Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

PLANNING COORDINATION ADVISORY COMMITTEE
Wednesday, May 25, 2022, 6:30pm
3040 Williams Drive, Suite 200
Fairfax, Virginia 22031
(In-person meeting and livestreamed via YouTube)

AGENDA

I. Call to Order/Welcome — Chair Colbert

Action

II. Summary Notes of April 27, 2022 Meeting — Chair Colbert
Recommended action: Approve meeting notes

Discussion/Information

Status of TransAction Plan Update

III. Status of TransAction Plan Update — Mr. Keith Jasper, Principal, Transportation Planning and Programming

IV. Status of FY2022-2027 Six Year Program Update — Dr. Nampoothiri, Senior Transportation Planner

V. NVTA Updates — Ms. Monica Backmon, CEO

Adjournment

VI. Adjourn

Next Meeting
June 22nd, 2022

Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

PLANNING COORDINATION ADVISORY COMMITTEE
Wednesday, April 27, 2022, 6:30 pm
Northern Virginia Transportation Authority

MEETING SUMMARY

I. Call to Order/Welcome

- Mayor Colbert, Chair of the Committee, welcomed Committee members and called the meeting to order at 6:35 p.m.
- Attendees:
  - **PCAC Members:** In-person –Mayor Colbert (Town of Vienna); Board Member Karantonis (Arlington County); Supervisor Glass (Loudoun County); Supervisor Franklin (Prince William County); Council Member Bagley (City of Alexandria); Council Member Duncan (City of Falls Church); Vice-Mayor Banks (City of Manassas Park); Council Member Friedrichs (Town of Herndon); Council Member Milan (Town of Purcellville).

    Remote – Vice Mayor Martinez (Town of Leesburg).
  - **NVTA Staff:** Monica Backmon (Chief Executive Officer); Sree Nampoothiri (Senior Transportation Planner); Harun Rashid (Transportation Planner).
  - **Other:** Noelle Dominguez (Fairfax County), Jaleh Moslehi (Town of Herndon).

II. Summary Notes of March 23, 2022 Meeting

- The March 23, 2022, meeting summary was approved, with abstentions from members who did not attend the March 23 meeting.

III. Status of FY2022-2027 Six Year Program Update.

- NVTA staff is currently collecting public comments on candidate projects. Public comment period started on April 15, and will end on May 22, 2022. Staff shared all project-related materials that are published to solicit for comments, explained in detail the evaluation results, and outlined a timeline to adopt the funding program at the July Authority meeting. The following items were presented to Committee members:
  - A summary list of twenty-six candidate projects. The list includes project title, requested funds, total project costs, and primary and supporting modes of the proposed project.
  - A map showing project locations/extents and modal classifications.
  - Summary results of quantitative and qualitative evaluations. These are described in detail below.
  - Project rankings by Congestion reduction relative to cost (CRRC) ratings. Following Virginia code, the evaluation process must prioritize the CRRC scores. CRRC is calculated with cumulative annual person hours of delay reduction from

the year of project completion to the future analysis year (2045 in this cycle), divided by total project cost.
    - Project rankings by a set of performance measures (TransAction ratings). In December last year, Authority approved a set of 10 performance measures.
- Dr. Nampoothiri explained the analytical process in detail, focusing on the quantitative and qualitative metrics in the summary result spreadsheet. Quantitative scores are based mostly on travel model analyses, with some metric derived with off-model tools. Quantitative metrics include – person-hours of delay reduction for autos (model), person-hour-delay reduction for transit (model), reduction in congestion duration (model), growth in person-mile-travel in dedicated right of way (model), growth in total access to jobs (model), growth in access to jobs from equity emphasis areas (model), ped-bike-transit environment (off-model), safety (off-model), emissions reduction (model), increase in person-hour travel (PHT) for surge demand (model), and long term benefit (model).
- Qualitative scores are based on criteria like project readiness, other funding leverage, applicants' past performance to advance projects, etc. Public comments play a significant role in the staff funding recommendation. At this point, only project rankings are presented, without staff recommendation for funding. At the end of public comment period on May 22nd, staff will synthesize public comment summaries with quantitative/qualitative scores, and present draft funding recommendation at the June Committee meetings.
- In response to members' questions, staff mentioned that an estimate of revenue available for this program cycle will be presented for Authority's approval in May. During this question/answer session, staff clarified results of some performance measures, identifying needs to re-check scores for the metric of surge PHT increase. A discussion then ensued highlighting past staff experience to effectively utilize public comments in the decision-making process.

IV. Status of TransAction Plan Update

- Dr. Nampoothiri updated Committee members on current activities of ongoing plan update process:
    - Coordinate a Bus Rapid Transit (BRT) planning working group. This is to facilitate and derive planning level guidelines to develop a regional BRT network and supporting projects in Northern Virginia and connections to neighboring jurisdictions such as District of Columbia, Montgomery County, and Prince Georges County.
    - Compile a project list to meet regional transportation needs. This process involves soliciting project ideas from local jurisdictions and transportation agencies, to form a 'bottom-up' set of projects. To fill up gaps that may exist in this list, 'top-down' project ideas are also being developed by the staff and consultant team.
    - Scenario analyses to address uncertainties in the planning/forecasting process. Following scenarios are being considered for analyses – Pandemic-created "New Normal"; Transportation Technology (focusing on Connected/Automated/Shared/Electric vehicles); and Transportation Policy/Mechanisms (transportation pricing and incentives). There is a potential fourth scenario involving assumptions related to climate change issue.
- Consultant staff is currently analyzing a set of projects to show their regional impacts in meeting identified transportation needs in Northern Virginia. Results of

this analysis will be shared in next month's meeting. Next steps in the planning process include a public comment period, public hearing, and adoption of TransAction later this year.

- Committee members shared suggestions for the scenario analyses, highlighting the current pressing issue of climate change. In response, Ms. Backmon stressed on the need to achieve a balance in approach to address climate change, with NVTA's Core Values of TransAction (e.g., equity).

V. NVTA Update

- NVTA Chief Executive Officer, Ms. Backmon, mentioned staff are closely following recent developments with the gas tax holiday bill at the General Assembly Special Session.

VI. Adjourn

- Chair Colbert adjourned the meeting at 8:15 pm.

TransAction Work Session

Project Update

May 25, 2022

presented to

Planning Coordination Advisory Committee

NVTA's TransAction

Transportation Action Plan for Northern Virginia

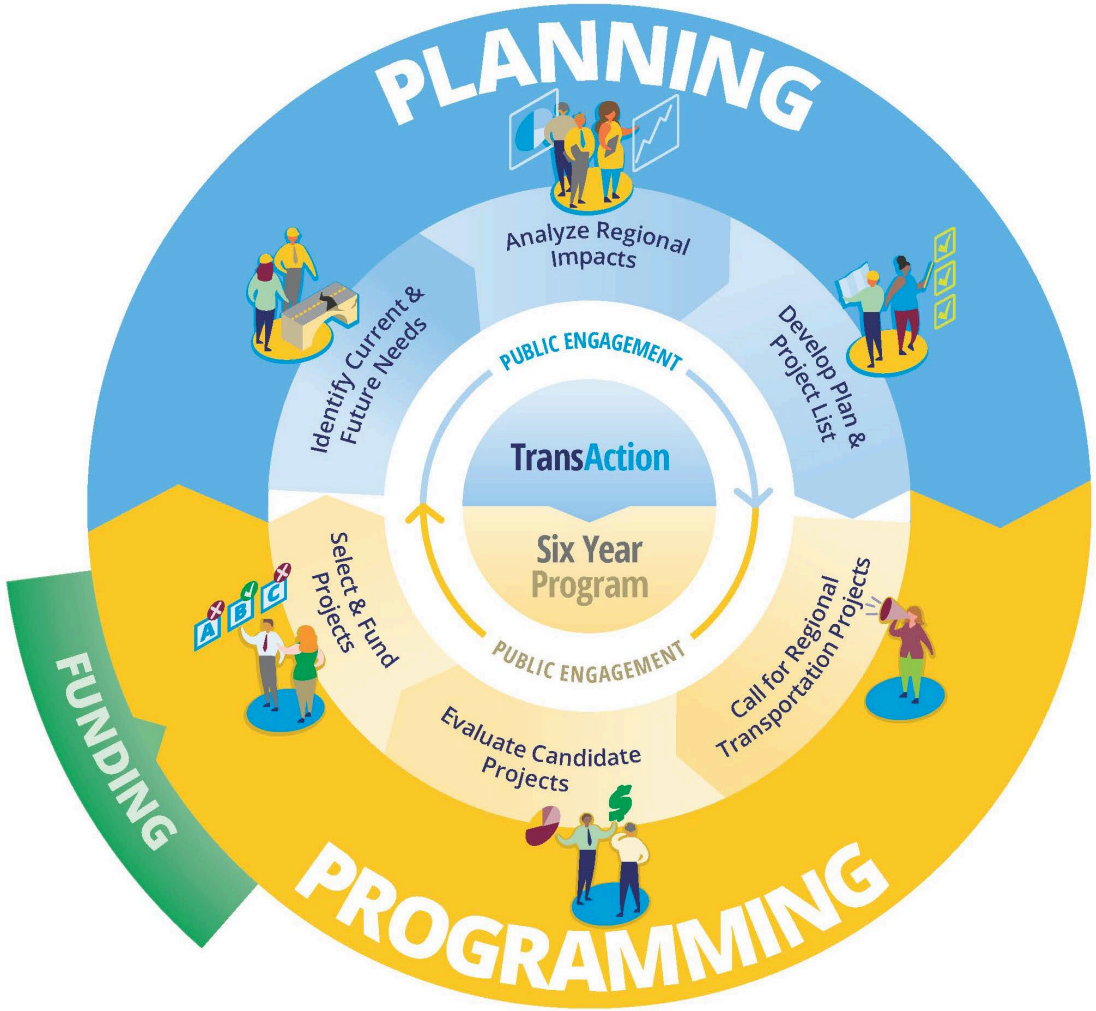
Agenda

1. Welcome & Introductions
2. Update on TransAction Progress
3. TransAction Projects
4. Initial Modeling Results
5. Scenario Analysis
6. Next Steps/Future Meetings

NVTA's Primary Responsibilities

TransAction

- Long-Range Transportation Plan for NoVA
- Updated every five years
- Current plan adopted in October 2017



Six Year Program (SYP)

- Allocates NVTA's Regional Revenues to regional transportation projects
- Updated every two years
- Most recent SYP adopted in July 2020

NVTA's TransAction

Update on TransAction Progress

NVTA's TransAction

Transportation Action Plan for Northern Virginia

TransAction Activities and Schedule

- Nov/Dec 2021: NVTA approved TransAction goals, objectives, performance measures, and weights
- Winter/Spring 2022:
  - Transportation Perception Survey
  - Application of the new TransAction model for the Six-Year Program
  - Web post series
  - TransAction project modeling and analysis
- May:
  - Stakeholder Meeting
  - NVTA Work Session
- Summer/Fall 2022: Public comment/hearing
- November 2022: NVTA adopts TransAction

TransAction Projects

NVTA's TransAction

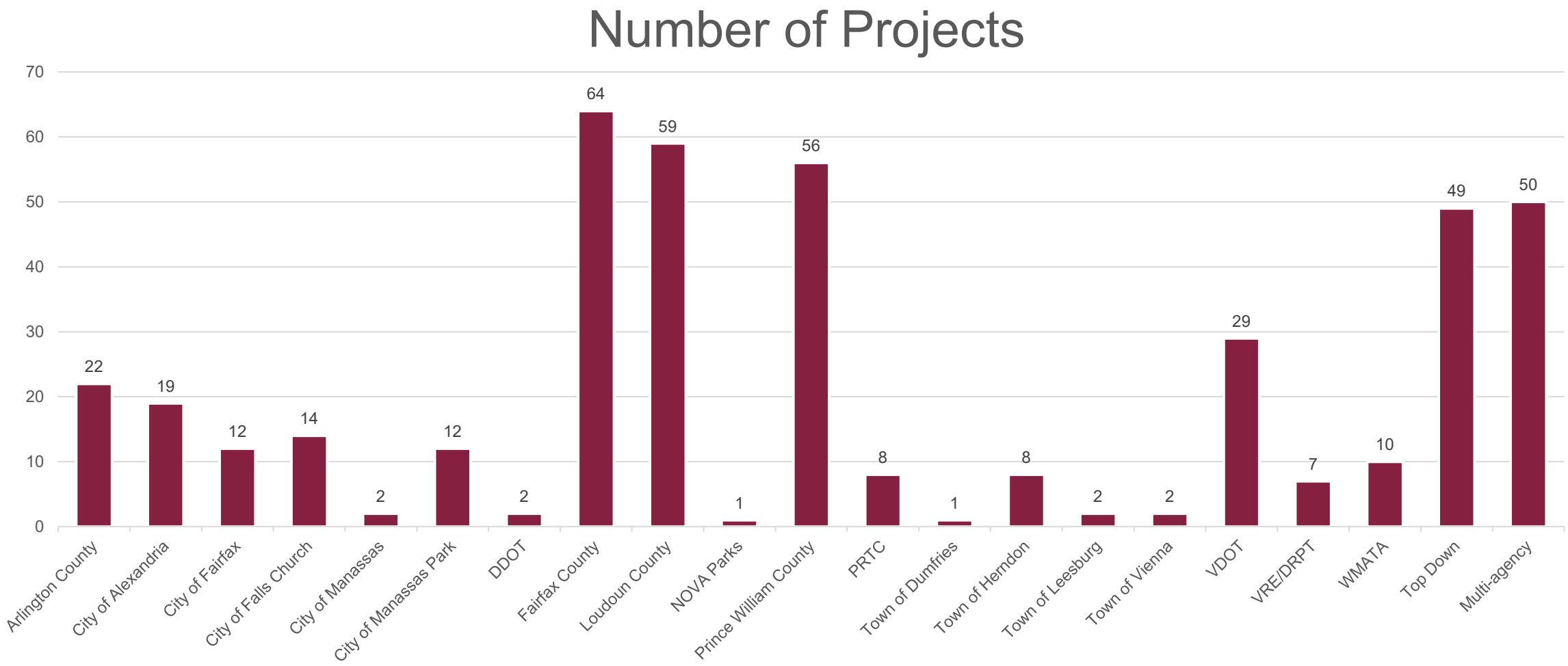
Transportation Action Plan for Northern Virginia

