Priced Managed Lanes – State of the Practice

WEBINAR SERIES: INNOVATION IN PRACTICE
WEBINAR 4

September 22, 2016
Priced Managed Lanes Webinar Logistics

- PowerPoint Presentation available on BATIC Website
  - [www.financingtransportation.org/capacity_building/event_details/batic_webinar_managed_lanes.aspx](http://www.financingtransportation.org/capacity_building/event_details/batic_webinar_managed_lanes.aspx)
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- Submit questions in Q&A box
- Webinar will be available on BATIC Website
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Priced Managed Lanes
Webinar Presentation Outline

- Welcome and Introduction
- Overview of Priced Managed Lanes
- Minnesota (MnPass) Express Lanes
- Northern Virginia Express Lane Network
- Southeast Florida Express Lane Network
- Common Themes and Strategies
- FHWA Pricing Resources
- Questions Submitted by Webinar Participants
Overview of Priced Managed Lanes

David Ungemah
NATIONAL MANAGED LANES DIRECTOR
WSP | Parsons Brinckerhoff

CO-CHAIR
Transportation Research Board (TRB) Congestion Pricing Committee
What are Managed Lanes?

- Dedicated Lanes
- Multiple Controls
  - Restricting vehicle eligibility
  - Limiting facility access
  - Collecting user fees
- Proactively Managed
  - Highly technological, real-time response to supply and demand
Many Shapes and Forms of Managed Lanes

- **Priced Managed Lanes** are identified by many names:
  - High-Occupancy Vehicle (HOV) lanes
  - High-Occupancy Toll (HOT) lanes
  - Express Lanes
  - Express Toll Lanes (ETL)
  - Value Priced Lanes

- **Regional branding** often used to assist public understanding

- **Mix of strategies** meet the objectives of the corridor, region, and state
  - Discounts
  - Incentives
Growth in Priced Managed Lanes

Almost doubling the total lane miles in the next five years

Graphic Source:
Prof. David Levinson, University of Minnesota, June 15, 2015.
Differing Contexts of Priced Managed Lanes

**Overused HOV**
- I-85 Atlanta
- I-405 Seattle (A)

**Underused HOV**
- I-25 Denver
- I-15 Salt Lake City
- SR-167 Seattle
- I-394 Minneapolis

**Publicly Funded**

**Convert + Build**
- I-15 San Diego
- I-95 Miami
- I-495 Virginia
- I-35W Minneapolis
- I-10 Houston
- I-635 Dallas
- I-405 Seattle (B)

**Mix of Public and Private Funding**

**Build Only**
- SR-91 Orange County
- I-595 Ft. Lauderdale
- North Tarrant Express Dallas
- DFW Connector Dallas
- US 36 Denver
- I-70 Colorado Mountains
Who Can Use Priced Managed Lanes?

**HOV-2+ free at all times**
- I-15 (CA)
- SR 167 (WA)
- I-35W (MN)
- I-394 (MN)
- I-35E (MN)
- I-680 (CA)
- SR-237 / I-880 (CA)
- I-15 (UT)

**HOV-2+ free with limits**
- I-10 (TX)
- I-45 (TX)
- US 59 (TX)
- US 36 (CO)
- I-25 (CO)

**HOV-3+ free with limits**
- I-95 (FL)
- I-85 (GA)
- I-495 (VA)
- I-95 (VA)
- I-405 (WA)

**HOV-3+ discount**
- SR-91 (CA)
- I-635 (TX)
- I-35E (TX)

**No HOV benefits**
- Loop 375 (TX)
- I-70 (CO)
- I-595 (FL)
- I-95 (MD)

* Limits may include time of day or day of week restrictions

I-635, Dallas
Priced Managed Lanes Operating or in Construction*

• As of May 2016

Source: https://www.fhwa.dot.gov/ipd/pdfs/revenue/managed_lanes_activity_map.pdf
Already Rebuilding First Generation


I-15 San Diego (2013)
Purpose of Webinar: Illustrate How Priced Managed Lanes Reflect Community Context

- Highlight development, funding/financing and operation
- Focus on key policy and operational decisions
- Demonstrate how to achieve local goals and objectives
- Describe evolution of priced managed lane networks
  - Minneapolis/St. Paul
  - Southeast Florida
  - Northern Virginia
MnPASS Express Lanes

