



# **Northern Virginia Transportation Authority**

*The Authority for Transportation in Northern Virginia*

**TECHNICAL ADVISORY COMMITTEE**  
**Wednesday, September 17, 2014, 7:00pm**  
**NVTA Offices**  
**3060 Williams Drive, Suite 510**  
**Fairfax, Virginia 22031**

## **AGENDA**

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

**II. Meeting Summary of July 16, 2014, Meeting**  
*Recommended action: Approval [with abstentions  
from those who were not present].*

## **Discussion/Information**

**III. NVTA Update** **Ms. Backmon**

**IV. Discussion of Long Term Benefits** **Mr. Biesiadny**

**V. Discussion of NVTA Two Year Program** **Mr. Jasper**

**VI. Other Business**

**VII. Next Meeting**

## **Adjournment**

**VIII. Adjourn**



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## **TECHNICAL ADVISORY COMMITTEE**

**Wednesday, July 16, 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 7:07pm.
- Attendees:
  - Members: Chair Boice; Vice Chair Fahl; Meredith Judy; Pat Turner; Shanjiang Zhu (arrived 7:14pm).
  - NVTA Staff: Monica Backmon (Executive Director); Keith Jasper (Program Coordinator).
  - Other Staff: Noelle Dominguez (Vice Chair, JACC).
  - Other: Kanti Srikanth (VDOT); Valerie Pardo (VDOT); David Roden (AECOM); David Birtwistle (Northern Virginia Transportation Alliance); Rob Whitfield (Dulles Corridor Users Group).

### **II. Meeting Summary of June 18, 2014, Meeting**

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

## **Discussion/Information**

### **III. HB599 Presentation**

**VDOT**

- Mr. Srikanth reminded Committee members of presentations made earlier in the year regarding performance measures, weightings, and the selection of projects for the study.
- Mr. Srikanth presented the preliminary (basic) findings of the HB 599 study, supported by Mr. Roden. The purpose of the basic ratings is to support NVTA's activities related to development of its Six Year Program. The HB 599 study will conclude with the detailed ratings later in the year.
- Page numbers below refer to VDOT's presentation dated July 16, 2014, entitled *Evaluation and Rating of Significant Transportation Projects in NoVA*. Mr. Roden addressed slide #6 thru slide #15, and Mr. Srikanth addressed the remainder.

Page #5

- Mr. Srikanth was not aware of any region that has assessed the same projects with different tools, as is the case for the ‘basic’ and ‘detailed’ ratings for the HB 599 study.

Page #6

- Mr. Roden explained that the ratings for 2020 differ to those for 2040 in part because many of the projects that are in the Constrained Long Range Plan (CLRP) have been built by 2040 (but not by 2020).

Page #7

- HOV3+ is reflected in the first feedback loop for each time period (am, pm, midday, and night.)

Page 10

- The Committee considered the map is unclear. Mr. Roden stated that the color codes are as follows: red = reduced volumes; green = increased volumes. In response to a question from Vice Chair Fahl, Mr. Roden indicated that traffic changes beyond the project impact area were ignored. Mr. Zhu noted that when the network is near capacity, small changes can have big effects.

Pages #14/15

- In response to a question from Vice Chair Fahl, Mr. Roden confirmed that all five performance measures used for the basic ratings are weighted equally.

Page #16

- Mr. Srikanth stated that, unlike the basic ratings (high/medium/low), detailed ratings will be numeric on a scale of 0 to 100.
- Vice Chair Fahl requested more detail on the rule of thumb for including links that do not meet the 250 vehicle/20% threshold. Mr. Roden indicated this was on a case-by-case basis in which ‘natural breaks’ in project impact were identified.
- Mr. Srikanth stated that VDOT rejected normalizing all five measures (other than PMT per Capacity increase) on the basis that these measures provide a sense of scale for project impact.

