



Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

PLANNING AND PROGRAMMING COMMITTEE
Monday, December 5, 2016, 10:00am

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

AGENDA

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

Discussion/Information

- II. NVTA Update** Ms. Backmon, Executive Director
- III. TransAction: Interim Results of Fall Public Engagement** Mr. Jasper

Action

- IV. TransAction: Performance Measures** Mr. Jasper
- V. Approve Summary Notes of October 28, 2016 PPC Meeting**
*Recommended Action: Approval [with abstentions
from those who were not present]*

Adjournment

- VI. Adjourn**

Next Meeting (suggested):
10:00am, Friday January 27, 2017, NVTA, or
10:00am, Monday January 30, NVTA



Northern Virginia Transportation Authority

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PLANNING AND PROGRAMMING COMMITTEE

Friday, October 28, 2016, 10:00 am

Northern Virginia Transportation Authority

3040 Williams Drive, Suite 200

Fairfax, Virginia 22031

SUMMARY NOTES

I. Call to Order/Welcome

Chairman Nohe

- Chairman Nohe called the meeting to order at 10:13 am.
- Attendees:
 - **PPC Members:** Chairman Nohe; Chairman Bulova (Fairfax County); Board Member Fisette (Arlington County); Council Member Rishell (City of Manassas Park).
 - **Authority Members and other Elected Officials:** Helen Cuervo (VDOT).
 - **NVTA Staff:** Monica Backmon (Executive Director); Carl Hampton (Debt and Investment Manager); Keith Jasper (Principal); Sree Nampoothiri (Transportation Planner), Harun Rashid (Transportation Planner).
 - **Staff:** Rick Canizales, Elizabeth Scullin (Prince William County); Noelle Dominguez (Fairfax County); Bob Brown (Loudoun County); Sarah Crawford (Arlington County); Pierre Holloman (City of Alexandria); Norman Whitaker (VDOT); Dan Goldfarb (NVTC); Sonali Soneji (VRE); Rich Roisman (MWCOC/TPB).
 - **Other:** Nancy Smith (Northern Virginia Transportation Alliance).

Action

II. Meeting Summary Notes of September 30, 2016, PPC Meeting

- The September 30, 2016 Planning and Programming Committee meeting summary was unanimously approved.

Discussion/Information

III. TransAction: Performance Measures

- Mr. Jasper provided an overview of how performance measures will be used during the TransAction update. A handout was provided listing candidate measures related to each of the three goals that had been previously adopted by the Authority. The

TransAction measures will be the subject of a PPC recommendation to the Authority at the Committee's November meeting.

- Chairman Nohe reminded the Committee that the intent of the measures is to support a data-driven process for future decision-making. In response to a question by Chairman Nohe, Ms. Backmon noted that inputs from other committees highlighted a concern to find the optimal balance between highway or transit measures; a desire to combine measures in Goal 3 (impacts of transportation on the environment); and to repeat the use of the congestion reduction relative to cost (CRRC) methodology separately from the rating process, as was done for the FY2017 Program.

Goal 1: Enhance quality of life and economic strength of Northern Virginia through transportation

- Council Member Rishell asked about the rationale for measure 1.5.1, and what happens if projects are subsequently added to, or deleted from, a jurisdiction's Comprehensive Plan. Board Member Fisette suggested there should be some language that the Authority will be respectful of local plans. Chairman Nohe noted that when the Route 28 study identified a preferred alternative, he expected the Prince William County Comprehensive Plan would be updated.
- Mr. Canizales cautioned that highway widening should not be viewed as a negative consideration in the context of storm water runoff. Mr. Jasper responded that the Technical Advisory Committee considered this type of measure to be more appropriate at the project development stage as detailed comparative information is generally unavailable during long range planning. Consequently, this measure may be a candidate for deletion during evaluation of the TransAction plan.

Goal 2: Enable optimal use of transportation network and leverage the existing network

- For measure 2.1.1, Ms. Cuervo noted that VDOT is broadening crash analysis from fatalities and severe injuries to include property damage and other factors that can be more readily influenced by targeted remedial measures. Board Member Fisette asked whether the measure should focus on the number of incidents or the cost (in dollars) associated with incidents. Council Member Rishell asked whether incidents involving transit, bicyclists, and pedestrians would be included.
- Council Member Rishell asked why, in measure 2.5.2, the increase was set at only ten percent. Board Member Fisette agreed this seemed low, commenting that normal advice is to shelter-in-place. Mr. Whitaker responded this is meant to be indicative of a surge in traffic, in response to a homeland security emergency.
- Board Member Fisette indicated that measure 2.6.1 (cost-benefit analysis) should not be handled separately from the rating system. Chairman Nohe responded that it was done separately for TransAction 2040. Mr. Canizales said this analysis is very dependent on the accuracy of the cost estimates from different jurisdictions. Ms. Dominguez noted that consideration should be given to what costs be included in the cost-benefit analysis.

