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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
- All Participants will be muted
- Submit questions in Q&A box
- Webinar will be available on BATIC Website
 - www.financingtransportation.org/capacity_building/event_details/batic_webinar_managed_lanes.aspx

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Build America Bureau



- Outreach and development
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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



DAVID UNGEMAH

National Managed Lanes Dir. - WSP Parsons Brinckerhoff

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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



I-110, Los Angeles

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



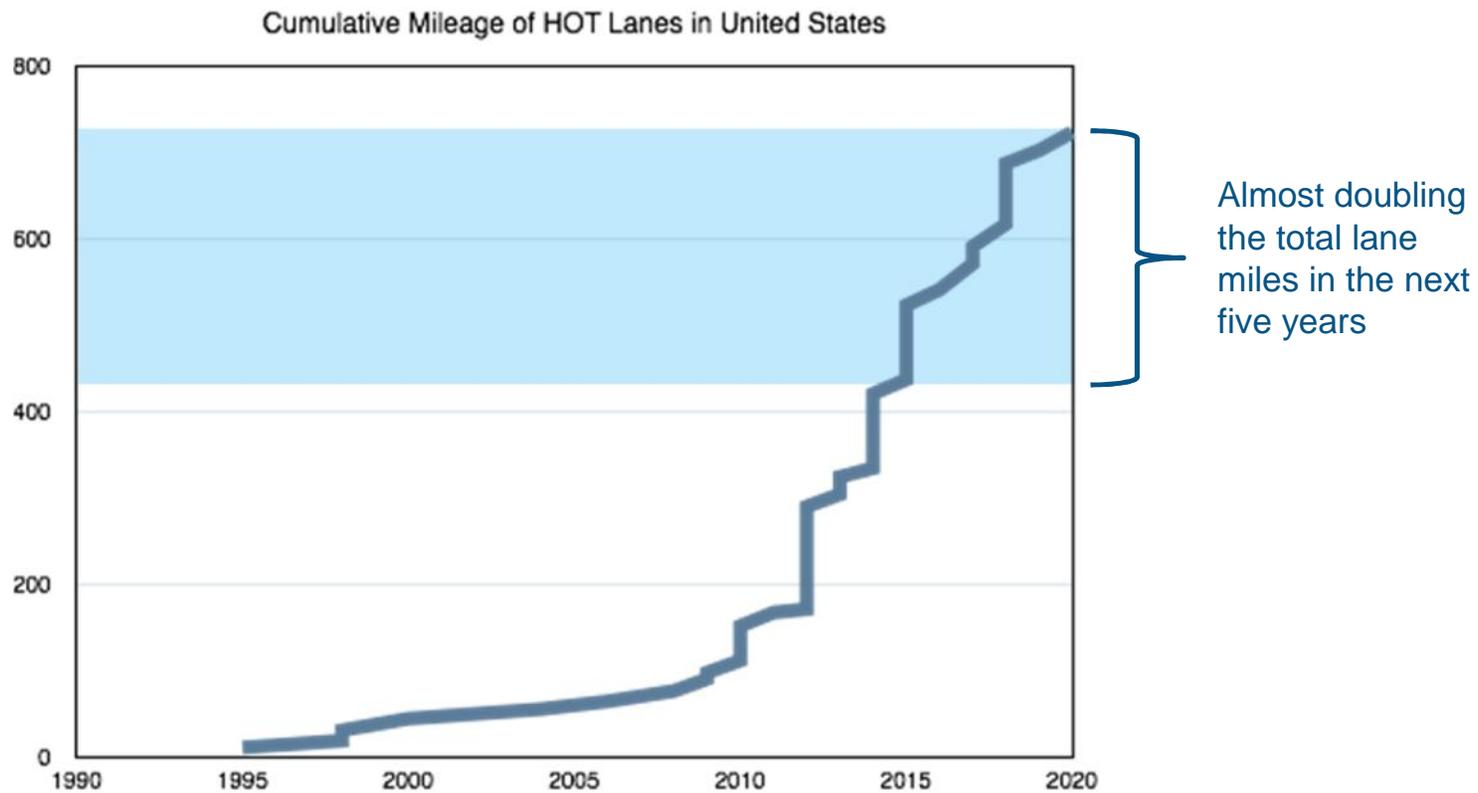


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Growth in Priced Managed Lanes



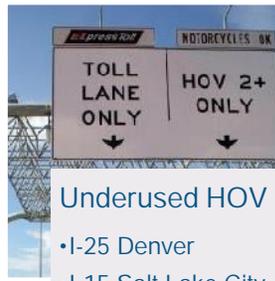
Graphic Source:
Prof. David Levinson, University of Minnesota, June 15, 2015.

Differing Contexts of Priced Managed Lanes



Overused HOV

- I-85 Atlanta
- I-405 Seattle (A)

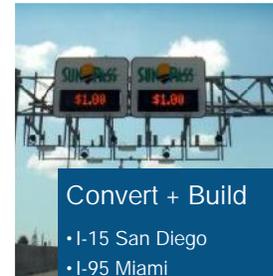


Underused HOV

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

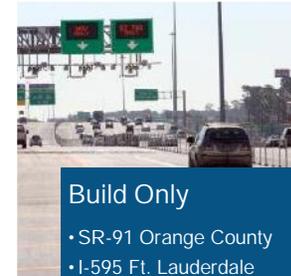
Publicly
Funded

Mix of Public
and
Private Funding



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)



Build Only

- SR-91 Orange County
- I-595 Ft. Lauderdale
- North Tarrant Express Dallas
- DFW Connector Dallas
- US 36 Denver
- I-70 Colorado Mountains

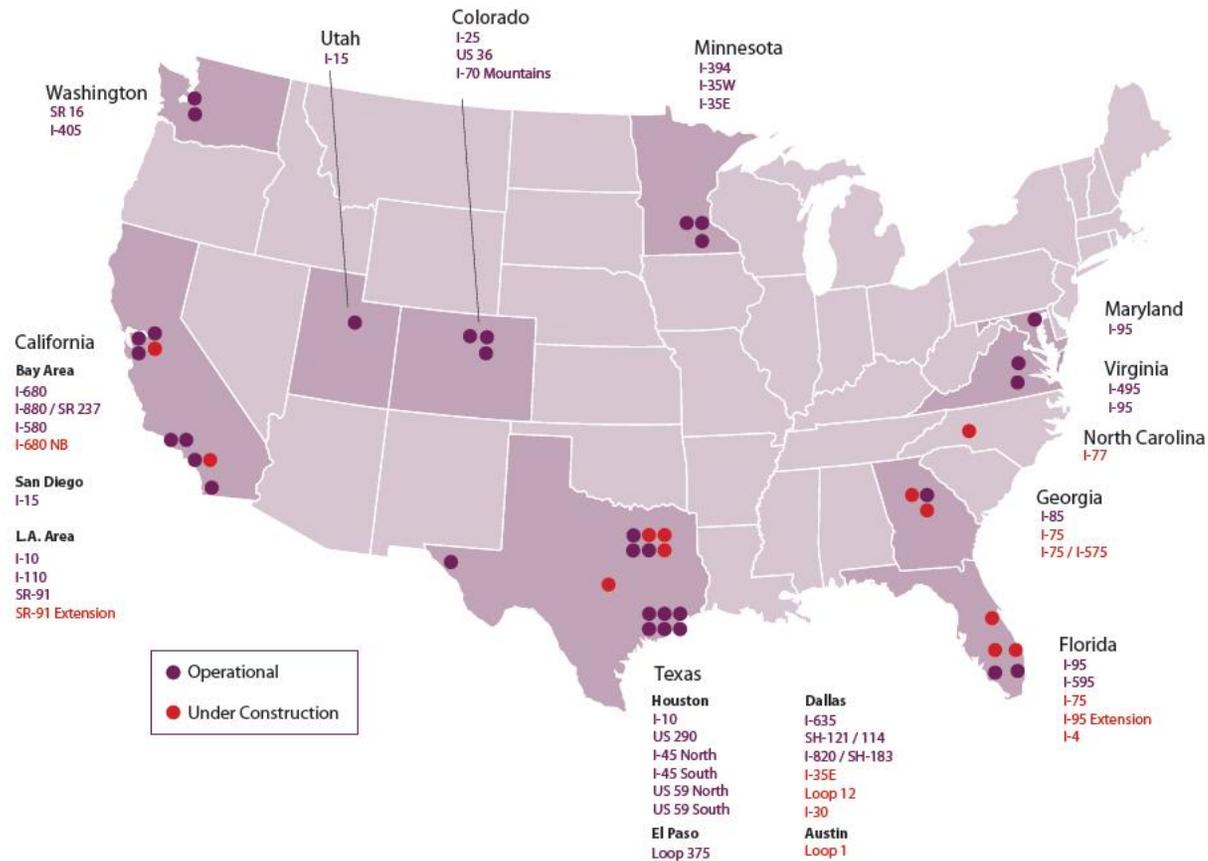
Who Can Use Priced Managed Lanes?

