



# **Northern Virginia Transportation Authority**

*The Authority for Transportation in Northern Virginia*

## **TECHNICAL ADVISORY COMMITTEE**

**Wednesday, September 29, 2021, 7:00pm**

NVTA Office

**3040 Williams Dr, Suite #200, Fairfax, VA-22031**

(Meeting to be livestreamed on [NVTAs YouTube Channel](#))

## AGENDA

- ## **I. Call to Order/Welcome**

## Action

- II. Summary Notes of July 21, 2021 Meeting** Chairman Boice  
*Recommended action: Approval of meeting notes [with abstentions from those who were not present]*

## Discussion/Information

- III. TransAction: Work session & public engagement update** Mr. Jasper, Principal,  
Transportation Planning and Programming

**IV. TransAction: Goals, Objectives & Measures** Mr. Jasper, Principal,  
Transportation Planning and Programming

**V. NVTA Update** Ms. Backmon, CEO

## Adjournment

- ## VI. Adjourn

## Next Meeting

Wednesday, October 20, 2021  
7:00 pm



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### TECHNICAL ADVISORY COMMITTEE

Wednesday, July 21, 2021, 7:00 pm

Live-streamed on [YouTube](#)

### MEETING SUMMARY

#### I. Call to Order/Welcome

- Chairman Boice called the meeting to order at 7:05 pm at the NVTA Office.
- Attendees:
  - **Members:** Randy Boice, Armand Ciccarelli, Amy Morris, Frank Spielberg, Pat Turner, Karen Campblin, Dr. Shanjiang Zhu (joined via Zoom from home due to family medical needs)
  - **NVTA Staff & Consultants:** Monica Backmon (Executive Director), Dr. Sree Nampoothiri (Senior Transportation Planner), Dr. Ria Kulkarni (Regional Transportation Planner), Dalia Leven (Cambridge Systematics)
  - **Others:** On YouTube live stream.

#### II. Summary of April 27, 2021 Meeting

- The motion to accept the meeting summary was approved unanimously.

#### III. TransAction Update

- Dr. Nampoothiri relayed that the Authority approved the TransAction vision statement and the TransAction update process has begun with Cambridge Systematics as the primary consultant.
- Dr. Nampoothiri informed that the TransAction Goals, Objectives and Measures will be discussed with all Committees and at focus group meetings for feedback on priorities and objectives for consideration. The input will be weaved into the TransAction update. He mentioned that the goal is to streamline TransAction goals and measures and have them approved by October 2021, with the subsequent approval of performance measure weights by November 2021 to enable travel demand modeling and forecasting development further.
- Mr. Ciccarelli asked reasons for revisiting performance measures. Ms. Backmon noted and Ms. Leven supported that the performance measures will be reduced in number from 15 to about 10 and will take on a fresh narrative based on the new vision and goals framework while also abiding by legislation.



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- Dr. Nampoothiri noted that currently, NVTA is in Phase 1 of the TransAction update process. Phase 1 lasts through October. A primary effort of Phase 1 includes updating the TransAction project list with bottom-up projects (jurisdiction/agency projects) and top-down projects (projects identified by the team to address any system needs unmet by the bottom-up projects). He mentioned that there are 352 projects in the current TransAction, which were revisited and updated as appropriate. Furthermore, new projects were added through the jurisdiction and agency coordination process.
  - Mr. Spielberg asked if the projects are looked at and addressed from the system perspective. Both Dr. Nampoothiri and Ms. Backmon agreed and provided examples to support top-down and bottom-up project needs from a system perspective. Mr. Spielberg followed up, asking if a rail connection across the American Legion Bridge would be considered as a top-down project to which Ms. Backmon concurred.
- Dr. Nampoothiri introduced Scenario Analysis and that it is a coherent part of the TransAction update. He indicated that Ms. Dalia Leven, of Cambridge Systematics, would cover this topic for discussions and feedback from the Committee. He added that a travel demand forecasting model, based on Metropolitan Washington Council of Governments/Transportation Planning Board (MWCOG/TPB) model, is being developed for the NVTA region. He added that this Cube-based model will utilize DTA-Lite, a queue-based mesoscopic traffic simulation model.
- Ms. Leven introduced the thought process of developing goals and objectives that are to be established upon the foundation of core values from the updated vision, namely, equity, safety and sustainability.
  - On safety, Mr. Spielberg encouraged looking at safety for bike-pedestrians on the same level with as much emphasis as safety of roads. He also mentioned that safety is a challenge for models and is addressed more on the engineering and design level than on a system level.
- Ms. Leven introduced equity, its definitions and encouraged the Committee to consider looking at it from the perspective of a specific cohort of system users with which this core value could be evaluated. Similarly, she introduced sustainability and opened discussions on how to portray these core values.
- Ms. Leven continued and reiterated goals presented at the previous committee meeting – mobility, accessibility and resiliency, and their respective definitions.
  - Mr. Ciccarelli put forth for consideration to define resilience as operational performance and ability to recover from disruptions during "changing



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conditions" rather than "unusual conditions." Ms. Leven appreciated and acknowledged the feedback for consideration.