Goal 3: Reduce negative impacts of transportation on communities and the environment

- For measure 3.2.1, Mr. Canizales suggested that the design of widened highways could include more grassy areas, e.g. Route 1 in Woodbridge, which would handle increased storm water runoff. Board Member Fisette suggested the measure should

be focused on net runoff, and suggested that the cost of remediation be included in any cost-benefit analysis. Mr. Brown noted that Environmental Impact Studies were required to identify how such impacts would be mitigated at the project development stage, and suggested that TransAction should be more focused on a planning level measure. Chairman Nohe considered the measure as stated does not belong in TransAction.

- More generally, Board Member Fisette asked whether the measures would be used to rate all projects, or to select which projects are included in the plan. If the latter, what threshold would be used for inclusion? Chairman Nohe responded that the measures are ‘rules’ that will be applied to guide the Authority on how to allocate future investments.

IV. NVTa Update

- Ms. Backmon provided a brief update on future Authority and Committee meetings.

Adjournment

V. Adjourn

- The meeting adjourned at 11:29 am.



TransAction Draft Performance Measures

**Planning and Programming Committee
December 5, 2016**

Overview

1. Introduction
2. Online Survey (Interim Summary)
3. Focus Groups (Interim Summary)
4. Stakeholder Workshop
5. Public Engagement Interim Summary
6. Committee Recommendations
7. NVTAs Staff Recommendations
8. Next Steps

1. Introduction

- Why are TransAction measures needed/how will they be used?
 - The measures support the Vision, Goals, and Objectives of TransAction, and will be used to evaluate the impact of each iteration of the plan.
- How/when will TransAction measures be weighted?
 - As with TransAction 2040 and the Authority's funding programs, each measure will be weighted to reflect the Authority's priorities.
 - Weightings of adopted measures will be considered in early 2017.
- Integration of HB599 process into TransAction
 - Enhances regional transportation planning, streamlines the planning process, and achieves significant efficiency and effectiveness gains.
 - All 'bottom up' projects (submitted by jurisdictions and agencies) and 'top down' projects (addressing unmet travel needs) will be evaluated as part of one or more project packages.

1. Overall Approach

- TransAction Vision and Goals adopted in Dec. 2015
- Objectives and supporting measures developed by the TransAction Subcommittee
- Public Engagement (Fall 2016)
 - More focused on objectives than measures
 - Online survey, focus groups, stakeholder workshop, GMU workshops
- Committees (Fall 2016)
 - More focused on measures than objectives
 - Discussed at multiple PCAC and TAC meetings; recommendations during November meeting cycle (including TA Subcommittee)
 - PPC considers all inputs; makes recommendation on measures Dec. 5
- Authority action planned on Dec. 8

2. Online Survey

- 6 weeks October 18 – November 28
- Accessed by online SurveyMonkey link and promoted:
 - NVTa TransAction website
 - Pop-in events with paper and online surveys: City of Fairfax Library, Herndon Senior Center, the Eden Center, and Loudoun Senior Center to reach underrepresented groups
 - Eblasts to TransAction distribution list
 - Facebook and Twitter managed campaign
 - Chairman Nohe via Dr. Gridlock
 - Press release