TransAction Project List

- 429 Total Projects
  - 380 Bottom-Up Projects
  - 49 Top-Down projects (includes top-down projects from current TransAction)
- 111 New projects
- Net increase of 77 projects
- Total estimated cost: >$71.1B

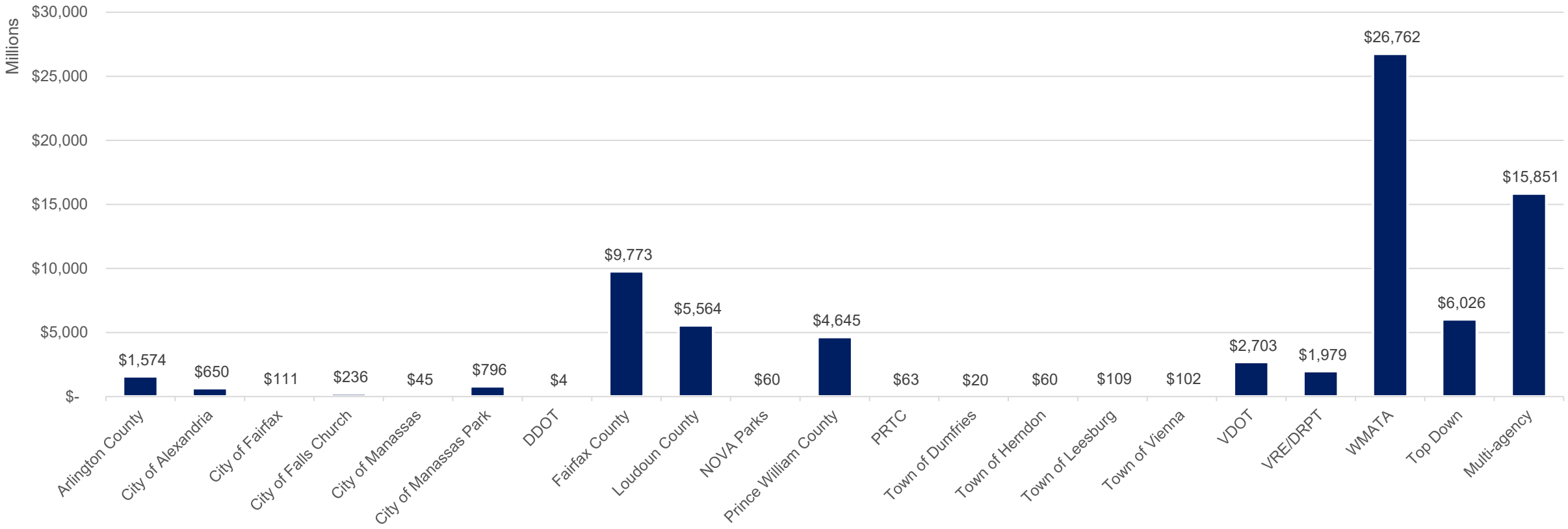
- 26 Projects that include elements outside of NoVA
  - Transit service to neighboring jurisdictions
  - Infrastructure improvements in other jurisdictions
- Extraterritorial cost: >$29.2 B

TransAction Project Sponsors

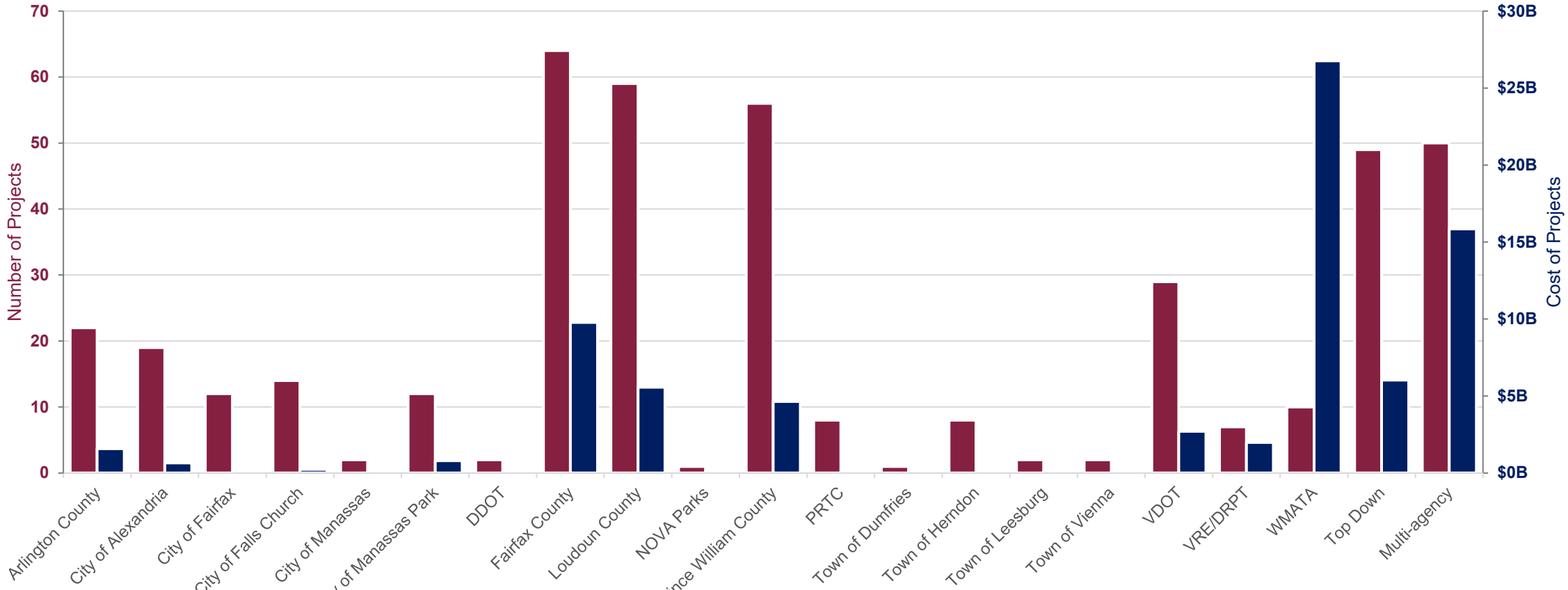


TransAction Project Sponsors

Estimated Planning-Level Project Costs

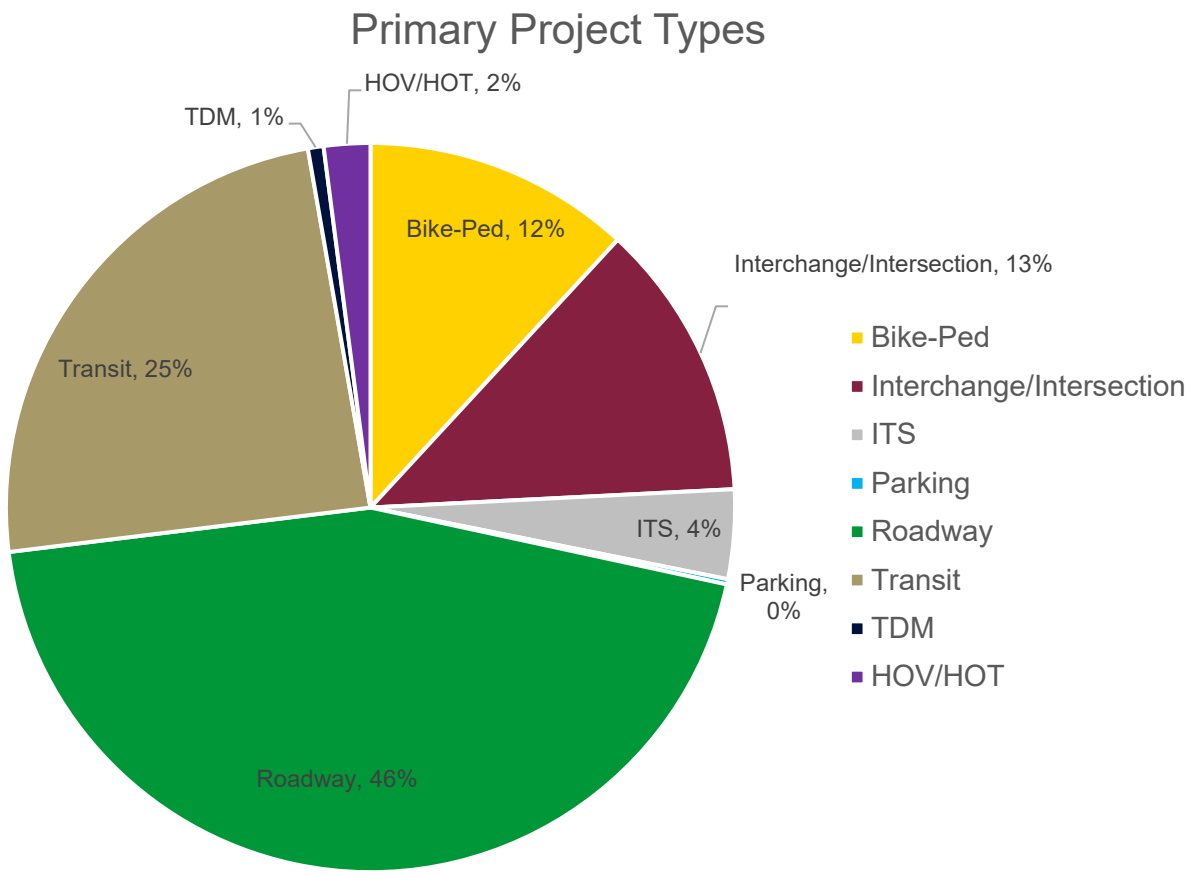


TransAction Project Sponsors



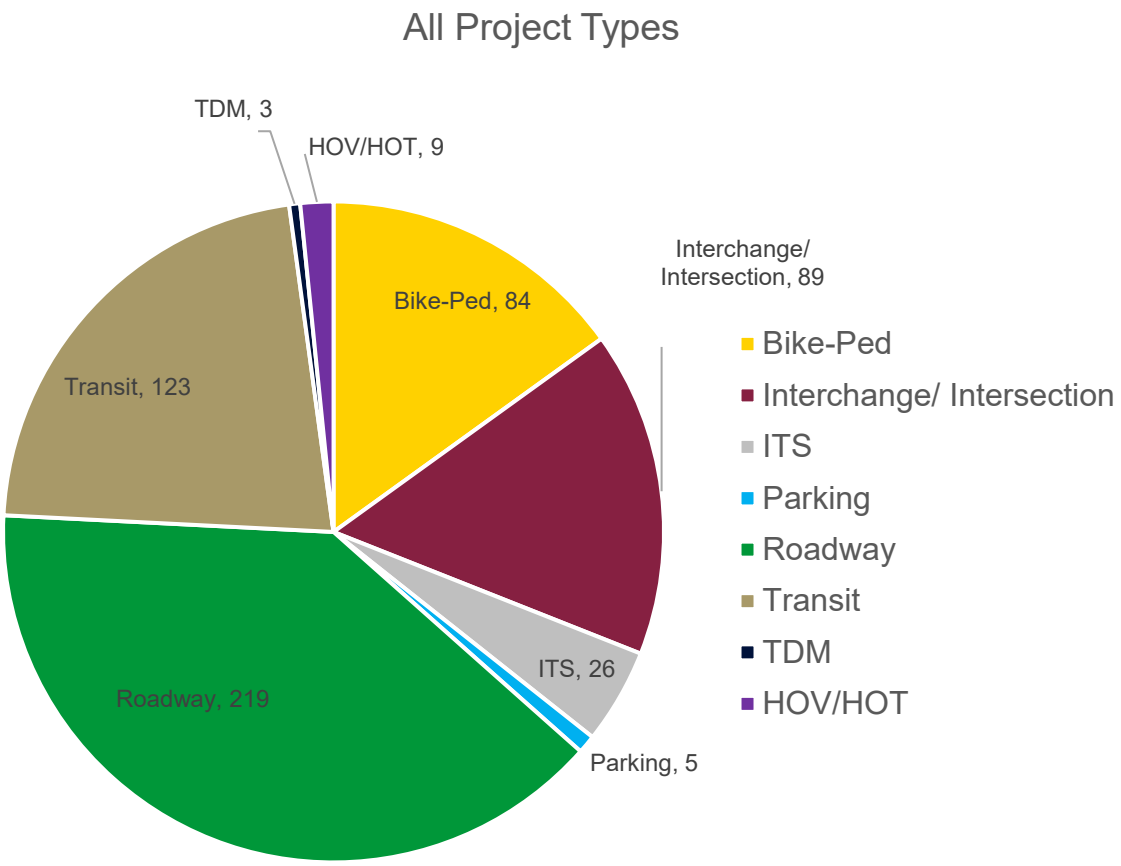
NVTA's TransAction

TransAction Projects by Type



Primary Project Types	Count
Bike-Ped	51
Interchange/Intersection	53
ITS	17
Parking	1
Roadway	192
Transit	104
TDM	3
HOV/HOT	8

