



Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

TRANSPORTATION TECHNOLOGY COMMITTEE
Wednesday, September 11, 2019, 8:30am

Northern Virginia Transportation Authority
3040 Williams Drive, Suite 200
Fairfax, Virginia 22031

AGENDA

- I. Call to Order/Welcome** Chairman Snyder

Action

- II. Approval of Meeting Summary of July 10, 2019 Meeting**

Discussion/Information

- III. Introductions and Member Updates (20 mins)**
- IV. Regional Multimodal Mobility Program Update (10 mins)**
- V. TTC Workplan (60 mins)**
- A. Recap**
- B. First Thoughts on Deliverable #1 (Appropriate Role of Technology, Challenges/Opportunities)**
- VI. Candidate Future TTC Briefings (15 mins)**

Adjournment

- VII. Adjourn**

Next Meetings:
October 23, 2019 at 8:30am (tentative)
November/December TBD



Northern Virginia Transportation Authority

The Authority for Transportation in Northern Virginia

TRANSPORTATION TECHNOLOGY COMMITTEE

Wednesday, July 10, 2019, 8:30 am

Northern Virginia Transportation Authority

3040 Williams Drive, Suite 200

Fairfax, Virginia 22031.

SUMMARY NOTES

I. Call to Order/Welcome

Chairman Snyder

- Chair Snyder called the meeting to order at 8:41 am.
- Attendees:
 - **TTC Members:** Chair David Snyder (City of Falls Church and Authority Member); Mayor Jeanette Rishell (City of Manassas Park and Authority Member); Jim Kolb (Summit Strategies and Authority Member); Greg Rogers (Securing America's Future Energy - SAFE); Hari Sripathi (VDOT); Martin Walker (VTTI); Andrew Meese (TPB/MWCOG); Richard Mudge (COMPASS); Jana Lynott (AARP); Joe McAndrew (Greater Washington Partnership - GWP); Leonard Wolfenstein (Fairfax County DOT – FCDOT); Bee Buerger (Arlington County DOT), John Foust (Fairfax County).
 - **NVTA Staff:** Monica Backmon (Executive Director); Keith Jasper (Principal, Transportation Planning and Programming); Michael Longhi (Chief Financial Officer); Harun Rashid (Transportation Planner); Erica Hawksworth (Communications & Public Policy Manager).
 - **Other:** Kate Mattice (NVTC); Patricia Happ (NVTC); Peggy Tadej (NVRC); Stacy Cook (TPB/MWCOG).

Action

II. Approval of April 24, 2019 meeting

The meeting summary was approved unanimously, with abstention from members not present.