Ken Buckeye, AICP
PROGRAM MANAGER
Office of Financial Management, Minnesota Department of Transportation
Ken Buckeye, AICP
Program Manager, Minnesota Department of Transportation
Existing and Planned Express Lanes
MnPass Development

Extensive Analysis of Alternatives for Every Segment

<table>
<thead>
<tr>
<th>MnPass Lane Options</th>
<th>Continuous</th>
<th>Discontinuous</th>
<th>PDSL</th>
</tr>
</thead>
<tbody>
<tr>
<td>35E</td>
<td>Convert inside general purpose lane to MnPass lane during peak periods</td>
<td>No MnPass lane between Little Canada Road and County Road B</td>
<td>Convert inside shoulder lane to MnPass lane during peak periods</td>
</tr>
<tr>
<td>Cost</td>
<td>$11.3 M</td>
<td>$10.7 M</td>
<td>$24.0 M</td>
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Extensive Community Outreach

MnPass Basics

MnPass is a tool for giving consumers more choices and making more efficient use of roadways.

- MnPass Basics
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Driving Forces

- Underperformance of HOV lanes
- Building additional capacity is temporary solution
Project Development Timeline

- **1997**: First HOT Lanes proposal withdrawn after public concerns
- **2001-2002**: Value Pricing Advisory Task Force Outreach Effort
- **2003**: Authorizing Legislation Passed
- **May 2005**: HOT Lanes Open

Minnesota
Project Development Timeline

- **August 2007**: Urban Partnership Agreement award for congestion reduction and transit
- **September 2009**: HOT lanes and Priced dynamic shoulder lanes open
Use of Inside Shoulder During Peak Periods
I-35W MnPASS Lanes
Key Policy and Operational Decisions

- Primarily single-lane system that operates during weekday peak periods only.
  - No-cash, debit system; users purchase a transponder and prepay for use.

- HOV 2+ and transit travel free.
  - The average peak period fee varies between $1 and $4 depending on the level of congestion.
  - $8 is the maximum toll that is charged.

- I-35W MnPass Lanes, which opened in 2009, includes 8 miles of HOT Lanes and pricing of existing shoulder lane during peak hours.

- HOT system will be expanded by adding lanes to I-35E and converting portion of existing general purpose lane during morning peak.
I-394 HOT Lanes
Funding and Financing Approach

- **Cost Considerations**
  - I-394 HOT Lanes used double-striped lines instead of more costly physical barriers
  - Initial capital for technology was approximately $10 million

- **Sources of Funds**
  - $66 million capital and technology cost for I-35W was almost entirely funded by the Federal Urban Partnership Agreement program

- **Objective of MnPASS is to manage congestion, not to maximize revenue**
  - MnDOT and local transit agency share net revenue based on statutory splits

- **MnDOT utilized high return-on-investment strategies**
  - Implementing within existing infrastructure and right-of-way footprint
  - Coordinating with bridge and pavement preservation work
  - Building park & ride lots for transit
Northern Virginia Express Lanes

Larry O. Cloyed, PMP
EXPRESS LANES MANAGER
Northern Regional Operations, Virginia Department of Transportation
Strong Framework for P3 Project Delivery Option
495 and 95 Express Lanes

Approximately 14-mile segment of the Capital Beltway

Existing eight-lane Capital Beltway widened to twelve lanes (two new Express Lanes in each direction)

First time for transit and carpool on the Beltway

Existing reversible HOV lanes expanded to three lanes for 14 miles

New nine-mile extension of existing HOV lanes

New or improved access to HOV/HOT network at key interchanges
Project Development Timelines

37
Funding and Financing Approach

($ in millions)

Virginia

- Tax-Exempt Private Activity Bonds $589
- TIFIA Loan $589
- Commonwealth of Virginia grant $409
- VDOT change-order funding $86
- Interest income $47
- Private Equity $350

$2,070

38
Existing and Planned Express Lanes
Key Policy and Operational Decisions

- Development of dedicated P3 office with support from specialists in all aspects of project development and delivery.
  - Proactive public engagement and outreach program to build public understanding and political support for the projects.
  - Clearly defined risk allocations and funding responsibilities for public and private partners.
  - Established processes for fast tracking design, claims and key decisions.