TransAction Projects by Type

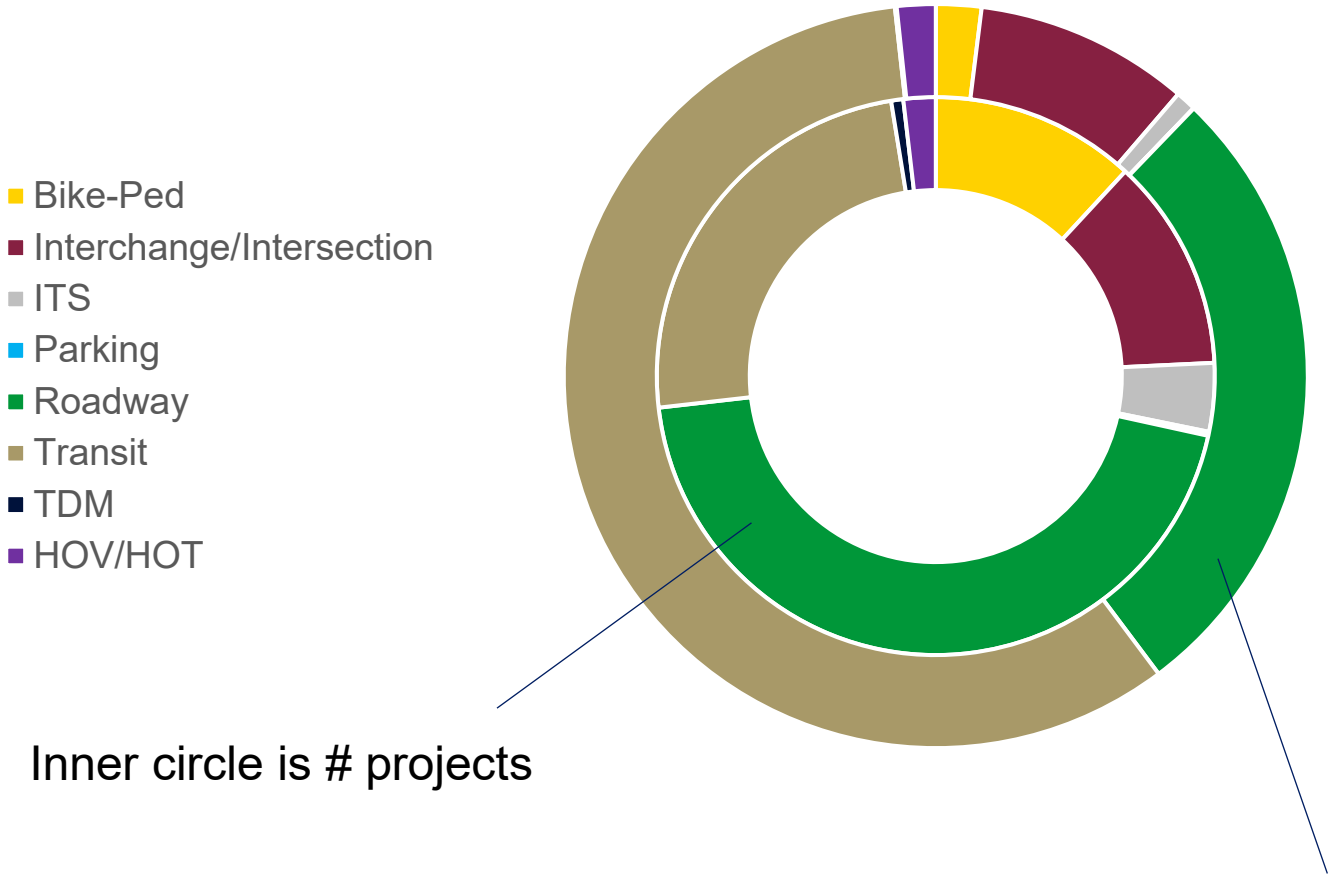


Project Mode Types	Count
Bike-Ped	84
Interchange/Intersection	89
ITS	26
Parking	5
Roadway	219
Transit	123
TDM	3
HOV/HOT	9

Projects can be listed in up to 3 mode categories. The total is therefore greater than 429.

TransAction Project Costs

Project Costs by Project Type



Inner circle is # projects

Outer circle is total cost of projects

Average Cost	
Bike-Ped	$ 27.9M
Interchange/ Intersection	$125.1M
ITS	$ 37.3M
Parking	$ 10.0M
Roadway	$102.1M
Transit	$399.8M
TDM	$ 18.3M
HOV/HOT	$149.5M

NVTA's TransAction

Initial Modeling Results

NVTA's TransAction

Transportation Action Plan for Northern Virginia

New TransAction Modeling Process

- Two-part integrated model:
  - Macroscopic modeling using an enhanced version of the TPB regional model (in Cube)
  - Mesoscopic modeling leverage dynamic traffic assignment techniques in DTALite
- Off-model analysis:
  - Bicycle accessibility
  - Qualitative assessment of D1 and E1 measures

TransAction 2045 No-Build Network

- CLRP Transportation Network
  - Air Quality Conformity (AQC) Analysis of the 2020 Amendment to Visualize 2045 and FY 2021-2024 Transportation Improvement Program (TIP)
- For Northern Virginia,
  - Keeps projects fully-funded by NVTA and other agencies
  - Removes projects on the TA Build list
- Outside of Northern Virginia
  - Keeps CLRP network

TransAction 2045 Build Networks for Testing

For discussion today:

- Full-Build

Additional model runs being conducted:

- Highway Network
- Transit Network
- Other Project Groupings Needed to Identify Project Scores

Full-Build Network Results

Key Outputs:	Change
Auto Trips	-0.3%
Transit Trips	3.9%
PMT	3.2%
VMT	3.3%

Performance Measures		Change
A1/A2	Total Delay Reduction – Autos and Transit (Person-Hours of Delay)	-16%
B1	Congestion Duration (Mile-Hours of Severe Congestion) -- length weighted	-24%
C1	Accessibility (Average number of new jobs accessible)	11%
C2	EEA Accessibility (Average number of new jobs accessible)	16%
F1	Emissions Reduction (kg CO_2)	1.4%

Full-Build Network Results (-continued)

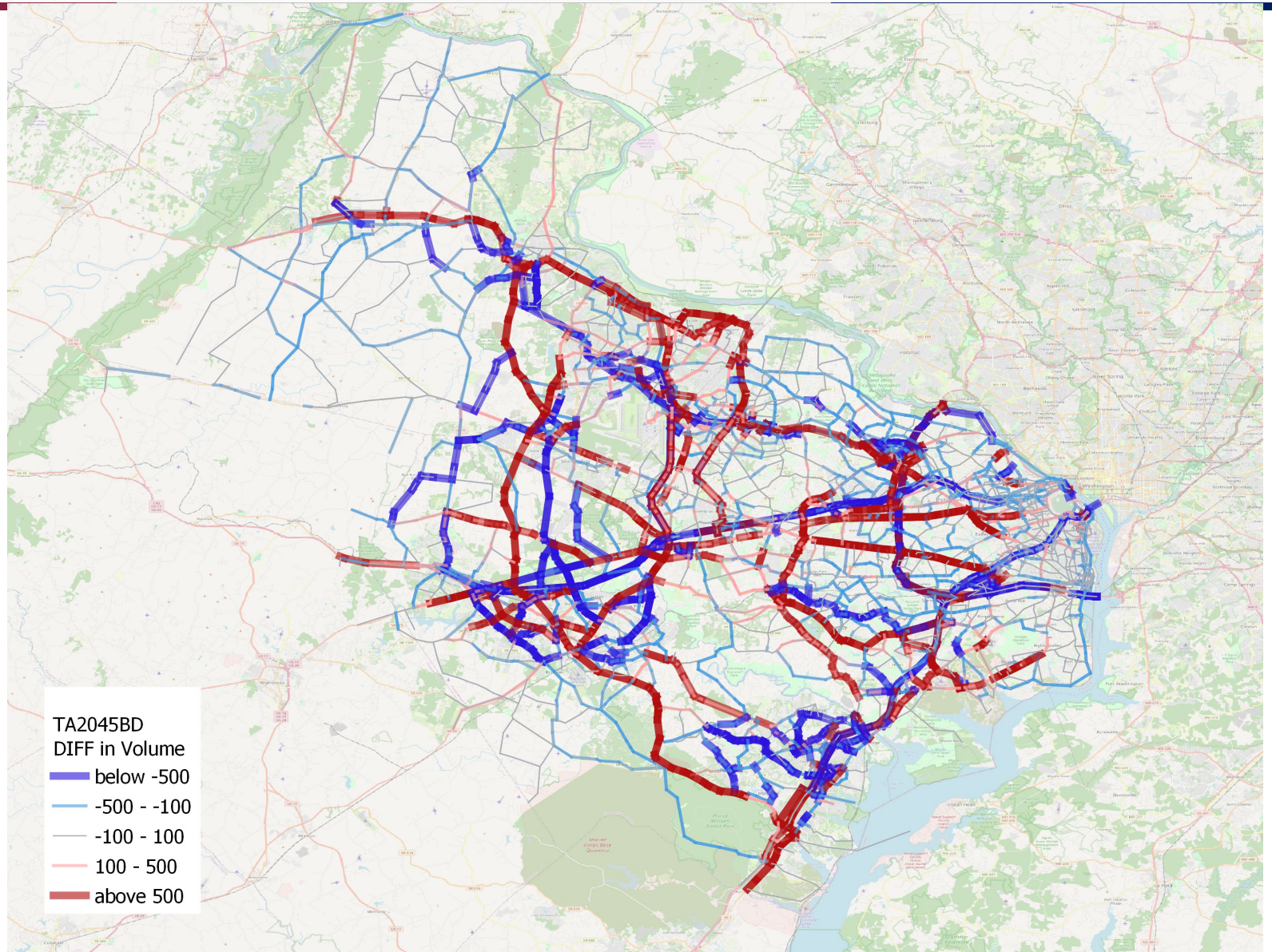
» Other measures to be added later

Performance Measures		Status
B2	Transit person-miles in dedicated/priority ROW	To be added
D1	Quality of access to transit and the walk/bike network	Individual project score only
E1	Potential for safety and security improvements	Individual project score only
G1	Transportation System Redundancy	To be added

Full-Build Network Results

Change in Volume

(morning peak)



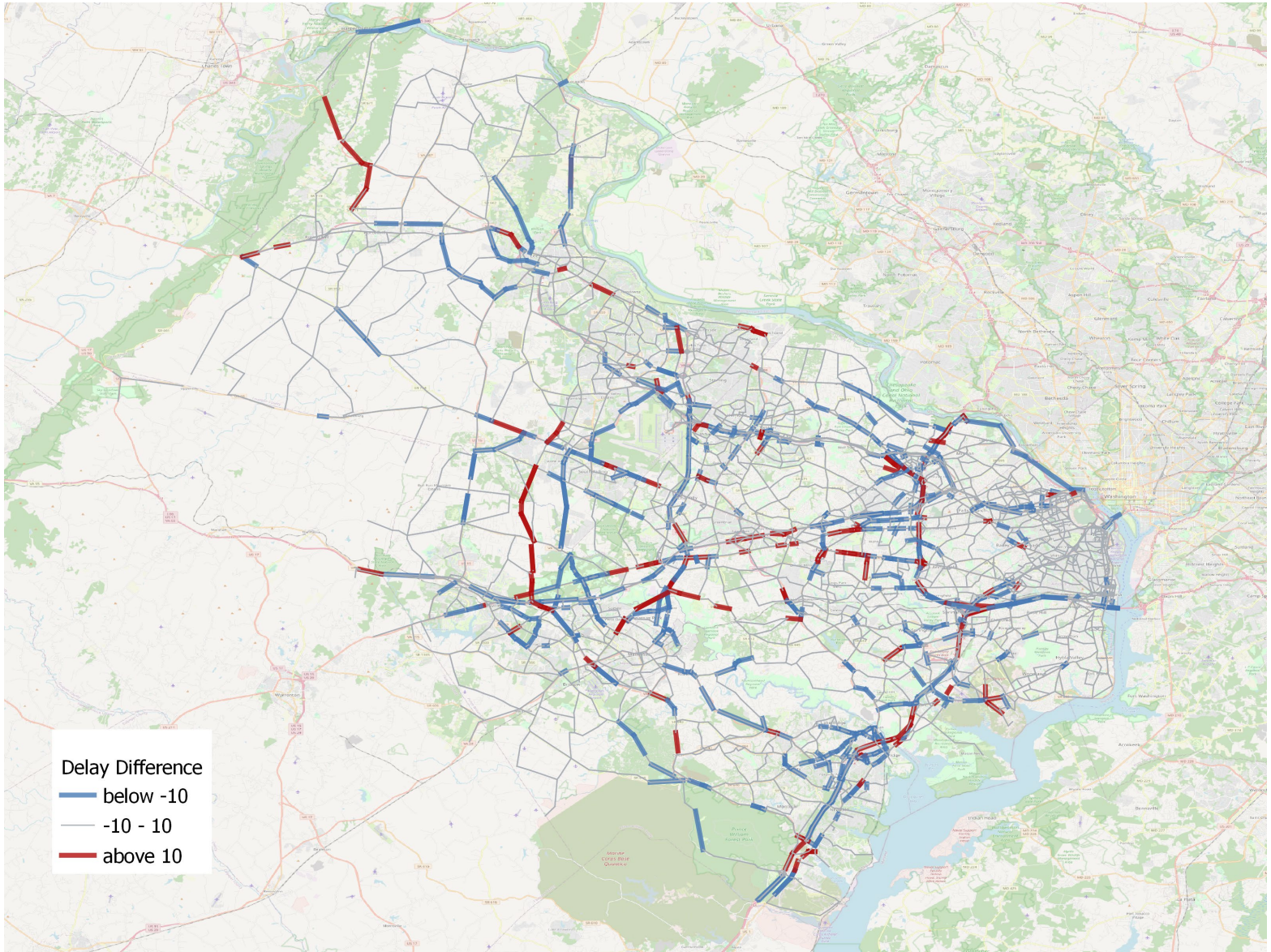
Volume decrease

Volume increase

Full-Build Network Results

Change in Delay

(morning peak)