Discussion/Information

III. Introductions and Member Updates

- Chair Snyder started the discussion by thanking NVTA staff who organized the session, and invited members present to introduce themselves and brief the group on recent activities/updates.
- Ms. Backmon (NVTA) briefed the group with NVTA's long-range plan (TransAction) update schedule. Ms. Backmon reiterated the value of TTC members' input in informing this planning process to ensure NVTA's project funding decisions remain relevant during the entire life-cycle, while remaining proactive, not reactive. She also explained Mr. Jasper's (NVTA) role in securing Commonwealth funding for NVTA's Regional Multi Modal Mobility Program (RM3P). Each member and guest then briefly described recent developments in their professional realm.
- Mr. Sripathi (VDOT) highlighted VDOT's partnership with NVTA regarding the RM3P project. He then briefly described other technology initiatives at VDOT, including crash data predictive analytics – a \$2 million initiative – and VDOT's Center for Innovative Technology (CIT) program to draft selection criteria to fund local governments' technology projects.
- Mr. Walker (VTTI) discussed upcoming automated freight operation demonstrations, with electronic truck inspection and parking systems.
- Mr. Meese (TPB/MWCOG) described his role to ensure TPB's planning and programming activities be updated with recent advancements in transportation technology. He mentioned a TPB-sponsored regional forum on this topic in FY 2020, and introduced a new TPB staff to the group, Ms. Stacy Cook, who will lead the long-range transportation planning group.
- Ms. Mattice (NVTC) explained NVTC's role in regional transit operations, and highlighted a strategic plan to promote innovative transit fare technologies across different transit providers. She spoke about the Commuter Choice program that is funded by toll revenues from I-66/395, and a regional transit data warehouse maintained by NVTC staff.
- Ms. Happ (NVTC) further elaborated on NVTC's project to implement a regional fare collection system, and collaboration with WMATA on mobile applications for the same.
- Mr. Mudge (COMPASS) updated the group on the recent deployment of automated shuttles at the Fort Myer joint base and asked NVTA to coordinate with Ms. Tadej (NVRC) a site visit and demo for TTC members. There are currently two shuttles that can accommodate eight passengers. Mr. Mudge also mentioned that there are currently initiatives to extend this shuttle service to Pentagon Metro station, pending NHTSA's safety standard approvals. Mayor Rishell raised safety concerns regarding automated vehicles in mixed traffic outside of the military base and also mentioned self-certification can prove difficult. Ms. Tadej (NVRC) addressed this concern by explaining safety measures for this pilot program, such as involving first responders and lawyers in the planning process. They are keeping as many people as possible in the loop. Ms. Tadej also mentioned the base is gathering data the shuttles collect and will see how they can use it.
- Mr. McAndrew (GWP) explained his organization's role in achieving regional collaboration on various aspects, and his leadership role to create effective transportation policies. He highlighted two initiatives – technology integration for a regional transit fare system and employer-sponsored travel demand management programs that could lead to reduced congestion through technologies.
- Mr. Wolfenstein (FCDOT) identified several technology initiatives for Fairfax Connector buses to enhance transit service experiences, and mentioned that the

Fairfax County Board has approved an automated shuttle demonstration pilot project in the Merrifield area.

- Ms. Buerger (Arlington County) provided updates on an ongoing demonstration project for electronic mobility devices in Arlington County. She mentioned that about 300,000 users were identified utilizing such devices over a 9-month period, and there is a web site to solicit public comments on regulating these devices in public spaces. She also discussed Arlington County's initiative to implement NVTC's fare integration ideas of off-board fare collection and how to integrate into Smart Card.
- Mr. Rogers (SAFE) described his organization's several initiatives to reduce oil dependency in the transportation sector by promoting electric vehicle usage, especially via next surface transportation authorization by the federal government. Electric vehicle tax credit is being discussed with Congress and hoping more focus will be placed on technology, reduction of congestion and safety.
- Mr. Kolb (Summit Strategies) mentioned his role in working at the federal level for the next transportation bill authorization and policies now being discussed.
- Ms. Lynott (AARP) spoke about a mobility management report AARP just released, which is posted on the organization's website. She is also involved in a Mobility-as-a-Service (MaaS) program testing in Detroit, Anne Arbor and Canada.

IV. Regional Multi-Modal Mobility Program (RM3P) Briefing

Mr. Jasper

- Mr. Jasper presented various aspects of this NVTA initiative that officially activated on July 1, 2019. Elements discussed included program definition and objectives, background/history, update on funding, program staffing and management, and deliverables. He emphasized how this program will align with the Authority's core vision of long-range transportation planning in Northern Virginia. Three main objectives of the program are to: 1) Optimize system performance; 2) Improve travel time reliability; and 3) Support on-demand multimodal trip options.
- This collaborative initiative between NVTA, VDOT, and DRPT is funded with the Commonwealth's Innovation in Transportation Technology Fund (ITTF) – \$15 million. The program evolved from a VDOT-led initiative called the East-West Integrated Corridor Management (ICM) project. The new RM3P initiative will be led by Cathy McGhee, the Commonwealth's Director of Transportation Innovation and Research, with day-to-day management by NVTA, VDOT and DRPT staff. A project kick-off is tentatively scheduled for this fall. The exact deliverables will be identified as the project moves forward. Four broad areas of deliverables were briefly explained: 1) Enhanced commuter parking data; 2) MaaS dynamic service gap dashboard; 3) AI-based decision support system with prediction; and 4) Data-driven tool to incentivize customer mode/route choice. RM3P is expected to complete in fall 2022, with some interim deliverables available sooner.
- Mr. Jasper then discussed other technology-related initiatives and projects at NVTA –
 - a. Funded ITS projects in Arlington and Alexandria
 - b. Hosting of annual Northern Virginia Roundtable
 - c. Publication of the "Driven by InNoVation" newsletter; and
 - d. Upcoming TransAction scenario analysis with what-ifs of technology implementation.