Page #18

- Mr. Srikanth noted the change made to the analysis of project NVT-11 since the Project Implementation Working Group meeting on July 11, 2014.
- Mr. Zhu commented that the difference between 2020 and 2040 ratings reflects the change relative to other projects, and not necessarily a change in the level of congestion relief. Ms. Judy added that a low rating does not mean a project is not worthwhile.
- Chair Boice noted the low ratings for project CTB-3. Mr. Roden suggested this may be because the project did remove traffic, and is located on a high volume route (I-395). Mr. Srikanth added that the regional model used for the basic ratings does not capture all congestion impacts. He anticipates the model that will be used for the detailed ratings may simulate a bigger congestion impact. Mr. Zhu agreed that the regional model was not intended for this type of analysis.
- Vice Chair Fahl asked whether VDOT has a project on Belmont Ridge Road south of Dulles Greenway (between project NVT-8 and project NVT-9) as

this appears to be a gap. Analysis of these projects on a standalone basis may be misinterpreted by the public.

- Mr. Jasper noted that VDOT was only required to evaluate each project individually, and not packaged with other projects.

Page #19

- Vice Chair Fahl requested that the maps indicate which version of the CLRP is assumed to be in place, or at least the major projects that are committed. He expressed concern over the lack of mapping. Mr. Srikanth agreed to consider this, although he was concerned that the maps map become cluttered.
- With respect to the ‘Area of Greatest Impact’, Mr. Srikanth stated that the rating is more related to the links in the area, rather than the size of the area.

Page #20

- The performance measures and weightings for the detailed ratings have already been defined and agreed with NVTa.
  - Mr. Srikanth indicated there are currently no plans for VDOT to take these ratings to the Commonwealth Transportation Board.
- Overall, the Committee came to a consensus that the ratings study is on the right track, although members did not had the opportunity to review the findings in detail. The Committee acknowledged that the detailed ratings to be presented later in the year will use a model that is more likely to capture the operational impacts of some types of projects than the model used for the basic ratings. Other specific comments:
    - VDOT should consider enhancing its graphical presentation, to clarify what projects are included in the base analysis for each project;
    - VDOT should be clear that the differences between the 2020 and 2040 ratings for each project reflected a change in relative ranking, not that the project impacts were lower;
    - A project rated as “Low” does not mean it is not worthwhile;
    - Projects may have both local and regional benefits;
    - The performance of some projects may vary depending on how they grouped with other projects, e.g. filling gaps, but it was outside of VDOT’s scope to investigate this;
    - This approach may result in misinterpretation of the findings by the public.

#### **IV. NVTa Updates**

**Ms. Backmon**

- Ms. Backmon reported that the Project Implementation Working Group is developing a schedule for the Authority’s Two Year Program (for FY2015/16.) The detailed HB 599 ratings will be a component of the project selection criteria for this program.

### **Adjournment**

#### **V. Adjourn**

- Meeting adjourned at 8:44pm.

# NORTHERN VIRGINIA TRANSPORTATION AUTHORITY

## TECHNICAL ADVISORY COMMITTEE

### MEMORANDUM

**FOR:** Chairman Martin E. Nohe and Members  
Northern Virginia Transportation Authority

**FROM:** Randy Boice, Chair, Technical Advisory Committee

**DATE:** April 30, 2014

**SUBJECT:** Benefits

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1. **Purpose.** To share with the Authority our initial perspective on the “benefits” definitional challenge.
2. **Discussion.** At our April 16 meeting we had a focused discussion on the challenge of defining what is meant by “benefits” in the context of statutory mandate for jurisdictions to share benefits proportional to their revenue contribution over time. Key comments included:
  - Terms such as “benefit” and “long-term” are not defined in legislation.
  - TransAction 2040 provides a regional perspective of the jurisdictional “needs”; however, it does not include a regional sense of complementary benefits.
  - Demographic forecasting consistently reflects regional population growth and population shifts between “inner” and “outer” areas.
  - Regional activity centers provide a good focus for transportation improvements.
  - It is critical to demonstrate that projects selected for the regional long range plan will benefit the region; not just particular jurisdictions. This suggests the need for an objective and robust methodology that estimates impacts and benefits, leveraging existing data sources and models. This methodology must embrace highway and transit (rail, bus, etc.) improvements.
  - Project development schedules and the slow rate of making changes in land use mean estimation of benefits should be made over a period of not less than six years. This period of time could be longer.
  - It is difficult to communicate the concept of transportation investments making traffic conditions better than they would have been, while not actually making conditions better than they are today.

