



Northern Virginia Transportation Authority

The Authority for Transportation in Northern Virginia

TECHNICAL ADVISORY COMMITTEE

Wednesday, October 15, 2014, 7:00pm

NVTA Offices

3040 Williams Drive, Suite 200 [NEW LOCATION]

Fairfax, Virginia 22031

AGENDA

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

II. Meeting Summary of September 17, 2014, Meeting
*Recommended action: Approval [with abstentions
from those who were not present].*

Discussion/Information

III. NVTA Update **Ms. Backmon**
1. Feedback from Project Implementation Working Group
2. Authority Work Session
3. Other

IV. Discussion of TransAction 2040 update RFP **Mr. Jasper**

V. Other Business

VI. Next Meeting

Adjournment

VII. Adjourn



Northern Virginia Transportation Authority

The Authority for Transportation in Northern Virginia

II

TECHNICAL ADVISORY COMMITTEE

Wednesday, September 17, 2014, 7:00pm

NVTA Office

3060 Williams Drive, Suite 510

Fairfax, Virginia 22031

SUMMARY NOTES

I. Call to Order/Welcome

Chairman Boice

- Chairman Boice called the meeting to order at 7:04pm.
- Attendees:
 - Members: Chair Boice; Meredith Judy; Pat Turner; Agnes Artemel, Shanjiang Zhu, Bob Dunphy; Armand Ciccarelli.
 - NVTA Staff: Monica Backmon (Executive Director); Denise Harris (Program Coordinator); Keith Jasper (Program Coordinator).
 - Other Staff: Noelle Dominguez (Chair, JACC); Tom Biesiadny (Fairfax County); Rick Canizales (Prince William County); Penny Newquist (Loudoun County).
 - Other: David Dickson (Sierra Club).

II. Meeting Summary of July 16, 2014, Meeting

- Ms. Turner moved to approve the minutes of June 18, 2014; seconded by Ms. Meredith. Motion carried unanimously.

Discussion/Information

III. NVTA Update

Ms. Backmon

- Ms. Backmon thanked the members of the Committee for their inputs on the topics of Long Term Benefits and the Authority's Two Year Program, and looked forward to their continued inputs regarding the scope of work for the update to the TransAction 2040 Plan. Ms. Backmon mentioned that the Authority is holding a Listening Session in connection with the update at 5:00 pm on October 9, 2014, immediately prior to the Authority's regular meeting. Due to NVTA's upcoming move, both meetings will be held at City Hall in Fairfax. TAC members are welcome to attend.

IV. Discussion of Long Term Benefits

Mr. Biesiadny

- Mr. Biesiadny described the efforts of the Long Term Benefits Subcommittee since mid-April 2014, and presented the Subcommittee's draft paper on the topic. He noted that draft is still under development, and invited feedback.
- The discussion was broad-ranging, with a particular focus on the following:
 - Interaction between project selection and long term benefits; achieving geographic balance
 - Frequency of estimating benefits, and the timing of the first estimation
 - Methodology for estimation (cumulative versus snapshot)
 - Allocation of benefits beyond project location
 - Approach should encourage regional projects
 - Allocation of benefits for projects with shared funding
 - 'Big Data' offers the prospect for new forms of data collection and analysis in the future
- Chair Boice requested that members of the Committee provide any comments to him by September 24. Chair Boice agreed to consolidate the comments and forward to NVTa.

V. Discussion of NVTa Two Year Program

Mr. Jasper

- Mr. Jasper described the process and schedule for developing the Authority's FY2015-16 Two Year Program.
- Chair Boice requested that members of the Committee provide any comments to him by September 24. Chair Boice agreed to consolidate the comments and forward to NVTa.

VI. Other Business

- None

VII. Next Meeting

- 7:00 pm on October 15, 2014 at NVTa's new offices (3040 Williams Drive, Suite 200.)

Adjournment

VIII. Adjourn

- Meeting adjourned at 8:57pm.

NORTHERN VIRGINIA TRANSPORTATION AUTHORITY

Project Implementation Working Group

Recommended Project Selection Criteria for the FY2015-16 Two Year Program

I. Background

In December 2013, NVTa issued a call for projects for the first 2.5 years of its Six Year Program, now referred to as the FY2015-16 Two Year Program.¹ The FY2015-16 Two Year Program will contain the regional projects that will be funded by NVTa's regional (70%) funds. The FY2015-16 Two Year Program does not include projects funded by member jurisdictions using NVTa's local (30%) funds.

A total of 52 regional projects were nominated for funding consideration:

- 33 highway projects
- 19 mass transit projects
- Includes 6 (out of 15) 'Carryover' projects from FY2014
- Four counties, three cities, four towns, and three transit agencies responded.

II. Need for Project Selection Criteria

NVTa estimates that approximately \$373,000,000 will be available from regional revenues thru FY2016 to fund regional projects, assuming PayGo funding only. Funding requests thru FY2016 associated with the 52 highway and mass transit projects:

- | | |
|-------------------------|----------------------|
| • Highway projects | \$423,452,810 |
| • Mass Transit projects | <u>\$346,166,000</u> |
| • Total | \$769,618,810 |

III. Overall approach to project selection

Similar to the methodology used for selecting regional projects that were funded with FY2014 funds, the overall approach for project selection will use three types of screening.