Mr. Jasper pointed out that the RM3P initiative alone will double the technology-related investments by NVTa.

- A discussion and question/answer period followed this presentation.
 - Ms. Lynott recommended to think about mobility as a service and define what it is. She asked if the dynamic service gap dashboard deliverable, or related proposed technology, can be used to enhance specialized transit services for the disadvantaged population. Mr. Jasper explained these levels of details are not determined yet, but will be determined during RM3P stakeholder meetings, during which Ms. Lynott's and other TTC members' participation would be helpful. Mr. Jasper reminded everyone that there is a project budget constraint, so that various needs and ideas will have to be prioritized.
 - Mr. McAndrew raised the issue of financial incentives in such a system, and cited the example of IncenTrip, where only commute trips are incentivized. To address this issue, Mr. Sripathi expressed a sense of caution, where public investments need to be carefully balanced with private benefits. Mr. Jasper added that although the CTB would accept a level of tolerance with uncertainties in technology implementations, in the long run, all financial incentives from such a system would need to be sustainable. Mr. McAndrew also advised to think about companies who should be a part of the RM3P conversation who are already working with businesses on these issues.
 - Mr. Sripathi advised to think through how we leverage already existing systems, data, programs and groups due to budget constraints.

V. Proposed TTC Workplan and Schedule

Mr. Jasper

- Mr. Jasper went over a two-page proposed TTC work plan handout with outlines based on last meeting's discussion, and reiterated three purposes of this committee:
 - To advise the NVTa Executive Director on multimodal transportation technologies.
 - To make specific recommendations for consideration by the NVTa Executive Director related to the development of TransAction, the region's long-range transportation plan.
 - To develop an evidence-based body of knowledge that will educate regional policymakers on multimodal transportation technologies and related transportation trends (avoid the hypes and hopes).

Responding to a question from Mr. Foust regarding why the TTC is a NVTa Executive Director's committee rather than a committee of the Authority, Mr. Longhi and Ms. Backmon explained the structure of the TTC, and how the members directly send inputs to the NVTa Executive Director, which will then be presented to all NVTa statutory committees for proper vetting. Ms. Backmon said she would like members of the committee to be vocal and not hesitant to say what is on their minds. Recommendations of the TTC ultimately go to the Authority, but within the TTC itself, there aren't as many elected officials at the ground-level as the Authority does not need to get into the weeds of the initial discussions. Chair Snyder confirmed this committee structure, where technology details and private/public sector inputs will more meaningfully be discussed than in a rigid setup with elected officials.

- Mr. Jasper stressed the committee members' role as only reviewers of all drafts prepared by NVTa staff, in collaboration with other jurisdictions' staff where

applicable, in formats like white papers and presentations. The focus is to develop actionable solutions to address the NoVA region's transportation issues with emerging technologies. The proposed solutions are not to focus on any single technology, e.g. automated vehicles, but multiple threads of innovation occurring on multiple horizons, not constrained by NVTa's organizational or planning responsibilities.

- Mr. Jasper proposed the following four deliverables for the committee members to discuss:
 1. A transportation primer: summarize regional transportation needs and trends; TransAction vision/goals/performance measures; current transportation technology activities; and identify potential funding sources with public/private partnership opportunities. Draft by September 2019.
 2. Appropriate role of technology, challenges/opportunities: define linkages between needs and available technology; moral/ethical implications of technology deployment; technology-related scenarios for TransAction analyses; operations and maintenance implications. Draft by October 2019.
 3. Outreach/education materials for Authority members, regional stakeholders, Northern Virginia residents, and private sector for partnership opportunities. Draft by December 2019.
 4. Regional technology policy development needs: incentivize increased vehicle occupancy; variable used-bases pricing for AVs; development of electric vehicle infrastructure; data sharing/security/privacy; equitable distribution of technology benefits; future funding guidelines; mitigation of potentially negative impacts; curb and parking management strategies. Maybe a part of TransAction development (2020).

