

# Operational Analysis of Dulles Toll Road Ramps to Tysons

Board Transportation Committee Meeting  
December 10, 2013

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# Agenda

- Overview & Assumptions
- Traffic Analysis
- Comparison of Options
- Timeline, Other Projects
- Questions & Comments

- Tysons Comprehensive Plan Amendment Approval  
June 2010
- Evaluate the feasibility of the three general ramp locations included in the comprehensive plan amendment
  - DTR West of Route 7
  - DTR between Route 7 and Spring Hill Road
  - DTR East of Spring Hill Road

## Transit, Growth and A Comparison to other Jurisdictions

- The future transit goals for Tysons are very aggressive.
- Even in New York City, new developments will result in additional vehicle trips.

**Table 1. Transit Percentage (Journey to Work)**

Location	Year	Percent of Workers Commuting by Transit	Percent of Workers Commuting by SOV
New York City	2011	55% <sup>1</sup>	25% <sup>1</sup>
Washington DC	2011	38% <sup>1</sup>	38% <sup>1</sup>
Boston	2011	33% <sup>1</sup>	41% <sup>1</sup>
Arlington County	2011	28% <sup>1</sup>	55% <sup>1</sup>
<b>Tysons</b>	2050	<b>31%<sup>2</sup></b>	N/A
<b>Tysons (TOD areas only)</b>	2050	<b>36%<sup>2</sup></b>	N/A

Sources:

<sup>1</sup> American Community Survey

<sup>2</sup> Tysons Comprehensive Plan analysis

# Assumptions

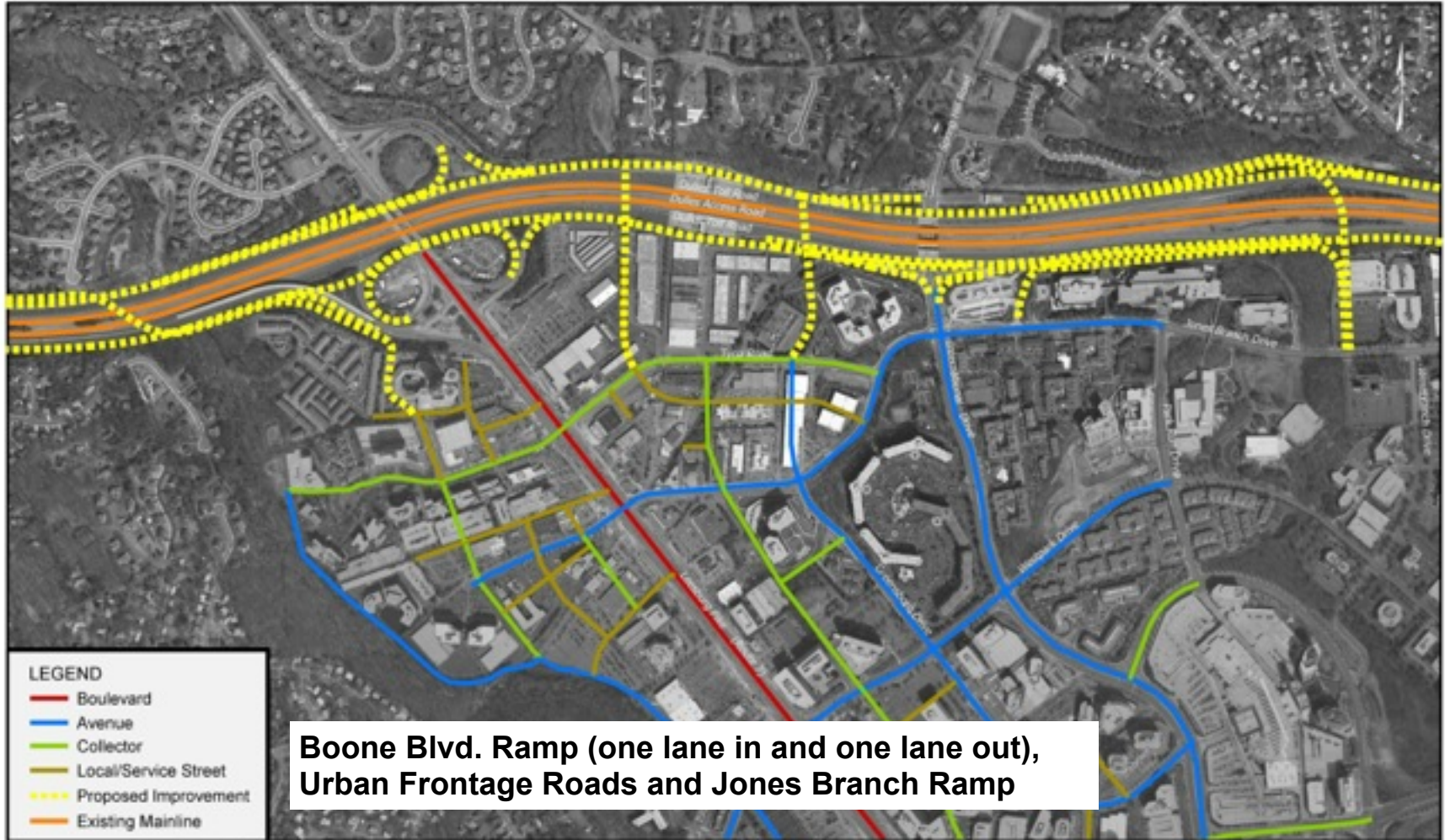
- All Options include:
  - Comp. Plan Table 7 Improvements
    - Widening of I-495 (including HOT Lanes/Connections)
    - Extension of Boone Blvd
    - Widening of Route 7
    - Jones Branch Connector / Scotts Crossing Extension
  - Grid of Streets
    - Assumes 60% of the Grid is in place in 2030
- No Build Scenario does not include:
  - Collector-Distributor (C-D) Road or Urban Frontage Road
  - Any of the three Ramp Options:
    - Boone Boulevard Ramp
    - Greensboro Drive
    - Jones Branch Ramp