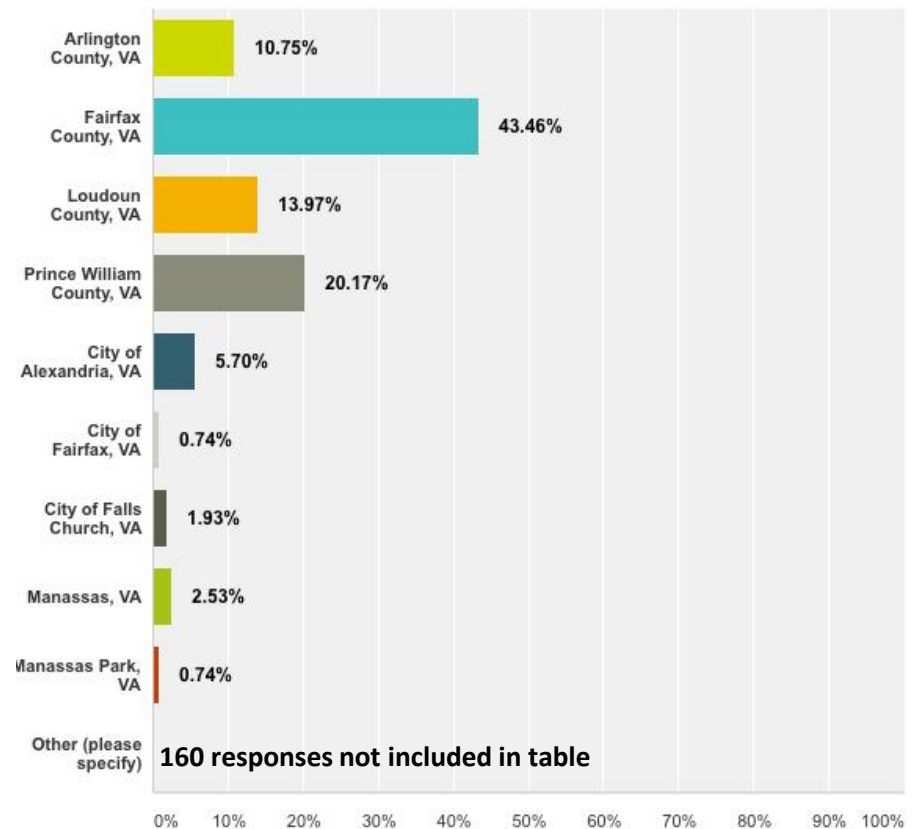


2. Online Survey

- 2,771 respondents representing all areas of Northern Virginia as well as other parts of Virginia, Maryland, DC and West Virginia

In which county or city do you currently live?

Summary of NoVa residents only



2. Feedback on Priority Objectives

- Asked participants to rate objectives

33. As we look to make transportation improvements in Northern Virginia, it's important for us to understand what is important and meaningful to you. Please rate the importance of the following actions that improve NoVa's transportation network and quality of life.

	Not at all important	Not very important	Somewhat important	Very important	No Opinion
Reduce delays during commute hours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase travel time reliability throughout the day	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce crowding on bus and rail	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase connections between business / residential centers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce transportation costs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Improve roadway safety to reduce vehicle crashes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase access to rail stations for pedestrians, bikes and buses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Increase the number of travel options (e.g. bus, rail, rideshare)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce the number of single-occupancy vehicles during commute hours	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reduce impacts of transportation on the environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Feedback on Priority Objectives

- Ranking of priorities across NoVa, and a comparison between inside the Beltway and outside the Beltway

***Inside the Beltway:**
Alexandria, Arlington, Falls Church

****Outside the Beltway:**
Fairfax County, Fairfax City, Loudoun County,
Manassas, Manassas Park, Prince William County

Priority Objective	All (2771)	Inside the Beltway* (370)	Outside the Beltway** (1639)
Reduce delays during commute hours	1	4	1
Increase travel time reliability throughout the day	2	2	2
Increase the number of travel options	3	1	4
Improve roadway safety to reduce vehicle crashes	4	7	3
Increase connections between business/residential centers	5	6	5
Increase access to rail for pedestrians, bikes and buses	6	3	6
Reduce impacts of transportation on the environment	7	8	7
Reduce crowding on bus and rail	8	5	9
Reduce transportation costs	9	10	8
Reduce number of SOVs during commute hours	10	9	10

2. What Else Did We Learn?

- Respondents think regionally because they move throughout NoVa to live, work, shop, go to appointments and seek entertainment
- Respondents very much appreciated an opportunity to provide their input
 - “Thanks for gathering this important information. Best of luck on future improvements!”
 - “Thanks for considering public input.”
 - “I appreciate being asked about local transportation needs; I've lived here for 47 years.”
 - “Thank you for the opportunity for letting me voice my opinions.”
- Additional analysis will be provided in January 2017

3. Focus Groups

- Conducted four, 2-hour focus groups Nov 9 & 10
 - 2 each for residents inside and outside the Beltway
 - 40 participants total, representative of residents of all member jurisdictions, demographic segments and commuting preferences



