WELCOME

I-66 Multimodal Study Inside the Beltway

Identifying Solutions Between I-495 and the Roosevelt Bridge

Schedule

6:00-6:30 p.m.	Open House
6:30-7:30 p.m.	Presentation
7:30-8:00 p.m.	Open House

For More Information

Visit: www.i66multimodalstudy.com

Contact: Attn: Valerie Pardo
VDOT Transportation Planning
855-788-3966 (855-STUDY-66)
info@i66multimodalstudy.com

Provide Comments

- Please complete a comment sheet and leave it in the boxes provided, or send to:

  Charise Geiling
  Sharp & Company
  794 Nelson Street
  Rockville, MD 20850

- E-mail: info@i66multimodalstudy.com
- Call: 855-788-3966 (855-STUDY-66)
- Provide oral comments tonight to the court reporter.

Public Meetings

As the study progresses, another round of public meetings will take place in April. The study web page will provide additional details.

PROJECT OVERSIGHT

Lead Agencies

- Virginia Department of Transportation (VDOT)
- Virginia Department of Rail and Public Transportation (DRPT)

Consulting Firms

- Cambridge Systematics
- KFH Group
- MCV Associates
- RK&K
- Sharp & Company
- Southeastern Institute of Research
- Toole Design Group

Participating Agency Representatives Committee (PARC)

The PARC is composed of representatives from jurisdictions and transportation providers in the study area. They provide input on draft materials and advise the study.

Representatives are from:

- Arlington County
- City of Alexandria
- City of Fairfax
- City of Falls Church
- District of Columbia
- Fairfax County
- Federal Highway Administration
- Federal Transit Administration
- Loudoun County
- Metropolitan Washington Council of Governments
- Northern Virginia Transportation Commission
- Potomac and Rappahannock Transportation Commission
- Prince William County
- Town of Vienna
- Virginia Railway Express
- Washington Metropolitan Area Transit Authority

PUBLIC INVOLVEMENT

Throughout the course of the study a variety of tools are being used to either obtain appropriate input or disseminate information to the public.

Public Meetings

- December 2011: Present information and seek input on corridor issues and needs, and mobility options for consideration.
- April 2012: Present information and seek input on the comprehensive study findings.

Stakeholder and Elected Official Interviews

Stakeholder interviews are currently being conducted to:

- Engage and inform community leaders.
- Gather stakeholder input for the formulation of mobility options.
- Help the project team identify stakeholder issues early on.

Market Research

A formal market research survey was designed and conducted to:

- Allow commuters to share their opinions, state their needs, express their preferences and describe their travel choices regarding transportation in the I-66 corridor.
- Results will be used to inform decisions throughout the study.

Project Factsheets

- Four factsheets are being prepared over the course of the study, and will be released at key milestones.
- Factsheets 1 and 2 are available in the Welcome/Sign-In Area.

STUDY GOAL

To identify a range of current and visionary multimodal and corridor management solutions (operational, transit, bike and pedestrian, and highway improvements) that can be implemented to reduce highway and transit congestion and improve overall mobility within the corridor and along major arterial roadways and bus routes within the study area.

STUDY OUTCOMES

Review of existing plans and studies and analysis of travel, demographic, land use, and population data to identify key issues and needs in the I-66 corridor inside the Beltway.

Public outreach, including market research, stakeholder interviews, and public meetings to help inform commuter priorities for transportation improvements.

Inventory of multimodal transportation options available to enhance mobility.

Analysis and evaluation of the transportation strategies, projects, policies, or programs to identify 8-10 options with the most potential for enhancing mobility in the I-66 corridor inside the Beltway.

Analysis of 4-5 multimodal options packages designed to address the mobility issues in the I-66 corridor inside the Beltway.

Development of multimodal recommendations to improve mobility in the I-66 corridor inside the Beltway.

I-66 Multimodal Study Inside the Beltway

STUDY BOUNDARIES

Recommended mobility improvements will be focused in the Study Area, defined as the I-66 corridor from the Capital Beltway (I-495) east to the Theodore Roosevelt Bridge.

Nearby parallel facilities within the study boundaries include U.S. Route 29, U.S. Route 50, and VA Route 237 – Washington Boulevard.

Project Area Study Map

I-66 Multimodal Study Inside the Beltway

RELEVANT PROJECTS AND STUDIES

Projects in the I-66 Corridor

Completed Studies

I-66 Transit/TDM Study

The goal of this study was to identify transportation choices through transit and transportation demand management (TDM) enhancements to increase mobility in the I-66 corridor, between Haymarket and Washington D.C. Transit and TDM recommendations will be included in the options for testing as part of the Multimodal Study.

Idea-66 Study

In 2005, VDOT and the Virginia Division of FHWA completed a feasibility study to identify ways to reduce congestion within the existing right-of-way on I-66 westbound, from Rosslyn to the Dulles Connector Road. The study recommended a road widening concept with various managed lane types be advanced for further detailed evaluation. An evaluation of interim improvements that could occur with minimal impacts were also recommended to address spot problems and geometric deficiencies.

Planning/Study Phase

I-66 Multimodal Study (D.C. line - I-495)

Planning level study to determine options and recommend strategies which promote and enhance multimodal transportation. Study started in July 2011 and will issue a final report in May 2012.

I-66 EIS (I-495 - Rt 15)

Tier 1 Environmental Impact Study (EIS) to identify current and future transportation needs along I-66 propose solutions and identify their environmental impacts. A draft EIS is expected by June 2012 for public review and final EIS anticipated by December 2012.