- | | | | | |
|--|--|--|---|--|
|  <p>HOV-2+ free at all times</p> <ul style="list-style-type: none"> 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) |  <p>HOV-2+ free with limits</p> <ul style="list-style-type: none"> I-10 (TX) I-45 (TX) US 59 (TX) US 36 (CO) I-25 (CO) |  <p>HOV-3+ free with limits</p> <ul style="list-style-type: none"> I-95 (FL) I-85 (GA) I-495 (VA) I-95 (VA) I-405 (WA) |  <p>HOV-3+ discount</p> <ul style="list-style-type: none"> SR-91 (CA) I-635 (TX) I-35E (TX) |  <p>No HOV benefits</p> <ul style="list-style-type: none"> Loop 375 (TX) I-70 (CO) I-595 (FL) I-95 (MD) |
|--|--|--|---|--|



I-635, Dallas

Priced Managed Lanes Operating or in Construction*



Already Rebuilding First Generation

I-15 San Diego (2003)



I-15 San Diego (2013)





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Purpose of Webinar: Illustrate How Priced Managed Lanes Reflect Community Context

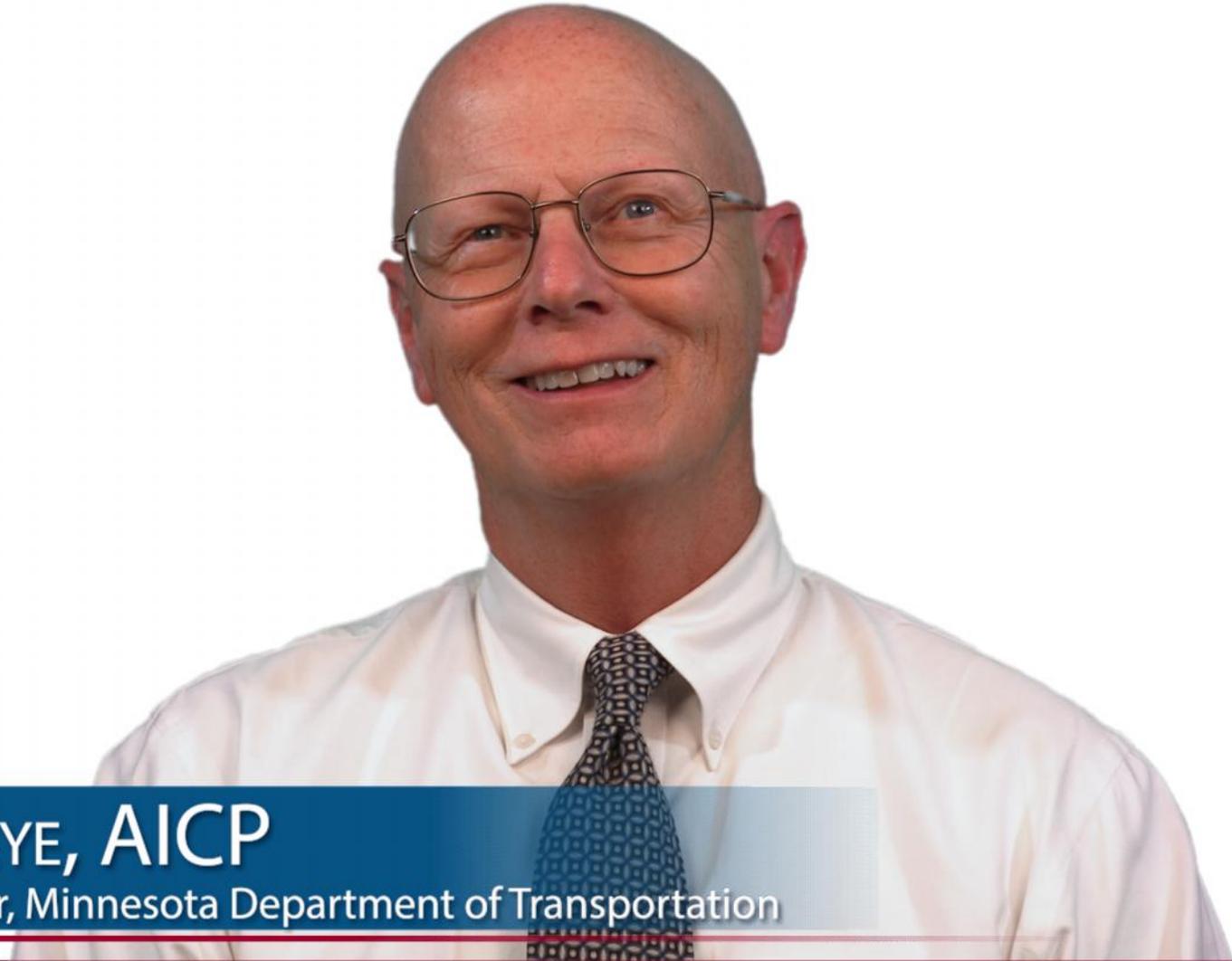
- Highlight development, funding/financing and operation
- Focus on key policy and operational decisions
- Demonstrate how to achieve local goals and objectives
- Describe evolution of priced managed lane networks
 - Minneapolis/St. Paul
 - Southeast Florida
 - Northern Virginia



I-495, 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

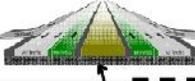
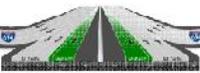
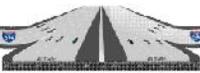
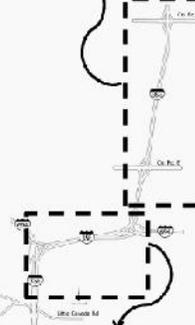
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Existing and Planned Express Lanes



MnPass Development

Extensive Analysis of Alternatives for Every Segment

 MNPASS LANE OPTIONS	CONTINUOUS	DISCONTINUOUS	PDSL
			
			
<ul style="list-style-type: none"> ▶ CONTINUOUS ▶ DISCONTINUOUS ▶ PRICED DYNAMIC SHOULDER (PDSL) 	COST: \$11.3 M	COST: \$10.7 M	COST: \$24.0 M

