

NORTHERN VIRGINIA TRANSPORTATION AUTHORITY**MEMORANDUM**

FOR: Chair Phyllis J. Randall and Members
Northern Virginia Transportation Authority

FROM: Councilmember David Snyder, Transportation Technology Committee Chair

DATE: November 3, 2022

SUBJECT: Adoption of Updated Strategies in the Transportation Technology Strategic Plan

- 1. Purpose:** To inform the Northern Virginia Transportation Authority (NVTA) of recent efforts and seek approval of updated strategies in the Transportation Technology Strategic Plan (TTSP).
- 2. Suggested Motion:** *I move Authority approval of the expansion of two existing strategies and the addition of one new strategy in the Transportation Technology Strategic Plan, as presented.*
- 3. Background:** On May 13, 2021, the Authority adopted the inaugural Transportation Technology Strategic Plan Action Plan and Eight Strategies. The Transportation Technology Committee (TTC) met on July 6th, 2022, to discuss the first year of its implementation. During that meeting, the TTC voted to endorse an update to the Plan that would include expansion of two existing strategies and addition of a new strategy (see Attachment A).
- 4. Summary of Implementation Efforts:** In the 18 months since the TTSP adoption, NVTA staff initiated multiple activities (see Attachment B):
 - A. Completed activities**
 - i.** Introduction of a technology-related section to NVTA's 2022 Legislative Program and continuation of this in the draft 2023 Legislative Program.
 - ii.** Creation of a webpage for TTSP content on the NVTA website (<https://thenovaauthority.org/transportation-technology/>)
 - iii.** Outreach activities, including via TransAction public engagement activities and strategy spotlights in monthly editions of NVTA's Driven By InNoVation eBlast. The TTSP was also featured in the 6th Annual Northern Virginia Transportation Roundtable and a session of the national Planning Webcast Series, sponsored by the Transportation Planning Division of the American Planning Association
 - iv.** Minor updates to the TTSP, including the addition of a technology timeline
 - v.** Conducted research on emissions and emerging technologies such as electric vehicle and automation/autonomy
 - vi.** Integration with the TransAction update through scenario analysis and the draft project list
 - B. Ongoing activities**
 - i.** A pilot season of InNoVation Lunch and Learns, designed to foster pragmatic discussions of innovation among staff across the region
 - ii.** Coordination with external entities, including operations specialists

- iii. Updates to the TTSP
 - 1. Updating the Action Plan
 - 2. Updating relevant projects
 - 3. Expanding the scope of existing strategies 4 and 8
 - 4. Addition of a new strategy

- 5. **Upcoming Implementation Efforts:** Through May 2023, NVTA staff will continue to work on the items listed under 3b above, together with other activities related to the TTSP:
 - A. Integration with the Six Year Program process
 - B. Technology-related Outreach
 - i. Ongoing monitoring of market trends and trigger points
 - ii. Continued outreach and education through the Driven By InNoVation eBlasts
 - iii. Consider if the InNoVation Lunch and Learns should be continued on a reoccurring basis.

- 6. **Next Steps:** NVTA Staff will continue to provide regular updates on progress towards the above actions, through the TTC and NVTA Chief Executive Officer's monthly report to the Authority. The TTSP will be maintained as a living document, to reflect the continued evolution of transportation technologies, and to allow NVTA staff the flexibility to update and refine it, as necessary. That said, no signification changes or additions to the TTSP, as determined by the NVTA chief executive officer, will occur without prior Authority approval.

Attachments:

- A. Updates to TTSP Strategies
- B. TTSP Progress Report
- C. Transportation Technology Timeline

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Attachment A –Updates to TTSP Strategies (Endorsed by Transportation Technology Committee on July 6, 2022)

Strategies		Intent of Strategy (long term)
1	Reduce congestion and increase throughput	Support deployment of transportation technologies that improve performance and optimize efficiency of the regional multimodal transportation system
2	Maximize access to jobs, employees and housing	Support deployment of transportation technologies that increase travel options and awareness of them
3	Maximize cybersecurity and privacy for members of the public	Monitor concerns on behalf of Northern Virginians, and leverage NVTAs processes where appropriate and feasible
4	Original title: Minimize potential for Zero Occupancy passenger Vehicles Endorsed revision: Enhance operations of the multimodal transportation system through connectivity and automation	Endorsed expansion: To maximize the potential benefits of Connected and Automated Vehicles, while addressing avoidable increases in passenger vehicle miles traveled.
5	Develop pricing mechanisms that manage travel demand and provide sustainable travel options	Identify technology-related measures at a regional scale to dynamically address congestion, including incentives; revenues will be re-invested in equitable solutions
6	Maximize the potential of physical and communication infrastructure to serve existing and emerging modes	Support adaptation of existing resources to support desirable technologies such as CASE vehicles, travel apps, micro modes and robust data collection
7	Enhance regional coordination and encourage interoperability in the transportation system	Leverage regional synergies in the deployment of transportation technologies
8	Advance decarbonization of the transportation system	Endorsed expansion: Support deployment of transportation technologies that reduce greenhouse gas emissions and synergistic technologies that improve resiliency.
9	Endorsed addition: Enhanced mobility in the region through innovation and emerging technologies in transit	Endorsed intent: support an array of transit innovations, in a manner that is flexible enough to adapt to future innovation.