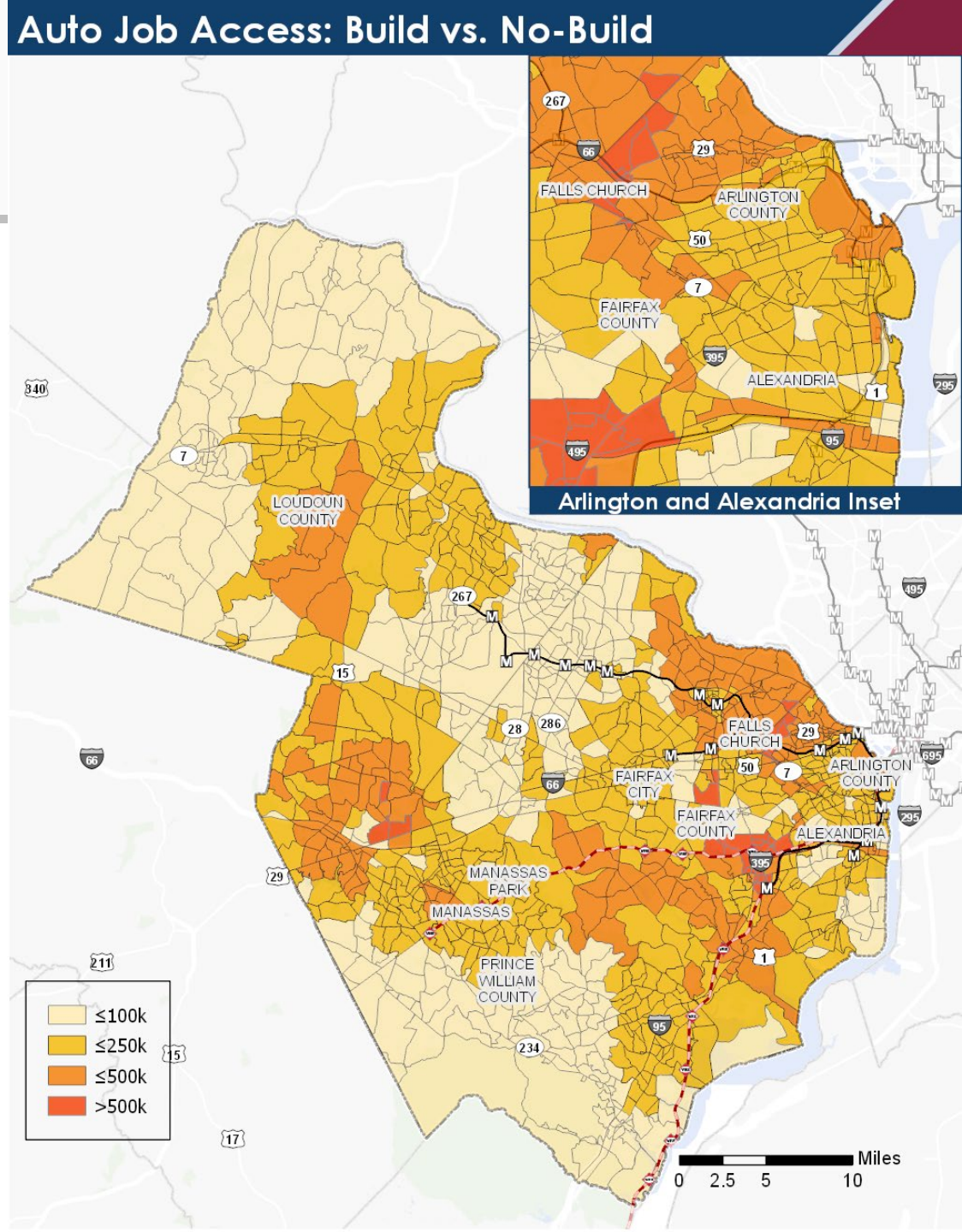


Delay decrease

Delay increase

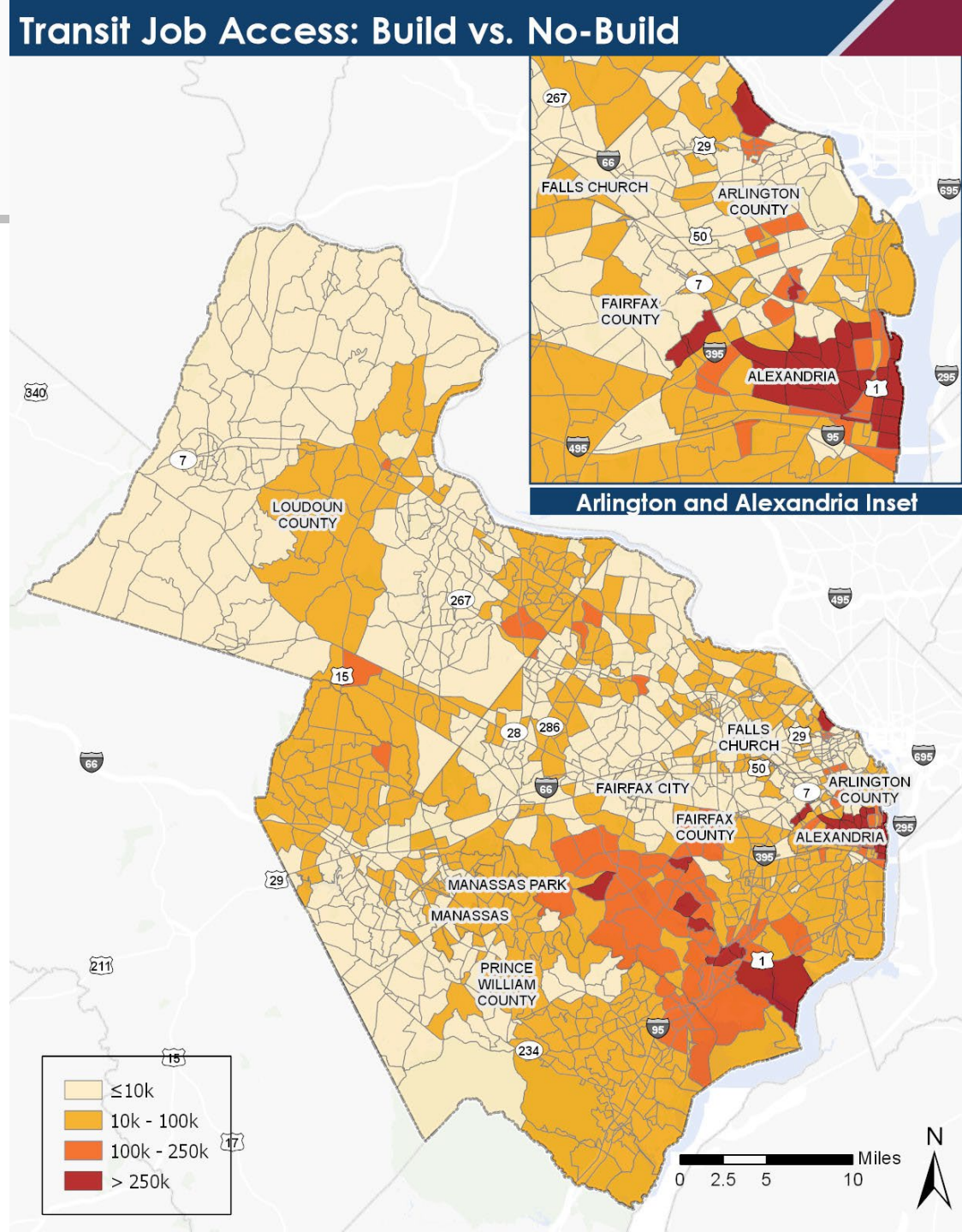
Accessibility: Auto

- Locations where the number of jobs accessible by auto within 45 minutes increases
  - On average, increases in the region by 179,000 jobs (13%)
  - In EEAs, increases by over 56,000 jobs (13%)
- Auto access considers all roads available to SOVs, including paid HOT/toll facilities



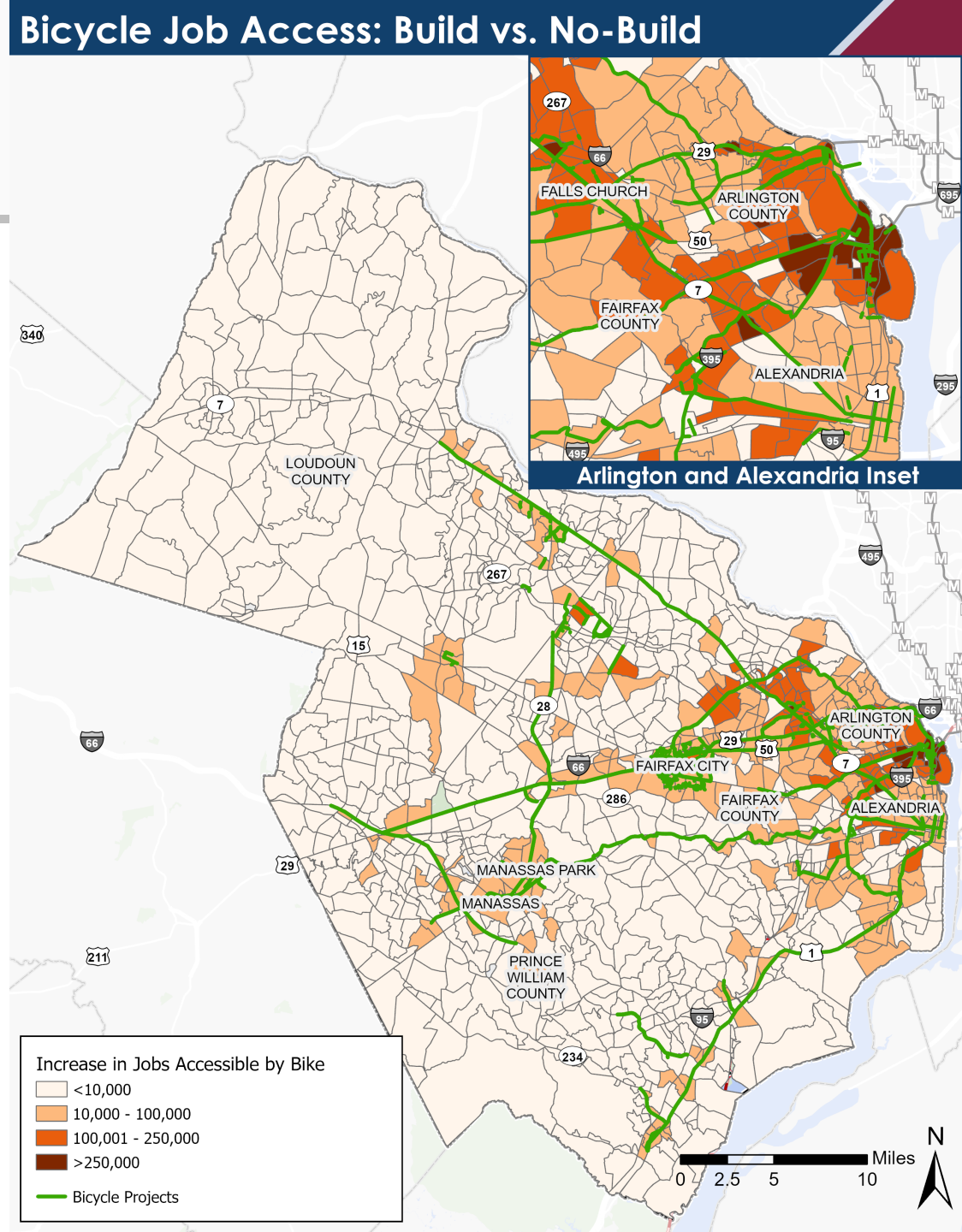
Accessibility: Transit

- Locations where the number of jobs accessible by transit within 60 minutes increases
  - On average, increases in the region by 44,000 jobs (6%)
  - In EEAs, increases by over 17,000 jobs (7%)
- Includes all modes of transit, and allows for drive-access to stations



Accessibility: Bike

- Locations where the number of jobs accessible by bike on the low-stress bike network within 30 minutes increases
  - On average, increases in the region by 37,400 jobs (81%)
  - In EEAs, increases by over 44,500 jobs (112%)
- Low-stress bike facilities include dedicate bike lanes, grade separated paths & trails



Scenario Analysis

NVTA's TransAction

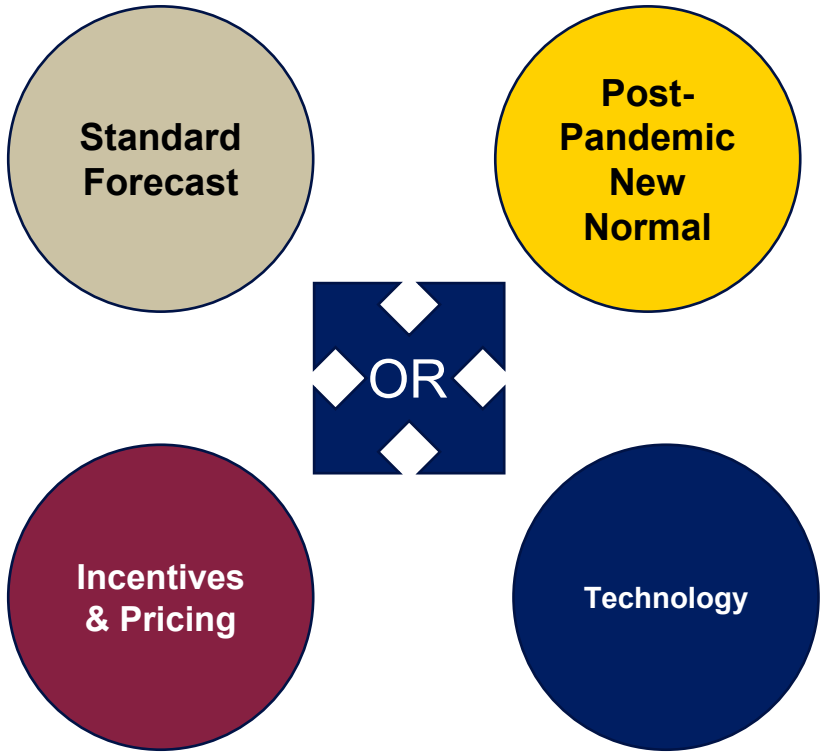
Transportation Action Plan for Northern Virginia

Dealing with Uncertainty

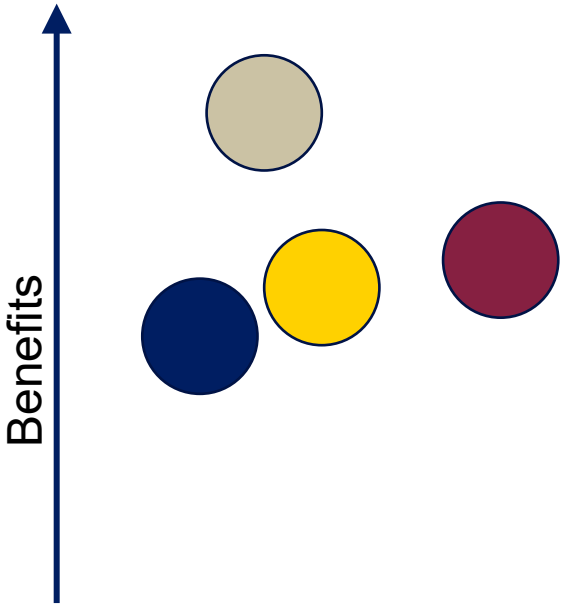
- The TransAction process includes analysis to better understand uncertainty:
  - Plausible futures, but not necessarily preferred or predicted
  - Assumptions-based using proxy metrics than can be modeled
  - May identify potential investment obsolescence
- Three specific alternative futures (scenarios):
  - Pandemic-created ‘New Normal’
  - Transportation Technology
  - Transportation Policy/Mechanisms

Scenario Analysis

What could happen to transportation in Northern Virginia by 2045?