Extensive Community Outreach

MNPASS AT-A-GLANCE

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

MnPASS Basics

SOLO DRIVERS HAVE OPTION OF PAYING TO USE THE UNCONGESTED LANE



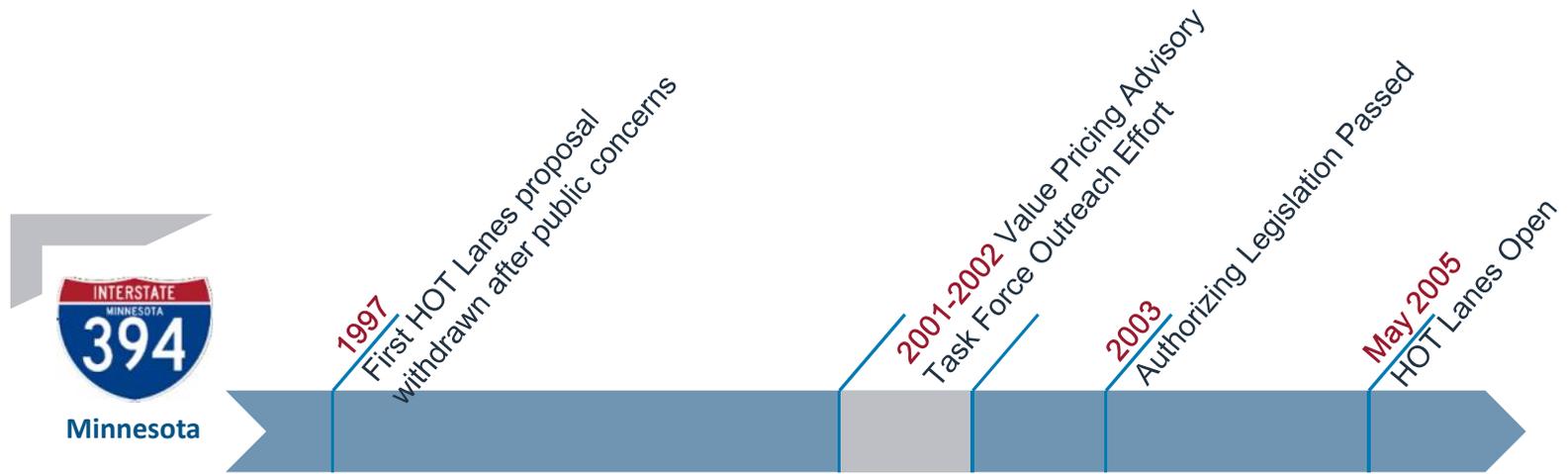
- NO STOPPING AT TOLL BOOTHS
- ELECTRONIC READERS COLLECT AT HIGHWAY SPEEDS
- PRE-PAID DEBIT CARDS
- TRANSIT AND CARPOOLERS ALWAYS USE MNPASS FOR FREE

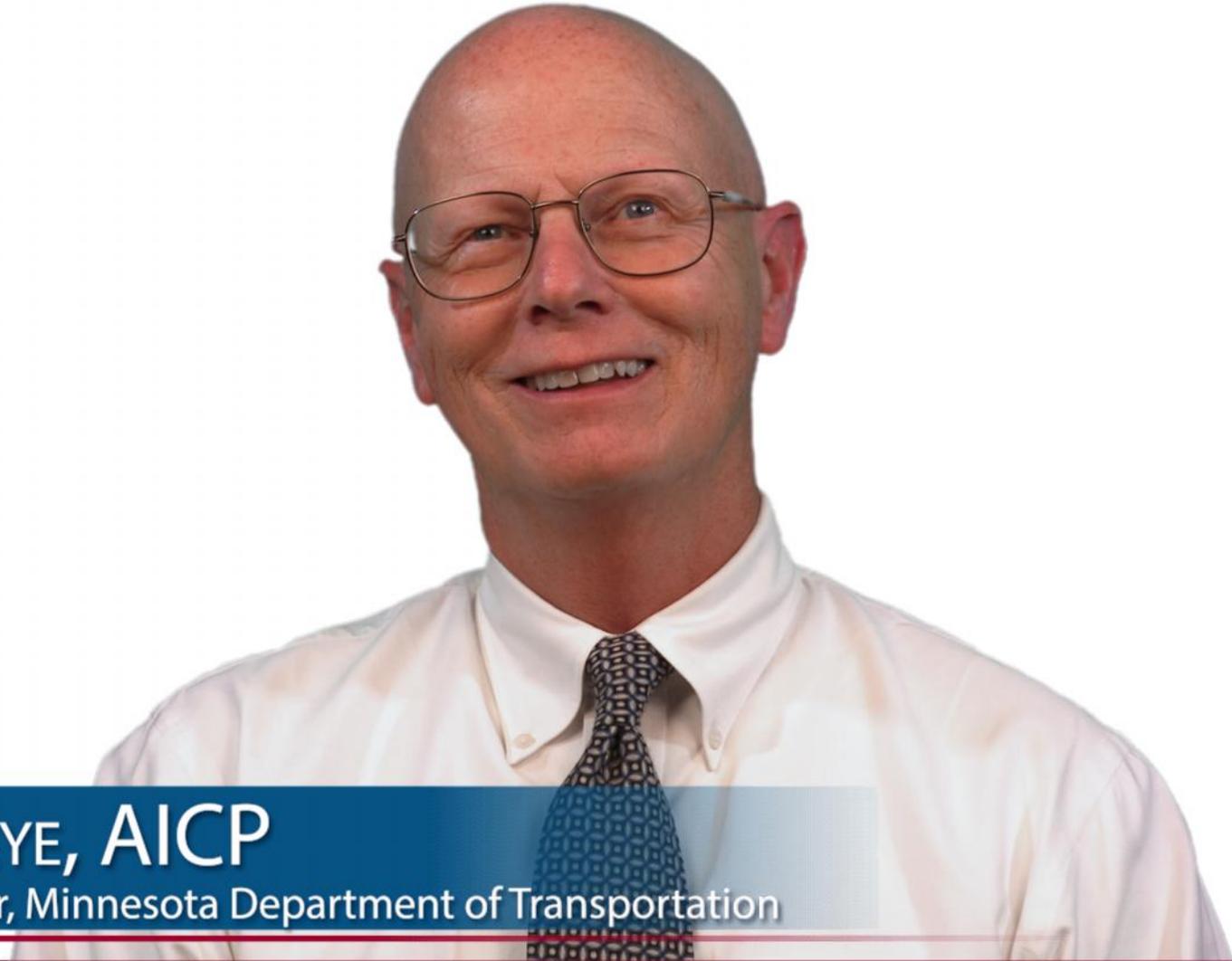
Driving Forces

- Underperformance of HOV lanes
- Building additional capacity is temporary solution



