



## **Northern Virginia Transportation Authority**

*The Authority for Transportation in Northern Virginia*

### **PROJECT IMPLEMENTATION WORKING GROUP**

**9:30am, Wednesday, September 16, 2015**

**Northern Virginia Transportation Authority**

**3040 Williams Drive, Suite 200**

**Fairfax, Virginia 22031**

### **AGENDA**

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

**II. Meeting Summary of July 13, 2015, Meeting**  
*Recommended action: Approval [with abstentions  
from those who were not present].*

### **Discussion/Information**

**III. HB 599 Transit Test Results** VDOT/DRPT

**IV. FY2017 Program** Mr. Jasper  
    i. Tentative Schedule  
    ii. Overview of Candidate Projects  
    iii. Project Selection Process

**V. NVTa Update** Ms. Backmon

**VI. Finance Committee Report** Mr. Longhi  
    i. Updated Appendix Bs  
    ii. Request for Insurance Certifications

### **Adjournment**

**VII. Adjourn**

**Next Meeting: TBD (suggested – December 1 or 2, 2015)**



## Northern Virginia Transportation Authority

*The Authority for Transportation in Northern Virginia*

### PROJECT IMPLEMENTATION WORKING GROUP

Monday, July 13, 2015, 9:30 am

Fairfax County Department of Transportation

4050 Legato Road, Suite 400

Fairfax, Virginia 22033

### SUMMARY NOTES

#### I. Call to Order/Welcome

Chairman Nohe

- Vice Chairman Garczynski called the meeting to order at 9:35 am.
- Attendees:
  - **PIWG Members:** Chairman Nohe; Vice Chairman Garczynski, Chairman Bulova (Fairfax County); Chair Hynes (Arlington County); Council Member Rishell (City of Manassas Park); Rick Canizales, James Davenport (Prince William County); Tom Biesiadny, Karyn Moreland, Noelle Dominguez (Fairfax County); Bob Brown, Joe Kroboth (Loudoun County); Sarah Crawford (Arlington County); Jim Maslanka, Pierre Holloman (City of Alexandria); Jeff Sikes (City of Falls Church); Wendy Block Sanford (City of Fairfax); Patrick Moore (City of Manassas); Richard West (Town of Dumfries); Mark Duceman (Town of Herndon); Maria Sinner, Valerie Pardo (VDOT); Todd Horsley (DRPT); Kate Mattice (NVTC); Elena Constantine (MWCOG/TPB); Christine Hoeffner (VRE); Cynthia Porter-Johnson (PRTC); Mark Phillips (WMATA).
  - **NVTA Staff:** Monica Backmon (Executive Director); Mike Longhi (CFO); Sree Nampoothiri (Program Coordinator), Keith Jasper (Program Coordinator).
  - **Other Staff:** Ellen Posner (Fairfax County).

#### II. Meeting Summary of April 13, 2015, Meeting

- Summary not available.

### Discussion/Information

#### III. Status Update

Ms. Backmon

- Ms. Backmon reported that NVTA has currently approved 11 SPAs for the FY2015-16 Two Year Program that was adopted by the Authority on April 23, 2015. An additional 26 projects will need their Standard Project Agreements (SPAs) to be

approved by the October 2015 Authority meeting. Based on discussions with the jurisdictions, NVTa does not anticipate any issues meeting this deadline. If any of the jurisdictions or agencies are unable to obtain approval for the SPAs by the October deadline, then the NVTa would need to have an open dialogue to discuss status of their SPAs. This does not mean affected projects will automatically lose funds.

- Ms. Backmon reported that last Friday, NVTa met with Deputy Secretary Donohue to discuss congestion relief weightings for the HB 2 and HB 599 processes. For HB 2, CTB has adopted a weighting of 45% for congestion relief. There was some discussion on what this could mean for criteria weightings for NVTa's project selection process, which has a weighting of 35% for congestion reduction (based on HB 599 ratings). The focus of the PIWG meeting today will be to discuss whether the HB 599 rating and weighting should be adjusted to more closely match the measures and associated weighting for the congestion reduction component of the overall HB 2 process. There are many projects that are being funded by NVTa that have multiple funding sources. The concern is that one project may score well under one process and not so well under the other process.
- Vice Chairman Garczynski confirmed that was the message from Deputy Secretary Donohue to the NVTa concerning the potential to align the congestion reduction rating between the HB 2 and HB 599 processes. From the CTB perspective, the sophistication of the analysis is much more toward a base common denominator with the CTB than the more sophisticated analysis being used by NVTa. For example, for congestion relief CTB only used person throughput and person hours of delay while HB 599 has seven different measures for congestion reduction. It is somewhat of a dilemma but no region in Virginia has the sophistication or the challenges that we have in Northern Virginia.
- Ms. Backmon reported that the suggestion is that the HB 599 process be more closely aligned with the HB 2 process so we can have a more 'apples to apples' comparison. Instead of the seven measures currently used for the HB 599 process, should we use the two HB 2 congestion relief measures (person throughput and person hours of delay) as the two measures for HB 599. In addition, legislation requires that the Authority gives priority to the projects with the greatest level of congestion relief relative to cost. This is why with the FY2015-16 Two Year Program, project readiness had a weighting of 25% to prioritize projects that can more quickly address congestion relief in the short term.
- Mr. Holloman asked how this would interact with the current HB 599 evaluation of test transit projects. Ms. Backmon responded that there are two schools of thought. If the Authority adopts what is being proposed by Secretary Donohue, the results of the test run would be a little different with the two congestion relief measures used in HB 2 process versus the seven measures used in the HB599 process.
- Mr. Biesiadny suggested that the PIWG is being asked to consider two things:
  - Replace the seven HB 599 measures with the two HB 2 congestion relief measures; and
  - Adjust the congestion relief weighting used by NVTa (35%) to parallel that used for the HB 2 process (45%).

- Ms. Backmon responded by stating that we are not asking for a decision today but for the PIWG to begin the dialogue at today's meeting and to consider a course of action at the PIWG meeting in September 2015.
- Mr. Biesiadny expressed concern that the two different sets of measures for congestion relief in HB 2 and HB 599 might create confusion among the public. It is important that the process of project rating and selection be as transparent as possible. With the expense of conducting the HB 599 process, assuming VDOT is covering those costs right now, and with the ratings of HB 2 being used throughout the state, it might be more efficient if we use the same analysis and not a separate analysis which could potentially cost more. It is good to keep these analyses the same as far as the public is concerned. We already had questions related to the current Two Year Program and the differences between the HB 599 rating and the analysis done under HB 2313. If you throw in another layer with the HB 2 ratings, it adds confusion to the public.
- Ms. Backmon confirmed that point, especially with comments during the public comment period for the FY2015-16 Two Year Program. We did spend time educating the public about the process but questions arose related to the differences between NVTAs quantitative scores and HB599 ratings. Members of the public would comment "How is it that projects scored so well under HB 599 and not even be considered for the Two Year Program"? It is important to be transparent in the evaluation process. However, our initial reaction to replacing the HB 599 measures with the HB2 measures is that it may not work very well.
- Vice Chairman Garczynski stated that CTB want to keep the evaluation process as simple as possible so it can relate to people throughout the entire Commonwealth, not just Northern Virginia.
- Chair Hynes noted that the Northern Virginia transportation system is complex, and there is a need to consider non-road solutions. She expressed concern that we should be cautious until we know how the proposed evaluation approach would affect project ratings, especially for transit projects.
- Chairman Nohe stated that Deputy Secretary Donahue made it clear that HB 599 is analogous to the congestion relief component of HB 2 and HB 2 is more analogous to NVTAs quantitative score. He stated he is receptive to using the HB 599 more similarly to the HB2 congestion relief component, e.g. HB 2's congestion relief weighting for Northern Virginia is 45%.
- Ms. Backmon stated there are other criteria we were mandated to consider including air quality and safety.
- Ms. Sinner noted that the tool (TRANSIMS) for evaluating projects under HB 599 is very sophisticated, and needs to enable robust analysis due to the extreme nature of congestion throughout the region. The tool used for HB 2 is more granular. Replacing the HB 599 measures does not mean the tool should be changed.
- Chairman Nohe asked if we were legislatively mandated to use TRANSIMS as the regional model. Ms. Sinner responded that we are required to use the most up-to-date technology. The issue we will need to address is the fact that if projects are being

rated differently by HB 2 and HB 599 when many of these proposed projects are being funded by both the state and through NVTa, should the state consider using the more robust analysis just for projects in Northern Virginia?

