Multi-Modal Corridor Study

*Project Status Briefing*

*Planning Board of the Maryland-National Capital Park and Planning Commission*

*April 30, 2009*
Presentation Outline

- Introduction / Background
- I-270/US 15 Alternatives
- Corridor Cities Transitway Alternatives
- Next Steps
Study Area

- Multi-Modal Study by SHA and MTA for MDOT
- Project Team with SHA, MTA, Counties and Cities
- 30 +/- miles of Limited Access Highway
- 1.5 miles of New Alignment Highway (MD 75)
- 14 +/- mile Transitway
Purpose

To investigate options that address congestion and improve safety along the I-270/US 15 Corridor due to existing and projected growth within the corridor.

Need

The I-270/US 15 Corridor provides an essential connection between the Washington DC metropolitan area and central and western Maryland. It is an essential corridor for carrying local and long distance trips, both within and beyond the corridor.
Recent Timeline

- June 2002: Location/Design Public Hearings (DEIS)
- Fall 2003: MDOT Requested Managed Lanes Evaluation
- June 2004: Public Information Meeting on Express Toll Lanes (ETL’s) and Minimization Options/Refinements
- 2005 – 2008: Engineering/Environmental Studies
- Spring 2009: Public Hearings (AA/EA)
Changes Since 2002

- Managed Lanes – Evaluate Feasibility
- FHWA/FTA Guidance
  - Alternatives Analysis (AA)
  - Transit Modeling
  - NEPA Documentation
- Alternatives
  - Travel Forecast ⇒ 2030
  - Reconfigured I-270/MD 85 Interchange
  - Reconfigured I-270/I-370 Interchange
Changes Since 2002

Alternatives (cont.)

- Detailed Avoidance/Minimization Studies
  - Monocacy National Battlefield
  - Fox Chapel neighborhood (Germantown)
- Advanced US 15/Monocacy Blvd. Interchange

Impact Analysis for ETL Alternatives

- Air, Noise, Communities, Cultural, Natural, Traffic
## Corridor Alternatives

<table>
<thead>
<tr>
<th>DEIS</th>
<th></th>
<th>EA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt. 1: No-Build Alternative</td>
<td></td>
<td>Alt. 6A: Enhanced MP w/1 ETL/LRT</td>
</tr>
<tr>
<td>Alt. 2: TSM/TDM Alternative</td>
<td></td>
<td>Alt. 6B: Enhanced MP w/1 ETL/BRT</td>
</tr>
<tr>
<td>Alt. 3A: MP HOV w/LRT</td>
<td></td>
<td>Alt. 7A: Enhanced MP w/2 ETL/LRT</td>
</tr>
<tr>
<td>Alt. 3B: MP HOV w/ BRT</td>
<td></td>
<td>Alt. 7B: Enhanced MP w/2 ETL/BRT</td>
</tr>
<tr>
<td>Alt. 4A: MP GPL w/LRT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt. 4B: MP GPL w/BRT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt. 5A: Enhanced MP HOV/GPL w/LRT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt. 5B: Enhanced MP HOV/GPL w/BRT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alt. 5C: Enhanced MP HOV/GPL w/Premium Bus</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*MP = Master Plan*

*HOV = High Occupancy Vehicle Lane*

*LRT = Light Rail on the CCT*

*GPL = General-Purpose Lane*

*BRT = Bus Rapid Transit on the CCT*
DEIS Alternatives 3A/B and 4A/B

Alternatives 3A/B, 4A/B
I-270 (MD 121 to MD 85)
Alternatives 3A/B, 4A/B, 5A/B/C
I-270 (MD 124 to MD 117)
DEIS Alternatives 5A/B and 5C

Alternatives 5A/B/C
I-270 (MD 121 to MD 85)
DEIS Alternatives 5A/B and 5C

Alternatives 3A/B, 4A/B, 5A/B/C
I-270 (MD 124 to MD 117)
ETLs are the latest type of “Managed Lanes”.