Project Development Timeline





KEN BUCKEYE, AICP

Program Manager, Minnesota Department of Transportation

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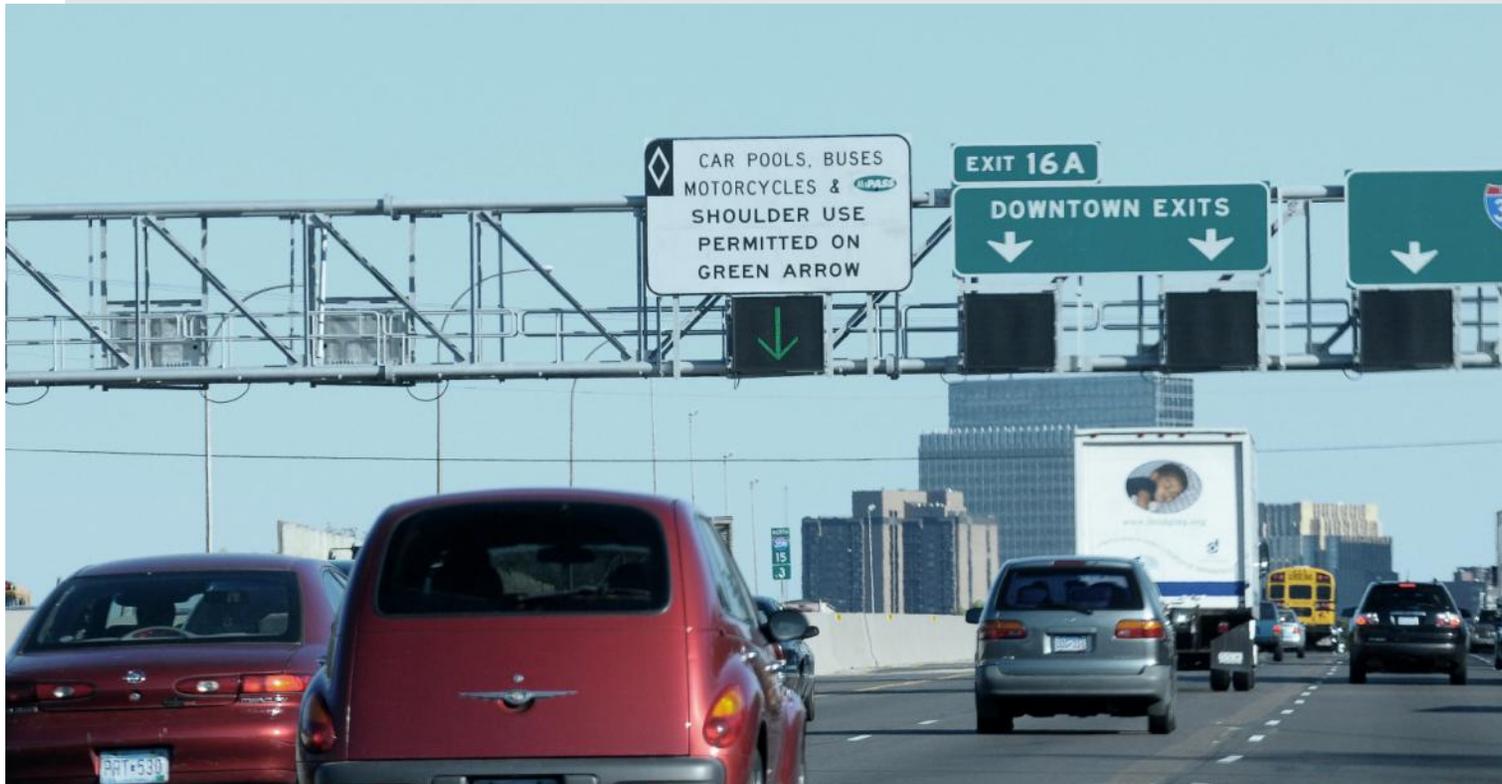
Project Development Timeline

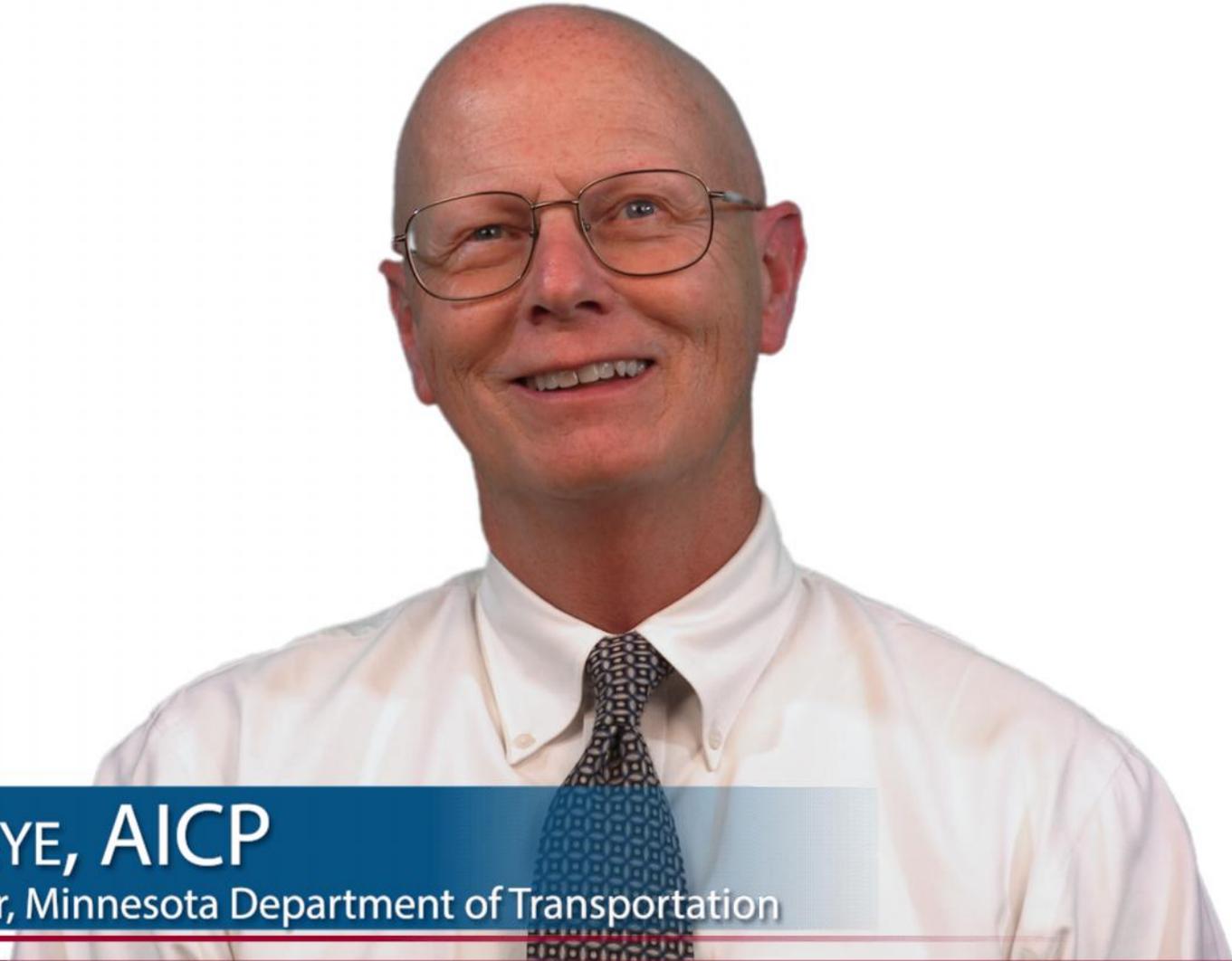


Use of Inside Shoulder During Peak Periods



I-35W MnPASS Lanes





KEN BUCKEYE, AICP

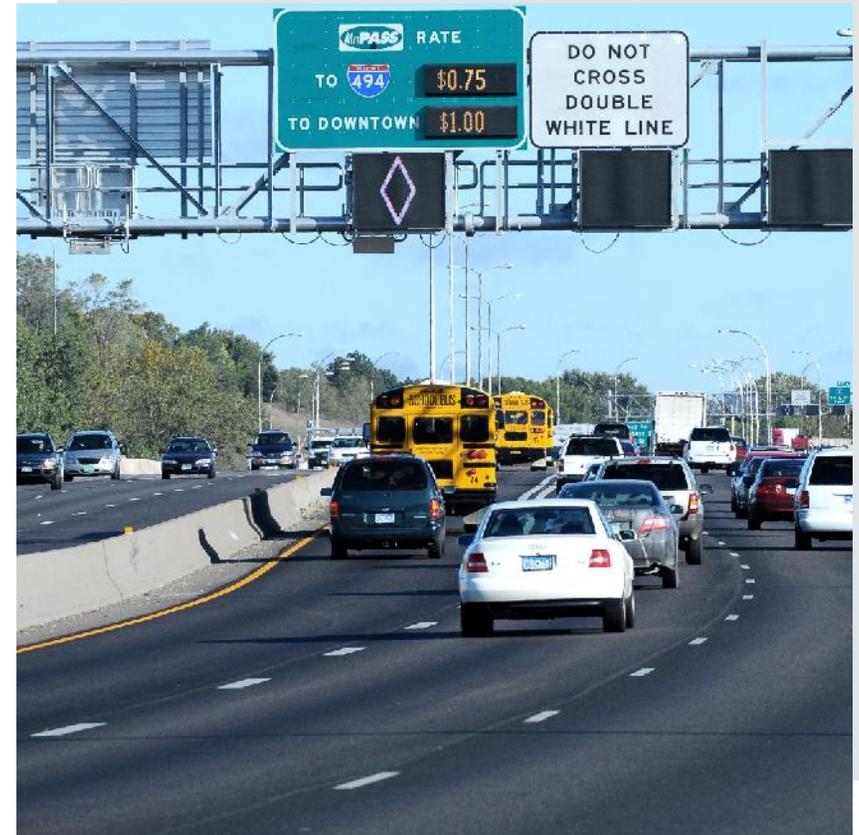
Program Manager, Minnesota Department of Transportation