# Option 1

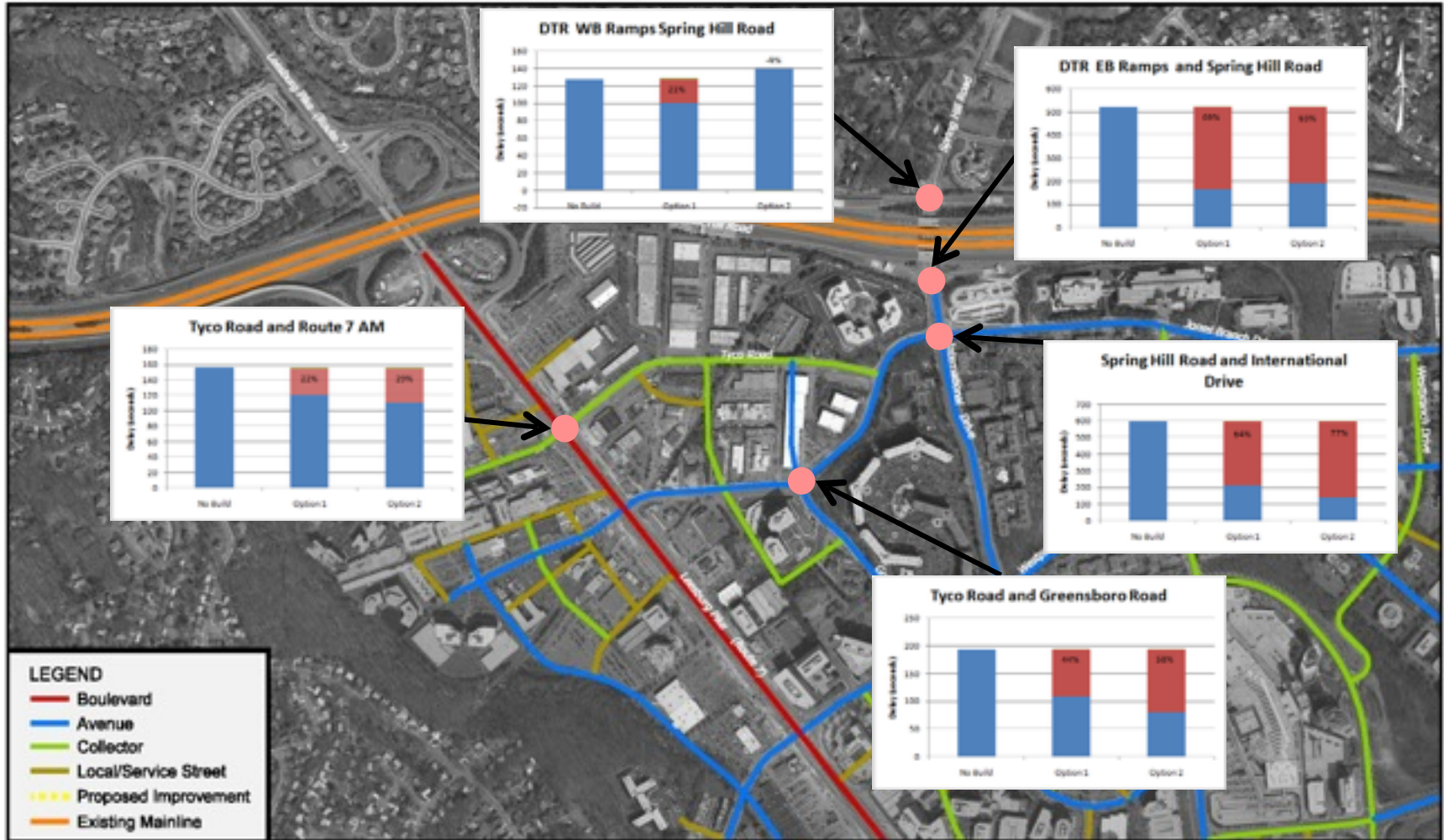


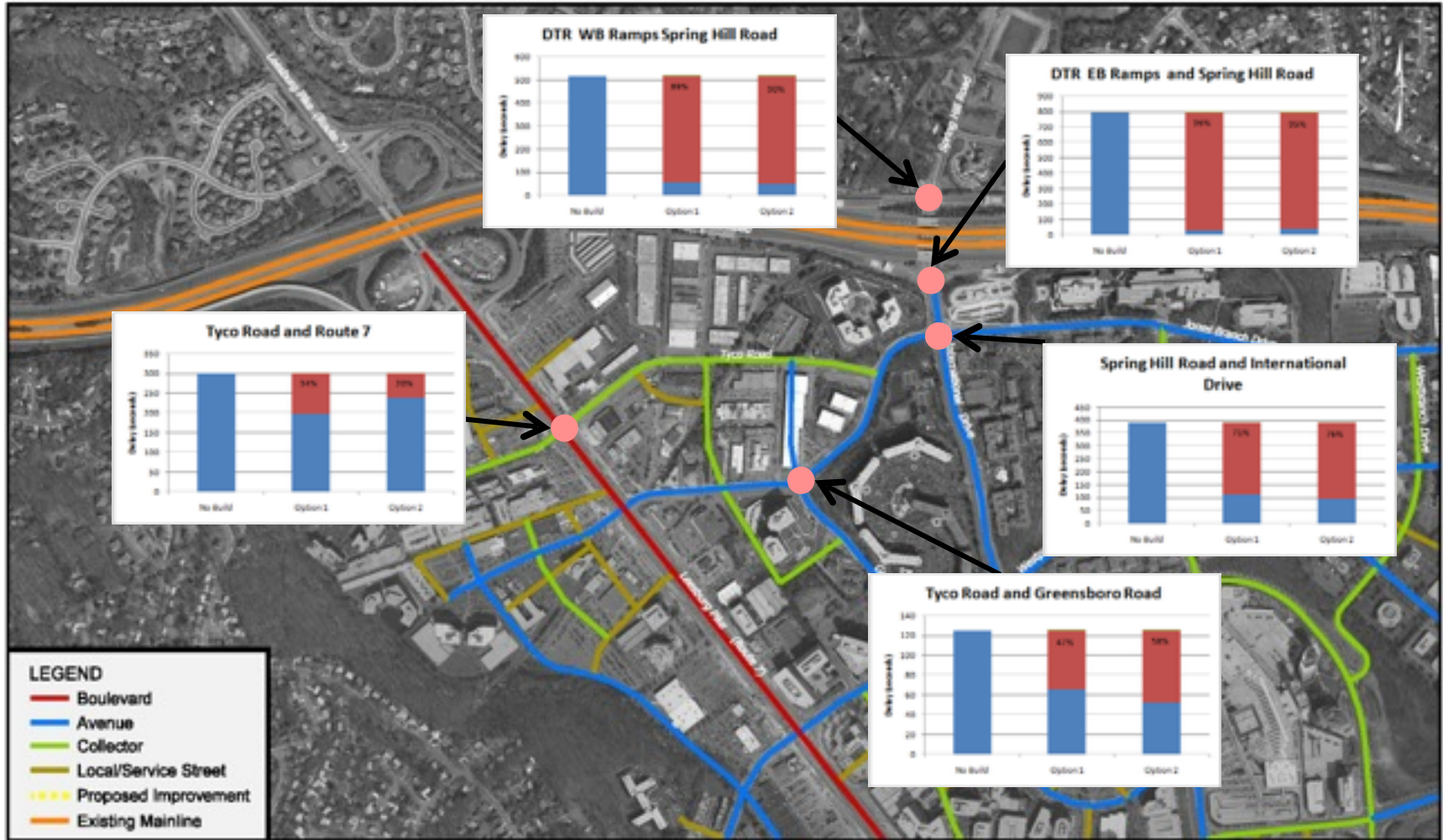
# Option 2





# Key Intersection Summary (AM)





# Advantages

Option 1	Option 2
<p align="center"><b>Boone Blvd Ramp, Greensboro Dr Ramp, &amp; Jones Branch Ramp with C-D Road</b></p>	<p align="center"><b>Boone Blvd Ramp, Urban Frontage Roads, &amp; Jones Branch Ramp</b></p>
<ul style="list-style-type: none"> <li>• Less costly</li> <li>• Functions similar to other “highway/freeway” connections</li> <li>• Driver expectation; exit/entrance ramps are similar to others in the area</li> <li>• Separation of thru and ramp traffic</li> <li>• Higher design and travel speeds</li> <li>• Mostly at-grade</li> <li>• Phased construction of the ramps possible</li> </ul>	<ul style="list-style-type: none"> <li>• Compatible with the highly urbanized vision</li> <li>• Distributes traffic to two points between Route 7 and Spring Hill Road</li> <li>• Provides a transition between higher speeds on the DTR and slower speeds within the grid of streets</li> <li>• More bicycle and pedestrian friendly</li> <li>• Provides additional access to the east on the DTR</li> </ul>