- Preliminary Screening: this is a pass/fail filter. Each project must pass all applicable criteria to be considered for funding.

¹ Covers FY2015/16 funding – FY2014 was included in the match reserve for the Line of Credit

- Detailed Screening: projects that pass Preliminary Screening are then evaluated in more detail using a combination of quantitative and qualitative criteria in parallel:
 - Quantitative Score: a composite score is calculated for each project, using weighted selection criteria. Selection criteria are based on a combination of criteria from the TransAction 2040 long range transportation plan; the FY2014 project selection methodology, and the rating study.
 - Qualitative Considerations: projects are assessed using qualitative factors and considerations that do not lend themselves to be scored quantitatively.

The recommended project selection criteria for each of the three types of screening are listed below.

Preliminary Screening: Pass/Fail Assessment

Screening Criteria
All projects
Contained in NVT's regional transportation plan (TransAction 2040), or included in the Transportation Planning Board's 2010 Constrained Long Range Plan
Reduces congestion
Within locality embraced by the Authority or in adjacent localities but only to the extent that such extension is an insubstantial part of the project and is essential to the viability of the project within the localities embraced by the Authority.
Highway projects only
Rated in the HB599 Project Evaluation and Rating Study.
Mass Transit projects only
Mass Transit project that increases capacity.

Detailed Screening: Quantitative Scores

TransAction 2040 Goal: Provide responsive transportation service to customers			
Topic	Selection Criteria	Rating Scale (unless indicated otherwise, High = 1, Medium = 2/3, Low = 1/3)	Weighting (75 points)
Reduce Roadway Congestion (Highway projects)	Project reduces roadway congestion	HB599 detailed rating will be on a continuous scale of 0 (least congestion relief) to 100 (greatest congestion relief) Rating: HB599 detailed rating ÷ 100	35
Reduce Roadway Congestion (Transit projects)	Project reduces roadway congestion	High: Project will significantly improve traffic flow. Medium: Project will moderately improve traffic flow. Low: Project will have minimal to no effect on traffic flow.	
Project Readiness	Project is in advanced phase of development	High: Project is in the ROW or construction phase. Medium: Project is in the design phase. Low: Project is in the study or planning phase.	
Urgency	Project is able to be readily implemented ²	High: Project can be implemented in the near term (<6 years). Medium: Project can be implemented in the short term (6-12 years). Low: Project can be implemented in the long term (>12 years).	10
	Project addresses existing significant level of service (LOS) deficiencies for all modes of transportation	High: Project addresses existing LOS F condition. Medium: Project addresses existing LOS E condition. Low: Project addresses existing LOS A, B, C, or D condition.	5
Reduce VMT	Project reduces vehicle-miles traveled	High: Project directly reduces VMT (i.e., transit project, park-and-ride lot, new HOV lane(s), new pedestrian and bicycle trail). Medium: Project indirectly or through expansion reduces VMT (i.e., expansion of HOV, transit improvement, or expansion). Low: Project does not reduce VMT.	5
Safety	Project improves the safety of the transportation system	High: Project designed to specifically improve system safety and/or address an existing safety deficiency. Medium: Project will generally result in a safety improvement. Low: Project will have no discernible positive effect on safety.	5

² Definition of 'implemented' refers to the point in time when the intended transportation functionality of a project is fully available to users, e.g. completion of the construction phase, operation of a new transit service.

TransAction 2040 Goal: Maximize community connectivity by addressing transportation and land use together			
Topic	Selection Criteria	Rating Scale (High = 1, Medium = 2/3, Low = 1/3)	Weighting (10 points)
Activity Center Connections	Project improves connections between multiple Activity Centers	High: Project improves connectivity between three or more activity centers. Medium: Project improves connectivity between two activity centers. Low: Project improves connectivity to one activity center only.	5
Regional Connectivity and modal integration	Project connects jurisdictions and modes	High: Project connects jurisdictions and modes. Medium: Project connects jurisdictions. Low: Project does not connect jurisdictions or modes.	5

TransAction 2040 Goal: Provide an integrated, multimodal transportation system			
Topic	Selection Criteria	Rating Scale (High = 1, Medium = 2/3, Low = 1/3)	Weighting (5 points)
Improved Bicycle and Pedestrian Travel Options	Project supports multiple use development patterns in a walkable/bikeable environment	High: Project adds or extends non-motorized facility to and within activity center. Medium: Project improves existing non-motorized facility to and within activity center. Low: Project does not improve or provide a non-motorized facility to and within activity center.	5

TransAction 2040 Goal: Incorporate the benefits of technology			
Topic	Selection Criteria	Rating Scale (High = 1, Medium = 2/3, Low = 1/3)	Weighting (5 points)
Management and Operations	Project improves the management and operation of existing facilities through technology applications	High: Project improves technological management and operations of an existing transportation facility. Medium: Project improves technological management and operations of an expansion of an existing transportation facility. Low: No improvement to management and operations of a facility.	5