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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

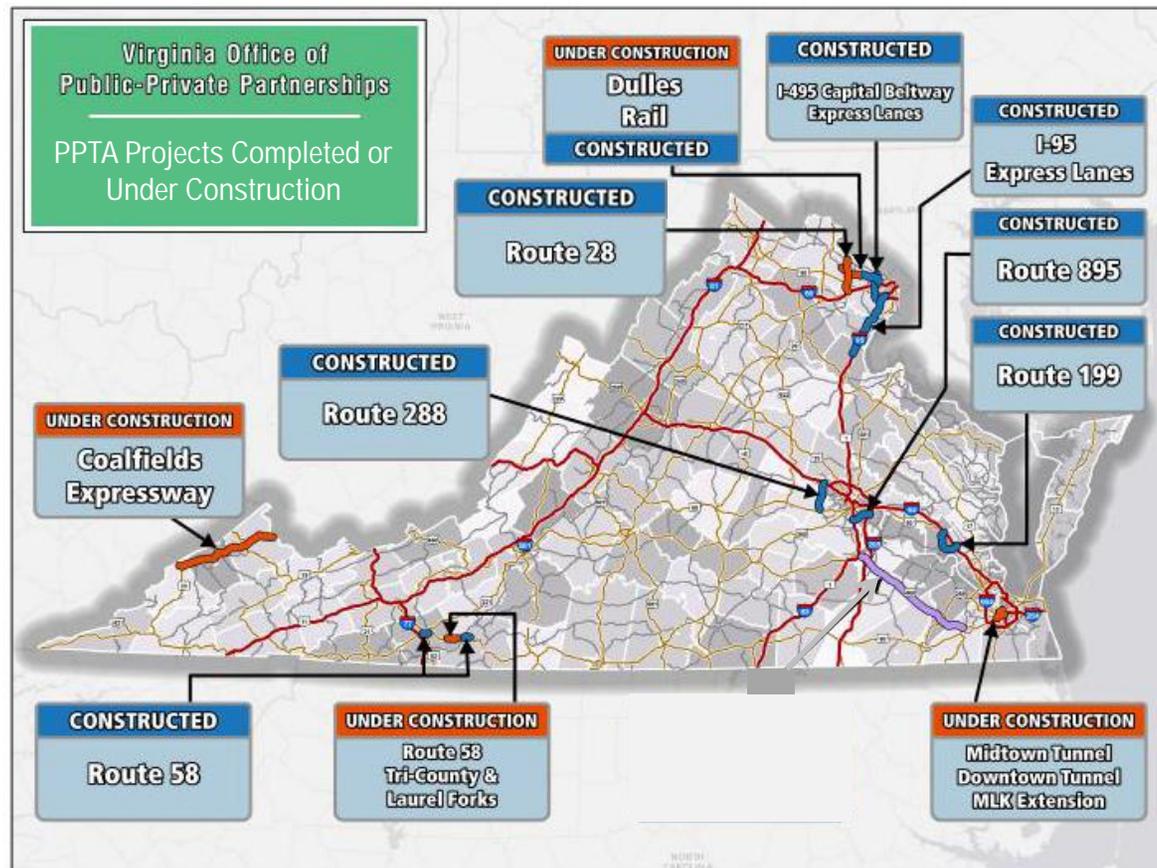
Larry O. Cloyed, PMP
EXPRESS LANES MANAGER
Northern Regional Operations, Virginia Department of Transportation



LARRY O. CLOYED, PMP

Express Lanes Manager, 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

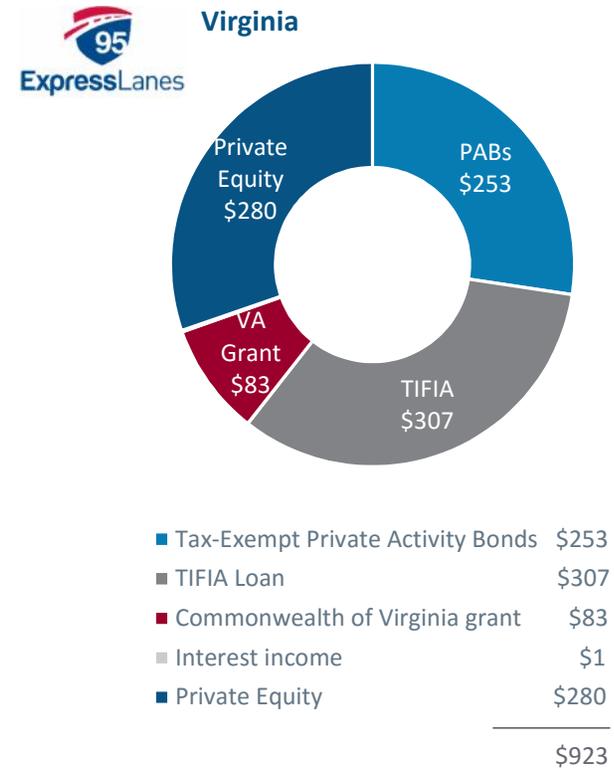
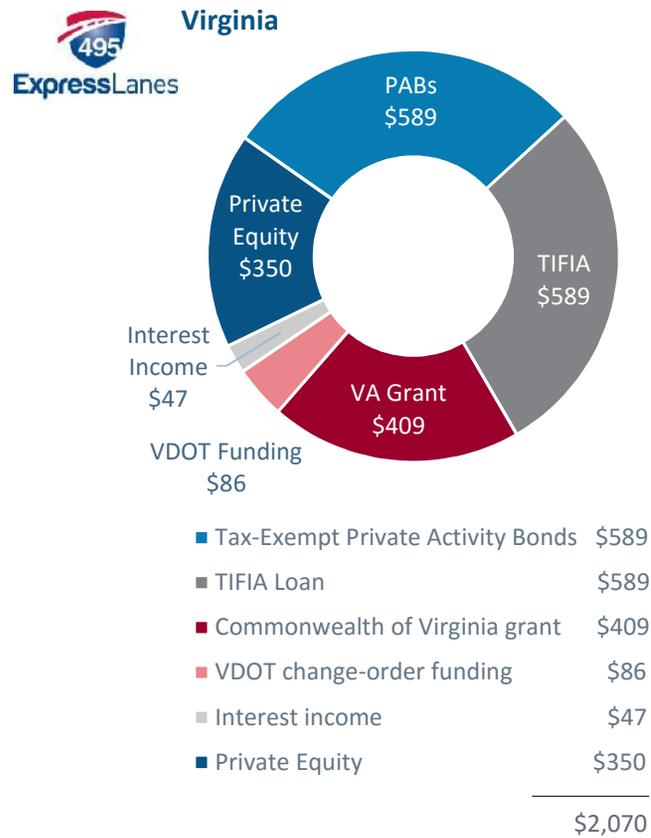
New or improved access to HOV/HOT network at key interchanges