- Other types of managed lanes include HOV, Truck only, Transit only, and HOT lanes.

- Provides needed highway capacity to address congestion through an alternative funding strategy (toll financing) much sooner than traditional funding approaches allow.
Express Toll Lanes

Objectives:
- Offer Reliable and Predictable Travel Times and Choices
- Promote Transit Solutions/Carpooling
- Build Sustainable Highway Capacity Sooner
- Develop an Integrated Highway System that Optimizes Efficiency and Maximizes Flexibility
- Capture Air Quality and Other Environmental Benefits
- Improve Incident Response Time
- Take Advantage of Technology: Electronic Toll Collections
Express Toll Lanes

- MDOT’s Goal: Develop a Statewide ETL system that optimizes efficiency and flexibility.
- Express Toll Lanes are being considered on controlled access highways experiencing chronic congestion during peak travel times.
- Two Projects Under Construction in Maryland
- Ongoing Project Development Studies:
  - I-270
  - I-495/I-95 (Capital Beltway)
  - MD 5
  - 23 Other Corridors Under Consideration
Managed Lane Network would include:

- Virginia HOT Lanes (under construction)
- West Side Mobility Study (feasibility study)
- Intercounty Connector (under construction)
- I-270/US 15 Multi-Modal Study (in planning stage)
Express Toll Lanes

Existing Conditions
I-270 ETL Limits

North of MD 80 to South of I-370
EA Alternatives 6A/B

Proposed
SB/NB ETL

Existing

Proposed

Alternatives 6A/B
MD 121 to ETL Terminus (North of MD 80)
EA Alternatives 6A/B

Alternatives 6A/B and 7A/B
MD 117 to MD 124
EA Alternatives 7A/B

Alternatives 7 A/B
MD 121 to ETL Terminus (North of MD 80)
EA Alternatives 7A/B

Alternatives 6A/B and 7A/B
MD 117 to MD 124
Vehicles will access the ETL lanes via open access slip ramps in the following areas:

- **Northern Terminus**
- **South of MD 80 (slip ramps)**
  - I-270 Southbound GP to ETL (entry)
  - I-270 Northbound ETL to GP (exit)
- **North of MD 121 (slip ramps)**
  - I-270 Southbound ETL to GP and GP to ETL
  - I-270 Northbound ETL to GP and GP to ETL
Vehicles will access the ETL lanes via **Direct Access Ramps** from these Interchanges:

- Newcut Road (NB/SB)
- MD 118 (NB/SB)
- Watkins Mill Road Area (NB/SB) and/or MD 117 (SB)
- I-370/ICC (NB to/from EB)
Direct Access Ramp Examples
Highway capital costs have been estimated for roadways, interchanges, structures, earthwork, traffic control and environmental mitigation.

Highway capital costs include final design, right-of-way acquisition and construction.

Current estimate completed in early 2009

<table>
<thead>
<tr>
<th>Location</th>
<th>Highway Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frederick County</td>
<td>$ 1,472 M</td>
</tr>
<tr>
<td>City of Frederick</td>
<td>$ 464 M</td>
</tr>
<tr>
<td>Montgomery County</td>
<td>$ 2,642 M</td>
</tr>
</tbody>
</table>
“Breakout” Projects

- I-270/MD 121 Interchange
- I-270/Watkins Mill Road – New Interchange in Gaithersburg (Design phase)
- US 15/MD 26 Interchange – New Northbound On-ramp – Completed 2006
- US 15/Monocacy Boulevard Interchange – New Interchange (Design phase)
CCT Alignment

- 17 stations (includes 4 beyond 2025)
- Transit transfers at Metropolitan Grove (MARC), Shady Grove (WMATA Red Line), and local bus
- Access from local streets, I-270 interchanges, and direct access ramps
- Build Alternatives include Light Rail Transit (LRT), Bus Rapid Transit (BRT)
- Transit TSM Alternative features premium bus on I-270 managed lanes (HOV or ETL) with service to CCT stations
King Farm

