Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

APPENDIX

March 2014

FDOT

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Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

Appendix A: Public Involvement Documentation

STAKEHOLDER ENGAGEMENT

The RCTO process involved extensive stakeholder engagement which helped frame the discussion and drive study progress. Stakeholders were organized into three main committees (Executive, Technical and PIO) and three working group (planning, transit, and service providers), as shown in Figure A-1. With this structure, discussions could be tailored to their interest and expertise.

The 36 issues identified for ELN implementation were first vetted through these stakeholder groups and transformed into an annotated outline. This annotated outline served as the basis for developing the more detailed RCTO document. The stakeholder groups were asked to provide feedback at different stages in the RCTO development process, as indicated in Figure A-1.

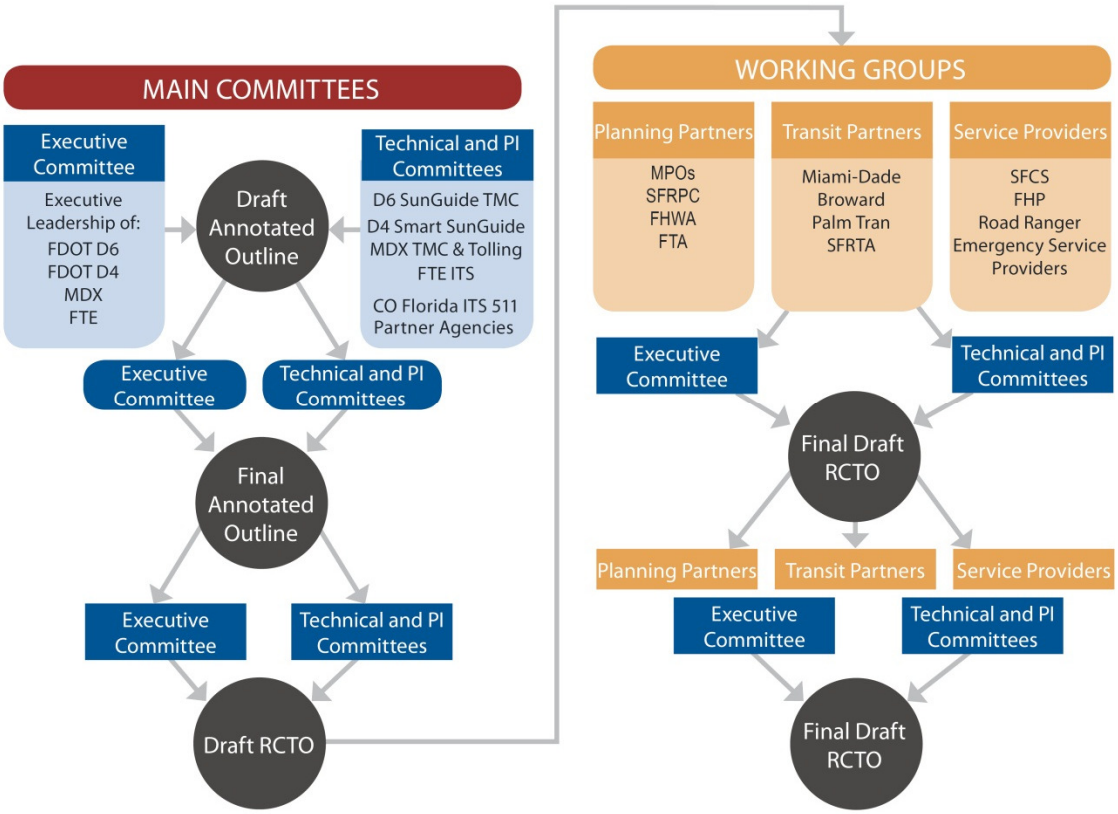


Figure A-1: Stakeholder Involvement Process

The following documents the stakeholder involvement process, which involved the following meetings:

- Stakeholder Kickoff Meeting – May 9, 2012
- Executive, Technical and PI Committee Meetings – August 17, 2012
- Executive Committee Meeting – December 4, 2012
- Technical, PI and Working Group Meetings – December 7, 2012

Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

Stakeholder Kickoff Meeting

May 9, 2012

REGIONAL CONCEPT FOR TRANSPORTATION OPERATIONS (RCTO)

Kick-Off Meeting
May 11, 2012

Meeting Agenda

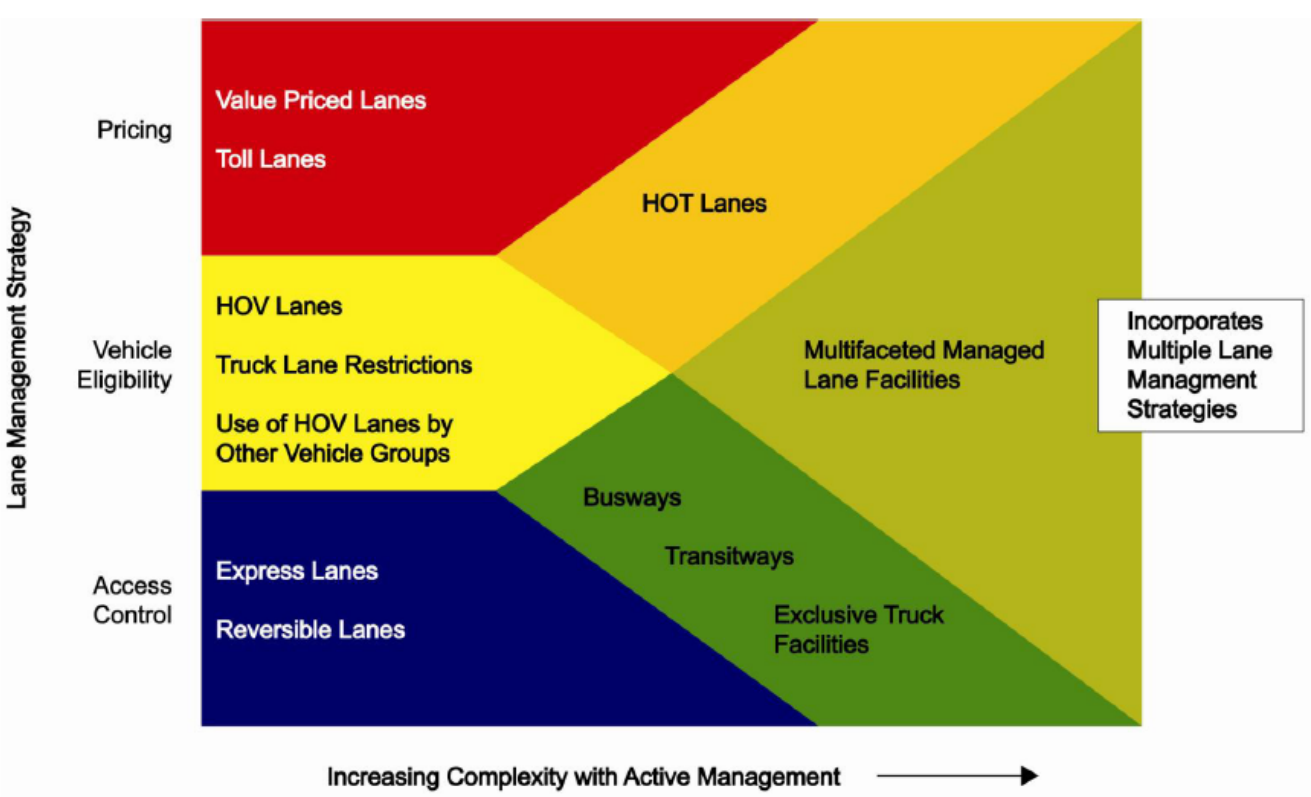
- Opening Remarks /Introductions/Expectations
- Presentations
  - Managed Lanes 101
  - 95 Express to Date
  - South Florida Regional Concept for Operations
- Breakout Sessions
- Closing Remarks/Comments/Questions?

Managed Lanes 101

What are Managed Lanes?

Highway facilities or a set of lanes where operational strategies are <u>proactively</u> implemented and managed in response to changing conditions

http://ops.fhwa.dot.gov/freewaymgmt/managedlanesvideo/index.htm

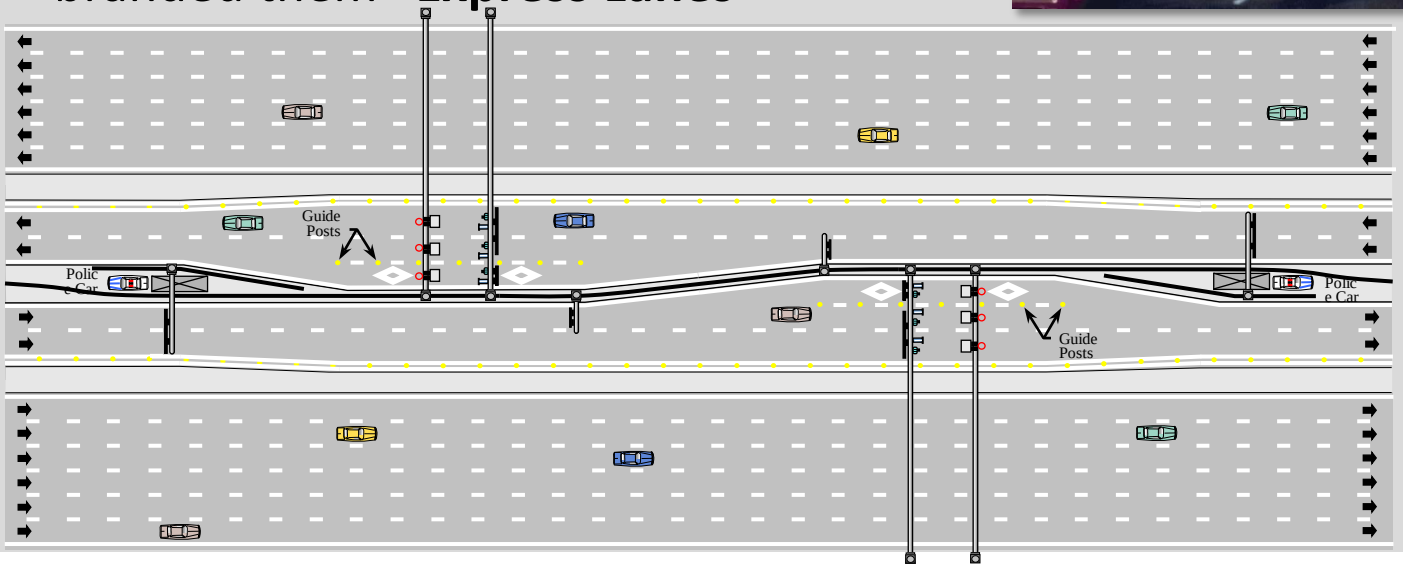


Managed Lane Terminology

- Many terms used
  - High Occupancy Vehicle (HOV) Lanes
  - High Occupancy Toll (HOT) Lanes
  - Bus Rapid Transit Lanes (BRT)
  - Truck Only Toll (TOT) Lanes
  - Priced Managed Lanes
- Can be physically similar
- Business rules determine what they are

Priced Managed Lanes

- A separate tolled corridor inside of an existing “free” or otherwise tolled facility
- Congestion is managed with pricing, access and eligibility
- Many agencies around the country have branded them **“Express Lanes”**

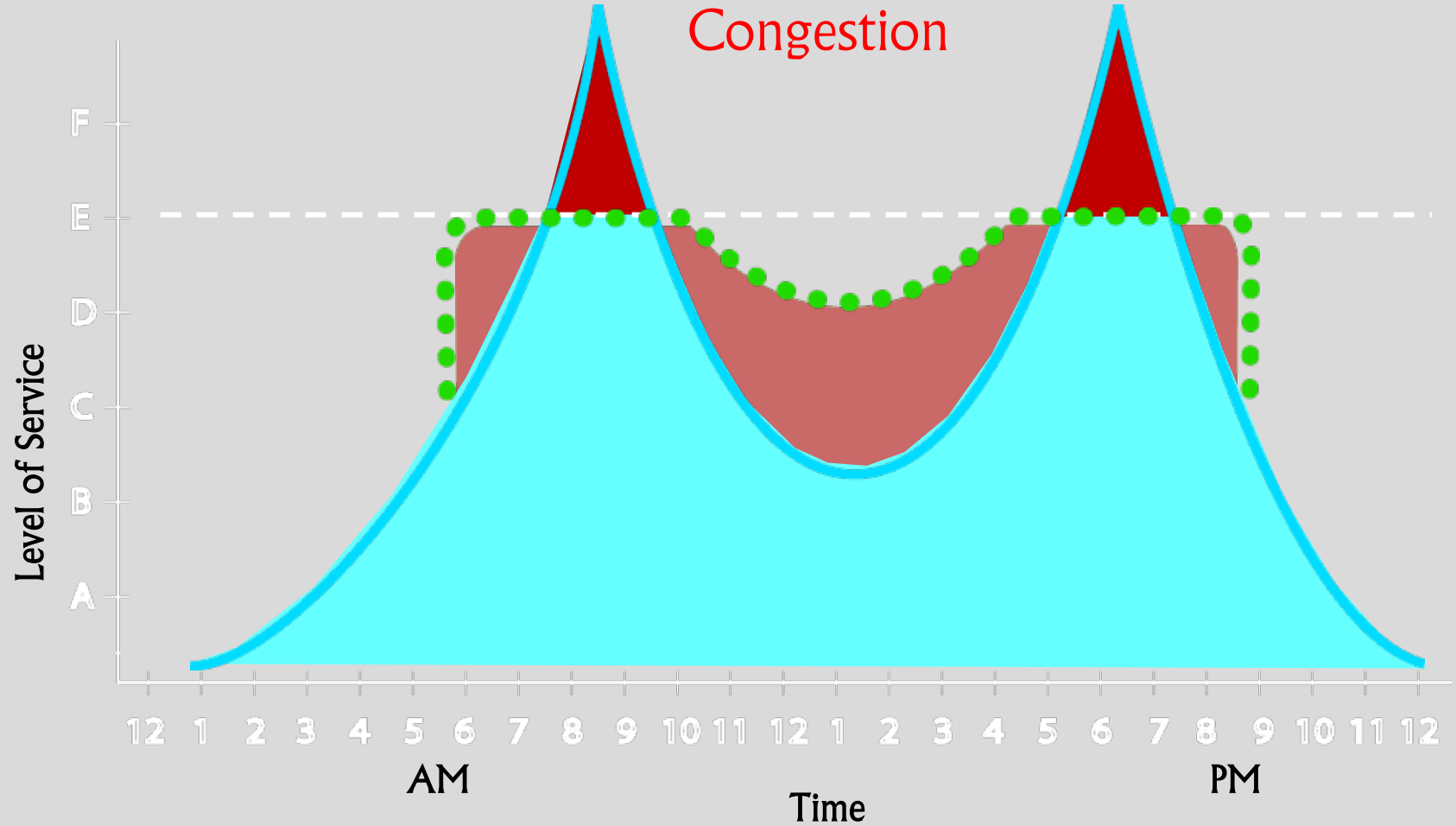


Why Priced Managed Lanes?

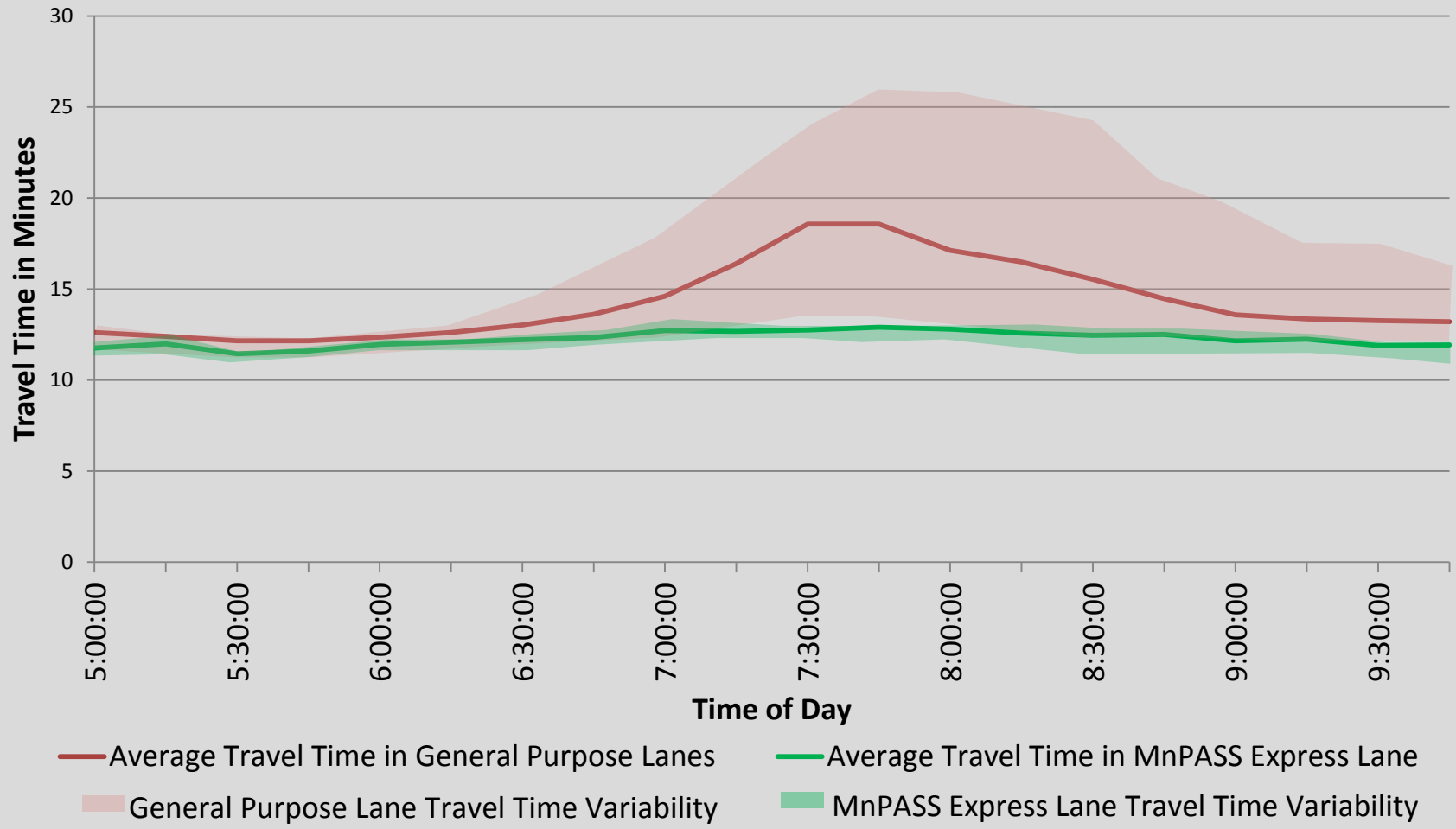
How do Priced Managed Lanes benefit a region?

- Trip reliability
- Time savings
- Improved mobility
- Congestion management
- Revenue generation
- Reduction in capital improvements

System Throughput: Congestion Pricing Concept



Travel Time Reliability: Northbound I-35W AM Peak



What are the key issues with Priced Managed Lanes?

- Three “feasibilities”: technical, institutional, financial
- Conflicting or compatible goals
  - Better management
  - Transit/rideshare promotion
  - Revenue generation
- Safety-speed differential
- Enforcement
- Sponsorship and governance

Common Misconceptions

- Priced Managed Lanes make lots of money
  - Mobility vs. revenue
  - Very different business rules and policies
  - Enforcement strategies
- Priced Managed Lanes will work everywhere
- Priced Managed Lanes are always great Public-Private Partnership projects

Public Opinion in Minnesota

- 91% overall satisfaction
- 95% satisfaction with all electronic tolling
- 85% satisfaction with traffic speed in lane
- 76% satisfaction with dynamic pricing
- 66% satisfaction with safety of merging

Data from Survey of 500 MnPASS account holders in 2009

National Lessons Learned

- Project champions are a must
- Engage elected officials, agencies, and the public early and often
- Multi-modal approach increases public acceptance
- Address equity issues early in the planning process
- A system plan approach is beneficial

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95 EXPRESS – PROJECT UPDATE

Rory Santana, P.E., P.T.O.E.
FDOT District Six ITS Manager

Robyn Chiarelli
FDOT District Four Transportation Demand Coordinator

PROJECT GOALS

- Increase Quality Person Throughput
- Increase Mobility Choices
- Improve Trip-Time Reliability
- Promote Sustainability

PROJECT OVERVIEW

- Phase 1 Complete
  - Northbound Tolling – Dec. 2008
  - Southbound Tolling – Jan. 2010
- HOV to HOT Conversion
  - 1HOV Lane → 2 Express Lanes
- Ramp Signaling
- Bus-Rapid Transit Service/HOV Enhancements

Phase 1 is complete and Phase 2 will be completed during the next 2-3 years.

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Legend

- Interstate
- Florida's Turnpike
- Park & Ride Lot
- Tri-Rail Station
- State Road
- Highway
- Tri-Rail
- Metrorail
- 95 Express Golden Glades to Miami
- 95 Express Transit System
- 95 Express Miramar Transit Center

95 EXPRESS

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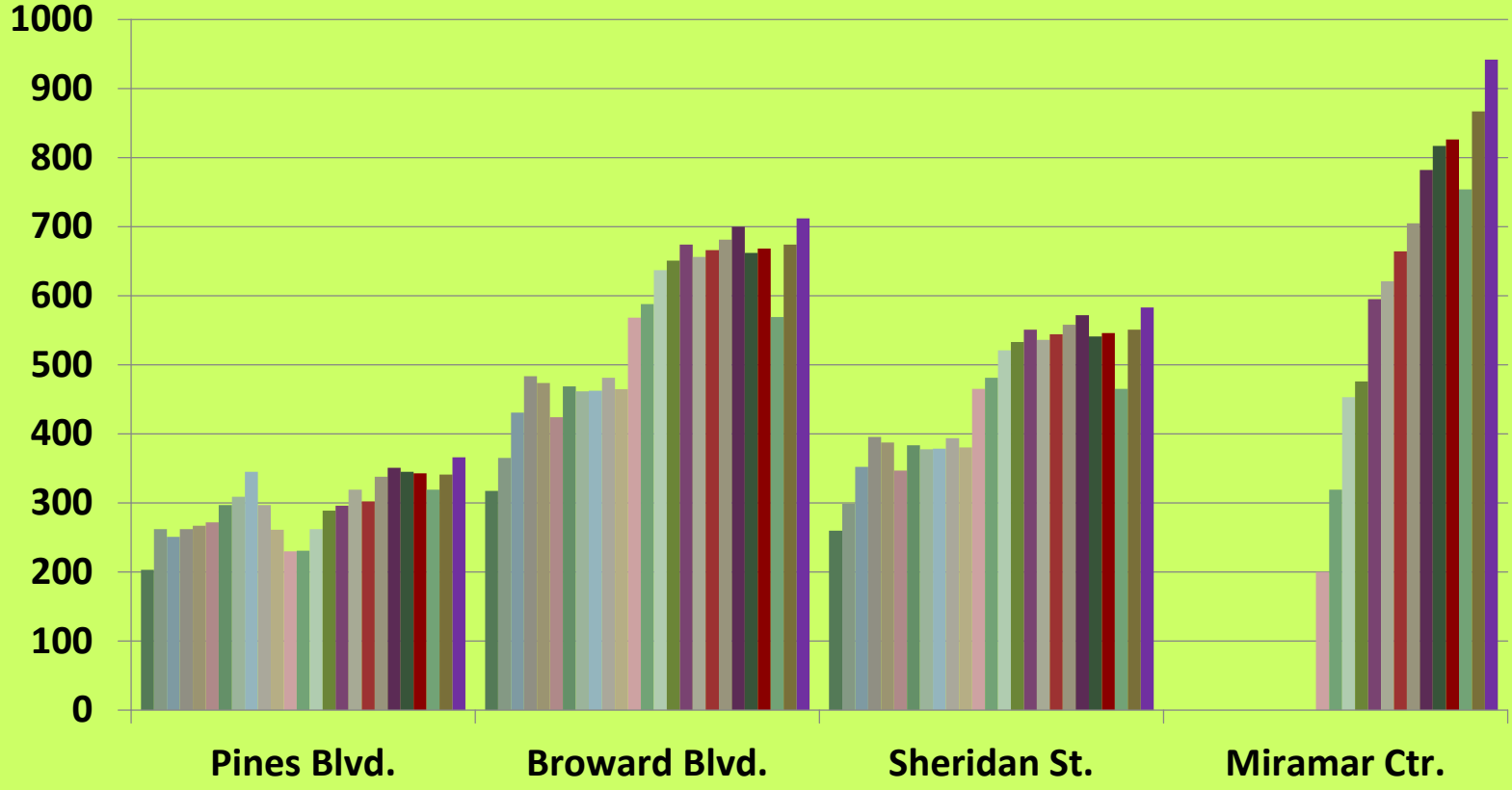
Avg. Weekday Boardings per Month
Feb 2010 - Feb 2012



95 EXPRESS

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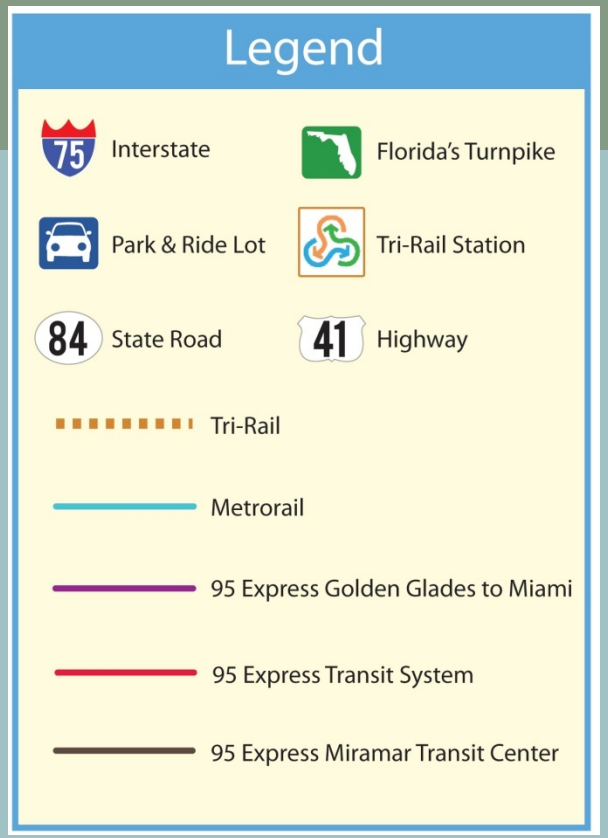

TOTAL RIDERSHIP MULs GGI to MIA
2009: 1,800 / peak hrs
2012: 5,000 / peak hrs
Transit can play a role in congestion pricing.