# Disadvantages

Option 1	Option 2
<p><b>Boone Blvd Ramp, Greensboro Dr Ramp, &amp; Jones Branch Ramp with C-D Road</b></p>	<p><b>Boone Blvd Ramp, Urban Frontage Roads, &amp; Jones Branch Ramp</b></p>
<ul style="list-style-type: none"> <li>• Loads traffic into a single intersection along Tyco Road</li> <li>• Includes another higher speed ramp (Greensboro) tying into the grid</li> <li>• Greensboro ramp encroaches more toward the residential areas to the north</li> <li>• Less bicycle and pedestrian friendly</li> <li>• Does not provide additional access to the east on the DTR</li> </ul>	<ul style="list-style-type: none"> <li>• More expensive due to the structures</li> <li>• More difficult to phase construction</li> <li>• Relies on signalized intersections to function</li> <li>• More significant visual impacts due to the DTR overpasses</li> </ul>

# Comparison Table

Alternative	Improvement to Route 7 Intersection Operations (AM / PM)	Improvement to Spring Hill Intersection Operations (AM / PM)	Improvement to Grid of Streets Intersection Operations (AM / PM)	Impacts to Merging / Weaving along DTR	Estimated Increase in Impervious Area, SF	Estimated ROW & Permanent Easement Areas, SF	Environmental	Estimated Construction Cost
Option 1 - Boone Blvd Ramp, Greensboro Dr Ramp, & Jones Branch Dr Ramp with C-D Road	Low / Low	Low / Medium	Medium / Medium	Low / Low	1,550,000	770,000	No Significant Difference Between the Two Options, Will be Studied Further in More Detail	\$250 Million
Option 2 - Boone Blvd Ramp, Urban Frontage Roads, & Jones Branch Dr Ramp			Medium / High		1,560,000	760,000		\$330 Million

**NOTE:** Estimated cost to construct the ramps and C-D/urban frontage roads included in each option. Costs are in 2013 dollars. The costs were computed using the VDOT Transportation & Mobility Planning Division, Statewide Planning Level Cost Estimates and supplemented where costs were not provided. Due to the space constraints throughout the project corridor, the retaining walls were assumed to be MSE walls. The costs do not include ROW, utilities, drainage, stormwater management, environmental mitigation, or the reconstruction of impacted bridges or MWAA facilities, as these costs are expected to be similar for both options.