- Vice Chairman Garczynski considered this may be unacceptable to other regions, and may result in proposals to modify the statewide process for special considerations elsewhere. The intent is for a consistent statewide approach.
- Vice Chairman Garczynski suggested that projects requiring multiple funding sources should use the HB 2 evaluation process to provide consistency. He also noted that the HB 2 process will probably not be revisited by CTB for at least two cycles. Chair Hynes suggested using the HB 2 evaluation process for projects with multiple funding sources, at least for the upcoming FY2017 Program. This would provide time to address the differences between HB 2 and HB 599 for project evaluations in the future.
- Ms. Crawford asked how we would handle the weightings for the other criteria if the congestion relief weighting was increased. Chairman Nohe stated we should not assume they will stay the same but we also should not assume that they will be closely aligned with the HB 2 congestion relief weightings.
- Ms. Crawford stated this will come into play as we look at job accessibility and other factors as we update TransAction 2040. She also asked if we are holding to the projects in the current TransAction 2040 plan. If evaluation criteria are changed, how will this affect the credibility of the projects currently in TransAction 2040? How far can we shift from the measures used in evaluating projects for TransAction?
- Ms. Backmon stated that some of the 11 criteria used for the FY2015-16 Two Year Program were included in TransAction 2040. Accessibility to jobs was included in TransAction 2040 but was not included as part of the Two Year Program evaluation. We could look at including it for the upcoming FY2017 Program. NVTa must adhere to the HB 599 process for all projects, but only has to adhere to the HB 2 process for projects requesting both state funds and HB 2313 revenues. The current law states the Authority must evaluate projects in TransAction and so we want to stick to the criteria used in TransAction except for congestion relief because that is an addition to the law.
- Chairman Nohe emphasized the evaluation ratings are intended to inform the project selection process, which includes other considerations. Ms. Backmon emphasized this is why project readiness criteria as part of the NVTa evaluation are so important. A project that may not be completed until 2030 means must be compared to other projects that may generate congestion relief benefits much sooner, e.g. bus acquisitions.
- Ms. Backmon noted we have a tentative schedule for the FY2017 Program with the Call for Projects in September 2015 and adoption of the program in May. This is based on receiving the HB 599 test transit results by the end of August. The PIWG should approve project selection criteria at its next meeting so that these can be available when the Authority issues the Call for Projects. Vice Chairman Garczynski reported that the CTB Call for Projects will be in the August/September time-frame. Awards will be in April 2016.

- Vice Chairman Garczynski noted that NVTa will have to make a decision on which projects to submit for the HB 2 program as the designated MPO for Northern Virginia.
- Chairman Nohe stated that the next steps include a continued discussion with Deputy Secretary Donohue. NVTa staff will come back to PIWG with more analysis at its next meeting in September.
- Ms. Sinner indicated that VDOT will provide additional analysis using the HB 2 measures for the three test transit projects.

#### **IV. Options for FY2017 One Year Program**

Mr. Jasper

- Preliminary estimates for the program are approximately \$200 million on a PayGo basis.
- Mr. Jasper reported that NVTa had learned a lot from the FY2015-16 program, and will apply this knowledge to enhance the project selection process for the FY2017 Program. NVTa plans to post a lot of the project background information on the front-end of the process rather than near the end.
- NVTa will be requesting the jurisdictions and agencies provide an informal heads-up on which projects they are considering for the FY2017 Program, on a non-binding basis using the SPA Appendix B document. This will help to structure the program a little better.
- To this end, it would be helpful to have this information before the official call-for-projects. Mr. Jasper will send out this request in an email.

#### **V. NVTa Update**

Ms. Backmon

- Ms. Backmon indicated that she had briefed the JACC last week on the update of Transaction 2040 Long Range Plan. NVTa is currently working with the potential awardee on contract terms and conditions. The intention is for the Authority to approve the award at its meeting on July 23, 2015. Since the Authority does not meet in August, it is important to meet that deadline or there will be a two month slip in the work-plan schedule.
- The major agenda items for the upcoming Authority meeting will be the announcement of the TransAction 2040 update contract award and appointments to the Bylaws Committee. An update on the Greenhouse Gas Multi-Sector Workgroup activities will be presented by TPB Staff at the September NVTa Board meeting.
- NVTa has secured a photographer to take photos of Authority members for the website update and the 2015 Annual Report. The photographer will be available at the July 23rd meeting to take photos.

#### **VI. Finance Committee Report**

Mr. Longhi

- Mr. Longhi reported that the July 2015 meeting of the Finance Committee was cancelled. The Finance Committee is waiting for the work of the Reserves Advisory

Committee which is scheduled to meet at 10:30am on Wednesday, July 15 at NVTa. The Reserves Advisory Committee will report to the Finance Committee at their next meeting in the fall.

- Mr. Garczynski reported that the NVTa I-66 outside the Beltway Committee meeting is scheduled for 10:30am on Wednesday, August 5 at NVTa. Chair Bulova will serve as the committee chair.

### **Adjournment**

#### **VII. Adjourn**

- The meeting adjourned at 10:35 a.m.
- The next PIWG meeting was scheduled for 9:30 a.m. on Wednesday, September 16, 2015 at NVTa



**Evaluation of Significant Transportation  
Projects in Northern Virginia  
Transportation District  
Transit Tests' Modeling Results**

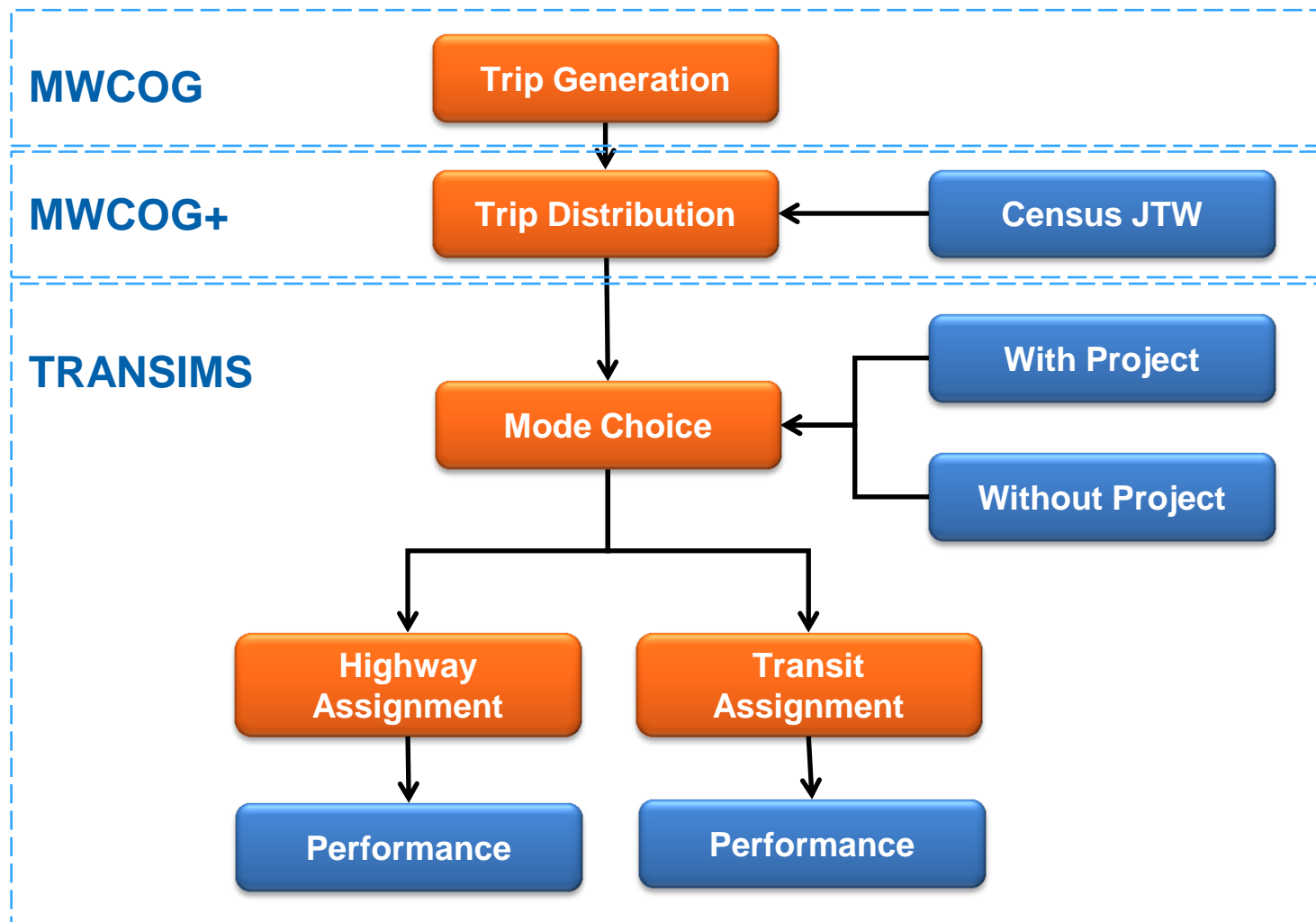
**NVTA Project Implementation Working Group  
September 16, 2015**



