# National Capital Region Transportation Planning Board

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**M E M O R A N D U M**

**TO:** TPB Technical Committee

**FROM:** Ron Kirby
Department of Transportation Planning

**SUBJECT:** Summary of Major Corridor Studies Considering Managed/Priced Lanes

**DATE:** September 3, 2010

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## Background

This memo summarizes the prospects of highway value pricing (including both High-Occupancy/Toll (HOT) and Express Toll Lane (ETL) concepts) in the National Capital Region, including both currently planned projects and recent studies. The National Capital Region Transportation Planning Board (TPB) has made considerable progress in examining highway value pricing for the region through past studies and through various scenario and alternatives analyses for long-range planning and eventual inclusion in the region's constrained long-range transportation plan (CLRP). This memo provides an overview of the complementary work that has taken place in studying highway value pricing at the corridor and project level by state DOTs and other project leaders.

## Current Projects / Plans

There are two construction projects underway that will provide the first value-priced highway systems in the region, with a third project in the CLRP.

### 1. Capital Beltway in Virginia HOT Lane Project

The Virginia HOT lane system will add two HOT lanes extending along I-495 from the Springfield (I-95 / I-395) interchange to just north of the Dulles Toll Road. Buses, vanpools and HOV-3 vehicles will travel at no charge; HOV-2 and SOV users will pay a variable toll, collected through electronic-toll collection and based on congestion in order to keep traffic on the lanes free-flowing.

*Status: Construction began in 2008; facility expected to open in 2013.*
There will be two HOT lanes in each direction, with access to the system at interchanges. The HOT lanes will operate along the median of the corridor, separated from the four general purpose lanes of the highway by a four-foot painted buffer.

### 2. Intercounty Connector (ICC) Project

The (ICC) project will link the I-270 and I-95/US 1 corridors and their activity centers within central and eastern Montgomery County and northwestern Prince George's County.

*Status: Construction began in November 2007. First phase will open in early 2011 and the full facility is expected to open in early 2012.*

The facility will be the eighth toll facility in Maryland managed by the Maryland Transportation Authority (MdTA). All travel on the road will be tolled; users will pay through electronic toll collection, with no toll booths or cash collection. Tolls will be variably priced to keep traffic flowing, increasing with user demand in order to prevent congestion.

**3. I-95/395 HOV/Bus/HOT Lanes Plan**

The planned project begins in the vicinity of the Pentagon in Arlington and ends in Spotsylvania County below the Massapponax exit. Project would be built by a public-private partnership between VDOT and Fluor-Transurban.

*Status: Project was initially proposed in June 2005 in response to a Request for Proposals issued by VDOT. Currently under legal and environmental review.*

The project would expand the existing HOV system from two to three lanes between Eads Street in Arlington to Dumfries, and would construct two new lanes south to Spotsylvania. All of these lanes will become HOV/Bus/HOT lanes. The Northern Section will begin at Eads Street in Arlington and end near the Garrisonville Road area, adding a third lane to the existing 28 miles of HOV lanes between Arlington and Dumfries. The Southern Section would include building two new HOV lanes for an additional 28 miles south to Spotsylvania County. The Northern Section component is under legal and environmental review, while the Southern Section is still in the planning stage.

**Corridor Studies with Value Pricing**

**4. 14th Street Bridge Corridor** (I-395 and US 1 Bridges)

The 14th Street Bridge system (with three spans: Arland D. Williams inbound, George Mason outbound, and the Rochambeau span with two lanes in each direction) is being analyzed by the Federal Highway Administration (FHWA). The entire study area is the four mile section of I-395 between VA Route 27 (Washington Boulevard) in Arlington, Virginia and the New York Avenue tunnel entrance at the National Mall in southeast DC.

