review of the relative travel time benefits of different types of bus priority treatments.

Table 4: Calculating Person-Miles on Dedicated/Prioritized ROW

Type of Treatment	Person-Miles Calculation
Separate Right-of-Way (e.g. Metrorail, VRE)	Passengers * distance traveled
Dedicated Bus Lanes	Passengers * distance traveled
Dedicated HOV/HOT Lanes	HOV Passengers * distance traveled
Business Access and Transit (BAT) Lanes[3]	Passengers * distance traveled *0.8
Transit Signal Priority	Passengers * distance traveled * 0.5
Queue Jump Lanes	Passengers * distance traveled *0.25

[3] BAT Lanes are curb-side lanes used exclusively by buses and right-turning vehicles, primarily to access businesses and driveways along a corridor.

C1. Access to jobs by car, transit, and bike

For each Traffic Analysis Zone (TAZ[4]) in Northern Virginia, this measure will calculate the number of jobs accessible by:

- Auto in 45 minutes
- Transit (including bus, rail, and on-demand transit) in 60 minutes
- Bike in 30 minutes

These numbers will be summed together for each TAZ to calculate the accessibility to jobs for each TAZ.

$$Accessibility_{TAZ} = Jobs_A + Jobs_T + Jobs_B$$

Where:

$Jobs_A$=number of jobs accessible within 45 minutes by auto

$Jobs_T$=number of jobs accessible within 60 minutes by transit

$Jobs_B$=number of jobs accessible within 30 minutes by bike

Jobs accessible by Auto and Transit will be calculated directly in the model. Jobs accessible by bike will be calculated using ArcGIS Network Analyzer, and will only include jobs accessible on facilities categorized as having a "Bicycle Level of Traffic Stress" of 2 or better. The bicycle network used for analysis includes both on-road and off-road facilities.

A regional value for this measure will be calculated by taking the average of all TAZ values weighted by their total population:

$$\frac{\sum_{TAZ=1}^{3722} Accessibility_{TAZ} * Pop_{TAZ}}{Regional\ Population}$$

It should be noted that this measure will double and triple count access to jobs that are accessible by multiple modes. This is intentional, and helps account for the benefits of having multiple modal options to complete the same trip.

Figure 2: Equity Emphasis Area Definitions

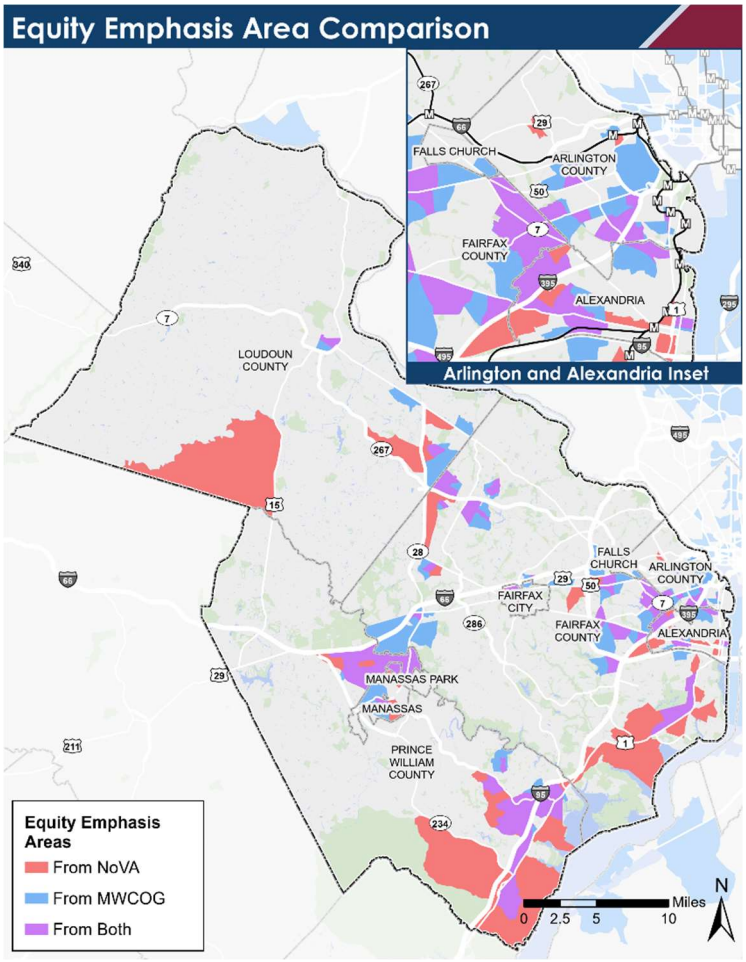
[4] For modeling purposes, the region is divided into a series of Traffic Analysis Zones (TAZs) that represent a specific geographic area.