3. Feedback on Priority Objectives

- Number of focus group participants who identified each objective as a “high priority”

Inside the Beltway and Outside the Beltway participants were recruited by zip code

Priority Objective	Total	Inside the Beltway	Outside the Beltway
Reduce delays during commute hours	33	17	16
Increase travel time reliability throughout the day	22	13	9
Improve roadway safety to reduce vehicle crashes	19	8	11
Increase the number of travel options	13	7	6
Reduce transportation costs	12	6	6
Increase access to rail for pedestrians, bikes and buses	11	4	7
Reduce number of SOVs during commute hours	10	4	6
Increase connections between business/residential centers	8	4	4
Reduce crowding on bus and rail	8	7	1
Reduce impacts of transportation on the environment	7	3	4


3. What Else Did We Learn?

- Residents strongly value reliability (and feel like it is lacking)
- While a certain level of congestion can be tolerated, congestion is affecting people lives – when they commute and where they work (and to a lesser degree where they live)
- Congestion limits how often residents travel for non-work trips
- There is support for public transportation to reduce congestion, however there is hesitation to give up personal SOV travel
- Public transit use and support is strongest for those who commute into DC
- Policy suggestions include financial incentives for transit usage and flexible work hours
- A regional transportation implementation tracking website was suggested
- Additional analysis will be provided in January 2017

4. Stakeholder Workshop

- 13 participants divided into four geographies on October 25
- Objectives were viewed as interrelated, varied by geography
- 3 priorities were important across all geographies:
 - increase travel options
 - increase connections between business/residential centers
 - Increase access to rail

Participating Organizations: AARP, Bike Loudoun, City of Fairfax Economic Development Office, Committee for Dulles, Crystal City BID, Fairfax Alliance for Better Biking, NOVA Chamber, Northern Virginia Regional Commission, Northern Virginia Transportation Alliance, Prince William County Department of Economic Development, Southeast Fairfax Development Corporation, Springfield Chamber, Virginia Sierra Club



NVTA TransAction Workshop
Tuesday, October 25, 8am-10am
Northern Virginia Transportation Authority
3040 Williams Drive, Suite #200, Fairfax, VA 22031

You have been divided into groups representing geographic areas in Northern Virginia to discuss transportation-related characteristics and concerns, and help NVTA select appropriate multimodal objectives (i.e. measures) for the TransAction Plan. These objectives will be used to evaluate the effectiveness of a range of possible multimodal regional transportation improvements throughout Northern Virginia.

First review the multimodal objectives and identify those that your group considers are relevant to your sub-area.

Next allocate a percentage amount out of 100% for each selected objective:
Higher % = MORE IMPORTANT Lower % = LESS IMPORTANT
Note that you may allocate 0% if the objective is not relevant. You may also add new objectives.

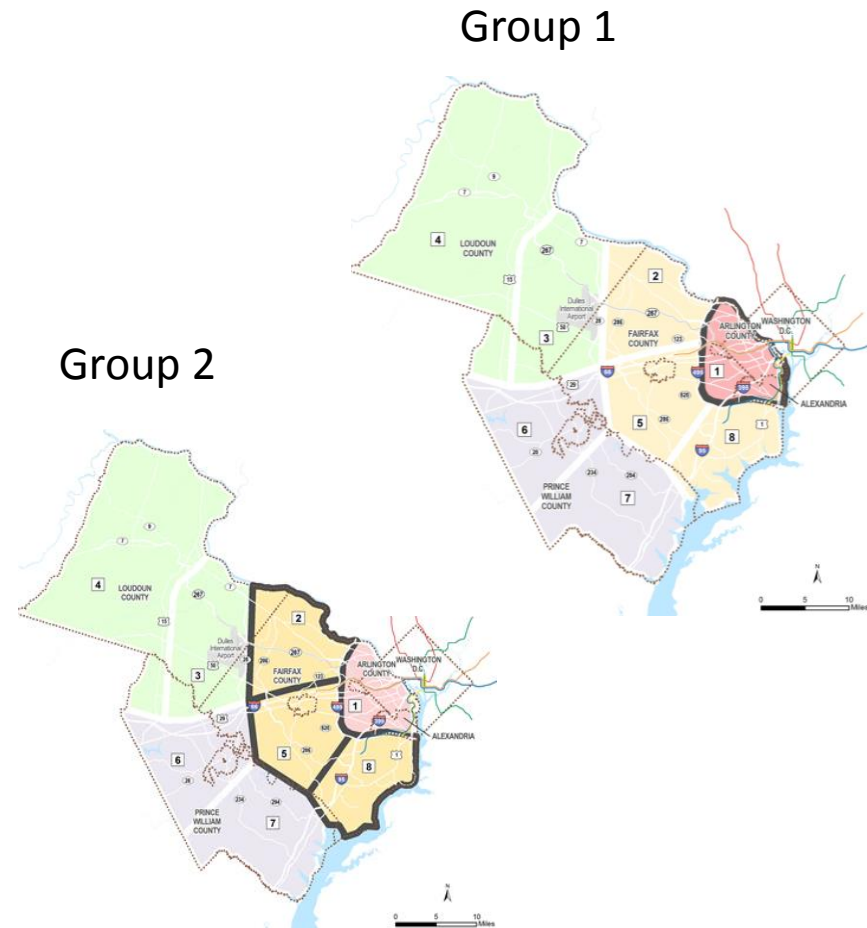
Last prepare for your group's "report back" explaining why you selected certain objectives, and not others, and what the percent breakdown is.