*Status: Draft EIS release anticipated October 2010.*

A previous alternatives analysis (August 2009) considered conversion of existing general purpose lanes (GPL) to HOV/HOT, plus potential addition of a third lane, on the Rochambeau span. Options included: (1) construct one reversible shared bus/HOT lane in the median across Rochambeau Bridge; convert existing GPLs to HOT in the peak direction with connections to 14th Street and to I-395 Expressway; and (2) extend congestion pricing across Rochambeau Bridge by constructing two reversible shared HOT/bus lanes in median; maintain existing GPLs; HOT lanes continue up 14th Street. These two options were recommended for further analysis in the ongoing DEIS.

**5. South Side Mobility Study** (I-95 between the Springfield Interchange and Branch Avenue)

The Phase 2 Market Analysis analyzed the potential for transit and/or HOV facilities across the Woodrow Wilson Bridge (WWB) as one of two parts of the joint mobility study for the section of I-95/I-495 / Capital Beltway from the Springfield Interchange in Virginia to MD 5 (Branch Avenue) in Maryland.

*Status: Study completed February 2009.*

The study identified a need for transit and HOV lanes across the Woodrow Wilson Bridge to meet transportation demand. Two transit routes from National Harbor to Alexandria and Fairfax were determined to be viable, but the study did not go further on HOV lane concept, postponing study of the physical characteristics and management strategies for potential HOT and/or ETL facilities on or near the bridge.

**6. West Side Mobility Study** (I-270 and Legion Bridge)
The West Side Mobility Study was led by the Maryland State Highway Administration (SHA) and supported by the Virginia Department of Transportation (VDOT). The 14-mile long project extended from the Capital Beltway in Virginia HOT Lane Project north across the American Legion Bridge, along the west side of the Capital Beltway, along the I-270 West Spur, along I-270, to the I-370 Interchange.

*Status: Study completed Fall 2008.*
The study evaluated seven long-term alternatives, all involving managed lanes along with improvements to traffic operations, and advanced five of them as worthwhile for further study. The managed lane (HOV, HOT, or ETL) system would consist of one or two managed lanes in each direction and would connect the VDOT HOT lanes with the Express Toll (ETL) planned for I-270 and the Intercounty Connector. The study also considered widening for one lane per direction on the American Legion Bridge and in Maryland, though the widening is constrained by the limited right-of-way and proximity to sensitive environmental features and adjacent residences.

**7. Capital Beltway Study** (I-495 in Maryland)
The Full Beltway Study limits includes Maryland's entire portion of the Beltway, 42 miles, which extends from the American Legion Bridge to the Woodrow Wilson Bridge. The study area lies within Montgomery and Prince George's counties.

*Status: Study on hold.*
The State Highway Administration recommends further study on two alternatives for I-495 in Maryland with Express Toll Lanes: 1) two Express Toll Lanes (one tolled concurrent flow (no barrier separation) lane per direction) and 2) four Express Toll Lanes (one additional, tolled lane per direction and conversion of one existing general-purpose lane per direction into a tolled lane).

**8. I-270/US 15 Multi-Modal Corridor Study Alternatives Analysis/Environmental Assessment**
The I-270/US 15 Multi-Modal project evaluated several combinations of transit and highway strategies to address congestion, improve safety, and increase mobility along the I-270/US 15 Corridor from the Shady Grove Metrorail Station (Montgomery County) to north of Biggs Ford Road (Frederick County). The study area included the Corridor Cities Transitway project from the Shady Grove Metrorail Station to the COMSAT facility just south of Clarksburg.

*Status: Alternatives Analysis Study completed May 2009.*
This AA/EA study continued on from a 2002 Draft Environmental Impact Statement (DEIS), updating models and data and adding analysis of two Express Toll Lane (ETL) alternatives. The ETL alternatives would continue the system proposed in the West Side Mobility Study (*see above*), with two ETL lanes in Montgomery Country and one or two ETL lanes in Frederick County. Each alternative also included evaluation of two transit alternatives for the Corridor Cities Transitway (Light Rail and BRT respectively). Public hearings were held in June 2009, and this input will go into development of the Final EIS.