## Modeling Approach

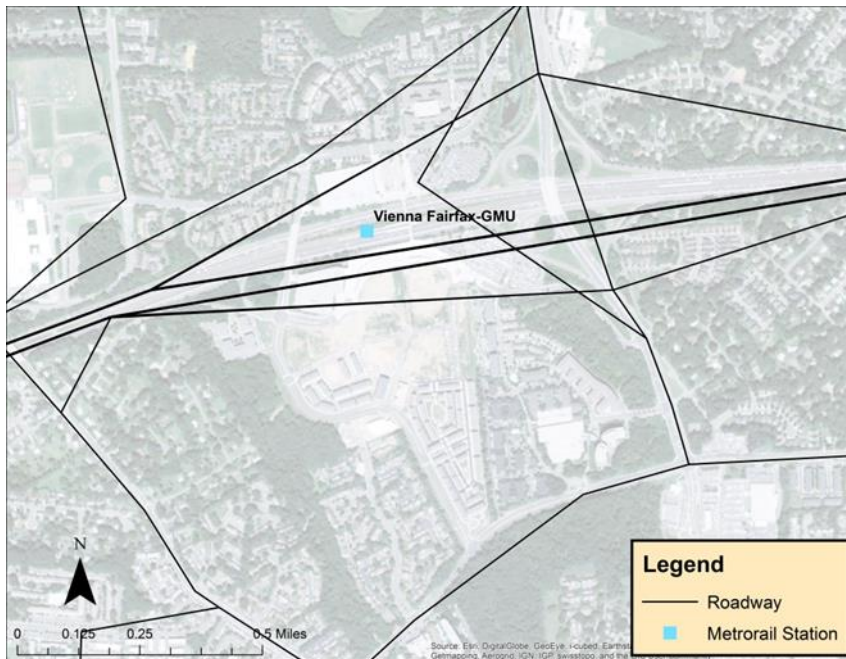
- **TRANSIMS model used for analysis**
  - **MWCOG 2.3.57 base model and land-use**
- **Work trip distribution adjusted with Census JTW data**
- **Traveler preferences vary by purpose, income, and fare type**
- **Travel options include drive alone, HOV2, HOV3+, walk-to-transit, park-n-ride, and kiss-n-ride**
- **Detailed highway and transit networks**
  - **Schedules, vehicle and parking capacity by time of day**
  - **Transit schedules reflect highway travel times**
  - **Transit crowding and parking constraints considered in mode choice**