DRPT Super NOVA Vision Plan

The Virginia Department of Rail and Public Transportation (DRPT) planning study will encompass Northern Virginia, south to Caroline County and west to Culpeper and Frederick Counties and will include coordination with Maryland, D.C., and West Virginia. This year-long study begins in November 2011 to identify transit and TDM needs/strategies for the near-, mid-, and long-term (2040) and will incorporate stakeholder and public input.

Projects in Design Phase

I-66 Vienna Metro Access Ramp (I-66 at Vaden Street)

Provision of a bus-only ramp from the eastbound and westbound HOV lanes of I-66 to Vaden St. near the Vienna Metro Station.

I-66 Spot Improvement #2 (Westmoreland Drive - Haycock Road)

Addition of a westbound auxiliary lane by continuation of an on-ramp to an off-ramp. No right-of-way is required. A public hearing was held on October 27, 2008 and the project awaits completion of the I-66 Mulitmodal Study before re-initiating design.

I-66 Spot Improvement #3 (Glebe Road - Lee Highway)

Addition of a westbound auxiliary lane by continuation of an on-ramp to an off-ramp. No right-of-way is required. A public hearing was held on October 27, 2008 and the project awaits completion of the I-66 Mulitmodal Study before re-initiating design.

I-66 ATM - Active Traffic Management (D.C. line - Rt 15)

Design-build project delivery of phased deliverables including gantry structures, land/shoulder control display, queue/incident detectors, robust CCTV coverage, queue/speed warning DMS for lane/shoulder control, responsive incident management, emergency areas with detection/surveillance to enhance mobility.

Silver Line Phase II

The Metropolitan Washington Airports Authority (MWAA) is constructing, in two phases, a 23-mile extension of the existing Metrorail system, which will be operated by the Washington Metropolitan Area Transit Authority (WMATA) from East Falls Church to Washington Dulles International Airport west to Ashburn. Phase 2 will run from Wiehle Avenue to Ashburn in eastern Loudoun County. A construction date has not been set for this extension, but Preliminary Engineering (PE) is currently underway.

Projects in Construction

Silver Line Phase I

The Metropolitan Washington Airports Authority (MWAA) is constructing, in two phases, a 23-mile extension of the existing Metrorail system, which will be operated by the Washington Metropolitan Area Transit Authority (WMATA) from East Falls Church to Washington Dulles International Airport west to Ashburn. Phase 1 will be completed in 2013 and will run from East Falls Church to Wiehle Avenue on the eastern edge of Reston, adding five stations to the Metrorail system: Tysons East, Tysons Central 123, Tysons Central 7, Tysons West, and Wiehle Avenue.

I-66 Spot Improvement #1 (George Mason Drive - Sycamore Street)

Addition of a westbound auxiliary lane by continuation of an on-ramp to an off-ramp. No right-of-way is required and no impacts outside of the immediate I-66 corridor are expected. The project is under construction and scheduled for a December 2011 completion.

I-66 Pavement Rehabilitation (I-495 - Rt 50)

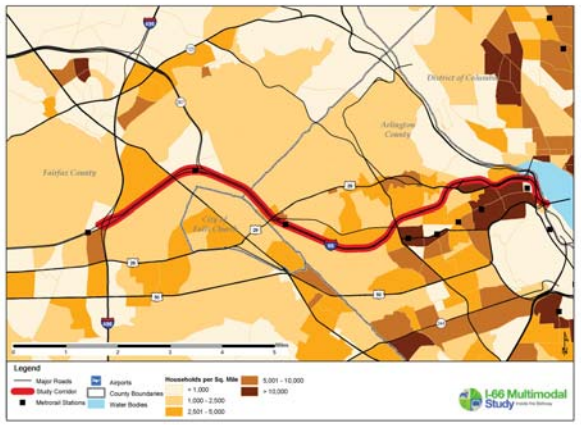
Design-build project for concrete patching and asphalt overlay on the eastbound and westbound mainline and ramps. The project also includes upgrades to corridor drainage, concrete barrier and guardrail. Construction is underway and scheduled for an October 2012 completion date.

I-66 - I-495 HOT Lanes

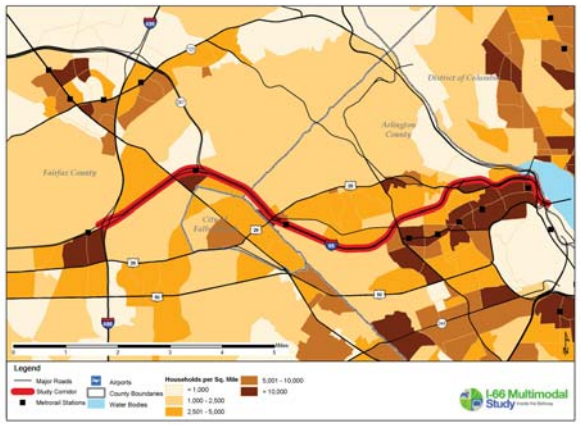
VDOT MEGA-Project team reconstruction of existing bridges, access ramps and construction of a new HOT lane access ramp at the I-66/I-495 interchange. Work is scheduled for completion in late 2012.