Legend

- Interstate
- Florida's Turnpike
- Park & Ride Lot
- Tri-Rail Station
- State Road
- Highway
- Tri-Rail
- Metrorail
- 95 Express Golden Glades to Miami
- 95 Express Transit System
- 95 Express Miramar Transit Center
- I595 Express Transit System

95 EXPRESS

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WHAT WE KNOW NOW

- Procurement via competitive process
- Joint development opportunities for park and ride
- Reverse commute
- Bus speeds

PHASE 1 PERFORMANCE (THRU MAR 2012) OPERATIONAL ANALYSIS – OVERVIEW

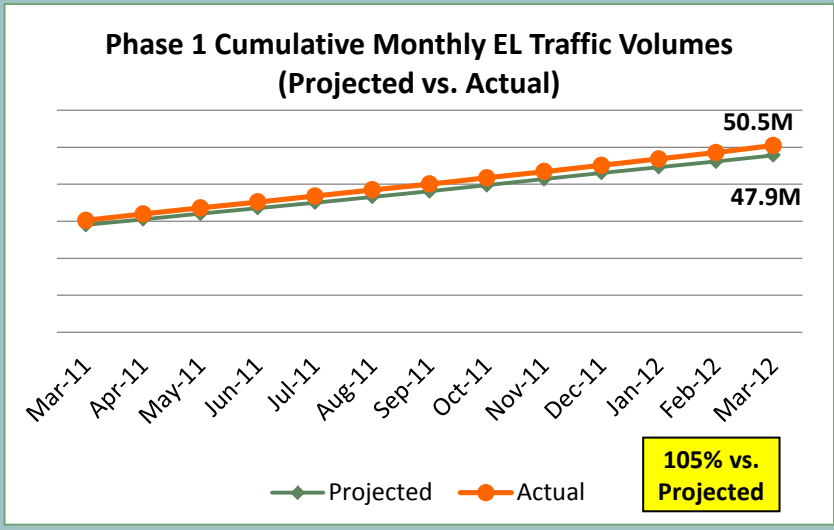
95 EXPRESS

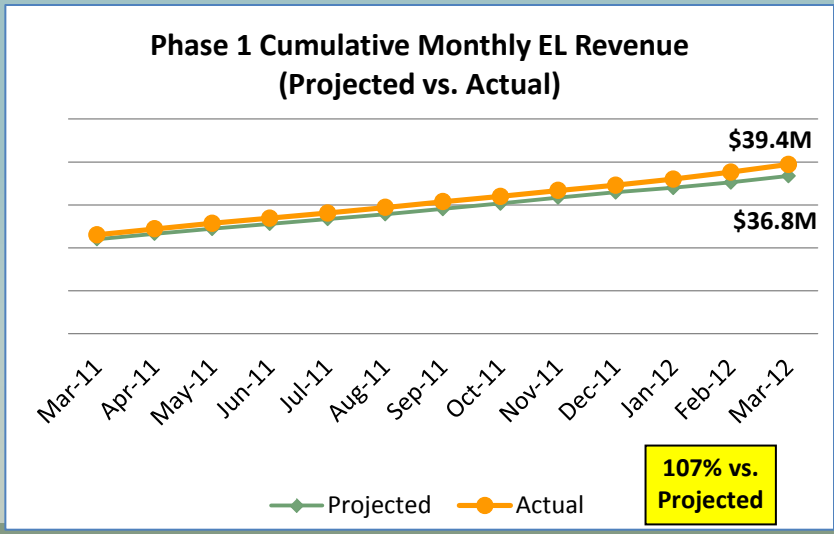
- **Goal: Maintain Speed > 45 MPH 90% of the Time**
  - ITD SB Peak Period – 99.7%; NB Peak Period – 92.5%
- **Average AM Peak Period Speeds (Southbound)**
  - 2008 HOV – 20 MPH; GPL – 15 MPH
  - ITD EL – 63 MPH; GPL – 50 MPH
  - 105% vs. Projected
- **Average PM Peak Period Speeds (Northbound)**
  - 2008 HOV – 18 MPH; GPL – 18 MPH
  - ITD EL – 56 MPH; GPL – 41 MPH

PHASE 1 PERFORMANCE (THRU MAR 2012) OPERATIONAL ANALYSIS – OVERVIEW

95 EXPRESS

- **Peak Period Benefits**
  - SB – 13 MPH; NB – 15 MPH
- **Volume/Trips**
  - 50M reached in March 2012
  - Avg. 1.6 Million per Month
  - 105% vs. Projected
- **Revenue**
  - Avg. $1.3 Million per Month
  - 107% vs. Projected ITD





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PUBLIC INFORMATION RESULTS

95 EXPRESS

- 95 Express Survey Says…
  - 80% Believe EL more Reliable than LL
  - 78% Reported Faster Travel Times as Main Reason for using EL
  - 64% Supported Toll Usage to Fund Congestion Reduction Projects
  - 55% Favored 95 Express in the community
- National Recognitions
  - Best Innovative Practice – Public Information (ITSA, 2011)
  - Best Innovative Project – Operations (ITSA, 2010)
  - People's Choice Award, America's Best Transportation Project, (AASHTO, 2009)

AMERICA'S transportation awards

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OPERATIONS IMPLEMENTATION CHALLENGES

95 EXPRESS

- Schedule
- Highway Funding
- Legislation & Rule Making
- Equity & Political Support
- Tolling Mechanism
- Enforcement
- Multi-Departmental Operations
- Multi-Agency Operations

BROWARD COUNTY Transit

HIGHWAY FLORIDA PATROL

MIAMI-DADE TRANSIT

FLORIDA'S TURNPIKE ENTERPRISE

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

SOUTH FLORIDA COMMUTER SERVICES

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OPERATIONS IMPLEMENTATION CHALLENGES

95 EXPRESS

- Public Information
- Customer Service

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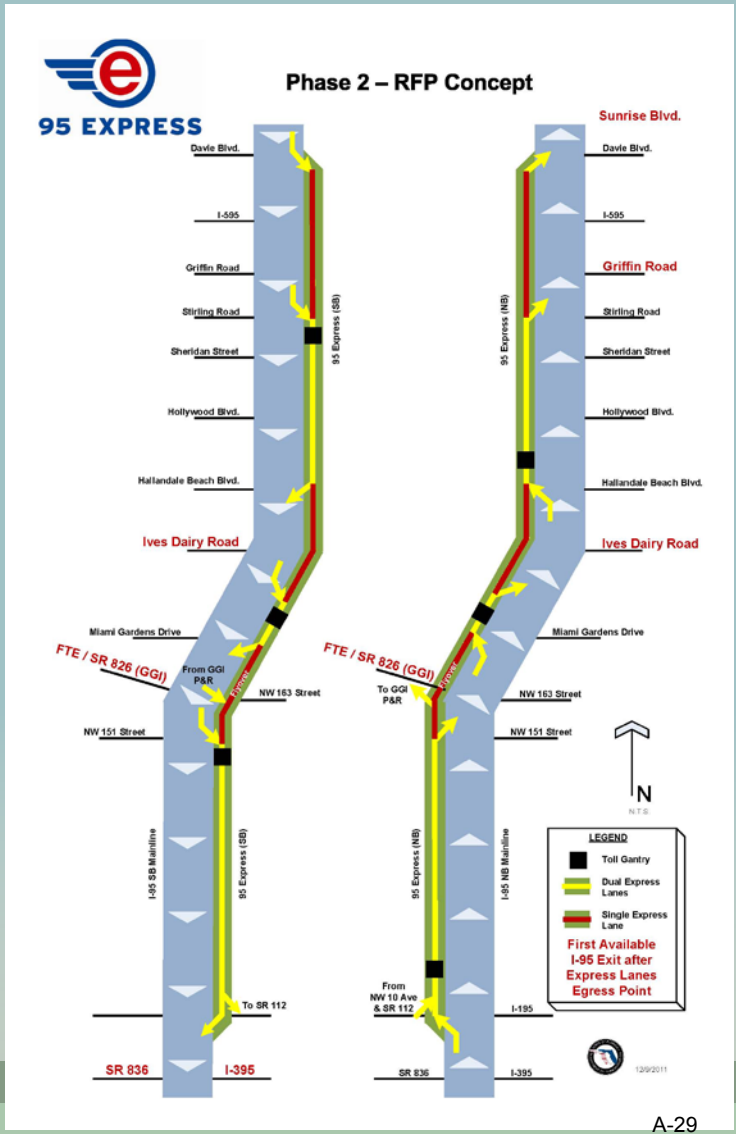
LESSONS LEARNED

- General
  - Define Strong Project Vision
  - Establish Comprehensive Schedule
- ➢ Institutional / Organizational
  - Develop Concept of Operations Early
  - Involve Design / Operations Staff Early in Planning Process
- ➢ Project Management

95 EXPRESS - PHASE 2

- 13-mi. Extension from GGI to Davie Blvd.
  - Spans Two FDOT Districts
  - Multiple Ingress/Egress Points
- Design/Build - In Construction
  - NTP – 11/28/11
  - ~3 Years Construction



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CONTACT INFORMATION

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Regional Concept for Transportation Operations (RCTO)

Background

- **Managed Lanes –** Umbrella term that defines lanes that are managed via access, eligibility and/or price

- **Express Lanes (EL)** – Priced managed lanes that have been branded in S. Florida as Express Lanes

- **Regional Concept for Transportation Operations (RCTO)** – Defines the operating guidelines and goals for Express Lanes regionally and how to achieve mutually agreed upon objectives.

Regional Concept for Transportation Operations (RCTO) Background

Funded in cooperation between an FHWA VPPP grant and FDOT

The RCTO builds on the success of 95 Express

More Express Lane projects are coming to South Florida

RCTO Development Partners

District 4

District 6

RCTO Project Purpose

Develop a comprehensive Regional Concept for Transportation Operations document (RCTO) that can be used by practitioners involved in or responsible for the development of the emerging regional network of Express Lane (EL) facilities in Southeast Florida

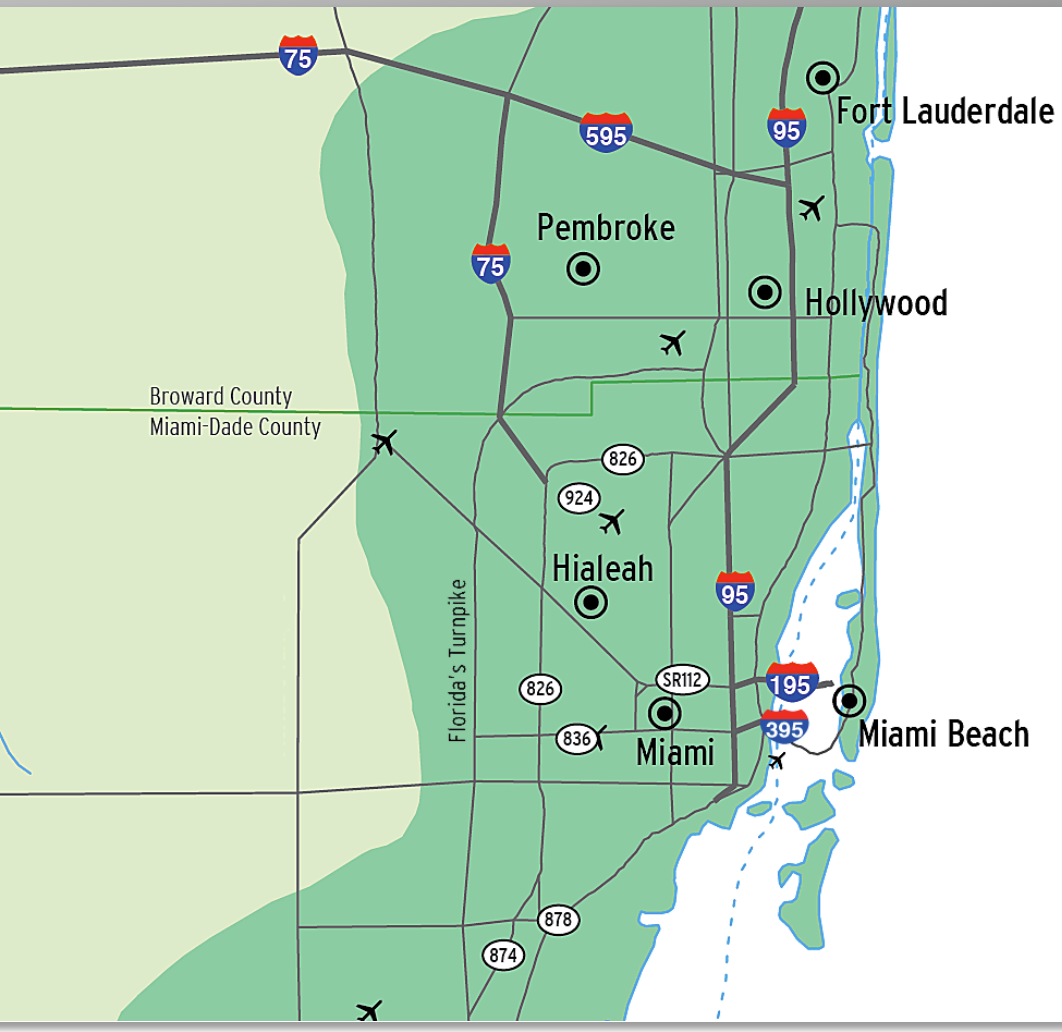
What is an RCTO?

- A “living” document containing operational, maintenance and technical guidance, including best practices, to inform the development of specific EL projects
- First step in developing a shared set of expectations between transportation partners
- The foundation from which specific EL project concept of operations can be developed

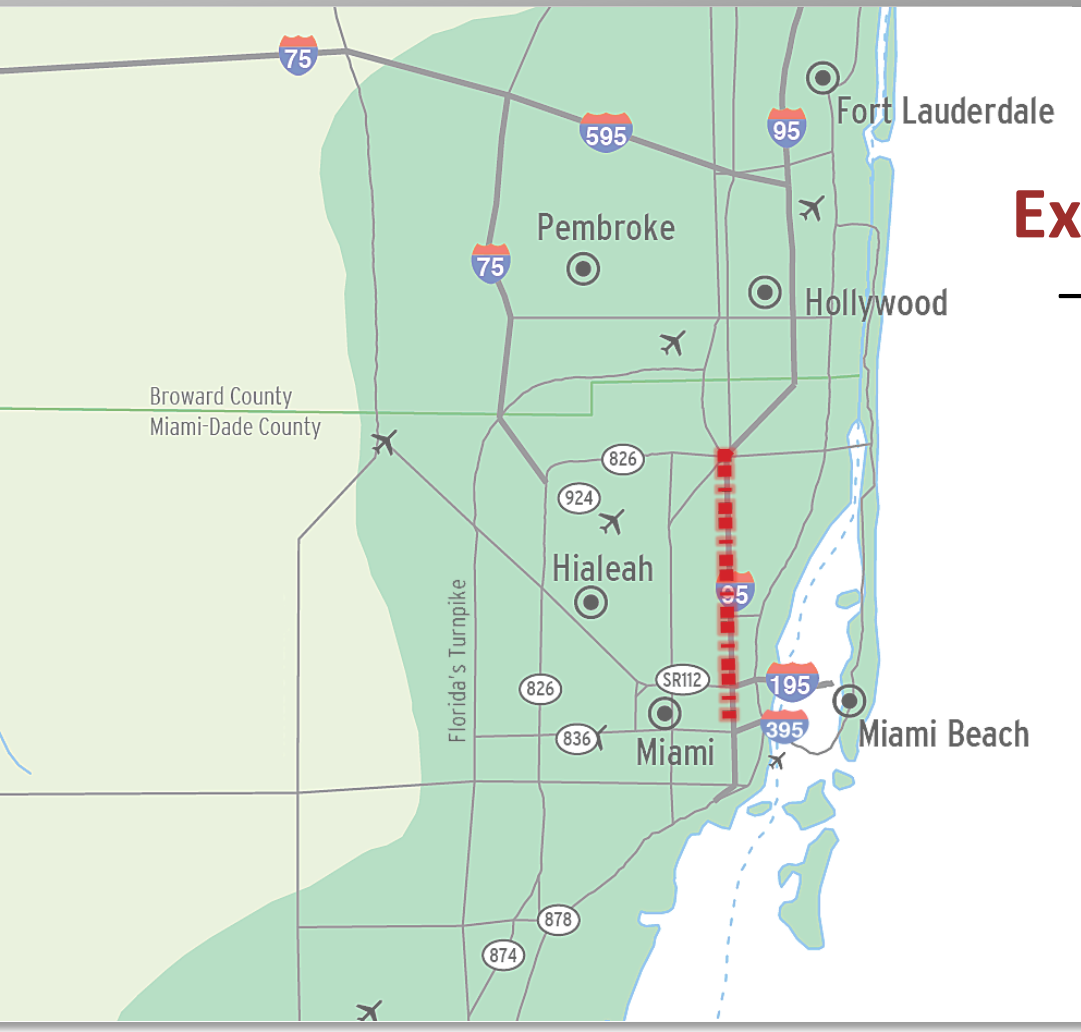
Why an RCTO?

- Ensure EL corridors function seamlessly together
- Enhance regional mobility
- Establish performance metrics
- Set institutional arrangements between partners

Southeast Florida EL Network



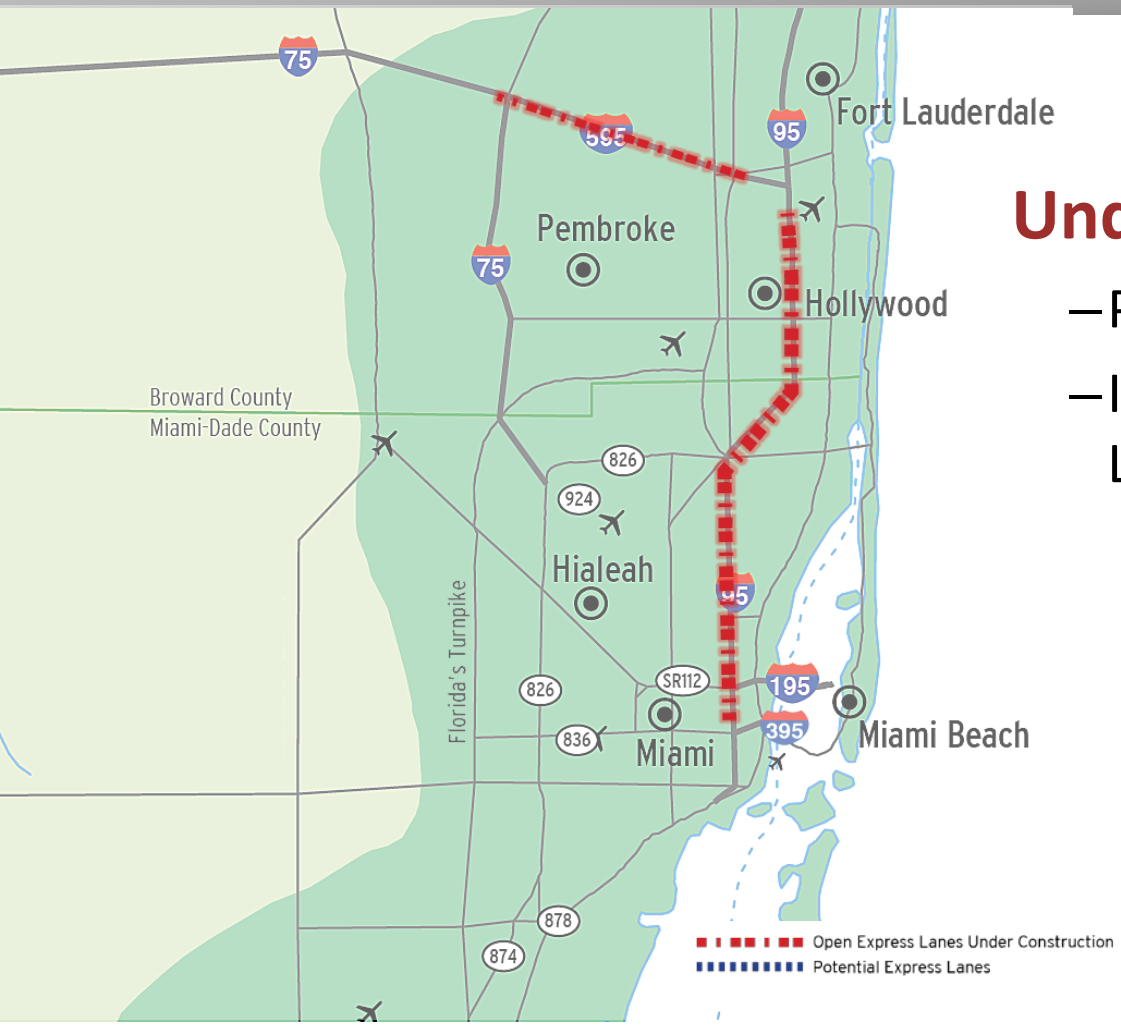
Southeast Florida EL Network



Existing

— 95 Express Phase 1

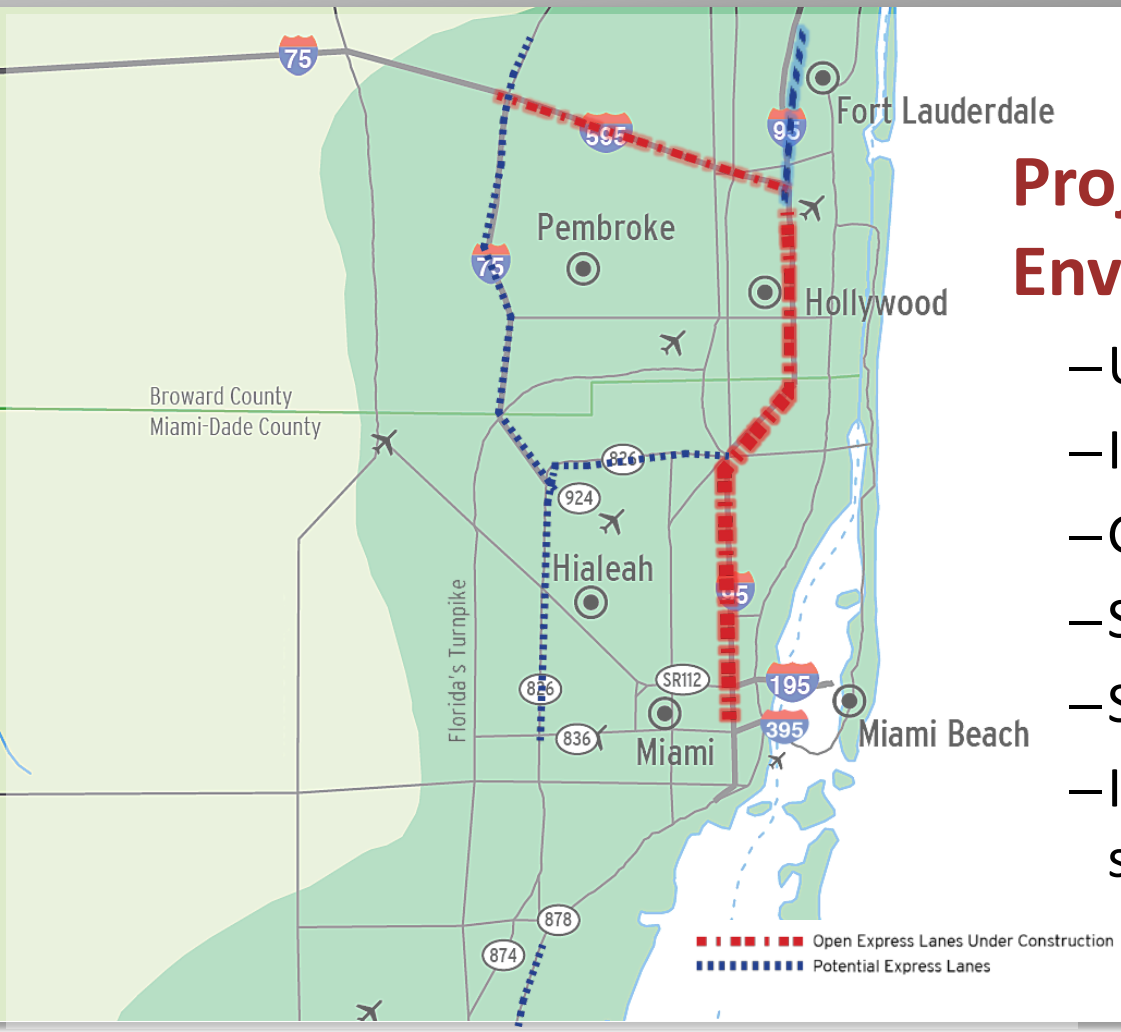
Southeast Florida EL Network



Under Construction

- Phase 2 95 Express
- I-595 Express/Reversible Lanes

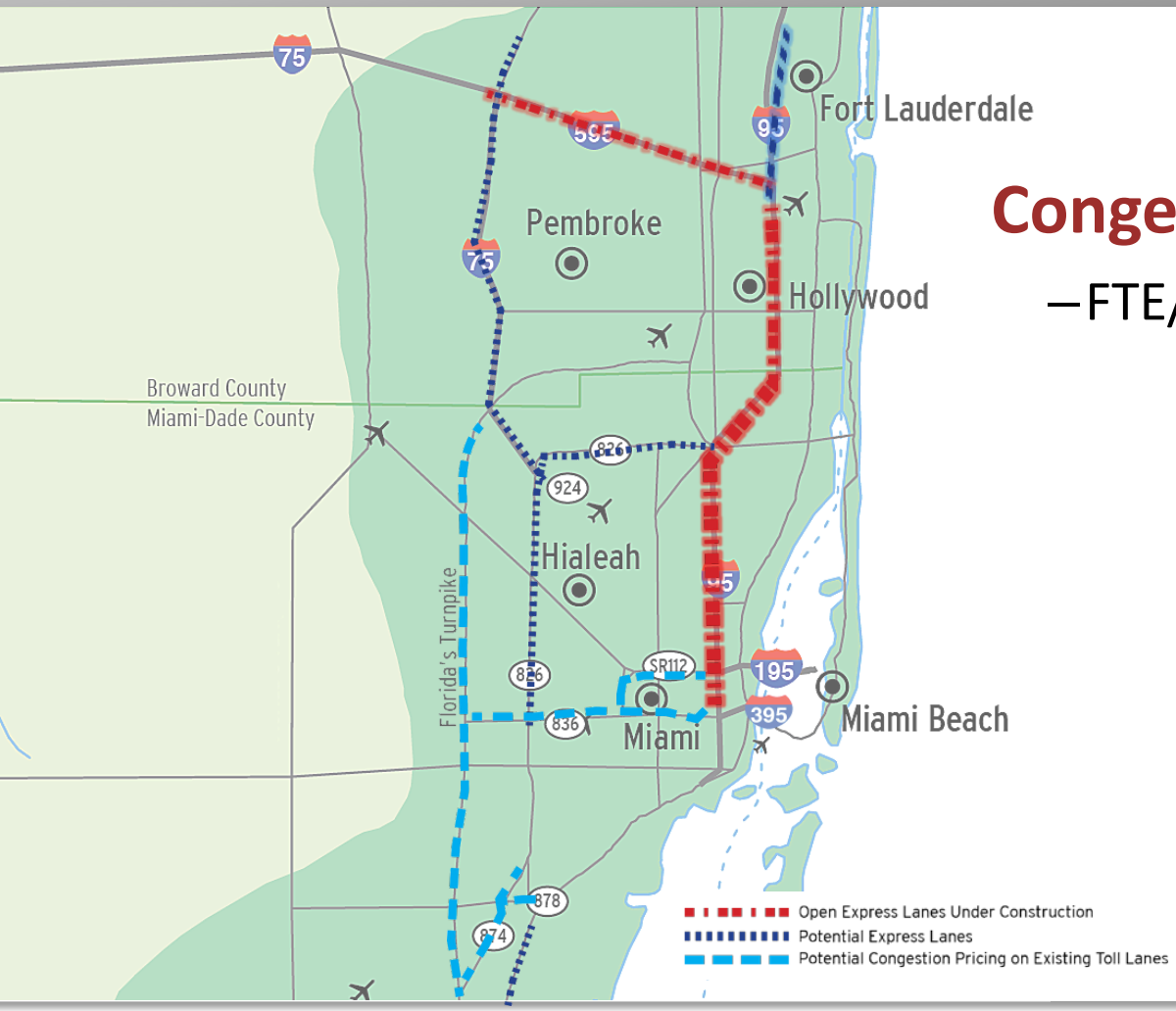
Southeast Florida EL Network



Project Development and Environment Study

- US-1 Express
- I-75 (SR-826 to I-595)
- Golden Glades Interchange
- SR 826 (I-95 west to I-75)
- SR 826 from I-75 to SR-836
- I-95 (North of I-595 various segments into Palm Beach)

Southeast Florida EL Network



Congestion Pricing Studies

– FTE/MDX

- Studying potential for variable pricing on their toll roads

RCTO Key Topics

Initial key topics have been identified:

- RCTO purpose vs EL corridor specific ConOps
- Identification of key stakeholders
- How to administer multi-agency, regional ELN
- Define policy, technical and institutional issues
- Compliance with ITS architectures
- Establish performance targets for the ELN
- Include mobility related goals from long-range plans

RCTO Expected Outcome

Following an extensive outreach process focused on collaboration, a final RCTO document will be approved and agreed upon by all partners that **resolves** the policy, technical and institutional issues associated with a regional ELN in Southeast Florida; defining the roles and responsibilities of participating agencies and partners.

