Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

TECHNICAL ADVISORY COMMITTEE
Wednesday, October 21, 2015, 7:00pm
NVTA Offices
3040 Williams Drive, Suite 200
Fairfax, Virginia 22031

AGENDA

I. **Call to Order/Welcome** Chairman Boice

II. **Meeting Summary of September 16, 2015, Meeting**
Recommended action: Approval [with abstentions from those who were not present].

Discussion/Information

III. **NVTA Update** Mr. Longhi

IV. **NVTA FY2017 Program: Congestion Reduction Relative to Cost Methodology**
Mr. Longhi/Mr. Nampoothiri

Adjournment

V. **Adjourn**

Next Meeting: November 18, 2015

Northern Virginia Transportation Authority
The Authority for Transportation in Northern Virginia

TECHNICAL ADVISORY COMMITTEE
Wednesday, March 18, 2015, 7:00pm
NVTA Office
3040 Williams Drive, Suite 200
Fairfax, Virginia 22031

SUMMARY NOTES

I. Call to Order/Welcome Chairman Boice

- Chairman Boice called the meeting to order at 7:02pm.
- Attendees:
  - Members: Chairman Randy Boice; Vice Chairman Doug Fahl; Pat Turner; Agnes Artemel; Meredith Judy; Bob Dunphy; Armand Ciccarelli.
  - NVTA Staff: Keith Jasper (Program Coordinator).
  - Other Staff: Noelle Dominguez (Fairfax County).
  - Other: Rob Whitfield.

II. Meeting Summary of January 21, 2015, Meeting

- Mr. Dunphy moved to approve the minutes of January 21, 2015; seconded by Mr. Ciccarelli. Motion carried unanimously (with abstentions from Mr. Fahl, Ms. Turner, and Ms. Artemel who were not present at the January 21, 2015 meeting.)

Discussion/Information

III. TransAction 2040 Update: Statement of Work Review Mr. Jasper

- Mr. Jasper provided a briefing on the statement of work for the upcoming TransAction update. Mr. Jasper reminded committee members that they may not participate in the discussion if they or their firms expect to bid for the work when the Request for Proposals is posted.
- In response to a question by Ms. Artemel regarding how land use fits within the statement of work, Ms. Dominguez noted that recent legislation by the General Assembly has touched on this.
- Vice Chairman Fahl suggested that MWCOG/TPB be encouraged to update the current version of its model to ensure land use forecasting is current. Mr. Dunphy suggested that NVTA should emphasize that NVTA has no authority over local land use planning.

- Vice Chairman Fahl stated that NVTA should ensure the public engagement aspects of the plan be used to inform and educate citizens, stakeholders, and leaders about the value of the plan, so that they will buy into its recommendations.
- TAC members expressed their desire to be involved throughout the development of the update to TransAction 2040.

IV. NVTA Update Mr. Jasper

- Ms. Backmon unveiled the Authority's 2014 Annual Report at the February meeting;
- Chairman Nohe appointed Arlington County Chair Mary Hynes as the chair of the Bylaws Committee;
    - Chair Hynes is planning to attend the May PCAC meeting to discuss the roles and responsibilities of the committee
- The Public Comment period on the draft FY2015-16 Two Year Program is underway. The Public Hearing will be held Wednesday, March 25th. The Open House starts at 6pm and the presentation will start at 7pm. It is anticipated that the Authority will adopt the Program at the April meeting;
- The March NVTA meeting has been rescheduled. The Authority will meet immediately after the end of the Public Hearing;
- NVTA hosted the HB 2 Stakeholder Workshop on Wednesday, March 4th. Deputy Sec. Donohue is scheduled to update the Authority in April;
- NVTA staff is working with VDOT and DRPT staff on evaluating test transit projects for HB 599.

V. Draft Policy for Addressing Delayed NVTA-Funded Projects Mr. Jasper

- Mr. Jasper reported that the Authority will be recommended to approve a policy that requires that Standard Project Agreements (SPAs) are executed by no later than six months after projects are approved. This policy will apply to the FY2015-16 and future FY2017 Programs. The policy will be reviewed and updated as necessary for the Six Year Program commencing in FY2018.