LAND USE FACTORS – HOUSEHOLD GROWTH

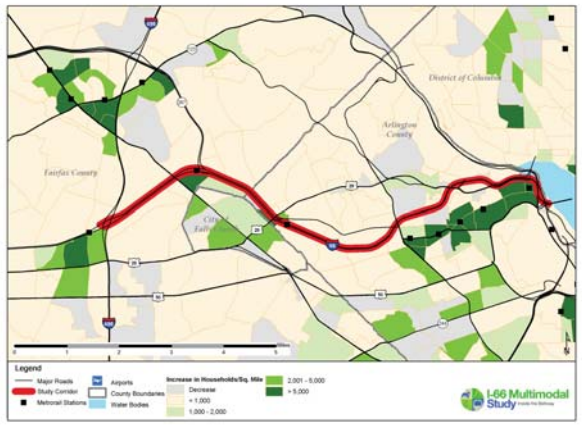
Current Household Density Map
2007



Future Household Density Map
2040



Changes in Household Density Map
2007-2040



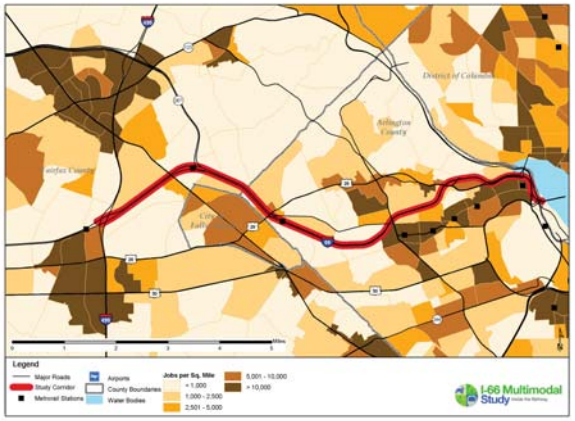
Current and Future Households

	2007	2040	Percent Growth
Region	1,626,600	2,273,100	40%
Northern Virginia	650,800	963,500	48%
Refined Study Area	75,400	95,700	27%

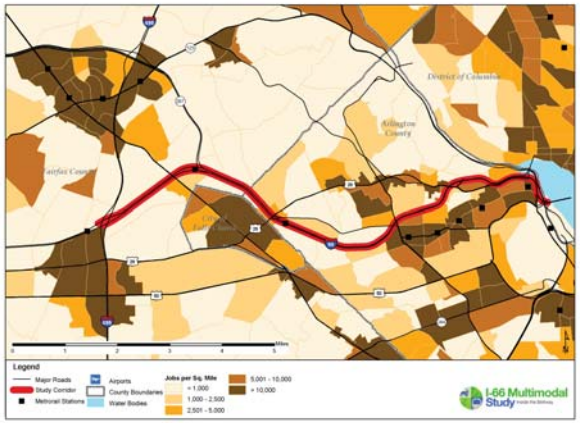
I-66 Multimodal Study Inside the Beltway

LAND USE FACTORS – EMPLOYMENT GROWTH

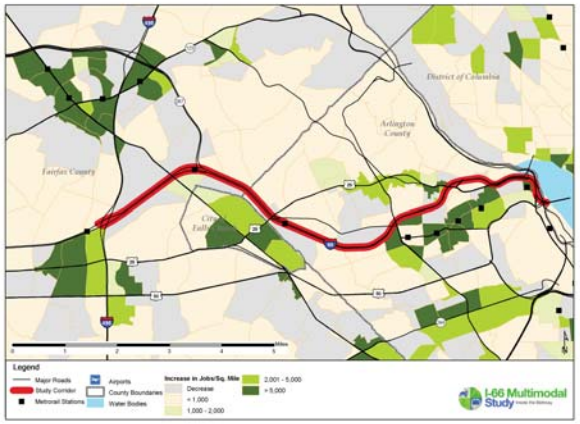
Current Employement Density Map
2007



Future Employment Density Map
2040



Changes in Employment Density Map
2007-2040



Current and Future Employment

	2007	2040	Percent Growth
Region	2,768,200	4,011,800	45%
Northern Virginia	1,018,500	1,661,900	63%
Refined Study Area	151,900	206,700	36%