TransAction 2040 Goal: Identify funding and legislative initiatives needed to implement the Plan			
Topic	Selection Criteria	Rating Scale (High = 1, Medium = 2/3, Low = 1/3)	Weighting (5 points)
Cost Sharing	Project leverages private or other outside funding	High: Project leverages private or other outside funding. Medium: Project leverages modest private or other outside funding. Low: Project has no leveraged private or other outside funding.	5

Detailed Screening: Qualitative Considerations

Screening Criteria
Priority given to greatest congestion reduction relative to cost: the Authority is required to give priority to such projects. Benefit/cost analysis included in the TransAction 2040 long range transportation plan will be reviewed.
Continuity of project funding: In general, NVTa funding approval for most project phase(s) infers a commitment to fund the remainder of that phase (or phases), provided that the likely total commitment is reasonably known at the time of original funding approval. Funding decisions will continue to be based on the prevailing project selection criteria, subject to funding availability at the time of request. However, funding continuity decisions will be considered on a case-by-case basis. One exception to this is that NVTa funding approval for studies does not infer a commitment to fund any subsequent project phase, including additional studies. Continuity of funding commitments requires compliance with all terms and conditions associated with approved SPAs, and any requirements imposed by NVTa. Approved FY2014 projects that are now requesting FY2015-16 funds that meet the above requirements will have first call on available FY2015-16 funds.
Cost sharing: while cost sharing is included as a criterion for quantitative scoring, it is also included as a qualitative consideration to take account of any conditions associated with other funds, e.g. federal, state, local, and NVTa local (30%) funds.
Geographic balance: a policy consideration for the Authority when finalizing the FY2015-16 Two Year Program.
Modal balance: a policy consideration for the Authority when finalizing the FY2015-16 Two Year Program.
Additional supporting information

Measuring Long-Term Benefit
DRAFT: October 13, 2014

Executive Summary

To be prepared upon subcommittee consensus on the basic document.

Background

In approving HB 2313, the General Assembly authorized three new transportation revenue sources for Northern Virginia. They are: A 0.7 percent increase in the sales tax; a two percent increase in the transient occupancy (hotel) tax; and a ten cent increase in the grantor's tax (congestion relief fee). These taxes were effective on July 1, 2013, and apply in the nine cities and counties who are members of the Northern Virginia Transportation Authority.

Of these revenues, 30 percent are returned to the ~~localities~~ locality jurisdiction (assuming each individual locality jurisdiction has met specific conditions), based on the revenues generated in or attributable to each locality. This revenue can be used for "additional urban or secondary road construction; for other capital improvements that reduce congestion; for other transportation capital improvements which have been approved by the most recent long range transportation plan adopted by the Authority; or for public transportation purposes".

The remaining 70 percent is to be used by the Authority "solely for transportation projects and purposes that benefit the counties and cities embraced by the Authority to fund (i) transportation projects selected by the Authority that are contained in the regional transportation plan or (ii) mass transit capital projects that increase capacity". HB 2313 also directs that the Authority "shall give priority to selecting projects that are expected to provide the greatest congestion reduction relative to the cost of the project and shall document this information for each project selected".

In addition, HB 2313 ~~also~~ specifies that when allocating the 70 percent regional revenues, the Authority needs to ensure that each locality jurisdiction's long-term benefit will be approximately equal to the revenues raised by the three taxes and fees in the respective locality jurisdiction [1]. The General Assembly did not define "long-term," "benefit" or "approximately equal." As a result, the Authority must determine how to apply these terms and how to ~~determine~~ measure benefit and attribute it to member ~~localities~~ locality jurisdictions. In addition, the Authority will need to track the revenues collected in each locality jurisdiction over time.

To implement HB 2313, the Authority re-established five working groups that were originally created in 2007 to implement HB 3202, and gave each working group a charge. The Authority's charge to the Financial Working Group included providing recommendations to that Authority, in conjunction with the Council of Counsels, on how to ~~determine~~ measure long-term benefit. The Financial Working Group

[1] Actual language from Code of Virginia: "With regard to the revenues distributed under subdivision 1, each locality's total long-term benefit shall be approximately equal to the proportion of the total of the fees and taxes received by the Authority that are generated by or attributable to the locality divided by the total of such fees and taxes received by the Authority."

established a Long-Term Benefit Subcommittee that has been meeting since April 2014 to address this portion of the Financial Working Group's charge. The Council of Counsels participated in the subcommittee meetings and provided legal advice as necessary, including review of this document. The subcommittee reviewed the "long-term benefit" language included in HB 2313, and the policy that was developed in 2007 to allocate revenues from HB 3202. As a tax statute, the constitutionality of HB 2313 depends on the ability of the Authority to ensure that the tax revenues benefit the entire region, rather than a specific area or ~~localityjurisdiction~~. The statute also requires the Authority to ensure that the proportionality requirement contained in the legislation is satisfied. The Council noted that Judge Dennis Smith approved the way the Authority allocated its FY 2014 revenues in his ruling in the Authority's bond validation case. This concept of geographic balance is important to the constitutionality of the statute. As noted below, the ~~determinmeasuring~~ benefit is not strictly a financial calculation, such as dollars spent in each ~~localityjurisdiction~~, because "benefit" can be ~~determinmeasured~~ in different ways. Some of these ways are not easily monetized.