**3. Principles.** As a preliminary perspective on addressing the “benefits” challenge, the Committee agreed on these general principles:

- Benefits to jurisdictions cannot be equated to revenues generated by, or attributable to, each jurisdiction.
- Benefits may have a positive impact on multiple jurisdictions.
- The minimum time period for the estimation of benefit accruing to each jurisdiction should be at least six (6) years.
- The estimation of benefits should take advantage of ongoing analyses and existing models.

**4. Next steps.** As we look forward to the next meeting, I anticipate that our focus will be to continue the discussion on “benefits”. Specifically we will consider which measures are most appropriate for estimating congestion reduction and other project impacts, and the methodology/data sources associated with determining the scale and distribution of each of these measures.

In the longer term, we anticipate:

- Reviewing the findings of VDOT’s HB599 study.
- Reviewing current practices for monitoring traffic congestion and other trends in Northern Virginia, and to suggest options for enhancing the state of the practice in support of NVTAs’ annual reporting obligations.
- Supporting the development of the scope of work for the update to the TransAction 2040 long range plan, with a specific focus on identifying projects with the greatest regional significance.

## 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 local jurisdictions (assuming each individual 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".

HB 2313 also specifies that when allocating the 70 percent regional revenues, the Authority needs to ensure that each jurisdiction's long-term benefit will be approximately equal to the revenues raised by the three taxes and fees in the respective jurisdiction<sup>[1]</sup>. 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 measure benefit and attribute it to member jurisdictions. In addition, the Authority will need to track the revenues collected in each 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 measure long-term benefit. The Financial Working Group 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

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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 jurisdiction. 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 measuring benefit is not strictly a financial calculation, such as dollars spent in each jurisdiction, because "benefit" can be measured 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 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 measurement 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 measurement of benefit should not be a criterion used in allocating funding to projects, although "geographic balance" may be a selection criteria. 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**

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**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 measured. The General Assembly did not use the word "exactly" which is a reflection of the fact that any 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 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 year. There was also consensus that measuring benefit annually was impractical since most projects will take multiple years to implement and 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

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does not have an end point. As a result, **the subcommittee recommends that the Authority maintain an on-going determination of benefit. In addition, the subcommittee recommends that this 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. Also the subcommittee recommends that only completed projects be included in this periodic measurement. The frequency of the reviews should be assessed in the future.**

### Benefit

Since “benefit” is not defined in the statute, the subcommittee looked at numerous ways to 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 jurisdiction, the consensus of the subcommittee recognized that “benefit” should not be a strictly financial calculation, such as dollars spent in a 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 jurisdictions, based on collection, each jurisdiction that qualifies has the ability to determine how those funds are spent. While each 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 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 measuring 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 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). 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

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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 Jurisdiction whose subsidy is increase by inflation each year. While there was some sentiment that the benefits of projects implemented by these agencies should be measured similar to roadway projects, there was also concern that 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 jurisdiction. 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 jurisdictions based on the appropriate established cost-sharing formula (Metrorail, Metrobus, or VRE) for those jurisdictions 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 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 jurisdiction in which the facility is located.**

Regarding the Metro subsidy allocation, 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.

#### Multi-jurisdictional Transit Projects

Multi-Jurisdictional 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 assessed and measured 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 jurisdictions 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.

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## 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 worked 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 measuring the benefits of transportation investment by jurisdiction as HB 2313 does.

Factors from TransAction 2040, HB 599 and the FY 2014 Project Selection Process that the subcommittee considered for measuring 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 measure. 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 the impact of constructing a specific project or a group of projects on congestion. These tools can estimate the number of users of a highway facility or group of facilities by jurisdiction. 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 jurisdiction increases. **The subcommittee recommends that the Authority use congestion relief as one of the ways to measure benefit. However, these benefits should be measured 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.

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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 jurisdiction where the project is located. As a result, although strict “dollars spent in a jurisdiction” is not an appropriate way to measure benefit in this case, it is clear that the jurisdiction 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 measuring 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 Safety, Connections between Activity Centers, Multimodal Choices, and Freight Movement are important; they are more practically applied as selection criteria, rather than measurement of benefit.

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

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 measurement of benefit. It is also something that is more appropriate in a regional context than it is by individual jurisdiction.