I-66 Multimodal Study Inside the Beltway

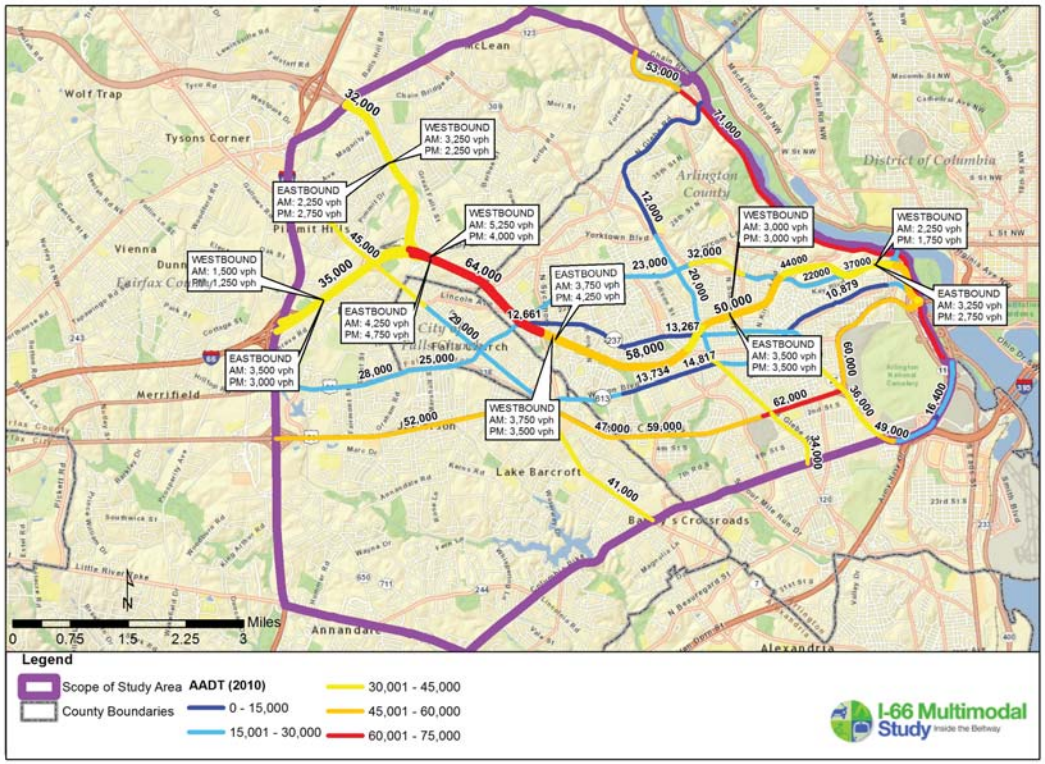
FACTORS INFLUENCING HIGHWAY MOBILITY

Annual Average Daily Traffic (AADT) in the Study Area

2007

This map presents the Annual Average Daily Traffic (AADT) along the major highways in the study area:

- I-66 is the major roadway for travel inside the Beltway.
- U.S. Route 50 is the primary alternative for travel inside the Beltway.
- U.S. Route 29 is the next major contributing arterial for travel inside the Beltway.
- Route 7 is the primary North-South arterial within the study area.



I-66 Multimodal Study Inside the Beltway

FACTORS INFLUENCING HIGHWAY MOBILITY

I-66 Level of Service
Eastbound Morning Peak

I-66 Level of Service
Westbound Morning Peak

Source: Traffic Quality on the Metropolitan Washington Area Freeway System, Spring 2011 Report. Prepared by Skycomp, Inc.

Note: Construction along I-66 both eastbound and westbound may have contributed to the congestion.

FACTORS INFLUENCING HIGHWAY MOBILITY

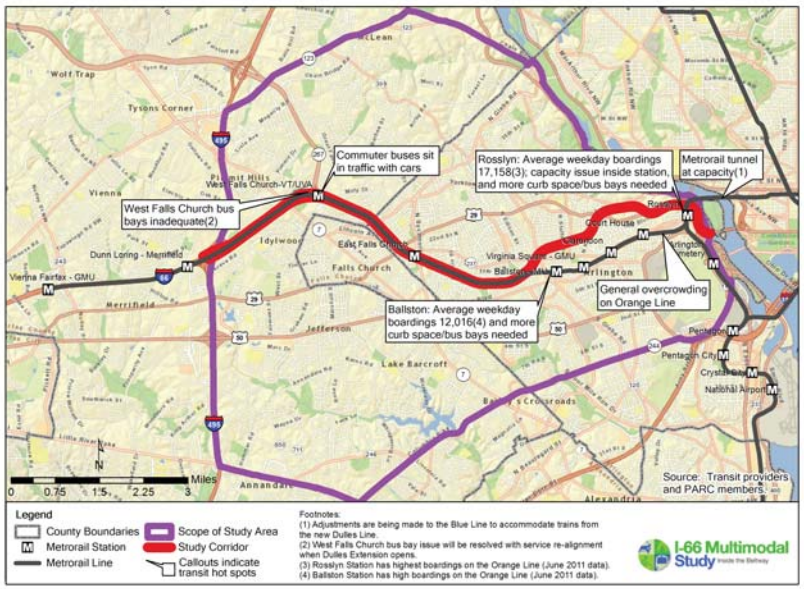
I-66 Level of Service
Eastbound Evening Peak

I-66 Level of Service
Westbound Evening Peak

Source: Traffic Quality on the Metropolitan Washington Area Freeway System, Spring 2011 Report. Prepared by Skycomp, Inc.
Note: Construction along I-66 both eastbound and westbound may have contributed to the congestion.

FACTORS INFLUENCING TRANSIT MOBILITY

Transit Network Constraints and Opportunities



As a result of direct communications with transit providers in the study area, transit network constraints and opportunities were identified.

Metrorail Inbound
2040

By 2040, the frequency of Metrorail service east of the West Falls Church station more than doubles due to:

- Increased Orange Line service
- Addition of new Silver Line service

I-66 Multimodal Study Inside the Beltway

PRIORITY BUS

Priority Bus refers to a collection of premium bus infrastructure and services. The functional and operational characteristics which distinguish Priority Bus modes are:

- **Superior performance**, through technology and/or managed lanes, these services can offer travel-time savings compared to other transit modes and are designed to be competitive with the private automobile.
- **The ability to shape land use policy**, as high-frequency premium services tend to be oriented toward major activity centers which provide sufficient demand and support transit-oriented development.
- **A strong identity** using branding means it is perceived as being distinct from the local bus system, uniquely identifying it as a premium service.