As the subcommittee began its discussions, **there was a general consensus that the Authority should try to keep the ~~determination measurement~~ of benefit as simple and transparent as possible, while meeting the legislative intent as efficiently as possible.** There was concern that an elaborate method of measuring benefit could be costly, and such an approach would reduce the amount of funding that the Authority has to spend on projects. In addition, it was also recognized that the Authority has a very small staff and whatever form of ~~determinationmeasurement~~ is developed cannot be overly labor intensive, because the staff resources are not available to continue to maintain a complicated analysis. The subcommittee also recognized that there are existing tools available, and in the future better regional tools may be developed to assist the Authority with this analysis. It is anticipated that the state of the practice for modeling tools will change over time.

The subcommittee also noted that the Project Implementation Working Group and the Jurisdiction and Agency Coordinating Committee are focused on project selection, based on criteria established by the Authority. Also, the ~~determination measurement~~ of benefit should not be a criterion used in allocating funding to projects, although "geographic balance" ~~ismay-be~~ a selection ~~criteria~~criterion. The qualitative criterion of geographic balance plays an important role in project selection on an annual basis, along with numerous other criteria. The subcommittee generally believed that if this criterion is applied at project selection, it increases the likelihood that long-term benefit will be achieved when it is determined in the future. This same concept also applies to achieving multimodal balance in the project selection process. (Is this explanation of geographic and multimodal balance adequate? Is this the appropriate location for this discussion or should "geographic balance" have a separate section in the document?) The subcommittee also felt that it was important to clarify the definition of "regional projects."

The following summarizes the subcommittee's discussions and recommendations to address each of the major terms outlined in HB 2313.

Regional Projects

There was some discussion about the kinds of projects that should be considered “regional.” The subcommittee discussed and recommends that the language used in HB 2313 should be used as the guide for determining whether a project is “regional” or not. HB 2313 allows the Authority to use its portion of the regional funding for “transportation projects and purposes that benefit the counties and cities embraced by the Authority to fund (i) transportation projects selected by the Authority that are contained in the regional transportation plan or (ii) mass transit capital projects that increase capacity.” In keeping with this statutory direction, the **subcommittee recommends that any project included in the regional transportation plan (currently TransAction2040) can be considered “regional,” because the plan needs to be considered as a whole and is modeled as a whole, rather than as isolated projects.** Each of the projects included in TransAction 2040 contribute to improving mobility in the region.

Approximately Equal

The subcommittee believes that the General Assembly’s inclusion of the word “approximately” is intended to provide flexibility to the Authority in terms of how benefit is ~~determin~~measured. The General Assembly did not use the word “exactly” which is a reflection of the fact that any ~~determination measurement or attribution~~ of benefit will not be an exact mathematical calculation. The word “approximately” is more appropriate, because revenues will fluctuate with the economy and travel patterns will change. This makes a strict calculation of benefit impractical.

Long-Term

Since HB 2313 did not define, “long-term,” the Authority has discretion in determining the duration to be ~~determin~~measured. The dictionary defines “long-term” as “lasting for, relating to, or involving a long period of time.” The Long-Term Benefit Subcommittee of the Financial Working Group considered several durations for “long-term.” They included:

- five years,
- the length of a Six Year Program;
- ten years;
- 20 years; and
- the horizon of the long range transportation plan (currently TransAction 2040).

Initially, the subcommittee believed that the length of the Six Year Program would constitute a minimum and probably be sufficient. There was concern about keeping records for an extended period of time. For example, the Washington Metropolitan Area Transit Authority had difficulty reconciling the cost of the 103-mile Metrorail system. In that case, construction spanned 40 years. When the construction was complete, some of the records needed to conduct the reconciliation were no longer available. There was also concern that while TransAction 2040 has about a 30-year horizon, the plan is

financially unconstrained, and, therefore, it isn't clear that the entire plan will be funded. In addition, priorities and approaches could change over that period of time. There was general consensus that five years was too short. The Authority's Technical Advisory Committee also discussed the definition of "long-term" and recommended to the Authority that this time frame should be no less than six years. There was also consensus that ~~measuring~~determining benefit annually was impractical, since most projects will take multiple years to implement and large project could take as many as ten years to complete. In addition, typically existing models focus on specific analysis years.

After an additional discussion, the subcommittee was leaning toward recommending that "long-term" be defined as the length of the Six Year Program. However, based on additional conversations after the discussion of the definition of "benefit," the subcommittee concluded that "long-term" in this context does not have an end point.

~~As a result,~~The subcommittee recommends that the Authority maintain an on-going determination of benefit with no specific end point. In addition, the subcommittee recommends that this ~~determination measurement~~ be reviewed retrospectively every ten years to ensure that benefits are relatively in balance with tax collections. After these reviews, if it is determined that the benefit is not as proportional as, required by law, adjustments can be made in the next project selection process to address any under representation of benefit. Also the subcommittee recommends that only completed projects be included in this periodic ~~determination measurement~~. The frequency of the reviews should be assessed in the future.