VI. NVTA FY2015-16 Two Year Program Update Mr. Jasper

- This item was addressed in the NVTA report.

Adjournment

VII. Adjourn

- Meeting adjourned at 8:30pm.

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TECHNICAL ADVISORY COMMITTEE
Wednesday, September 16, 2015, 7:00pm
NVTA Office
3040 Williams Drive, Suite 200
Fairfax, Virginia 22031

SUMMARY NOTES

I. Call to Order/Welcome Chairman Boice

- Chairman Boice called the meeting to order at 7:08pm.
- Attendees:
  - Members: Chairman Randy Boice; Vice Chairman Doug Fahl; Pat Turner; Agnes Artemel; Meredith Judy; Kathy Ichter; Shanjiang Zhu; Bob Dunphy; Armand Ciccarelli.
  - NVTA Staff: Monica Backmon (Executive Director); Sree Nampoothiri (Program Coordinator); Keith Jasper (Program Coordinator).
  - Other Staff: James Davenport (Prince William County); Tom Biesiadny (Fairfax County).
  - Other: Jason Mumford (AECOM).

II. Meeting Summary of March 18, 2015, Meeting

- Summary not available

Discussion/Information

III. NVTA Update Ms. Backmon

- Ms. Backmon provided the Authority update.

IV. TransAction 2040 Update: Status Mr. Jasper

- Mr. Jasper introduced Mr. Mumford-TransAction project manager from AECOM, who provided an overview of technical approach and schedule for the update to TransAction 2040. Mr. Mumford reviewed the vision and goals for TransAction 2040, indicating these are under review for the update.
- Chairman Boice noted, and Ms. Turner agreed, that although the goals do not explicitly state congestion reduction, the supporting measures clearly indicate congestion reduction is a priority.

- Mr. Mumford outlined the corridor-based approach to the technical evaluation, with the intent being to evaluate multiple strategies for addressing congestion in each corridor over the long term. Strategies that perform well under various scenarios for possible alternate futures will likely be selected when projects are evaluated and prioritized for future funding and deployment.
- In response to a question from Ms. Artemel regarding the definition of 'regional' in the context of projects, Mr. Mumford indicated that an early task will be to address this so that projects can be appropriately screened. Vice Chairman Fahl suggested that functional classification be considered in the definition of regional.
- Ms. Ichter noted, and Vice Chairman Fahl concurred, that potential new goal #10 (slide #10) is comprised of two connected yet different components that could be separated into two goals (*Sustains regional economy by providing cost effective transportation solutions.*) Ms. Backmon emphasized that congestion reduction relative to cost is a priority for the Authority.
- In response to a question from Mr. Dunphy regarding the corridor-based approach, Mr. Mumford confirmed that the proposed technical approach will seek to optimize each corridor over the long term.
- Ms. Backmon noted that in addition to corridor optimization, the Authority will have to take account of factors such as geographic balance to ensure that regional revenues are invested in a way that meets the long term benefits requirement of the law.
- Mr. Mumford provided an overview of the proposed approach to public involvement. Ms. Artemel asked how 'stakeholder' is defined for the purposes of the update. Mr. Mumford explained that the term stakeholder includes a broad spectrum of groups and individuals, but with a particular emphasis on reaching out to citizens especially those who do not typically participate in traditional public hearings. Social media will be an important tool to support public engagement that was not widely available when TransAction 2040 was developed.
- Chairman Boice asked what the update would be called – this will be announced at the time of the virtual kick-off, scheduled for mid-November 2015.
- Mr. Jasper indicated that he would provide a list of deliverables to be reviewed at future TAC meetings.

V. NVTA FY2017 Program: Status Mr. Jasper

- Mr. Jasper provided an overview of the status, schedule, and project selection process for the Authority's upcoming FY2017 Program. Authority approval will be requested at its meeting on September 24th to issue the Call for Projects.
- He presented a summary of the initial NVTA staff recommendation for the FY2017 Program. The purpose of the presentation is to get initial feedback

from TAC members on the staff recommendation, specifically the proposed approach to calculating congestion reduction relative to cost.