- Ms. Leven further presented potential objectives of reducing congestion and delay, improving travel time reliability, and reducing transportation-related emissions with their respective sample measures.
  - **Mobility:** Mr. Spielberg commented that mobility is much more than how fast you get to your destination. He added that mobility should embrace affordability, time of day reliability and physical disability, citing an example of rising costs of using I-66 and delay.
    - Mr. Boice noted that delay in the TransAction plan is defined by various organizations and standards such as the Institute of Transportation Engineers (ITE) and Highway Capacity Manual (HCM). He noted that the plan addresses delay as a system measure for forecasting purposes [in terms of person-hours of delay (PHD) and congestion.]
    - Dr. Zhu emphasized the transferability and comparability of delay metrics over forecasting horizon year, which is much feasible to measure in PHD at a regional or sub-regional level.
    - Ms. Leven expressed and Mr. Ciccarelli agreed that much of these concepts of affordability and physical ability to access transportation networks would be covered under equity. Ms. Backmon noted that TransAction is both geographically and financially unconstrained, and the projects are needs-based that consider both mobility and accessibility. Ms. Campblin added that accessibility could be seen in two ways – proximity and usability, meaning how users get to the networks to reach activity centers.
      - ✓ Ms. Leven considered feedback from the Committee and noted that these metrics would be looked into further with an equity magnifier.
  - **Accessibility:** Ms. Leven indicated that equity as a core value would be addressed through accessibility, which embraces the objective of improving access to jobs (HB599 requirement) and multimodal connectivity while reducing dependency on driving. Some stated examples were access to jobs, access to regional activity centers (RAC), and improvements to First Mile Last Mile (FMLM) connections.
  - **Resiliency:** Ms. Leven indicated the three potential objectives, namely, maintaining operations during extreme conditions (HB599 requirement),



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expanding travel choices, and improving the safety of the transportation system.

- Mr. Ciccarelli was interested in knowing how the plummet in transit ridership due to public health emergency and its delayed or dissipated recovery would impact travel demand forecasting.
  - ✓ Ms. Leven acknowledged that it is deemed obscure how far and rooted the impacts are experienced and added that this would be addressed as a part of the scenario analyses efforts. The scenario analyses take into consideration a business-as-usual scenario, as well as alternative scenarios to assess if NVTA investments are contextual.
- Mr. Ciccarelli asked if the zero-emission vehicle scenario considers the life-cycle emission impacts from cradle-to-grave, namely carbon emissions from power plants that enable charging zero-emissions vehicles. Ms. Leven responded that the model does not account for this life-cycle assessment but could consider incorporating life-cycle impact as an overarching principle.
- Dr. Zhu reiterated his observation on overall objectives and noted that mobility and accessibility are related to the quality of life and economic alternatives. He cited an example that transportation includes passenger vehicles and logistic systems (such as trucks) that pertain to mobility and improved economic activity. Overall, he alluded that mobility could relate to the quality of life while accessibility could map onto economic opportunities.
- Ms. Morris observed and stated that measures for accessibility and resiliency may be similar and asked if there was any difference between them. Ms. Leven responded that objectives under accessibility address economic opportunities reachable by auto and transit in a certain period (45 and 60 mins respectively). In contrast, objectives under resiliency assess whether there are any other alternative modes of transportation to driving to reach destinations within 45-60 mins given a choice and affordability. She also emphasized that these are drafts of objectives and measures that will evolve through feedback and discussions. Furthermore, Ms. Leven added that current new alternative modes and potential future alternative modes are not represented in the model; however, scenario planning includes both conventional and automated Transportation



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Network Companies (TNCs). Lastly, she added that the model evaluates system improvements such as trails and bike-ped improvements more qualitatively than quantitatively.

### ○ Identifying Scenarios:

- Ms. Leven noted that the purpose of scenario analysis was to avoid investment obsolescence and to make sure that the investments made are context-sensitive and viable. The aim was not to predict a "most likely" or a "preferred" scenario.
- The four scenarios are:
  - ✓ Technology: Assesses possible impacts of a Connected and Automated Vehicles (CAV)/Electric Vehicle (EV)/Shared vehicles scenario and maps to the Transportation Technology Strategic Plan
  - ✓ Transportation Pricing: Assesses roadway, curbside or congestion pricing or free fare transit, incentives to shift away from peak period travel
  - ✓ Climate Change: Assessing impacts of climate change such as sea-level rise on the transportation system and investments
  - ✓ Telework & e-commerce growth
- Ms. Campblin asked if equity could be marked for scenario planning because all performance measures have an equity consideration. Ms. Leven clarified that performance measures that address equity and sustainability would be applied to all scenarios to assess equity impacts for each scenario.