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

The subcommittee discussed whether “benefit” should be measured 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 to determine the specific impact on travel of a specific improvement. 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 jurisdictions were concerned that since they export commuters to the core of the region that the benefits that these 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 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

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person's home. Finally, measuring 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 jurisdictions, because the core 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.

**In summary, the subcommittee recommends that the two methods for measuring 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 measure primary benefits.** Secondary benefits could be used as a qualitative way to compliment the results of measuring 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 to stop measuring them. Those conclusions, coupled with the fact that 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 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 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.

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However, in the end, the benefits of these types of improvements can be 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 measured prospectively or retrospectively. Initially, there was some support for 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 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 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 locality.

The subcommittee also discussed a scenario where a jurisdiction might oppose a project even though it has a benefit to that jurisdiction. The subcommittee concluded that it is unlikely that the Authority will fund and implement a project in a jurisdiction that does not want the project. However, it is possible that a jurisdiction may benefit from a project in an adjacent jurisdiction, even if the jurisdiction 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 jurisdiction controls how the 70 percent funding collected in the jurisdiction is spent. 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. Each of the nine local jurisdictions will have the opportunity to participate in the Authority's decision making process.

[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."

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 jurisdiction.

### Conclusions

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

[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."



# **FY2015-16 Program**

## **Project Selection Criteria**



Presentation to the Technical Advisory Committee  
(on behalf of the Project Implementation Working  
Group)

September 17, 2014

Northern Virginia  
Transportation Authority  
*The Authority for Transportation in Northern Virginia*

# TAC Meeting Objectives

- Review presentation on draft project selection criteria
- Provide feedback on draft project selection criteria to PIWG
  - Next meeting on October 2
  - Seek Authority approval on October 9



# What is the FY2015-16 Program?

- Component of NVRTA's Six Year Program
- Contains the regional projects that will be funded by NVRTA using FY2015-16 funds
- Allocates regional '70%' funds
- Does not allocate local '30%' funds
- Next iteration is expected to allocate FY2017-19 funds



# Schedule

- December 2013: Call for Projects
- July 2014: NVTa approved schedule for FY2015-16 Program
- August 2014: PIWG developed draft project selection criteria
- September 2014: PIWG coordinates with TAC, PCAC, and JACC
- October 2014: NVTa approves project selection criteria
- Nov/Dec 2014: PIWG develops draft FY2015-16 Program
- Dec/Jan 2015: PIWG coordinates with TAC, PCAC, and JACC
- January 2015: NVTa approves draft FY2015-16 Program for Public Hearing
- February 2015: Public Hearing
- March 2015: NVTa approves FY2015-16 Program