Several members of the Technical Advisory Committee questioned whether ten years was too long and whether taxpayers and elected officials would want to see benefits before then. The subcommittee discussed these concerns and concluded that as a result of the annual project selection process, taxpayers and elected officials would know which projects are moving forward. In addition, public events like ground breaking, ribbon cuttings and actual construction are also ways to inform taxpayers and elected officials that the Authority's funds are being used to benefit various parts of the region during the time between the formal assessments that are proposed for every ten years.

A member of the Technical Advisory Committee was also concerned that a project completed in year one might lose its benefit by year ten. The subcommittee did not believe that this would be the case. Most transportation projects have a useful life of at least 20 years. In addition, transit buses typically have a useful life of at least 12 years.

Two members of the Technical Advisory Committee also suggested the concept of a rolling analysis of beginning after six years and then undertaken annually. The subcommittee believes that this approach would be very labor intensive and not necessarily an effective use of the Authority's resources.

The use of the benefit determination in subsequent project selection efforts was supported by a member of the Technical Advisory Committee.

Benefit

Since “benefit” is not defined in the statute, the subcommittee looked at numerous ways to ~~determine~~~~measure~~ benefit. The subcommittee reviewed the factors included in the Authority’s authorizing legislation, the factors used in TransAction 2040, and the factors included in HB 599 (2012). Although some subcommittee members advocated the use of a simple calculation of dollars spent in each ~~locality~~~~jurisdiction~~, the consensus of the subcommittee recognized that “benefit” should not be a strictly financial calculation, such as dollars spent in a ~~locality~~~~jurisdiction~~ or the conversion of benefit measures like travel time savings into monetary terms. The subcommittee believes that such a financial calculation would be inconsistent with both HB 2313 and the Fairfax County Circuit Court’s ruling on the Authority’s bond validation suit. The subcommittee further noted that by returning 30 percent of the revenues to the ~~localitie~~~~jurisdictions~~, based on collection, each ~~locality~~~~jurisdiction~~ that qualifies has the ability to determine how those funds are spent. While each ~~locality~~~~jurisdiction~~ has a vote on how the Authority spends the 70 percent funding it retains, the decisions about how these funds are spent rests with the Authority as a whole.

In trying to determine ~~how-to-measure~~ the benefits of projects, the subcommittee considered a variety of existing ~~ways~~~~measurements~~ that the Authority or others are already employing. The rationale for this approach was to try to use work that is already being conducted to minimize the cost of ~~determin~~~~measur~~ing benefit and allow for more funding to be allocated to projects and limited staff time to be employed to other more important activities. While the subcommittee considered multiple benefit measures, and the possibility of measuring benefit differently depending on the type of project, in the end the subcommittee opted for a more simplified methodology in which the benefits of all non-transit projects are ~~determin~~~~measured~~ in the same way.

Regional Transit Agencies

Some of the Authority’s funding will be allocated to projects associated with the Washington Metropolitan Area Transit Authority (WMATA) and the Virginia Railway Express (VRE). This category only affects projects being undertaken by these two agencies. Other transit projects that have benefits across localities are discussed in the “Multi-Locality Benefits” section below. The allocation of funds to these agencies presents some challenges based on the restrictions included in HB 2313. It was noted that both agencies have existing formulas for allocating local subsidies. The Metrorail formula takes into account population, population density, ridership and stations. The Metrobus formula includes population, population density, ridership, miles of service and hours of service. (The current Authority members who are also members of WMATA are: Alexandria, Arlington, Fairfax City, Fairfax County and Falls Church. In the future, it is anticipated that Loudoun County will also be a member). The VRE formula is based on ridership for the Participating Jurisdictions (Fairfax, Manassas, Manassas Park and Prince William). (Arlington and Alexandria are Contributing Jurisdictions whose subsidy is calculated differently)~~increase by inflation each year~~. While there was some sentiment that the benefits of projects implemented by these agencies should be ~~determined~~~~measured~~ similar to roadway projects,

there was also concern that ~~determining~~ measuring benefit differently than the funding formulas could lead to confusion and potentially inequity and/or conflict. In addition, the funding formulas for allocating local subsidies for these two regional providers have been designed with benefit in mind, rather than each jurisdiction paying for the projects constructed in that ~~localityjurisdiction~~. Accordingly, the subcommittee recommends that the benefit of projects implemented by these two regional agencies be generally measured as follows:

- for system-wide projects, the benefits of the investments should be attributed to each of the nine ~~localitiesjurisdictions~~ based on the appropriate established cost-sharing formula (Metrorail, Metrobus, or VRE) for those ~~localitiesjurisdictions~~ that are included in the formula and are members of the Authority only. This category would include the Alexandria and Crystal City stations for the VRE, since they are generally considered destination or system-wide stations. Improvements to these two stations are not the singular responsibility of Alexandria and Arlington, respectively. ~~(Should improvements to the National Airport Metrorail Station also be considered the same way?)~~ For Metrorail, the committee concluded that there are six stations which should be considered “core” station in Virginia. They are: Arlington Cemetery, Crystal City, Pentagon, Pentagon City, Ronald Reagan Washington National Airport, and Rosslyn. The benefits of improvements at these stations should be determined on a system-wide basis, rather than attributing all of the benefits to Arlington County. In the future, the Washington Dulles International Airport Station would also be considered a system-wide station.
- for specific station or transit center improvements (i.e. platform extensions, additional parking, expanded bus bays, better access, additional vertical circulation, etc.) the benefits should generally be attributed to the ~~localityjurisdiction~~ in which the facility is located.