## New Model Structure

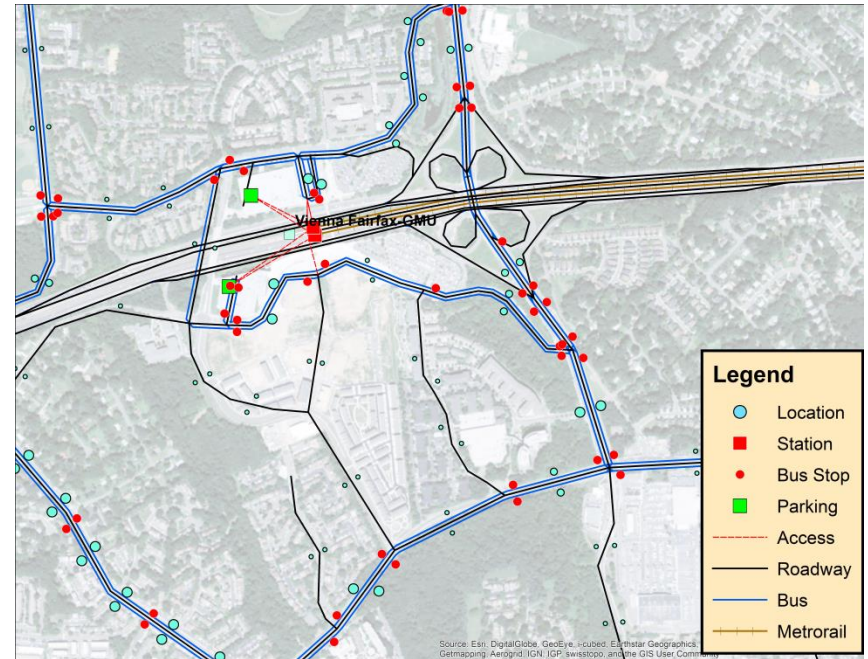


# Vienna/Fairfax-GMU Refinements

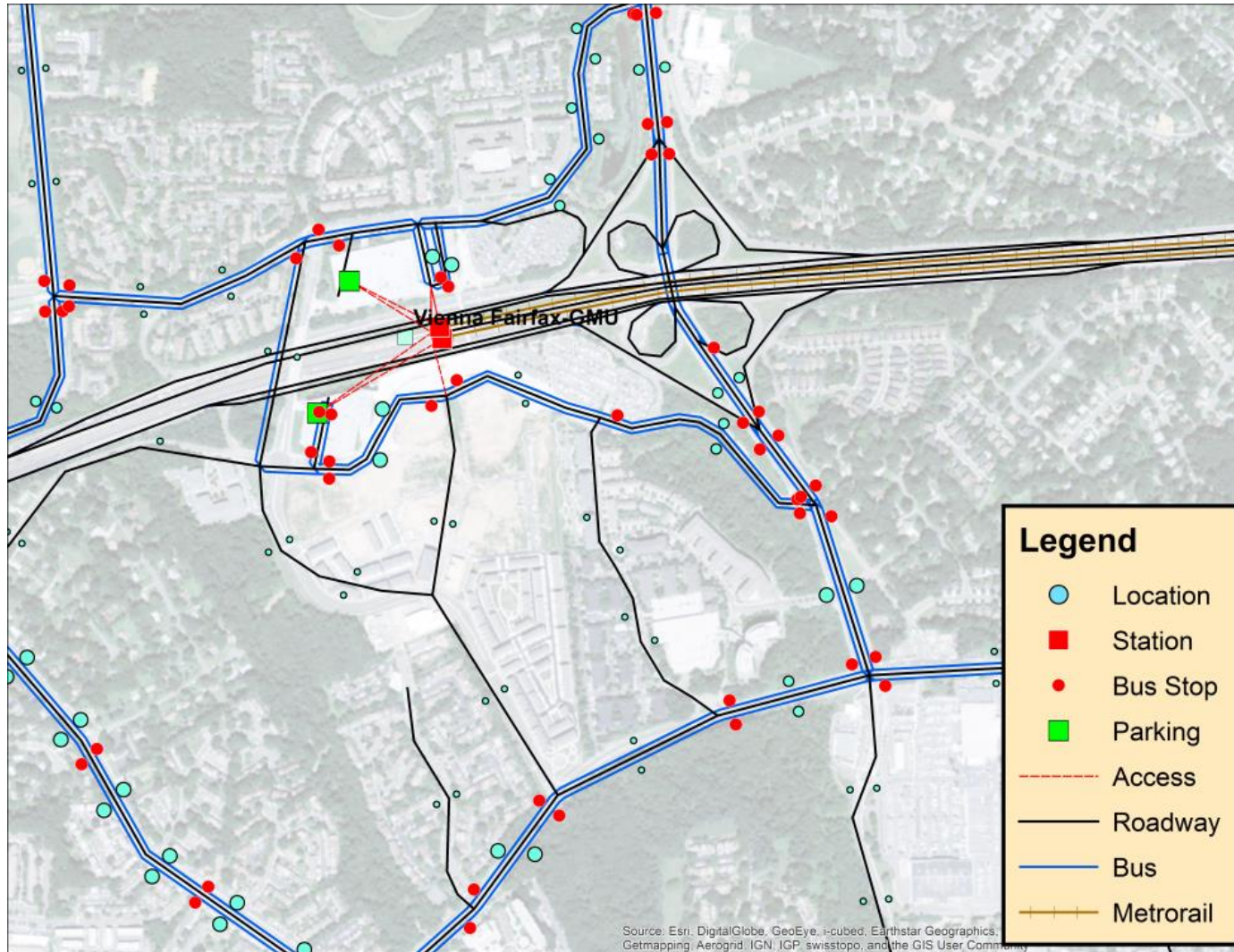
## Original MWCOC Network



## TRANSIMS Network



# Vienna/Fairfax-GMU Station Details

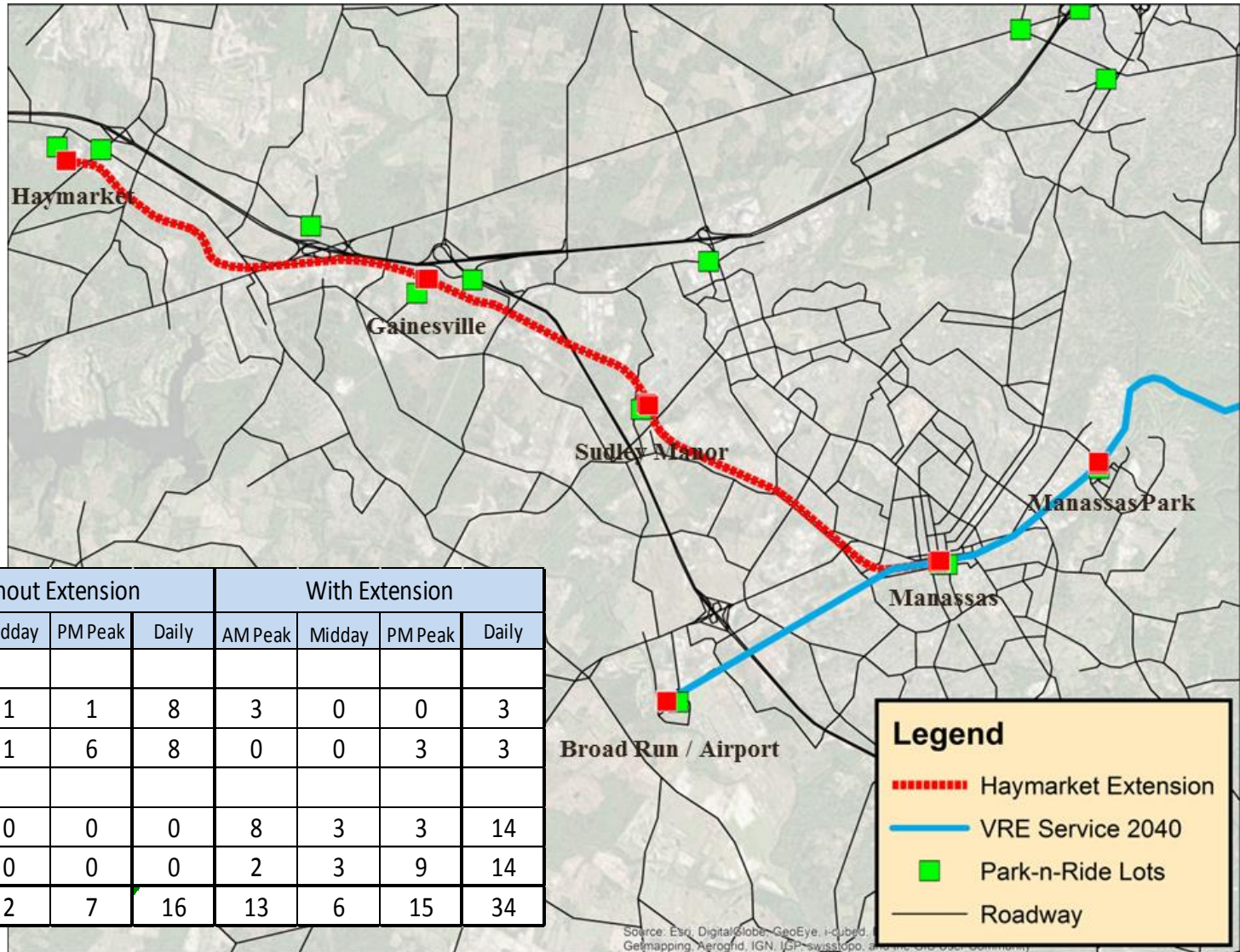


## Transit Scenarios Tested

- **VRE extension to Haymarket and increased service levels for 2040**
- **Increase all Metrorail trains to 8 cars each**
- **Build Metrorail Station at Potomac Yard and concentrate land uses near station**



# VRE Haymarket Extension



Trains	Without Extension				With Extension			
	AM Peak	Midday	PM Peak	Daily	AM Peak	Midday	PM Peak	Daily
<b>Broad Run</b>								
Inbound	6	1	1	8	3	0	0	3
Outbound	1	1	6	8	0	0	3	3
<b>Haymarket</b>								
Inbound	0	0	0	0	8	3	3	14
Outbound	0	0	0	0	2	3	9	14
<b>Total</b>	<b>7</b>	<b>2</b>	<b>7</b>	<b>16</b>	<b>13</b>	<b>6</b>	<b>15</b>	<b>34</b>