What are the potential benefits of the TransAction projects?



NVTA's TransAction

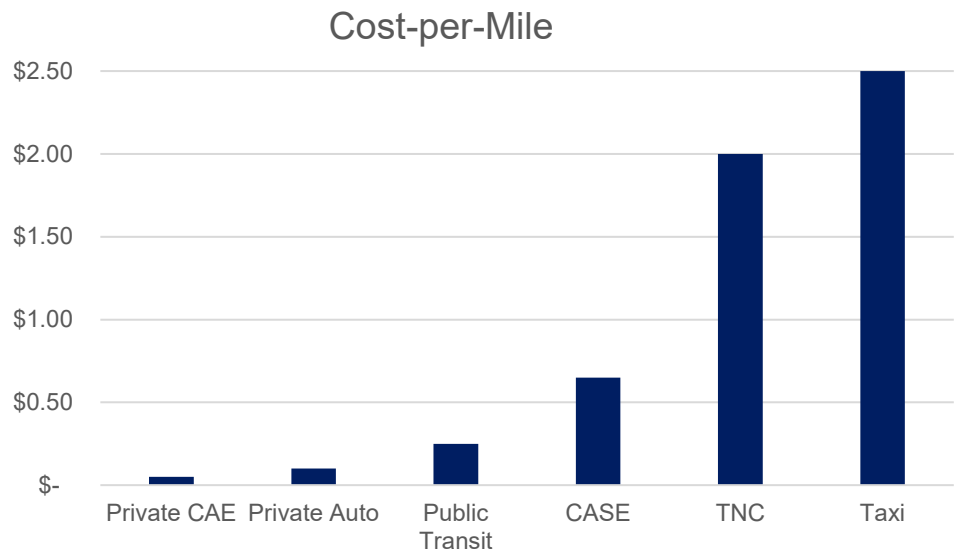
1 Post-Pandemic New Normal Scenario

- What if trends observed during the pandemic continue into the long-term future?

- Key Assumptions:
  - Reduction of work-related trips (HBW, NHW) by 21%
  - Reduction of shopping trips by 5.6%
  - Increase in delivery trips (1 delivery for every 3 shopping trips removed)
  - Increase in non-motorized trips by 5%
  - No Land Use changes assumed

2 Technology Scenario

- Focus on implementation of Connected/ Automated/ Shared/ Electric vehicles (CASEs)
  - Market Penetration:
    - Private Vehicles: 20%
    - TNCs: 100% fully automated within Northern Virginia, DC, Montgomery & Prince George's
    - Large Trucks: 33%
    - Transit Buses: not automated
    - Shuttle buses: 100% automated
  - All automated vehicles are assumed to also be Connected and Electric
  - Lower operating costs



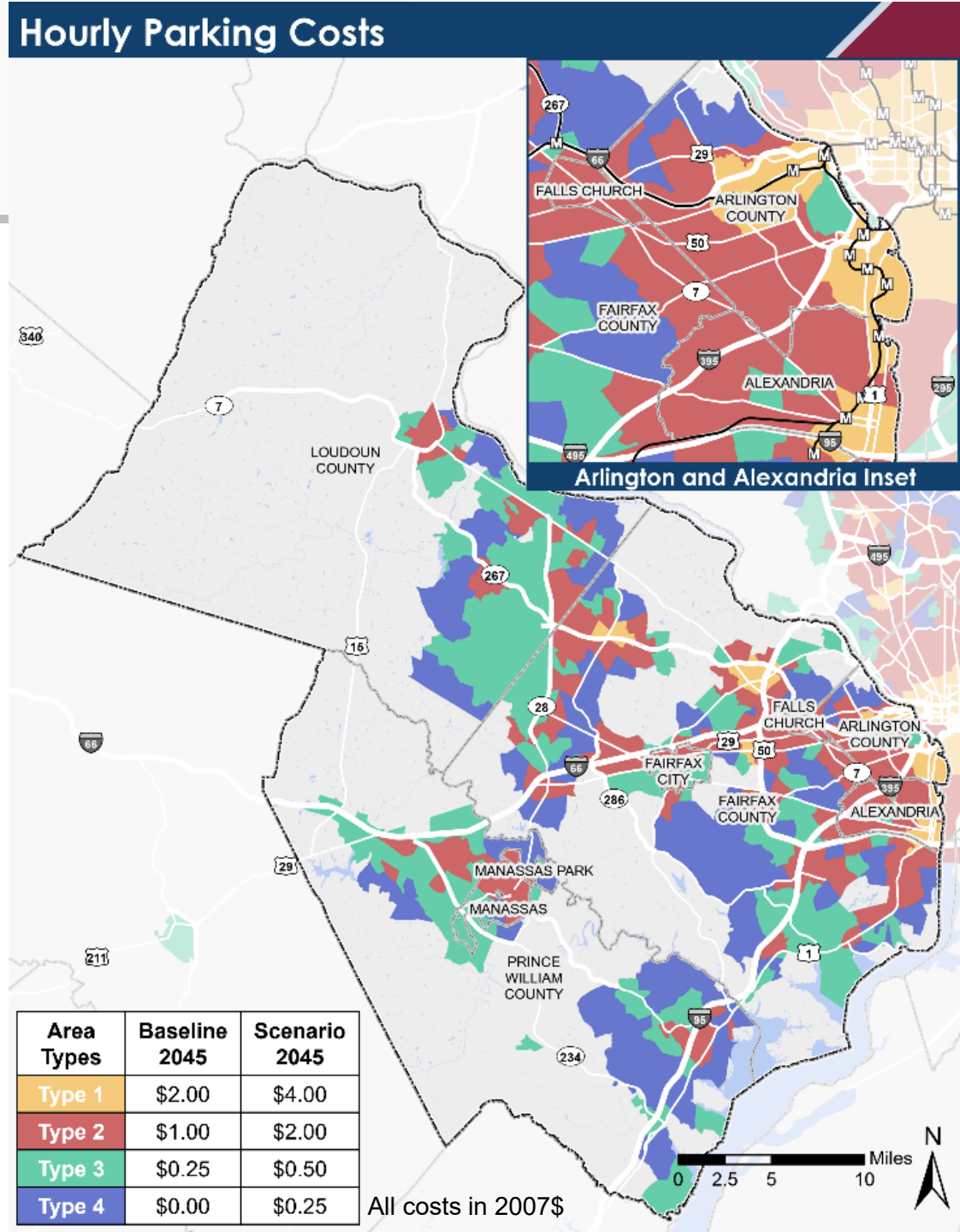
NVTA's TransAction

2 Technology Scenario (cont.)

- Focus on implementation of Connected/ Automated/ Shared/ Electric vehicles (CASEs)
  - Changes to trip making:
    - CAE owners make more trips
    - CAE owners make longer trips
  - Zero-Occupancy Vehicle (ZOV) trips:
    - Remote parking of private vehicles
    - CASE relocation between passengers
  - Capacity Increase:
    - Freeways: 15%
    - Major Arterials: 5%
  - Automated Shuttles available at all rail stations (FM/LM)
  - No Land Use changes assumes

3 Incentives/Pricing Scenario

- Implementing transportation pricing and incentive mechanisms to manage travel demand
- Key Assumptions:
  - VMT Pricing on all roads: 25¢ peak, 12¢ off-peak
    - Discounts for lower-income households
  - Increase in parking costs across the region
  - Free transit
  - Shift in travel times from peak hours

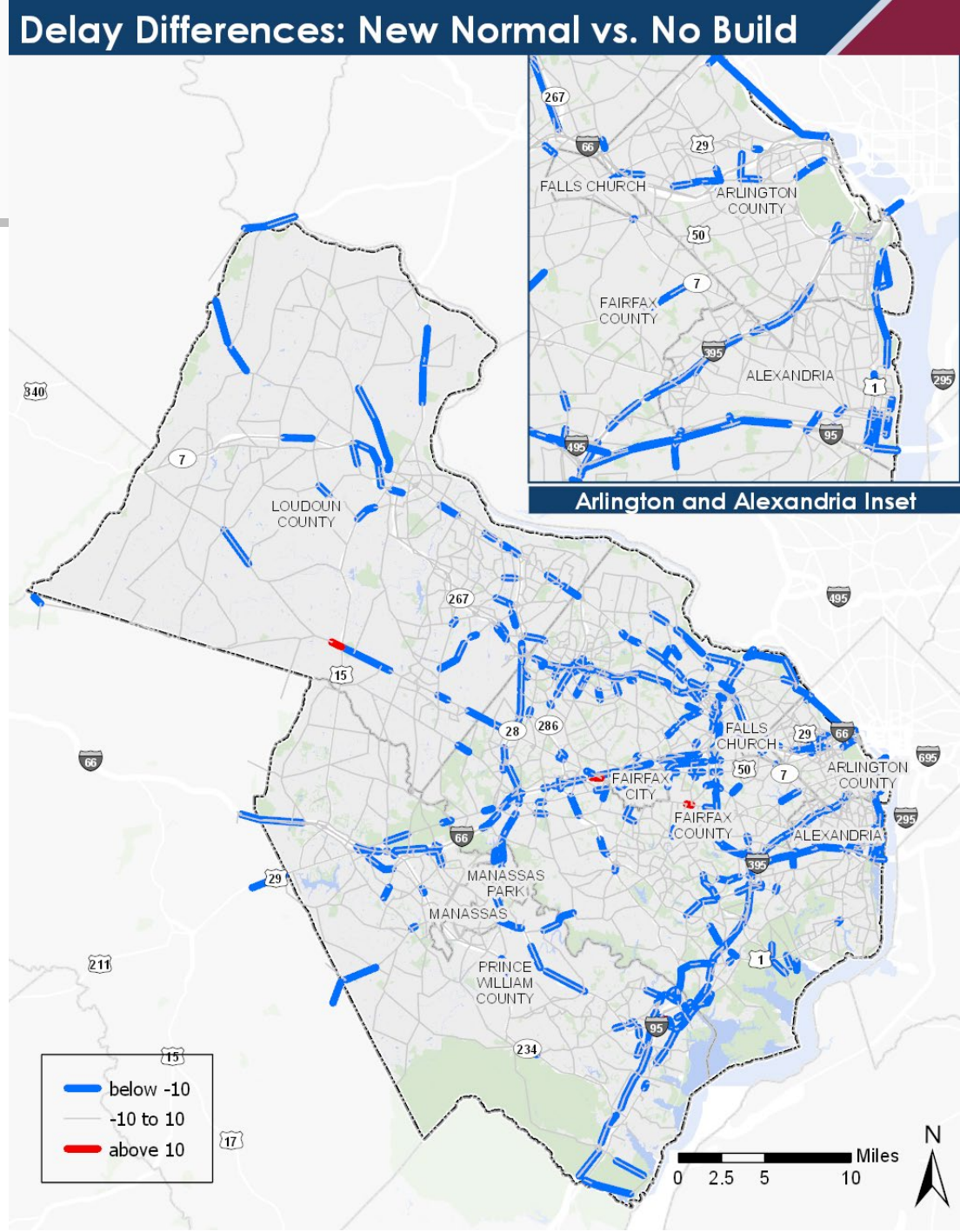


Area Types	Baseline 2045	Scenario 2045
Type 1	$2.00	$4.00
Type 2	$1.00	$2.00
Type 3	$0.25	$0.50
Type 4	$0.00	$0.25

All costs in 2007$

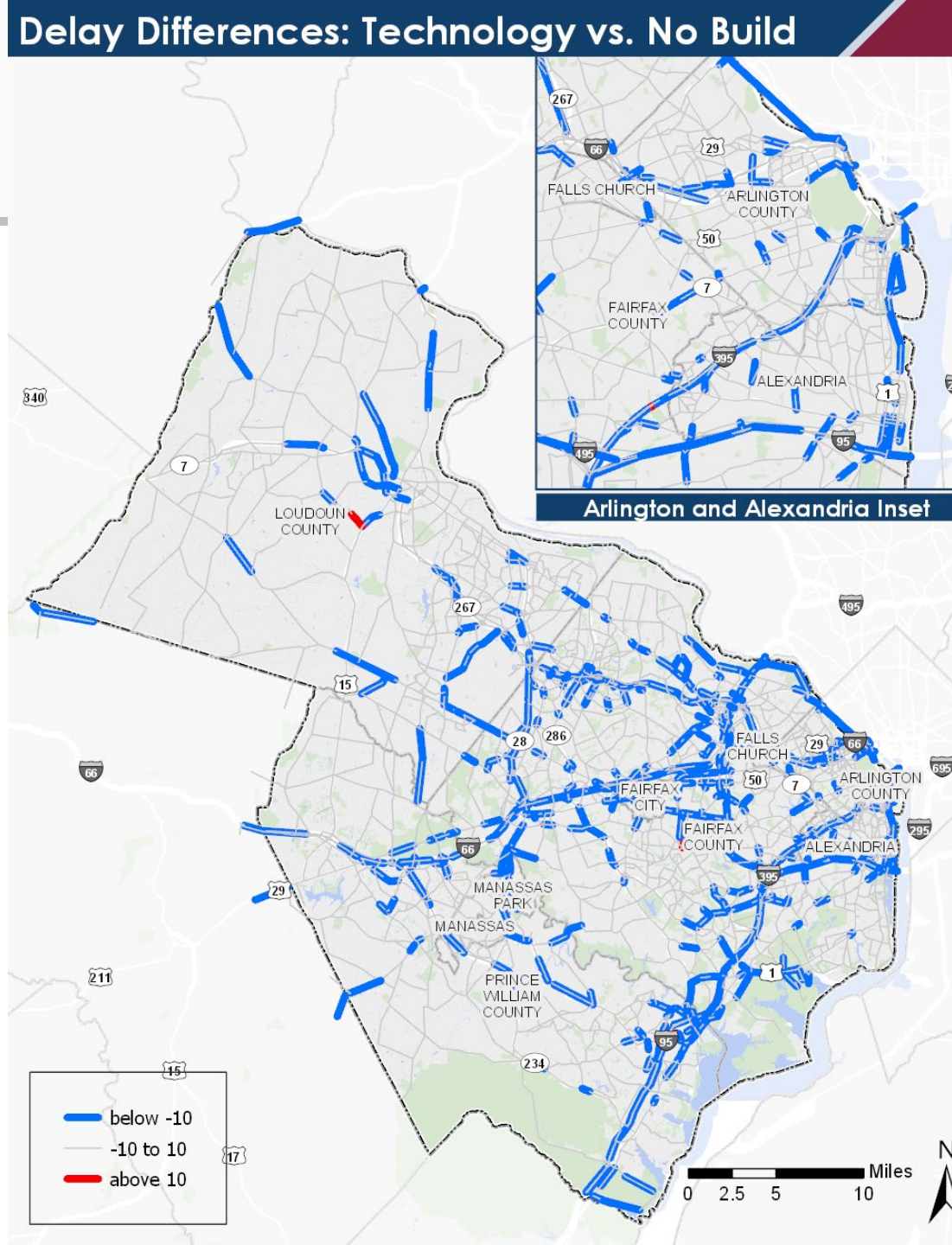
1 Post-Pandemic New Normal: Results

Measure	Change
Motorized Person Trips	-4.5%
Transit Trips	-11%
VMT	-4%
Person-Hours of Delay	-14%