ENVISIONED FIT FOR PRIORITY BUS

Mode		Description	Example
Commuter Bus		Motor coach featuring comfortable all seated interior with interurban or suburban service to major employment centers. Typically peak hours and weekday only operations.	Loudoun County Transit OmniRide (PRTC)
Express Bus		Buses operating on a faster schedule by not making as many stops as local bus services and often taking quicker routes, that other buses usually do not use, such as along freeways.	Richmond Highway Express (WMATA) Franconia-Springfield/ Pentagon Express – RT 380 (Fairfax Connector)
Local Bus		Bus serving an area confined to a specific locale, such as a downtown area or suburban neighborhood with connections to major activity centers or traffic corridors.	Arlington Transit DASH Fairfax Connector PRTC WMATA Private Shuttles

FACTORS INFLUENCING BICYCLE MOBILITY

Existing and Planned Bicycle Facilities
West

Existing and Planned Bicycle Facilities
Central

Existing and Planned Bicycle Facilities
East

Potential improvements are being reviewed to improve the safety and comfort of current system users and increase capacity to accommodate additional bicyclists.

Location Specific Issues

1) Lynn Street Improvements
2) Scott Street Bridge
3) Clarendon Circle
4) Fairfax Drive/Kirkwood Intersection
5) Fairfax Drive/Custis Trail/ Bluemont Junction Trail Transition
6) Custis Trail Underpass near Kennebec Street/Bon Air Park
7) Bicycle Access to West Falls Church Metrorail Station
8) Pimmit Hills Connection on Route 7/ Leesburg Pike
9) Gallows Road Bike Lanes

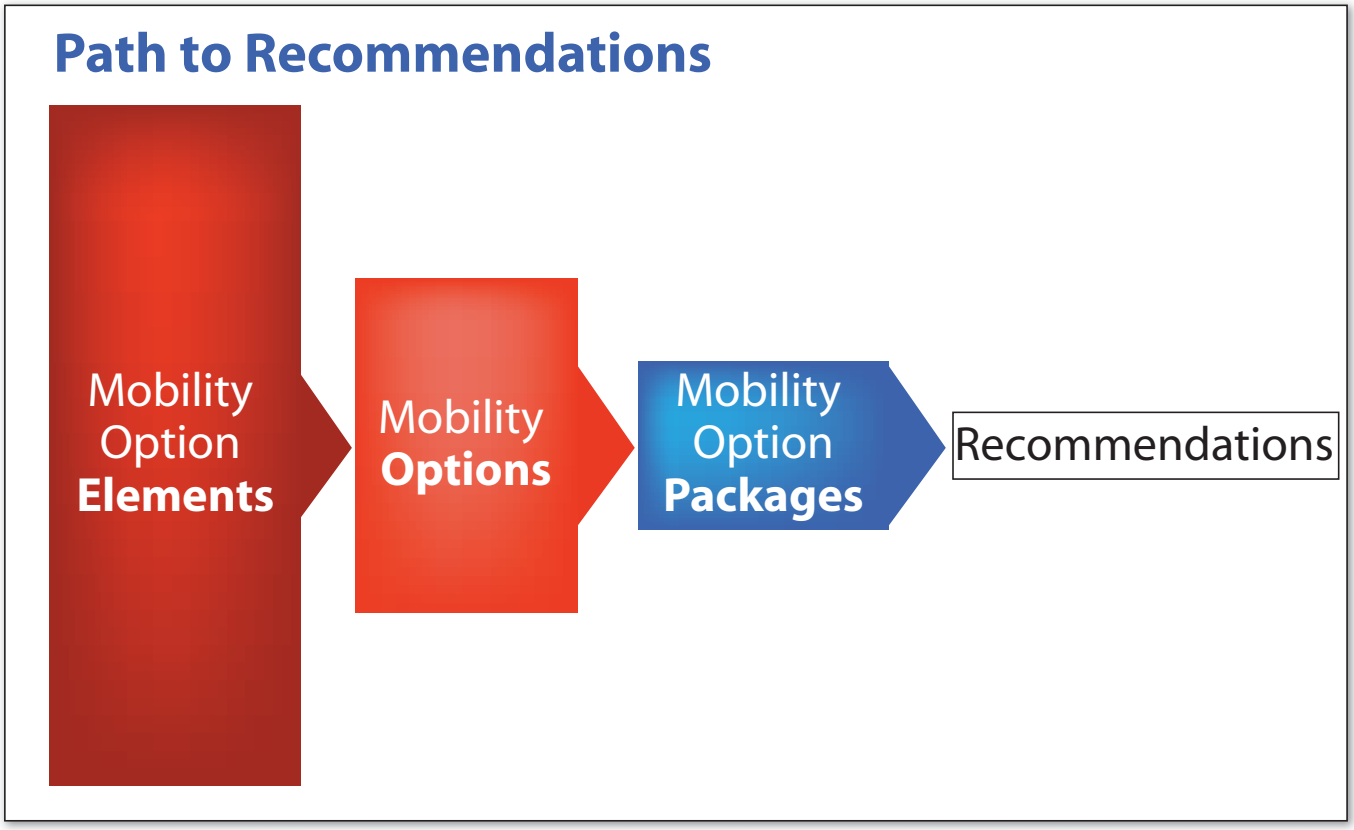
General Issues

10) Trail Width and Pavement Condition
11) Regional Wayfinding
12) Trail Lighting

I-66 Multimodal Study Inside the Beltway

STUDY METHODOLOGY

- Issues and Needs
- Mobility Option Elements
- Mobility Options
- Mobility Packages
- Recommendations