C2. Access to jobs by car, transit, and bike by EEA Populations

This measure will be calculated in exactly the same way as Measure C1, except it will only be calculated for TAZs identified as being part of an Equity Emphasis Areas (EEA). As such, the regional measure will be calculated as the population-weighted average of the TAZ accessibility values only for EEA TAZs.

$$\frac{\sum Accessibility_{TAZ} * Population_{TAZ}}{Regional\ EEA\ Population}$$

EEAs will be defined as any TAZ that is defined as either an MWCOG regional EEA[5] or as a Northern Virginia Equity Area, as highlighted in Figure 2. Both were defined using similar methodologies with two significant differences:



1. The MWCOG EEAs were defined using average low-income and minority concentrations for the whole metropolitan region, while the Northern Virginia EEAs were identified using Northern Virginia-specific averages.

2. The MWCOG EEAs were defined at the TAZ level, while the Northern Virginia EEAs were defined at the census tract level.

As shown in Figure 2, the results show that some locations were identified as an EEA in both definitions, while some areas were included only one or the other. To be inclusive of both definitions, while maintaining a focus on those areas with the most acute equity needs, TransAction will define EEAs as any TAZ that was defined as an MWCOG EEA or any TAZ for which 50 percent or more of the constituent census tracts were defined as a Northern Virginia EEA. The resulting areas that will be considered as part of this measure are shaded in Figure 3. This EEA definition covers approximately 32% of Northern Virginia's total current population, but more than 41 percent of the region's non-white population and more than 55 percent of the region's population living in poverty, as shown in Table 5Table 5: Percent of Regional Populations Covered by NVTA Equity Emphasis Areas.

[5] Equity Emphasis Areas (EEAs) are defined by MWCOG. https://www.mwcog.org/maps/map-listing/equity-emphasis-areas-eeas/