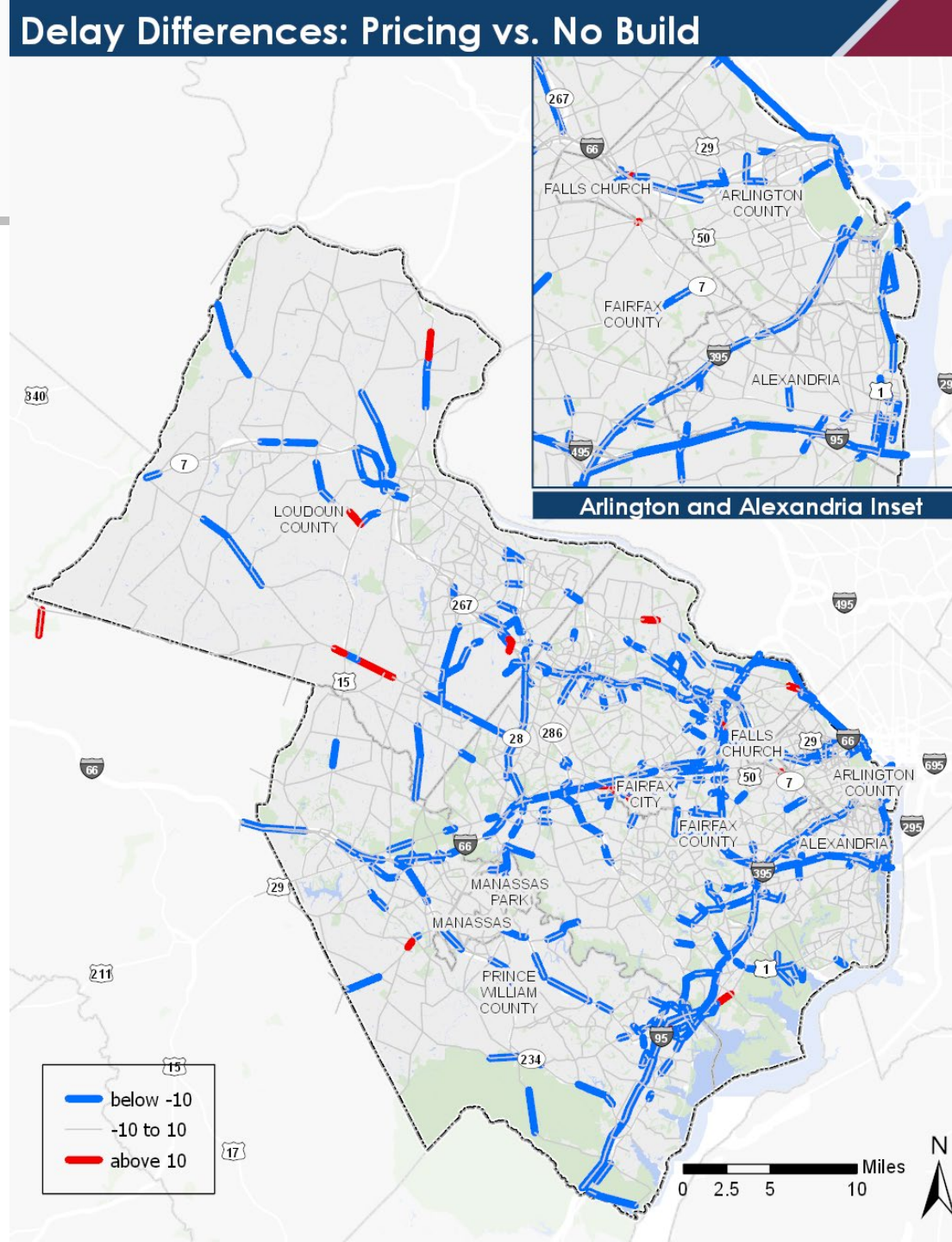
2 Technology Scenario: Results

Measure	Change
Motorized Person Trips	-3%
Transit Trips	-13%
VMT	-1.4%
Person-Hours of Delay	-25%



3 Incentives/Pricing: Results

Measure	Change
Motorized Person Trips	-4.5%
Transit Trips	+12%
VMT	-9%
Person-Hours of Delay	-20%



Initial Scenario Results

What could happen to transportation in Northern Virginia by 2045?

Change in No-Build Results Under Each Scenario

Measure	New Normal	Technology	Incentives/ Pricing
Motorized Person Trips	-4.5%	-3%	-4.5%
Transit Trips	-11%	-13%	+12%
VMT	-4%	-1.4%	-9%
Person-Hours of Delay	-14%	-25%	-20%
Duration of Severe Congestion	-21%	-37%	-25%
Job Accessibility	+8.3%	+6.1%	+6.5%
Emissions	-3.5%	-28%	-7.9%

Next Steps

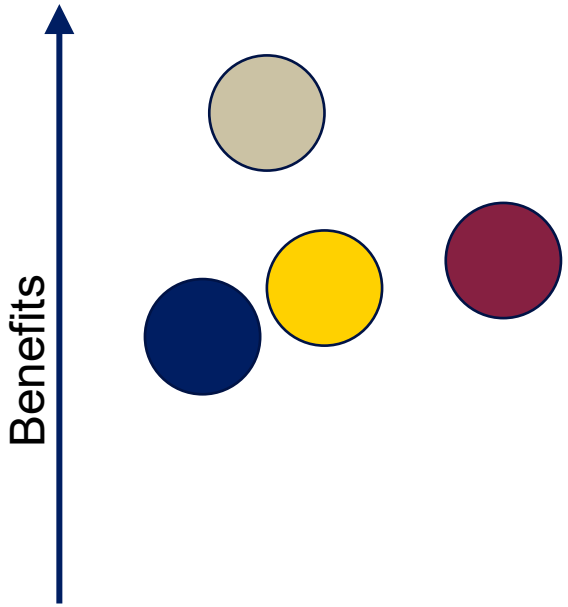
NVTA's TransAction

Transportation Action Plan for Northern Virginia

Additional Analysis

- Finalize TransAction system analysis for all 10 performance measures
  - Summaries at the corridor level
- Individual TransAction ratings for each project
- Impact of TransAction projects on Scenario Analysis

What are the potential benefits of the TransAction projects?



Additional Slides

NVTA's TransAction

Transportation Action Plan for Northern Virginia

Approved Goals, Objectives and Performance 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	

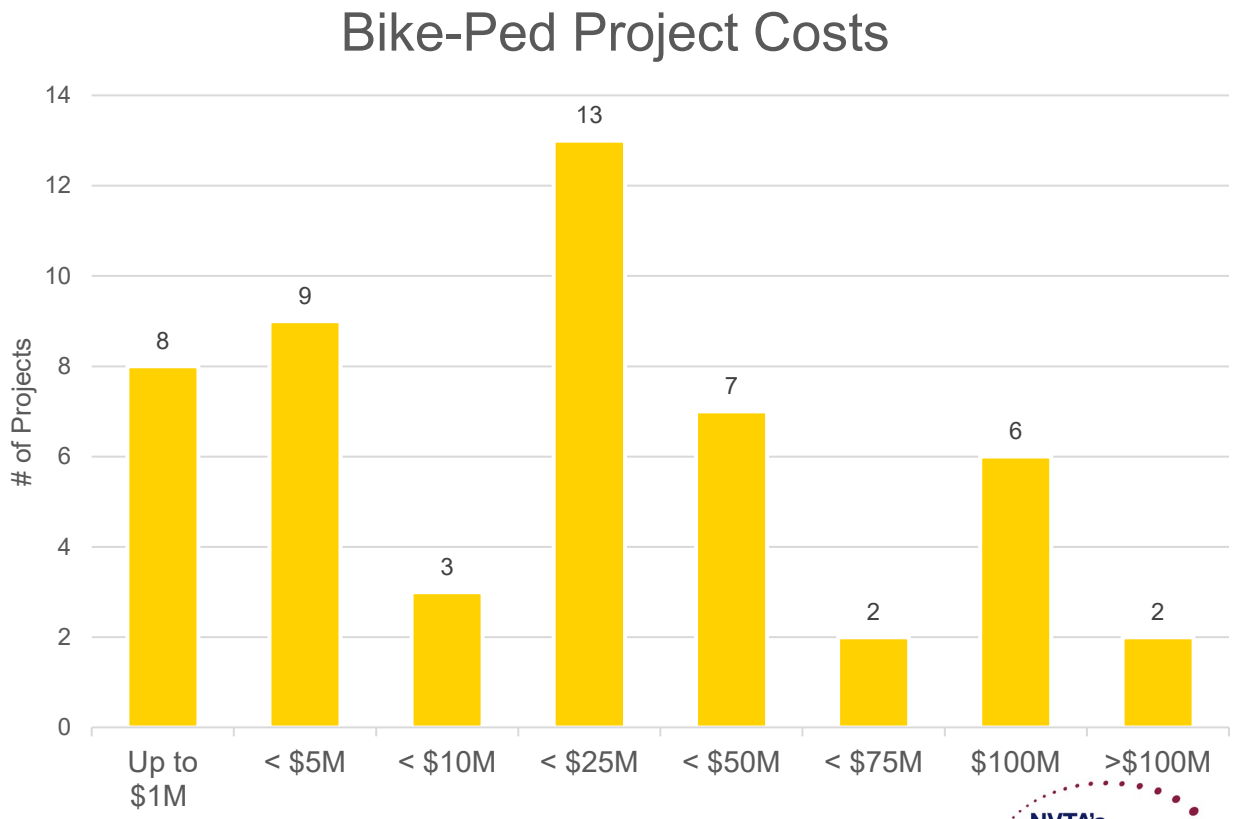
Transit may include HOV.

* Measure included in HB 599 rating process.

TransAction Projects: Bike-Ped

- 84 projects include Bike-Ped elements:
  - Multi-Use Trails
  - Bike Lanes
  - Sidewalks and paths
  - Bikeshare infrastructure
  - Multimodal improvements
  - Access to Transit stations and stops
  - Mobility Hubs
  - Intersection improvements (e.g. crossings, signalization, ADA ramps)
- More than 220 miles of trails, paths and bike lanes added