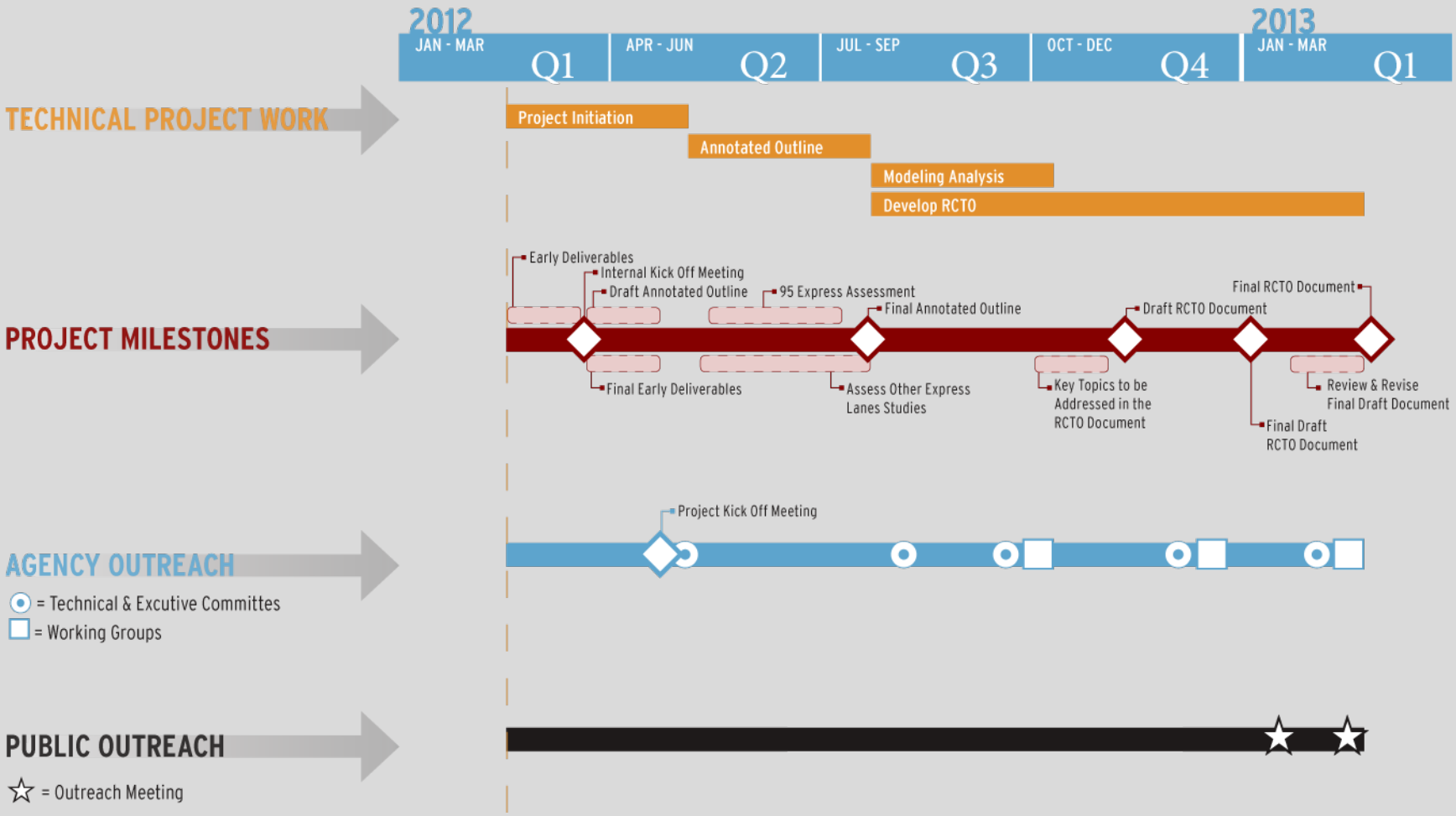
RCTO Products

Final products include:

- RCTO Document
- Project Presentation
- Project Fact Sheet
- National Express Lanes White Paper
- *95 Express* White Paper
- Subject Matter Presentation(s)

Note: draft outlines, documents and presentations will be prepared to inform the final products listed above.

RCTO Schedule



EXPRESS LANE NETWORK

Regional Concept for Transportation Operations (RCTO)

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SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION

Sign-In Sheet

Kick-Off Meeting | Friday, May 11, 2012 | 2:30 p.m. - 4: 30 p.m.

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TR	Monica D. Cesas	MDT			
TR	R Chiarelli	FDOT		954-777-4483.	
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Pl	Wilson Fernandez	MDMPO	111 NW 1ST Suite 920 Miami, FL 33128	(305) 375-4507	wilson@miamidade.gov
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PI	BARBARA KELLEHER	FDOT D4	"	954-777.4090	barbara.kelleher@dot.myflorida.com
TL	Jeff Weil	FDOT 4			
TR	CHRIS WALTON	BROWARD CTY TRAN	1 N. University	954-357-8361	CWalton@broward.org
TL	MARK PLASS	D4 Traffic Op's		954.777.4399	Mark.plass@dot.state.fl.us
TL	CHRISTOPHER BUCKNOR	MDX		305 553-8094	CBucknor@eacconsult.com

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Project Name
South Florida Regional Concept of Transportation Operations
FM No. 41545613290

Date of Meeting
May 11, 2012

Location
FDOT District Four Auditorium
3400 West Commercial Boulevard, Ft. Lauderdale, FL

Purpose of Meeting
Stakeholder Kick-Off Meeting

Time
2:30 to 4:30 PM

A kick-off meeting for the South Florida Managed Lanes Regional Concept of Transportation Operations (RCTO) was held on Friday, May 9. The purpose of the meeting was to provide an overview of the project, define the need for the plan and to begin to engage key stakeholders in the plan development process. Opening remarks were provided by District 4 Secretary Jim Wolfe and District 6 Secretary Gus Pego. Dat Huynh and Rory Santana then initiated introductions for all attendees. Presentations on "Managed Lanes 101," "95 Express to Date," and the South Florida RCTO project were then given by key team members.

Attendees were then broken up into groups based on their technical knowledge and relative experience to provide input on some of the key issues and challenges likely to be encountered through the development of the South Florida RCTO. The following notes represent key issues, challenges and opportunities identified through these break-out group discussions.

THE EXECUTIVE TEAM

Facilitators: Jim Ely (HNTB) and Lowell Clary (Clary Consulting)

Members in attendance included:

- District 4 Secretary James Wolfe
- District 6 Secretary Gus Pego
- MDX representative - Director of Engineering – Alfred Lurigados
- Florida's Turnpike Enterprise representative: Turnpike Director of Highway Operations Paul Wai and Traffic Operations Engineer John Easterling

In general the Executive Team worked very well together and there were a lot of common themes and topics among the Team members. The Executive Team recognized that managed lanes is the broader definition and that express lanes is the branding term being used for the priced managed lanes in Southeast Florida. The key topics identified are as follows by the Executive Team:

1. **Export of Knowledge** – The Executive Team identified the export of knowledge learned from 95 Express, the national scan and the RCTO Study to the larger staff of partnering agencies (D4, D6, MDX, Turnpike, other divisions of FDOT and project partners that are not directly involved in the project development) as an important task for the study.
2. **Freight/Trucks** – The Executive Team identified the consideration of the movement of freight/trucks in the planning, implementation and operations of priced managed lanes. They were clear that some priced managed lanes will not facilitate trucks like 95 Express in Miami-Dade County, but that some like 595 Express will. The key point was this should be considered as part of the planning and traffic analysis.
3. **Access Points (model early)** – The Executive Team noted that it is important to model the possible access points early in the process and to keep the access points limited or this can create conflicts that impact the success of the priced managed lanes.
4. **Seamless** – The Executive Team was very strong in their view that the priced managed lanes network should be seamless from the customer viewpoint. Areas identified included:
    a. **Branding** consistently across the priced managed lanes network. There was common agreement that priced managed lanes is the "technical term" for the corridors, but that "Express Lanes" is the brand that will be used for the corridors as already identified on 95 Express and 595 Express, and in the MUTD manual.
    b. **Signage** for the network.
    c. How far ahead to **notify toll rates** and what is the segment that is being identified by the toll. How many segments do you show at each toll rate sign?
    d. **Connectivity** of the individual segments and how to best accomplish this over time.
    e. **Setting toll rates –** The Executive Team identified there should be consistency in setting toll rates within the overall operating guidelines that would be set by the overall operating team (D4, D6, MDX and Turnpike).
    f. **Communication –** The Executive Team identified consistent communications as a critical area and to focus on new technologies like PDAs, the internet, in-car systems, and related areas to help better communicate with users of the price managed lanes network.
5. **Tolling (by plate)** – The Executive Team identified toll by plate as an issue that needs to be addressed so that there is a consistent tolling approach in Southeast Florida on both priced managed lanes and the other toll roads such as MDX and Turnpike. The point seemed to be that toll by plate will need to be included in priced managed lanes at some point very soon as this is allowed on traditional toll roads.

6. **Toll within a toll –** MDX and Turnpike both identified that a priced managed lane within existing tolled lanes on existing toll roads would be a new area that had not yet been done. There was discussion of connectivity once the regional managed lanes network is further built out where MDX recognized there would be disconnects in the network if the toll within toll challenge is not addressed. There was discussion of whether the existing toll roads may be priced via a variable toll rate on all lanes during the day or to have priced managed lanes at a higher toll rate than traditional toll lanes. There was further discussion of whether the priced managed lanes would need to be via new lanes.
7. **Governance** – There seemed to be common agreement among the Executive Team that a governance structure is needed for the RCTO and overall network for the future. There seemed to be comfort with the team of D4, D6, MDX and Turnpike at this point. Jim Ely emphasized that the Executive Team would need the focused effort of the senior leaders of each of the governance team members. There was agreement with his suggestion.
8. **Map of Priced Managed Lane Network –** The Executive Team identified that it is important that they outlined the current and planned future priced managed lane network internally and externally so there is clear direction on the future of the overall Network. This would include key elements such as:
    a. **Timing** – The overall timing of the network from now into the future.
    b. **Priority of network improvements** – The Executive Team identified that the priority of future network improvements should be considered and outlined in the network map.
    c. **Connectitivy** – The Executive Team identified that future connections will need to be considered at key points in time and at strategic locationsas the price managed lanes system becomes more of a network. Further, that key gaps will need to be addressed as the system builds out.
9. **Finance –** The Executive Team identified finances as a critical item that has to be addressed as part of developing and implementing the overall priced managed lanes network. Some areas outlined included:
    a. **Funding and expense across the system** – Developing a process to manage the finances as an overall system for the regional network.
    b. Identifying **funding beyond the toll revenues** generated on the network to fund improvements where subsidies are needed.
    c. **Excess revenues** - how and where these should be spent.
    d. **Express bus service** in the corridors.
10. **Operating structure –** The Executive Team did not have a strong opinion on "who" should manage the day-to-day operations of the network, but that there have to be business rules set by the governing body that guide the team that is operating the network. The Executive Team was very strong that the business rules are critical and further that the team operating the network can be

located inside the FDOT or contracted out as long as they follow the business rules. A couple of key issues in operating that have not already been identified above include:

a. **Enforcement** – Consistency in enforcing the network.
b. **Closing the System** – Clear business rules on who and how the priced regional network can be closed, tolls lifted, and related issues associated with urgent needs.

11. **Legal issues –** Lowell Clary brought up the legal status of hybrids on the lanes converted from HOV to HOT and also the cap on the toll rate per mile. The Executive Team agreed these items need to be discussed and considered by FDOT management. Gus Pego was aware the cap was starting to be an issue, but not yet on a routine basis.

THE TECHNICAL WORKING GROUP

Facilitators: Greg LeFrois and Girish Kumar (HNTB)

Members in attendance included:

- Christopher Bucknor, MDX Consultant
- Dong Chen, FDOT District Four
- Omar Meitin, FDOT District Six
- Mark Plass, FDOT District Four
- Bill Sherwood, Florida's Turnpike Enterprise
- Daniel Smith, FDOT District Four
- Holly Walker – FDOT Central Office

The Technical Working Group discussed the following topics regarding the technical, design and operational challenges of a regional managed lanes network.

1) Pricing concepts –Pricing needs to be determined. Members asked if the lanes will be tolled by segment, long distance trips, specific zones or total trip.
2) Definition of terms – Members suggested using existing terms to build the glossary. Central Office is creating a statewide plan of policies and procedures, and this group is encouraged to refer to that document once it's created. Walker to send to the group.
3) Consistent ways to operate the general purpose lanes – Interagency coordination and communication are key.
4) Signage and travel information – It was agreed that commuters benefit if they receive more travel time information. There needs to be consistent within the different systems.
5) Design for policies – this includes determining vehicle eligibility.
6) Geometric design coordination – this includes access design, like egress and ingress points.

7) Standard Operating Procedures
8) Focus groups should be used to determine how commuters will react to signage and travel time information.
9) Tolling within a toll road –there needs to be seamless connections and coordination between the tolling agencies.
10) Software – Each project needs the tools to manage itself while being able to interface with adjacent facilities.
11) Consistent performance measures
12) Enforcement –the funding source for enforcement needs to be determined.
13) Traffic management/ incident management
14) Public reaction to pricing – It was discussed that if people behave differently than assumed, the system will fail. The public must be educated on how the managed lanes work.
15) Communication – Each project must coordinate with the other. For example, an accident on 95 Express must be communicated to those who will handle 595 Express. Coordination among entities is critical.

THE SERVICE PROVIDER WORKING GROUP

Facilitator: Matthew Click (HNTB)

Members in attendance included:

- Jim Udvardy, South Florida Commuter Services
- Suzell Hopman, South Florida Commuter Services
- Maria Connolly, FDOT District Four
- Guy Francese, FDOT District Six
- Captain Chris Dellapietra, FHP
- Captain Earl Hingson, FHP

The **top issues with managed lanes** identified by the Service Provider Working Group included:

1) Need for emergency vehicle access, some sort of unique vehicle access for emergency vehicles if there is a hard barrier. There must be water supply inside the corridor next to the lane for any fire fights that might occur, standing pipes next to the wall.
2) The HOV police officers should be considered to be transformed during peak hours; they should change HOV to Managed Lanes enforcement.
3) Many cops complain it is hard to stop people because of the lane size, there needs to be access that breaks every mile for law enforcement.

4) Emergency Vehicle Access - Unique vehicle access for emergency vehicles if there is hard barrier (option system like lights).
5) Need to hire back law enforcement/add manpower
6) Lack of shoulder to enforce
7) I-95 = Nine situations per hour, people go through delineators on occasion, but patrol cars cannot go over the delineators to get to speeding cars
8) At times we have noted that many people will go over the delineators to avoid the tolls.
9) There needs to be a decent area to be able to pull people over.
10) There should be a drop off zone - cars that break down.

Incident Management

11) Coordinate response boundaries between FDOT Districts.
12) Designate areas for road rangers to work on vehicles and drop off damaged vehicles. They have a need for flat beds.
13) Would it be beneficial to have a contract for managed lanes specifically? Yes there should be and for routine maintenance.
14) Need for managed lanes specific contract.
    a) What about for routine maintenance too, for the road rangers?

Vehicle Eligibility

15) Keep trucks out of the managed lanes for safety reasons. No trucks = auto comfort & an increase of off-peak usage.
16) Buses should be kept out, because of travel speed.
17) Many people will call the call center not understanding why the cost for the managed lanes is so high because their ride is slow when they thought it would be faster. People complain about busses; they take up lanes and are slow, leaves tight space.

Call Center SFCFS

18) Customers do not understand toll . Drivers think high toll cost = low managed lanes traffic.
19) Speed and size of buses are an issue
20) Lack of enforcement impacts driver behavior and leads to speeding
21) There is no room to pull people over; you'd be blocking the lane.

PUBLIC INVOLVEMENT COMMITTEE

Facilitator: Alicia Gonzalez (MRG)

Members in attendance included:

- Alicia Torrez, Media Relations Group, FDOT District Six ITS
- Barbara Kelleher, FDOT District Four
- Brian Rick, FDOT District Six
- Donna Santiago, Broward County Transit
- Malissa Booth, Palm Beach MPO
- Mark Wysocky, Florida Highway Patrol Troop L
- Kim Poulton, Florida's Turnpike Enterprise
- Sarah Stanley, AECOM, FDOT District Four ITS
- Tere Garcia, FDOT D6

The **biggest challenges** identified by the Public Involvement Working Group included:

1. The group has to work to dissuade the misconception that 95 Express and/or Managed Lanes Projects are implemented with the sole purpose of generating revenue.
2. Brought up that the project's *current* biggest challenge is managing 95 Express's increased demand and how it is becoming increasingly more challenging to maintain reliable level of service as a result. The dynamic nature of the project's demand is a concept the PIO will have to manage everyday once these managed lanes projects expand onto other highways. Capacity is an ongoing issue in these type of projects and complaints usually follow.
3. The fact was raised that the group has to continuously educate drivers that congestion pricing is based on the change in level of demand on the express lanes and also that higher toll process does not mean better service will be provided on the express lanes. Education efforts are never enough and that continuing education is an essential component for these project types.
4. There is a need for continuing education on managed lanes project because they are of a counter-intuitive nature.
5. Concern that the PIO group will have to deal and manage with the onset of questions that are to stem from the project's differing business rules. E.g. I-595 not exempting hybrid vehicles while 95 Express does exempt these vehicle types from paying. She mentioned that public confusion and media inquiries might arise as a result because the projects will all operate differently, yet will all be branded with the "express" name and flying "e" logo.
6. There is a need to educate the public in a multi-language campaign to effectively educate regional southeast Florida drivers.

7. Concern that the project team has to convey the concept message to transit users as well and that it should be done in a cohesive and uniform manner.
8. The team should consistently use the term "Express Lanes" when relating to these project and stop using the term "Managed Lanes," to avoid public confusion and ensure uniformity. The team should use express lanes in internal meetings because using both terms has created internal confusion as well.
9. Enforcement and education efforts were especially important during the construction process and that the team should focus on this as well.

THE TRANSIT WORKING GROUP

Facilitator: Odalys Delgado (HNTB)

Members in attendance included:

- Ysela Llort, Miami-Dade County Transit
- Hugh Chen, Miami-Dade County Transit
- Monica Cejas, Miami-Dade County Transit
- Robyn Chiarelli, FDOT District Four
- Jack Stephens, SFRTA
- Barney McCoy, Broward County Transit
- Fred Stubbs, PalmTran
- Chris Walton, Broward County Trans

Key topics and issues discussed with the Transit Working Group included:

1) Fare cards should be interoperable.
2) Funding for operations, bus purchase, park & ride lots and overall funding coming back to the agencies.
3) New systems coming online may hurt existing systems – competition. There are limited resources. Funding should go where transit needs exist, not where there are managed lanes.
4) Regional management/coordination of express transit, planning, operations
5) Stations –capacity of Park and Rides, security, signal by-pass, direct ramps, access, stations as part of new express lanes.
6) Bigger shoulders needed for boarding.
7) Managed lanes toll pricing cannot be too high and must be priced correctly.
8) Monthly bus passes should be priced the same in all three counties (transfer passes are the same, .50 cents).
9) Transit signal priority should be provided on access corridors to managed lanes.
10) Communications (technology) within and between systems.
11) Passenger amenities – real time communications for public at stations.

Note: The underlined words above were the six bullets expressed during the recap
Planning Group

THE PLANNING PARTNERS WORKING GROUP

Facilitators: Andrew Smith (HNTB) and Jessica Josselyn (Kittelson)

Members in attendance included:

- Jim Murley, South Florida Regional Planning Council
- Greg Stuart, Broward MPO
- Wilson Fernandez, Miami-Dade MPO
- Carlos Roa, Miami-Dade MPO
- Marya Diaz, Miami-Dade Expressway Authority
- Vinod Sandanasomy, Palm Beach MPO
- Jason Leonard, FDOT District Four
- Carlos Cejas, Gannett Flemming (Miami Dade MPO)
- Ricardo Cutierrez, Broward MPO
- Richard Yound, FDOT D4

The **biggest challenges** anticipated for the Planning Partners Working Group include:

1) Managed lanes on toll facilities – agencies represented wouldn't have that type of application, but with partnerships it might happen.
2) Equity – how to define it, how to provide, how to measure.
3) Have the major destinations been clearly outlined? Do we know what is coming in the future – are we serving future areas?
4) Link managed lanes to land use configuration and then link to transportation.
5) P3 – enabler to implementation – challenge is how to move it forward. How do you advance deployment if you don't have the funding? How do you use P3 to support implementation? Does P3 get things implemented faster?
6) Managed lane versus managed facility? No GP lanes – an entire facility managed with variable pricing?
7) Create an integrated network – may consist of existing tolled facilities; existing managed lanes; dedicate lanes that are variable priced, or fully managed facilities. When we put managed lanes on a facility, we need to make sure there are other non-tolled options.

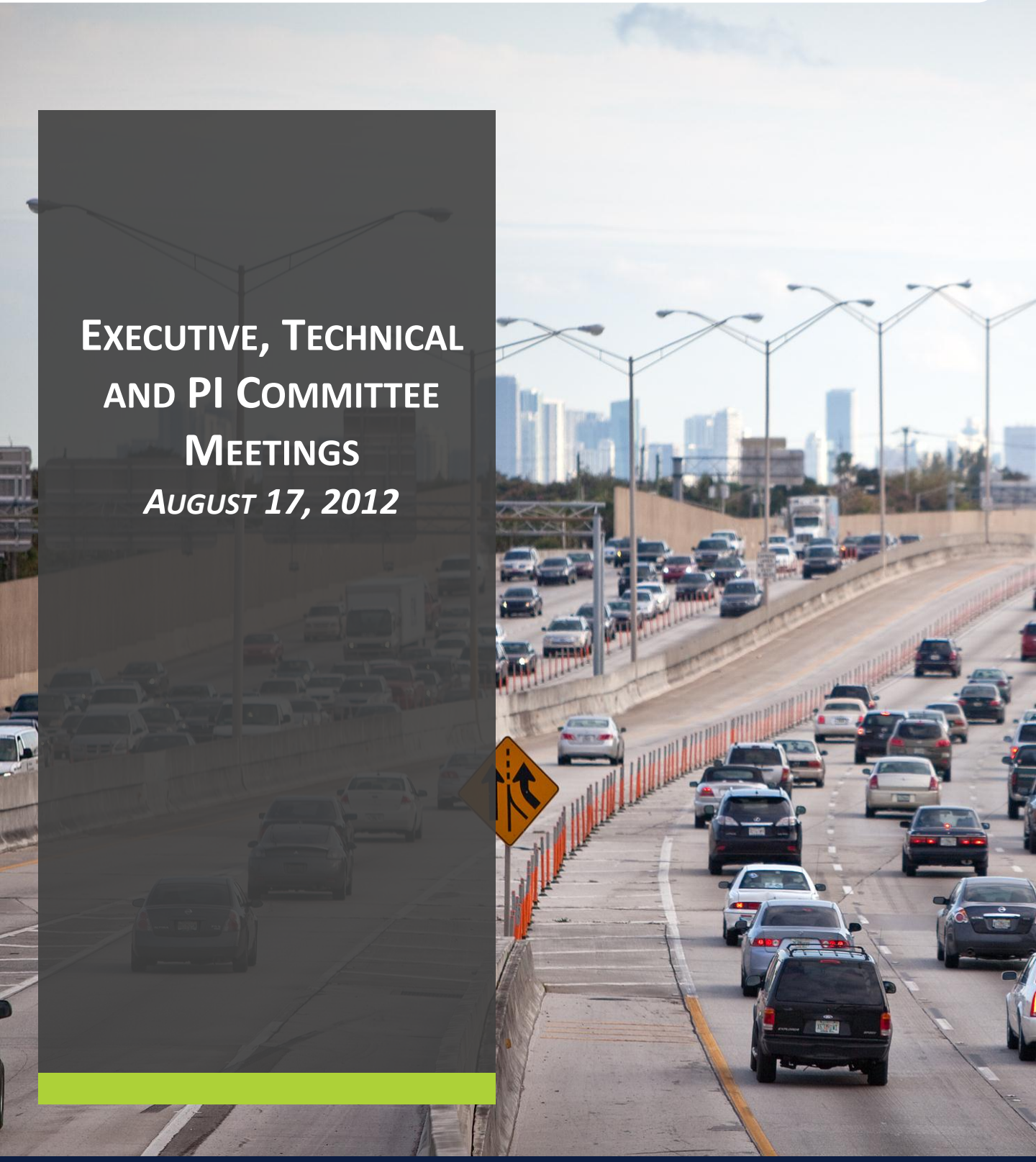
8) Folks that live in the south pay more than other locations (north section). Few pay for many – equity issue.
9) Agency restrictions. MDX money has to stay with MDX. It can't be one big pot. Collected by one agency going to the system is an issue. Trust/bonds issues and constraints.
10) ORT (Goal not a challenge)
11) How do we deal with freight in the system? The freight industry has more flexibility in options in how they deal with congestion than commuters do (off-peak deliveries, etc.).
12) How we approach this? – Is it a mobility issue or a revenue generation issue? Revenue generation issue – then trucks are good. Freight hour is worth more than commuter hour in dollars.
13) Signage is unclear – there needs to be consistent message. How do we communicate complex information? – travel times on the GP and Express lanes .
14) Closing the system – design and communication and funding issues.
15) The more you pay the worse the service – this isn't clear for travelers.
16) Who sets transit policy for the whole region? How do we balance transit use of capacity versus car use of capacity?
17) The revenue vs. mobility – what type of trip purposes are you trying to catch? How do we capture the long work trips?
18) Hybrid use? Free or charged? How much?
19) Motorcyclists?
20) Rate schedule
21) Determining dynamic versus static, and what the rate schedule is.
22) What about programming? LRTP, TIP, Work Program?

Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

Executive, Technical and PI Committee Meetings

August 17, 2012



SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Executive Committee Meeting

Friday, August 17, 2012 | 10 a.m. to 11:30 a.m.

Name:	Representing:	Address:	Phone:	Email:
Bob Romig	FDOT			
Jennifer Fortunas	FDOT			
Alicia Gonzalez	MPO			
Martin Knapp	FHWA			
Paul Nati	FDOT - TPK			
Jose Quintana	FDOT - TPK			
Diane Scaccetti	FDOT - TPK			
Omar Meitin	FDOT - Traffic Ops			
DAT HUYNH	FDOT D-6			

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Executive Committee Meeting

Friday, August 17, 2012 | 10 a.m. to 11:30 a.m.

Name:	Representing:	Address:	Phone:	Email:
RORY SANTANA	FDOT			
Javier Rodriguez	MDX			
WOLFE	FDOT 4			
GUS PEGO	FDOT D6			
GREGG LETTS	FDOT D6			

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, August 17, 2012 | 1 p.m. - 3: 30 p.m.

Name:	Representing:	Address:	Phone:	Email:
GUS SCHMIDT	FDOT D4			
Jess Josselyn	Kittelson			
MALISSA BOOTH	PALM BEACH MPO			

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, August 17, 2012 | 1 p.m. - 3: 30 p.m.