## IV. NVTA Update

- Ms. Backmon relayed that the Authority will not be meeting in August, and the next meeting will be on September 9, 2021. The Committee was also informed that the draft proposal for the Transportation Technology Strategic Plan was accepted by the Association of Metropolitan Planning Organizations to be presented in October by Ms. Mackenzie Love. Ms. Backmon also stated that the call for project applications for the FY 2022-2027 Six-Year Program (SYP) is open from July 1, 2021, through October 1, 2021. This will be the last SYP based on the current TransAction before the plan is updated. Also, the available funding to populate the SYP update is currently being assessed.



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### V. Adjournment

- The meeting adjourned at 8:20 pm. The next meeting date is September 15, 2021.

DRAFT

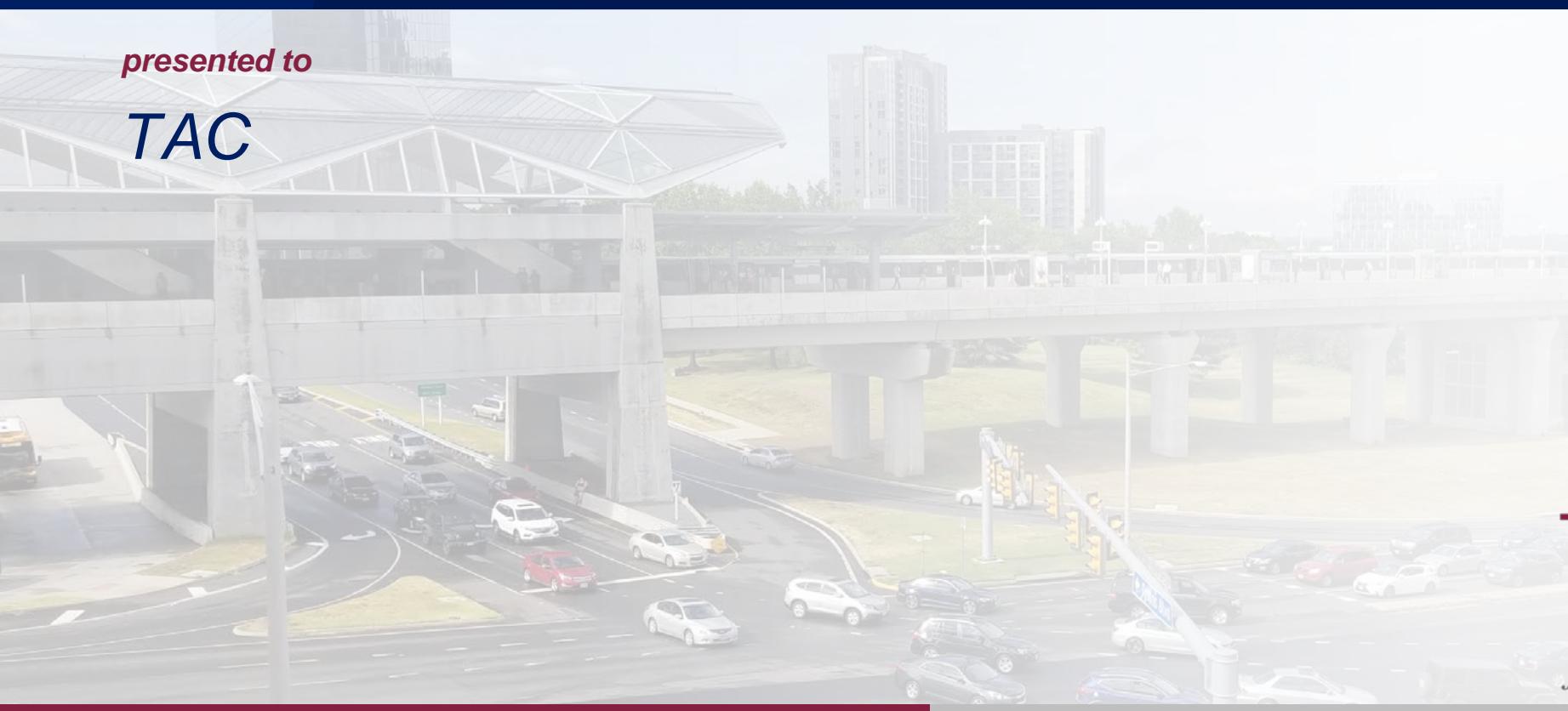
# TransAction Work Session

*Project Update*

September 22, 2021

*presented to*

TAC



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# Agenda

1. Public Engagement Update
2. Goals, Objectives, Performance Measures
3. Next Steps



# Public Engagement Update



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# Phase 1 Engagement Activities