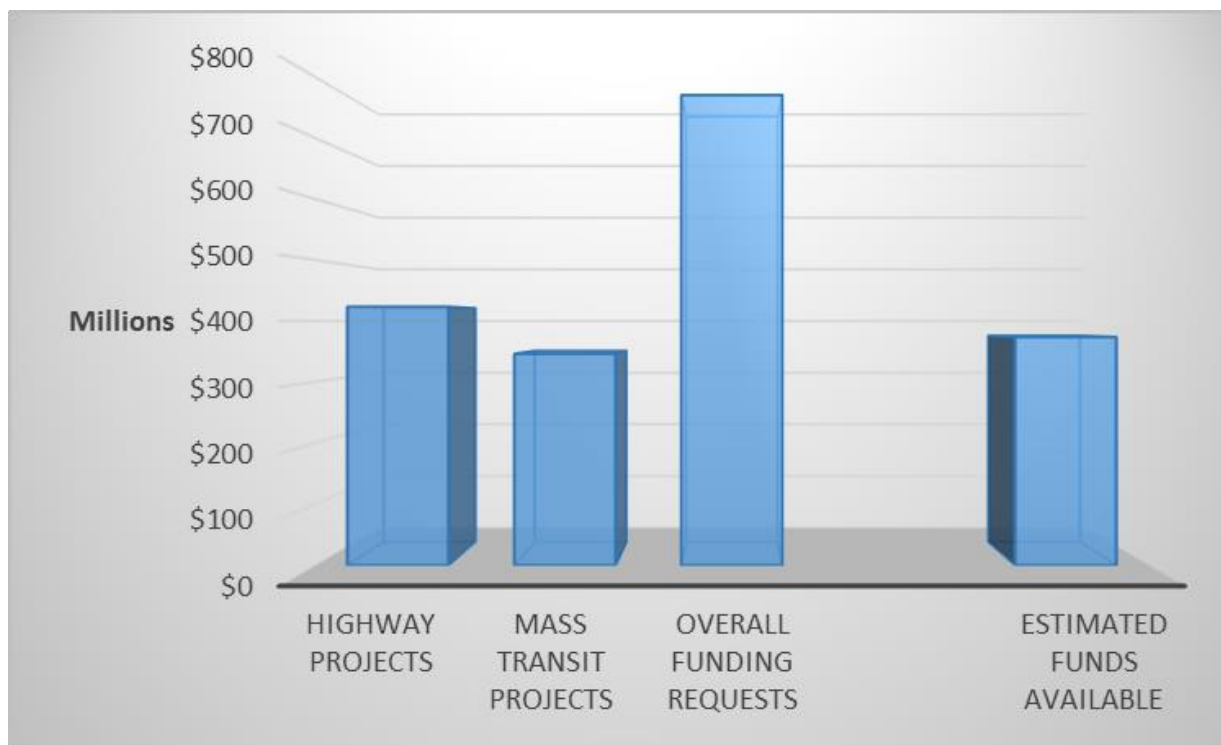


# Call for Projects

- Issued in December 2013
- Responses due February 2014
- Responses from:
  - 4 Counties, 3 Cities, 4 Towns, and 3 Transit Agencies
- Wide range of regional projects
  - 33 Highway Projects
  - 19 Mass Transit Projects



# Funding Requests



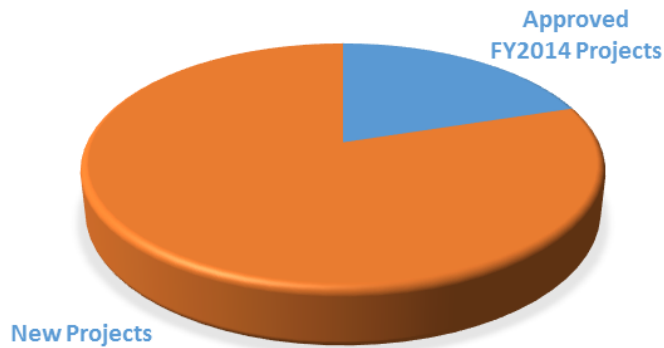
# PIWVG Rejected Funding Caps/Scaling

- Hinder larger projects
- Slow down projects
- Risk of not completing projects
- Priority is to fund projects that have the highest congestion reduction relative to cost

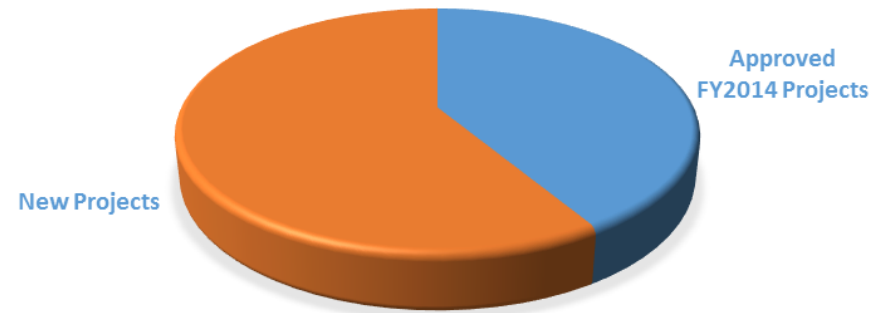


# Ongoing FY2014 Projects

TOTAL FY2015-16 FUNDING REQUESTS  
(\$770 MILLION)



EST. AVAILABLE FY2015-16 FUNDING  
(\$373 MILLION)



- Funding continuity is an important principle
  - Should FY2014 projects have first call on FY2015-16 funds?
  - Determine future project funding needs