Name:	Representing:	Address:	Phone:	Email:
Courtney Drummond	D4		954-777 4106	Courtney Drummond @ dot state.fl.us
Danielle Chapel	D4 ITS TMC	2300 W. Commercial Blvd. Ft. Lauda, Fl	954-598-4236	dchapel@smartsunguide.com
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JOHN EASTERLING	TPK		954 934 1620	john.easterling@dot.
Alfred Lurigados	MDX	3790 NW 21 Street Miami, FL	305-637-3277	alurigados@mdxway.com
Harold Desdunes	FDOT D6	1000 NW 111th Ave Miami, FL 33025	305.470.5464	harold.desdunes@dot.state.fl.us
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Alicia Torrez	MRG1 FDOT D6	1001 NW 111 st	786 205 0644	Alicia.Torrez@sunguide.org
Kim Powers	TPK			
Elizabeth Rockwell	Miami-Dade MPO	111 NW 1st St	305-375-1881	erock@miamidade.gov

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, August 17, 2012 | 1 p.m. - 3: 30 p.m.

Name:	Representing:	Address:	Phone:	Email:
Tish Bangher	QCA for FDOT	7417 SW 133 ave Miramar Fl 33027	954.325.8022	Tish@qcausa.com
Fred Stubbs	Palm Tran	3201 Electronics Way, WPB, FL 33407	561-841-4200	fstubbs@pbcgov.org

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, August 17, 2012 | 1 p.m. - 3: 30 p.m.

Name:	Representing:	Address:	Phone:	Email:
Daniel Smith	FDOT	2300 W. Comm FLL	954 847 2633	daniel.Smith@dot...
Girish Thallapragada	HNTB		305-551-8100	gthallapragada@hntb.com
MARTA Rodriguez	B+A/FDOT	1000 NW 111 Ave. Miami, FL 33172	786-443-0154	MARTA.Rodriguez@dot.state.fl.us
Brian Rich	"	"	305-470.5725	brian.r-rich@dot.state.fl.us
BARBARA KELLEHER	FDOT D4	3400 W Commercial BLVD Fort Lauderdale	954 777 4090	barbara.Kelleher@dot.state.fl.us
Victor Garcia	SFRTA/Tri-Rail	800 NW 33 St Pompano	954-788-7925	vgarciar@sfrta.fl.gov
Wilson Fernandez	MD MPO	111 NW 1 ST Ste 920 Miami, FL	(305)375-1886	wilson@miamidade.gov
Phyllis Berry	BCT	1 N. Univ. Dr. Plantation, FL 33324	(954)357-8366	pberry@broward.org
BOB MURPHY	AECOM/FDOT4	13450 W. Sunrise Blvd Ste 200 Sunrise FL 33323	954 605 5526	robert.murphy2@aecom.com

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, August 17, 2012 | 1 p.m. - 3: 30 p.m.

Name:	Representing:	Address:	Phone:	Email:
Bill Sherwood	FTE	7941 Glades Rd Boca Raton	561-488-5355	william.sherwood@dot.state.fl.us
KRIS MILSTER	FHWA	545 N. John Knox Rd, Suite 200	850-553-2246	KRIS.MILSTER@DOT.GOV
Lisa Dykstra	FDOT D4	3400 Commercial Blvd. FTL	954-777-4360	Lisa.Dykstra@dot.state.fl.us
GERRY O'REILLY	FDOT - D-4	3400 W Commercial	954 777 4411	gerry.oreilly@ . . . .
CARLOS CEJAS	GANNETT FLEMING		786 895-9540	ccejas@gfnet.com
Steve Andrick	MDX		786-251-0313	sandrick@mdxwy.com

Date: August 17, 2012

Project: South Florida RCTO - FM No. 41545613290

Purpose: Executive, Technical and Public Involvement Committee Meeting Notes

Location: FDOT D6 Auditorium, 1000 N.W. 111th Avenue, Miami, Florida 33172

Attending: See attached Sign-In Sheets

EXECUTIVE COMMITTEE

Andrew Smith opened the meeting with a brief overview of the status of the project and discussion of the purpose for this second Executive session. He noted that facilitators would be working with the group to confirm key issues and to work towards potential recommendations for some of these issues. He provided some background on the issues matrices sent to the group earlier in the week, stating that this was a starting point for defining key topics for inclusion in the RCTO and the range of alternatives, considerations and pros and cons for each topic.

Rory reiterated that the matrix is in draft, that many issues will not be a simple answer, but will be a combination of solutions depending on the situation. He noted that the purpose of this meeting is to get more input on the issues.

Jim spoke to the fact that this is a momentous task, that this group won't be the first to implement more than one Express Lanes in region, but that we want to be the first to move forward with a network in a well-planned process. With that, Jim opened it up to group, asking for them to describe the vision for the ELN.

Facilitator: Jim Ely (HNTB)

Members in attendance included:

- District 4: Secretary James Wolfe
- District 6: Secretary Gus Pego
- FDOT Central Office: State Transportation Development Administrator Robert Romig
- MDX: Executive Director Javier Rodriguez
- Florida's Turnpike Enterprise: Executive Director Diane Gutierrez-Scaccetti
- FHWA: Florida Division Administrator Martin Knopp

Vision for the ELN

- Gus – recognized that 95 express is the beginning of the network, understanding business rules that had to be developed for just Phase 1, that they needed to understand the vision for the

system, that everyone needed to get on the same page. This is a turning point, like the beginning of the interstate system. Make sure the vision of mobility is consistent across agencies. Whatever we do must be consistent from the customer's perspective

- Jim – 3 principle positive outcomes – guaranteed travel time for commuters, maximize throughput on limited resources, revenue. Network won't stand alone, will be part of regional corridors and statewide. Blending of multimodal makes system more efficient. Reception of project will be critical to success, we have done well gaining acceptance, need to keep progress on this. Need to outline key RCTO decisions to a broader group to ensure they will be acceptable.
- Dianne – laying it out carefully, helping folks understand where it takes them. This is a premium product that has to sell, should not be looked at as a revenue generation, should be priced so they are attractive to customer. Not setting max tolls is extremely important. Going back out to public to say we are changing max rate loses public trust and acceptance. We will know by the demand.
- Javier – when we are dealing with a toll within a toll, consumer will be very concerned with what they are getting. What is important to see in the document is consistency with policies, product, value of express lanes and business rules
- Bob – SE Florida is in a position to get the most out of this system. How do we take ideas out of this and make statewide policies? Long term, how to identify new corridors. What did we learn. Needs to be flexible and adaptable. Gaining public acceptance for priced lanes. Network could expand to whole system.
- Martin – Federal Aid program is a state administered federally funded system, we don't intend to change that. Needs to be something that is a benefit to the whole community not just those in the express lanes. Needs to be simple to the users of the express lanes network. Needs to fit within the context of the system. Make sure we consider multimodal on the system. Consistency, not necessarily uniformity, and ease of use by customer. MAP21 shows federal support of managed lanes.
- Key items of agreement related to the goals of the express lanes network among the Executive Committee seemed to include the following:
    - Reliable travel time is the top goal of the express lanes network.
    - Focus is on maximizing throughput in the express lanes network, with revenue generation a secondary goal.
    - Goal is to provide an interconnected network to the maximum extent feasible.
    - The express lanes network must be a choice for the users.
    - The tolling system should be consistent within the express lanes network.
    - The express lanes network must be integrated into the existing corridor and overall regional network.
    - The primary focus for consideration of new express lanes is congestion relief.
    - Communication both internal and external should be consistent on network level issues.

Critical Issues

- Javier – There are a lot of things we all need to think through how we are going to sell. Consumer choice regarding All Electronic/toll by plate. Why would people get SunPass if they don't use lane every day? The overall area is moving to SunPass and toll by plate for Turnpike and MDX toll facilities, so over time this may be confusing.
- Gus – Its all consumer choice, they are choosing to be in lane. Balancing access points for mobility vs revenue
- Dianne – don't give them a choice on the toll system – supports SunPass for the express lanes. Bonding will be an issue if you use toll by plate due to concerns with consistent collection of tolls. Consistent message is prepaid account so that interoperability with other system, states
- Mark – careful with causing driver to make too many decisions, keep it simple and consistent
- Performance Metrics
    - Reliable travel time
    - Toll collection rate (collections vs violators)
- District Staff Meeting (Secretary, Assistant Secretaries and District Secretaries/Turnpike Executive Director) had meeting, it seems the following decisions were made:
    - Designed to be SunPass for express lanes,
    - dynamically priced,
    - only corridor to allow trucks would be I-595
- Dianne – Toll vs Nontolled facilities, ROI being calculated differently, not allowed to use "soft" benefits on toll facilities like Turnpike. "Soft" benefits may be used on non-tolled facilities. Just looking at tolled piece of facility, not whole facility
- Jim – RCTO might make policy statement regarding the fact that tolls will not support the total cost of project
- Bob- we are working on a ROI tool, it does go into soft costs for non-tolled facilities
- How do you communicate cost of a specific trip? To the next node? Beyond that gets very complicated
- Gus – do we just get rid of direct connections to avoid issue – most throughput in tangential pieces
- Martin – is there anything that would change if we went to vehicle mile travelled fee rather than gas tax. Rory – price will always be market driven, so it should make no difference.
- Jim- we are managing the system by price, so we have to communicate this.
- Key areas also discussed included:
    - Consistency versus uniformity – provide consistency where possible, but uniformity may be difficult and it is important to maintain flexibility
    - Eligibility
    - Access Points
    - Network level considerations during the discussion seemed to focus on the following areas:
        - Toll collection method

    - Signage
    - Communication
    - Throughput focused, with revenue generation secondary goal
    - Dynamic pricing
- Matt – Please look at the boxes, provide us any feedback within 2 weeks.
- Rory – imagine these discussions at a project level, that is why we are going through this
- Gus – we recognized early in I-95 what the challenges were going to be, this is why we went after the grant, we find it rewarding that we are doing this.
- Make next meeting 3 to 4 hours

TECHNICAL AND PUBLIC INVOLVEMENT COMMITTEES

Andrew, Dat and Rory provided introductions for the technical and public involvement committees, providing a project status update, providing an overview of the matrices and stating the purpose of the meeting. Attendees then broke into two groups and discussed the below topics.

THE TECHNICAL WORKING GROUP

Facilitator: Greg LeFrois (HNTB)

Pricing Concepts

- Facilitator provided a general overview of dynamic pricing and table based pricing concepts.
- Executive committee's decision of having a "market driven approach" for pricing was reported to the technical working group. The technical group discussed and agreed that dynamic pricing is best suited for the ELN.
- It was agreed at a technical level, that having a maximum toll cap is not desirable.
- Discussed minimum-toll examples from other facilities around the nation; 95 Express has minimum-toll and customers still use it in non-peak periods.
- The group agreed there should always be a toll, even during off-peak hours.
- Executive committee's unanimous decision that ELs will be congestion driven and not revenue driven was reported to the technical working group.
- It was agreed that the toll rates will be developed by the market and are dependent on corridor level traffic operations.The group discussed allowing each facility to determine its minimum toll rate.
- Decisions Made:
    - ELN pricing will be market driven and will use dynamic pricing concepts;
    - ELN may work more efficiently if there is no maximum toll cap;
    - ELN will always have a minimum toll rate, which will be facility specific; and
    - ELN will be open 24/7, except for maintenance.

Segment Pricing vs Per Mile

- Facilitator provided a general overview of segment pricing and per mile based pricing structure.
- The RCTO needs to define "facility". For example, a facility can be defined by reasonable, market driven beginning and end (logical termini). Like I-95 corridor, may be composed of multiple facilities.
- It was agreed that each facility can choose any of the standard toll rate structures or develop a hybrid to help manage traffic. It is important that it is easily communicated to customers.
- Also discussed and acknowledged that facility level toll rate structures may lead to equity related issues and hence, the need for a well-developed and robust communications messaging plan to overcome these issues is essential.
- Decisions Made:
    - ELN will have independent facility-specific toll rate structures;
    - Some facilities may need a hybrid toll structure; and
    - Need to effectively communicate the toll amounts to the customer at a network level irrespective of the toll rate structure selected for each corridor.

Signage

- Consistency in signing of pricing to the customers is essential for the success of ELN. Communications in back-office toll calculations and reporting to customers is also important consideration.
- Each operator will sign for their facility.
- For adjacent facilities, each facility would provide signing for the adjacent facility from a certain logical point (most likely before the last egress location). Coordination must occur with adjacent facilities. Signs should never show the rate/mile which would require the customer to calculate the toll price.
- Every destination may not be accommodated on the signs, hence, there needs to be a consistent set of rules for ideal signage across the facilities.Change in existing signage rules to require signing for a minimum of one exit and other based on engineering judgment would be helpful. The current rule requires signing for the last exit and one other in the facility does not provide sufficient engineering flexibility.
- Important to work closely with the public involvement committee to understand customer expectation for signage.
- Decisions Made:
    - Need for consistency in signing across the ELN;
    - Need for consistency in back-office communications with the Customer; and
    - Need for coordination between Operators when signing for adjacent facilities.

Operations

- Facilitator provided a high-level overview of various Operations considerations in the areas of toll customer service, enforcement, traffic, ITS, transportation management center (TMC) operations and incident management needs for the ELN.
- At this time, the technical group understands that there will be multiple Operators for the ELN.
- The group discussed in brief some of the toll back-office issues like how the customer will be billed, who will handle invoices for trips on multiple facilities, what will the invoice look like, who will cover cost per transaction, overhead, and administration costs. It was agreed that the next meeting should continue this discussion, and other operations and design issues.

PUBLIC INVOLVEMENT COMMITTEE

Facilitator: Alicia Gonzalez (MRG)

General Considerations

- Projects as individual projects and the reality of messaging and communicating per project
- What do we do when in relation to becoming a network?
- Some of the issues the tolling agencies will face (toll within a toll)
- Until execs make the big decisions, PI doesn't have much messaging to do.
- Not just to come up with potential messages, but rather the recommendations to what we believe needs to go into place before, during, and after
- What are the messages and critical information on the how to and the reality of what happens throughout the different stages of a project?
- Who is in charge of communicating the network? Currently no one person or group is doing that and this document needs to give a recommendation on how the network gets communicated versus the project level
- Exec Committee Meeting was held in the morning. The following points were made:
    - More than half of the discussion was all about the customer
    - We cannot confuse the customer and operate individually
    - Consistency
- Making sure, if a driver gets into the network, we have made it as simple as feasible and, secondly that (as a directive from CO) what we look at here would be statewide
- Key Focus Areas
    - Customer complaints
    - Customer satisfaction
    - Consistent messaging
    - When we communicate
    - How we communicate
    - How frequently we communicate
- Discussion was held on the cap on the rates – we recognized that even though it's a tough lesson, we still needed to go with something to get things off the ground. If we didn't do it, then we had nothing. Reality is that today the cap has a negative public perception
- Public friendly/understandable, consistent, interconnected

- Similar work is in progress in ATL. One open and 3 in design. DOT designer, RTA operator, one big county, one big MPO. At a bare minimum, we have to understand what we need to do and how we are going to do it. This is partially funded by FHWA and they want to use the work throughout the country. The comments are extremely important.
- The press was bad before the 95X. Now, nationally, they are using this as a success story. We aren't perfect but we should be proud of ourselves – it's been successful.
- The thinking is changing as we go more national. Things evolve and change – what is good today may not be the desire tomorrow.
- In an age where people don't read the paper, it's all social media nowadays. Disinformation is always the greatest challenge. People don't take a lot of time to research things themselves. And, if one station sends erroneous information, the greatest battle is to undo damage that a person has done.

Discussion of Key Issues

- Misinformation
- Undoing the bad /erroneous press that is done
- For a network you need a daily and independent messaging system in addition to your project specific messaging – who does this and how?
- Consistent branding of the express lanes with flying "e".
- We need to take step back regarding projects and construction to the conversation about tolls. However we want to frame the word tolls, one of the challenges that they have is they are never popular. Need to mitigate this with discussion of gas tax. People understand what they see right in front of them. Hidden costs tend to be forgotten about (gas tax).
- PIO is funded at project development and implementation today, but on express lanes the need continues "forever". Why is funding needed to begin with? This needs to be addressed. We already make the assumption our public is at step 5, when many aren't even at step 1.
- Lots of push for the buses. That helped the pushing of it.
- Where does the funding go? Ops, management, transit, TIM. Many folks a day ask for refunds and Alicia has to always push why they are being charged what they get charged. Transit is always her saving grace.
- The issue of education and messaging really start wherever 'they' are. We start the education process at a level we believe everyone understands. We need to refine this back to reality. Need to research and really understand where are people in the process – we really don't know currently and are making an educated guess.
- The funding issue keeps coming loud and clear from the Executive group. The purpose of our system is congestion management (throughput) and revenue benefit is a secondary goal.
- Gets calls a lot about the Express Lanes because they are counter-intuitive. As the rates go up that means the congestion is worse in the Express Lanes. Most think the higher the cost, the worse the GP lanes and people think they should all go in the Express Lanes.
- We are selling a nebulous product to the customer. There is virtual no relationship between what they are paying for and the maintenance of the road. They don't know what they are buying on any given day.
- We need to remember that people don't trust or believe government agencies and officials. Our statements that we are trained to say end up hurting us in the end at times if the system is counter-intuitive.
- Conclusion: regroup on this topic and see what we can do to improve this issue.

- Research if people would prefer showing the real time savings in the messaging (on the VMS)
- Visuals are very important and critical to educating folks. Showing examples of where it is working well speaks loudly too.
- We need to understand how the system and policies all work in order to correctly message and brand, communicate, etc.
- Not only do we have a message but we also have a constantly changing message. We constantly have to adjust.
- One recommendation is to make sure they allocate proper funding for PI and for all of the other things. You have to plan for needing to revamp the cost needed for a successful PI plan.
    - Budget is discussed in the RCTO but mostly under the finance. Budget is setting aside a certain percentage.
    - We need budget for **'forever more'.** It's not a one time deal.
    - The network will be across multiple agencies so whose job will it be and who is programming the money?
    - We need budgets to deal with the different audiences? We currently pick and choose who we speak to and that is currently an issue we need to address.
- Messaging to non-customers is an issue/need
- Governance is an issue – agencies have their own missions and boards that provide different direction and have different priorities
- If we make everything the 'same' then we have to be careful how the logo is interpreted. Not everything can be consistent so we need to determine what the consistent list is versus what can be flexible

Internal vs External

- Before educating internally, you need to figure out what you don't want to air to the public. Also, some of the network has inconsistencies, which makes messaging difficult and goes against our mission to be consistent.
- The group agreed with Alicia's thoughts on this topic in the issues memorandum
- We need to keep the board members in these discussions

Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

Executive Committee Meeting

December 4, 2012

SOUTH FLORIDA EXPRESS LANES NETWORK VISION

Key items of agreement related to the goals of the Express Lanes Network among the Executive Committee included the following:

- ***Reliable*** travel time is the top goal of the Express Lanes Network.
- Focus is on maximizing ***throughput*** in the Express Lanes Network, while prudently optimizing revenue.
- The goal is to provide an ***interconnected*** network to the maximum extent feasible.
- The Express Lanes Network must be a ***choice*** for the users.
- The Express Lanes Network must be ***integrated into the existing corridor*** and overall regional network.
- The primary focus for consideration of new express lanes is ***mobility.***
- The Express Lane Network will be a key element in the Transportation Systems Management &Operations Plan.
- Communication will be ***consistent*** on network level issues.

Consolidating these key goals into one concise thought, the Vision for the system is….

"A reliable, inter-connected Express Lanes Network that provides mobility options for users"

Confirm and Approve ELN Decisions

Toll Operations

- What type of tolling? ***Dynamic pricing***
- Collection method? ***SunPass Only***
- Hours of Operation? ***Open 24/7, except for maintenance***
- Will flexible toll rate structures (e.g. trip based, zone based) be allowed? ***Corridor level decision***

Signing

- Should signage information be consistent throughout the network?
  - Price Information Shown(up to 3 data points) ***Yes***
  - Eligibility Information Shown ***Yes***
  - Location of signage ***To the extent possible***
- Are there standards that should be followed? ***MUTCD standards***

Physical Features

- Should separation type be consistent throughout the region? ***Project level decision***
- Should the number of access points be limited? ***Yes. Focus on longer distance travel.***
- How should design exceptions be approached? ***Use FDOT's standard design requirements, with project specific design exceptions and variances***

TMC Operations

- How should TMC Operations be handled for the system?
  - ***Structured coordination between all EL Operators in the near term***

Vehicle Eligibility

- Should vehicle eligibility rules of the 95 Express project be continued through the system? ***No. 95 Express is the exception. All transit allowed. Trucks being defined.***

Transit/Express Buses in the Express Lanes Network

Eligibility/Tolled vs. Free

- No Toll Exemption (current FDOT guidance)
- Express Buses only - single seat ride
- All transit vehicles allowed
- School buses
- Coaches

Design/ Operations

- Should operational standards be employed?
- Will Park and Ride facilities be considered by FDOT as part of projects or are these regional transit agency decisions?
- Complex Incident Management service may be required (if barrier separated)

Financial

- What transit costs could be funded from the toll revenues?
  - Transit operating cost?
  - Purchase of new and/or additional buses?
  - Fixed Capital Facilities (Park and Ride lots, bus stops, etc.)?
  - None
- Exempt vehicles limits the amount of "paying capacity" available.

Organization

- How should transit be organized for the ELN?
  - Individual transit owners
  - Express Lane Network transit service

Organization of the Express Lanes Network

General Oversight

- Regional/Network Express Lanes Oversight
- Facility Based (by owner)
- Existing DOT organization or MDX/FTE

Price Setting

- Project specific
- Network approach

Day to Day EL Management and Operations

- Project specific
- Regional ELN Back Office Operation
- Combined with Customer Service Center
- Managed through TMC under TSM&O

Communications

- Project specific Public Information staff
- ELN Public Information staff
  - How is this funded?

Operations and Maintenance

- Single point of responsibility
- Geographic division of responsibilities under TSM&O
- Division of responsibilities by task
  - Tolling Operations
  - Roadway
  - ITS Operations

Financial Questions for the ELN

Ownership of Toll Revenues

Can toll revenues be used to finance the system?

- Owned and managed by FDOT Districts for ELN?
- MDX and Turnpike "closed system" for each entity?
- Who performs decision-making for use of toll revenues?

Application of Toll Revenues

How do we define how funds will flow?

- Direct Toll Collection, Toll Operations and Maintenance
- Enhanced Operations as EL (FHP, Road Ranger, PIO, Incident Response)
- Renewal & Replacement Cost (just EL items or broader)?
- Repayment of Advances from State Transportation Trust Fund or other?
- Enhanced Transit Service in the ELN?

Budgeting/ Financial Management of ELN

- Will budget/financial management for EL be by corridor or by ELN?
- Use existing budgeting/financial management processes or should some items be unique for the ELN?
- Process for allocation and management of budget for items at ELN level?

Use of Revenue

- Terms for toll revenues - Gross, Net, Excess Revenues
- Gross Revenues (GR) - toll revenues collected
- Net Revenues (NR) - GR less cost to operate as EL (O&M)
- Excess Revenues (ER) - defined (per FDOT guidance) as coming after:
  - Operations and Maintenance of EL
  - Improvement of EL

South Florida RCTO Process

Development of Issues

Input from Exec and Stakeholder Committees and Working Groups

Operations	Design	Communications	Planning/Policy	Financial	Legal
• Pricing and Toll Rates • Operations Organization • Toll System Operations • TMC Operations • Enforcement • Lane Management and Vehicle Eligibility	• Separation • Access • Design Elements • Toll Design • Enforcement	• Communications Impacts • Project Champions • Branding/Collaterals • Target Audiences • Internal vs. External	• Roles and Responsibilities • Toll Rate Determination • Vehicle Eligibility • Communications • Throughput vs. Revenue • Dynamic vs. Static • Delivery Approaches • Future Expansion of the ELN • Performance Measures	• Organizational Structure • Entity for Revenues • Toll Revenues Defined • Application of Toll Revenues • Excess Revenue • Impacts of Toll Revenue • Budgeting and Management of Expenses • Delivery Approach • Cost-Benefit	• Excess Revenue • Impacts to Toll Revenue

Alternatives and Considerations

Input from Exec and Stakeholder Committees

Analysis of Alternatives

- Pros vs. Cons
- Industry Best Practices and Lessons Learned

Recommendations

Date: December 4, 2012

Project: South Florida RCTO - FM No. 41545613290

Purpose: Executive Committee Meeting

Location: Turnpike Operations Center, Mile Post 65, Pompano Beach, FL 33069

Attending: Gus Pego, FDOT District 6
James Wolfe, FDOT District 4
Robert Romig, FDOT Central Office
Diane Gutierrez-Scaccetti, Florida's Turnpike Enterprise
Javier Rodriguez, MDX
Paul Wai, Florida's Turnpike Enterprise
Jennifer Fortunas, FDOT Central Office
Rory Santana, FDOT D6
Dat Huynh, FDOT D6
Daniel Smith, FDOT D4
Andrew Smith, HNTB
Jim Ely, HNTB
Matthew Click, HNTB
Greg Lefrois, HTNB
Jennifer King, HNTB
Alicia Gonzalez, MRG

On December 4, 2012 the consulting team for the South Florida Express Lanes Regional Concept for Transportation Operations (RCTO) held an Executive Committee Work Session. The purpose of the work session was to confirm the vision for the Express Lanes Network (ELN) and discuss key issues as defined in the August 2012 Executive Committee session. The following notes describe key take-aways, in the form of both decisions and questions, from the meeting.

Welcome

- Purpose of the day is to make some decisions.
- We are at a critical point, starting to formulate a plan for deployment.
- We have identified 6 key issues that we want to focus on today. For these issues, we want to get to a point where:
    - We have a decision (subject to higher level approval)

  - We need to elevate it for further discussion
  - More information is required to make a decision.
- Critical dates moving forward
  - This Friday (December 7) – Tech/PI Committees and working group meetings
  - Executive Committee (FDOT) – January 16, 2012
  - Draft RCTO – Early February 2013
  - Final RCTO – Late March 2013
- FHWA has representation on the Executive Committee but were not able to attend today. They will be briefed next week. Jim Ely briefed the new administrator last month to get him up to speed on the process thus far.

Vision

- Jim E - The vision will be a key part of the document. We need to confirm.
- Jim W– On the topic of maximizing throughput with revenue as a secondary goal, Secretary may disagree, as revenue is seen as a means of funding and expansion.
  - We need to adjust statement.
  - Maybe change to "Focus on maximizing throughput while prudently considering revenue generation."
- Vision was revised to state "Focus on maximizing throughput while prudently considering revenue optimization."
- Bob – Look at tri-rail, multimodal, the overall goal of the state is to maximize person throughput, shouldn't this therefore be the goal.
- Jim W – On I-595, we ran analysis that maximized revenue and that maximized throughput. We ultimately picked something in the middle. We want to maximize throughput, but want to prudently analyze the optimization of revenue generation. I would think that a blend would work.
- Jennifer/Bob – Can we just get rid of the revenue statement? Our goal is to maximize throughput. We know that we have revenue generation as a goal.
- Greg - In developing this document, we need to keep revenue in there. If these projects are procured via a P3, the developer needs to understand that they have some flexibility in setting rates.
- Rory – Shoulder time is when we have the most flexibility (makes the difference in terms of revenue vs throughput).
- Jim W – one thing he would like to see is TSM&O. "The Express Lanes will be a key element of the Transportation System Management and Operations."
- Bob – What does seamless mean?
- Revise vision statement to: A reliable, inter-connected Express Lanes Network that provides mobility options for users.
- Remove statement that tolling system should be consistent.