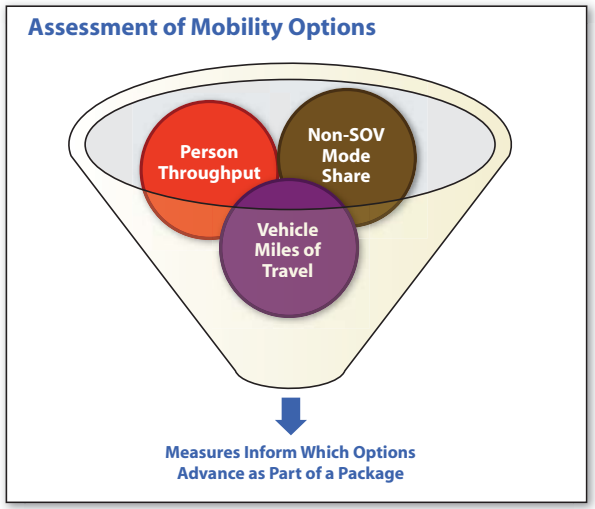


STUDY METHODOLGY

Mobility Packages

The mobility options will be assessed using several measures, including:

- Change in Modal Shares in the Corridor
- Change in Person Throughput
- Change in Congested Vehicle Miles of Travel (VMT)
- Qualitative Assessment



4 to 5 multimodal mobility option packages will be developed, informed by the mobility option testing.

Potential Recommendations

4 to 5 Mobility Option Packages will be evaluated using (examples only, not finalized):

- Non-SOV Mode Share
- Person Throughput
- Vehicle Miles of Travel
- Travel Time
- Nonmotorized Travel
- Level of Service (LOS) Maps
- Cost/Benefit Analysis
- Qualitative Considerations

Based on the assessment of the mobility option packages, a preferred package will be recommended.

STUDY METHODOLOGY

Key Issues and Needs

- Westbound Roadway Congestion
- Eastbound Roadway Congestion (include interchange capacity constraints at the Dulles Connector Road)
- Capacity Issues at I-66/Arterial Interchanges
- Non-HOV Users during HOV Operation Hours
- Orange Line Metrorail Congestion
- Adverse Impact of Roadway Congestion on Bus Service
- Challenges to Intermodal Transfers (rail, bus, bike, car)
- Bottlenecks on W&OD and Custis Trails
- Limitations/Gaps in Bicycle and Pedestrian Accessibility and Connectivity

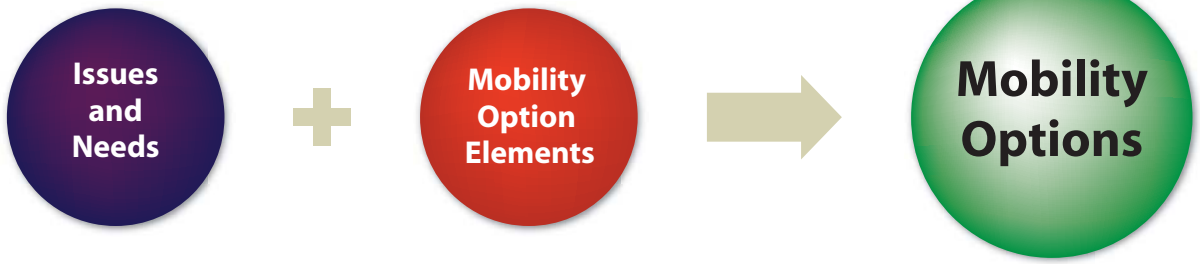
Mobility Elements

- Over 100 highway, transit, bicycle/pedestrian, transportation demand management (TDM), and intelligent transportation systems (ITS) strategies, projects, programs, or policies that have the potential to enhance mobility.
- All of the mobility option elements feed into a discrete set of mobility options, or solutions to address the issues and needs.

Mobility Options

A. HOV Restrictions
B1. I-66 Bus/HOV/HOT Lane System – Option 1
B2. I-66 Bus/HOV/HOT Lane System – Option 2
C1. I-66 Capacity Enhancement – Option 1
C2. I-66 Capacity Enhancement – Option 2
D. Integrated Corridor Management
E. Arterial Capacity Enhancement
F. Metrorail Level of Service and Capacity
G. Bus Transit Level of Service and Capacity
H. Transportation Demand Management
I. Bike/Pedestrian System Enhancements

Relationship Between Issues and Needs, Mobility Options Elements, and Mobility Options



MOBILITY OPTIONS

A. HOV Restrictions

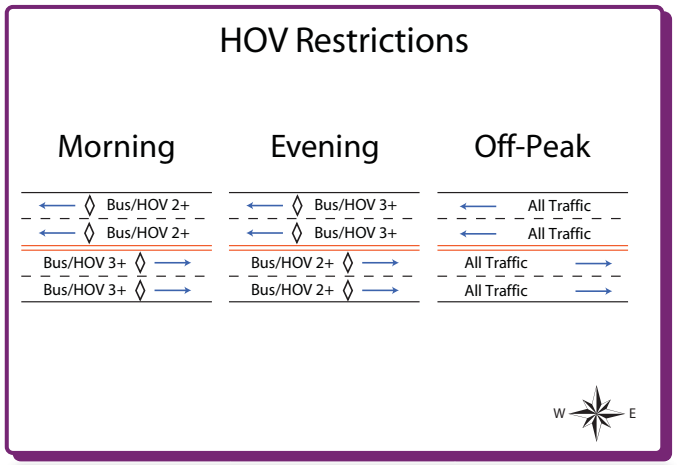
- I-66 lanes in both directions are designated Bus/HOV during peak periods.
- No new lanes added.
  - > In the peak direction, all lanes are Bus/HOV 3+ only during peak periods (no change from CLRP).
  - > In the reverse-peak direction, all lanes are Bus/HOV 2+ only during peak periods.
  - > In off-peak periods all lanes are open to all traffic.