Mr. Jasper clarified NVTa's primary role of planning and programming, and not implementation or operation. So many of these policies may have to be determined by other bodies. With that, Mr. Jasper invited comments/suggestions from the committee members.

- In responding to Mr. Wolfenstein's comment on outreach/education deliverables, Mr. Jasper explained that the goal is to come up with a plan by December, with its ongoing implementation via media like newsletters (e.g. Driven by InNoVation) and an annual transportation roundtable. Outreach and education are on top of the list of things to tackle. Ms. Backmon added that the TransAction scenario analyses with disruptive technology was a step to start that process.
- Ms. Buergler cited recent Arlington County experiences and suggested that item 4 (policy) may need to be drafted before item 3 (outreach material). Also, with the adoption of TransAction, the Authority may already have addressed most topics under item 1 (transportation primer). To the latter point, Mr. Sripathi opined that to reach a larger audience, this committee's deliverables need to be comprehensive, which justifies the item 1.

To address Ms. Buergler's comment to swap items 3 and 4, Mr. Jasper explained that these deliverables can be developed in an overlapping fashion, but this particular order was based on previous comments from this committee. Additionally, policy will take time to draft and there will be sensitivities, so the process will be slower. Mr. Wolfenstein

said the two items could be done simultaneously while garnering input from others during the drafting process. He agreed with the rationale and suggested to retain the order.

- Mr. Mudge pointed out that this initiative seems to be too public sector oriented and may not be agile enough to align with the rapid pace of technology venture companies (e.g. Waymo AV cars). Instead of scenario analyses in a long-range plan, staff may need to identify trigger points of technology deployments, and report on those on a more frequent basis. Mr. Jasper agreed to the idea, and suggested that NVTAs annual report might be an applicable vehicle for that. Mr. McAndrew suggested that such a rapid pace of private sector deployments will also necessitate regionalism and partnerships beyond the Commonwealth. To respond to a follow-up funding-related question from Mr. McAndrew, Ms. Backmon explained NVTAs criteria to fund transportation projects and initiatives, including making Northern Virginia a priority, congestion reduction relative to cost and how projects need to be in the long-range plan, TransAction.
- Chair Snyder stressed for the TTC to come up with a clear objective for the region, e.g. mitigate highway congestion and address safety, achieve environmental resiliency and sustainability, ensure societal equity and accessibility, transit reliability and service attractiveness. With a clear set of objectives, the next task would be to identify a set of technology tools/identify what's already out there as well as the public-funded infrastructure for their implementation. To this, Mr. McAndrew opined that there might not be a need for physical infrastructure from the public sector, but rather a "soft infrastructure" of a policy and regulatory framework for the private sector to operate on. Mr. McAndrew suggested looking at testing on a larger scale and across jurisdictions, as well as hold public conversations so people can understand what is happening and regulations.
- Mr. Snyder said maybe a multi-jurisdictional forum should be held. Mr. Kolb added that the region can identify if there are any institutional barriers for a region-wide seamless technology implementation, and suggested holding a forum on technology disrupters. Ms. Lynott agreed, further adding that this committee may not prescribe a fixed set of technological solutions, but rather provide an agile and uniform regional regulatory environment. Mr. Rogers emphasized the need to prepare for the future of multimodal transportation and regulations today.
- Citing the examples in VDOT, Mr. Sripathi explained the needs to also change the culture and attitude of public sector employees to embrace and learn these disrupting technologies. As part of the education process, he also suggested educating jurisdiction staff and technical committees so they can learn what's happening before getting to policymakers. Mr. McAndrew suggested looking at the current talent out there. It is hard to compete with private companies paying a lot more than the public sector. He said we need to look at who we have available right now.
- On deliverable item 3 (outreach/education), Ms. Buerger sought to clarify the objective, whether it is only to inform, or whether it is to also solicit inputs and market research on public aspirations. Mr. Jasper stated that while that is not explicitly outlined, NVTAs staff consider all public engagements to be two-way exchanges and informative and educational, while at the same time gathering inputs. Mr. Jasper mentioned tracking and benchmark surveys before the last TransAction plan, and suggested that such surveys can be conducted sooner than the next round of the TransAction process. He added NVTAs is conducting surveys this winter and will do more surveying in 2021.