**Legend**

- Haymarket Extension
- VRE Service 2040
- Park-n-Ride Lots
- Roadway

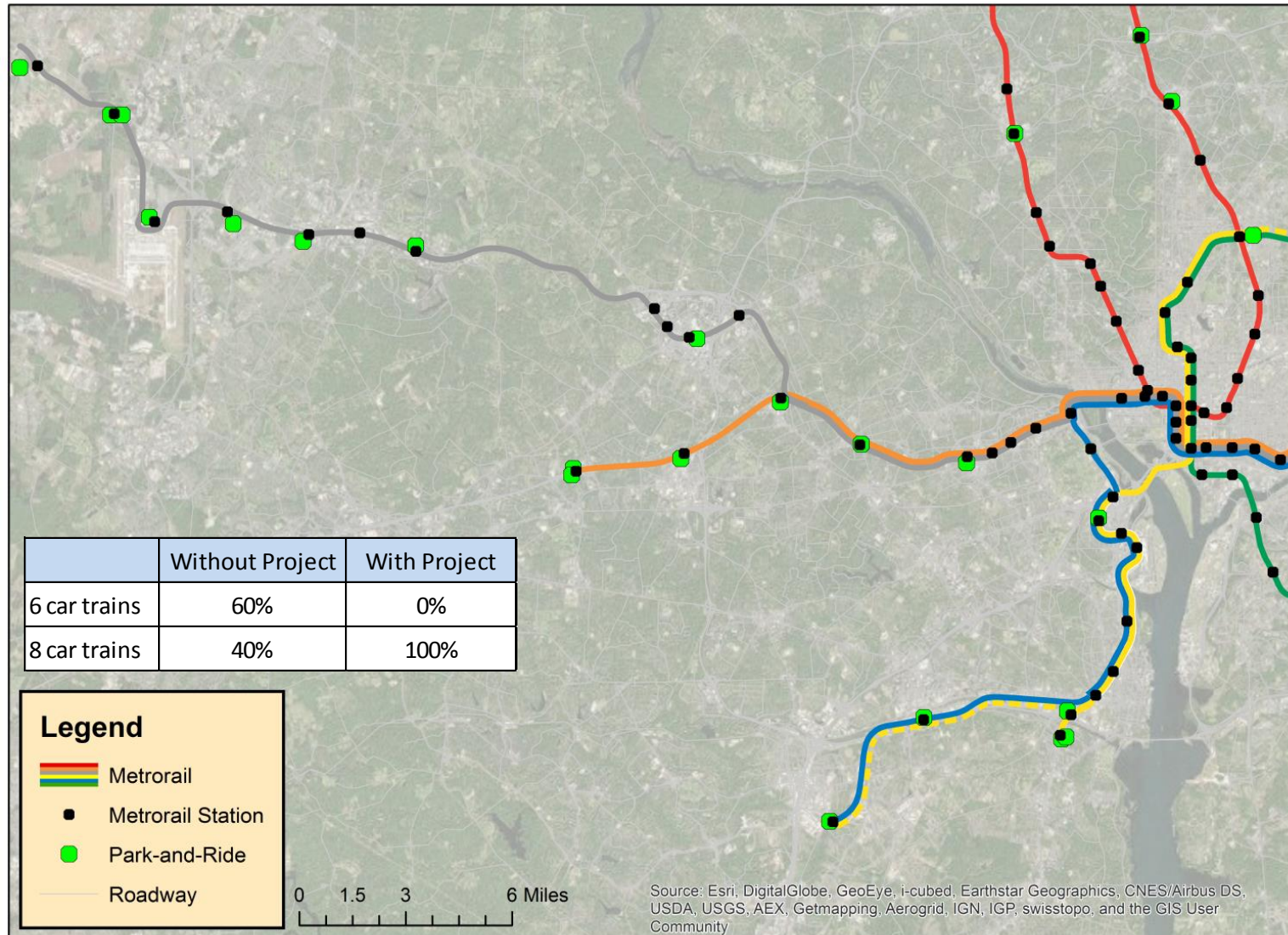
Source: Esri, DigitalGlobe, GeoEye, i-cubed, GeoMapping, AeroGRID, IGN, IGP, swisstopo, and the data user community

## Daily VRE Boardings – 2040 Project: Haymarket Extension

Station Group	2014	2040 Without Project	Percent Growth	2040 With Project	Project Impact	Percent Change
Haymarket to Backlick Rd.	4,790	5,900	23%	8,150	2,250	38%
Alexandria to Union Station	9,550	11,500	20%	15,500	4,000	35%
Fredericksburg to Alexandria	5,990	7,000	17%	7,350	350	5%
<b>Total VA</b>	<b>20,330</b>	<b>24,400</b>	<b>20%</b>	<b>31,000</b>	<b>6,600</b>	<b>27%</b>

- Haymarket Extension 2040 ridership is 5,250 boardings
- Extension increases systemwide boardings by 27%, or 6,600 new riders

# Metrorail All-Eight Car Trains





## Daily Metrorail Boardings – 2040

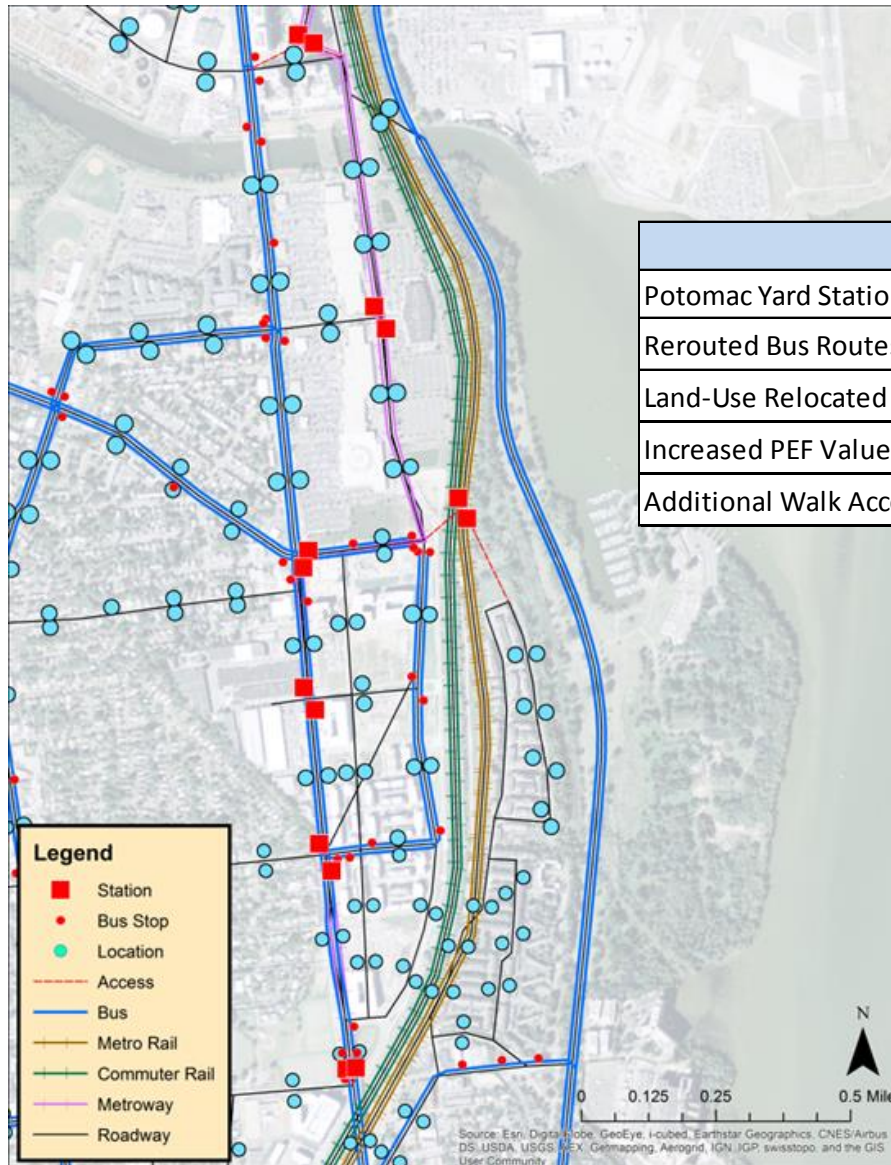
### Project: All Eight Car Trains

Station Group	2014	2040 Without Project	Percent Growth	2040 With Project	Project Impact	Percent Change
Fran/Spring to Braddock	43,560	53,800	24%	61,000	7,200	13%
Potomac Yard to Arl Cemetery	51,460	59,850	16%	66,300	6,400	11%
Vienna to EFC	28,230	33,200	18%	39,600	6,400	19%
Ballston to Rosslyn	76,000	81,450	7%	87,650	6,200	8%
Wiehle to McLean	17,240	32,900	91%	36,800	3,900	12%
Reston to Loudoun		30,850	100%	31,950	1,100	4%
<b>Total VA</b>	<b>216,490</b>	<b>292,050</b>	<b>35%</b>	<b>323,300</b>	<b>31,200</b>	<b>11%</b>

## Metrorail All Eight Car Trains

- **Increases system ridership in Virginia by 31,200 riders, or 11%**
- **Largest increases are on the Blue/Yellow lines from Springfield and Huntington and Orange line from Vienna to East Falls Church**
  - **Better able to take advantage of increased capacity**
  - **Train crowding limits the ridership growth in Arlington**

# Potomac Yard Station / Redevelopment



	Without Project	With Project
Potomac Yard Station	No	Yes
Rerouted Bus Routes	No	Yes
Land-Use Relocated	No	Yes
Increased PEF Values	No	Yes
Additional Walk Access	No	Yes