- A similar presentation had been made to the Project Implementation Working Group (PIWG) earlier that day.
- It is anticipated that the Public Hearing will be held in June 2016, and the program will be adopted in July 2016.
- Mr. Dunphy requested a clarification on the meaning of 'PayGo' funds. In response to a question from Vice Chairman Fahl regarding bond finance, Mr. Jasper explained that the Authority has capacity to increase the available funds for appropriate projects.
- With respect to the NVTA staff recommendation for a congestion reduction relative to cost methodology, Mr. Jasper requested TAC member feedback. One specific topic to be considered is the cost basis that should be used (requested NVTA share versus full project cost). Ms. Ichter considered full project cost is preferable, as it demonstrates the overall impact of the project.
- Dr. Zhu suggested that consideration should be given to the inclusion of maintenance costs.
- Mr. Jasper confirmed that a list of candidate projects would be shared with the TAC as soon as possible after the proposed November 30th deadline for responding to the Call for Projects.

Adjournment

VI. Adjourn

- Meeting adjourned at 8:52pm.

FY2017 Program: Project Selection Process

Proposed Methodology:
Congestion Reduction Relative to Cost

Presentation to the Technical Advisory Committee

October 21, 2015

Northern Virginia Transportation Authority

The Authority for Transportation in Northern Virginia

Tentative Schedule

- Sept. 25 thru 5pm Nov. 30: Call for Projects
- Nov. 12: NVTA approves project selection process
- Dec. 10: NVTA approves candidate project list (for HB 599 and NVTA evaluations)
- April 2016: Project evaluations complete
- May 2016: NVTA approves draft project list (for public comment)
- June 2016: Public Hearing and Town Halls
- July 2016: NVTA adopts FY2017 Program, and related policy for approved projects (first drawdown by end of FY2019)

Recap of 9/16/2015 PIWG Meeting

- Continue to use TRANSIMS
  - Need to confirm evaluation years (2020/2040)
- Studies ineligible for FY2017 Program
- First drawdown of FY2017 Program funds must occur before FY2020
  - Need to develop policy
- Retain the seven HB 599 measures
  - Review possible changes for FY2018 and beyond as part of TransAction Update

Recap of 10/7/2015 PIWG Meeting

- Continued to review
  - Methodology for congestion reduction relative to cost
  - Project selection criteria weightings
    - Re-definition of project readiness criteria
- Next PIWG meeting 11/6/2015

FY2017 Program: Overview of Project Selection Process

- Preliminary Screening
  - Pass/fail
  - Screening for funding eligibility criteria (NEW)
- NVTA Quantitative Score
  - Incorporates HB 599 rating for ALL projects
- Ratio of Congestion Reduction Relative to Cost (CRRC)
  - Total project cost
  - FY2017 funding request ('NVTA Share')
- Qualitative Considerations

Definition: NVTA Quantitative Score

- A composite score for each project based on nine (proposed) project selection criteria.
- Each criterion and associated weighting reflects NVTA's priorities – congestion reduction being the most important with a (proposed) weight of 45%.
- The congestion reduction criterion is scored using the project's HB 599 project rating for 2040, as calculated by VDOT. All other criteria are scored using a high, medium, or low scale.
- The NVTA Quantitative Score ranges from 0 to 100; the higher the number, the better the project

Definition: Congestion Reduction Relative to Cost (CRRC) Ratio

- The CRRC ratio for each project reflects its impact on congestion relative to its total cost.
- NVTA is legally required to give priority to projects based on this ratio.
- The CRRC ratio is calculated by dividing
  - Net present value of the total travel time saved as a result of the project (from opening year thru 2040) by
  - Net present value of the cost of designing and building the project.
- The CRRC ratio for each project will be greater than zero; the higher the number, the better the project

Congestion Reduction Relative to Cost: recap

- PIWG initiated a review of an updated approach that:
  - Complements the NVTA quantitative score
  - Enhances decision making
- Two approaches under consideration:
  - Travel time savings versus cost
  - CRRC ratio