## Phase 1

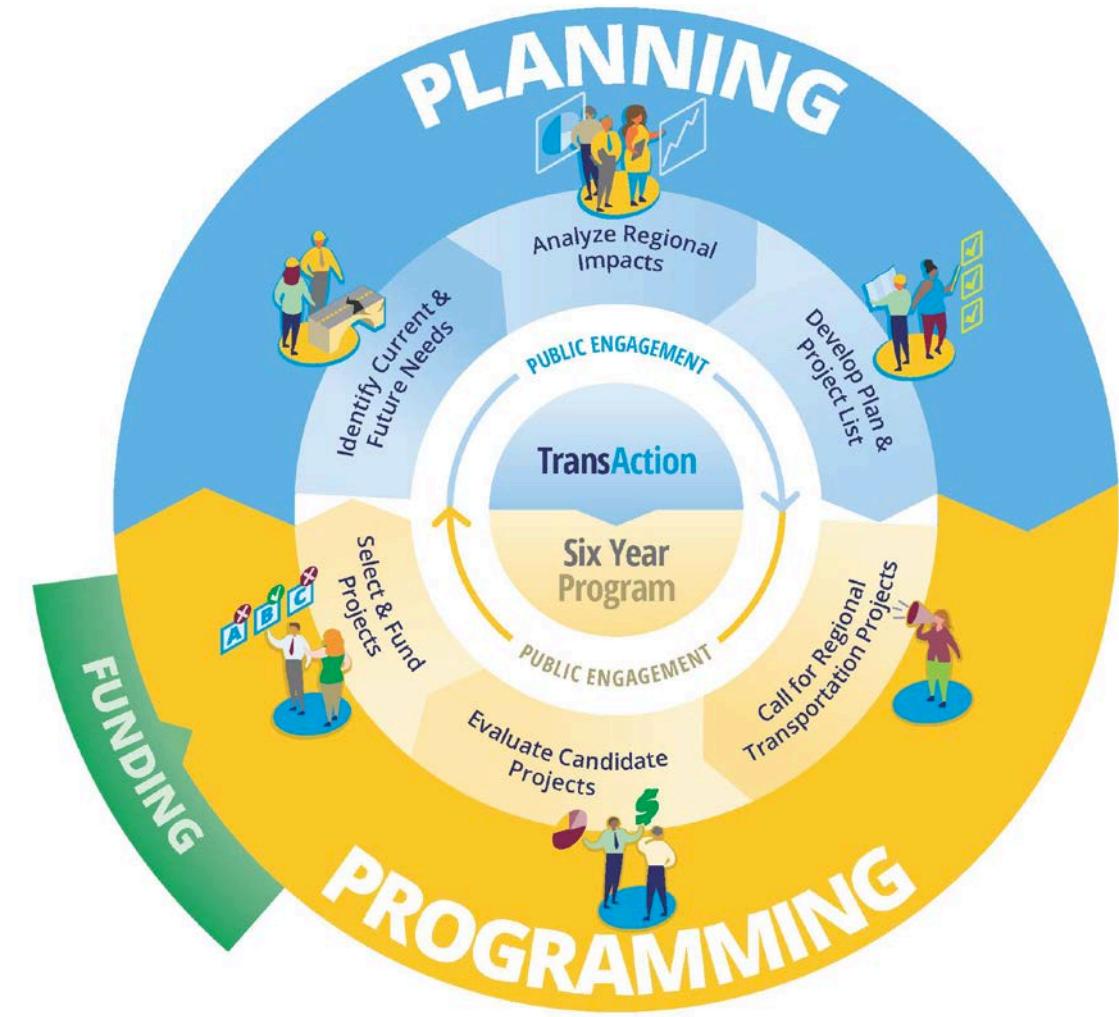
**Goals:** Build awareness of the project, gather input on needs and objectives

### Key Engagement Strategies:

- Online Survey
- Pop-up events
- Virtual Focus Groups
- Live Chat Sessions
- Stakeholder Group