## Daily Metrorail Boardings – 2040

### Project: Potomac Yard Redevelopment

Station Group	2014	2040 Without Project	Percent Growth	2040 With Project	Project Impact	Percent Change
Fran/Spring to Braddock	43,560	53,850	24%	53,800	-50	0%
Potomac Yard to Arl Cemetery	51,460	54,900	7%	59,850	4,950	9%
Ballston to Rosslyn	76,000	79,050	4%	81,450	2,400	3%
<b>Total VA</b>	<b>216,490</b>	<b>283,900</b>	<b>31%</b>	<b>292,050</b>	<b>8,150</b>	<b>3%</b>

- **Potomac Yard Station daily boardings in 2040 are 9,300 riders**
- **Systemwide ridership increases by 8,150 riders, or 3%**

# Performance Measure Summary

## *Congestion Reduction Measures*

- **Congestion Duration** = reduction in the number of hours of the day auto and transit passengers experience heavily congested travel conditions.
- **Person Hours of Delay** = reduction in the number of person hours of travel time above free flow travel time.
- **Person Hours of Congested Travel in Automobiles** = reduction in the number of person hours of travel in automobiles and trucks on heavily congested facilities.
- **Person Hours of Congested Travel in Transit Vehicles** = reduction in the number of person hours of travel in buses and trains on heavily congested facilities or in crowded vehicles.
- **Transit Crowding** = reduction in the number of transit person miles experiencing crowded conditions (local bus > 1.0; express bus and commuter rail > 0.9; Metrorail > 100 passengers/car).

## *Mobility Measures*

- **Accessibility to Jobs** = increase in the number of jobs that can be reached from each household based on a 45 minute travel time by automobile and a 60 minute travel time by transit.
- **Emergency Mobility** = increase in the person hours of travel time resulting from a 10 percent increase in peak hour trip making.

## Detailed Rating Performance Measure Weights\*

<b><i>Congestion Reduction Measures</i></b>	<b>86.9%</b>
➤ Congestion Duration	27.9%
➤ Person Hours of Delay	20.3%
➤ Person Hours of Congested Travel in Automobiles	15.4%
➤ Person Hours of Congested Travel in Transit Vehicles	11.8%
➤ Transit Crowding	11.5%
<b><i>Mobility Measures</i></b>	<b>13.1%</b>
➤ Accessibility to Jobs	9.5%
➤ Emergency Mobility	3.6%
<b><i>Total</i></b>	<b>100%</b>

\* Weights determined via Decision Lens process involving stakeholders and NVTAs

# Transit Projects Rated in Relation to One Another

2040 Performance Measures (9/4/15)	Reduce Congestion Duration (hrs*ln-mi)	Reduce Person Hours of Delay	Reduce Congested Person Hours in Autos	Reduce Congested Person Hours in Transit	Reduce Transit Crowding (VMT)	Increase Access to Jobs (45/60 min)	Improve Emergency Mobility (hours)	Rating
Weight	27.9%	20.3%	15.4%	11.8%	11.5%	9.5%	3.6%	100.0
Northern Virginia Totals	11,380	1,682,538	1,654,989	71,313	538,939	1,818,061	683,974	
Performance Standard	(142)	(28,959)	(13,298)	(14,331)	(518)	13,837	(2,160)	
VRE Extension to Haymarket	(27.0)	(7,748)	(2,798)	(4,670)	(227.0)	7,255	(1,821)	
Score	19.0	26.8	21.0	32.6	43.8	52.4	84.3	30.9
Metrorail All-Eight Car Trains	(142.0)	(28,959)	(13,298)	(14,331)	(518.0)	13,837	(2,160)	
Score	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Potomac Yard Station Redevelopment	(39.0)	(6,238)	(3,989)	(1,850)	(46.2)	3,566	(1,004)	
Score	27.5	21.5	30.0	12.9	8.9	25.8	46.5	23.3

# Transit Projects' Ratings compared to the Best Performing Highway Project - Fairfax County Parkway

2040 Performance Measures (9/4/15)	Reduce Congestion Duration (hrs*ln-mi)	Reduce Person Hours of Delay	Reduce Congested Person Hours in Autos	Reduce Congested Person Hours in Transit	Reduce Transit Crowding (VMT)	Increase Access to Jobs (45/60 min)	Improve Emergency Mobility (hours)	Rating
Weight	27.9%	20.3%	15.4%	11.8%	11.5%	9.5%	3.6%	100.0
Northern Virginia Totals	11,380	1,682,538	1,654,989	71,313	538,939	1,818,061	683,974	
Performance Standard	(350)	(53,175)	(65,930)	(14,331)	(518)	23,269	(21,994)	
Fairfax County Pkwy Improvements	(350.1)	(53,175)	(65,930)	(610)	-	23,269	(21,994)	
Score	100.0	100.0	100.0	4.3	-	100.0	100.0	77.2
VRE Extension to Haymarket	(27.0)	(7,748)	(2,798)	(4,670)	(227.0)	7,255	(1,821)	
Score	7.7	14.6	4.2	32.6	43.8	31.2	8.3	17.9
Metrorail All-Eight Car Trains	(142.0)	(28,959)	(13,298)	(14,331)	(518.0)	13,837	(2,160)	
Score	40.6	54.5	20.2	100.0	100.0	59.5	9.8	54.8
Potomac Yard Station Redevelopment	(39.0)	(6,238)	(3,989)	(1,850)	(46.2)	3,566	(1,004)	
Score	11.1	11.7	6.1	12.9	8.9	15.3	4.6	10.6

\*For comparison, the ratings were recalculated for the Fairfax County Parkway with the addition of the transit projects.



## Rating Comparisons – Top Third of Projects (37 highway, 3 transit)

2040 Project Ratings (with Transit Weights)			Project Rating
Project Name (* = new facilities)		Location	
NVTA-7	Fairfax County Pkwy Improvements	Fairfax	77.2
	Metrorail All-Eight Car Trains	NoVA	54.8
NVTA-9	Loudoun County Parkway extension to US 50*	Loudoun	30.4
NVTA-32	Route 28 - Godwin Drive Extension near Manassas*	Manassas/PW	29.0
CTB-2	Route 7 Widening from Tysons Corner to Reston	Fairfax	24.4
	VRE Extension to Haymarket	Prince William	17.9
NVTA-30	Route 28 Widening near Centreville	Fairfax	17.3
NVTA-11	US 1 Widening and Relocation - Dumfries	Dumfries	14.6
NVTA-22	Northstar Blvd Extension near Brambleton*	Loudoun	14.5
NVTA-2	Rolling Road Widening near Springfield	Fairfax	10.6
	Potomac Yard Station Redevelopment	Alexandria	10.6
NVTA-3	US 29 Widening near Centreville	Fairfax	9.3
NVTA-28	US 1 Widening near Woodbridge	Prince William	9.1

\*For comparison, the ratings were recalculated for the highway projects with the addition of the transit projects.

## Next Steps

- **Continue reviews of transit test results**
  - **Transit agencies**
  - **Virginia modeling group – modelers from Virginia localities**
- **Make any necessary refinements to model**
- **Begin update of networks to latest 2015 CLRP for next round of analysis**

# **FY2017 Program: Project Selection Process**

## Initial Recommendation



Presentation to the Project Implementation Working Group

September 16, 2015

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

# Tentative Schedule

- Sept. 25 thru Nov. 30, 2015: Call for Projects
- Dec. 10: NVRTA approves candidate project list (for HB 599 and NVRTA evaluations)
- April 2016: Project evaluations complete
- May 2016: NVRTA approves candidate project list (for public comment)
- June 2016: Public Hearing and Town Halls
- July 2016: NVRTA adopts FY2017 Program



# FY2017 Program Size

- Preliminary estimate: \$220 million PayGo funds, plus finance option
- Candidate projects (non-binding):
  - 25 projects
  - \$750 million
  - Includes \$370 million for I-66/Route 28 interchange



# Project Selection Process

- Generally consistent with FY2015-16 Two Year Program:
  - Preliminary Screening
  - Quantitative Score, including HB 599 rating for ALL projects
  - Qualitative Considerations
- Proposed enhancements