Proposed Congestion Reduction Relative to Cost Methodologies

- Common inputs
  - 2020 and 2040 person hours of delay reductions for each candidate project (HB 599 output from TRANSIMS)
  - Annual conversion factor for travel time savings
  - Project costs (total project cost and requested 'NVTA share' from FY2017 Program)
- CRRC ratio additional inputs
  - Hourly value of time (averaged for the NoVA region)
  - Discount rate to be applied to costs and monetized annual travel time savings

Proposed Congestion Reduction Relative to Cost Methodologies

- Outputs
  - Total travel time savings (thru 2040) per unit of cost, i.e. hours saved per dollar
  - Value of total travel time savings (thru 2040) per unit of cost, i.e. CRRC ratio without units
- The higher the number, the better the project

Proposed Congestion Reduction Relative to Cost Methodology

- Common features
  - Evaluation period will be thru 2040, not just a single year
  - Travel time savings cannot be accrued prior to the anticipated year of opening or after 2040
  - Travel time savings will be extrapolated using the 2020 and 2040 outputs from TRANSIMS for a single HB 599 measure 'person hours of delay'
  - Preference for using total project cost, not 'NVTA share' of project cost
- CRRC ratio additional features
  - Value of travel time (VTT) savings and costs will be allocated to the year in which they occur and will be 'discounted' prior to summation
  - CRRC ratios <1.0 indicate value of congestion reduction less than project cost

Proposed Approach - Example #1

	Year	Person Hours of Delay			Daily		Annual	Annual	Annual		Project costs	Project costs
		Before	After	Diff.	Adjusted		Adjusted	VTT Savings	VTT Savings		NVTA Only	NVTA Only
					Hours		Hours		Discounted			Discounted
							260	$15.00	4.40%			4.40%
0	2016				0		0	$0	$0			$0
1	2017	211,805	207,174	4,631	0		0	$0	$0		$1,750,000	$1,676,245
2	2018	213,248	208,664	4,585	4,585		1,191,970	$17,879,550	$16,404,220			$0
3	2019	214,692	210,153	4,538	4,538		1,179,945	$17,699,175	$15,554,338			$0
4	2020	216,135	211,643	4,492	4,492		1,167,920	$17,518,800	$14,746,955			$0
5	2021	217,578	213,133	4,446	4,446		1,155,895	$17,338,425	$13,979,999			$0
6	2022	219,022	214,622	4,400	4,400		1,143,870	$17,158,050	$13,251,497			$0
7	2023	220,465	216,112	4,353	4,353		1,131,845	$16,977,675	$12,559,569			$0
8	2024	221,908	217,601	4,307	4,307		1,119,820	$16,797,300	$11,902,426			$0
9	2025	223,352	219,091	4,261	4,261		1,107,795	$16,616,925	$11,278,366			$0
10	2026	224,795	220,581	4,215	4,215		1,095,770	$16,436,550	$10,685,766			$0
11	2027	226,238	222,070	4,168	4,168		1,083,745	$16,256,175	$10,123,085			$0
12	2028	227,682	223,560	4,122	4,122		1,071,720	$16,075,800	$9,588,852			$0
13	2029	229,125	225,049	4,076	4,076		1,059,695	$15,895,425	$9,081,669			$0
14	2030	230,569	226,539	4,030	4,030		1,047,670	$15,715,050	$8,600,205			$0
15	2031	232,012	228,029	3,983	3,983		1,035,645	$15,534,675	$8,143,192			$0
16	2032	233,455	229,518	3,937	3,937		1,023,620	$15,354,300	$7,709,426			$0
17	2033	234,899	231,008	3,891	3,891		1,011,595	$15,173,925	$7,297,758			$0
18	2034	236,342	232,497	3,845	3,845		999,570	$14,993,550	$6,907,096			$0
19	2035	237,785	233,987	3,798	3,798		987,545	$14,813,175	$6,536,401			$0
20	2036	239,229	235,477	3,752	3,752		975,520	$14,632,800	$6,184,683			$0
21	2037	240,672	236,966	3,706	3,706		963,495	$14,452,425	$5,851,002			$0
22	2038	242,115	238,456	3,660	3,660		951,470	$14,272,050	$5,534,462			$0
23	2039	243,559	239,945	3,613	3,613		939,445	$14,091,675	$5,234,210			$0
24	2040	245,002	241,435	3,567	3,567		927,420	$13,911,300	$4,949,436			$0
	Total thru horizon year				**93,742**		**24,372,985**	**$365,594,775**	**$222,104,613**		**$1,750,000**	**$1,676,245**
	Total project cost including non-NVTA Sources										$1,750,000	
	Congestion Relief relative to Cost (NVTA share only)											**132.50**