Figure 3: NVTA Equity Emphasis Areas for TransAction

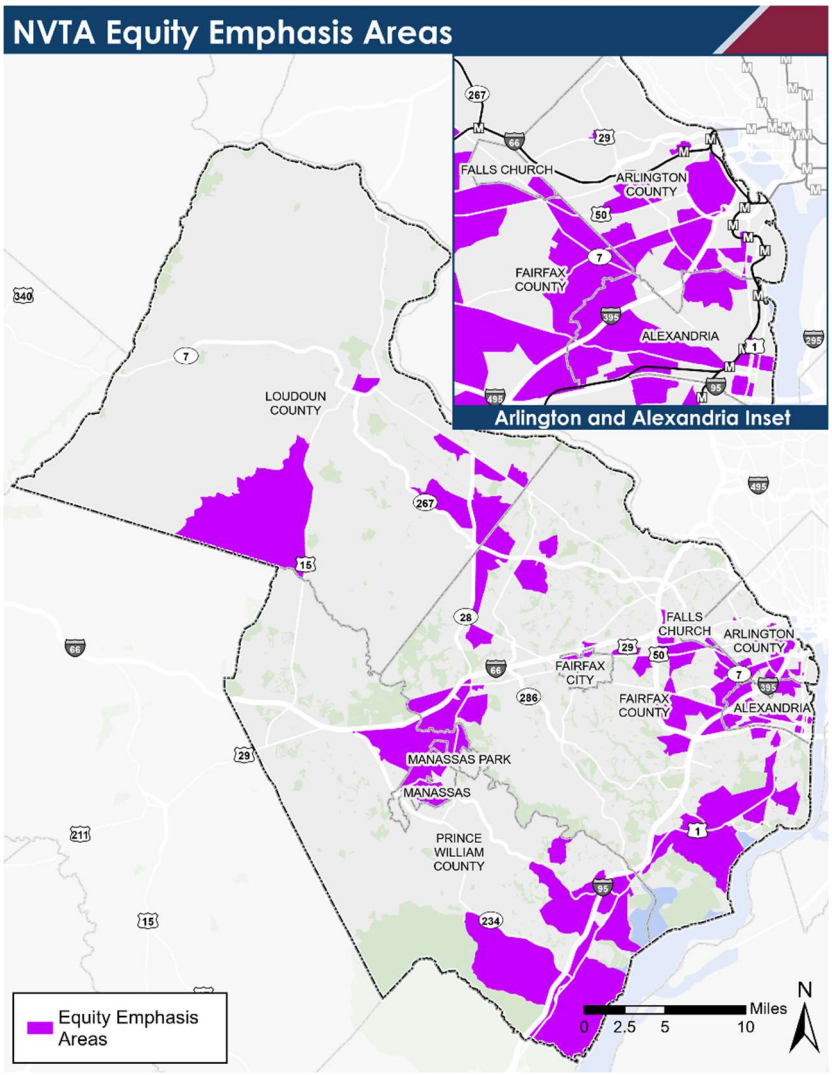


Table 5: Percent of Regional Populations Covered by NVTA Equity Emphasis Areas

Northern Virginia Regional Statistics	NVTA Equity Emphasis Areas
Total Population (2020)	31.7%
Total Population (2045)	32.6%
Non-White Population	41.9%
Population in Poverty	55.9%

D1. Quality of Access to Transit and the Walk/Bike Network

This measure will be qualitative, based on a definition of idealized conditions. Points (ranging from 0 to 4) will be allocated based on what percentage of these idealized amenities would be added as compared to the existing conditions. The idealized conditions envisioned by a score of four include:

Dense grid of arterial streets with wide sidewalks, crosswalks, pedestrian signals; bike lanes on most major arterials and bike sharing stations at frequent intervals; pick-up/drop-off locations for ridesharing/taxis; availability of shared micromobility (e.g. electric scooters); and transit circulator or shuttle bus routes connecting most activity locations and regional transit services, including park-and-ride lots; easy access to major transit stations.

The score will be awarded points ranging from 0 to 4, based on the approximate percentage of the listed features that are being added. For example, the installation of bike lanes, sidewalks and a circulator bus or microtransit service might be awarded a score of two points. The additional inclusion of grade-separated bike lanes and dedicated pick-up/drop-off locations could increase the score to three points. The points will then be weighted by the activity density (population and employment) within a half mile of the proposed improvements to calculate the score for this performance measure.

E1. Potential for Safety and Security Improvements

This measure will be based on the SmartScale safety analysis, which considers the potential for crash reduction in association with the number of current crashes to quantify the number of crashes that will be avoided. Because we do not have the data on the number of crashes at every location, this measure will look only at the potential for crash reduction through the lens of Crash Modification Factors (CMF). For this measure, each type of safety and security improvement will be assigned to a category based on the CMF identified by VDOT. A sample of the CMF factors is shown in Table 6 the full CMF list is incorporated as an appendix. Some additional project types have been added to the list below to incorporate the broader definition of safety being used in TransAction.

Table 6: Sample Categorization of Safety/Security Project Scores

High (3 points) CMF ≤ 0.33	Medium (2 points) 0.33 < CMF < 0.67	Low (1 point) CMF ≥ 0.67
Add new sidewalk	Add median	Addition of turn lanes
Convert stop/yield control to roundabout	Implement ramp metering	ITS for incident management, variable speed limits, ATM
Install pedestrian countdown timer	Adaptive signal control	Roadway widening
	Add bicycle lane	High Visibility Crosswalks
	Major transit projects that will significantly decrease VMT	Intersection lighting
		Transit projects that will have a smaller impact on VMT
		Improved lighting at transit stops

Where projects include multiple types of safety improvement, the points will be added together to calculate the project score. (CMFs should not be added, because lower CMFs are better.) For example, projects that add high-visibility crosswalks at three intersections would receive three points. Similarly, a project that added two miles of sidewalk would receive six points. This table can be revised if additional project types need to be included.