### Supporting Initiatives:

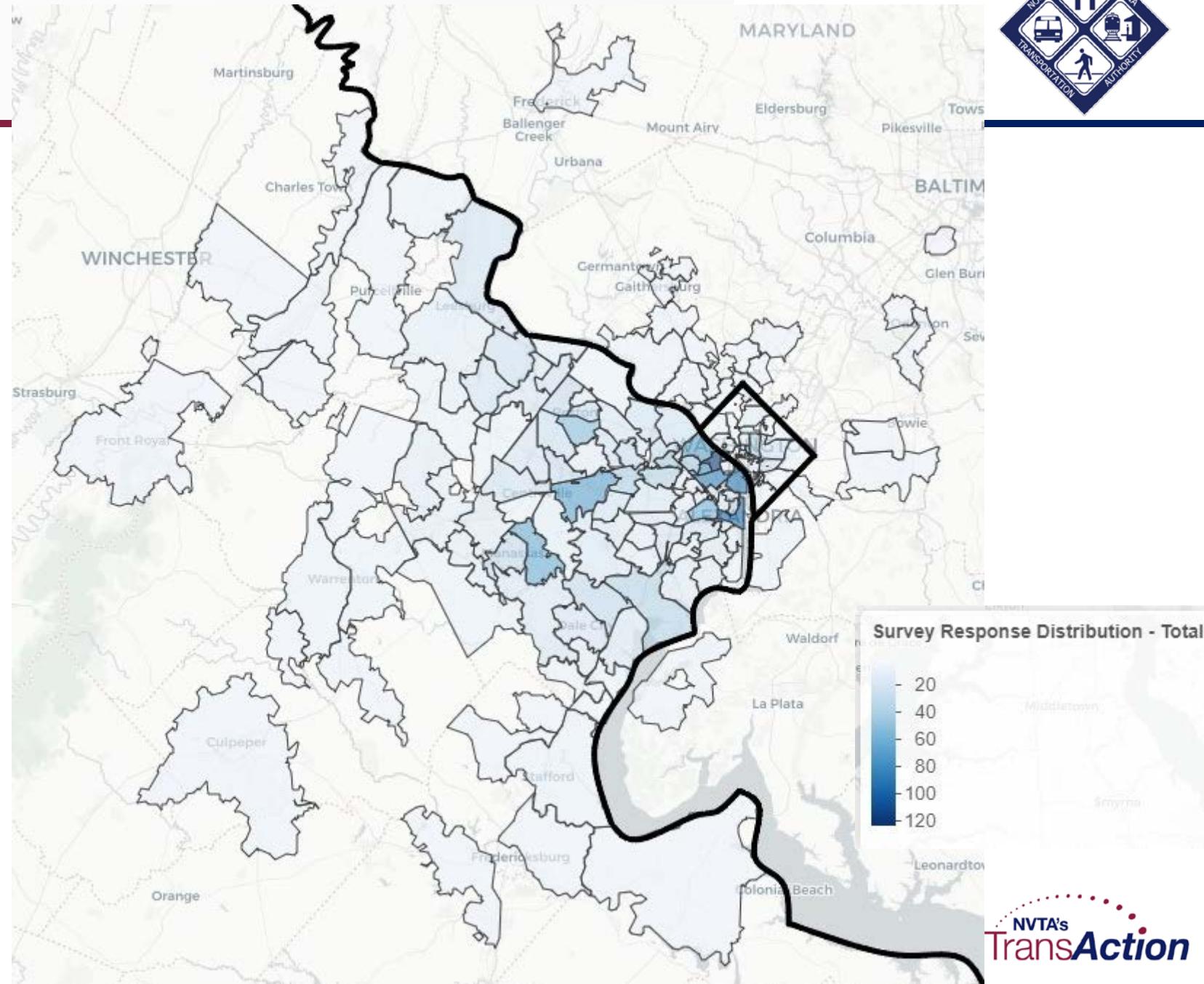
- Website refresh
- Resources and tools for stakeholders
- Social Media Messaging



# Survey Update



- » Purpose: seek feedback on travel behaviors, transportation needs and priorities
- » Start Date: August 6<sup>th</sup>
- » End Date: September 19<sup>th</sup>
- » Responses to date (as of September 14th):
  - English: 1,925
  - Korean: 82
  - Spanish: 53
  - TOTAL: 2,060





# Pop-Up Events

- » Purpose: awareness raising, encourage survey participation
- » 12 outdoor/in-person events, located with a focus on Equity Emphasis Areas
  - August 25<sup>th</sup> thru September 15<sup>th</sup>
  - Weekdays, mostly late afternoon/early evening; Weekends, mostly midday/early afternoon
  - Translators available (varies by location)
    - Spanish
    - Korean
    - Amharic
    - Vietnamese