- 51 projects are primarily Bike-Ped



Bike-Ped Projects

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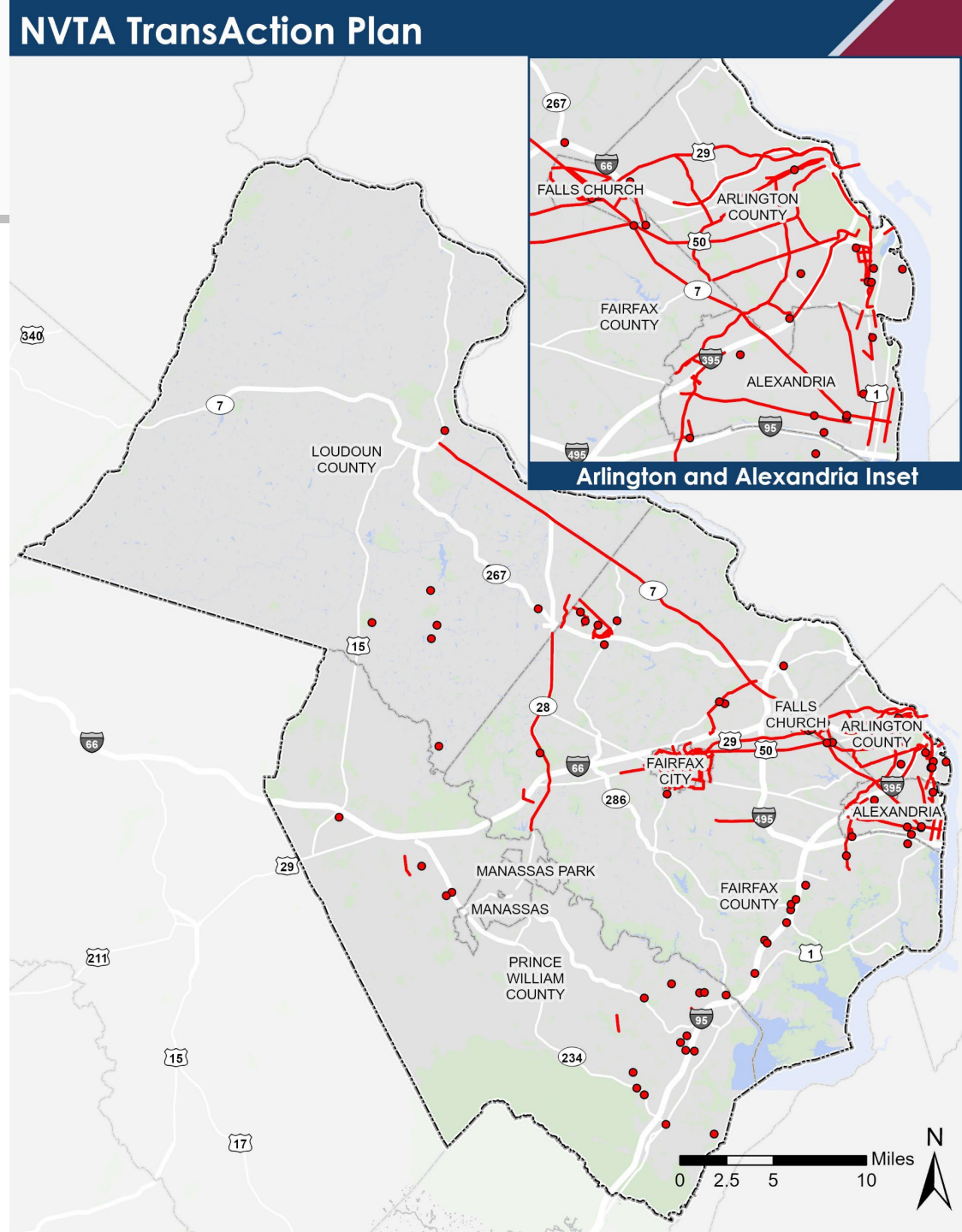
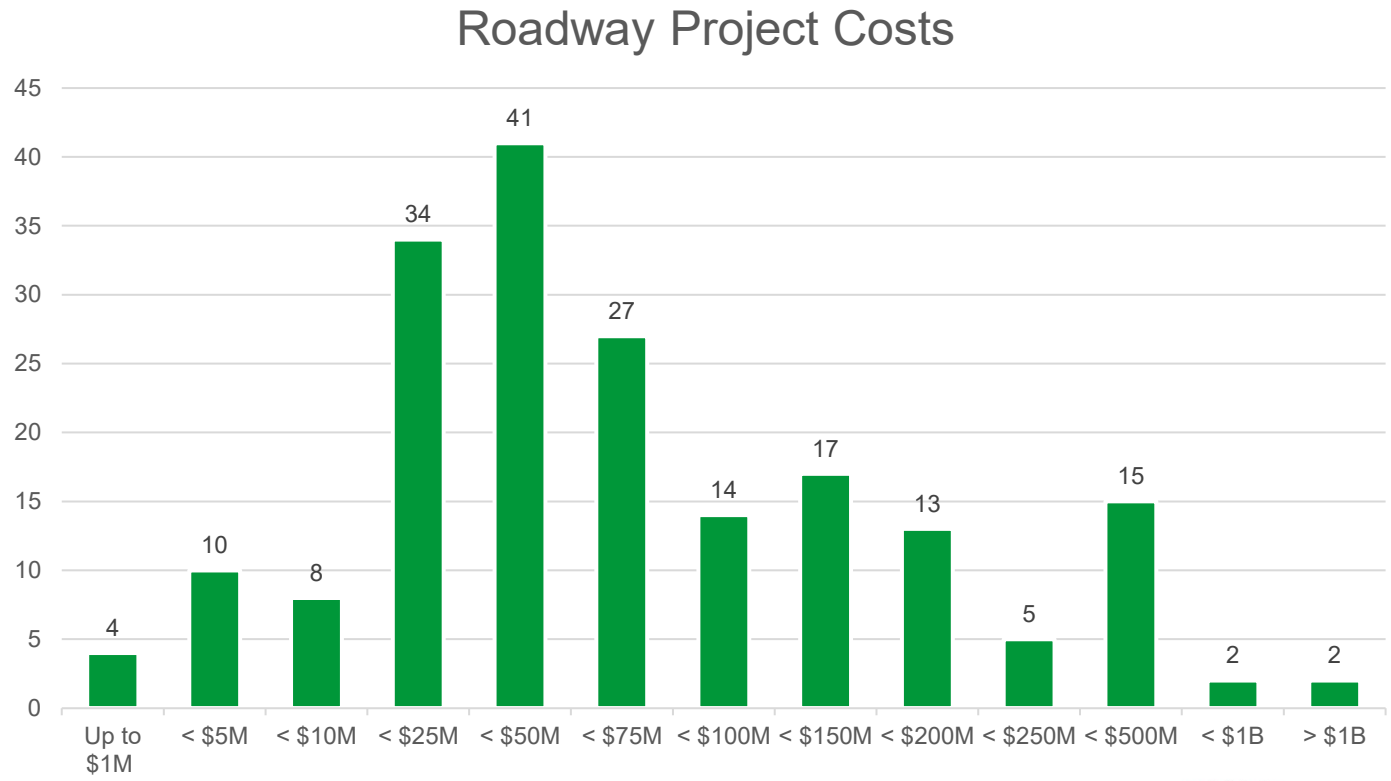


TransAction Projects: Roadway

- 219 projects include Roadway elements:
  - Widenings
  - Extensions/new roadways
    - New Bridges
    - Street Grid Additions
  - Multimodal improvements
  - HOV/HOT Lanes
  - Ramp/interchange improvements
  - Intersection improvements
  - Spot safety improvements
  - Transit access and priority

- 192 projects are primarily Roadway



Roadway Projects:

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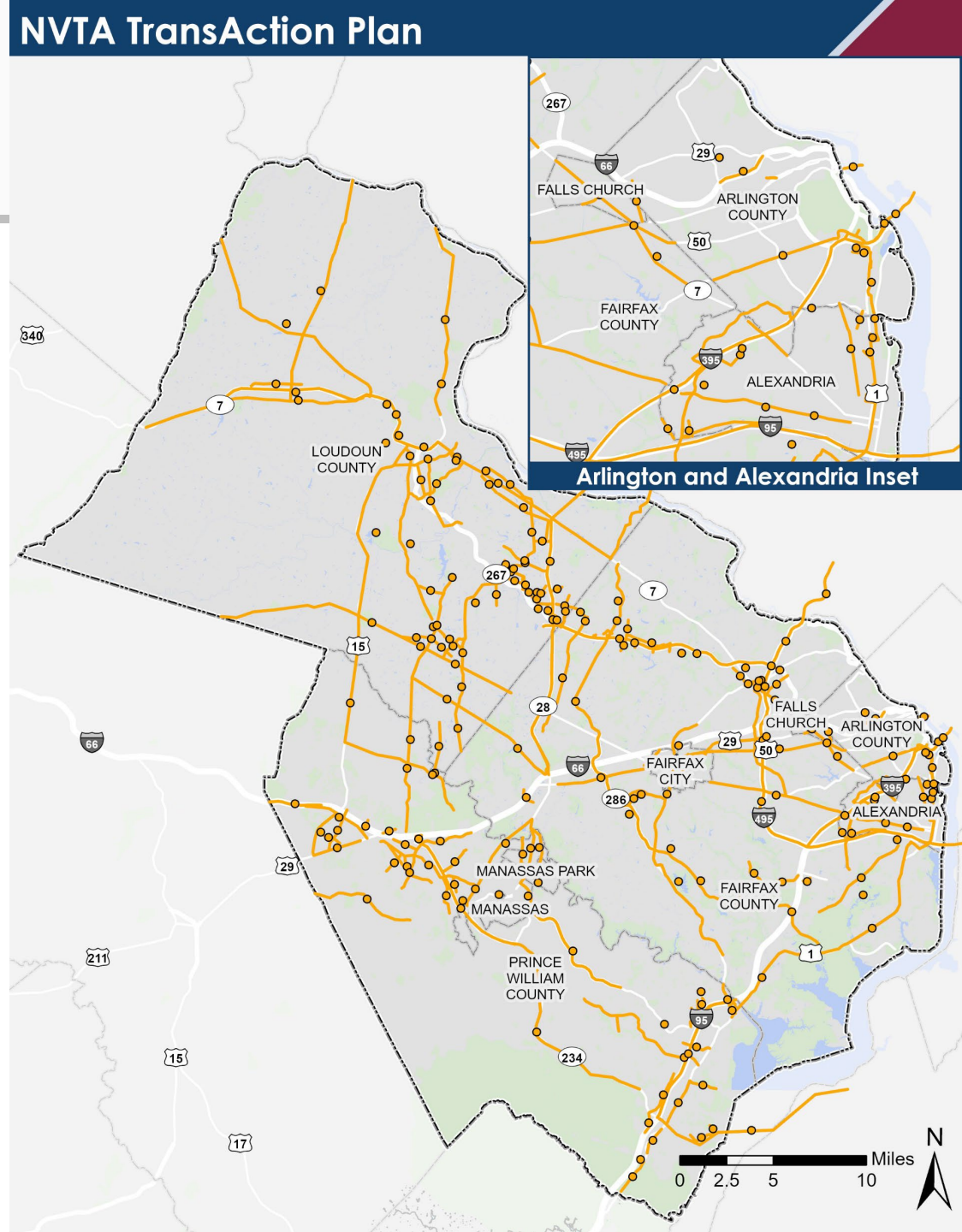
  - Spot safety improvements
  - Transit access and priority



TransAction Projects: Transit

- 123 projects include Transit elements:
  - New/extended services across all modes
  - More frequent transit service
  - Transit priority
  - Facilities
  - Station access, circulation, capacity, & amenities
  - Metrorail station second entrances & internal circulation
  - Multimodal roadway improvements
  - Real -Time Information
  - Off-Board Fare Payment
  - Mobility Hubs
  - Park-and Rides
  - Ferry service capacity improvements
  - Microtransit
  - Metrorail Core Capacity program (including 8-car trains and BOS realignment)
  - VRE service & infrastructure program including (but not limited to) Transforming Rail in Virginia improvements

- 104 projects are primarily Transit

NVTA's TransAction

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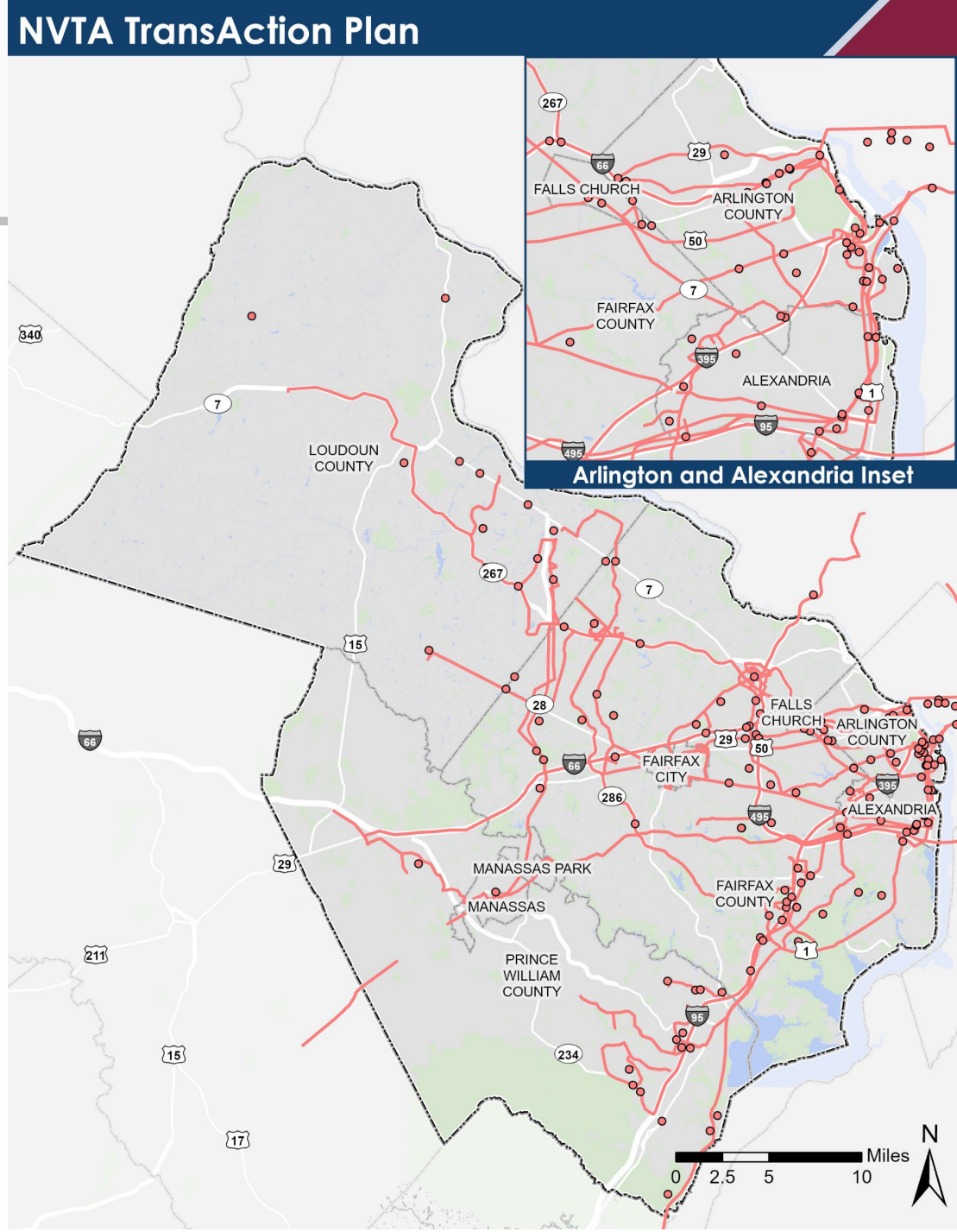
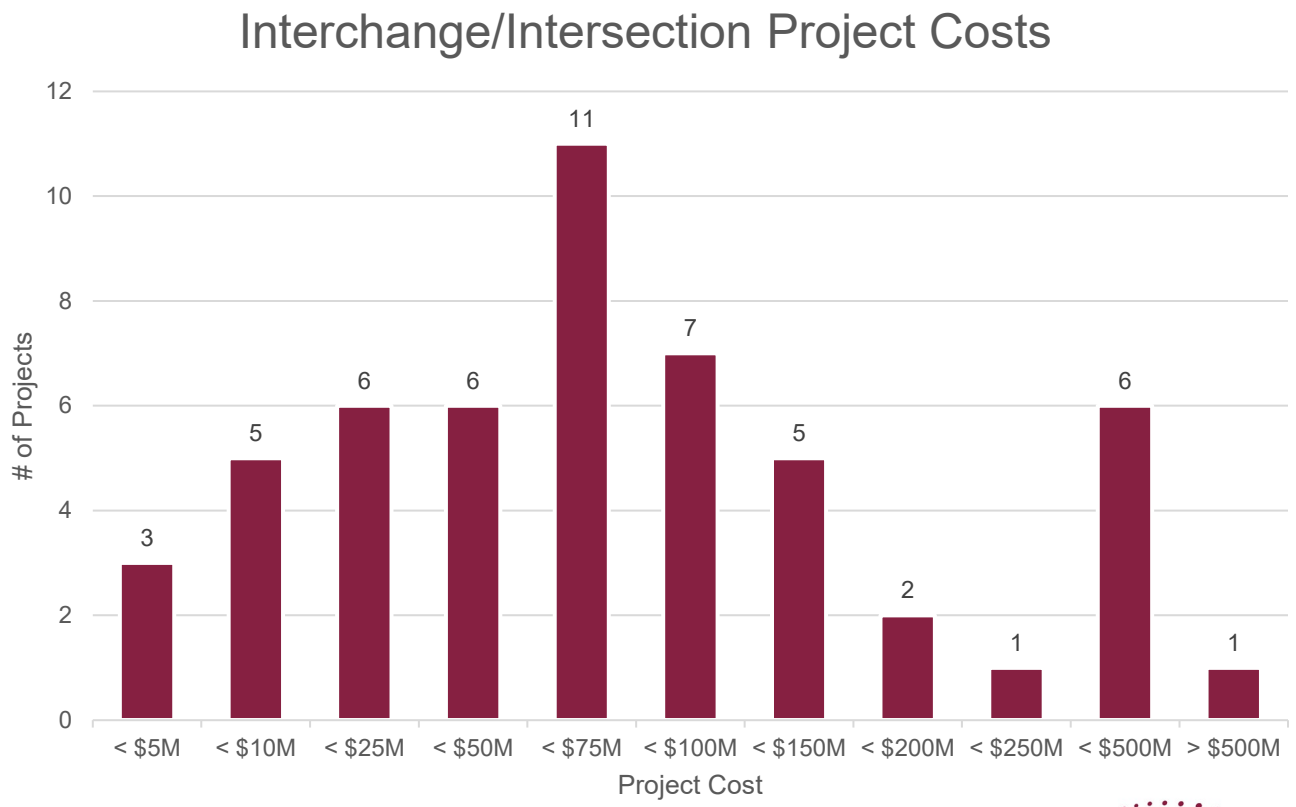