LIGHT RAIL TRANSIT

BUS RAPID TRANSIT
Metropolitan Grove

LIGHT RAIL TRANSIT

BUS RAPID TRANSIT
Right-of-Way Preservation

Montgomery County Master Plans and Sector Plans

Right-of-Way Status

- Approximately 35% lies within publicly controlled land (i.e. – within existing street right-of-way or on land dedicated to the transitway)
- Additional 25% has right-of-way protection through reservation or easement
- Remaining 40% has no protections at this time

Preservation/Coordination with Local Jurisdictions

- MTA reviews development plans to ensure transitway preservation
Needed for both LRT or BRT

Site Identification
- LRT must be adjacent to the transitway
- BRT must be adjacent or within a reasonable distance

Site Layouts
- LRT – Geometric Constraints and Grades
- BRT – Optimal Facility Size (phasing)

5 Sites Identified and Included in AA/EA (one existing from DEIS and four new)
Alternative Alignments

- Crown Farm, Shady Grove Life Sciences
- Center/Belward Farm, and Kentlands
## CCT Alternatives Preliminary Travel Demand Forecasts & Cost Estimates

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Alt. 6 and Trans. TSM</td>
<td>60</td>
<td>6,000 - 7,000</td>
<td>$86.9</td>
<td>$14.8</td>
</tr>
<tr>
<td>Alt. 6 and Light Rail (A)</td>
<td>36</td>
<td>24,000 - 30,000</td>
<td>$777.5</td>
<td>$28.1</td>
</tr>
<tr>
<td>Alt. 6 and Bus Rapid (B)</td>
<td>38</td>
<td>21,000 - 27,000</td>
<td>$449.9</td>
<td>$26.8</td>
</tr>
<tr>
<td>Alt. 7 and Light Rail (A)</td>
<td>36</td>
<td>24,000 - 30,000</td>
<td>$777.5</td>
<td>$28.1</td>
</tr>
<tr>
<td>Alt. 7 and Bus Rapid (B)</td>
<td>38</td>
<td>21,000 - 27,000</td>
<td>$449.9</td>
<td>$26.8</td>
</tr>
</tbody>
</table>
Project Funding

- **Federal – Section 5309 New Starts**
  - New fixed guideway systems (rail, bus rapid transit)
  - Extensions to existing systems
  - Typically matched at 50%+
  - Project funding decisions made jointly by FTA and Congress – national competition

- **State – Transportation Trust Fund**

- **Local Jurisdictions**

- **Others**
Federal Approval Process

- Systems Planning
- Alternatives Analysis
- Locally Preferred Alternative
- FTA Decision On Entry into PE
- Preliminary Engineering
- FTA Decision On Entry into Final Design
- Full Funding
- Grant Agreement
- Full Funding
- Construction

We are Here

Major Development Stage
FTA Decision Point
New Starts Criteria

Summary Rating

Project Justification Rating
- Mobility Improvements
- Environmental Benefits
  - User Benefits
  - Low Income Households
  - Employment
- Cost Effectiveness
- Land Use
  - Capital Cost
  - O&M Cost
  - User Benefits

Financial Rating
- Non-Section 5309 Share
- Capital Finances
- Operating Finances

Other Factors

Minimum Project Development Requirements:
- Metropolitan Planning and Programming Requirements
- Project Management Technical Capability
- NEPA Approvals
- Other Considerations
New Starts Evaluation Criteria

- Project Ratings given to two composite measures: project justification and project finance
  - Rating - “high”, “medium high”, “medium”, “medium low”, “low”

- Project Justification
  - Mobility – travel time, transit dependent usage, etc.
  - Cost-effectiveness – ratio of cost to user benefit
  - Land use – transit supportive land use

- Project Finance
  - Amount and reliability of non-federal share of New Starts
Cost-Effectiveness

- Cost-effectiveness ~ 50% of Project Justification rating
- Must get a “medium” rating in cost-effectiveness for a project to be recommended.