Multimodal Objectives	% (out of 100%)
A. Reduce delays during commute hours	_____
B. Increase travel time reliability throughout the day	_____
C. Reduce crowding on bus and rail	_____
D. Increase connections between business/ residential centers	_____
E. Reduce transportation costs	_____
F. Improve roadway safety to reduce vehicle crashes	_____
G. Increase access to rail stations for pedestrians, bikes and buses	_____
H. Increase the number of travel options (e.g. bus, rail, rideshare)	_____
I. Reduce the number of single-occupancy vehicles during commute hours	_____
J. Reduce impacts of transportation on the environment	_____
_____	_____
_____	_____
_____	_____

Workshop Instructions

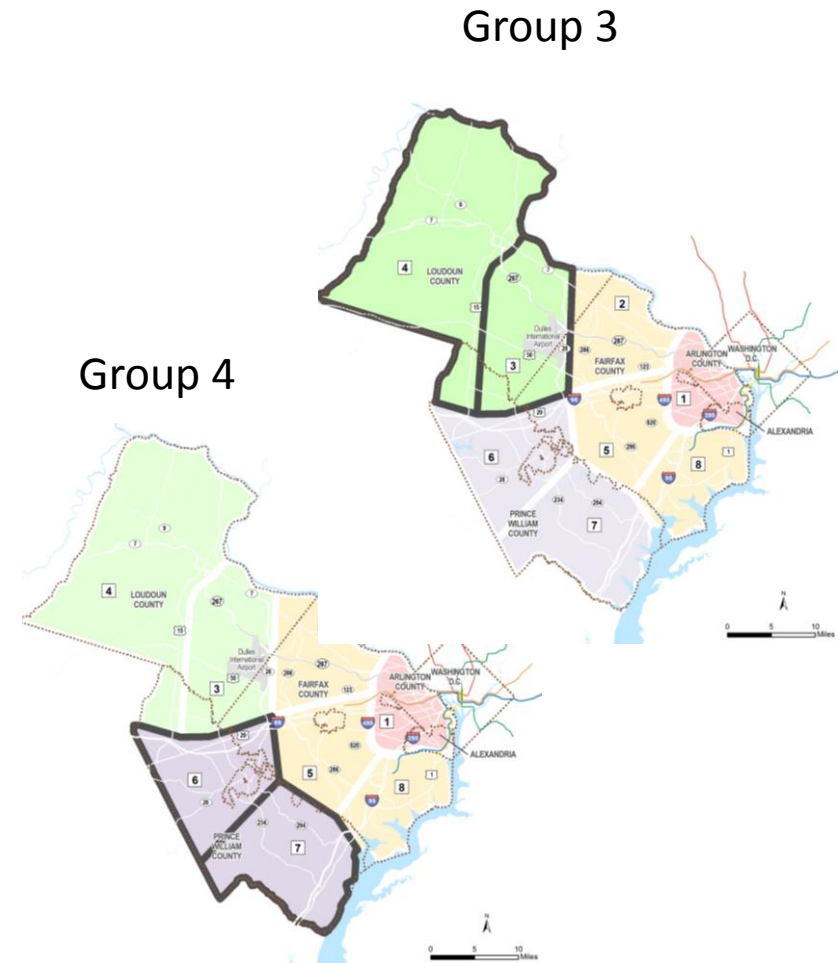
4. Feedback on Priority Objectives

- Groups 1 and 2 prioritized measures that correspond with urbanized areas (e.g. Arlington, Alexandria, Tysons, Reston, Merrifield, etc.):
 - increase travel options
 - increase connections between business/residential centers