Project Development Timelines

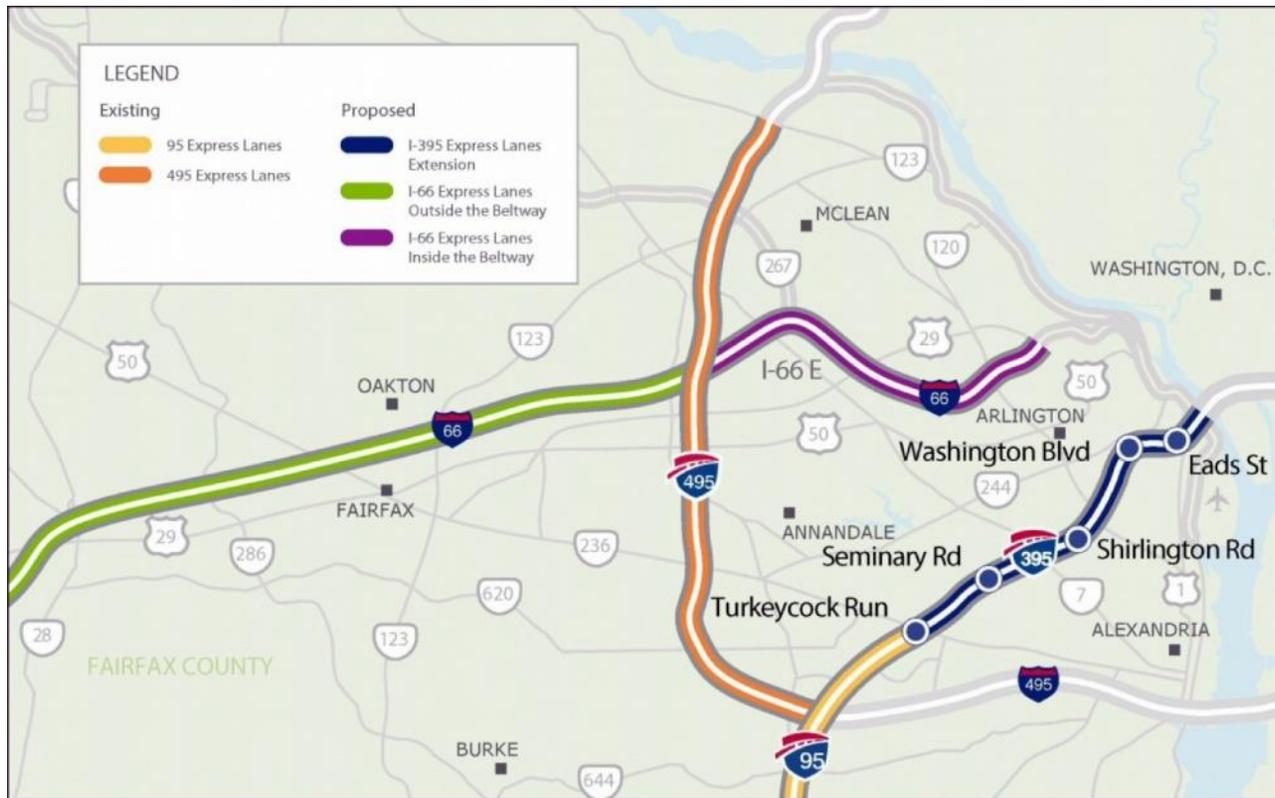


Funding and Financing Approach

(\$ in millions)



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.



LARRY O. CLOYED, PMP

Express Lanes Manager, Virginia Department of Transportation

Southeast Florida Express Lanes

Debora Rivera, P.E.
DIRECTOR OF TRANSPORTATION OPERATIONS
Florida Department of Transportation



DEBORA RIVERA, P.E.

Express Lanes Manager, Florida Department of Transportation

Critical Issues for 95 Express and 595 Express

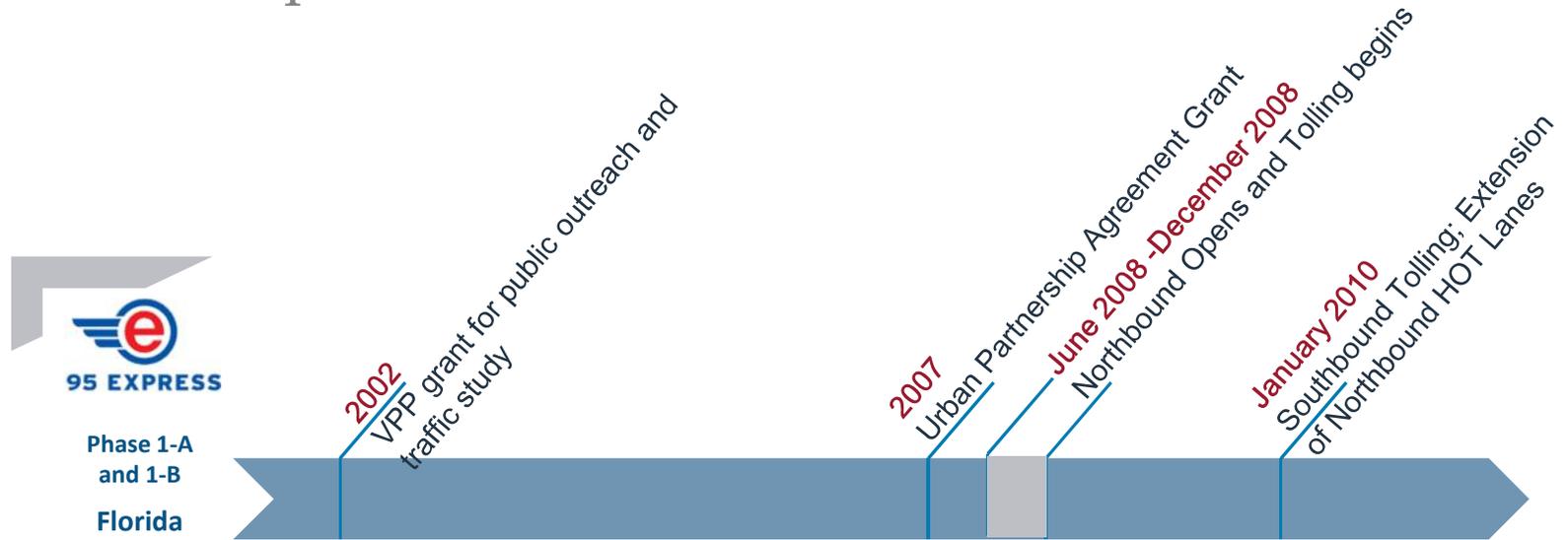
- I-95
 - HOV lanes were struggling to meet FHWA requirements
 - Early studies for HOT conversion found improvements to be cost prohibitive
 - USDOT Urban Partnership Agreement drove innovation and led to Miami's low-cost, short turn-around project proposal
 - New express capacity within existing footprint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