F1. Vehicle Emissions

Vehicle emissions will be approximated using Vehicle Miles Traveled (VMT) as a proxy. Total VMT by speed class will be calculated directly from the model. In the No-Build scenario, electrification assumptions will mirror the fleet mix on the ground today to a large extent. The following assumptions will be used:

- 4 percent of light-duty vehicles will be ZEV[6]
- 1 percent of buses will be ZEV[7]
- No heavy trucks will be ZEV

In the future Build network analyses, projects will be included that increase these electrification rates significantly.

Table 7 shows the CO_2 emissions rates for 16 different speed classes and two types of vehicles. For the purpose of calculating this metric, the change in CO2 emissions will be multiplying the VMT by the appropriate factor.

Table 7: Running CO_2 Emissions Rates (g/mile) by Speed

Speed (mph)	Light-Duty Vehicles	Buses	Trucks[8]
< 2.5	1,193.27	7,325.32	8,160.82
2.5 – 5	650.44	4,011.37	4,312.85
5 – 10	380.17	2,590.43	2,586.80
10- 15	297.07	2,142.19	2,163.03
15 – 20	248.23	1,885.14	1,874.54
20 - 25	220.00	1,727.80	1,708.10
25 – 30	203.51	1,681.17	1,660.44
30 – 35	198.06	1,434.48	1,430.85
35 – 40	193.92	1,390.28	1,379.48
40 – 45	190.17	1,354.12	1,336.62
45 - 50	184.58	1,325.92	1,273.75
50 – 55	179.37	1,302.15	1,214.71
55 - 60	175.76	1,286.11	1,195.29
60 – 65	176.88	1,355.77	1,245.24
65 – 70	181.83	1,421.19	1,290.19
> 70	189.88	1,500.28	1,362.54

Source: MWCOG/TPB Emissions Analysis for Fairfax County

[6] https://cleanairpartners.net/sites/default/files/SemaConnect%20-%20EVs%20in%20the%20DMV%20Region%20Final.pdf. Vehicle electrification rates vary by jurisdiction, but are higher closest to DC.

[7] Current bus fleet in Northern Virginia is approximately 58% diesel, 17% CNG, 1% Battery Electric, and 25% Diesel Hybrid.

[8] Assumes a truck fleet that is evenly split between single unit and combination trucks.

The total value of the performance measure will be the weighted sum of the non-ZEV VMT as shown below:

$$Emissions = \sum(VMT * Weight)$$

G1. Transportation System Redundancy

This measure is calculated from the model, by calculating the change in person-hours of travel resulting from a 10 percent increase in PM peak hour trip making. The PM peak hour is defined as the hour with the most trips being made in Northern Virginia, and equate to the 5-6 pm hour. This measure is essentially identifying if there is excess capacity in the transportation system by adding additional travel to the busiest hour on the network. In a network with more excess/redundant capacity, the amount of person-hours of travel will be lower than on a network with less redundancy.

TransAction Score Calculation Methodology

The final performance measures will be combined into a single TransAction Score by combining the scores for each individual measure with its assigned weight as follows:

$$TransAction\ Score = \sum PerformanceMeasure * Weight$$

The weights approved by the Authority in December 2021 are shown in Table 8.

Table 8: Performance Measures and Final Weights

Performance Measure	Weight
A1. Total Person-Hours of Delay in autos	10%
A2. Total Person-Hours of Delay on Transit	10%
B1. Duration of Severe Congestion	10%
B2. Transit person-miles in dedicated/priority ROW	10%
C1. Access to jobs by car, transit, and bike	10%
C2. Access to jobs by car, transit, and bike for EEA populations	10%
D1. Quality of access to transit and the walk/bike network	15%
E1. Potential for safety and security improvements	10%
F1. Vehicle Emissions	10%
G1. Transportation System Redundancy	5%

Appendix: Crash Mitigation Factors

Based on the following Crash Mitigation Factors used by SMARTSCALE, the following CMF categories will be applied to Measure E1. Should additional project types be proposed that are not explicitly included in this list, appropriate categories will be added that are consistent with the potential safety benefits.