FY 2010 Cost-Effectiveness Rating

- High less than or equal to $11.99
- Medium-High between $12.00 and $15.99
- Medium between $16.00 and $24.49
- Medium-Low between $24.50 and $30.49
- Low Greater than or equal to $30.51
## Cost Effectiveness Results

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Capital Costs (2007 dollars)</strong></td>
<td><strong>Annualized Capital Costs (2007 dollars)</strong></td>
<td><strong>Annual Operating Costs (2007 dollars)</strong></td>
<td><strong>Annual User Benefit (Hours)</strong></td>
<td><strong>Annualized Cost per Hour of User Benefit</strong></td>
</tr>
<tr>
<td>TSM</td>
<td>86,860,000</td>
<td>7,440,700</td>
<td>14,793,000</td>
<td>1,890,000</td>
</tr>
<tr>
<td><strong>Build Alternatives</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative 6A (LRT)</td>
<td>777,530,000</td>
<td>62,202,400</td>
<td>28,129,000</td>
<td>3,960,000</td>
</tr>
<tr>
<td>Alternative 6B (BRT)</td>
<td>449,920,000</td>
<td>36,443,500</td>
<td>26,859,000</td>
<td>4,110,000</td>
</tr>
<tr>
<td>Alternative 7A (LRT)</td>
<td>777,530,000</td>
<td>62,202,400</td>
<td>28,129,000</td>
<td>3,990,000</td>
</tr>
<tr>
<td>Alternative 7B (BRT)</td>
<td>449,920,000</td>
<td>36,443,500</td>
<td>26,859,000</td>
<td>4,140,000</td>
</tr>
</tbody>
</table>
Locally Preferred Alternative

- Multi-modal - highway and transit alternative selection
- Transit Mode Selection - TSM, BRT, LRT
- Consider project phasing - tool for managing costs
- Alternative alignments (CCT)
- Environmental Impacts
- Public Hearing/Document Review process
  - Citizen/community groups
  - Project Team/Local Government
  - FTA/FHWA
  - Environmental agencies
- Cost Effectiveness (CCT)
- Funding/Affordability
Federal Approval Process

- 2002 Draft Environmental Impact Statement
- 2009 Alternatives Analysis/Environmental Assessment
- Locally Preferred Alternative
- Highway and Transit Projects Split
- Tier 1 FEIS and Record of Decision
- Prioritize Projects to Advance to Tier 2 Study
- Prepare Tier 2 FEIS and Record of Decision
- Design

We are Here

Major Development Stage
Decision Point

We are Here
Project Schedule

- Public Outreach: Ongoing
- AA/EA Completion: May 2009
- Public Hearing: June 2009
- Selection of Preferred Alternative: Fall 2009
- Request Entry for PE/New Starts Submission (Transit): Late 2009
- PE/FEIS Completion: TBD
- Initiate Final Design: TBD
- Start Construction: TBD
Public Outreach

- Project Newsletter
- Available for Project Briefings to Local Neighborhoods/Organizations
- Briefings to City/County Staff
- Briefings to City/County State Elected Officials prior to Spring 2009 Public Meetings
- Website: [www.i270multimodalstudy.com](http://www.i270multimodalstudy.com)
Next Steps

- Continue agency coordination and public outreach
- Conduct review process
- Hold public hearings
- Select cost effective, affordable Locally Preferred Alternative
- Secure non-federal funding
- Secure federal funding
Thank You

Questions/concerns or for additional information:

**Highway:**
Russ Anderson
(randerson2@sha.state.md.us)

**Transit Related:**
Rick Kiegel
(rkiegel@mtamaryland.com)