# HB 599 Methodology

- Recommendations:
  - Regardless of measures, use of TRANSIMS will continue
  - Baseline will be updated
  - All candidate projects will be evaluated, and rated against each other, incl. continuation projects
  - Evaluations for 2020 and 2040
  - Grouping opportunities will be explored when candidate project pool is confirmed, subject to available VDOT resources



# Proposed Enhancements

- Eligibility for funding
- HB 599 measures versus HB 2 measures
- Criteria weighting for NVRTA quantitative score
- Congestion relief relative to cost





# Eligibility for Funding

- Studies – an appropriate use of FY2017 Program funds?
- FY2017 Program funds – expiration date?
- Recommendations:
  - Studies ineligible
  - FY2017 Program funds must be used before FY2020
  - Eliminate both ‘Project Readiness’ criteria from NVTa quantitative score



# HB 599 versus HB 2 Measures

## HB 599

- Seven congestion measures
- Selected and weighted through a regional process
- Approved by NVTa
- Projects evaluated using TRANSIMS model for NoVA
- HB 599 rating is part of NVTa quantitative score
- NoVA candidate pool

## HB 2

- Two congestion measures
- Selected and weighted through a statewide process
- Approved by CTB
- Projects evaluated based on HCM principles
- Congestion measures are part of overall HB 2 rating
- VA candidate pool

One common measure: 'Person hours of delay'



# HB 599 versus HB 2 Measures

- Recommendations:
  - Retain the seven HB 599 measures
  - Review possible changes for FY2018 and beyond as part of TransAction Update



# Quant. Score: Criteria Weighting

## FY2015-16

- Congestion Relief: 35%
- Project Readiness\*: 25%
- Urgency: 5%
- Reduce VMT: 5%
- Safety: 5%
- Connectivity\*: 10%
- Improved Bike/Ped: 5%
- Management/Ops: 5%
- Cost Sharing: 5%

## FY2017

- Congestion Relief: review
- Project Readiness\*: eliminate
- Urgency: 5%+
- Reduce VMT: 5%+
- Safety: 5%+
- Connectivity\*: 10%+
- Improved Bike/Ped: 5%+
- Management/Ops: 5%+
- Cost Sharing: 5%+

Notes: \* two criteria      + adjust as needed



# Quant. Score: Criteria Weighting

- Recommendations:
  - Review weighting for ‘Congestion Reduction’ based on policy/emphasis considerations
  - Eliminate both ‘Project Readiness’ criteria
  - Adjust other criteria to maintain similar level of relative emphasis to each other
- ‘Project Readiness’ will be addressed through proposed funding eligibility rules and ‘congestion relief relative to cost’



# Congestion Relief Relative to Cost

- Previously relied on TransAction 2040 analysis
- TRANSIMS estimates congestion relief
- Need a comparison methodology that:
  - Considers congestion relief over time
  - Uses full project cost as well as the NVRTA share
  - Reflects project readiness more realistically
  - Complements the quantitative score



# Congestion Relief Relative to Cost

- Inputs
  - 2020 and 2040 person hours of delay reductions for each candidate project (from TRANSIMS)
  - Annual conversion factor for time savings
  - Average value of time
  - Project costs allocated to years (full project cost and requested NVRTA share from FY2017 Program)
  - Discount rate to be applied to costs and monetized annual time savings



# Congestion Relief Relative to Cost

- Key Points (see examples)
  - Evaluation period will be thru 2040
  - Benefits and costs will be allocated to the year in which they occur; benefits will be extrapolated using the 2020 and 2040 values
  - Benefits cannot be accrued prior to the anticipated year of opening or after 2040
  - Benefits and costs will be 'discounted' prior to summation
  - Ratios of congestion relief relative to cost  $<1.0$  indicate congestion benefit is less than the cost of the project
  - Two analyses will be prepared for each candidate project, one based on the full cost and one on just the NVTa share
  - Further consideration needed for addressing operations costs





# Example #1

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



# Example #2

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



# Congestion Relief Relative to Cost

- Recommendations
  - Incorporate the proposed approach
  - Calculate two ratios for each candidate project, one based on the full cost and one on just the NVTa share



# Summary

- Recommended Project Selection Process comprises:
  - Preliminary Screening
  - Screening for funding eligibility criteria
  - Quantitative Score, including HB 599 rating for ALL projects
  - Ratios of congestion relief relative to cost (two per project) incorporating project readiness
  - Qualitative Considerations



Comparison of NVTa FY15-16 Funded Highway Projects Ratings  
Using TRANSIMS Model, and HB599 and HB2 Measures of Effectiveness (MOE's)

FY 15-16 Funded Projects	Description	2040 Rating HB599 MOE's	2040 Rating HB2 MOE's
NVTA-1	Columbia Pike Multimodal Streets in Arlington	9.2	9.3
NVTA-2	Rolling Road Widening near Springfield	12.5	19.5
NVTA-6	Frontier Dr Extension in Springfield*	2.6	7.9
NVTA-7	Fairfax County Pkwy Improvements	88.5	74.9
NVTA-8	Belmont Ridge Rd widening near Broadlands	3.0	8.9
NVTA-9	Loudoun County Parkway extension to US 50*	30.6	63.0
NVTA-10	Route 7 Bridge Widening near Tysons Corner	4.6	28.9
NVTA-11	US 1 Widening and Relocation - Dumfries	14.6	21.8
NVTA-12	US 1 Widening near Ft. Belvoir	12.0	12.3
NVTA-13	Route 15 Bypass/Edwards Ferry Road Interchange	1.9	21.8
NVTA-14	Northfax Intersection (US29/50 @ VA123)	0.2	0.1
NVTA-15	Jermantown/US 50 Roadway Improvements	1.3	2.2
NVTA-17	Kamp Washington Intersection (US 50/29 @ VA236)	3.5	4.3
NVTA-19	Glebe Rd Corridor ITS Improvements	8.6	3.2
NVTA-26	Route 7/Battlefield Pkwy Interchange	1.8	3.9
NVTA-27	East Elden Street Widening in Herndon	0.3	5.0
NVTA-28	US 1 Widening near Woodbridge	10.8	19.0
NVTA-30	Route 28 Widening near Centreville	17.3	32.7
NVTA-31	Route 28 Widening near Manassas	8.7	54.3
NVTA-32	Route 28 - Godwin Drive Extension near Manassas*	29.3	68.1

Notes:

- 1- TRANSIMS model used to produce ratings, both using the HB599 MOE's and the HB2 MOE's
- 2- Measures of Effectiveness used for HB599 include congestion duration (27.9%), person hours of delay (20.3%), person hours of congested travel in automobiles (15.4%), person hours of congested travel in transit vehicles (11.8%), transit crowding (11.5%), accessibility to jobs (9.5%) and emergency mobility (3.6%), all weighted according to a participatory process.
- 3- Measures of Effectiveness used for HB2 include person hours of delay and person throughput, each weighted at 50%.
- 4- HB-2 person throughput metric derived from prior runs of TRANSIMS, using change in person throughput on the facility. TRANSIMS analysis for HB599 did not focus on that metric.