- Mr. Meese suggested for item 2 (appropriate role of technology, challenges/opportunities), the life-cycle nature of technology implementations need to be added. He said the TTC will need to look at the fast evolution of technology and to keep in mind as the planning commences.

VI. Candidate Future TTC Briefings

- In responding to Chair Snyder's question regarding upcoming dates and deadlines, Ms. Backmon suggested sending comments regarding the work plan deliverables to NVTa staff by July 19 so that the updates can be prepared and shared by the end of July. She also mentioned some possible upcoming presentations by committee members. Mr. Jasper reminded the committee of proposed meeting dates, and follow-up emails to select one. Mr. Wolfenstein announced his upcoming retirement from Fairfax County DOT, and wished success for future endeavors by this group.

Adjournment

VII. Adjourn

The meeting adjourned at 10:39 am.

Transportation Technology Committee (TTC)

Work Plan (August 16, 2019)

Final Draft

Purpose of TTC Work Plan

- To advise the Northern Virginia Transportation Authority (NVTA) Executive Director on multi-modal transportation technologies and related transportation trends that support (or endanger) the vision of the Authority as stated in its current Five-Year Strategic Plan;
- To make specific recommendations for consideration by the NVTA Executive Director related to the development of TransAction, the regional, multi-modal, long-range transportation plan for Northern Virginia, and the development of updates to the Authority's Six Year Program. Such recommendations may include the use of transportation technologies to complement traditional transportation infrastructure and enhance the operation and performance of the regional transportation system; and
- To develop an evidence-based body of knowledge that will educate and inform regional policy makers on multi-modal transportation technologies and related transportation trends.

TTC Scope and Horizons

While the TTC's advice shall be NoVA-focused, the TTC should consider broader regional, national and international trends while embracing local transportation preferences wherever possible. TTC's recommendations should reflect the likely uncertainty in the maturation schedules of future transportation technologies and related trends, while recognizing that pilot deployment initiatives could occur much sooner, e.g. automated shuttles and delivery services.

The TTC will address transportation technologies and related trends that are occurring on multiple, overlapping timelines:

- Today, e.g. Intelligent Transportation Systems (ITS) technologies, shared mobility
- During the next couple of years, e.g. enhanced ITS technologies, Mobility as a Service (MaaS)
- Multi-decadal basis, e.g. Connected, Autonomous, Shared, Electric (CASE) vehicles

Proposed Deliverables

Four initial deliverables are proposed. Drafts will be developed by NVTA staff, in collaboration with staff from other entities where appropriate. Deliverable format will be white papers and/or presentations. Review and finalization of deliverables is expected to take up to three months for each deliverable. Deliverables will identify areas that can be directly addressed by NVTA, but will not be limited to these.

The deliverables will support the development of a Transportation Technology Strategic Plan, identifying strategies and actions that support the deployment of appropriate transportation technologies to address regional transportation needs.

Deliverables are categorized as either 'action-oriented' or 'supporting'. The former category incorporates initiatives related to how technologies will address the region's transportation needs,

identifying associated policy considerations that support the Authority's vision while mitigating any potentially negative impacts. The latter category of deliverables will provide relevant regional transportation context, and identify appropriate research and communications initiatives that support the Transportation Technology Strategic Plan.