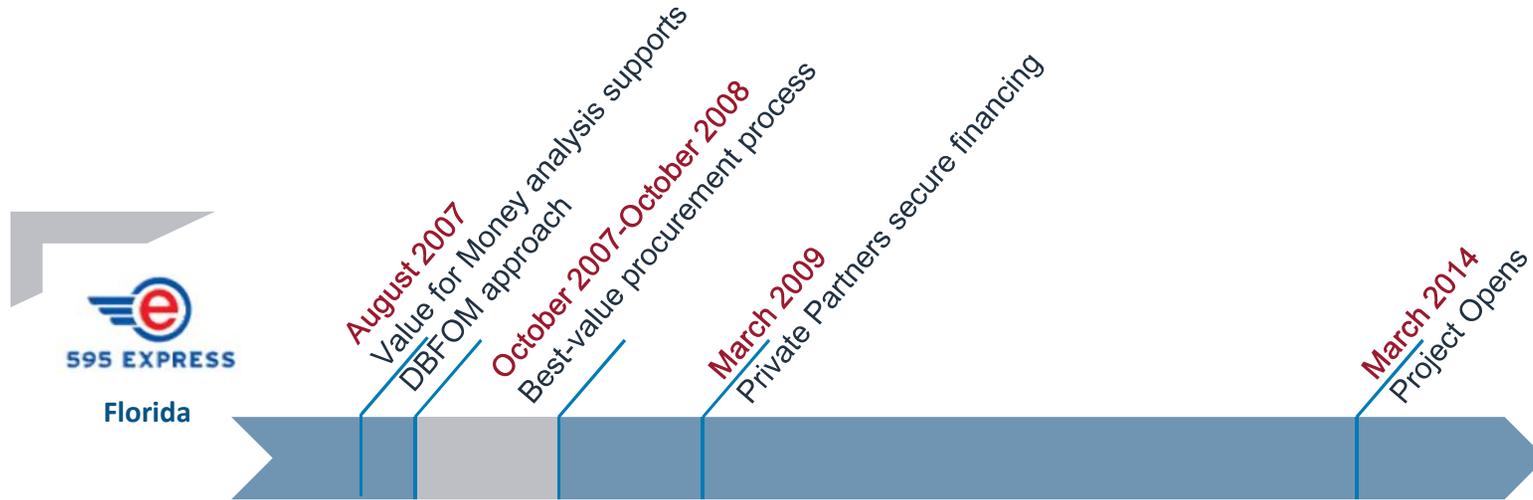
Regional Collaboration and Planning



Project Development Timeline



Project Development Timeline





DEBORA RIVERA, P.E.

Express Lanes Manager, Florida Department of Transportation

Project Overview



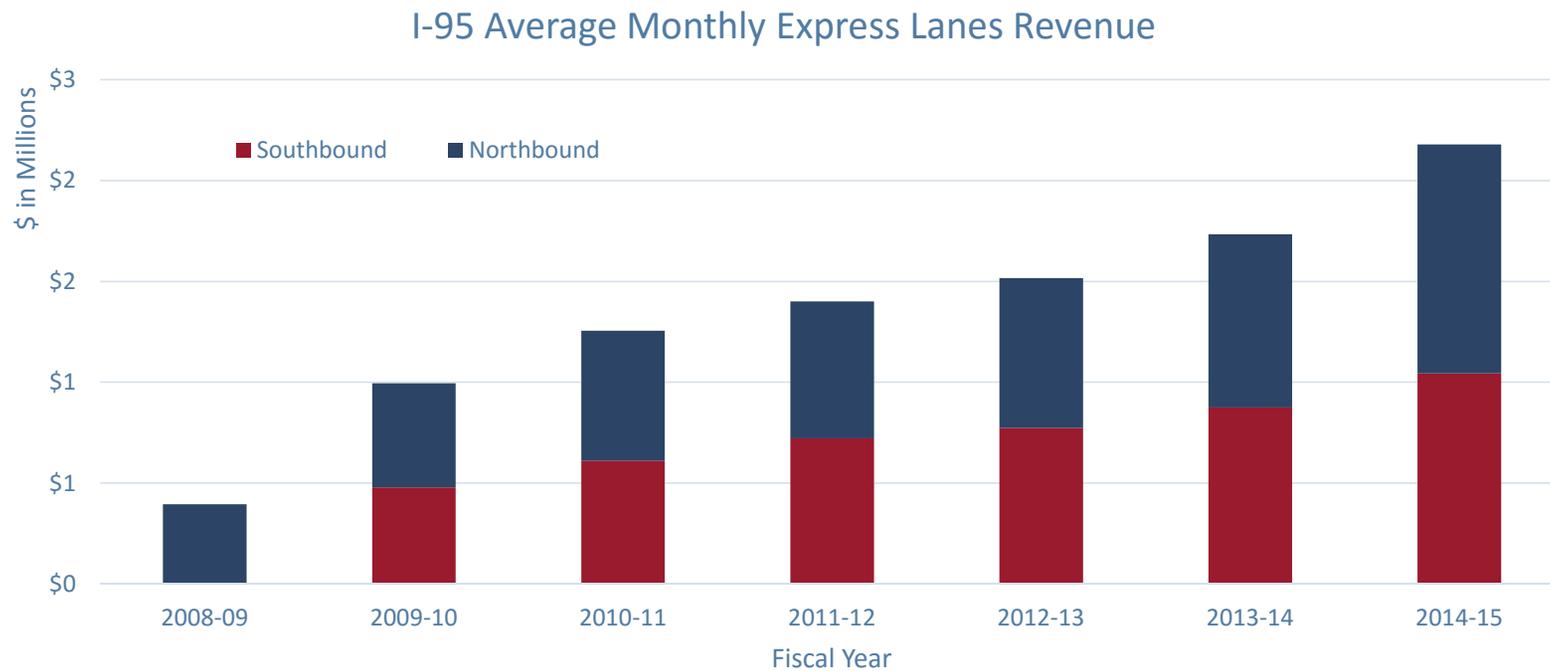
- 7 miles (total of 22 miles with Phase 2)
- Within existing footprint, restriping, ITS
- \$139 Million
- Design Build Finance public-private partnership
- Construction duration: 2 years
- Innovations
- Pricing, Occupancy, Registration
- Net Revenue Positive



- 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.



Key Policy and Operational Decisions

Approved:


Department of Transportation

Effective: August 30, 2013
Office: Systems Planning
Topic No.: 525-030-020-a

DIRECTIVE EXPIRES:
August 30, 2017

TOLLING FOR NEW AND EXISTING FACILITIES ON THE STATE HIGHWAY SYSTEM (SHS)

PURPOSE:

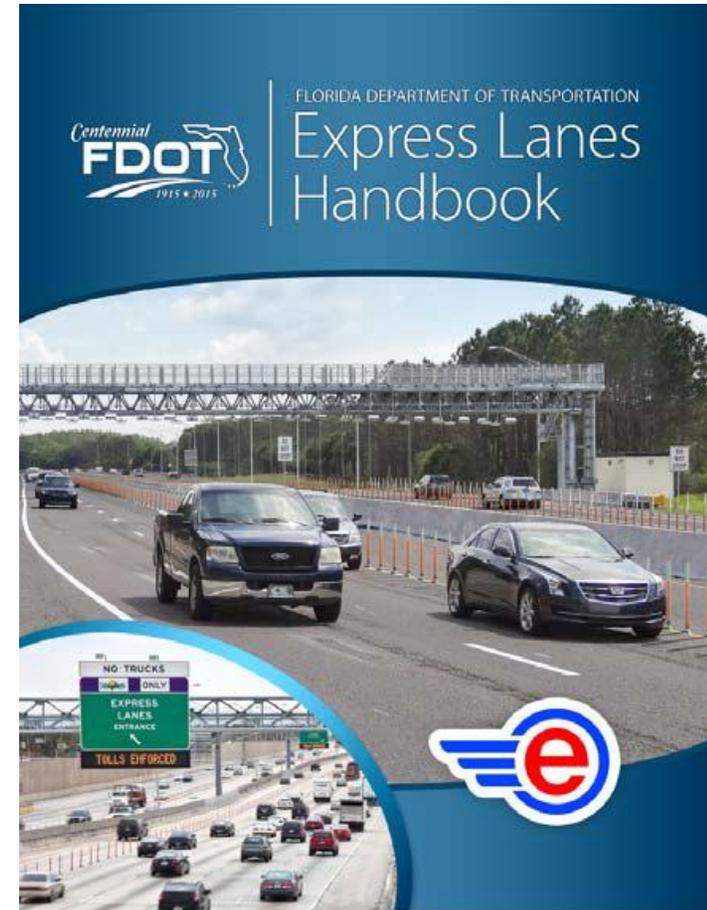
Outline the Florida Department of Transportation's (Department's) direction to use tolling on limited access facilities on the state highway system (SHS) when adding capacity to an existing highway or when constructing a new highway facility.

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*.