Proposed Approach - Example #2

	Year	Person Hours of Delay			Daily		Annual	Annual	Annual		Project costs	Project costs
		Before	After	Diff.	Adjusted		Adjusted	VTT Savings	VTT Savings		NVTA Only	NVTA Only
					Hours		Hours		Discounted			Discounted
							260	$15.00	4.40%			4.40%
0	2016				0		0	$0	$0			$0
1	2017				0		0	$0	$0		$1,000,000	$957,854
2	2018				0		0	$0	$0		$2,000,000	$1,834,970
3	2019	279,897	210,601	69,296	0		0	$0	$0		$10,000,000	$8,788,171
4	2020	289,338	216,109	73,229	0		0	$0	$0		$155,000,000	$130,475,720
5	2021	298,780	221,617	77,162	0		0	$0	$0		$125,000,000	$100,787,697
6	2022	308,221	227,126	81,095	0		0	$0	$0		$35,000,000	$27,031,183
7	2023	317,663	232,634	85,028	85,028		22107397	$331,610,955	$245,315,720			$0
8	2024	327,104	238,142	88,962	88,962		23130016	$346,950,240	$245,846,032			$0
9	2025	336,546	243,651	92,895	92,895		24152635	$362,289,525	$245,895,901			$0
10	2026	345,987	249,159	96,828	96,828		25175254	$377,628,810	$245,504,882			$0
11	2027	355,429	254,667	100,761	100,761		26197873	$392,968,095	$244,710,050			$0
12	2028	364,870	260,176	104,694	104,694		27220492	$408,307,380	$243,546,137			$0
13	2029	374,312	265,684	108,627	108,627		28243111	$423,646,665	$242,045,665			$0
14	2030	383,753	271,193	112,561	112,561		29,265,730	$438,985,950	$240,239,071			$0
15	2031	393,195	276,701	116,494	116,494		30,288,349	$454,325,235	$238,154,822			$0
16	2032	402,636	282,209	120,427	120,427		31,310,968	$469,664,520	$235,819,533			$0
17	2033	412,078	287,718	124,360	124,360		32,333,587	$485,003,805	$233,258,065			$0
18	2034	421,519	293,226	128,293	128,293		33,356,206	$500,343,090	$230,493,631			$0
19	2035	430,961	298,734	132,226	132,226		34,378,825	$515,682,375	$227,547,890			$0
20	2036	440,402	304,243	136,159	136,159		35,401,444	$531,021,660	$224,441,035			$0
21	2037	449,844	309,751	140,093	140,093		36,424,063	$546,360,945	$221,191,878			$0
22	2038	459,285	315,259	144,026	144,026		37,446,682	$561,700,230	$217,817,932			$0
23	2039	468,727	320,768	147,959	147,959		38,469,301	$577,039,515	$214,335,488			$0
24	2040	478,168	326,276	151,892	151,892		39,491,920	$592,378,800	$210,759,684			$0
	Total thru horizon year				**2,132,284**		**554,393,853**	**$8,315,907,795**	**$4,206,923,418**		**$328,000,000**	**$269,875,596**
	Total project cost including non-NVTA Sources										$500,000,000	
	Congestion Relief relative to Cost (NVTA share only)											**15.59**

Proposed Congestion Reduction Relative to Cost Methodology

- Considerations for both methodologies
  - Why cap analysis at 2040?
  - Will the impacts of a bus acquisition project continue beyond the life of the NVTA-funded buses?
- Considerations for CRRC ratio methodology
  - Difficult to understand and explain to others (discounting, net present value concepts)
  - Standard approach for evaluating financial investments
  - De-emphasize monetization
  - Appropriate value of time for NoVA?
  - Appropriate discount rate?