Action-oriented deliverables

1. Appropriate Role of Technology, Challenges/Opportunities (first draft September 2019)

- Define linkages between needs and technology, e.g.:
 - Improve safety/enhance emergency management
 - Reduce congestion, first/last mile options
 - Improve access to labor, accessibility to jobs, healthcare, etc.
 - Improve access for the mobility-impaired
 - Reduce emissions/build resilience
- Identify moral/ethical and other implications related to technology deployment, and identify options to address including:
 - Equity for vulnerable populations
 - Data ownership
 - Privacy
 - Cyber Security
- Identify technology related scenarios (alternate futures) for analysis during TransAction development, e.g.:
 - Impact of travel behavior changes arising from RM3P build-out
 - Impact of travel behavior changes related to CASE vehicles
 - Impact on business location decision-making process
- Consider the operations and maintenance implications and costs of different types of technology deployments, and identify sustainable approaches to funding
- Roles and responsibilities of the public and private sectors
 - Explore opportunities for public/private partnerships, and barriers to entry for the private sector
 - What are the implications for funding, deployment, etc.?
- Adequately prepare for future technology disruptions, highlighting the need to adapt to changing circumstances and timelines
- Consider future enhancements to RM3P, and interoperability with other tools

2. Regional Technology Policy Development Needs (first draft October 2019)

- Identify regional policy development process;
- Necessary institutional infrastructure;
- Incentivize increased vehicle occupancy across all modes;
- Variable use-based pricing for EVs/AVs;
- Facilitate development of EV infrastructure;
- Data (sharing/security/privacy) policies, where possible conducting scans to better understand current practices regarding approaches being considered/applied

throughout the Commonwealth and elsewhere, as well as any barriers to data collection;

- Equitable distribution of technology benefits;
- Guidelines for funding future technology deployments, recognizing the likely life cycles for technology development through obsolescence;
- Mitigation of potentially negative impacts;
- Curb and parking management strategies; and
- CASE vehicle deployment stimulation strategies

Supporting deliverables

3. NVTA/NoVA Transportation Primer (first draft November 2019)

- Summarize regional transportation needs;
- Provide TTC members with a better understanding of TransAction vision, goals, performance measures, etc.;
- Summarize region's current transportation technology activities, e.g. Connected Corridor, RM3P, TSP, data-sharing, EV infrastructure and private sector initiatives¹;
- Identify future technology-related deployment opportunities, e.g. Bus Rapid Transit (BRT), AV-only boulevards, AV-Express Lanes;
- Identify potential funding sources for future technology ('soft infrastructure') deployments; and
- Identify existing and potential roles of public and private sectors, and opportunities for partnership.

4. Research/Outreach/Education (first draft December 2019)

- Better understand Northern Virginians' level of awareness, concerns, and desires with respect to technology;
- Using facts rather than 'hype', develop appropriate messaging for multiple target audiences:
 - Authority members; policy development, investment strategies
 - Member jurisdiction and agency staff; technical education, skill needs/gaps, encourage 'big thinking'
 - Regional stakeholders, including the business community; collaboration opportunities, synergies
 - Northern Virginians; technology awareness, safeguards, impacts, advantages, disadvantages, and value for money
 - Private sector; partnership opportunities
- Incorporate 'trigger points' into NVTA staff annual reports on transportation technologies and emerging trends. Trigger points could be when certain thresholds are

¹ Could include regional initiatives in Maryland, The District or elsewhere that are of interest to NoVA

reached, such as market penetration levels, which may in turn ‘trigger’ a review of prior analyses or assumptions.

Role of TTC members

- Review draft deliverables and provide feedback;
- Where appropriate, suggest additional work plan deliverables; and
- Inform the TTC on matters relevant to the TTC Work Plan.

DRAFT

Transportation Technology Committee



September 11, 2019



Role of TTC members

- Review draft deliverables and provide feedback;
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- Inform the TTC on matters relevant to the TTC Work Plan.



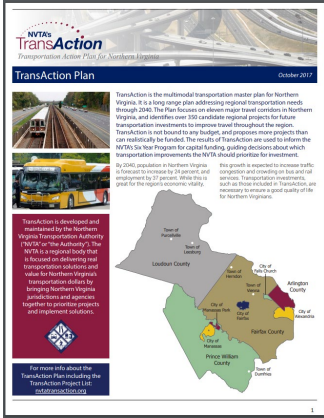
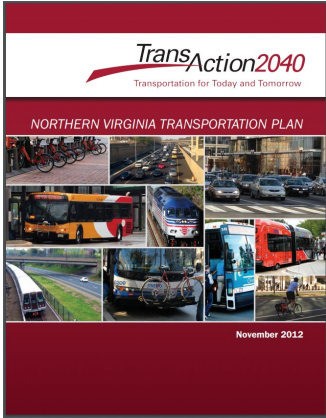
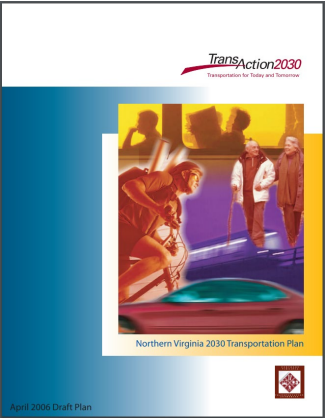
TTC Work Plan has four deliverables