4. Feedback on Priority Objectives

- Groups 3 and 4 prioritized measures that correspond with growing communities/employment centers requiring longer trips (e.g. Chantilly, Sterling, Gainesville, PWC Innovation):
 - increase travel time reliability
 - reduce delays during commute hours



4. What Else Did We Learn?

- Participants suggested that addressing higher priority objectives will also help to address lower priority objectives
- Participants considered that the public has a higher tolerance for transit crowding and a lower tolerance for vehicular delays
- Transportation pricing can serve as a policy tool to facilitate desired outcomes (e.g. congestion pricing, transit discounts, parking subsidies)
- Suggested NEW objectives:
 - Implementation of new technologies across the region
 - Improved marketing of transportation options

5. Public Engagement Interim Summary

- Priority objectives that were generally viewed as important:
 - Reduce delays during commute hours
 - Increase travel time reliability throughout the day
 - Increase the number of travel options
 - Increase access to rail
 - Increase connections between business/residential centers
- More important inside the Beltway:
 - Reduce crowding on bus and rail
- More important outside the Beltway:
 - Improve roadway safety to reduce vehicular crashes
- Lower priority objectives:
 - Reduce impacts of transportation on environment
 - Reduce transportation costs
 - Reduce SOVs during peak hours

6. Committee Recommendations

- More focused on measures than objectives
- Considered previously used measures and criteria
- What did we learn about TransAction measures?
 - Broad agreement on the majority of measures; retain most, but combine/delete some
 - Retain all seven HB599 measures
 - Several measures could be applied later in the TransAction development process, or during the development of the FY2018-23 Six Year Program
- Minimize the number of measures where possible

6. What Else Did We Learn?

- What did we learn about priorities?
 - Focus on measures that are consistent with VA Code and the Authority's priorities
 - Ensure measures are modally balanced
- Allow for flexibility in defining and addressing regional significance across different jurisdictions
- Facilitate trade-offs among projects that perform well against different measures

7. NVTA Staff Recommendations

- Identified areas of agreement and disagreement in the PCAC, TAC, and TransAction Subcommittee recommendations:
 - NVTA staff supports recommendations where all three committees are in agreement (14 measures)
 - NVTA staff provides recommendations/justifications (in green) where the committees are not in agreement (8 measures/2 new measures)
- Additional considerations for PPC members:
 - Preference to minimize total number of measures (TransAction 2040 included 18 measures; FY2017 Program included 9 measures; benefit/cost analysis conducted separately for both)
 - Measures with duplicative impact may be somewhat redundant, e.g. reducing congestion and reducing emissions
 - Defer some measures until later in the TransAction process, especially measures requiring a more qualitative approach, e.g. consistency with Comprehensive Plans, leveraging non-NVTA regional revenues

7. NVTA Staff Recommendations

- Areas of agreement – Goal #1 (Enhance quality of life and economic strength of NoVA through transportation)
 - Retain 1.1.1 thru 1.1.4 (four HB599 measures)
 - Retain 1.2.1 thru 1.2.2 (includes one HB599 measure)
 - Retain 1.3.2 (one HB599 measure)

7. NVTA Staff Recommendations

- Areas of agreement – Goal #2 (Enable optimal use of the transportation network and leverage the existing network)
 - 2.1.1; updates previous approach; uses VDOT crash data based on Equivalent Property Damage Only (EPDO) values
 - Retain 2.3.1
 - Delete 2.5.1; Retain 2.5.2 (one HB599 measure)
 - Delete 2.6.1; apply at a later stage, using a modified version of the CRRC approach used for the FY2017 Program
- Areas of agreement – Goal #3 (Reduce negative impacts of transportation on communities and the environment)
 - Combine 3.1.1 and 3.4.1 and rename ‘Vehicle miles traveled (VMT) by speed’

7. NVTA Staff Recommendations

- Areas of disagreement – Goal #1 (Enhance quality of life and economic strength of NoVA through transportation)
 - 1.3.1: PCAC recommended to delete; TAC recommended to retain; Subcommittee revised wording as ‘...**high frequency or high performance** transit’