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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

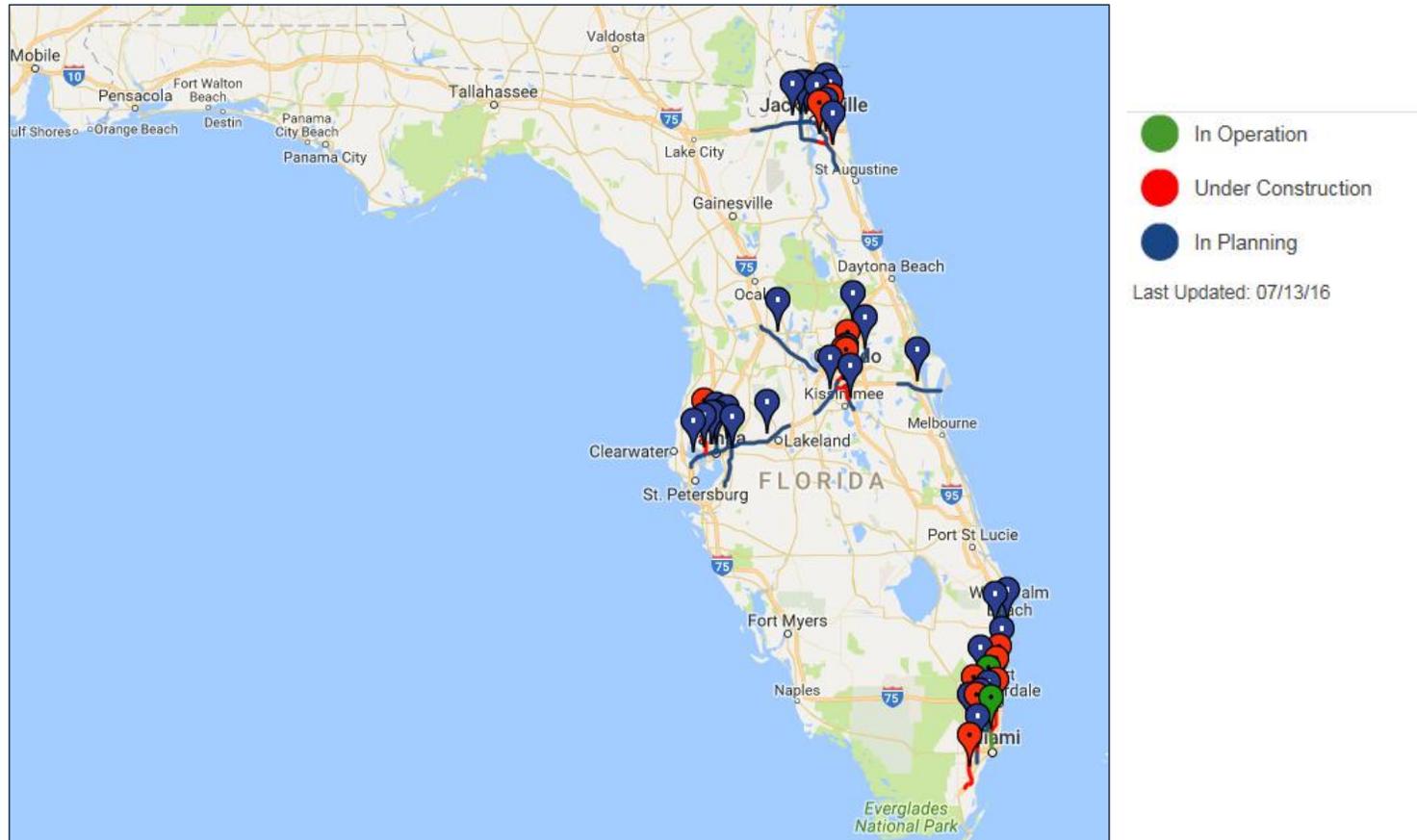
Florida is developing regional concepts for transportation operations to ensure express lane corridors function seamlessly together:

- 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

Typical Capital Cost Range		General Characteristics	Funding/ Financing	Procurement	Examples
Small	\$5-50 million	<ul style="list-style-type: none"> • Single lane • HOV2 free service generally provided (since it involves conversion of existing HOV lane) • Operational enhancement emphasizing throughput • Revenue generation may not cover O&M costs 	Pay-as-you-go, study and PE substantially grant funded	Traditional, accommodated in DOT work program	<ul style="list-style-type: none"> • SR 167 HOT lanes • I-680 Express Lane (Southbound)
Medium	\$50-500 million	<ul style="list-style-type: none"> • Potential capacity enhancement • Additional lane added by re-striping • Often support transit operations • Increase in HOV occupancy (2+ to 3+) to manage demand • Typically generate excess revenue 	Mix of grant funding, dedicated and traditional resources, potential use of debt	Potential for greater private involvement (e.g. design-build)	<ul style="list-style-type: none"> • I-10/I-110 Express Lanes • 95 Express (Miami)
Large	\$500 million+	<ul style="list-style-type: none"> • Multilane • Involves new construction • Often support transit operations • Emphasis on revenue in combination with operational characteristics 	Debt/ equity financed	Candidate for P3, potentially multiphase	<ul style="list-style-type: none"> • U.S. 36 ML (Phase 1) • 495 Express • I-595 Express Lanes

BATIC Institute Resources



Capacity Building

Overview

Meetings & Events Calendar

Webinars

Pennsylvania Rapid Bridge Replacement Project

Denver Union Station Area Redevelopment Project

Eagle P3 Commuter Rail Project

Priced Managed Lanes

Peer Exchanges

Debt Management

Station Development

BATIC INSTITUTE EVENTS



WEBINAR SERIES: INNOVATION IN PRACTICE

Priced Managed Lanes

This event took place **September 22, 2016**. The webinar video and other materials are posted below.

Webinar Video



- www.financingtransportation.org/capacity_building/event_details/eagle_p3.aspx

FHWA Pricing Resources

U.S. Department of Transportation
Federal Highway Administration

FHWA Home

CONGESTION PRICING

OFFICE OF OPERATIONS 21ST CENTURY OPERATIONS USING 21ST CENTURY TECHNOLOGIES

Search Congestion Pricing: Go

Congestion Pricing Home

- About Congestion Pricing
- Home
- What is Congestion Pricing?
- Benefits of Congestion Pricing

Federal Programs

- Federal Programs Home
- Value Pricing Pilot Program
- HOV Facilities (Section 166)
- Urban Partnership Agreements
- Congestion Reduction Demonstrations
- Office of Innovative Program Delivery Tolling and Pricing Programs

Welcome to the FHWA Congestion Pricing Web Site

Congestion pricing - sometimes called value pricing - is a way of harnessing the power of the market to reduce the waste associated with traffic congestion. Congestion pricing recognizes that trips have different values at different times and places and for different individuals. Faced with premium charges during periods of peak demand, road users are encouraged to eliminate lower valued trips, take them at a different time, or choose alternative routes or transport modes where available. In cases where congestion pricing is applied to specific traffic lanes rather than to an entire highway facility, users have the option of choosing to pay to use congestion-free priced lanes or continue to travel on general purpose lanes without paying a toll. There is a consensus among economists that congestion pricing represents the single most viable and sustainable approach to reducing traffic congestion.

This site provides information and resources to help equip state agencies and practitioners with an understanding and tools to implement congestion pricing projects and incorporate pricing into transportation planning.

Features

- Value Pricing Project Program Quarterly Report**
The [Value Pricing Project Program January - March 2016 Quarterly Report](#) is now available.
- Congestion Pricing - A Primer: Effective Approaches to Streamlining Back Office Operations**
The [document](#) explores the range of back office issues that have arisen on congestion pricing projects throughout the United States. The issues are organized into eight categories: policy decisions, interoperability back office efficiency, enforcement, data analysis and warehousing, transparency, privacy, and private sector involvement.

- 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