# Live Chats

- » Purpose: making NVTA staff available for one-on-one conversations with citizens, awareness raising, encourage survey participation
- » Promoted four Live Chat sessions
  - August 26<sup>th</sup> thru September 16<sup>th</sup>
  - Thursdays, 1:00pm – 3:00pm
  - Randomly at other times
  - English language only
- » Experimental

A screenshot of a computer screen displaying the NVTA's TransAction website. The main background image is a photograph of a silver train car at a station platform. Overlaid on the bottom right is a white rectangular box containing the text "Let's talk! We are here" and a blue "START CHAT" button. In the bottom right corner of the screen, there is a small video thumbnail showing several people. The website navigation bar includes links for BACKGROUND, PARTICIPATE, CALENDAR, NEWS, RESOURCES, FAQS, and CONTACT, along with social media icons for YouTube, Facebook, and Twitter. The NVTA logo is visible in the top right corner of the page. The taskbar at the bottom of the screen shows various open application icons, and the system tray indicates it is 6:21 PM on 9/13/2021, with the weather being 83°F sunny.



# Stakeholder Group

- » Purpose: create a new line of communications with organizations that represent citizens and businesses, amplify NVTA's messaging, provide feedback to NVTA, awareness raising
- » Augments, but does not replace, access to NVTA
- » Currently comprises approximately 50 organizations
  - Organizations mostly representing citizens
    - Civic groups
    - Advocacy groups
  - Organizations mostly representing businesses
    - Chambers of Commerce
    - Business Associations
- » Initially drawn from NVTA Mail Chimp databases, but expected to grow over time
- » Meet 3-4 times per year to share information and feedback on NVTA's primary responsibilities (Planning and Programming)
- » First meeting in October 2021



# Focus Groups – Key Findings

## » Eight online discussion groups held July 20-29, 2021

- 95 total participants
- Two groups of each of four market segments

## » Discussion Topics:

- Current travel choices
- Issues getting around in NoVA
- Core Values
- Prioritization of objectives
- Types of transportation improvements
- Emerging travel options

### Transit Focused:

Residents of Arlington, Alexandria, or within 1 mile of Metrorail station

### Non-Transit Focused:

Residents of other areas in Northern Virginia

### Title VI Populations:

Those who belong to a protected Title VI group

### Non-Title VI Populations:

General Population

# Focus Groups – Travel Choices and Issues



- » Focus was on pre-pandemic travel patterns and expected travel post-pandemic
  - Single occupancy vehicles (SOV) are chosen specifically for their reliability and flexibility
  - Metrorail was used (pre-pandemic) to get to work or for occasional discretionary trips into DC
    - Limited use/awareness of other transit options
    - Those without transit access explained that they would be more willing to use public transportation if they understood it better
  - Housing prices make it more difficult to live close to a Metro station
  - Those currently telecommuting generally expect that they will continue telecommuting in the future at a minimum of a hybrid schedule



# Focus Groups – Core Values



## » How focus group participants think about Equity

### What does Equity mean?

Overall, participants identified “Equity” as relating to fairness. That is, a transportation system that serves everyone fairly.

### How is the region doing on Equity?

Northern Virginia has some work to do to address equity: it feels to many that decisions are made to prioritize wealthier areas in the region

### How should NVTA consider/ incorporate Equity?

More fairly distribute projects and improvements geographically and to help lower-income residents



# Focus Groups – Core Values



## » How focus group participants think about Sustainability

What does Sustainability mean?

Sustainability, for nearly all respondents, first brought to mind thoughts of maintenance and infrastructure that is built to last

How is the region doing on Sustainability?

Considerations such as responsibility to the environment are nearly always trumped by the importance of their commute

How should NVTA consider/ incorporate Sustainability?

NVTA needs to work to make sustainable choices and modes work for people



# Focus Groups – Core Values



## » How focus group participants think about Safety

### What does Safety mean?

Two components were highlighted: safety from crime and safety from accidents

### How is the region doing on Safety?

Metro was often mentioned by participants concerned with safety.

### How should NVTA consider/ incorporate Safety?

NVTA should encourage safe driving practices and work to provide things like safer bike lanes, proper maintenance of roads and bridges, and more crosswalks and sidewalks to promote pedestrian safety



# Focus Groups – Priorities

## » Objectives

- Highest priorities across groups were to reduce congestion and delay
- Those who live in areas without Metro access were more likely to see expansion of transportation choices as a high priority

## » Improvements

- “Build new roads or widen roads” was chosen by majority of participants
  - But vocal minority of participants pointed out that over the years, building new roads or widening roads has not seemed to help the traffic situation

## » Emerging technology

- “Get roads ready for automated vehicles” was viewed as a low short-term priority, but it should be a priority for the future
- Most are open to owning an electric car, but identified potential drawbacks - car’s range and availability of charging stations (i.e., range anxiety), the lack of infrastructure in their homes, and concerns about using clean or dirty energy to charge their cars

# Goals, Objectives & Measures



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# Development & Approval Process

## Schedule for Approval of Objectives, Weights & Measures

- » June: Identification of relevant questions to include in public engagement efforts
- » July: Initial discussions with NVTA committees (PPC, TAC, PCAC)
- » Summer: Public Engagement
- » September: Discuss preliminary results of public engagement with NVTA committees; additional discussion with NVTA committees on goals, objectives, and measures
- » October: NVTA committees recommend measures to NVTA for action in November
- » November: NVTA committees recommend weights to NVTA for action in December



# New Vision Statement

“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.”