- Willingness to evolve and to adapt the managed lanes concept to address regional and local needs.
  - Shift to competitive procurements instead of reacting to unsolicited proposals.
  - Focus on multi-modal transportation outcomes.
  - HOV lanes on I-66 inside the Beltway will be converted to HOT lanes during weekdays (peak hours in peak directions). VDOT is developing and will operate that segment of the managed lanes network.
Southeast Florida Express Lanes

Debora Rivera, P.E.
DIRECTOR OF TRANSPORTATION OPERATIONS
Florida Department of Transportation
Florida Express Lanes
Southeast Florida Express Lanes
Debora Rivera, P.E.
Express Lanes Manager, Florida Department of Transportation
Critical Issues for 95 Express and 595 Express

• **I-95**
  - HOV lanes were struggling to meet FHWA requirements
  - Early studies for HOT conversion found improvements to be cost prohibitive
  - USDOT Urban Partnership Agreement drove innovation and led to Miami’s low-cost, short turn-around project proposal
  - New express capacity within existing footprint

• **I-595**
  - Important east-west corridor providing port connectivity, was experiencing serious congestion problems
  - Early studies focused on adding traditional capacity but was later retooled as a reversible express lanes project
  - Major reconstruction along with ramp/interchange reconfigurations resulted in significant capacity improvements
Regional Collaboration and Planning
Project Development Timeline

- **Phase 1-A and 1-B Florida**
- **2002**: VTP grant for public outreach and traffic study
- **2007**: Urban Partnership Agreement Grant
- **June 2008-December 2008**: Northbound Opens and Tolling begins
- **January 2010**: Southbound Tolling: Extension of Northbound HOT Lanes

95 EXPRESS

BATIC INSTITUTE
AASHTO
Project Development Timeline

- August 2007: Value for Money analysis supports
- October 2007-October 2008: DBFOM approach
- March 2009: Best-value procurement process
- March 2014: Private Partners secure financing
- March 2014: Project Opens
Project Overview

- 7 miles (total of 22 miles with Phase 2)
- Within existing footprint, restriping, ITS
- $139 Million
- Design Build Finance public-private partnership
- Construction duration: 2 years
- Innovations
- Pricing, Occupancy, Registration
- Net Revenue Positive

- 10.5 miles
- Major Reconstruction, Widening, Interchange reconfigurations, frontage road improvements
- $1.8 Billion (2009 PDC)
- FDOT development costs $232 million
- Design Build Finance Operate & Maintain 35 year Availability Payment Concession
- Construction duration: 5 years
- Innovations
- Availability payment concession public-private partnership
Generating Revenue is Not a Primary Goal

- Dynamic pricing and vehicle eligibility influence the demand for the express lanes.
- The overall pricing objective is to manage traffic demand.

I-95 Average Monthly Express Lanes Revenue

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Southbound</th>
<th>Northbound</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-09</td>
<td>$0.50</td>
<td>$0.50</td>
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<tr>
<td>2009-10</td>
<td>$0.75</td>
<td>$0.75</td>
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<td>2010-11</td>
<td>$1.00</td>
<td>$1.00</td>
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<tr>
<td>2011-12</td>
<td>$1.25</td>
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<td>2012-13</td>
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<tr>
<td>2013-14</td>
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<tr>
<td>2014-15</td>
<td>$3.00</td>
<td>$3.00</td>
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</tbody>
</table>
TOLLING FOR NEW AND EXISTING FACILITIES ON THE STATE HIGHWAY SYSTEM (SHS)

PURPOSE:

Outline the Florida Department of Transportation’s (Department’s) direction to use tolling on limited access facilities on the state highway system (SHS) when adding capacity to an existing highway or when constructing a new highway facility.

AUTHORITY:

Sections 20.23(4)(a) and 334.048(3), Florida Statutes (F.S.)

SCOPE:

This directive applies to the Department highway projects on the SHS identified for capacity improvements in the Five Year Work Program, the Strategic Intermodal System (SIS) Ten Year Plan, or the SIS Cost Feasible Plan. Department offices, both Central Office and the Districts, and consultants under contract with the Department will use this directive. This directive does not apply to Florida Turnpike facilities as defined in Section 338.22, F.S., Florida Turnpike Enterprise Law.
Key Policy and Operational Decisions

- Tolling/Express lane strategies must be considered for all limited access facilities and major bridges (Interstate and non-interstate)

- Managed lanes must be considered for all new controlled access capacity

- Specific guidelines on how to estimate the demand for express lanes and evaluate their feasibility, including a recommended financial internal rate of return (IRR) of at least five percent.