Project Extent	Improvement Type/Features	Crash Mitigation Category
Intersection	Convert stop control to yield control (when warranted)	Med
	Convert stop/yield control to signal	Med
	Convert stop/yield control to roundabout	High
	Convert signal to roundabout	Med
	Convert two-way stop control to unsignalized RCUT	Med
	Convert signal control to signalized RCUT	Med
	Convert signal control to continuous green T signal	Low
	Displaced left turn intersection	Low
	Median U-turn intersection	Low
	Convert pedestal to mast arm	Med
	Enhanced signal conspicuity	Low
	Convert unsignalized intersection warning beacons from static to dynamic	Low
	Install conflict warning system – 4-lane at 2-lane intersection	Low
	Install conflict warning system – 2-lane at 2-lane intersection	Low
	New turn lane (none present)	Low
	Add turn lane (to existing)	Low
	Extend turn lane	Low
	Median acceleration lane	Low
	Add median or close median opening (convert to right-in/right-out)	Med
	Increase intersection radii	Low
Interchange	At-grade to new interchange	Med
	Convert stop-control diamond interchange to DDI	High
	Convert signalized diamond interchange to DDI	Med
	Convert diamond interchange to SPUI	Med
	Change loop ramp to flyover ramp	Volume-based
	Non-freeway: replace arterial turns with loops or directional ramps	Med
	Add freeway collector-distributor roads	Low
	Add freeway independent loop or directional ramp entrances	Low
	Extend ramp acceleration lane length	Function

	Add entrance ramp lane (1 to 2 lanes)	Low
	Add exit ramp lane (1 to 2 lanes)	Low
	Extend ramp deceleration lane length 250-500 ft up to 700 ft in total length	Low
	Implement ramp metering	Med
Bridge	Widen shoulders	Low
Freeway Segment	ITS for incident management	Low
	ITS for ATM	Low
	ITS for variable speed limits	Low
	Add auxiliary lanes between ramps	Low
	Directional widening 2 to 3 lanes – Rural	Low
	Directional widening 2 to 3 lanes – Urban	Low
	Directional widening 2 to 4+ lanes – Urban	Low
	Directional widening 3 to 4+ lanes – Urban	Low
Non-Freeway Segment	Adaptive signal control – Urban Intersection – 3-leg intersection	Med
	Adaptive signal control – Urban Intersection – 4-leg intersection	Med
	Adaptive signal control – Suburban Intersection	Low
	Signal retiming/optimization	Low
	ITS for Advanced Traffic Management (ATM)	Low
	Close driveway	Low
	Widen shoulder	function
	Provide median (right-in/right-out only)	Med
	Alignment reconstruction	Low
	Convert two-way road to one-way road	Med
	Addition of two-way left turn lane (four to five lane conversion)	Med
	Addition of two-way left turn lane (two to three lane conversion)	Low
	Pavement re-utilization (road diet)	Med
	Widen 2-lane to multilane divided – Rural	Low
	Widen 2-lane to 4-lane divided – Urban	Low
	Widen 2-lane to 6-lane divided – Urban	Low
	Widen 4-lane to 6+-lane divided – Urban	Low
	Widen travel lanes – Rural	Function
	Widen travel lanes – Urban	Function
	Add or widen shoulder	Function
Roadway Segmen	Install centerline rumble strips	Med
	Install edge rumble strips	Med
	Install truck climbing lane	Med

	Improve Roadside Hazard Rating (RHR)	function
Ped & Pike	Add new sidewalk (does not apply to sidewalk upgrades or widening)	High
	Add bicycle lane	Med
	Add shared-use path of mixed-use trail	High
	Add high-visibility crosswalk (new crosswalk or crosswalk upgrade)	Low
	Install countdown pedestrian timer	High
	Install leading pedestrian interval (LPI)	Med
	Install HAWK	Med
	Install RRFB	Med
Lighting	Install lighting at intersection	Low
	Install lighting at interchange	Low
	Install lighting on segment	Low
Transit	Install lighting at transit stops	Low
	Major transit projects that will significantly decrease VMT	Med
	Smaller transit projects that will have a smaller impact on VMT	Low