**9. Interstate 66 Studies**
Several studies of I-66 have taken place, some considering value pricing.

I-66 Inside The Beltway Feasibility Study
*Status: Conducted July 2004 to June 2005.*
The study analyzed the impacts of converting the existing HOV system to HOT lanes with fixed and variable pricing. Recommended a combination of Roadway Widening with a new managed lane (HOT/HOV) and further detailed study of managed lane concepts.

I-66 Transit/Transportation Demand Management Study
*Status: Conducted May to December 2009. Final report issued December 2009.*
Examined Transit/TDM options for the I-166 corridor from U.S. 15 in Haymarket, Virginia, east to the District of Columbia border. Did not consider tolls or managed lanes. Study options to be reviewed in new Multimodal Study.

I-66 Multimodal Transportation and Environmental Study
*Status: Began 2002. New focus announced June 21, 2010 by Governor McDonnell.*
Previously focused on the 24-mile portion of I-66 from the Capital Beltway west to Haymarket (US 15), including consideration of HOT lanes. New multimodal study will identify and evaluate options to address the overall needs of the corridor, specifically including the portion of the corridor from the Capital Beltway (I-495) east to the Virginia/District of Columbia border. The study will examine a wide range of options including bus, transportation demand management (TDM), High Occupancy Vehicle (HOV), High Occupancy Toll (HOT), congestion pricing, managed lanes and road improvements. The study will build on the I-66 Transit/TDM study completed by the Virginia Department of Rail and Public Transportation in 2009.

**10. MD 5 Corridor Transportation Study**
The study is evaluating MD 5 (Branch Avenue) from south of US 301/ MD 5 (Brandywine) to north of I-95/I-495 (Capital Beltway) in Prince George's County.