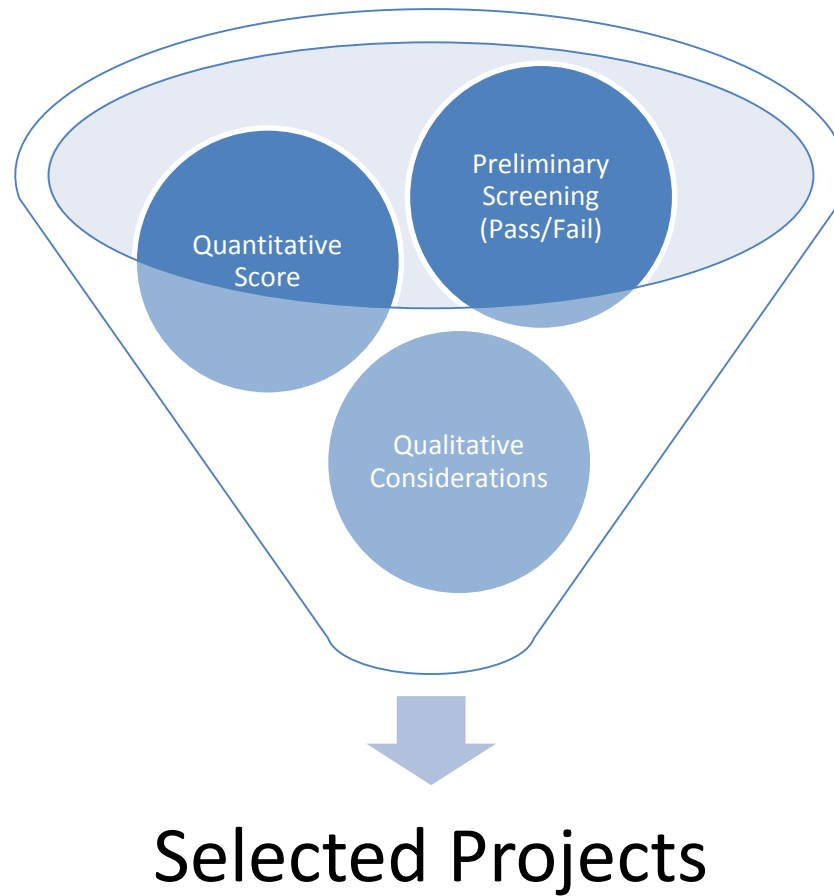


# Financing Options

- Two options
  - PayGo
  - Bond issue
- Policy consideration for NVRTA; not a factor in project selection



# Overall Approach



# Preliminary Screening

## Draft Project Screening Criteria

### All Projects

- Contained in the regional transportation plan (TransAction 2040/CLRP/TIP)<sup>1</sup>
- Reduces congestion
- Within locality embraced by the Authority<sup>2</sup>
- Project is supported by a Comprehensive Plan [NEW]<sup>3</sup>

### Highway Projects Only

- Rated in the HB599 Project Evaluation and Rating Study [NEW]

### Transit Projects Only

- Mass Transit project that increases capacity

1: Refers to the 2010 version of the TPB's Constrained Long Range Plan (CLRP)

2: ...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

3: Previously, this criterion was part of the qualitative score



# Quantitative Score – Methodology

For each project:

$$QS = \Sigma(\text{criterion score} \times \text{criterion weight})$$

- Criterion score
  - normally 1 (high); 2/3 (medium); or 1/3 (low)
  - 0 to 1 for congestion reduction (HB599)
- Criterion weight
  - range 5 to 35
  - sum to 100



# Quantitative Score – Challenge

- For most projects, use scores from TransAction 2040 Plan
- Some projects (from 2010 CLRP) need to be scored
  - No new model runs
  - Limited time/resources to complete analysis

Approach: guided by TransAction 2040 Plan scores,  
subject to consistency checks



# Quantitative Score – Issue

- Current HB599 rating study not required to rate mass transit projects
  - Detailed highway ratings available November 2014 (draft) and December 2014 (final)
  - Need to achieve modal balance

Approach: analysis of highway and mass transit projects will be similar but separate