## Core Values:

Overarching principles for TransAction that are part of the Vision statement and should be incorporated into the process and resulting plan.

Vision statement approved by NVTA in December 2020.



# Core Values

## » Equity

- Ensure fairness in mobility and accessibility to meet the needs of the region/sub-regions/communities
- Facilitate social and economic opportunities by providing equitable levels of access to affordable and reliable transportation option to serve the needs of all, and in particular underserved populations (e.g., low-income, minority, elderly, children, people with Limited English Proficiency (LEP), people with disabilities)

## » Sustainability

- Focus on meeting the needs of the present without compromising the ability of future generations to meet their needs
- Consider three pillars of sustainability : economic, environmental, and social

## » Safety

- Minimize transportation system fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all



Source: BetterBikeShare.org



# Key Feedback from the PCAC

- » Resiliency Goal seems too undefined (“unusual conditions”)
  - Action: Refined Goal based on FHWA definition of resiliency (see slide 22)
- » Definition of safety needs to be expanded to include personal safety (particularly related to public transit)
  - Action: Updated objective (see slide 26)
- » Focus objectives and measures on improving the pedestrian environment to encourage non-motorized transit and improvement transit access
  - Action: Updated objectives (see slide 25)



# Key Feedback from the PPC

- » Resiliency Goal doesn't seem to match committee members' ideas of resiliency. "Unusual conditions" seems particularly problematic.
  - Action: Refined Goal based on FHWA definition of resiliency (see slide 22)
- » Emissions reduction objective/measure needs to consider decreasing idling
  - Action: Performance Measure stratifies VMT by speed (see slide 24)



# Key Feedback from TAC

- » Safety objective and measure needs to account for all modes, not just drivers
  - Action: Measure and methodology incorporates all modes and personal security (see slide 26)
- » Resiliency Goal doesn't seem to match committee members' ideas of resiliency. "Unusual conditions" seems particularly problematic.
  - Action: Refined Goal based on FHWA definition of resiliency (see slide 22)
- » Objectives need to account for all aspects of usability (e.g., affordability, disability, cost, etc.)
  - Action: Some aspects incorporated into revised accessibility objective/measure. Others not incorporated primarily because NVTA cannot affect them (see slide 25)
- » Emissions reduction objective/measure needs to consider decreasing idling
  - Action: Performance Measure stratifies VMT by speed (see slide 24)
- » Discussion about measures for congestion/delay – potentially accounting for delay based on the length of a given trip
  - Action: Not changed. Internal discussions and other stakeholder discussions indicate that all delay should be counted as the same.



# Updated Goals

Proposed Goals	Original (July versions)	Notes
<b>Mobility:</b> Enhance quality of life of Northern Virginians by improving performance of the multimodal transportation system	<b>Mobility:</b> Enhance quality of life by improving the mobility of Northern Virginians on the region's multimodal transportation system	Improved legibility
<b>Accessibility:</b> Strengthen the region's economy by increasing access to jobs, employees, markets, and destinations for all communities	<b>Accessibility:</b> Strengthen the region's economy by increasing access to jobs, employees, markets, and destinations	Incorporate equity at the goal level
<b>Resiliency:</b> Improve the transportation system's ability to anticipate, prepare for, and adapt to changing conditions and withstand, respond to, and recover rapidly from disruptions.	<b>Resiliency:</b> Enhance operational performance of the multimodal transportation system during unusual conditions and its ability to recover from disruptions	Based on <a href="#">FHWA's definition of resilience</a>



# Objectives & Performance Measures

## » Performance Measures:

- Will be used to evaluate the impacts of potential projects and measure progress towards goals and objectives
- Each performance measure can be weighted differently (to be determined later in the Fall)

## » Performance Measures should:

- Incorporate all modes and project types
- Reflect Core Values
- Be simple enough and few enough measures for the public to understand



# Updated Objectives & Proposed Measures

» **Mobility:** Enhance quality of life of Northern Virginians by improving performance of the multimodal transportation system

