TransAction Update

Weights for Performance Measures; Scenario Analysis

November 29, 2021

presented to

Planning and Programming Committee

NVTA's TransAction
Transportation Action Plan for Northern Virginia

Agenda

1. Weighting of Performance Measures
2. Scenario Analysis
3. Next Steps/Future Meetings

Weighting of Performance Measures

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Transportation Action Plan for Northern Virginia

Development & Approval Process

- November: NVTA approves TransAction goals, objectives, and performance measures
- December: NVTA approves weights for performance measures
- Winter/Spring 2022: Analysis
- Summer/Fall 2022: Public Comment/Hearing
- November 2022: NVTA adopts TransAction

Goals and Core Values

Goals:
What we want to achieve

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

Core Values:
How we achieve the goals

- **Equitably**
- **Sustainably**
- **Safely**

Core Values are associated with multiple goals, objectives, and performance measures.

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Recommended Goals, Objectives & Performance Measures

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

* Measure included in HB 599 rating process.

Transit may include High Occupancy Vehicles (HOV)

Process for Weighting Performance Measures

- TAC/PCAC/PPC will each be asked to recommend weights for each approved measure, these will be averaged, and then rounded to the nearest 5%
- Weights for individual measures will effectively be summed for each core value, additionally reflecting the priority associated with each
- Measure weights to be recommended to NVTA during November committee meeting cycle
- NVTA may accept or modify these recommendations prior to approval in December

Comparison of Recommended Objectives and Survey Responses

Recommended Objective	Corresponding Priority in Online Survey	% of Weighted Score – Region	% of Weighted Score – Core jurisdictions	% of Weighted Score – Inner jurisdictions	% of Weighted Score – Outer jurisdictions
A. Reduce congestion and delay	Reduce traffic congestion	17%	14%	18%	22%
B. Improve travel time reliability	Improve travel time predictability	14%	14%	13%	14%
C. Improve access to jobs	Improve access to jobs	7%	6%	7%	10%
D. Reduce dependence on driving alone by improving conditions for people accessing transit and using other modes	Improve multimodal connectivity	11%	11%	11%	10%
	More transit, walking, biking options	20%	23%	20%	17%
E. Improve safety and security of the multimodal transportation system	Improve safety	12%	12%	11%	10%
F. Reduce transportation related emissions	Reduce greenhouse gas emissions	14%	15%	15%	11%
G. Maintain operations of the regional transportation system during extreme conditions	Prepare for travel disruptions	5%	5%	5%	6%

Scenario Analysis

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Dealing with Uncertainty

- The TransAction process will include 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
- Four specific alternative futures (scenarios):
  - Pandemic-created ‘New Normal’
  - Transportation Technology
  - Transportation Policy/Mechanisms
  - Climate Change

1 Post-Pandemic New Normal Scenario

- What if trends observed during the pandemic continue into the long-term future?
- Assumptions Needed:
  - Percent of telework, by job type and employer
  - Percent of tele-school
  - Change to frequency of shopping trips
  - Change to frequency of at-home deliveries
  - Change in willingness to use public transit/shared-ride options
  - Changes to land use: office market, housing market
  - Changes to vehicle ownership levels
  - Increases in non-motorized travel

Should we assume long-term aversion to shared rides/transit?

Are we willing to consider major changes to land use as part of this scenario?

2 Technology Scenario

- Focus on implementation of Connected/ Automated/ Shared/ Electric vehicles (CASEs)
- Assumptions needed:
  - Market penetration of CASEs by 2045 – personal vehicles and commercial vehicles
  - Costs of using CASEs (per mile)
  - Limits to CASE service area?
  - Capacity increases/speed changes by roadway type due to Connectivity/Automation
  - Reductions in crashes due to Connectivity/Automation
  - Parking/Vehicle Storage
  - Changes to land use patterns
  - Changes to trip generation:
    - Zero Occupancy Vehicle (ZOV) trips (passenger vehicles)
    - Increased trip-making (induced demand)
  - Decreased transit operating costs

Are we willing to consider major changes to land use as part of this scenario?

Should dramatic increases in transit service be included?

3 Incentives/Pricing Scenario

- Implementing transportation pricing and incentive mechanisms to manage travel demand

- Options to include:
  - Free transit
  - Shared-ride incentives
  - Incentives to shift travel time
  - Roadway pricing structure: e.g. VMT pricing vs. Congestion pricing
  - Changes to parking/curbside pricing regionally

Are we more interested in VMT pricing? Congestion pricing? Something else?

4 Climate Change Scenario

» Options:

- How will the transportation system work if infrastructure is lost to climate change?
- Do combining technology, pricing incentives, and telework acting together achieve Northern Virginia's climate goals?
  - What level of electrification would be necessary?

Considering work already done by MWCOG, what is going to be the most interesting? The most useful?

Next Steps

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Reference Slides

NVTA's TransAction

Transportation Action Plan for Northern Virginia

Current TransAction (October 2017)

» 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.*