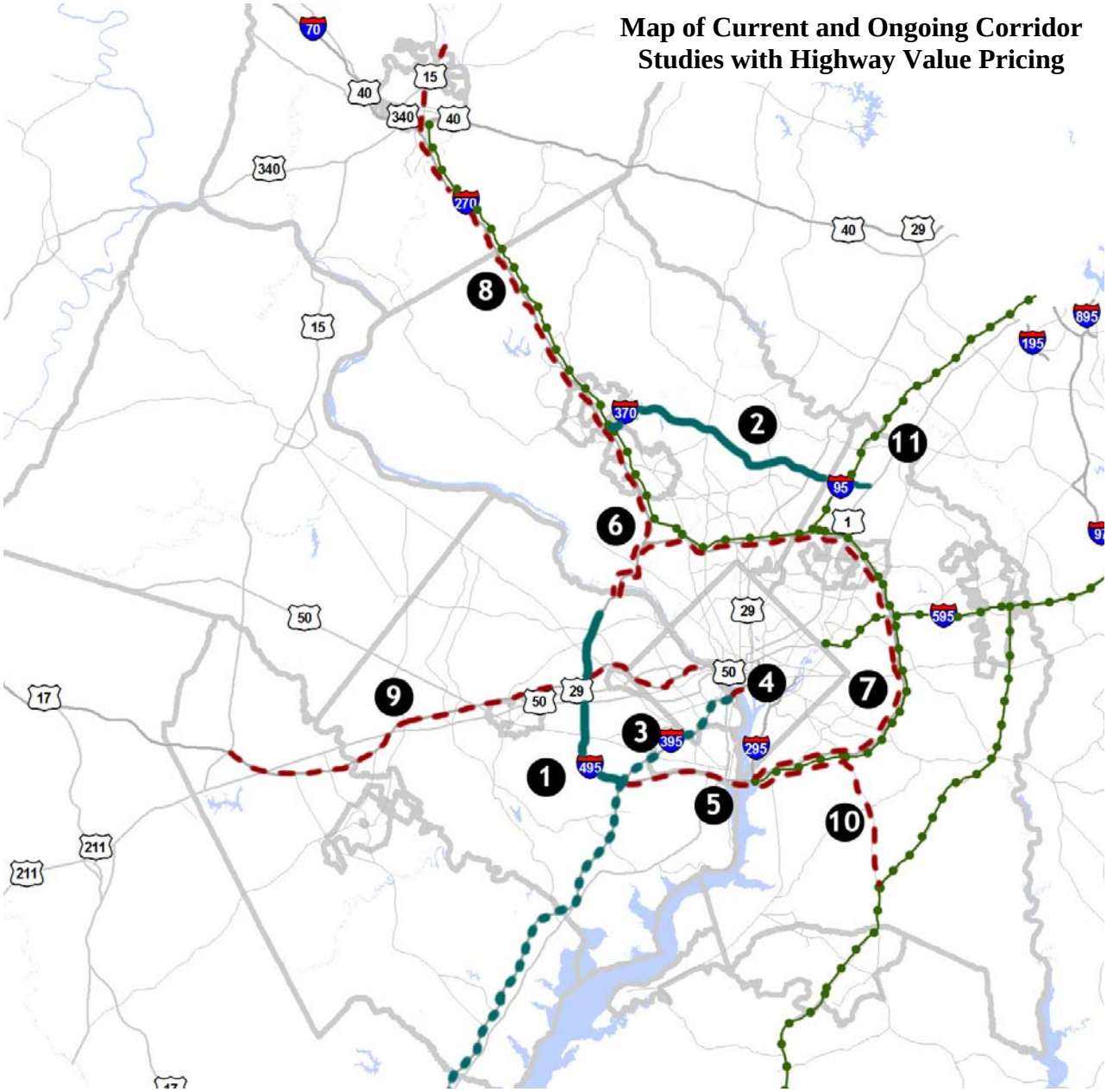
*Status: Began 2005. New environmental analysis to be completed in 2011.*
Further study is taking place on three managed lanes alternatives, two with pricing. Priced managed lanes alternatives include: 1) adding two new reversible lanes in the median, and 2) adding one priced lane in each direction throughout the corridor, and converting one general purpose lane in each direction to a managed lane north of MD 223 (Woodyard Road).

**11. MDOT Maryland Managed Lanes Study**
This is an ongoing study by TPB/COG as part of the Maryland Technical Assistance program within the Unified Planning Work Program. Study is evaluating the impact of a managed lane network on travel for a hypothetical network including I-270 (HOV conversion and / or lane addition), the Capital Beltway (lane addition), I-95 (lane addition), US 50 (HOV conversion and lane addition), and US 301 (lane addition), as well as the planned managed lanes network (e.g., ICC and Virginia Capital Beltway HOT Lanes.).

*Status: Ongoing.*
The study is examining managed or variably priced lanes designed to respond efficiently to changes in demand by varying tolls in order to maximize throughput. Over the course of the study, the focus has shifted from electronic toll lanes to high occupancy toll (HOT) lanes. The model results for the studied corridors show that switching from general purpose lanes to HOT lanes would increase speeds by

anywhere between 15 and 20 mph on average, leading to decreases in congestion as throughput improves. The model also shows that managed lanes can relieve congestion and decrease vehicle hours of delay not only on the improved facilities, but also on parallel roadways.

**Map of Current and Ongoing Corridor Studies with Highway Value Pricing**




**Under Construction**

1. Capital Beltway in Virginia HOT Lane Project
2. Intercounty Connector (ICC)

**Included in CLRP**

3. I-95/395 HOV/Bus/HOT Lanes Plan

**Corridor Studies**

4. 14th Street Bridge Corridor
5. South Side Mobility Study
6. West Side Mobility Study
7. Capital Beltway Study
8. I-270/US 15 Multi-Modal Corridor Study
9. Interstate 66 Studies
10. MD 5 Corridor Transportation Study

**Network Analysis Study**

11. MDOT Maryland Managed Lanes Study