Regarding the Metro subsidy allocation, ~~the Federal Transit Administration now requires transit agencies to conduct a ridership survey for each mode every five years. Metro complies with this requirement. If this requirement or Metro’s practice changes, it may be necessary for the Authority to work with Metro to secure the availability of the most current ridership data. it was noted that Metro only conducts the ridership surveys used in the allocation model periodically. It may be necessary for the Authority to facilitate additional surveys, if the Metro’s surveys are not as current as they need to be.~~ In this event, the Authority could consider funding a survey for the Virginia portions of the Metro system. The survey would be conducted by Metro in the same way it conducts its other periodic surveys.

~~A member of the Technical Advisory Committee suggested using Person Miles Traveled rather than the approach outlined above; however, the subcommittee believed that doing so could lead to contradictory results and this alternative approach would require significant modeling resources.~~

Multi-~~localityjurisdictional~~ Transit Projects

Multi-~~localityJurisdictional~~ transit projects, such as the Crystal City-Potomac Yards Busway and the Columbia Pike Streetcar are becoming more common in Northern Virginia. The benefits of these types of projects will need to be ~~determinassessed and measur~~ed on a case by case basis. However, in

general, the subcommittee believes that the majority of the benefits of this type of project will be attributed to the localitiesjurisdictions in which the project is located.

Local Transit

For investments in local transit systems, the benefits will generally be attributed to the locality in which the transit system is located.

Roadway Projects

The existing measures considered included measures from TransAction 2040, the HB 599 study being conducted by VDOT and FY 2014 Project Selection Process. The subcommittee also discussed the new Commonwealth Transportation Board project selection process stipulated by HB2. However, since the details of this selection process are still being developedworked-out, it probably will be some time before using parts of the HB 2 process can be considered. In addition, HB 2 does not include any requirements for determinmeasuring the benefits of transportation investment by localityjurisdiction as HB 2313 does.

Factors from TransAction 2040, HB 599 and the FY 2014 Project Selection Process that the subcommittee considered for determinmeasuring benefit include:

- Congestion Relief
- Safety
- Connections between Activity Centers
- Multimodal Choices
- Air Quality
- Freight Movement
- Intelligent Transportation Systems

Most of the subcommittee's discussions were focused on the congestion relief criteria, because this is a primary factor in HB 2313. There was unanimity that "congestion relief" is an important benefit factormeasure. The subcommittee recognized There was also a recognition that the region has existing analysis tools (such as the regional travel demand model's selected link analysis) that can measure some congestion the impacts of constructing a specific project or a group of projects on congestion. These current tools can estimate the number of users of a highway facility or group of facilities by localityjurisdiction. If improvements are made to a group of facilities, then each of the jurisdictions who have users on these facilities will benefit. However, it is also true that the benefits are reduced as the distance from the localityjurisdiction increases. In general, the subcommittee believes that the combination on all the Authority funded projects completed at a certain point in time should be used in the travel demand model. Using a network of improvements is a more practical way to determine benefit, rather than determining the benefit of each project individually and then trying to combine the

benefits from a number of projects. This approach simplifies the analysis, but also provides more useful results. For example, if 15 Authority funded projects are completed by 2020, all of these projects would be added to the travel demand model, and the net congestion relief benefit of these projects would be determined measured, compared to congestion without these 15 projects. In this case, projects completed in the same time frame, but funded from other sources, would be included in the baseline, before the projects the Authority funded are added.

However, not all trips are correctly captured by existing models, especially in areas with heavy multimodal use. The subcommittee also noted that some analysis tools may be developed for the HB 2 analysis. It is anticipated that the state of the practice for modeling tools and any other analysis tools the Authority deems appropriate will change over time, and the most sophisticated regional modeling tools available will be used to assist the Authority with this analysis. This concept was also supported by a member of the Technical Advisory Committee who noted that new forms of data collection and analysis are being developed.

One locality also suggested using “person capacity” and “travel time” as factors to determining congestion benefits. The locality stated that measuring changes in person capacity directly measures the ability of transportation system to carry more people. The subcommittee disagreed, because simply measuring added capacity does not take into account the congestion on a facility in the first place. This approach could lead to added capacity to facilities that aren’t congested. In addition, the subcommittee noted that the regional travel demand model does use travel time as a factor in the model, in addition to others.

A member of the Technical Advisory Committee pointed out that many travelers will not see congestion relief over the existing condition as a result of the implementation of the Authority-funded projects. The Authority funded project will more likely ensure that congestion in the future will not be worse than it is today, despite continuing growth. The subcommittee acknowledges that this may be the case for some projects, and the point should be included; however, by modeling a group of Authority funded projects together, there likely will be improvement over the current condition on some parts of the network.