TransAction Projects: Interchange/Intersection

- 89 projects include intersection/ interchange elements:
  - Grade Separated interchanges
  - Partial grade separation
  - Innovative intersection designs
  - Intersection improvements (signalization, added turn lanes, medians, etc.)

- 53 projects are primarily Interchange/ Intersection projects



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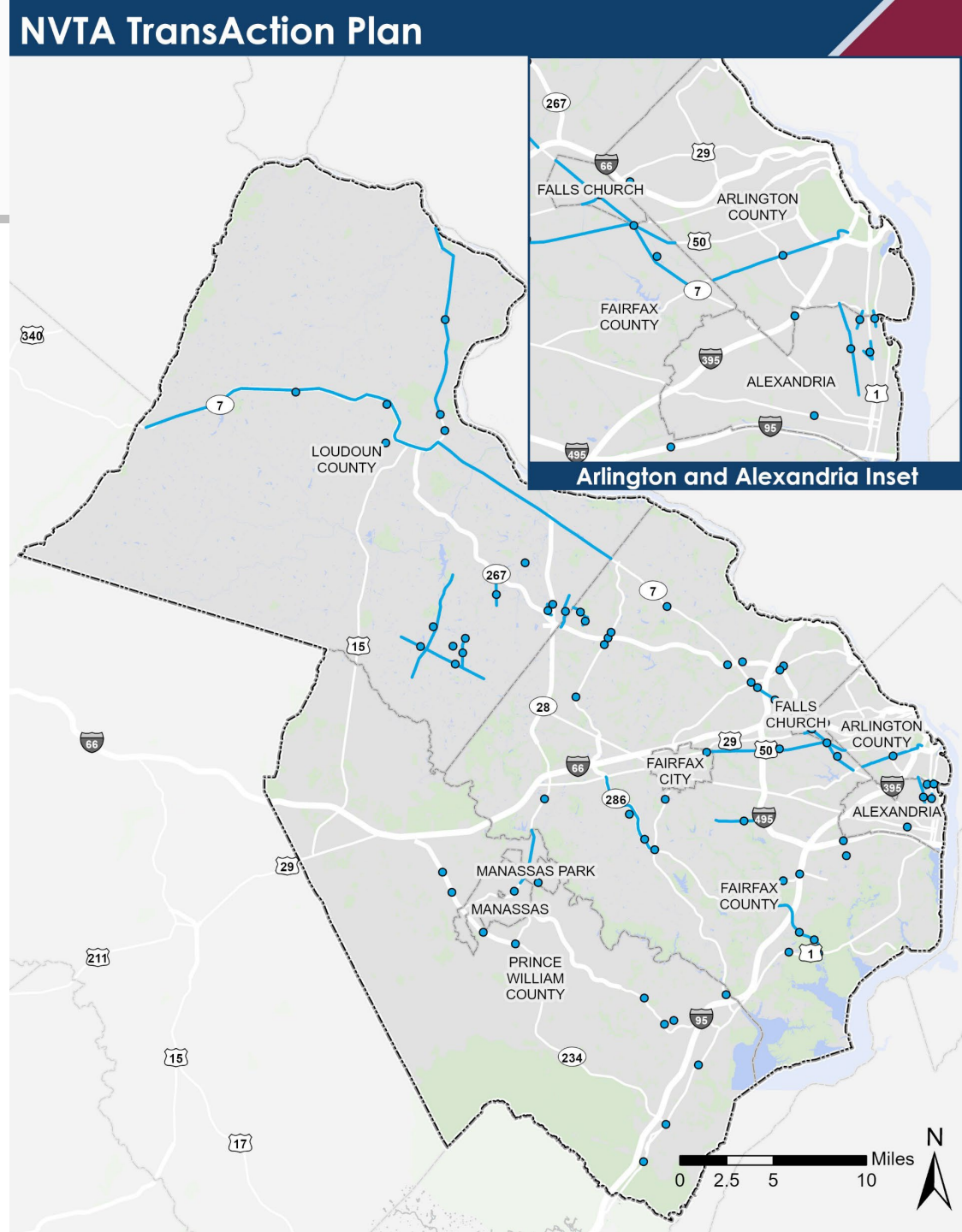
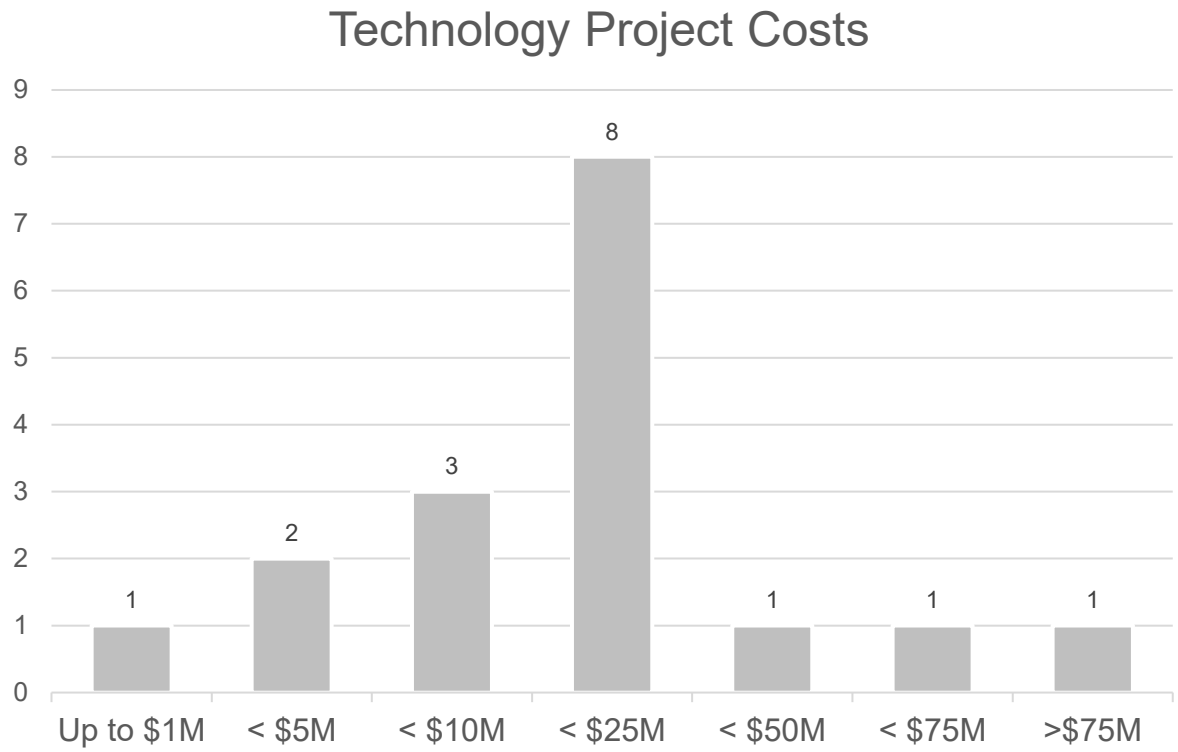


TransAction Projects: Technology

- 26 projects include technology elements:
  - ITS and ICM
  - Transit Signal Priority
  - Real time information (parking, transit)
  - Low/ZEV Charging/Fueling infrastructure
  - CAV Enabling Technologies
  - RM3P

- 17 projects are primarily technology projects



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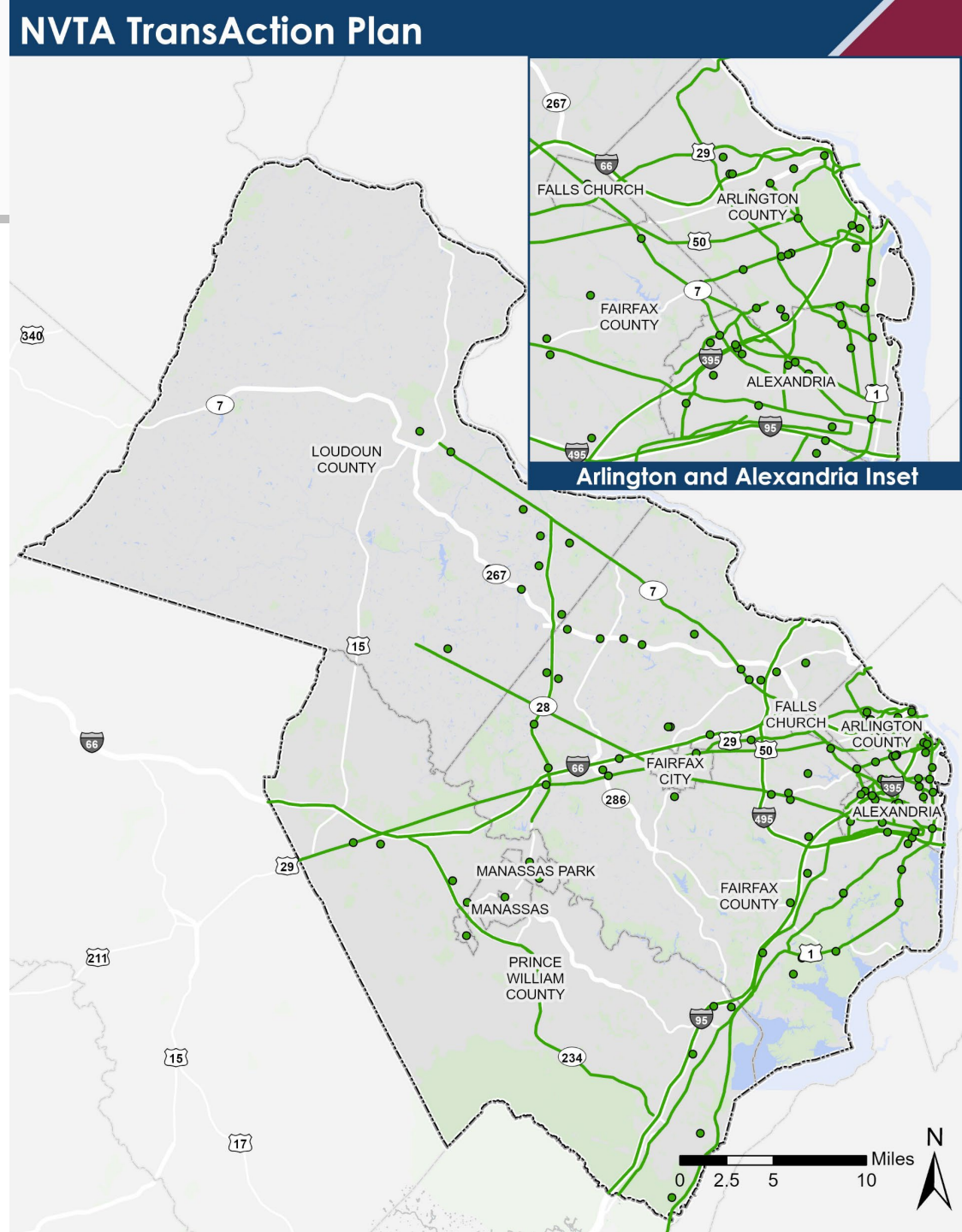

TransAction Projects: Other Projects

- HOV/HOT Projects:
  - New and expanded HOV/HOT Facilities
  - HOV/HOT interchange
- Parking Projects:
  - Park-and-Ride Lots
  - Local Parking Garage Network
- TDM Programs
  - Jurisdiction-specific
  - Northern-Virginia wide

No-Build Delay