Retain with revised wording as indicated above: supportive of increased transit accessibility in areas of higher travel demand; public engagement findings support retention

7. NVTA Staff Recommendations

- Areas of disagreement – Goal #1 (continued)
 - 1.4.1: TAC and Subcommittee recommended retaining similar versions of this measure for travel among/between regional activity centers

Retain with modified wording ‘Average travel time per (motorized) trip between Regional Activity Centers’: supportive of improved regional mobility; public engagement findings support retention

- NEW: TAC and Subcommittee recommended adding a new measure related to Objective 1.4 for travel within a regional activity center:
 - ‘Lane miles and sidewalk miles within ½ mile radius of a RAC’ (TAC)
 - ‘Pedestrian Environment Factor’ (TA Subcommittee)

Such a measure is supportive of improved regional mobility and broadly consistent with public engagement findings. However, the NVTA staff recommendation is for a qualitative approach using the measure:

- ‘Walkable/bikeable environment within a Regional Activity Center’

7. NVTA Staff Recommendations

- Areas of disagreement – Goal #1 (continued)
 - 1.5.1: PCAC revised wording ‘~~Consistency~~ Aligned with...’; TAC and Subcommittee recommended to delete
Delete: general expectation but no requirement to be consistent with local planning efforts; address later in the process, e.g. during development of Six Year Program
 - 1.6.1: PCAC recommended to retain; TAC and Subcommittee recommended to delete
Delete: without including housing costs, cost per commute trip alone may be misleading; public engagement findings do not support retention

7. NVTA Staff Recommendations

- Areas of disagreement – Goal #2 (Enable optimal use of the transportation network and leverage the existing network)
 - 2.2.1: TAC recommended to delete; PCAC and Subcommittee revised wording as ‘**First and** last mile...’

Retain: represent a potentially important component of regional solutions; public engagement findings support retention

- 2.4.1: PCAC and Subcommittee recommended to delete; TAC recommended to retain

Delete: Retained measure 2.3.1 addresses share of travel by non-single occupant vehicles; public engagement findings do not support retention

- NEW: PCAC recommended adding a new measure related to Objective 2.6 ‘**Leverages non-NVTA regional revenues**’

Delete: address later in the process when more robust data likely available

7. NVTA Staff Recommendations

- Areas of disagreement – Goal #3 (Reduce negative impacts of transportation on communities and the environment)
 - 3.2.1 and 3.3.1: PCAC and Subcommittee recommended to combine, and rename ‘**impacts on sensitive areas**’; TAC recommended to delete

Delete: availability of sufficient and consistent data will undermine robust analysis; public engagement findings do not support retention

7. NVTAs Staff Recommendations

- If the PPC accepts the NVTAs staff recommendations:
 - 15 measures will be retained (including all seven HB 599 measures)
 - 9 measures will be deleted (of which two will be addressed later in the process)

8. Next Steps

- Authority action on TransAction performance measures at December 8th meeting
- Committees will revisit weights on adopted performance measures during January 2017 meeting cycle
- PPC will consider weights late January 2017, and develop recommendation
- Authority action on weighting of adopted TransAction performance measures at February 9th, 2017 meeting

Summary of Candidate TransAction (TA) Measures – PPC Feedback 10/28/2016 (in red)