- Action-oriented deliverables
 - **Appropriate Role of Technology, Challenges/Opportunities**
 - Regional Technology Policy Development Needs
- Supporting deliverables
 - NVTa/NoVA Transportation Primer
 - Research/Outreach/Education
- Ultimately this effort will lead to NVTa's Transportation Technology Strategic Plan.



Two Primary Responsibilities

1. Develop and update the long range, multi-modal Transportation Plan for Northern Virginia → TransAction (adopted October 2017)



2. Prioritize and fund regional transportation projects → Six Year Program (adopted June 2018)





TransAction Vision and Goals

Vision

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.

Goals

1. Enhance quality of life and economic strength of Northern Virginia through transportation
2. Enable optimal use of the transportation network and leverage the existing network
3. Reduce negative impacts of transportation on communities and the environment

NVTA's TransAction
Transportation Action Plan for Northern Virginia
October 2017

TransAction is the multimodal transportation master plan for Northern Virginia. It is a long range plan addressing regional transportation needs through 2040. The Plan focuses on eleven major travel corridors in Northern Virginia, and identifies over 350 candidate regional projects for future transportation investments to improve travel throughout the region. TransAction is not bound to any budget, and proposes more projects than can realistically be funded. The results of TransAction are used to inform the NVTA's Six Year Program for capital funding, guiding decisions about which transportation improvements the NVTA should prioritize for investment.

By 2040, population in Northern Virginia is forecast to increase by 24 percent, and employment by 37 percent. While this is great for the region's economic vitality, this growth is expected to increase traffic congestion and crowding on bus and rail services. Transportation investments, such as those included in TransAction, are necessary to ensure a good quality of life for Northern Virginians.

TransAction is developed and maintained by the Northern Virginia Transportation Authority ("NVTA" or "the Authority"). The NVTA is a regional body that is focused on delivering real transportation solutions and value for Northern Virginia's transportation dollars by bringing Northern Virginia jurisdictions and agencies together to prioritize projects and implement solutions.

For more info about the TransAction Plan including the TransAction Project List: nvtatransaction.org



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%



First Thoughts: Possible NVTA Roles

Need	TransAction Goal/Objective	Technology Opportunities	Technology Challenges	Possible NVTA Roles (All = Inform)
Safety	2/1	AVs reduce human error	Near perfection required	Input to regional/state policies?
Emergency Management	2/4	Data/AI mitigate incident impacts	False positives, data protection issues	Funding opportunities, possibly subject to new approaches to procurement?
Congestion	1/1 1/2	CAVs increase highway efficiency, freight, env.	Uncertainty, Curb Mgt., ZOVs, increased VMT	New approaches to what we fund? Pricing/ incentives policy?
First/Last Mile	1/4 2/2 2/3	Reduce SOV VMT, active transportation	Transit impact	Funding for AV shuttles and facilities? New healthcare partnerships
Accessibility to Labor, Jobs, etc.	1/3	Strengthen regional economy, quality of life	See 'Safety' and 'Congestion'	New biz community partnerships. NVTA role in transp./land use discussion?
Accessibility for Mobility Impaired	Multiple/ non-specific	Improve quality of life, opportunities	See 'Safety' and 'Congestion'	New community partnerships, e.g. AARP
Emissions	3/1	AVs=EVs	Revenue Streams	EV infrastructure policy
Resilience	2/3	Better data=better info	Complexity of 'threats' (type/location/scale/timing/duration)	Consider investment obsolescence and need for infrastructure redundancy options
Other?				