The Technical Advisory Committee member noted that individuals can often secure a congestion relief benefit by changing residences (i.e. locating closer to work), and as a result, public agencies should not be the only groups focused on congestion relief. In general, the subcommittee agreed that location of residence is a factor in achieving congestion relief, but this concept is outside the scope of determining the benefit of projects funded by the Authority.

The subcommittee recommends that the Authority use congestion relief as one of the ways to determinemeasure benefit. However, these benefits should be determinmeasured by using the cumulative impact of a system of improvements from implemented projects, rather than on a project by project basis. For example, if 15 Authority funded projects are completed by 2020, all of these projects would be added to the travel demand model and the net congestion relief benefit of these

~~projects would be measured, compared to congestion without these 15 projects. In this case, projects completed in the same time frame, but funded from other sources, would be included in the baseline, before the projects the Authority funded are added.~~

The subcommittee also did not believe that the following TransAction 2040 measures were practical for measuring benefit: Improved Bicycle and Pedestrian Travel Options, Urgency, Project Readiness, Reductions in Vehicle Miles Traveled, Person Throughput, Reduced Travel Time; Environmental Sensitivity, Land Use Supportive Investments, Management and Operations, and Cost Sharing. Measuring Economic Development was also discussed. Several of these items (such as Reductions in Vehicle Miles Traveled, Person Throughput, Reduced Travel Time) are addressed in measuring reduced congestion on roadways. Others are qualitative measures that result in benefits to the ~~localityjurisdiction~~ where the project is located. As a result, although strict “dollars spent in a ~~localityjurisdiction~~” is not an appropriate way to ~~determinemeasure~~ benefit in this case, it is clear that the ~~localityjurisdiction~~ where a project is located does receive benefits beyond “Congestion Relief” from the implementation of a new investment.

As a result, **the subcommittee recommends that “location of a project” be a factor used in ~~determinmeasuring~~ benefit.** Doing so is much easier than trying to measure the individual benefits of things like land use supportive investments, safety or economic development.

After discussing each of the other factors above, the subcommittee agreed that ~~while~~ Safety, Connections between Activity Centers, Multimodal Choices, and Freight Movement are important; they are more practically applied as selection criteria, rather than ~~determinationmeasurement~~ of benefit.

Air Quality is also an important consideration; however, it is ~~determinmeasured~~ regionally, and there is not an existing tool to segregate in the air quality benefits of a project by individual ~~localityjurisdiction~~.

HB 599 includes two criteria, Congestion Relief and Emergency Evacuation. Congestion Relief has previously been addressed, and the subcommittee believes that Emergency Evacuation is more a selection criteria, than a ~~determinationmeasurement~~ of benefit. It is also something that is more appropriate in a regional context than it is by individual ~~localityjurisdiction~~.

In reviewing the FY 2014 project selection criteria, the subcommittee did not find any additional criteria that should be considered for the ~~determinationmeasurement~~ of benefit. Most were either previously discussed or not appropriate (such as Project Readiness) for ~~determinmeasuring~~ benefit.

The subcommittee discussed whether “benefit” should be ~~determinmeasured~~ over the life of a project, the end point or at some other fixed point. The travel demand model typically focuses on specific analysis years, such as 2020, 2030 and 2040. Data is typically not available to conduct the analysis for each individual year. The model can be run with and without a project or group of projects to determine the specific impact on travel of a specific improvement(s). This supports the concept of

conducting a calculation of the Congestion Relief benefit at ten year intervals to determine whether the allocation of projects has been proportional or not.

Some of the outer ~~localities~~~~jurisdictions~~ were concerned that since they export commuters to the core of the region that the benefits that these ~~localities~~~~jurisdictions~~ are entitled to, could be “used up” by projects in the core of the region. It was noted that even in Fairfax County, almost 50 percent of the workers go to a job outside the County, so the concept of exporting workers is not unique to the outer ~~localities~~~~jurisdictions~~. In addition, work trips only comprise about 20 percent of the trips taken every day. The other 80 percent of time are for shopping, education, recreation, dining etc. These trips are often taken closer to a person’s home. Finally, ~~determin~~~~measur~~ing a system of project improvements, rather than individual projects, should also minimize this concern.

Some core jurisdictions were concerned that the Authority would allocate a large percentage of roadway funding to projects in the outer ~~localities~~~~jurisdictions~~, because the core ~~localities~~~~jurisdictions~~ are largely built out and do not anticipate major roadway expansions in the future. Ultimately, the subcommittee concluded that the Authority’s project selection process is robust enough to address these concerns.

A member of the Technical Advisory Committee disagreed with the proposed approach of using location of a project as a factor for determining benefit. This member felt that congestion relief benefits should be credited to a jurisdiction regardless of where they occur. The subcommittee agrees for congestion relief benefits should be determined based on jurisdiction of residence of the users regardless of where they occur; however, the subcommittee also believes that the physical location of a project also has benefit to the specific locality, as outlined above. No changes were made to the recommended approach.

In summary, the subcommittee recommends that the two methods for ~~determin~~~~measur~~ing the benefits of roadway projects be congestion relief, as modeled using the regional travel demand model (or state of the modeling practice in the future) for all of the projects selected, and the locations of the projects.