- Remaining toll revenue must be used for:
  - Construction, maintenance, or improvement of roads on the State Highway System within the county or counties in which the toll revenues were collected or
  - To support express bus service on the facility where the toll revenues were collected.
Regional Concept for Transportation Operations

Florida is developing regional concepts for transportation operations to ensure express lane corridors function seamlessly together:

- A “living” document containing operational, maintenance and technical guidance, including best practices and performance metrics, to inform the development of specific Express Lane projects,
- First step in developing a shared set of expectations between transportation partners,
- The foundation from which specific Express Lane project concept of operations is developed.
Statewide Express Lanes
http://floridaexpresslanes.com
Common Themes and Additional Resources

Angela Jacobs
Congestion Pricing Manager
FHWA Office of Operations
ANGELA JACOBS
Congestion Pricing Manager, FHWA Office of Operations
Common Themes

- Each project and region is unique, but there are some cross-cutting lessons learned:
  - Federal funding and support provided by the Value Pricing Pilot Program (VPPP), the Congestion Reduction Demonstrations (CRD), and the Urban Partnership Agreements (UPA) were important factors in the implementation of first generation projects.
  - Priced managed lanes projects are driven by need to enhance mobility and provide options/choice. Revenue generated by pricing can facilitate financing and expedite construction, but revenue generation is not the most important goal.
  - Data has shown that pricing can have a positive effect on transit operations and therefore transit ridership.
## Common Themes

<table>
<thead>
<tr>
<th>Typical Capital Cost Range</th>
<th>General Characteristics</th>
<th>Funding/ Financing</th>
<th>Procurement</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Small</strong></td>
<td>$5-50 million</td>
<td>• Single lane</td>
<td>Pay-as-you-go, study and PE substantially grant funded</td>
<td>SR 167 HOT lanes</td>
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<td>• HOV2 free service generally provided (since it involves conversion of existing HOV lane)</td>
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<td>• Operational enhancement emphasizing throughput</td>
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<td>• Revenue generation may not cover O&amp;M costs</td>
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<tr>
<td><strong>Medium</strong></td>
<td>$50-500 million</td>
<td>• Potential capacity enhancement</td>
<td>Mix of grant funding, dedicated and traditional resources, potential use of debt</td>
<td>I-10/I-110 Express Lanes</td>
</tr>
<tr>
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<td>• Additional lane added by re-striping</td>
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<td>• Often support transit operations</td>
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<td>• Increase in HOV occupancy (2+ to 3+) to manage demand</td>
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<td>• Typically generate excess revenue</td>
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<tr>
<td><strong>Large</strong></td>
<td>$500 million+</td>
<td>• Multilane</td>
<td>Debt/ equity financed</td>
<td>U.S. 36 ML (Phase 1)</td>
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<td>• Involves new construction</td>
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<td>• Often support transit operations</td>
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<td>• Emphasis on revenue in combination with operational characteristics</td>
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This event took place September 22, 2016. The webinar video and other materials are posted below.

FHWA Pricing Resources

- FHWA Congestion Pricing
  - www.ops.fhwa.dot.gov/congestionpricing

- FHWA Value Pricing Pilot Program
  - www.ops.fhwa.dot.gov/congestionpricing/value_pricing/index.htm
TRB Pricing Resources

- Transportation Research Board Committee on Managed Lanes AHB35
  - www.managedlanes.org

- Transportation Research Board Congestion Pricing Committee ABE25
  - www.trb-pricing.org
Questions and Answers

Jennifer Brickett
DIRECTOR
BATIC Institute: An AASHTO Center for Excellence
Discussion

David Ungemah  
Co-Chair  
Transportation Research Board (TRB) Congestion Pricing Committee

Larry Cloyed  
Express Lanes Manager,  
VDOT Northern Regional Operations

Ken Buckeye  
Program Manager,  
Minnesota DOT Office of Financial Management

Debora Rivera  
Director of Transportation Operations,  
FDOT

Angela Jacobs  
FHWA Office of Operations
Wrap-Up

- The BATIC Institute will post responses to all questions received today on its website.
- The webinar will also be available on the BATIC Institute website: www.financingtransportation.org

UPCOMING BATIC INSTITUTE OFFERINGS

- CFO Peer Exchange
  November 2, 2016

- Public-Private Partnerships (P3) Basics Overview
  November 3, 2016

Thank you for attending today’s webinar