Comparison of NVTa FY15-16 Funded Highway Projects Ratings  
Using TRANSIMS Model, and HB599 and HB2 Measures of Effectiveness (MOE's)

Highway Projects Only - TRANSIMS Model

Project	Description	2040 Rating HB599 MOE's
1 NVTa-7	Fairfax County Pkwy Improvements	88.5
2 NVTa-9	Loudoun County Parkway extension to US 50*	30.6
3 NVTa-32	Route 28 - Godwin Drive Extension near Manassas*	29.3
4 NVTa-30	Route 28 Widening near Centreville	17.3
5 NVTa-11	US 1 Widening and Relocation - Dumfries	14.6
6 NVTa-2	Rolling Road Widening near Springfield	12.5
7 NVTa-12	US 1 Widening near Ft. Belvoir	12.0
8 NVTa-28	US 1 Widening near Woodbridge	10.8
9 NVTa-1	Columbia Pike Multimodal Streets in Arlington	9.2
10 NVTa-31	Route 28 Widening near Manassas	8.7
11 NVTa-19	Glebe Rd Corridor ITS Improvements	8.6
12 NVTa-10	Route 7 Bridge Widening near Tysons Corner	4.6
13 NVTa-17	Kamp Washington Intersection (US 50/29 @ VA236)	3.5
14 NVTa-8	Belmont Ridge Rd widening near Broadlands	3.0
15 NVTa-6	Frontier Dr Extension in Springfield*	2.6
16 NVTa-13	Route 15 Bypass/Edwards Ferry Road Interchange	1.9
17 NVTa-26	Route 7/Battlefield Pkwy Interchange	1.8
18 NVTa-15	Jermantown/US 50 Roadway Improvements	1.3
19 NVTa-27	East Elden Street Widening in Herndon	0.3
20 NVTa-14	Northfax Intersection (US29/50 @ VA123)	0.2

Highway Projects Only - TRANSIMS Model

Project	Description	2040 Rating HB2 MOE's
1 NVTa-7	Fairfax County Pkwy Improvements	74.9
2 NVTa-32	Route 28 - Godwin Drive Extension near Manassas*	68.1
3 NVTa-9	Loudoun County Parkway extension to US 50*	63.0
4 NVTa-31	Route 28 Widening near Manassas	54.3
5 NVTa-30	Route 28 Widening near Centreville	32.7
6 NVTa-10	Route 7 Bridge Widening near Tysons Corner	28.9
7 NVTa-11	US 1 Widening and Relocation - Dumfries	21.8
8 NVTa-13	Route 15 Bypass/Edwards Ferry Road Interchange	21.8
9 NVTa-2	Rolling Road Widening near Springfield	19.5
10 NVTa-28	US 1 Widening near Woodbridge	19.0
11 NVTa-12	US 1 Widening near Ft. Belvoir	12.3
12 NVTa-1	Columbia Pike Multimodal Streets in Arlington	9.3
13 NVTa-8	Belmont Ridge Rd widening near Broadlands	8.9
14 NVTa-6	Frontier Dr Extension in Springfield*	7.9
15 NVTa-27	East Elden Street Widening in Herndon	5.0
16 NVTa-17	Kamp Washington Intersection (US 50/29 @ VA236)	4.3
17 NVTa-26	Route 7/Battlefield Pkwy Interchange	3.9
18 NVTa-19	Glebe Rd Corridor ITS Improvements	3.2
19 NVTa-15	Jermantown/US 50 Roadway Improvements	2.2
20 NVTa-14	Northfax Intersection (US29/50 @ VA123)	0.1

- Notes:
- 1- TRANSIMS model used to produce ratings, both using the HB599 MOE's and the HB2 MOE's
  - 2- Measures of Effectiveness used for HB599 include congestion duration (27.9%), person hours of delay (20.3%), person hours of congested travel in automobiles (15.4%), person hours of congested travel in transit vehicles (11.8%), transit crowding (11.5%), accessibility to jobs (9.5%) and emergency mobility (3.6%), all weighted according to a participatory process.
  - 3- Measures of Effectiveness used for HB2 include person hours of delay and person throughput, each weighted at 50%.
  - 4- HB-2 person throughput metric derived from prior runs of TRANSIMS, using change in person throughput on the facility. TRANSIMS analysis for HB599 did not focus on that metric.

Rating of Test Transit Projects  
Using TRANSIMS Model, and HB599 and HB2 Measure of Effectiveness (MOE's)

Rating comparisons for transit projects using TRANSIMS model

Project	Description	2040 Rating HB599 MOE's
Test 2	Metrorail 8 car trains	100
Test 1	VRE Extension to Haymarket	30.9
Test 3	Potomac Yard Station Redevelopment	23.3

Rating comparisons for transit projects using TRANSIMS model

Project	Description	2040 Rating HB2 MOE's
Test 2	Metrorail 8-car trains	100
Test 1	VRE Haymarket Extension	42.2
Test 3	Potomac Yard Station Redevelopment	16.6

- Notes:
- 1- TRANSIMS model used to produce ratings, both using the HB599 MOE's and the HB2 MOE's
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  - 3- Measures of Effectiveness used for HB2 include person hours of delay and person throughput, each weighted at 50%.
  - 4- HB-2 person throughput metric derived from TRANSIMS runs, using change in person throughput on the facility. TRANSIMS analysis for HB599 did not focus on that metric.

Rating of NVTa FY15-16 Funded Highway Projects with Test Transit Projects  
Using TRANSIMS Model, and HB599 and HB2 Measure of Effectiveness (MOE's)

Project Rankings using TRANSIMS model

	Project	Description	2040 Rating HB599 MOE's
1	NVTA-7	Fairfax County Pkwy Improvements	77.2
2	Test 2	Metrorail 8 car trains	54.8
3	NVTA-9	Loudoun County Parkway extension to US 50*	30.4
4	NVTA-32	Route 28 - Godwin Drive Extension near Manassas*	29.0
5	Test 1	VRE Extension to Haymarket	17.9
6	NVTA-30	Route 28 Widening near Centreville	17.3
7	NVTA-11	US 1 Widening and Relocation - Dumfries	14.6
8	NVTA-2	Rolling Road Widening near Springfield	10.6
9	Test 3	Potomac Yard Station Redevelopment	10.6
10	NVTA-28	US 1 Widening near Woodbridge	9.1
11	NVTA-31	Route 28 Widening near Manassas	8.7
12	NVTA-12	US 1 Widening near Ft. Belvoir	8.2
13	NVTA-1	Columbia Pike Multimodal Streets in Arlington	7.3
14	NVTA-10	Route 7 Bridge Widening near Tysons Corner	3.6
15	NVTA-19	Glebe Rd Corridor ITS Improvements	3.3
16	NVTA-17	Kamp Washington Intersection (US 50/29 @ VA236)	3.0
17	NVTA-8	Belmont Ridge Rd widening near Broadlands	3.0
18	NVTA-13	Route 15 Bypass/Edwards Ferry Road Interchange	1.9
19	NVTA-26	Route 7/Battlefield Pkwy Interchange	1.8
20	NVTA-6	Frontier Dr Extension in Springfield*	1.0
21	NVTA-15	Jermantown/US 50 Roadway Improvements	1.0
22	NVTA-27	East Elden Street Widening in Herndon	0.2
23	NVTA-14	Northfax Intersection (US29/50 @ VA123)	0.1

Project Rankings using TRANSIMS model

	Project	Description	2040 Rating HB2 MOE's
1	Test 2	Metrorail 8-car trains	80.2
2	NVTA-7	Fairfax County Pkwy Improvements	69.4
3	NVTA-32	Route 28 - Godwin Drive Extension near Manassas*	57.2
4	NVTA-9	Loudoun County Parkway extension to US 50*	53.4
5	NVTA-31	Route 28 Widening near Manassas	43.3
6	Test 1	VRE Haymarket Extension	36.2
7	NVTA-30	Route 28 Widening near Centreville	28.6
8	NVTA-10	Route 7 Bridge Widening near Tysons Corner	23.1
9	NVTA-11	US 1 Widening and Relocation - Dumfries	18.5
10	NVTA-13	Route 15 Bypass/Edwards Ferry Road Interchange	17.2
11	NVTA-2	Rolling Road Widening near Springfield	16.4
12	NVTA-28	US 1 Widening near Woodbridge	15.6
13	Test 3	Potomac Yard Station Redevelopment	12.1
14	NVTA-12	US 1 Widening near Ft. Belvoir	10.2
15	NVTA-1	Columbia Pike Multimodal Streets in Arlington	7.8
16	NVTA-8	Belmont Ridge Rd widening near Broadlands	7.1
17	NVTA-6	Frontier Dr Extension in Springfield*	6.3
18	NVTA-27	East Elden Street Widening in Herndon	3.9
19	NVTA-17	Kamp Washington Intersection (US 50/29 @ VA236)	3.6
20	NVTA-26	Route 7/Battlefield Pkwy Interchange	3.2
21	NVTA-19	Glebe Rd Corridor ITS Improvements	2.8
22	NVTA-15	Jermantown/US 50 Roadway Improvements	1.8
23	NVTA-14	Northfax Intersection (US29/50 @ VA123)	0.1

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