Confirm and Approve ELN Decisions

Toll Operations

- Andrew – These are items that we need confirmation on what we have heard.
- **Dynamically priced** – yes (confirmed by Executive Committee)
- Dan – Is there precedent for time period for toll rate changes? If we want to be consistent, don't we want this to be the same throughout?
- Greg- This can be done anywhere from 6 minutes to an hour. You probably want to have the flexibility to do this on a project level.
- Andrew – Nationally, this has not been perfected.
- Jim W– We are assuring travel performance, however that can be managed is how it will be done.
- **Collection method will be SunPass, ~~FTE to administer all toll collection activities~~**
- Javier – The key is that it is SunPass only. We are also talking about this consolidated customer service center.
- Javier – That it is easy to say on exclusive managed lanes. How do I exclude toll-by-plate? One of the ways to address this is by pricing. One of the things the MDX Board is considering doing is doubling price for toll-by-plate.
- Matt – Would the MDX Board be amenable to SunPass only on Express Lanes?
- Javier – Yes, the issue is enforcement. We have limited right of way.
- Jim W - What happens when a user calls the customer service center and says they thought they could do toll-by-plate on tolled express lanes and they got fined?
- Paul – 92 percent SunPass penetration on the HEFT in peak period.
- Javier – Subject to the MDX Board approval, we can do SunPass only. We are shooting for 90 percent penetration.
- Conclusion – The decision is SunPass only, Javier will confirm with his Board.
- **Hours of operation, 24/7 with exception of maintenance** – yes (confirmed by Executive Committee)
- Diane – No more signature gantries, only functional gantries, could be combined with dynamic message signs (multi-function).
- Diane – OOCEA has agreed to go SunPass, so that will be the only brand. We will visit with LeeWay next.
- **Flexible toll rate structures, corridor level decision** – yes (confirmed by Executive Committee)
- Should signage information be consistent throughout the network ?
    - **Price Information (1,2 or 3**) – yes (confirmed by Executive Committee)
    - **Eligibility Information shown** – yes (confirmed by Executive Committee)
    - **Location of signage** – to the extent possible (confirmed by Executive Committee)

- **Are there standards that should be followed? MUTCD** – yes (confirmed by Executive Committee)

Physical Features

- **Separation type, project level** – yes (confirmed by Executive Committee)
- **Should the number of access points be limited** – yes (confirmed by Executive Committee)
- **Should there be minimum standards for spacing for access points ?** – project level decision, based on operational analysis (remove this bullet from board).
- **Design exceptions/variations will be project specific.** – yes (confirmed by Executive Committee)
- **How should TMC operations be handled?** - Agencies will maintain their current centers, but will operate with consistency, interoperability, redundancy as practical – yes
- **Eligibility, 95 Express rules to be continued**? – 95 Express is the exception, not the rule.
    - **Regardless of project level decision, there will be expected norms:**
        - Trucks, only by exception (I-595 will be the only exception) :
            - Diane – people use express lanes to avoid trucks. Should be defined by axles. If we make it too complex, it's going to get confusing. 3 axles or above, you're out.
            - This question should bubble up to the Executive Committee.
        - Hybrids, motorcycles– allowed, but free only as required by statute.
        - Transit vehicles pay?
            - This question should bubble up to the Executive Committee.

Transit/Express Buses in Express Lanes Network

- **Eligibility**
    - School buses – yes
    - Private motor coaches – yes
    - All is transit eligible.
- **Toll vs Exempt** –
    - Diane - Transit vehicles may pay an annual/registration fee, not the full toll.
- **Should operational standards be employed?** No
- Can we have Park and Ride in original capital of project?
    - Jim W – if associated with the project, transit is eligible. My answer is yes.
    - Gus/Jennifer – FDOT Secretary says charge more for the fare.
    - This question should be elevated to the FDOT Executive Committee.
- Rory – Should all be planned together (roads and transit), so they fit together as far as cost
- Jim W– We won't have Express Buses unless we have an operational subsidy from somewhere, whether it is from the work program or somewhere else.
- Diane – How is transit funded today? STTF? PTO?
- Javier – MDX has made the commitment to support transit via capital improvements. When you get into operations, it gets tricky. Why would we subsidize one agency over another when some are more efficient and have different needs?

- Diane – I don't think we are stepping away from Express Bus, but the Secretary committed that excess revenues will be spent in County on SIS facilities.
- Jim W – Express Buses are not a special interest, they should be a DOT project. Separately branded bus service should be an eligible operational cost.
- Gus – The precedent was set on 95 Express. We can support express service with capital payback, with opportunity to fund via Public Transportation Office.
- Jim W - Transit folks don't care what "pot" the money came out of. Is DOT interested in helping support express service via operational subsidies in some format? (this is what we need to ask the FDOT Exec Committee).
- Bob – The question is whether it is a relevant expenditure.

Confirmation of the ELN

- The intent is to develop an ELN vision map.
- Current map provides detail on existing projects and phases.
- HEFT project ends before US 1 (see map).
- HNTB to send map to group for confirmation.

Vision Map

- Javier - SR 836 on vision map? Yes as well as 874 and 924
- Gus– you've covered D6
- Paul to provide construction years for FTE projects.
- Paul – South on the HEFT, HEFT from 75 to mainline (Paul to check out and get back to us)
- Jim W – Closing the gap on I-595 to 95
- How about Central Blvd/Connect Four? Javier – I will look, but I do not believe so.
- Jim – We need to have a discussion of congestion/growth of the region in the report.
- All – Timeframes :
    - 595 (2013-2014)
    - 75 (2016)
    - Phase 3 of 95 (2020)
    - Phase 2 of 95 (2014)
    - Southern piece of HEFT (2017)
    - Northern piece of HEFT (2020 confirm with Paul)
    - SR 836 (2020)
- The RCTO map will be used as the official map of the network. Dat Huynh will be the official keeper of the map.

Organization

- Alicia – The biggest issue that whether communications will be done on a network level or on a project level and when is the appropriate time for messaging the network.
- Andrew – we could have geographic responsibility or centralized, or some type of hybrid

- Alicia – The benefit of I-95 was that we messaged it for years before opening. The network is appearing quickly and we don't have time to message appropriately.
- Jim E – there will be a lot more national focus on this network in the future. Who will be the face of the network out into the future? Some considerations must be given to this as a part of this discussion today.
- Matt – For general oversight, it is unlikely that we will fully fall under one of the extremes, but more likely somewhere in the middle.
- Develop a Southeast Florida Express Lanes Steering Committee. Jennifer Fortunas to coordinate quarterly meetings of this group.
- Bob- The policy FDOT is working on should incorporate these concepts .
- Jim E – should the RCTO suggest how the process of getting these decisions incorporated into state policy? Bob – yes
- Andrew – To summarize, I hear that the steering committee (which could be comprised of this group and Central Office) will drive process. Need to provide organizational operating parameters as to how decision-making is accomplished.
- Bob – This is a good model for the state.
- Rory – That is why we invited central office, to help make sure it makes sense in the eyes of the state.
- Andrew - How do they do this in TX? Greg/Matt - Not a whole lot of coordination. The projects don't touch. We are not aware of any initiative to develop statewide policy.
- Price Setting – very complex to make a network level decision.
    - Gus – I agree. There are factors that must be considered on a project level.
    - Diane – Not only is it facility based, it's agency specific.
- Day to Day EL Management and Operations
    - Jim W – Not going to have people in the same room doing the whole network, but there has to be consistency in toll pricing.
    - Matt – This is something that will evolve over time.
    - Dan – Eventually this would be performance based management to ensure lane balancing, for instance, which will necessitate the coordination between facility-owners.
    - Jim W – It's incorporated into our TMC in accordance with our TSM&O plan.
    - Dan – Logical borders are not district borders.
- Communications
    - Alicia - MPO's tend to like one central ELN website.
    - Alicia – We need to educate PMs on all projects in case they are asked projects about the network.
    - Rory – We want to make sure agencies know that we need to deal with public information about the lanes in advance of them opening.
    - Alicia – There is no document out there to the public that talks about the network. There is a page for this project, but not for the network.

  - Jim E – The public may expect to see what they see for 95 Express website for each project, which may or may not be the case.
  - Jim W –Right now PIO's are getting project specific questions, which is alright, but eventually, we want to have a single face for the project.
  - Rory – We need to make sure we are sharing information with the PIOs for all of the projects.
  - Gus – Ultimately, the framework for communications is the PIO's in the Districts.
  - Jim W– In the end, we would like to see a coordinated communications effort, one face for the project.
  - Dan/Matt – We need a unique url for the network website.
  - Andrew – To summarize, we will have a mechanism for sharing information on a project level. Educate PIO's as projects are developing. As projects become operational, we will have combined website. Funding would be PIO responsibility.
  - Dat – Funding of communications/PI? Rory – funding of this would be determined later.
  - What do we call the url? Gus - Florida Express – Southeast Florida Express
- Operations and Maintenance
  - There will initially be geographic division of responsibilities.
  - TSM&O function. Need to make sure and incorporate TSM&O activities into entire document.

Financial Questions for the ELN

- We've already made decisions on some of this.
- Ownership of toll revenues:
  - Funds get turned back into State Highway System.
  - FDOT statement says funds flow in the following order:
    - Bond indebtedness
    - O&M of Express Lanes project
    - Payback non-toll funding (STTF)
    - Construction, maintenance or improvement of roads in the counties in which the tolls were collected
  - Normal practice is to distribute funds proportionally, but the guidance says that funds can go to any project within the counties in which the tolls were collected.
  - Technically, operations could include transit, do we want to include this as an option for use of funds?
  - Andrew – what I am hearing is that except for the fact that we are charging the users and offering enhanced performance, everything is the same. Incident management, maintenance, etc will be the same and will be operated as they currently are.
  - Paul – The revenue doesn't cover everything that is needed to run the program.
  - Rory – We need to learn exactly what costs are being spent on toll project, we are currently not capturing the full costs for the projects (e.g. costs of staff assigned, ramp metering, etc).

    - Jim W – We are not set up very well to capture project costs.
    - Andrew – This is key because it impacts the line of where we reach excess revenues.
    - Jim E – In years to come, this will be even more important, as there will be pressure on the agencies to fund other projects with the revenue.
    - Matt – Ownership and excess revenues have been answered by state policy.
- Gus – Avoid use of excess revenue term for the network.
- Diane – There should be a process that defines how revenue funds flow. Maybe RCTO Team should go directly to the decision-makers. At the end of the day, there is a method. The money has to flow some way.
- Gus – How would you envision funding the capital as well as the payback of capital? If there are excess funds, how do we define? MDX has to put it back in the system. At a broader level, what are the key steps in funding flow?
- Rory – Down to a staff level, we are trying to define how certain expenditures are categorized (express or not).
- Jim W – At a certain point, it is not worth the effort to spend so much time looking at specific costs.
- Diane – The money has to go back to STTF in order to have freedom. MDX and FTE are restricted in the ways they can use the funds, which limits them. Not sure we want to limit the funds from Express lanes in this way.
- Bob – Why does it have to go back into STTF first?
- Matt - The ownership and applications of toll revenues will follow state guidance. More detailed budgeting measures will be discussed with state.
- Bob will coordinate with Central Office.

Recap of Decisions (Jim E)

- General agreement on vision with a few minor edits.
- 3 maps: Project status map, 10 year map, ultimate vision (2040)
- January FDOT Executive Board meeting
    - Jim W to draft transit policy statement for discussion.
    - Provide update on status of project.
- RCTO is a guide for the future.
- Congestion management and revenue generation are key drivers.
    - Mobility needs to be mentioned in vision.
- This document won't force collaboration, it will rely upon future coordination.
- RCTO will be a guide for other regions in Florida.
- 95 Express is a great project, but it will not be the model for the ELN.
- Finalized RCTO will be prepared in March 2013.

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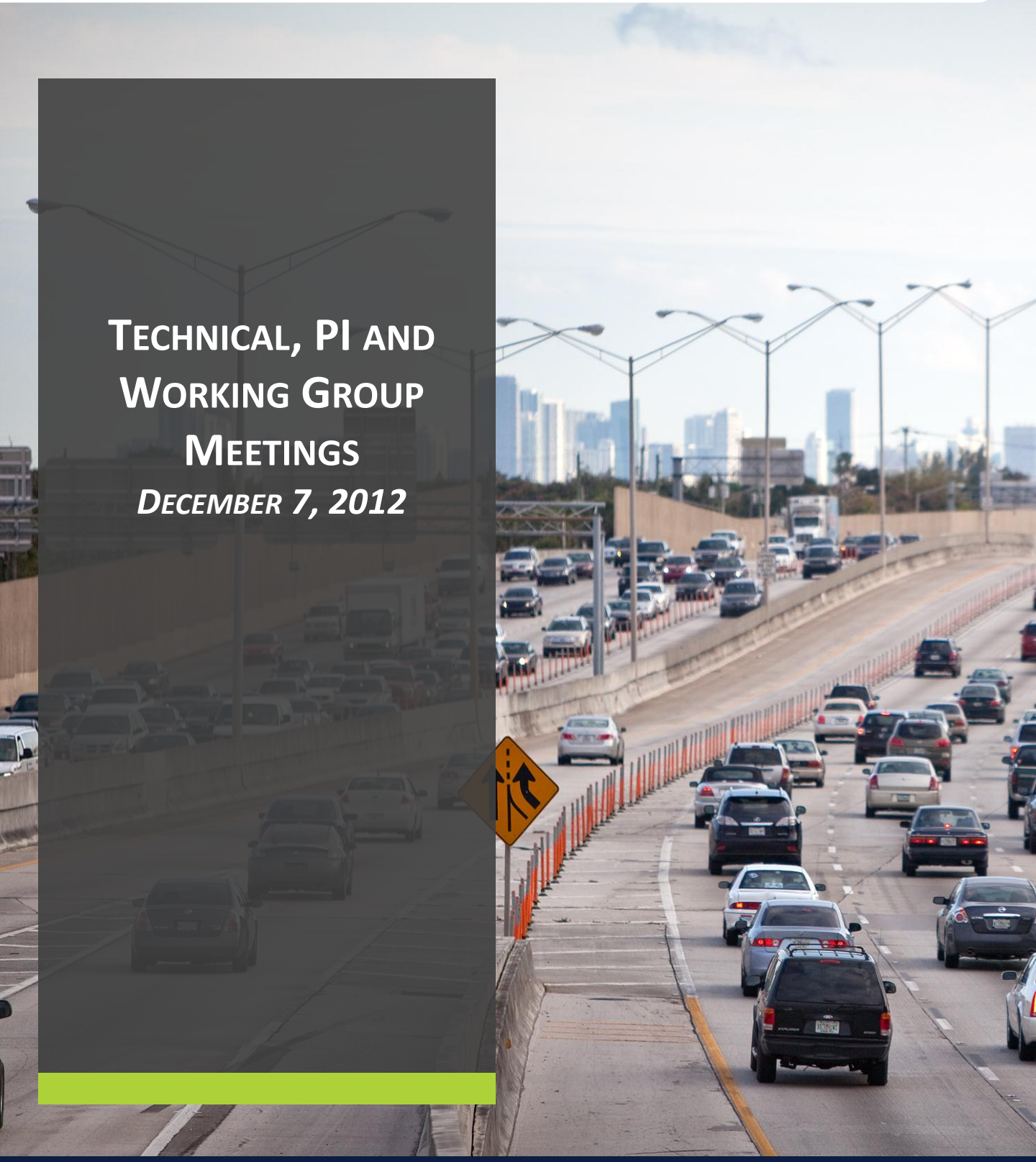
Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

Technical, PI and Working Group Meetings

December 7, 2012



SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Executive Committee Meeting

Tuesday, December 4, 2012 | 10:00 a.m. to 3:00 p.m. | FTE Pompano Beach Operations Center

Name:	Representing:	Address:	Phone:	Email:
Diane Gutierrez-Scaccetti	FTE	TP 263, Ocoee FL	407-264-3100	diane.scaccetti@dot.state.fl.us
~~David Hawk~~				
Gus Pego, P.E.	Dist 6	1000 NW 111 Ave	305.470.5197	Gus.Pego@DOT.STATE.FL.US
Javier Rodriguez, P.E.	MDX	3790 NW 21 Street	305-637-3277	JRODRIGUEZ@MDXWAY.COM
Bob Romig, [redacted]	CO			bob.romig@dot.state.fl.us
James Wolfe, P.E.	Dist 4			James.Wolfe@DOT.STATE.FL.US
PAUL WAI	TPK	PO BOX 9828, Pompano, FL	954 934-1247	PAUL.WAI@DOT.STATE.FL.US
Matt Clicle	HNTB		404.989.4648	mclicle@hntb.com
~~Diane Scaccetti~~	~~FTE~~			

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Executive Committee Meeting

Tuesday, December 4, 2012 | 10:00 a.m. to 3:00 p.m. | FTE Pompano Beach Operations Center

Name:	Representing:	Address:	Phone:	Email:
DAT HUYNH	FDOT D-6	1000 NW 111 AVE	305 470-5217	dat.huynh@dot.state.fl.us
Daniel Smith	FDOT D4	2300 W. Comm Ft Laud	954-8977633	daniel.Smith@dot....
Greg LeFrois	HNTB	9 Entin Rd, Suite 202 Parsippany, NJ 07054	973-953-1461	glefrois@hntb.com
Jennifer Fortunas	FDOT CO/SYS PLN	605 Suwannee St, MS19 TALL, FL 32399	850-414-4909	jennifer.fortunas@dot.state.fl.us
RORY SANTANA	" /D4	1000 NW 111 AVE	305 6407375	rory.santana@dot.state.fl.us

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, December 7, 2012 | 9:30 a.m. - 11 30 a.m.

Name:	Representing:	Address:	Phone:	Email:
Steve Andriuk	MDX	MIAMI	305 637 3277 ext 2110	sandriuk@mdxway.com
Phyllis Berry	BCT	1 N. UNIV. DR. PLANTATION, FL 33324	954-357 8366	pberry@broward.org
Tish Burgher	Tish Burgher	Miami	954.325.8022	Tish@ocausa.com
Danielle Chapel	D4 TMC	2300 West commercial Blvd, Ft. Lauderdale Fl	954-847-2697	dchapel@smartsunguide.com
Dong Chen				
Isabel Cosio Carballo				
Harold Desdunes				
Courtney Drummond	FDOT		954-772 4104	
Lisa Dykstra				
John Easterling	FTE	MP 65, POMPANO 33310	954-934-1620	john.easterling@dot.state.fl.us

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, December 7, 2012 | 9:30 a.m. - 11 30 a.m.

Name:	Representing:	Address:	Phone:	Email:
Victor Garcia	SFRTA	800 NW 33 St 33064	954-788-7925	garciav@sfrta.fl.gov
Chris Heshmati	South Fla. Regional Planning Council	3440 Hollywood Blvd Hollywood, FL 33021	954-985-4416	cheshmati@sfrpc.com
Dat Huynh	FDOT D-6	1000 NW 111 AVE MIAMI, FL 33172	305 470-5217	dat.huynh@dot.state.fl.us
Dick Kane				
Barbara Kelleher	FDOT D4 PIO	3400 W Commercial FTL	954 774 4090	Barbara.Kelleher@dot.state.fl.us
Maribel Lena	M. Lena		305-470-5077	
Gregg Letts				
Alfred Lurigados	MDX			alurigados@mdxway.com
Omar Meitin	FDOT D-6			omeitin
Gerry O'Reilly				

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, December 7, 2012 | 9:30 a.m. - 11 30 a.m.

Name:	Representing:	Address:	Phone:	Email:
Sgt. Thomas Pikul				
Mark Plass				
Cindy Polo-Serantes	MDX	3		
Kim Poulton	KP-FL TPK			
Jose Quintana				
Brian Rick	BTA/FDOT	1000 NW 111 Ave Mid, FL 33172	786-443015d	MARTA.Lodriguez@DOT.STATE.FL.US
Marta Rodriguez	✓			
Elizabeth Rockwell				
Sgt. Joe Sanchez				
Rory Santana				

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, December 7, 2012 | 9:30 a.m. - 11 30 a.m.

Name:	Representing:	Address:	Phone:	Email:
Gus Schmidt				
Bill Sherwood	FTE	7941 Glades Rd Boca Raton	561-488-5335	william.sherwood@dot.state.fl.us
Fred Stubbs FS	Palm Tran	3201 Electronic Way	561-841-4200	fstubbs@pbcgov.org
Daniel Smith	FDOT	2300 W. Comm	954 677 8540	daniel.smith@dot
Alicia Torrez	✓			
Paul Wai	✓			
Jeff Weidner				
Jillian Gastright	AECOM for FDOT	2300 W Commercial	954 847 2435	JGastright@smartsolutions

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Technical and Public Involvement Committee Meetings

Friday, December 7, 2012 | 9:30 a.m. - 11 30 a.m.

Name:	Representing:	Address:	Phone:	Email:
Charles Robbins	CZS Engineering	9900 W Sample Rd #300 CS, FL 33065	954 3476133	charles.robbins@czsengineering.com
Robyn Chiarelli	FDOT	3400 W Commercial	9/777 4445	robyn.chiarelli@dot
Jim Udvardy	FDOT / SFCS	3400 W Commercial	9/731-0062	udvary@pbworld.com
Suzell Hyman	FDOT / SFCS	"	"	Bogk.Hyman@pbworld.com
Matt Click	HNTB			

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Working Group Meetings

Friday, December 7, 2012 | 1:00 p.m. - 3:00 p.m.

Name:	Representing:	Address:	Phone:	Email:
Suzell Bogle-Hopman	✓			
Major James Brierton				
Bob Cambric				
Chuck Cohen				
Maria Connolly MC	D4 MAINT			
Wilson Fernandez				
Gaetano (Guy) Francese				
Charles Frazier				
Rudy Garcia				
Timothy Garling				

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Working Group Meetings

Friday, December 7, 2012 | 1:00 p.m. - 3:00 p.m.

Name:	Representing:	Address:	Phone:	Email:
Monica D. Cejas	MDT	701 NW 1ST CT, Suite 1500 Miami FL 33136	786-469-5290	mcejas@miamidade.gov
Javier Rodriguez	FDOT / ITS	1001 NW 111 AVE Miami, FL	(305) 470-5757	Javier-Rodriguez@dot-state-fl.us
DAT HUYNH	FDOT D-6	1000 NW 111 AVE MIAMI, FL 33172	305 470-5217	dat.huynh@dot.state.fl.us
B McCoy	BCT	1 N. UNIVERSITY 33324	954 357 8369	bmccoy@broward.org
Ken Jeffries	FDOT	1000 NW 111 Ave	305 470 5446	Ken.jeffries@dot.state.fl.us
Franco Saracino	MPO	9119 Corporate Lake Dr Ste 150 Tampa 33634	813.882.4360	fsaracino@gfmet.com
RORY SA				

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Working Group Meetings

Friday, December 7, 2012 | 1:00 p.m. - 3:00 p.m.

Name:	Representing:	Address:	Phone:	Email:
Major Joseph Saucedo				
Jack Stephens				
Greg Stuart				
Yvette G. Taylor				
Jim Udvardy	✓			
Chris Walton				
Alon Brick-Turin	MD-MPO		786-845-9540	abrickturin@gfnet.com
CARLOS CEJA	//		//	ccejana@gfnet.com
Jonathan Roberson	Broward County Transit			jroberson@broward.org

SOUTHEAST FLORIDA'S EXPRESS LANES NETWORK (ELN)
Regional Concept for Transportation Operations (RCTO)

Sign-In Sheet

Working Group Meetings

Friday, December 7, 2012 | 1:00 p.m. - 3:00 p.m.

Name:	Representing:	Address:	Phone:	Email:
Joe Giulietti				
Gene Glotzbach				
Albert Hernandez	✓			
Ysela Llort				
Renato Moreno				
Major Luis Ramil	~~Self~~ FHP	PO Box 540007 Greenacres FL 33454	357-4133	lusramil@flhsmv.gov
Carlos Roa	MD ~~Self~~ MPO	~~[illegible]~~ 111 NW 1 St. - Suite 920 Miami, FL 33128	305 375-1833	rcf@miamidade.gov
Javier Rodriguez	✓			
Irma San Roman				
Michael Ronskavitz				

Date: December 7, 2012

Project: Southeast Florida Express Lanes RCTO - FM No. 41545613290

Purpose: Technical and Public Involvement Committee/Working Group Meeting Notes

Location: FDOT D6 Auditorium, 1000 N.W. 111th Avenue, Miami, Florida 33172

Attending: See attached Sign-In Sheets

THE TECHNICAL COMMITTEE

Facilitator: Greg LeFrois (HNTB)

Greg provided an update of project development activities including the national scan activities, FDOT Central Office updates and decisions made at the December 4,2012 Project's Executive Committee meeting. Greg requested all the meeting attendees to review the draft RCTO Issues document and provide comments by December 14, 2012. The draft RCTO Issues document will be used as a framework for the development of the RCTO document.

ELN Vision and Network Maps

- Greg discussed the Express Lanes Network (ELN) Vision statement developed during the December 4, 2012 Project's Executive Committee meeting. Discussion revolved around the context of revenue in the ELN Vision. It was reported that the Central Office's Executive Meeting in January would provide more guidance on revenue and its applicability to the ELN Vision.
- The three ELN maps (project level map, 10-year operating facilities map, and an overall vision map) were discussed in detail. The intent of the maps is to visually communicate the ELN, and to be used in future technical reports and public involvement meetings. The Technical Committee agreed that the maps need to be updated on recurring basis as more Express Lanes projects are planned and operated.
- For additional information, refer to the attached exhibits used to facilitate the meeting.

Review of ELN Decisions

- The previous Technical Committee's meetings decisions were reported back to Project's Executive Committee for confirmation and have been finalized. See below a brief account of the decisions made.
    - Toll operations for Express Lanes will be Dynamic Pricing using SunPass; ELN will be open 24/7, except for maintenance; Flexible toll rate structures and decisions be made at a Project level.

- The committee discussed how often the rates are adjusted in a Dynamic Pricing environment. Options discussed include start at 15 minutes maximum, but allow flexibility in the system design to reduce or increase the adjustment frequency as needed. Also, build in a buffer of X minutes (initially set to 6 minutes) to allow for time to travel from fare signage at entry locations to the toll gantry.
- Signing will follow MUTCD guidelines and show up to 3 price decision points. Eligibility information will be included.
- Geometric considerations will be project-specific and need to be consistent, where possible, and support longer distance trips.
- Use FDOT standard design requirements, with project-specific design exceptions and variances.

- The Technical Committee suggested that the RCTO recommend:
  - Developing Express Lane specific design standards or guidelines to assist the EL Project practitioners.
  - Updating existing agency specific Standard Operating Guidelines (SOG) for more structured coordination between all Operators.
  - Considering regionalized operating organizational structure which includes both the express lanes and the general purpose lanes operations.

Review of Tolling Concepts and SR 826/ I-75 Express Lanes Project Update

- The Consultant team provided a general overview of various tolling concept options such as zone based and trip based along with their pros and cons. It was agreed that the selection of the most appropriate tolling concept or a hybrid (combination of tolling concepts) for a corridor will be an individual project decision. This tolling concepts discussion was facilitated to ensure that the Technical Committee is aware of the various options available and practiced around the Country and thereby better understand the proposed tolling concept for the SR 826 / I-75 Express Lanes Project which is in the planning and preliminary design development stage.
- The SR 826 / I-75 Express Lanes Project consultant provided an overview of the project to the Technical Committee to seek input on the proposed tolling concepts. For more information, see the attached tolling concepts memorandum developed and distributed by the SR 826 / I-75 Express Lanes Project consultant at the meeting.
- An initial lesson learned from SR 826 / I-75 Express Lanes Project is the need to make informed project level decisions for both geometric considerations (such as separation, access points) and operations considerations (such as signing, traffic patterns, tolling concepts) at the same time and early in the planning phase, since each of these are closely related. Early geometric decisions if made without considering full impacts on operations will lead to more complex operations and eventually higher project costs.