# Quantitative Score (Congestion)

**TransAction 2040 Goal: Provide responsive transportation service to customers**

Selection Criteria	Rating Scale	Weighting
Project reduces roadway congestion (highway projects)	HB599 detailed rating $\div$ 100	35
Project reduces roadway congestion (transit projects)	<b>High:</b> Project will significantly improve traffic flow. <b>Medium:</b> Project will moderately improve traffic flow. <b>Low:</b> Project will have minimal to no effect on traffic flow.	35



# Quantitative Score (Readiness)

## TransAction 2040 Goal: Provide responsive transportation service to customers

Selection Criteria	Rating Scale	Weighting
Project is in advanced phase of development	<b>High:</b> Project is in the ROW or construction phase. <b>Medium:</b> Project is in the design phase. <b>Low:</b> Project is in the study or planning phase.	15
Project is able to be readily implemented	<b>High:</b> Project can be implemented in the near term (<6 years). <b>Medium:</b> Project can be implemented in the short term (6-12 years). <b>Low:</b> Project can be implemented in the long term (>12 years).	10





# Quantitative Score (Urgency)

**TransAction 2040 Goal: Provide responsive transportation service to customers**

Selection Criteria	Rating Scale	Weighting
Project addresses existing significant level of service (LOS) deficiencies for all modes of transportation	<b>High:</b> Project addresses existing LOS F condition. <b>Medium:</b> Project addresses existing LOS E condition. <b>Low:</b> Project addresses existing LOS A, B, C, or D condition.	5



# Quantitative Score (VMT)

## TransAction 2040 Goal: Provide responsive transportation service to customers

Selection Criteria	Rating Scale	Weighting
Project reduces vehicle-miles traveled	<p><b>High:</b> Project directly reduces VMT (i.e., transit project, park-and-ride lot, new HOV lane(s), new pedestrian and bicycle trail).</p> <p><b>Medium:</b> Project indirectly or through expansion reduces VMT (i.e., expansion of HOV, transit improvement, or expansion).</p> <p><b>Low:</b> Project does not reduce VMT.</p>	5



# Quantitative Score (Safety)

**TransAction 2040 Goal: Provide responsive transportation service to customers**

Selection Criteria	Rating Scale	Weighting
Project improves the safety of the transportation system	<b>High:</b> Project designed to specifically improve system safety and/or address an existing safety deficiency. <b>Medium:</b> Project will generally result in a safety improvement. <b>Low:</b> Project will have no discernible positive effect on safety.	5



# Quantitative Score (Connectivity)

**TransAction 2040 Goal: Maximize community connectivity by addressing transportation and land use together**

Selection Criteria	Rating Scale	Weighting
Project improves connections between multiple Activity Centers	<b>High:</b> Project improves connectivity between three or more activity centers. <b>Medium:</b> Project improves connectivity between two activity centers. <b>Low:</b> Project improves connectivity to one activity center only.	5
Project improves connections within Activity Centers [NEW] <sup>1</sup>	<b>High:</b> TBD <b>Medium:</b> TBD <b>Low:</b> TBD	5

1: Replaces Comprehensive Plan criterion



# Quantitative Score (Bike/Ped)

**TransAction 2040 Goal: Provide an integrated, multimodal transportation system**

Selection Criteria	Rating Scale	Weighting
Project supports multiple use development patterns in a walkable environment	<b>High:</b> Project adds or extends non-motorized facility to and within activity center. <b>Medium:</b> Project improves existing non-motorized facility to and within activity center. <b>Low:</b> Project does not improve or provide a non-motorized facility to and within activity center.	5



# Quantitative Score (Technology)

## TransAction 2040 Goal: Incorporate the benefits of technology

Selection Criteria	Rating Scale	Weighting
Project improves the management and operation of existing facilities through technology applications	<b>High:</b> Project improves technological management and operations of an existing transportation facility. <b>Medium:</b> Project improves technological management and operations of an expansion of an existing transportation facility. <b>Low:</b> No improvement to management and operations of a facility.	5



# Quantitative Score (Cost Sharing)

**TransAction 2040 Goal: Identify funding and legislative initiatives needed to implement the Plan**

Selection Criteria	Rating Scale	Weighting
Project leverages private or other outside funding <sup>1</sup>	<b>High:</b> Project leverages private or other outside funding. <b>Medium:</b> Project leverages modest private or other outside funding. <b>Low:</b> Project has no leveraged private or other outside funding.	5