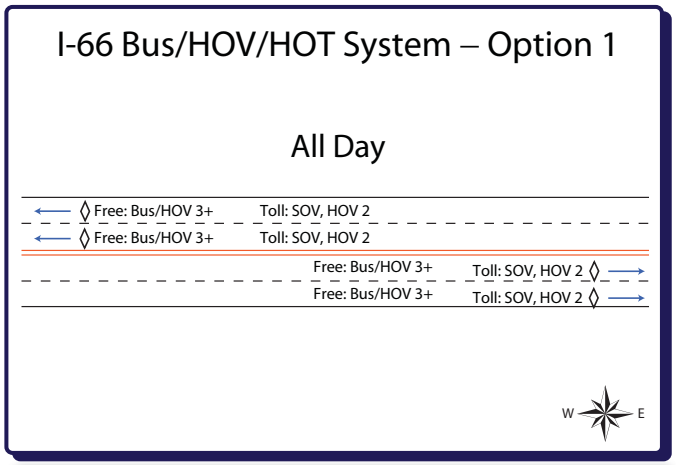
B1. I-66 Bus/HOV/HOT Lane System – Option 1

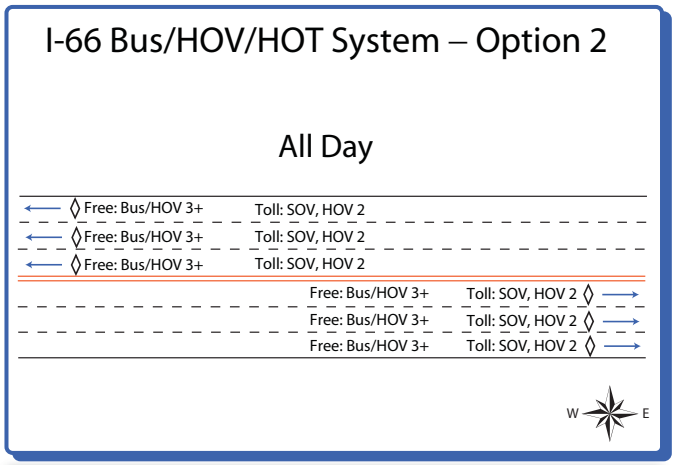
- Converts I-66 into an electronically tolled Bus/HOV/high occupancy toll (HOT) roadway.
  - > SOV and HOV 2 vehicles would be tolled.
  - > Bus/HOV 3+ vehicles would not be tolled.
  - > Applies to all lanes in both directions 24/7.

B2. I-66 Bus/HOV/HOT Lane System – Option 2

- Converts I-66 into an electronically tolled Bus/HOV/HOT roadway and adds a lane in each direction.
  - > SOV and HOV 2 vehicles would be tolled.
  - > Bus/HOV 3+ vehicles would not be tolled.
  - > Applies to all lanes in both directions 24/7.







Issues and Needs

- Westbound Roadway Congestion
- Eastbound Roadway Congestion
- Interchange Capacity
- Roadway Congestion Effects on Bus Service

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Issues and Needs

- Westbound Roadway Congestion
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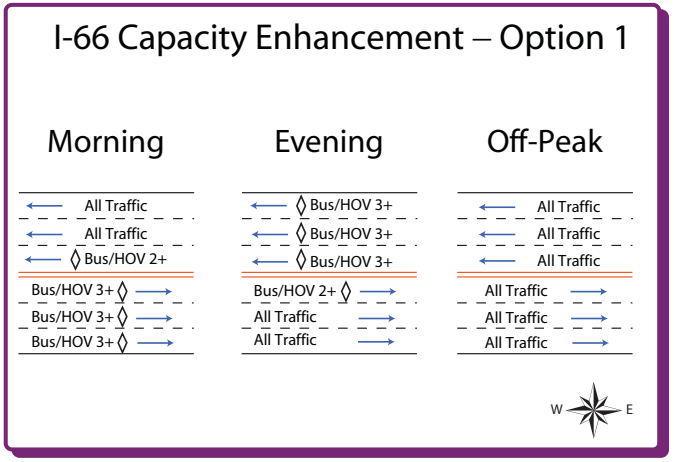
- Non-HOV Users During HOV Operation Hours
- Roadway Congestion Effects on Bus Service

MOBILITY OPTIONS

C1. I-66 Capacity Enhancement – Option 1

- An additional lane is added in both directions.
  - > In the peak direction, all lanes are Bus/HOV 3+ only during peak hours.
  - > In the reverse-peak direction, one lane is Bus/HOV 2+ during peak hours, and the rest are general purpose lanes.
  - > In off-peak periods all lanes are open to all traffic.

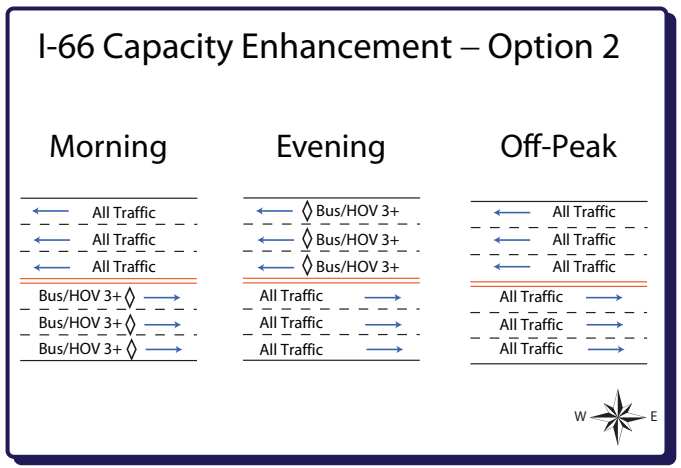


This option is intended to be used to test the benefits of widening the roadway either through use of the shoulders or by adding a new lane.