- Other recommendations included providing guidance to individual project practitioners to ensure that the project level decisions allow flexibility for modifications during the operational stage of a project.

Signage

- The Consultant team discussed two options for the three destinations pricing signs:
  - Option 1 - Signing for next exit; next logical termini; and a major destination between these two destinations.
  - Option 2 - Signing for next three possible destinations.
- It was agreed that individual project level decisions need to carefully consider the implications of each of these options.
- The Technical Committee recommends that all pricing sign structures be designed to handle 3 destinations even when an individual project may use only 1 or 2 destinations. As the ELN expands, this additional design provides the flexibility to add additional destinations at a later time.
- Other recommendations include, needing to "minimize" signing, be smart about quantity and location to avoid driver distraction through dissemination of excessive information.

Next Steps

The next steps and the project delivery timeline include:

- Provide a RCTO development update to FDOT and FHWA staff in the Central Office on December 10, 2012.
- Distribute the RCTO document to the Technical Committee for review in February 2013 in advance to the next Technical Committee meeting and seek comments.
- Facilitate a Technical Committee meeting and walk through the document
- Finalize the RCTO document in April 2013.

The Technical Committee recognizes that the RCTO will be living document and needs to be updated as the ELN expands. Also, it is important to continue having regional meetings after the completion of this effort to continue the dialogue between the FDOT Central Office, regional partners and EL operators.

PUBLIC INVOLVEMENT COMMITTEE

Facilitator: Alicia Gonzalez (MRG)

The meeting began with introductions and quickly moved into first few items on the agenda which included a project status update, discussion of the matrices and recent developments with the Executive Committee.

Agenda Items 1-3

Important decisions made in Central Office/Executive Committee:

- Vision statement – A reliable interconnected express lanes network that provides mobility options for users.
- Lanes should be dynamically priced – not tabular based, but real-time.
- RCTO is a living, fluid document , which is forever being updated as the system emerges.
- Collection method will be SunPass only.
- Lanes will operate 24/7, with exception of maintenance activities.
- Barrier will be decided at a project level.
- Concept of providing options will be replicated, but the exact 95X system will NOT be replicated verbatim.
- Each one asked to take on the responsibility to continue coming together and educate as much as we can. We have the power now to make the change in how we communicate express lanes.
- We also have to send the message that we can't keep building more and more lanes. We have to communicate this is a way to manage the congestion via another method.

Alicia went over the existing conditions network and the future network

- Executive committee agreed only one express lanes map would be prepared, not one per agency
- The map is NOT final – hot off the press!
- The public doesn't care what agency runs the facility – they just want it to be easy to understand and easy to use.
- Questions/comments on maps: Chris Heshmati asked for confirmation – yes, one map, but each facility may have different rules and the rules will be communicated. Alicia noted that we will have to communicate that and do it EARLY!

Talking points for Express Lanes Network

The group agreed upon putting together a list of talking points for the network that will be developed by Alicia Gonzalez and Alicia Torrez and distributed for each member to review and add. The group was asked to share frequently asked questions or questions they wanted answers for.

- Eligibility is the biggest challenge from a customer perspective – so that will need to be addressed and communicated. Most of everything else will be seamless. Standardized eligibility tables will be available for all PIOs so it will stay consistently communicated, etc.
- Express lanes provide choice – reliable choice (correct reporters when they say it's not a choice), say 'choice' or 'options'--MESSAGE
- No roads are 'free' – the GP lanes are paid for just not in the same manner--MESSAGE
- Analogy projects/others – 'ATM analogy – you pay extra for a different bank ATM for convenience'--MESSAGE
- Do NOT say 'toll within a toll' – congestion pricing message; user fees

- Regional network – designed for the longer distance traveler – travel regional concept in transportation – why different business rules for managed lanes; need to understand and communicate this
- Express lane network (ELN) vision statement needs to be included in this document
- Traffic is unique and different per corridor—important differentiator
- Green concept – transit use, hybrid emphasis, HOV use—need talking point for
- Transportation options--MESSAGE
- Eligibility for transit – yes but toll question being vetted. 95X – exception not the rule
- Customer uniformity vs differences – SunPass only, dynamically priced, congestion management tool, maximize assets (uniform), eligibility (differences)
- Why are we doing this? Maximize assets, alleviating congestion, agencies came together for a long term plan
- ELN partners
- ELN map
- People think we put in lanes to generate revenue – there is a 'greed' perception. We know and tell that it's not about revenue, it's about throughput and maximizing assets. We need to get that information to everyone.--MISCONCEPTION
- How do express lanes work? – this question will always come up
- What happens to the money? – This answer needs to be known.
- We know that answer for today, but will we know that answer at a network level? Lowell stated that is not fully defined yet but it will be tracked and we will know what is being expended.
- Customer service issue came up about how that will work – we need to be able to handle if one customer drives three different facilities with three different road owners – these are current issues that the agencies are dealing with (Turnpike, MDX, etc.). Looking at developing one central office – 1.5 years from today.
- Lessons learned:
    - Toll operations should perhaps not be in charge of customer services.
    - Toll operations plus PIO folks should work together from the get go to develop how we communicate with the users.
- Brings faster solutions with real time results.
- Misperception that the express lanes are 'turned on' and then operated on autopilot, people don't understand it's a 24/7/365 system – someone is always there monitoring and available for assistance. This information comforts them.
- People still tie this to the socioeconomic issue, which it is not. It benefits everyone – congestion in GP lanes is reduced.
- Top 5 vehicles used in 95X – NOT a Lexus!
- 95X time and travel savings
- All electronic/ORT
- Issues messaging for Turnpike/MDX
- There needs to be an organized communications effort
- ELN education – never miss an opportunity to educate!
- Internal education within the agency is a critical factor.

Next steps

- Alicia sending out draft – she will note in the draft ones that are 'approved' and cannot be changed!
- Next meeting in the spring
- Alicia - Connect with Chris Heshmati on her role and what she is doing through the SFRPC (Clean Cities liaison – she gave us a narrative/handout on it)
- Talking points in Spanish-approved list of answers
- Lesson learned – multiple reps within briefing (have all agencies represented)

WORKING GROUPS

Jennifer, Matt and Andrew gave an overview/update of the project. Discussed network map, six categories and 58 issues, then discussed the key categories and decisions made by the executive committee

- Regarding the executive committee decisions: The group asked questions about freight – how is a truck defined? They asked about carpool, vanpool, HOV rules.
- The TIP Amendment in Broward is going in for I-75 shortly as funded in 2018. The SR 826 (N/S portion) project has new money.
- Will the SIS funding go to these projects first? Will they be higher priority? FDOT CO is coordinating with the project and a statewide policy is being developed. Conversations are being held about this topic but consensus has not yet been reached.
- How is this going to be programmed? Illustrative/private sector funded and operated? In the Cost Feasible Plan? Or something else? P3 is an option for funding but it isnt a given for all corridors – some have traditional funding already flowing to them. The managed lanes network projects will be integrated into the LRTP process as typically done with the agency work programs. This will need to go through the MPO process for funding. The TIPs are currently being upgraded as funding becomes available and the LRTP is receiving updates as well. Financial component has to involve Central Office.
- How many lanes will Express lanes have? Preferably 4 lanes but this is not a given. It will be a corridor specific decision.
- A question was raised about branding – they will all be branded similarly with the 'flying e', route # and express.
- What does transit infrastructure look like, i.e., park and ride lots? It will be project specific.
- Will the toll revenue go to the transit agencies? That decision is being made at Central Office level in terms of revenue rules. Yes they are talking about it, though.
- It was stated that we need to have park and ride lots in order to have transit in the express network. It must be looked at now, at the beginning. Transit agencies would like to see guidance on park and ride lots in the RCTO. They also want to make sure FDOT CO transit folks are aware of what is going on and involved in the policy process.
- A project can include transit enhancements.
- CO has already been approached with giving funding for park and ride lots on SIS facilities with Managed Lanes (Ken Jeffries).

- Make sure that park and ride lots get addressed in the RCTO.
- A decision should be made as to the minimum standard per express project (i.e., no express lanes without transit) policy.
- Transit agencies want 'transit' in the vision statement.
- Matt Click: We are taking notes and bubbling up decisions including our meeting next Monday in Tallahassee.
- Rory Santana explained the benefits transit gains with being able to use the ELs. Quoted numbers for the time difference between EL and general purpose lanes. He then asked the transit agencies to share specifically what is needed.
- Albert Hernandez: Your vision statement is about mobility and options for users. If this is an SOV project with the possibility of enhanced bus service with funding maybe—then you must change your vision. There is a huge disconnect. MDT position – we need more transit.
- Dat Huynh: ELN we are talking about transit. It is a very integral part of the network. We need to hear from the region those of you here to provide this feedback.
- Jonathan Roberson: I-75 project has chosen a good direction as it relates to transit. This is not a regional transportation effort as it stands now.
- Jessica: Regional Transit Systems Plan is being developed as we speak with the transit agencies. Project will be presented to RTAC and SEFTEC groups in response to question about whether or not we were presenting to the MPO. We are doing a market analysis and modeling, etc.
- Ken: I can understand the disappointment. We don't have the infrastructure in place for these upcoming projects compared to 95 Express.
- Fred: We can still be more proactive in working with the MPOs to get the right projects into the LRTPs in order to determine what transit wants in the future.
- Dat: Funding concerns due to high cost of operations and maintenance. Can we start building the network?
- Albert Hernandez: Balance ridership, green initiative, mobility. Has this network been planned holistically?
- Carlos Roa: MAP 21 is here and it is emphasizing transportation options, freight, mobility. Any major investment should have a transit component. How you fund it needs to be worked out by each agency. Take the message of MAP 21 and this study and make it all encompassing.
- Matt Click: Coordination and participate in the statewide effort. Next steps for the group.
- Jonathan Roberson: Money should be shared in the region. We should be capturing some of the dollars from this revenue for transit. I think that this money is in play. The way it was done on 95 (addressing every mode) was very good. Funding needs to be open for more discussion.

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Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

Appendix B: 95 Express and National Scan

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Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

95 Express Review

Evaluation and Assessment of 95 Express

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INTRODUCTION

PROJECT DESCRIPTION

The 95 Express project successfully implemented Express Lanes (EL) on a section of I-95 between I-395/SR-836 and the Golden Glades Interchange area in Miami-Dade County, Florida. This project became operational in 2008 as part of the Florida Department of Transportation's (FDOT) congestion management improvement program that includes EL, high occupancy toll (HOT) lanes with carpool and transit incentives, ramp metering, rapid incident detection, and enhanced operational management strategies. Since the completion of the project, Interstate 95 has seen an increase in both the speed and volume of vehicles in both the EL and general purpose (GP) or local lanes.

Figure 1 95 Express Project Map

95 Express is divided into three phases:

- Phase 1A was completed in December 2008, and runs northbound on I-95 from SR 112 to the Golden Glades Interchange area.
- Phase 1B was completed in March 2010, and runs southbound on I-95 from the Golden Glades Interchange area to SR 112.
- Construction of Phase 2 began in November, 2011 and is scheduled to complete by late 2014. This phase extends the express lanes on I-95 to Broward Boulevard in Broward County.

Figure 1 illustrates the project locations of these three phases.

As a continuing part of the congestion management process, FDOT is in the process of not only extending the 95 Express Lanes into Broward County but also building new EL on several individual roadway corridors in Southeast Florida with the ultimate goal of creating an interconnected, seamless regional ML Network within Broward, Miami-Dade, and Palm Beach Counties. To be effective, the creation of this cross-jurisdictional network will inherently require coordination between local, state, and federal governments and agencies.

In order to facilitate the coordination and communication between all involved agencies, FDOT has funded the creation of a multi-agency Regional Conceptfor Transportation Operations (RCTO). The RCTO will include the policies, business rules, and goals for how the network will operate regionally and how to achieve those goals. To do this, the RCTO will determine the roles and responsibilities of each agency and how the regional system will operate.

To assist in the determination of the goals and policies to be included in the RCTO, this white paper was developed to assess Phases 1A and 1B of 95 Express and determine the lessons that have been learned. The following document first summarizes the methodology used and then discusses lessons learned with regard to the implementation of 95 Express in the following six categories:

- Communications
- Planning/Policy
- Financial
- Legal
- Operations
- Physical Features

It is important to note that a second document has been created regarding lessons learned from National Express Lanes projects. It will be helpful to consider that document along with this one in order to gain a greater understanding of overall lessons learned.

APPROACH

In order to determine lessons learned, a set of questions was developed through a collaborative process to assess each of the six aforementioned categories. The questions identified the key issues regarding the 95 Express project as determined by the consultant team in each category. After the development of the questions, a detailed literature review was undertaken to answer the questions. The sources included the project website, annual reports, and performance evaluation reports. At the same time, several discussions were held within the project team discussing lessons learned to be included.

COMMUNICATIONS

Communications is a key aspect in both the construction and implementation of express lane projects. It ensures that users understand how express lanes operate and it ensures that all agencies involved are coordinated. There has been an extensive outreach and communications element regarding 95 Express, and through constant evaluation the communications system was able to evolve throughout the process. The communications component includes FDOT, Florida's Turnpike Enterprise, South Florida Commuter Services, Broward and Miami-Dade County Transit, the consulting firm Media Relations Group, and other public information specialists. The following lessons have been drawn from this experience.

PROJECT BRANDING

- **Conduct Ongoing Outreach**: Because there are many aspects that go into making a express lane project work, a multi-agency partnership for public involvement is invaluable. It ensures that all aspects of the express lane project can be clearly communicated and marketed to the general public who may or may not have a good understanding of express lanes. This outreach needs to be ongoing, including the utilization of a customer service program so that user concerns can be addressed and the message can change as the project does.
- **Customize Marketing Materials**: In order to be successful, it is essential to understand who you are marketing to and what their interests are in the project. Marketing materials are therefore more effective when customized for the area-specific population because they can be more targeted and thus enabling the materials to reach the proper audience.
- **Unite Branding Efforts**: Branding is important to establish a strong project identity and ensure customer recognition. Guidelines regarding how the branding materials can be used by partnering agencies should be developed early in order to preserve the brand and ensure that the desired message is delivered each time the brand is used.

OVERALL MESSAGING

- **Continuously Educate the Public**: The general public and media are often unfamiliar with express lanes projects. Because of this, it is important to educate them in order to ensure that the public and media understand the purpose and benefits of the overall project and to avoid miscommunications and misunderstandings that could be potentially harmful.
- **Sell the Product**: Because people pay to use express lanes, it is necessary to approach the marketing aspect in terms of selling a product to the public in order to convince the public of the value of their purchase.

- **Coordinate Between Team Members**: Communication between the contractor and the public outreach team is an important aspect of ensuring that the public is informed of changes and milestones in the project minimize driver confusion and safety concerns.

OPERATIONAL COMMUNICATION

- **Identify a Project Champion**: Because of the sensitive nature of express lanes, it is important to have a project champion who will stand behind the message as well as coordinate and act as a leader for the team even in turbulent times. The champion should have a firm understanding of the project and be willing and able to devote a significant amount of time to its support.
- **Evolve with the Project**: The system will inevitably evolve as congestion increases. It is important to continue to express the message of what changes are occurring and why they are occurring to avoid misunderstandings.
- **Address Cross-System Considerations**: As the regional system develops, communication to users regarding movement from one segment to another will be imperative to ensure user convenience and safety.

PLANNING/POLICY

The planning and policy stage for 95 Express was rapidly expedited, and therefore it faced several unique challenges. Express lanes projects were introduced as part of a congestion management program within the Value Pilot Pricing Program that FHWA began in the 1990s. As part of a plan for this, an Urban Partnership Agreement was developed. Express lanes were part of the congestion management plan of all metropolitan areas under these agreements. When FDOT decided to pursue the 95 Express project, express lanes were not even included in the Long Range Transportation Plan (LRTP), so FDOT sought approval to add them directly to the Transportation Improvement Program (TIP) and bypassed the LRTP in general. While many organizations and staff levels were considered, it is important to note that many policies and details were considered as issues arose as opposed to in advance due to the expedited nature of the plan and the lack of previous examples to draw from. The following lessons were learned from this process.

CONSENSUS BUILDING

- **Coordinate Across Agencies**: Many different agencies must work together to make a express lanes project work. Direct communication and scheduled meetings ensure that the project team is up to date on progress and accountability is upheld. Additionally, face to face meetings between agencies are critical to reach consensus.
- **Keep Elected Officials Updated**: Elected officials garner political support, and this is key to keeping an express lanes project on track. Because express lanes projects constantly change and evolve, it is essential to keep officials abreast of such changes. Potential communication methods include routine emails, newsletters, and alerts on website updates, among others.
- **Include All Staff Levels**: While it is important to keep elected officials informed, staff at all levels should be included in the decision making process. When an express lanes project is implemented on an existing roadway; design, operations, and communications professionals should be included early in the process to help identify fatal flaws and feasible alternatives.

PARTNER AGREEMENTS

- **Develop Agreements Between Partners**: Because many agencies are involved in an express lanes project, it is important to develop formal, written agreements to ensure that each agency understands what its role is and what criteria it will be evaluated on.

LONG TERM/FUTURE PLANS

- **Think Long Term**: Express Lanes projects should be approached with the long term result in mind. Therefore, efforts should be made to include them in the LRTP, even though it may be easier and/or faster to skip straight to the TIP. For example, the 95 Express project was pushed straight to the TIP, however when plans for expansion began to emerge it was important to incorporate them into the LRTP in order to gain and maintain support.

IMPLEMENTATION

- **Set Implementation Policies Early**: Set policies to determine consistency in design and operations early in order to avoid inconsistencies later that may be harmful to the project in the long run. Regarding 95 Express, policies were created as the project advanced. With more foresight, the process could have been smoother and more streamlined.

ENVIRONMENTAL/NEPA CONSIDERATIONS

- **Understand the NEPA Process**: Many Express Lanes projects are built within existing right of way, and therefore NEPA considerations are minimal. Additionally, because the 95 Express Express lanes were converted from existing HOV lanes and HOVs continued to use the lanes free of charge, the project was actually seen as a positive advance.

REVENUE GENERATION

- **Set Revenue Policies Early**: Policies regarding allocation and collection of revenues should be set early in order to avoid confusion and conflict later on. All costs should be considered, including construction, maintenance, and operations.

ENFORCEMENT

- **Use Several Means of Enforcement**: Because there is no room for enforcement areas on the 95 Express, it is important to have different means of enforcement available. Electronic enforcement methods are used to aid in enforcement efforts. Enforcement cameras are accessible to law enforcement to see vehicles and identify HOV violators as well as to watch for illegal movement in an out of the express lanes through the plastic delineators.

FINANCIAL

Because express lanes do produce revenue, it is important to understand how that revenue flow is controlled and what issues can arise regarding the revenue. There are several factors that must be considered regarding the financial aspect of express Lanes. These include how to finance the project, which can be done publicly, privately, or through a combination of the two; what the purpose of the project is, which can focus on throughput or revenue generation; management of funds; and reporting of revenues. The following lessons have been learned from the 95 Express project.

REVENUE AND EXPENSES

- **Understand the Focus of the Project**: Express lanes can be used to maximize throughput and/or to generate revenue. It is important to understand what the underlying goal of the project is in order to make proper decisions regarding pricing and evaluation.
- **Conduct Traffic and Revenue Forecast Studies**: A traffic and revenue study was prepared as part of the initial analysis for 95 Express. Periodic monitoring and updates are recommended in order to track and adjust targets.
- **Keep Toll Revenues Separate from Other Funds:** 95 Express tolls are collected by Florida's Turnpike Enterprise and transferred to specific fund set up that is separated from other FDOT funds. This is mandated by the Urban Partnership Agreement (UPA) for auditing purposes. This separation ensures that toll revenues are used properly.

PROJECT COSTS

- **Use Federal and State Level Funding:** 95 Express Phase 1 had a projected cost of $121.5 million of which $62.9 million was from the UPA grant (including $ 19.5 for transit), $35 million was allocated by the Florida Legislature, and the remaining balance of funding would come from future toll revenues.
- **Clearly Establish Rules and Policies to Govern the Use of Toll Revenues:** 95 Express has successfully transferred toll revenues to subsidize ITS equipment, roadway maintenance, Sunguide Traffic Operations Center (costs directly related to 95 Express), some transit operating costs and Incident Management programs. The 95 Express toll revenue allocation policies are described in the UPA.

REVENUES AND REVENUE REPORTING

- **Provide Monthly Reports:** Monthly revenue reports are available at the SunGuide web portal. These reports allow for continuous performance monitoring.

LEGAL

Legal issues must be considered in order to ensure the proper functioning of express lanes. For example, authority must be determined in order to ensure that control of the lanes is given to the proper agency, as legal rights to set and collect tolls are vested in that agency. Additionally, legal issues such as vehicle restrictions can help to ensure that the lanes function properly by allowing more or less vehicles to travel on the lanes free of charge. There is much less information regarding the legal aspects of 95 Express than there is for the other sections. However, the following lessons have been learned from this project.

AUTHORITY

- **Understand Legal Authority:** Florida is operating under a Statewide Value Pricing Pilot Program (VPPP) authorized by the US DOT as outlined in the TEA-21. Under the Urban Partnership Agreement, USDOT will support its urban partners with financial resources (including some combination of grants, loans, and borrowing authority), regulatory flexibility, and dedicated expertise and personnel. At the state level, the authority falls under Florida Statutes 338.
- **Establish Tolling Authority and Rates:** It is convenient to give this control to an agency that already operates tolls, such as Florida's Turnpike Enterprise and their electronic toll collection program commonly known as SunPass, because they already have the infrastructure in place to ensure smooth operation. The toll rates are set by the operator agency and are outlined in initial public hearings. At the 95 Express, the toll rate is set to achieve a 45 MPH minimum 90 percent of the time during the peak period over a 180 day evaluation period. The toll cap that currently exists may prohibit that due to increasing traffic, so there is a discussion regarding removing the caps to keep the reliability target.

RESTRICTIONS

- **Consider Planning Vehicle Restrictions based on Traffic Demand and Revenue Forecasts:** 95 Express is free to registered vanpools, registered carpools with three or more occupants, and hybrid vehicles. Transit buses, school buses, and intercity buses along with motorcycles can travel in the express lanes for free without registration. Trucks with two axles are allowed on the express lanes as toll-paying vehicles. Trucks with three or more axles are not allowed on 95 Express unless they are designated as emergency vehicles responding to specific incidents. Due to increasing traffic, there is a discussion about removing the free toll for hybrid vehicles.

OPERATIONS

The operations component of the 95 Express project includes the traffic incident management and maintenance teams as well as performance monitoring. A traffic incident management team is in place, and specific team members include the local police and fire rescue, Florida Highway Patrol, transit agencies, and others. It is important to consider the impact of incidents and possible closures in the express lanes and how to best deal with such situations. Additionally, it is important to consider a variety of possible factors that may affect the ability of express lanes to effectively manage congestion, such as toll violation enforcement and a combination of congestion management techniques. The following lessons have been developed from 95 Express:

PLANNING FOR OPERATIONS

- **Use Video to Assist Enforcement**: In situations with narrow lane configuration and lack of enforcement space such as on the 95 Express Lanes, video enforcement can ensure that toll violations are enforced.
- **Use Variable Tolls to Maintain Speeds**: Variable tolls increase when congestion is high in the express lanes and have been successfully used to assist in maintaining speeds above 45 mph 90% of the time in the 95 Express lanes.
- **Use a Variety of Congestion Management Techniques**: Ramp metering was implemented along with express lanes to help reduce overall congestion. This technique reduces bottlenecking caused by vehicles entering the highway, and thus makes it easier for people to move across lanes to get to express lane entry and exit points.

TRAFFIC INCIDENT MANAGEMENT

- **Improved Traffic Incident Management is Necessary**: Because of the reduced right of way on the 95 Express lanes, 95 Express was identified as a “High Risk – High Probability” facility by FHWA. Therefore, it was necessary to improve Traffic Incident Management strategies, including the development of an incident management plan and coordination and education among emergency responders. Additionally, special considerations had to be made, including the closure of 95 Express in the event that a lane is partially or fully blocked.
- **Educate Incident Management Team Members**: By providing education and workshops to traffic incident management team members on quick clearance policies it is possible to have organized, structured, and expedient incident response and clearance.

MAINTENANCE

- **Build and Maintain Relationships Between Emergency Response Partners**: It is important to build strong relationships with and between emergency response partners and to create multi-agency protocols in order to facilitate communication and coordination between partners and therefore avoid miscommunication and duplication of efforts.

PERFORMANCE MONITORING

- **Use Performance Monitoring to Identify Deficiencies:** By constantly monitoring traffic and speeds within the express lanes, it is possible to understand where and when level of service begins to deteriorate and changes to the system and pricing structure can be made based on that information.
- **Monitor Performance Changes in General Purpose Lanes**: The average peak hour speeds in the general purpose lanes increased by as much as 40% after the implementation of express lanes.

MULTIMODAL CONSIDERATIONS

- **Consider Transit**: By allowing transit to travel in the express lanes, transit can be made more desirable and ridership may increase due to fewer delays and faster service. For example, average weekday ridership on the 95 Express Bus Route increased by 57% between 2008 and 2010, largely due to the implementation of such changes.

PHYSICAL FEATURES

Interstate 95 is the most highly traveled corridor in South Florida, and it is constrained from further geometrical expansion due to the fact that Miami is highly built out, thus creating a lack of additional right-of-way that would be required for roadway expansion. Because of this, it was important to put into action a congestion management solution that could be implemented within the existing structure. For this project, the existing HOV lane in each direction was converted into two express lanes by borrowing width from the inside shoulder and reducing some local lanes to 11 feet in width. This resulted in a roadway cross section consisting of four general purpose lanes, a one foot buffer, and two express lanes in each direction. Flexible plastic pylons were used as buffers between the general purpose lanes and the express lanes. The following lessons have been derived from the 95 Express experience.

STANDARDS

- **Consider Design Early**: Design exceptions are very likely in an express lane project being built on an existing roadway. Therefore, it is important to involve design professionals early in the process to ensure that those exceptions are thoughtfully considered and do not hold up the process in the future.
- **Adapt to Changes in Standards**: FHAW initially recommended that the pylons separating the express lanes from the general purpose lanes be spaced 20 feet apart and be white in color. It was discovered that vehicles would weave between the pylons at this spacing, so the standard was changed to 10 foot spacing and orange in color to provide less room for weaving and allow them to be more visible..

DESIGN

- **Adapt to Considerations for Design Exceptions**: Because travel lanes and the existing HOV lane buffer were reduced in width, design exceptions were necessary. Those design exceptions meant that the construction of enforcement areas was not feasible due to an average shoulder width of 7’11.” Law enforcement and first responders have requested a minimum of 12’ to 14’ in width, with chances for potential injuries decreasing as shoulder widths increase. The narrow inside shoulder width caused 95 Express to be labeled a “High Risk – High Probability” facility as determined by FHWA and FDOT. This designation required the consideration and implementation of additional traffic incident management procedures.

- **Facilitate Incident Management through Design**: Because of the lack of extra right of way, plastic pylons were used to separate the express lanes from the general purpose lanes. These pylons can be over taken in the event of an incident and emergency vehicles can have easy access to the express lanes.

SIGNING AND STRIPING

- **Use Consistent Signing**: The price that users pay is determined based on the entry point display, and users must be able to understand what the pricing is. Additionally, signing labels entry and exit points as well as any other information that road users may require. Therefore, signing should be consistent in order to minimize confusion and maximize safety.

ITS AND SAFETY FEATURES

Ramp Metering Assists in Congestion Management: Ramp metering has helped manage congestion in the general purpose lanes by regulating throughput and minimizing weaving. Speeds were improved by 15% in the ramp metering areas and queues were reduced after ramp metering was implemented.

Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

NATIONAL SCAN

Evaluation and Assessment of Other Regional/Corridor Express Lanes Studies

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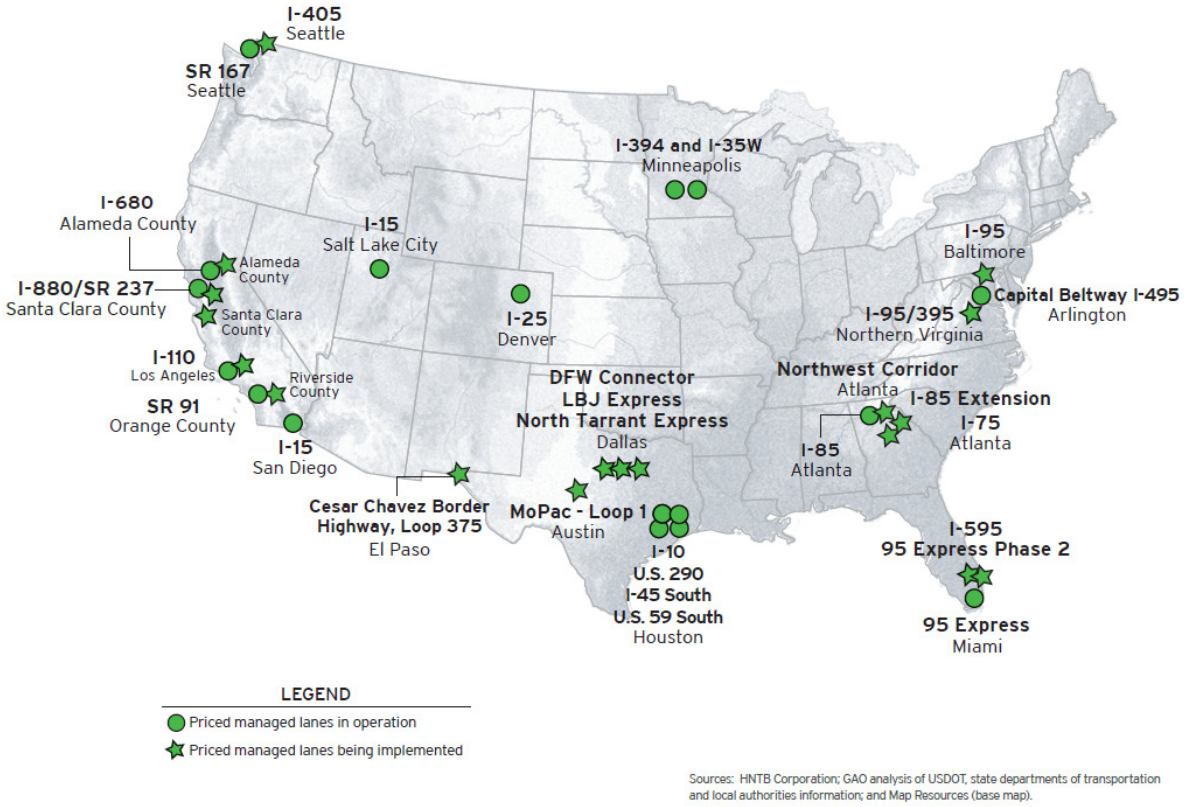
INTRODUCTION

PROJECT DESCRIPTION

Express Lanes are a recent form of congestion management that was first implemented in California on State Road 91 in 1995. Express Lanes are lanes that incorporate three strategies to reduce congestion on roadways: pricing, eligibility requirements, and limited access. Pricing strategies include peak hour pricing (pricing that changes based on the time of day) and congestion pricing (pricing that varies depending on the level of congestion). Eligibility requirements refer to restrictions placed on which types of vehicles can use the lanes and whether they have to pay for access. Access requirements infer that there are a limited number of ingress and egress points to the facility. Figure 1 shows the status of both the operational Express Lanes projects in the United States as well as those that are being implemented at the time of this printing.

Figure 1: National Express Lanes Projects



One place that Express Lanes have been implemented is on I-95 in Miami-Dade County. As a continuing part of the congestion management process, the Florida Department of Transportation (FDOT) is in the process of not only extending the 95 Express Lanes into Broward County but also building new Express Lanes on several individual roadway corridors in Southeast Florida with the ultimate goal of creating an interconnected, seamless regional express lane network within Broward, Miami-Dade, and Palm Beach Counties. To be effective, the creation of this cross-jurisdictional network will inherently require coordination between local, state, and federal governmental agencies.

In order to facilitate the coordination and communication between all involved agencies, FDOT is funding the creation of a multi-agency Regional Concept of Transportation Operations (RCTO). The RCTO will include the policies, business rules, and goals for how the network will operate regionally and how to achieve those goals. To do this, the RCTO will determine the roles and responsibilities of each agency and how the regional system will operate.

To assist in the determination of the goals and policies to be included in the RCTO, this white paper was developed to assess Express Lane projects from across the country and to present the lessons learned. The following document summarizes the methodology used to assemble the lessons learned and then discusses those lessons learned with regard to the implementation of Express Lanes projects nation-wide in the following six categories:

- Communications
- Planning/Policy
- Financial
- Legal
- Operations
- Physical Features

It is important to note that a second document has been created regarding lessons learned from the 95 Express Lanes project. That document should be considered in combination with this document when determining the overall lessons learned for inclusion in the RCTO for Southeast Florida.

APPROACH

In order to determine lessons learned, a set of questions was developed through a collaborative process to assess each of the six aforementioned categories. After the development of the questions, a detailed literature review targeted at answering the previously developed questions was undertaken. A total of 62 relevant sources were identified by the project team. The 62 sources, found in Appendix 1,

include documents, websites, white papers, guidebooks, manuals, and general research from throughout the nation. A matrix, found in Appendix 2, cites the 62 sources and notes which of the six categories the document contains information on. The sources were also categorized by high, medium, or low importance with high being most relevant to our mission, medium being relevant, and low being least relevant. Of the 62 sources, 34 were found to fall under the high and medium categories and were therefore focused on for obtaining the answers to the lessons learned series of questions. Upon completion of the literature review, the project team was consulted to determine other lessons learned that were not apparent from the literature review. Based on that assessment, a set of interviews were undertaken with Express Lanes experts across the country to gain a greater understanding of unwritten issues faced in the development of Express Lanes systems. The interviews can be found in Appendix 3.

COMMUNICATIONS

Communications is a key aspect in both the construction and implementation of Express lane projects. It determines how the public views Express Lanes and ensures that users understand how Express Lanes operate. That level of communication facilitates coordination among all agencies. Additionally, communication provides an opportunity for outreach to the general public to ensure that they are informed of not only any changes that may occur but also of the purpose and value of the project in general. Different public outreach and communications strategies have been attempted throughout the United States and the following lessons have been learned:

PROJECT BRANDING

- **Include a Variety of Stakeholders**: It is important to ensure that all views are represented from the beginning of the project in order to ensure that these views have been considered. Based on this information, a common vision should be developed. This shared vision is essential in gaining the support of both potential users and influential officials. This outreach should continue before, during, and after implementation.

OVERALL MESSAGING

- **Continuously Educate the Public**: The general public and media are often unfamiliar with Express Lanes projects. Because of this, it is important to educate them in order to ensure that the public and media understand the purpose and benefits of the overall project and to avoid miscommunications and misunderstandings. This ongoing education has been prevalent in Florida, Georgia, Texas, and Minnesota, among other states.
- **Use Marketing and Education to Sell the Product:** Marketing efforts can address how and why users should pay for and use Express Lanes, as well as educate them as to how and when they should use Express Lanes. It can be used to gain public buy-in, which is essential to the success of Express Lanes. Additionally, marketing can be used to increase the number of users, address customer satisfaction issues, and keep drivers informed of changes.

OPERATIONAL COMMUNICATION

- **Coordinate Between Team Members**: Communication between the contractor and the public outreach team is an important aspect of ensuring that the public is informed of changes and milestones in the project in order to minimize driver confusion and safety concerns.

- **Build and Maintain Relationships between Partners**: It is important to build strong relationships with and between partners and to create multi-agency protocols in order to facilitate communication and coordination between partners, and this helps to avoid miscommunication and duplication of efforts. Additionally, roles should be clearly defined in these agreements, and they should detail performance measures that are consistently measured and that agencies are held accountable for.

PLANNING/POLICY

The planning and policy aspects of a Express Lanes project include consensus building, partner agreements, development of a long-term vision, implementation, environmental considerations, revenue generation, and enforcement. Consensus building and partner agreements ensure that the project actually moves past the initial stages and that partner agencies understand their individual roles. Planning for implementation and a long term vision help define future goals and facilitate the implementation of the project in a way that works to achieve those goals. It is important to ensure that NEPA policies are properly considered since roadway construction has the potential to disturb natural habitats. Policies regarding revenue generation and enforcement are essential to ensure proper functioning of the system. The following national lessons have been learned regarding these topics.

CONSENSUS BUILDING

- **Identify a Project Champion**: Because of the sensitive nature of Express Lanes, it is important to have a project champion who will stand behind the message as well as coordinate and act as a leader for the team even in turbulent times. The champion should have a firm understanding of the project and be willing and able to devote a significant amount of time to its support. The importance of a project champion has been documented in states such as Florida and Texas.
- **Start Public Outreach Early**: The public must understand the benefits of Express Lanes early or there is the potential that misconceptions will be perpetuated that can derail the project later. For example, the public tends to hold the belief that Express Lanes are socially inequitable and that roads should be a “free” service paid for by taxes. While these conceptions tend to change over time, addressing them early can save trouble in the future. This strategy has been successfully used in states such as Texas, Florida, California, and Minnesota.
- **Coordinate Across Agencies**: Many different agencies must work together to make an Express Lanes project work. Direct communication and scheduled meetings ensure that the project team is up to date on progress and that accountability is upheld. Additionally, face to face meetings between agencies are critical to reach consensus. Members should include federal, state, and local transportation, enforcement, management, and other concerned agencies. Cross-agency coordination has proven effective in states such as Florida, Texas, Georgia, and California.
- **Include All Staff Levels**: While it is important to keep elected officials informed, staff at all levels should be informed of the decision making process. When an Express Lanes project is implemented on an existing roadway, design, operations, and communications professionals should be included early in the process to help identify fatal flaws and feasible alternatives.

PARTNER AGREEMENTS

- **Develop Agreements Between Partners**: Because many agencies can be involved in an Express Lanes project, it is important to develop formal, written agreements to ensure that each agency understands what its role is and what criteria it will be evaluated on. Memoranda of Understanding are a common way to approach these agreements, and have been used in Texas and Minnesota, among other states.
- **Adjust Agreements Over Time**: As additional agencies are introduced or situations change, it is important to adjust agreements to provide the most up to date and accurate information as possible so that agency roles and responsibilities do not get confused.

LONG TERM/FUTURE PLANS

- **Think Long Term**: Express Lanes projects should be approached with the long term result in mind. In general, long term congestion management has been the impetus behind the implementation of Express Lanes. Therefore, efforts should be made to include them in local and regional plans such as Long Range Transportation Plans (LRTPs) to ensure that they are considered for funding and implementation.

IMPLEMENTATION

- **Involve Agencies Early**: Because many agencies should work together to ensure the success of an Express Lanes project, it is important to contact each one early. This can be crucial in ensuring that design issues are resolved before construction begins.

ENVIRONMENTAL/NEPA CONSIDERATIONS

- **Evaluate All Alternatives**: Many Express Lanes projects are built within existing right-of-way and, therefore, NEPA considerations are minimal. However, there are other ways to evaluate alternatives. For example, a tiered Environmental Impact Statement approach was used in Atlanta and on I-75 in Florida. This process evaluates alternatives by their attractiveness in reverse and discards them as they are deemed less valuable. Therefore, the process allows for a wider range of alternatives to be evaluated and big pictures issues to be resolved early.

REVENUE GENERATION

- **Clearly Establish Rules and Policies for Toll Revenues:** There are many different ways of dealing with revenues and revenue collection across the country. It is important to determine who will collect the revenues and what those revenues will be used for in order to avoid confusion and other potential issues in the future.
- **Use Revenues to Enhance Other Modes of Travel:** Some portion of revenues could be used to enhance other modes of travel (i.e., transit). This has proven to help gain support for Express Lanes and also perpetuate the goal of congestion management by encouraging people to travel via modes other than single occupant vehicles.

ENFORCEMENT

- **Consider Enforcement Early:** Due to limited ingress and egress points that are inherent in Express Lanes, it is important to establish rules and policies that delineate which agencies are responsible for enforcement. This is especially true in those systems that traverse several enforcement jurisdictions. Additionally, early involvement of enforcement agencies can help to ensure that related design issues are considered, such as enforcement areas.

FINANCIAL

Express Lanes produce revenues. Therefore it is important to understand the revenue flow to ensure that revenues are properly distributed and that changes in revenue flows are tracked. There are several important financial aspects that are necessary to consider. These include determining the focus of the project, which can be revenue or throughput maximization or a combination of the two; how to finance the project, which can be done publicly, privately, or through a combination of the two; management of funds; and reporting of revenues. The following lessons have been learned from the Express Lanes projects from across the United States.

REVENUE

- **Understand the Focus of the Project**: Express Lanes can be used to maximize throughput, generate revenue or some hybrid of the two. It is important to understand what the underlying goal of the project is in order to make proper decisions regarding pricing and evaluation. Most existing projects focus on the maximization of throughput, with the exception of State Road 91 in California which focuses on both throughput and revenue due to its operator agreement. It has been shown that both techniques have a similar effect on traffic during peak hours (due to general purpose lane congestion levels); however, the impacts during off-peak conditions are different.

PROJECT COSTS

- **Determine Cost Responsibilities**: Express lane construction and maintenance can be funded in a variety of ways, including by federal and state funds as well as public-private partnerships. It is important to determine who will be paying for construction and maintenance and where that money will come from. Public-private partnerships can minimize risk because they can place the financial responsibility on the private partner.

REVENUES AND REVENUE REPORTING

- **Track Revenue Collection**: Studies in Virginia, Texas, and Georgia suggest that recent projects that have involved adding new Express Lanes to congested urban expressways have resulted in revenues of about 80% of cost of capital. However, it is important to track this because some links will provide more revenues than others. Additionally, revenue forecasts are, in many cases, overestimated. This was the case on I-394 in Minnesota, for example. Therefore, it is important to track revenues for budgeting and informational purposes.

LEGAL

The legal aspects of Express Lanes can be divided into two categories: authority and limitations. Authority must be determined in order to ensure that control of the lanes is vested in the agency that is best equipped to maintain the Express Lanes in terms of toll operations, enforcement, incident management, and other aspects. This authority can be vested in one agency or in several. Limitations are important to consider because they determine things such as who can use the lanes, at what price, and what vehicle restrictions will be implemented. The following lessons have been learned from the national scan.

AUTHORITY

- **Establish Tolling Authority and Rates:** It is convenient to give this control to an agency that already operates tolls, because they are already vested with the legal authority to operate tolled highway facilities and they have the infrastructure in place to operate tolls and conduct back room operations. Additionally, toll policies should be set early to determine project specific toll minimums and caps.

LIMITATIONS

- **Consider Planning Vehicle Restrictions based on Traffic Demand and Revenue Forecasts:** There are many different regulations regarding vehicle restrictions on Express Lanes across the country regarding HOV levels, motorcycles, hybrid vehicles, transit vehicles, and others. It is important to consider how allowing a vehicle category to travel in the Express Lanes free of charge will affect congestion levels and revenues and plan restrictions based on that. These vehicle restrictions should be evaluated over time and adjusted as necessary.
- **Determine Registration Policies:** All Express lanes require SOV users to be registered with a transponder, and some ask HOV vehicles to register as well while others allow HOVs access on a type of honor system. It is important to determine how registration will be implemented and enforced so that it can be communicated to the public and officials to avoid misunderstandings and complications.

OPERATIONS

The operations aspect of Express Lanes considers all of the aspects that will enable the Express Lanes to operate on a day-to-day basis. The categories considered include planning, traffic incident management, maintenance, performance monitoring, and multimodal operations. It is important to plan for the implementation of the lanes in advance, since partner relationships and tolling can determine how well the lanes operate. Traffic incident management and enforcement teams help to alleviate incidents that may arise during daily operations. Maintenance teams do the same on a long-term basis. Performance monitoring of Express Lanes is necessary because it identifies issues and indicates when changes are necessary. Finally, multimodal operations on Express Lanes are important to consider because they can help further the goal of congestion management if properly planned.

PLANNING FOR OPERATIONS

- **Determine Tolling Strategy**: There are many tolling strategies used across the country, including flat rate tolling, table pricing and congestion pricing. Congestion pricing changes dynamically to adjust to levels of congestion in the Express Lanes and can help the lanes maintain a specific level of service or speed. Table pricing is a set static price that increases during peak hours but cannot dynamically react to congestion levels in the Express lanes.

ENFORCEMENT

- **Consider Enforcement Issues**: There are different factors impacting and ways to enforce Express Lanes, such as type of lane separation, video enforcement and police staging in designated enforcement areas for manual enforcement. In areas that rely on visual identification as opposed to electronic toll collection, or those that do not have designated enforcement areas, violation rates are typically higher.

MAINTENANCE

- **Involve Maintenance Staff Early**: Maintenance staff will operate the facility on a day-to-day basis. Therefore, they can provide practical input early in the process that can ensure that the system is successful in the long run.

PERFORMANCE MONITORING

- **Set Data Collection Standards:** Data collection is a key aspect of monitoring performance. It is important to create policies to ensure uniformity of data collection in terms of actual data collected as well as the procedures used to collect it. Otherwise, data cannot be interpreted on a larger scale and may not be reliable.
- **Set Performance Monitoring Standards:** By constantly monitoring traffic and speeds within the Express Lanes, it is possible to understand where and when level of service begins to deteriorate, and changes to the system and pricing structure can be made based on that information. Performance measures should be evaluated against corridor-wide operations based on clear, discrete performance measures.
- **Monitor Performance Changes in General Purpose Lanes**: The average peak hour speeds in the general purpose lanes increased by at least 5% in Minnesota and as much as 40% in Miami after the implementation of Express Lanes. This information is important to collect to continuously educate the public about the benefits of Express Lanes.

MULTIMODAL CONSIDERATIONS

- **Include Transit**: The inclusion of transit can help to garner support for an Express Lanes project because it gives people the feeling that there is benefit for everyone. Additionally, by incorporating transit into the project design, passengers benefit directly. For example, the lack of congestion on the Express Lanes can help increase transit service speeds and make transit a more viable option for many people.

PHYSICAL FEATURES

Express Lanes are typically built on highly congested freeways in urban areas as part of a congestion management strategy. Because of this, there is often little room for expansion. Therefore, physical features must be carefully planned for in order to avoid issues that may arise due to those constraints. There are standards that should be considered, and design exceptions may be necessary. Additionally, it is important to consider signing and safety features to ensure proper operation of the Express Lanes. The following lessons have been learned from the national scan.

STANDARDS

- **Use Enforcement Areas if Possible**: Enforcement areas before and/or after tolling locations can be useful to enforce toll violations on Express Lanes because they provide enforcement officials with a designated place to monitor violations.

DESIGN

- **Expect Design Exceptions**: Because many Express Lanes projects are built within existing roadways, design exceptions are commonly necessary. It is important to expect that these exceptions will occur and to adapt to them as they occur. These exceptions, in many cases, include inside shoulder widths. This was the case in both Florida and Texas. It can be cause for further considerations for enforcement activities and incident management, and care must be taken to address those issues.
- **Consider Maintenance Costs in Design**: The consideration of maintenance costs in the design phase allows for a more accurate prediction of the budget and a better understanding of the total cost of every option. For example, there are several ways to separate Express Lanes from general purpose lanes. These include concrete barriers and tubular plastic pylons. The concrete barriers are the most costly in terms of initial capital but maintenance costs are low. Pylons, on the other hand, are much less expensive initially but have to be replaced yearly on average, and therefore, become much more expensive due to maintenance.

Appendix 1 Resources

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Appendix 2 Resource Matrix

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[AVAILABLE UPON REQUEST]

Appendix 3 Interviews

TECHNICAL MEMORANDUM

Managed Lanes Regional Concept for Transportation Operations (RCTO)

Task 2.6 - National Scan / FM No: 41545613290

Topic: Interview Summary

Date: November 29, 2012

INTERVIEW PURPOSE

As a part of the Southeast Florida RCTO national scan activity interviews are being conducted with agencies throughout the country that have implemented managed lanes. The purpose of these interviews is to obtain information that may be of value and benefit (particularly lessons learned) to southeast Florida as they look forward with planning for a network of managed lanes throughout the region. Ideally, through these interviews, the consultant team will be able to identify the "How's" and the "Why's" of managed lanes systems from other regions of the country. These insights will then help guide the RCTO guidance ultimately developed for southeast Florida. The crafting of the interview questions was developed through our team's collective knowledge with Regional Concepts of Operations (RCTO) and Managed Lanes systems.

INTERVIEWS CONDUCTED

The following interviews were conducted:

Agency	Agency Contact/ Interviewee	Interviewer	Date of Interview
MnDOT	Nick Thompson	Matthew Click	9/6/2012
SRTA	Patrick Vu and Chris Tomlinson	Matthew Click	9/26/2012
Houston METRO	Nader Mirjamali	Matthew Click	10/18/2012
WashDOT	Patty Rubstello	Matthew Click	10/24/2012
VDOT	Nick Antonucci	Matthew Click	11/14/2012

INTERVIEW THEMES

For organizational and consistency purposes, six categories of interview questions were established with the consultant team's buy in. The six categories are:

Communications
Planning/Policy

Financial
Legal
Operations
Physical Features

From these six categories, the following themes emerged from the interviews conducted across the country.

COMMUNICATIONS

MARKETING AND MESSAGING

- **Use Communications to Deliver the Message:** The public needs to understand why the Managed Lanes are being implemented in order to understand what the vision of the project is and benefits are to the public. Managed Lanes have been presented as easy to use facilitators of consumer choice.
- **Continuously Educate the Public:** A public education campaign ensures that the public understands what Managed Lanes are, what they bring to the table, and how to use them. It can also be used to address the risks and myths of Managed Lanes in order to dispel any negative attention that the project may be receiving.
- **Change Strategies Based on Media and Public Reaction:** If the media or the public reacts negatively to any aspect of the Managed Lanes project, changes to the education and marketing strategies to address those issues and garner public support may be necessary.
- **Use Marketing and Education to Sell the Product:** Education alone will not sell the product. A marketing campaign should be run in conjunction with an education campaign expressing why users should pay for and use Managed Lanes and the benefits of those lanes.
- **Coordinate with the Media:** The media can present the Managed Lanes in any way that they see them. Therefore, it is important to work closely with the media so that they understand exactly how the lanes will work and why they are needed. In Washington, for example, workshops were held to get everyone on the same page.
- **Coordinate with Local Officials:** Local officials represent the voice of the community and can therefore help gain support in the initial phases of the project and quell any potential public backlash later on. They should be brought in early because it will be very hard to gain support once any backlash does occur.
- **Keep the Community Involved:** Community support is necessary in gaining the support of officials. Additionally, by holding workshops for community members, it is possible to create a project that reflects the desires of all stakeholders involved.

COMMUNICATIONS STAFFING

- **Document Public Outreach Meetings:** It is important to document all meetings in order to ensure that work is being done properly. Additionally, documenting meetings creates a paper trail that is necessary in proving community involvement.
- **Staff Based on the Communication Needs of the Project:** Each project has been staffed differently regarding marketing and communication. Public Information Officers can be used if available, but in cases where opposition exists and more intense marketing is needed, a private consultant may be hired.

PLANNING/POLICY

IMPLEMENTATION STEPS

- **Understand and Prepare for Political Processes:** Each Managed Lanes project must proceed through different political and legal processes in order to advance to the implementation stage. It is important to know what the large issues are and address them in the proper manner to avoid backlash.
- **Work Closely with Decision Makers:** It is important to ensure that decision makers understand the concept of Managed Lanes and all of the aspects of their operation in order to make informed decisions. Their opinions will, in many cases, determine which features are implemented and which are not.
- **Research all Options:** Managed Lanes can be implemented in single corridors or as systems. They can have dynamic or static tolling. They can have physical barriers separating them from general purpose lanes or simple striping. All of these issues should be researched to determine what is feasible in order to gain support for the project.

LONG TERM/FUTURE PLANS

- **Prioritize Decision Making Based on Understanding of Needs:** When determining which lanes should be converted into Managed Lanes, decisions should be determined based on needs. A system may not be necessary if only one roadway has congestion. Additionally, the cost and feasibility of connecting two corridors of Managed Lanes should be weighed against the actual needs for that connection.
- **Consider Interstate Connections:** In some cases, interstate connection opportunities will present themselves. It is important to understand and consider how that will affect a project and to make a decision based on that knowledge. Regarding segment prioritization, it may make sense to consider interstate as well as local priorities.

FINANCIAL & LEGAL

Financial and legal strategies/approaches were prepared and implemented on a case-by-case basis; no apparent themes were identified through this interview process.

OPERATIONS

IMPLEMENTATION

- **Price Lanes Based on Congestion Patterns:** Managed Lanes can be priced in several different ways, including a single price for the entire corridor or prices that change based on segment. In some cases, one corridor will have different peaking characteristics, with certain sections experiencing congestion at different times than others. In those cases, it may be necessary to have different pricing for each segment, and that should be communicated clearly to the public.
- **Make the Tolling Concept Simple to Understand:** The general public needs accurate and informative signing in order to properly use and understand the tolling concept. It should be easy to understand in order to avoid misuse and confusion.
- **Use Signing to Increase User Knowledge:** Dynamic signing can help to communicate messages to users such as how to access the lanes, how much they will cost, and what is going on in the lanes. In situations where dynamic pricing occurs, signage may be the only way to communicate the price to users, and therefore must be clear, visible, and prevalent.

ENFORCEMENT

- **Coordinate All Agencies on Incident Management**: One incident can affect the tolling agency, law enforcement agencies, incident management teams, and others. Therefore it is important to ensure that all agencies are coordinated to ensure efficient operations and avoid duplication of efforts.

PHYSICAL FEATURES

DESIGN

- **Expect Design Exceptions**: Because many Managed Lanes projects are built within existing roadways, design exceptions are commonly necessary. It is important to expect that these exceptions will occur and to adapt to them as they occur. These exceptions, in many cases, include inside shoulder widths. This can be cause for further considerations for enforcement activities and incident management, and care must be taken to address those issues.
- **Be Open to Making Changes After Implementation**: The needs of the users may change after implementation, or the initial design may not accurately fulfill those needs. Therefore, the Managed Lanes should be constantly assessed and evaluated for necessary changes after implementation.

ACCESS

- **Consider Issues Regarding Barriers:** Managed Lanes can be separated from general purpose lanes in a variety of ways, including physical barriers and simple striping. When determining which type to use, things to be considered include maintenance costs, incident management, access, and roadway cleanup from incidents and severe weather.
- **Determine Access Points Based on Traffic Patterns:** It is important to place access and egress points where they are needed, which may require changes after implementation. Additionally, directed access should be considered along with open access. In areas where directed access is necessary but congestion is high, wider access points may be warranted.

SAFETY

- **Consider Enforcement and Incident Management in Design:** If the Managed Lanes are separated from the general purpose lanes by a physical barrier, safety may be high and incident response may be better or faster. However, enforcement can be a challenge in such situations because of narrow shoulders.

INTERVIEW QUESTIONS AND RESPONSES

The following section contains the specific questions and responses per category that the interviewer used as their guide in the interview.

COMMUNICATIONS

1. What milestone steps **did/will** you take to develop a **communications strategy** for your **ML corridor (s)/network**?