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Attachment B– TTSP Progress Report

Strategy		NVTA Roles								
		Authority Roles			Shared Roles			Staff Roles		
Number	Name	Funding	Policy	Advocate	Champion	Facilitate	Stakeholder	Planning	Outreach/ Education	Observer
1	Reduce congestion and increase throughput	◐		◑	◑	◑		◑	◑	
2	Maximize access to jobs, employees and housing	○			◑	◑		◑	◑	
3	Maximize cybersecurity and privacy for members of the public	○					◐			◐
4	Minimize potential for Zero Occupancy passenger Vehicles		○	◑	◐	◐		◑	○	
5	Develop pricing mechanisms that manage travel demand and provide sustainable travel options		○	◑			○	◑	○	
6	Maximize the potential of physical and communication infrastructure to serve existing and emerging modes	○			◑	◑		◑	◐	
7	Enhance regional coordination and encourage interoperability in the transportation system	○			◑	◑		◑	◑	
8	Advance decarbonization of the transportation system	◐	◑	◑	◑	◑		◑	◑	

Key	
	No role identified for NVTA
○	Role identified for NVTA
◐	Some progress has been made
◑	Moderate progress has been made
◒	Substantial progress has been made
●	Task has been completed

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Attachment C – Transportation Technology Timeline

Year	NVTA History	Technology Milestones
2002	NVTA created by the General Assembly	
2003		MySpace is launched
2004		First DARPA Grand Challenge (This event is largely credited as the impetus for serious pursuit of Autonomous Vehicle technology.)
		Facebook is launched
2005		Second DARPA Grand Challenge
		YouTube launched
		Amazon Prime debuted
2006	TransAction 2030 adopted	"Google" was added to the dictionary as a verb
2007		DARPA's Urban Challenge
		Twitter launched
		Amazon launches the Kindle e-reader
		Apple popularizes touchscreen technology through the iPhone 1, revolutionizing smartphones
2009		Google began private testing of autonomous vehicle technology
		Bitcoin launched, using blockchain technology
2010		Inaugural test flight of SpaceX's Falcon 9 project
		Arlington County and DDOT launch Capital Bikeshare
2012	TransAction 2040 adopted	
2013	NVTA revenue stream began NVTA adopted its regional funding program for FY2014 which included one technology-related project: • City of Alexandria - Shelters and RTI for DASH/WMATA	Zoom launches webinar platform
2014		Amazon introduced Alexa
		Virginia and TNCs (Uber, Lyft, etc.) reach agreement on regulatory framework
2015	NVTA adopted its regional funding program for FY2015-16 which included three technology-related projects: • Arlington County - Glebe Road Corridor ITS Improvements • City of Alexandria - Duke Street Transit Signal Priority Installation • Fairfax County - Route 1 Widening - Mount Vernon Memorial Highway to Napper Road	
2016	NVTA held its inaugural Northern Virginia Transportation Roundtable NVTA adopted its regional funding program for FY2017 which included one technology-related project: • Arlington County - Lee Highway Corridor ITS Enhancements	USDOT publishes their Federal Automated Vehicles Policy
2017	TransAction update adopted	Apple App Store reaches 2.2 million apps
		The state of Massachusetts makes an early attempt at regulating ZOVs with fees
		Internal Combustion Engine (ICE) vehicles hit peak global sales

Year	NVTA History	Technology Milestones
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2018	<p>NVTA adopted its first Six Year Program for FY2018-23 which included seven technology-related projects:</p> <ul style="list-style-type: none"> • Arlington County - Intelligent Transportation System Improvements • City of Alexandria - Alexandria ITS Projects • City of Alexandria - Alexandria Bus Network ITS • Fairfax County - Route 1 Widening - Mount Vernon Memorial Highway to Napper Road • Fairfax County - Richmond Highway Bus Rapid Transit • City of Alexandria - Alexandria Duke St Transitway • City of Alexandria - DASH Transit Service Enhancements and Expansion 	Amazon selects NYC and Arlington County for locations of HQ2
2019		The first commercial drone delivery took place in Christiansburg, VA
2020	<p>NVTA approved a revised vision statement for the forthcoming update to TransAction which laid out its Core Values of Equity, Sustainability and Safety</p> <p>NVTA adopted the FY2020-2025 Six Year Program which included two technology-related projects:</p> <ul style="list-style-type: none"> • City of Alexandria - Alexandria Duke St Transitway • Fairfax County - Route 1 Widening - Mount Vernon Memorial Highway to Napper Road 	<p>The Federal government granted its first driverless car exemption</p> <p>Amazon ordered 100,000 electric delivery vehicles</p> <p>Virgin Hyperloop completed first manned pilot test</p> <p>Virginia's first on-street autonomous transit shuttle pilot began in Mosaic District, Fairfax County</p> <p>iPhone 12 launched</p> <p>VDOT issued its Connect and Automated Vehicle Program Plan</p>
2021	NVTA adopted the inaugural NVTA Transportation Technology Strategic Plan's Action Plan and Eight Strategies	<p>President Biden issued an Executive Order setting a national target for electric vehicles to make up half of U.S. auto sales by 2030</p> <p>The Biden-Harris Electric Vehicle Charging Action Plan was released</p> <p>New York required all passenger vehicles sold in state to be emission-free by 2035</p>
2022	<p>NVTA adopted the FY2022-2027 Six Year Program which included two technology-related projects:</p> <ul style="list-style-type: none"> • Loudoun County - Route 7 Corridor ITS Implementation Program • Fairfax County - 8 New Battery Electric Buses - Fairfax Connector Buses for Tysons to Franconia Service 	<p>TPB adopted CAV Principles</p> <p>Connected DMV issued the "DMV Hydrogen Greenprint"</p> <p>NHTSA (National Highway Traffic Safety Administration) issued first occupant protection safety standards for AVs</p> <p>President Biden invoked Defense Production Act for EV battery production</p> <p>The California Air Resources Board (CARB) approved regulation to ban sale of new Internal Combustion Engine (ICE) vehicles by 2035</p> <p>The Biden-Harris Administration approved NEVI (National Electric Vehicle Infrastructure formula program) plans for all 50 states, D.C and Puerto Rico</p>