1: See also the 'Cost sharing' criterion on slide #24



# Qualitative Considerations

## Draft Project Screening Criteria

### All Projects

- Priority given to greatest congestion reduction relative to cost
- Continuity of project funding
- Cost sharing<sup>1</sup>
- Geographic balance
- Modal balance
- Additional supporting information

1: See also slide #23





# Next Steps (after October 9)

- PIWG will apply approved project selection criteria, where possible (thru November 2014)
- Await release of draft detailed HB599 Project Evaluation and Rating Study (November 2014)
- PIWG will develop draft FY2015-16 Program (December 2014)



# Long Term Benefit

Presentation to Technical  
Advisory Committee  
September 17, 2014



Northern Virginia  
Transportation Authority  
*The Authority for Transportation in Northern Virginia*

# Background

- General Assembly passed HB 2313 in 2013
- Included three revenue sources for NVTa
- Generate nearly \$300 M per year
- Requires NVTa to allocate 30% to jurisdictions where funding was raised
- Remaining 70% retained by NVTa for regional projects
  - “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.”



# Background (Continued)

- “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.”
- NVTa charged the Financial Working Group with making a recommendation on how to measure benefit.
- Working Group established a subcommittee that has been meeting since April to prepare a recommendation.
- Key words: “long-term,” “benefit,” “approximately equal,” and “regional project”
- NVTa work session on October 24.



# Subcommittee Discussions

- **Keep the measurement of benefit simple and transparent. Meet legislative intent as efficiently as possible.**
- **“Regional Project”**
  - “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.”
- Subcommittee is recommending **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.**



# Subcommittee Discussions (Continued)

- “Approximately Equal”
  - General Assembly’s inclusion of the word “approximately” is intended to provide flexibility
  - Any measurement or attribution of benefit will not be an exact mathematical or financial calculation



# Subcommittee Discussions (Continued)

- “Long-Term”
  - 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)
- TAC recommended not less than six years
- Subcommittee initially focused on length of the Six Year Program
- Ultimately, the subcommittee concluded that “long-term” does not have a defined length
- Difference between project selection and benefit measurement
- Assess retrospectively every ten years



# Subcommittee Discussions (Continued)

- Regional Transit Agencies
  - For system-wide projects, the benefits of the investments should be attributed to each of the nine jurisdictions based on the appropriate established cost-sharing formula (Metrorail, Metrobus, or VRE) for those jurisdictions 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 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 jurisdiction in which the facility is located.
- Multi-jurisdictional Transit Projects
  - In general, majority of the benefits of this type of project will be attributed to the jurisdictions in which the project is located.





# Subcommittee Discussions (Continued)

- Local Transit
  - **the benefits will generally be attributed to the locality in which the transit system is located.**
- Roadway Projects
  - TransAction 2040,
  - HB 599 study being conducted by VDOT
  - FY 2014 Project Selection Process
- Most relevant factors
  - Congestion Relief
  - Safety
  - Connections between Activity Centers
  - Multimodal Choices
  - Air Quality
  - Freight Movement
  - Intelligent Transportation Systems



# Subcommittee Discussions (Continued)

- Use congestion relief as one of the ways to measure benefit. Benefits should be measured by using the cumulative impact of a system of improvements from implemented projects, rather than on a project by project basis.
- Other TransAction 2040 Measures Considered
  - 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. Safety, Connections between Activity Centers, Multimodal Choices, and Freight Movement
  - Economic Development was also discussed.
- Other FY 2014 Selection Criteria Considered
  - Project Readiness
- HB 599 Criteria Discussed
  - Emergency Evacuation



# Subcommittee Discussions (continued)

- Measurement
  - Travel Demand Model
  - Completed projects as a system
- Dollars spent in a jurisdiction
- **Location of project**
- Concerns and Responses
- Primary vs. Secondary Benefits
- Bike and Pedestrian Projects
- Intelligent Transportation System Projects



# Subcommittee Discussions (Continued)

- Other Considerations
  - Prospectively vs. retrospectively
  - Assess benefit when project is selected
  - Benefits outside a jurisdiction
  - Opposition by a jurisdiction
- Manassas Park Resolution



# Questions?

## Discussion