Primary and Secondary Benefits

In reviewing the criteria used in each of the various efforts (TransAction 2030, the HB 599 analysis and the FY 2014 project selection criteria), it was noted that some of the criteria are quantitative while others are qualitative. The subcommittee discussed whether to focus on primary benefits or also to include secondary benefits. Primary benefits include things like congestion relief. Secondary benefits may be things like economic development or job growth. For practical reasons and in the interest of keeping the determination as simple as possible, **the subcommittee recommends that the Authority generally ~~focus on~~ ~~measure~~ primary benefits.** Secondary benefits could be used as a qualitative way to compliment the results of ~~determin~~~~measur~~ing primary benefits, if desired. There may be many secondary benefits from a project or group of projects, but it will be difficult to determine where when

~~to these factors no longer apply~~~~stop measuring them~~. Those conclusions, coupled with the fact that ~~including measuring~~ secondary benefits would add significant complexity and time to the process, are reasons why the subcommittee is recommending that secondary benefits be excluded. Moreover, the subcommittee did not believe that the inclusion of secondary benefits would significantly change the overall outcome of the ~~determination measurement~~ process significantly.

Bike and Pedestrian Projects

The travel demand model can calculate the congestion relief benefits of bicycle and pedestrian investments on the adjacent roadway network. As a result, the ~~determination measurement~~ of benefit for bicycle and pedestrian projects does not need to be done differently than roadway projects.

Intelligent Transportation Systems (ITS)

The subcommittee recognized that ITS projects, such as real time traffic signal controls, are significantly different than physical roadway improvements. Several methods of measurement were discussed, including person through put, hours of person delay, response time to emergencies and safety. However, in the end, the benefits of these types of improvements can be ~~determin measured~~ in terms of congestion relief (person through put and hours of delay) and benefits to the locality in which the ITS improvement is located (emergency response times and safety).

Other Considerations

The subcommittee also discussed whether benefit should be ~~determin measured~~ prospectively or retrospectively. Initially, there was some support for ~~determin measuring~~ benefit prospectively when project funding is allocated by the Authority. However, there was concern that projects will be completed at different times and the ultimate benefit could be different than projected benefit. This would still require a retrospective look at some point. There was also concern that the project selection process proceed independently from the benefit ~~determination measurement~~ process at least initially. Although it was suggested that the Authority adopt a specific allocation of benefit at the time each project is selected, this concept was also rejected for similar reasons, including the fact that actual benefits may vary from the benefits identified at the time the project is approved.

It was also noted that the governing bodies of some ~~localities jurisdictions~~ might agree that there is significant benefit to roadway improvements made in an adjacent jurisdiction. For example, the Cities of Manassas and Manassas Park might agree that improvements to Route 28 south of I-66 in either Prince William or Fairfax County would generate a significant benefit for their localit~~iesy~~.

The subcommittee also discussed a scenario where ~~a-a locality jurisdiction~~ might oppose a project even though it has a benefit to ~~that-that locality jurisdiction~~. The subcommittee concluded that it is unlikely that the Authority will fund and implement a project in a ~~locality jurisdiction~~ that does not want the

project. However, it is possible that a localityjurisdiction may benefit from a project in an adjacent localityjurisdiction, even if the localityjurisdiction doesn't support the project.

Manassas Park Resolution

During the subcommittee's discussions, the Manassas Park Governing Body passed a resolution saying that the variance between a dollar collected and dollar spent calculation should be no more than five percent.

This concept was discussed by the subcommittee; however, it was not included in the final recommendation for two primary reasons:- 1) whether intended by the City or not, the nature of the resolution seems to indicate that each individual localityjurisdiction controls how the 70 percent funding collected in the localityjurisdiction is spent (or have significant input into whether benefit is assigned to a locality from a project outside the locality). The subcommittee believe t This concept is inconsistent with HB 2313. HB 2313 returns 30 percent of the funding to the local governments and allows each governing body to determine how these funds are to be spent, within the requirements of the law. However, the 70 percent is retained by the Authority and decisions regarding these funds are to be made regionally. The Authority is also charged with determining the benefit of the projects it funds. Each of the nine localities jurisdictions will have the opportunity to participate in the Authority's decision making process.

2) As stated earlier the calculation of benefit, as outlined in HB 2313 is not envisioned to be a simple mathematic calculation. As a result, it would be difficult, if not impossible, to abide by a five percent variance between dollars collected and dollars spent in a localityjurisdiction.

Other Concepts Discussed, but Not Included

A member of the Technical Advisory Committee expressed a concern that the benefit document does not include any discussion about expansion of the Authority's boundaries in the future and how an expansion could affect the determination of benefit. The subcommittee discussed this comment, but felt that if the Authority's boundaries are expanded in the future, there will be many different issues that would need to be addressed. Modifying the benefit determination approach would likely be one of these issues. The subcommittee believes that any boundary changes would take time to implement, and there would be sufficient time to address the need for changes to the benefit determination approach.

Conclusions

Pull out bolded text from through the report and summarize here.