Issues and Needs
- Westbound Roadway Congestion
- Eastbound Roadway Congestion
- Interchange Capacity
- Roadway Congestion Effects on Bus Service

C2. I-66 Capacity Enhancement – Option 2

- An additional lane is added in both directions.
  - > In the peak direction, all lanes are Bus/HOV 3+ only during peak hours.
  - > In the reverse-peak direction, all lanes are general purpose lanes during peak hours.
  - > In off-peak periods all lanes are open to all traffic.



Issues and Needs
- Westbound Roadway Congestion
- Eastbound Roadway Congestion
- Interchange Capacity
- Roadway Congestion Effects on Bus Service

D. Integrated Corridor Management

- ICM strategies deployed throughout the corridor.
  - > I-66 Active Traffic Management
  - > Ramp Metering
  - > Dynamic Merge
  - > Multimodal Real Time Traveler Information
  - > Transit Signal Priority

Issues and Needs
- Eastbound Roadway Congestion
- Interchange Capacity
- Non-HOV Users During HOV Operation Hours
- Roadway Congestion Effects on Bus Service
- Intermodal Transfers

E. Arterial Capacity Enhancement

- Enhance U.S. 50
  - > Apply access management principles.
  - > Implement Bus-Only lane in each direction and improve bus service in the corridor (i.e., Priority Bus with 10-minute headway).
  - > Bus lane may be introduced by adding a new lane or shoulders.
  - > New lane could be open to general traffic during off-peak hours.

Issues and Needs
- Westbound Roadway Congestion
- Eastbound Roadway Congestion
- Roadway Congestion Effects on Bus Service

MOBILITY OPTIONS

F. Metrorail Level of Service and Capacity

- Provide operating flexibility for Metrorail and a direct connection between I-66/Dulles Corridor and Pentagon/South Arlington.
  - > Add an interline connection between Orange Line and Blue Line.
  - > Add an interline connection between the Yellow Line and Blue Line.

Issues and Needs
- Orange Line Metrorail Congestion
- Intermodal Transfers

G. Bus Transit Level of Service and Capacity

- Several bus planned enhancements to local, commuter, and regional bus services including bus route changes and additions.
- New and enhanced Priority Bus services with 10-minute peak period frequency.
  - > I-66, U.S. 29, and U.S. 50.

10-minute service frequency represents an enhancement over I-66 Transit/TDM Study service levels.

Issues and Needs
- Orange Line Metrorail Congestion
- Roadway Congestion Affects on Bus Service

H. Transportation Demand Management

- Enhanced TDM strategies drawn from the I-66 Transit/TDM Study.
  - > Enhanced Corridor Marketing
  - > Vanpool Driver Incentive
  - > I-66 Corridor Specific Startup Carpool Incentives
  - > Rideshare Program Operational Support
  - > Carsharing at Priority Bus Activity Nodes
  - > Enhanced Virginia Vanpool Insurance Pool
  - > Enhanced Telework! VA

Benefits of this option may be explored using off-model techniques.

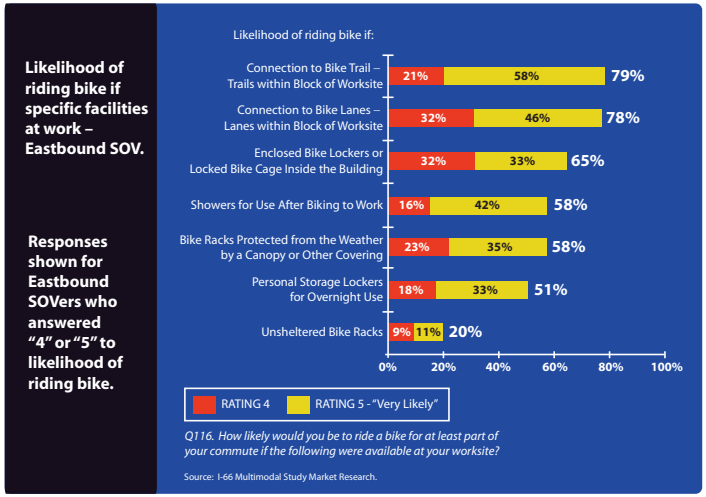
Issues and Needs
- Westbound Roadway Congestion
- Eastbound Roadway Congestion
- Interchange Capacity
- Roadway Congestion Effects on Bus Service
- Intermodal Transfers

I. Bike/Pedestrian System Enhancements

- New connections (on- and off-road) to address gaps and improve connections.
- Improve bicycle/pedestrian access to transit (bus and rail).
- Expand bicycle parking at transit stations.
- Expand bikesharing program.

Benefits of this option may be explored using off-model techniques.

Among the 8% of Eastbound SOV Commuters Stating "Likely" or "Very Likely" to Ride a Bike in the Future, Good Connections appear to be the Most Influential



Issues and Needs
- Intermodal Transfers
- Trail Bottlenecks
- Bicycle and Pedestrian System Gaps

I-66 Multimodal Study Inside the Beltway

NEXT STEPS

I-66 Multimodal Study Inside the Beltway

Schedule/Key Milestones