- Traffic
  - Both options improve intersection LOS and reduce delay
  
- Environmental Impacts
  - Noise, Visual, Air, Park Land, Waterways
  - Will be quantified further in future studies

# Other Strategies that Can be Considered to Improve Operations

- Active Traffic Management – Main Line Speed Harmonization
- Open Road Tolling
- Ramp Metering (Route I-66 in Arlington)
- Increase Capacity to Toll Road/Access Road
- Congestion Pricing
- Improve Transit Network

- Monthly progress meetings with VDOT, MWAA, and FCPA.
- Tysons steering committee meetings
- Planning commission meetings
- Meetings with Dominion Virginia Power
- Meetings with FCPA and EQAC
- Two public information meetings
- Community meetings
- Meetings with Tysons west developers and property owners as part of Tysons west CTIA Study
- Meetings with property owners/developers adjacent to the proposed ramps

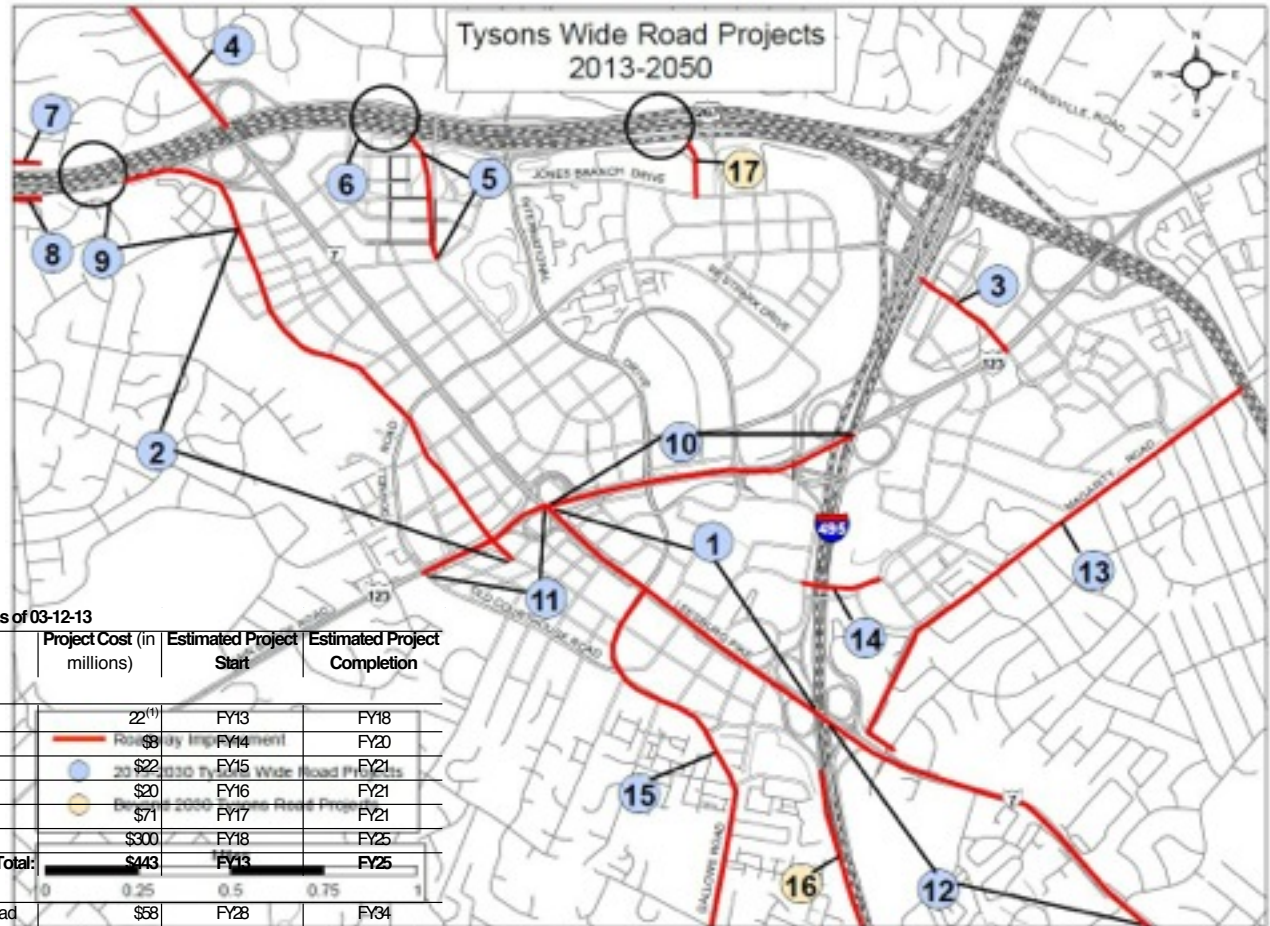
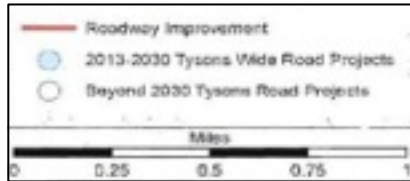
# Next Steps