Revised Objectives	Proposed Measures	Analysis Methodology
Reduce congestion and delay*	<ul style="list-style-type: none"><li>Total person-hours of delay in cars and on transit (two separate metrics)</li></ul>	<ul style="list-style-type: none"><li>Model</li></ul>
Improve travel time reliability*	<ul style="list-style-type: none"><li>Congestion duration</li><li>Transit person-miles with dedicated/priority ROW</li></ul>	<ul style="list-style-type: none"><li>Model</li></ul>
Reduce transportation related emissions	<ul style="list-style-type: none"><li>VMT by non-Zero Emissions Vehicles (ZEV) stratified by speed</li></ul>	<ul style="list-style-type: none"><li>Model</li><li>Assumptions of baseline ZEV market penetration</li></ul>

\*Objectives align with HB599 requirements



# Updated Objectives & Proposed Measures

» **Accessibility:** Strengthen the region's economy by increasing access to jobs, employees, markets, and destinations for all communities

Revised Objectives	Proposed Measures	Analysis Methodology
Improve Access to jobs*	Access to jobs within 45 minutes by auto or 60 minutes by transit (region wide and by EEA populations)	<ul style="list-style-type: none"><li>Model</li><li></li></ul>
Reduce dependence on driving alone by improving conditions for people accessing transit and using other modes	<p>Qualitative:</p> <ul style="list-style-type: none"><li>Improve access to high-capacity transit</li><li>Improve walk/bike environment, including disabled access</li><li>Improve availability of information about travel options</li></ul>	<ul style="list-style-type: none"><li>Project descriptions</li><li></li><li></li><li></li></ul>

\*Objectives align with HB599 requirements



# Updated Objectives & Proposed Measures

» **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.

Revised Objectives	Proposed Measures	Analysis Methodology
Improve safety and security of the multimodal transportation system	Potential for crash reduction	<ul style="list-style-type: none"><li>Crash reduction factors (similar to SMARTSCALE methodology)</li></ul> 
Maintain operations of the regional transportation system during extreme conditions*	Person-hours of delay caused by 10% increase in peak hour demand	<ul style="list-style-type: none"><li>Model</li></ul> 

\*Objectives align with HB599 requirements

# Next Steps



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# Development & Approval Process

## Tentative Schedule for Approval of Objectives, Weights & Measures

- » June: Identification of relevant questions to include in public engagement efforts
- » July: Initial discussions with NVTA committees (PPC, TAC, PCAC)
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# Reference Slides



NVTA's  
**TransAction**  
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# Goals

## » Proposed TransAction Goals

- 1. Mobility:** Enhance quality of life of Northern Virginians by improving performance of the multimodal transportation system
- 2. Accessibility:** Strengthen the region's economy by increasing access to jobs, employees, markets, and destinations for all communities
- 3. 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.



# Previous TransAction

## » Vision Statement:

**"In the 21st century, Northern Virginia will develop and sustain a multimodal transportation system that enhances quality of life and supports economic growth.**

Investments in the system will provide effective transportation benefits, promote areas of concentrated growth, manage both demand and capacity, and employ the best technology, joining rail, roadway, bus, air, water, pedestrian, and bicycle facilities into an interconnected network that is fiscally sustainable."

Goal	Objective	Performance Measure	Weight
Goal 1: Enhance quality of life and economic strength of Northern Virginia through transportation	Reduce congestion and crowding experienced by travelers in the region	Total person hours of delay*	10%
		Transit crowding*	5%
		Person hours of congested travel in automobiles*	5%
		Person hours of congested travel in transit vehicles*	5%
	Improve travel time reliability	Congestion severity: maximum travel time ratio	5%
		Congestion duration*	10%
	Increase access to jobs, employees, markets, and destinations	Percent of jobs/population within 1/2 mile of high frequency and/or high performance transit	5%
		Access to jobs within 45 minutes by auto or within 60 minutes by transit*	5%
	Improve connections among and within areas of concentrated growth	Average travel time per motorized trip between Regional Activity Centers	5%
		Walkable/bikeable environment within a Regional Activity Center	5%
Goal 2: Enable optimal use of the transportation network and leverage the existing network	Improve the safety of transportation network	Safety of the transportation system	5%
	Increase integration between modes and systems	First and last mile connections	10%
	Provide more route and mode options to expand travel choices and improve resiliency of the system	Share of travel by non-SOV modes	10%
	Sustain and improve operation of the regional system	Person hours of travel caused by 10% increase in PM peak hour demand*	5%
Goal 3: Reduce negative impacts of transportation on communities and the environment	Reduce transportation related emissions	Vehicle miles traveled (VMT) by speed	10%

\* Measure included in HB 599 rating process.