TA Goals	Proposed TA Objectives		Candidate TA Measures/Weightings ¹			TransAction 2040 Measures/Weightings			FY2017 Program Measures/Weightings	
Goal 1: Enhance quality of life and economic strength of NoVA through transportation	1.1	Reduce congestion and crowding experienced by travelers in the region	1.1.1	Total Person Hours of Delay (HB599)		2.8	Reduces roadway congestion	6.67	Project reduces roadway congestion (HB599 overall rating)	45
			1.1.2	Transit Crowding (HB599)						
			1.1.3	Person Hours of Congested Travel in Automobiles (HB599)		2.1	Addresses existing significant level of service (LOS) deficiencies for all modes of transportation	3.33		
			1.1.4	Person Hours of Congested Travel in Transit Vehicles (HB599)						
	1.2	Improve Travel Time Reliability	1.2.1	Congestion Severity: Maximum Travel Time Ratio		2.2	Addresses existing structural and maintenance deficiencies for all modes of transportation	3.33		
			1.2.2	Congestion Duration (HB599)		1.1	Improves capacity and reliability of freight	6.67		
	1.3	Increase access to jobs, employees, markets, and destinations	1.3.1	Percent of jobs/population within 1/2 mile of transit						
			1.3.2	Access to Jobs within 45 mins by auto, and within 60 mins by transit (HB599)						
	1.4	Improve connections among and within areas of concentrated growth	1.4.1	TBD		4.1	Improves connections between multiple Activity Centers	6.67	Project improves connections between multiple Activity Centers	5
									Project connects jurisdictions and modes	5
	1.5	Support and strengthen local land use objectives	1.5.1	Consistency with local planning efforts (qualitative assessment) What is the rationale for this measure? What if project is added/deleted to Comp Plan? Is it sufficient to say NVTa will be respectful of Comp Plans?		4.2	Supported by a Comprehensive Plan	6.67		
	1.6	Reduce household transportation costs	1.6.1	Average cost per commute trip						
						2.3	Able to be readily implemented	6.67	Project will be advanced as a result of FY2017 Program funding;	15
Goal 2: Enable optimal use of the transportation network and leverage the existing network	2.1	Improve the safety of transportation network	2.1.1	Serious injuries and fatalities by mode Should the measure consider accidents or \$? VDOT focus on property damage because easier to target measures. What about transit, bikes, peds?		2.5	Improves the safety of the transportation system	6.67	Project improves the safety of the transportation system	5
	2.2	Increase integration between modes and systems	2.2.1	Last mile connections (qualitative assessment)		1.2	Supports multiple use development patterns in a walkable environment	6.67	Supports multiple use development patterns in a walkable environment	10
	2.3	Provide more route and mode options to expand travel choices and improve resiliency of the system	2.3.1	Share of travel by non-SOV modes		1.4	Creates multimodal choices for travelers as indicated by increases in transit capacity	3.33		
						1.3	Creates multimodal choices for travelers as indicated by increases in non-SOV mode share	3.33		
	2.4	Manage travel demand during peak periods	2.4.1	Number of SOV trips during peak periods		2.6	Increases person-miles traveled by non-SOV modes.	3.33		
	2.5	Sustain and improve operation of the regional system				2.7	Increases person-miles traveled by SOV mode	3.33		
			2.5.1	PHT in congested/crowded conditions		2.9	Reduces person-hours traveled	6.67		
			2.5.2	Person hours of travel caused by 10% increase in PM peak hour demand (HB599) Why only 10%? Assumes DC is the target? Shelter in place?						
						5.1	Improves the management and operation of existing facilities through technology applications	6.67	Project improves the management and operation of existing facilities through technology applications	5
	2.6	Optimize investments by increasing benefits relative to costs for short-, medium-, and long-term timeframes	2.6.1	Cost Benefit Analysis Robustness of cost data (low-balling), and what to include in costs and benefits? Use CRRC ratio as filter, separately?		N/A	Benefit/Cost Rating		Congestion Reduction Relative to Cost (CRRC) ratio	N/A
						6.1	Leverages private or other outside funding	6.67	Project leverages private or other outside funding	5
Goal 3:	3.1	Reduce greenhouse gas emissions caused by transportation	3.1.1	GHG emissions based on VMT by speed		2.4	Reduces vehicle-miles traveled (VMT)	6.67	Project reduces vehicle-miles (VMT)	5

¹ Note: ‘HB599’ indicates measure used by VDOT during the HB599 Evaluation and Rating process for the FY2015-16 and FY2017 Programs.

Reduce negative impacts of transportation on communities and the environment Need higher level planning goals	3.2	Reduce stormwater runoff	3.2.1	Amount of impervious area Design of widened highways may include more grass areas. Real issue is run-off, but should cost be included in b/c analysis? Reduce NET runoff?					
	3.3	Protect environmental and cultural assets and resources	3.3.1	Number of ROW expansions that impact resources		3.1	Right-of-way minimizes impacts on sensitive areas	6.67	
	3.4	Reduce transportation-related air pollution	3.4.1	Criteria pollutant emissions based on VMT by speed			See TransAction 2040 measure 2.4		See TransAction 2040 measure 2.4

General – will measures be used to rate/rank/prioritize all candidate projects, or to eliminate lowest performing candidate projects? If the latter, what is the threshold? Just include candidate projects that will likely be funded?