- Document all comments received October 2013
- Finalize report November 2013
- Present Board action item December 2013
- Monitor Tysons development and growth
- Monitor studies and improvement projects in the area
  - DTR Corridor Study (Dulles Airport to I-495 Interchange)
  - Route 7 widening (Reston Avenue to DTR)
- Study information will be utilized for zoning cases and development
- Further Studies and Public Participation TBD
  - National Environmental Policy Act Study
  - Interchange Justification Report
- Current estimate for project initiation FY 2028



# Project Timelines

## Legend



Tysons Wide Project Status as of 03-12-13

Project #	Description	Project Cost (in millions)	Estimated Project Start	Estimated Project Completion
<b>Phase I (Projects Completed 2013-2027)</b>				
3	Extension of Jones Branch Connection to inside I-495	\$22 <sup>(1)</sup>	FY13	FY18
11	Rt. 123 Widening from Old Courthouse Road to Rt.7	\$9	FY14	FY20
1	Rt. 7 Widening from Rt. 123 to I-495	\$22	FY15	FY21
10	Rt. 123 Widening from Rt.7 to I-495	\$20	FY16	FY21
12	Rt. 7 Widening between I-495 and I-66	\$71	FY17	FY21
4	Rt.7 Widening from the Dulles Toll Road to Reston Avenue	\$300	FY18	FY25
<b>Phase I Total:</b>		<b>\$443</b>	<b>FY13</b>	<b>FY25</b>
<b>Phase II (Projects Completed 2028-2042)</b>				
5	Greensboro Drive Extension west from Spring Hill Road to Tyco Road	\$58	FY28	FY34
14	I-495 Overpass at Tysons Corner Center	\$18	FY28	FY35
6	Dulles Toll Road Ramp to Greensboro Drive Extension	\$28	FY28	FY36
8	Dulles Toll Road Eastbound Collector Distributor	\$62	FY28	FY36
2	Boone Blvd Extension west from Rt. 123 to Ashgrove Lane	\$126	FY28	FY36
7	Dulles Toll Road Westbound Collector Distributor	\$124	FY28	FY37
9	Dulles Toll Road Ramp to Boone Blvd Extension	\$79	FY28	FY37
13	Widen Magarity Road from Lisle/Rt.7 to Great Falls Street	\$63	FY28	FY37
15	Widen Gallows Road from Rt.7 to Prosperity Ave	\$94	FY28	FY38
<b>Phase II Total:</b>		<b>\$652</b>	<b>FY28</b>	<b>FY38</b>
<b>Phase III (Projects Completed 2042-2053)</b>				
17	Dulles Toll Road Ramp to Jones Branch Drive	\$38	FY43	FY51
16	I-495 Additional Lane (Outer Loop between Rt.7 and I-66)	\$74	FY43	FY53
<b>Phase III Total:</b>		<b>\$112</b>	<b>FY43</b>	<b>FY53</b>

# Questions & Comments