MnDOT	• Different strategies around each opening day – 4 different ones • Major education campaign basics on tolling & HOT lanes • 3 month campaign for folks to sign up to get transponders • Messages: consumer choice & ease of system. • Direct marketing and earned media around getting folks to be equipped with transponder. This included field rep at events (community events), major businesses (employees) lunch hour events. Downtown mobile transponder sign up. • Good outreach strategy. Did polling from evaluation standpoint. • Focus groups – message testing for marketing campaign
SRTA/GDOT	• Began with coordinated effort of partner agencies • Then, through environmental process, communications shifted to be under GDOT

	control
	• Once environmental process was complete, the outreach portion of the communications was undertaken by SRTA
	• There was a layer on top of the project communications with the MLSP outreach
	• Three categories of communications
	  • What is the long term strategy/message
	  • Communications to drive adoption of customer accounts
	  • Explanation of how it works
	
	How did the media, the public and other involved stakeholders react?
	
	  • Great opposition to the project
	  ○ Lexus Lanes
	  ○ Double taxation
	
	Based on media involvement and public interaction, did your strategy change? How?
	
	  • Our strategy changed based on where we were in the project

Houston METRO	• Started gaging industry interest and asking questions about the program in 2005 and has continued until now.
	• METRO solely promoted the corridors to the public. TDOT was involved.
	• METRO's position has always been not about the money but about just trying to maximize use of the lanes.
	
	How did the media, the public and other involved stakeholders react?
	
	  • Not a lot of opposition from press. A couple articles were printed in the Houston paper.
	  • As far as the occupancy requirements, they weren't changing them; it was what the public was already used to. Public was happy that HCTRA freeway was no longer going to be 3 plus.
	
	Based on media involvement and public interaction, did your strategy change? How?
	
	  • A little confusion at first for toll costumers about what lane they should be in. They had a sign over each lane. And, initially it was one sign that said "HOV lane" and another that said "All Others". Changed to read "HOV only" and "toll only".

WashDOT	• The keys to our communications were a combination of a lot of media handholding, public driver outreach – including a very strong campaign with an emphasis on graphics and kind of showing and telling. We had very strong partner coordination with folks like the state patrol and others. I think all of those things combined, especially addressing all the risks and all the myths of HOT lanes, and focusing hard on the media with these issues made it very successful. *How did the media, the public and other involved stakeholders react?* • I think because this was very new in our state, and all we had to go on was a few other states that either tried or were in the process of doing this, we kind of went with what WashDOT does best, which is our partner coordination and our really strong ties with media. We met with the media often; we held workshops with the media and met with them to answer all of their questions. *Based on media involvement and public interaction, did your strategy change? How?* • I think one of the things that we did was we really kind of undersold the HOT lanes to begin with. We didn't want to have a situation where we launched the HOT lanes and they were kind of overwhelmed due to what we had been talking about to the media. So about a year-and-a-half later, we started another push near the 167th corridor with some marketing and outreach to people that live and work near that corridor to pump up interest in the HOT lanes. *What do you mean by Undersold?* • We focused 100 percent of our time on educating people on how HOT lanes worked, and we didn't really market to them. Part of that was that we didn't want day one for the system to turn HOV-only. Because we do have a cap on what the toll rates can be. We had just come off our Tacoma Narrows Bridge project, and we had been giving out free transponders, and that became a huge political issue because of the cost structure with their back office vendor, and so it was kind of like, oh, we don't want to get caught up in that again – concerns with marketing when you don't need to do so much marketing. I think that was a real lesson learned: I think with HOT lanes, marketing is really critical. Not only in the start-up phase, but in an ongoing effort because your users are continuing to change. You really do need to market it so people understand how they can take part in it. • We really played up the safety aspect. How to drive these HOT lanes, and how if you're not driving them, what can you expect other drivers to do. We also stressed the fact that this is a pilot project, and that this was new for

	Washington, and it was innovative, and we're trying this out. We were concerned that they might become overwhelmed in the first couple of weeks.
VDOT	• Focused on selling the lanes as an asset • Perception changed naturally over time

2. What challenges did you have during the PD&E and/or pre-implementation phase, during the ramp up period, and post-implementation phase?

MnDOT	• Each corridor you have to start over don't assume they know & have ridden. (Comment idea riders vs non riders) • Equity issue more with politicians than with community, transit benefit, choice message/benefits –resonated most. Lessons learned - max price $8.00 too much focused on that. Don't talk so much about max price. • Developed a central point of contact in order to shrink the number of people that were messaging • Recruiting customers was a major priority; communications job was taken away from project engineer.
SRTA/GDOT	• Communicating project benefit and how the project operates during ramp up period
Houston METRO	• During planning process METRO had several public meetings. HCTRA and TDOT also had public meetings on the I-10 corridor they were developing. • Ramp up period is the first few months of implementation • Signing changed as mentioned above.
WashDOT	• Ramp up period is the first few months of implementation • I think what we wanted to dispel during pre-implementation some of the objections or myths about HOT lanes that come about. So we wanted to focus on that hard, especially the equity question that comes up, or the "I'm-getting-taxed-twice" question. We came up with a whole list of objections and myths, and things we knew people were going to complain about or the media was going to hit us on. As a team, we worked on those potential issues for months in advance of implementation. We looked for our benefits as well so we could focus on the positive. Nobody had objections. We'd hear some issues brought up once in a while in an e-mail chain or a blog, but we were very upfront and honest about those things. We had to back up those objections, so we had information and examples that we could provide in

	response. I think that is something we did spend a lot of time on, but our project was better for it. So when our project launched, we were able to focus on the project itself and not political backlash. • I would just mention that we started looking at 167th as a HOT lane back in 2003. Of course, we didn't implement it until 2008. A lot of that time was spent dealing with our legislature to educate them on what HOT lanes were and why it would be good to invest in them. So bringing them on was definitely critical, and I think they've been – overall – pretty supportive of them since. • It was also about getting support from the local elected officials too – getting community support – so that legislators weren't just hearing from WashDOT that this was an awesome idea – that there are people who live in their community and other elected leaders who think this is something at least worth looking at. • We were really proactive with the media. When those questions came up later, they were already educated about them, so that really helped us a lot by communicating the message to the public. • We did a lot of handholding with the media – not just sending out a press release. We'd call specific reporters, brought them in and showed them specific things on the HOT lanes. It was a lot of strange technical information. So we'd bring them into our Traffic Management Center and show them, "Here is what we are looking at." We brought the media in there so they can explain it to the drivers and community what's going on. • From a funding standpoint, it would've been better to have more funding at that pre-implementation stage. We didn't have quite the resources to do as much as we wanted to. • This biggest thing we dealt with during the ramp-up was working the pricing algorithm and reinforcing education on how the system works. *Was there a steady message post-implementation?* Each year we do an evaluation on the HOT lanes, and then we do a media release with our annual report. There hasn't been an ongoing marketing effort. One of the big challenges from a communications perspective is the fact that your market is constantly changing. HOT lanes require a little more education. There are a lot of questions. It's always going to be a challenge for us.
VDOT	• None Noted

3. How did you **staff** your **communications function** (specifically thinking about system level communication)

MnDOT	• PM served as lead in communications efforts for each project • Did not have to grow number of communications staff • Typically we have Engineer and PI staff doing outreach. On these, we did not use the engineer
SRTA/GDOT	• SRTA paid a media relations consultant • Patrick Vu was SRTA's technical communications support • GDOT had their own staffing plan which included technical staff from various groups. There was no dedicated PI support • Who would take the lead depended on what was being communicated *What would you do different today?* ○ Documented all public outreach meetings, including those not in the initial plan, as many opportunities for outreach just popped up. This helped in the end to deter any comments that they did not do their part in reaching out to the community. ○ Get in front of legislators from the beginning in order to focus on the positive aspects of the project. If you wait until there is backlash from the public, it will be more difficult to obtain their support. ○ SRTA has made the raw data available to the public almost on a daily basis. This has allowed the data to "speak for itself" and has boded well for their efforts to provide transparency in the process. It also helps keep from being inundated with requests from media, as it is all readily available online. ○ One thing that could have been done better in Atlanta was to better communicate the need for the managed lanes system to the public
Houston METRO	• They are primarily using tags distributed by HCTRA because they have over 2 million tags in Houston area. They worked with HCTRA to use same business rules so there was not confusion to customers since they are using their tags. *Did you have one office that dealt with the Marketing, communications, customer service? Or were these done depending on jurisdictions?* • No each agency handled their own communications.
WashDOT	• We definitely had a large communications staff. And that was not just our team; we used folks from within the entire region. We were pretty much prepared for everything. I think we went through the worst scenarios that could happen, even if an earthquake takes down all the HOT lane signage or something like that. We wanted

	to make sure we were prepared for everything. So we had a communications task force, but not just communications, we had operations staff and people from other departments that participated. We had a lot of communications plans and operations plans and outreach plans that we created in advance. We relied on our staff pretty heavily. We had a handful of communicators just dedicated to that, but also we relied on our WashDOT staff and our state patrol staff as well. *Did you have one office that dealt with the marketing, communications, customer service? Or were these done depending on jurisdictions?* • We didn't hire consultants to help us with the communications efforts. It was all done internally – partnering with state patrol. They were very good about being a part of our message and going out with the media and supporting the project. • The video that's on YouTube was done internally as well. *What would you do different today?* • The marketing. We're planning now for 405 to have a very intense marketing effort. We still struggle with how we do ongoing education. • Seeing the risks and some of these operational things that might be going wrong or different than you wanted to – and pushing our team to say, "We need a better solution for this now." Sometimes we know there's a solution out there. It just takes someone to say, "Let's push a little harder."

VDOT	• Owner side:
	  ○ Led by Communications Director of Transportation Mega Projects (GEC)
	  ○ Staff composed of VDOT and GEC staff
	  ○ Traditional PR functions
	• Concessionaire's side:
	  ○ Performed GR/PR
	  ○ Became the "face of the project"
	  ○ "Orange cones – no phones" safety messaging
	  ○ Grant program provided money to community groups for various service projects
	  ○ Held focus groups, price studies
	  ○ Was the major driver of outreach and controlled the message

4. Other considerations

MnDOT	• Incentivize customers: $25.00 in free tolls 1st corridor, $15.00 in free tolls 2nd corridor, $10.00 in free tolls 3rd corridor • Customer sign up lease fee for transponders ($1.50 per month)
SRTA/GDOT	• One thing that worked really well was the development of one-pagers. Each had a different purpose (e.g. definition of terms, project purpose, general overview of managed lanes, etc.). They worked well in educating the public on this concept, which was new to Georgia.
Houston METRO	• None noted
WashDOT	• None noted
VDOT	• None noted

PLANNING/POLICY

1. What milestone steps (design, funding, development, environmental, etc) **did/will** you take to go **from planning to actual implementation** of your Managed Lane (ML) **corridor/network**?

MnDOT	• Separate process per corridor due to each corridor being implemented at a separate time • Though promised legislatively, we had to ask for permission to build each corridor.
SRTA/GDOT	• Due to the Congestion Reduction Demonstration program grant, this was a fast-paced project. • Grant awarded in November of 2008. Open to traffic approximately 3 years later. Agencies worked together to expedite environmental process.
Houston METRO	• *How did you go about getting your board support?* The reason for dynamic to time of day was because of a really new board member that was an active HCTRA employee. They had been through this process back when they had opened up I-10 in 2009. They traveled to many other cities and models and did a lot of research and decided to go to time of day than to dynamic pricing. They figured this would be the simplest way to manage. When the Board member joined the METRO board last November, she did the same thing. Trying to sign all the ingress and egress points for the dynamic pricing, and thought it would be challenging to determine pricing. System is

	developed and can be changed to dynamic pricing in the future. All hardware and software is in place. • Biggest hurdle was TDOT. It was hard to sell project to them in the beginning. Took a long time to secure agreement. ROW belonged to them and they were maintaining lanes. But as far as the METRO board was concerned, there were not any issues. The board was on the same page and very accepting of the project.
WashDOT	• We definitely have visions of converting all our HOV lanes to HOT lanes. With I-5 we are doing a focus study to look at, "Are there other things we can do in combination with HOT lanes?" Active traffic management: There have been concepts developed where there are single lane HOV and HOT lanes all day. • How about taking the shoulder and having it serve as a second HOT lane to serve extra capacity? Other concepts have been looked at for I-5.
VDOT	• None noted

2. **Did/Will** you plan for your ML project(s) to be part of an **integrated network** of MLs?

MnDOT	• Yes, however, plan recommended not to prioritize direct connections due to very high cost not main strategy. Public not demanding not an issue they are 10 years away from connecting a few.
SRTA/GDOT	• The Atlanta region has set forth a network of managed lanes. The I-85 project was the first implemented from this proposed network.
Houston METRO	• If you did not plan it out as a network, have you thought about doing so (or creating a system/network if you only have one ML in place)? Do you feel that the system would work better as a network?
WashDOT	• Our MPO's 2040 plan has every limited-access road's HOV lane converted to a HOT lane. That's part of our base vision right now.
VDOT	• VDOT's $5.4-billion Northern Virginia MegaProjects Program will deliver 70 miles of high occupancy toll (HOT) lanes. When complete, the Capital Beltway HOT lanes will connect the existing HOV systems in Northern Virginia along I-95/395, I-66, and the Dulles Toll Road, creating a new regional HOV network. • In addition, the system connects to managed lanes in other states: • Maryland Beltway Express Toll Lanes

	• I-270 Express Toll Lanes

3. How did you set your **priorities**? How did you pick specific corridors to implement MLs?

MnDOT	• Opportunity driven • Geographic balance to investment east vs west • Strong scores in performance categories • How much $ do we have for project
SRTA/GDOT	• Existing HOV facility • HOV lane that was highly congested (TTI>2) • Transit was already in use on corridor
Houston METRO	• It was the volume of traffic in the corridors that was most congested or suitable to go first. For example, there are five corridors. One goes in the northeast direction; it has the lowest volume, so we did that one last as far as traffic was concerned. 45 S went first because it had the least number of entrance and exit points. Easiest to implement.
WashDOT	• The concept started with the corridor EIS that we were doing for 405. We happened to have the manager of the environmental process learn about I-15 down in San Diego, so it really kind of brought itself to the 405 corridor because we were looking at how to make the corridor work better. They looked at options that made 405 lanes wider, and not adding pay lanes, just investing in transit. So there was a huge planning effort to see what would be the best solution for 405. Recognizing at that time that you can't build 12 lanes, looking at these other lanes where you can at least manage a couple of lanes, knowing you can't just build yourself out of congestion. Now, saying that is great, except people were quite nervous about the concept. So 167th being a pilot: It was an easy corridor. We got support for it. • Wouldn't cost a lot. It was a small step to test it out and see how to apply it on 405 as well as other facilities.
VDOT	• Because many states are part of this system, there was not really a prioritization process. Each state had main priorities and worked on them, which has developed into a system. I-495 was just the next logical step in the system.

4. What are your thoughts in terms of **segment balancing**? For example, if you have two segments, and one is very busy and the other does not often reach capacity, how do you balance that?

MnDOT	• Pricing is key mechanism for balancing
SRTA/GDOT	• Yes, this was a major discussion. The main question is how to message the pricing. How do you explain why motorists on a fairly uncongested portion are paying higher rates to manage capacity downstream? • Pricing strategy can be different by owner. As Atlanta looks regionally, they must consider the impact of delivery methods on toll rates.
Houston METRO	• We only have a single fare zone regardless of entry and exit and our individual corridors currently do not connect
WashDOT	• We have a single-fare zone so customers see one price; that's the price they pay to go for as short or long as they would like. We do have some intermediate travel sheds along that corridor, but they are not big in relation to the whole corridor's magnitude. That model seems to have worked pretty well. For 405, we now have a 30-mile long beltway in both directions with fairly significant travel sheds. We've done a couple things: broken the corridor in half (in downtown Belleville area) and we've said if a customer will be driving from (south to north), they will be asked to re-up at that point. Once they get to Belleville they will have to re-choose if they want to stay in the HOT lane. It's very hard to manage traffic given that there is time delay. The other piece to it is that the corridor is fairly directional in terms of its traffic patterns. If you're taking that whole trip at one time, you're going to go through a peak period for one part of your trip and a non-peak in the other half of your peak. It's an interesting scenario from a messaging standpoint. • So you're going to have two zones? We looked at each half and there are some pretty logical breaks in those sections. We haven't spent as much time on the south, but in the north half there will be three fare zones customers will be offered. That will get them to two midpoints on the facility or to the end of the facility. Depending on where they get in, they may actually only be offered two destinations. So we have a destination-priced concept. We're overlapping several fare zones onto the facility simultaneously. If they go a short distance, they'll be charged one fare. If they go a medium distance, they'll be charged a different fare. And if they go all the way to I-5 in Wynnewood, they'll be charged a third fare. But they will be presented all those options when they get in the facility and make that choice. • We are still looking into the business rules. One of the concepts is that we would never show a rate that was lower to a further destination that was lower to a nearer

	destination. What's controlling that calculation could be the first half of that trip. • We did d focus group sessions to talk about pricing and signing, and customers really want to know how much it will cost them to take the entire trip. They don't like to have this option of at some point having to re-up. But as customer's progressed, they understood, "Okay, in Belleville, we're going to have to show you another toll." So they did get that. Some of the other concepts were dynamic destination pricing. So maybe at night we'd have just one fare to go through the entire length of the corridor, but then as congestion decreases and it changes we might offer different destinations. We ended up back at the scenario with static destinations with variable prices. We recognized that we were probably going to have to divide people's trips.
VDOT	• None noted

FINANCIAL

1. How **did/will** you get the **ML corridor(s)/network financed**? Does it have to self-fund since implementation or at a later date? What components (transit, operations and maintenance, etc)?

MnDOT	• Parking garages in downtown generating revenue so we used that. Legislature said they had to pay it back though. • Did not want to maximize revenue • Second corridor almost entirely funded by UPA bonding money which included traditional sources (implementation $ 8 – 9 million). • Third corridor is a Design-Build

SRTA/GDOT	• $181.9 total - $60 million for tolling system, construction, public outreach, and performance monitoring and $122 million for significant transit improvements in I-85 corridor and throughout region
	• State Funds - $66.7 million
	  ○ Motor Fuel Funds - $7.4 million
	  ○ Bond Funds - $56.2 million
	  ○ SRTA Funds - $3.1 million
	• Federal Transit Funds - $97.5 millions
	  ○ $68.3 million – Atlanta Region Transit Improvements
	  ○ $29.2 million – transit improvements
	• Federal Funds - $17.7 million
	  ○ RITA funds - $12.5 million

	○ Regular Federal Funds - $5.2 million
Houston METRO	• Cost of program from inception is approximately $67 million which includes capital. For conversion, they have 2 contracts with TransCore. One is for design, furnish and install which is around $40 million; the other is for O&M over 5 years which is around $42 million. Total is around $82 million. There is a third contract with a civil contractor for creating the declaration lanes that was around $8-$9 million. Total for 3 contracts are around 90 million. • They have had various different types of grants: 22 million of stimulus money at 100 percent. The rest were 80/20 percent, grants from FTA Fixed Guideway program. They had Fixed Guideway funds from the beginning with HOV lanes to use on whatever improvements they needed. The same thing was applied over when they decided to convert to HOT. • TDOT has approximately 300-400,000 tags out there, HCTRA is charging eight percent per transaction (it's part of the statewide interoperability agreement). There are discussions to lower that to six percent. • Are you seeing net revenues after O&M? Not yet, it's still in a ramp up period. They are only getting revenue from two of five corridors currently. There are some high costs right now. There is a subsidy going into the O&M contract that is not being covered by toll revenue. There are fixed costs such as customer service centers. • Was never planned that the capital costs be reimbursed by toll revenue. METRO has a 1 cent sales tax is used by METRO to pay their share.
WashDOT	• 167th: The big reason we made it into a project was because we did get value pricing funds to get it started, so the early design and environmental work, we used value pricing money and then we did get gas tax funds to support through the construction. There was no expectation, at least going into it, that tolls would fund any of the construction work. We were pretty clear with people that the intention of 167th was just about managing traffic and that toll revenue would be a bonus, but would support the operations effort. Then, as soon as we went live, it was all about the construction money and, "Are we paying back the construction funds that were used?" That was, maybe from a communications standpoint, a bit of a challenge. • People think that when we say we're making money it means that we're making millions of dollars, and that's not really true. It's $100 thousand a quarter, I think. People think the HOT lanes are generating so much money that they can do whatever else in the corridor. From a public perspective, we kind of struggle with the idea of, "Oh, it's only about making money."
VDOT	• P3 delivery

	• HOV3+, all tranist is free • Firewalls are set so that if HOV3 gets up to a certain percent, VDOT will make a payment to the concessionaire • Concessionaire compensation for improvements to Beltway which cause revenue impact

2. How **did/will** you financially implement the ML **corridor/network**?

MnDOT	• Addressed under previous answers
SRTA/GDOT	a. What kind of delivery approach (Design-Build, PPP, traditional, etc) will you use? • MLSP projects are in different phases of implementation. The delivery option will be chosen for each corridor individually. b. If a **PPP** will be used how will the funds advanced by the private team to build and operate the project be repaid? From toll revenues? From another source, if so, what funding sources? • Determined on a project by project basis c. **Will** you finance the MLs as a **network** or by **corridor**? • By corridor
Houston METRO	• We originally received FTA fixed guideway money • We received 80% federal dollars and the other 20% was a local match. The local match is funded through METROs 1 cent sales tax
WashDOT	• For 405, so far it's been fully funded through gas tax funds. Even from the early planning levels. Right now, the project that's underway that would implement express tolling from Belleville to Wynnewood shows that the revenue for a couple of years would allow us to not only pay for our operation and maintenance, but we have excess revenue that can go toward funding the rest of the corridor, thus making improvements to the south extend express tolling. But of all the analysis done so far, the toll revenue is only a portion of what is needed. There's still need for other types of revenue – probably more gas tax funds.
VDOT	• What kind of delivery approach (Design-Build, PPP, traditional, etc) will you use? ○ P3 with Concession agreement ○ 80 year term ○ Fluor provides letter of credit for 7.5% of the contract price ○ Private financing was $350 million (highest for greenfield toll road in US at that point)

	• If a **PPP** will be used how will the funds advanced by the private team to build and operate the project be repaid? From toll revenues? From another source, if so, what funding sources?
	  ○ Toll revenues with VDOT payment if HOV3+ (free rides) reaches a certain level
	• How do you hold accountable the private entities?
	• **Will** you finance the MLs as a **network** or by **corridor**?
	  • Currently being done at a corridor level

3. How do you define **excess revenues**? Have you had any excess revenues? If so, what have they been used for?

MnDOT	• The challenge to determining excess revenues is what is the cost? Negotiated b/w MNDOT & transit what is costs vs revenue.
SRTA/GDOT	• First question is how to define. You can define it to guarantee that there is never excess revenue • It would be nice if policy makers took more of an interest in this topic

Houston METRO	Since they had so much federal money for the project, they have to follow their requirements.
	
	a. Where does it go? Where can it be spent?
	  • It has to be reinvested back into the corridor or into other transit related projects. It's part of the federal rules.
	b. Who gets it?
	  • In the agreement with TDOT if there is any revenue left after expenses, that net revenue needs to be split 50/50 with TDOT. They are not close to this yet.

WashDOT	• We do have legislation that says if we have excess toll revenue that that toll revenue is to be used to reduce single occupancy vehicles off the corridor. We haven't gotten into that realm yet, and I think our legislature is interested in how toll revenue can fund other highway improvements. • Did they define excess revenue? I don't believe so.
VDOT	• Revenue sharing with VDOT (5%, 15% and 30% of gross revenue – once 12.98% internal rate of return on equity is reached)

LEGAL

1. What is your **legal authority** to manage/implement MLs (such as the Value Pricing Pilot Program)?

MnDOT	• State law was updated to allow for managed lanes authoritative rights
SRTA/GDOT	• SRTA is the toll operator and, therefore, collects tolls and sets toll rates • GDOT is in charge of the highway system and, therefore, is the only authority which can designate a road as a toll road • This provides checks and balances
Houston METRO	• There was some legal requirements needed out of the legislature. Senate Bill 792 provided for the conversion of the HOV lanes to HOT lanes and covered some other toll road-type things. METRO was not a sponsor of that legislation. They were looking at other toll type projects around the state and it applied statewide.
WashDOT	• If we're going to toll any facility in our state, we need to have specific legislation to do that. So for Tacoma Narrows Bridge, there had to be specific legislation and 167th was no different. They did create specific legislation for HOT lanes. That's kind of what we had to seek, and I think that's where the education in 2003 – coming up with the analysis to say this makes sense. It took us two tries with our legislature to get the authority. At the same time we were… at that time we reported to our transportation commissions, so we educated our commissions. In conjunction with our commissions we educated our legislature and had to go to through that twice before they gave us the authorization and the funding. And I would say, similarly with 405, we've gone through a couple of sessions as well to get it all finalized so we can do that project
VDOT	• Have had P3 legislation since the 1980's • Received unsolicited proposal, then advertised for 60 days

2. What legislatively **authority** do you have **to enforce** the lanes?

MnDOT	• No enforcement laws added
SRTA/GDOT	• Legislation only allows for enforcement of occupancy requirement, not toll violation • In hindsight, would like the legislation to allow for enforcement of toll violation
Houston	• METRO's authorizing legislation formed in 1978-1979 was formed for HOV to force

METRO	lanes and issue citations but was not allowed to keep revenue from those violations. It went to the court that the issue was ticketed in. It went to the county judge. • Now with the new system and since they are enforcing tolls METRO can keep violation money if vehicle enters without a tag they will issue a citation.
WashDOT	• I think we have three ways to enforce. First, we have a double-white stripe where there is to be no access into the HOT lanes. Our state patrol does enforce the HOT lanes. They can be fined for crossing that white line; they can cite them for HOV violations, so if they catch someone in the HOT lanes and they don't have a transponder and they don't have two people in the car, they can be given a citation. Then there is avoiding the toll violation. All three are $124. Our state patrol really just uses the HOV violation and crossing the double-white line as their mechanisms for enforcement. All that money goes to various other funds. DOT does not get any of it. We don't get any lost toll revenue. It goes to things like crime labs. The jurisdiction the citation was given in gets part of it. Traffic safety funds. Traffic victim funds. • With 405, because it's a travel shed to our 520 facility, which we opened up last December, we're looking at converting our 167th HOT lanes when we implement 405 so people can post pay as well. So if you're in the HOT lane, you will pay because we catch your license plate if you don't have a transponder, and we send you a bill. We want to make sure we're capturing the revenue to support our efforts and not have it go off to other agencies. • What percentage of traffic is violating? Tough to tell. We rely on state patrol as our only enforcement mechanism. Washington state has super high compliance of seat belt and safety regulations. We've got pretty high compliance in other areas, so I think everyone is pretty compliant. State patrol would say about five to seven percent. • Clearly, there are enforcement areas that are in the inside shoulder to be able to pull them over on the express lane side. But we've been struggling to really hone in on the best way to do enforcement because of the fact we're having post pay options. So people don't have a transponder. But do they need a special transponder to give something law enforcement to go by, or do we need something similar to what you guys have done with the registration program. • Can it be supplied to the officer so they can do enforcement? We're still working through that to figure out what the best option is long-term so we can be consistent with all our facilities.
VDOT	a. Visual enforcement is used (all toll-by-plate)

3. Who sets the **toll rates** and what agencies/jurisdiction **gets the money** from **toll violations**?
   a. Do you have **toll limits/caps**? If yes, what are the limits and how are they established?

MnDOT	• Yes, $8
SRTA/GDOT	• Yes, $6
Houston METRO	• Yes, based on time-of-day rate
WashDOT	• Our minimum toll is 50 cents. The max is $9. Our transportation commission sets those rates. What we did in supporting them to get the rates set, we did several traffic and revenue sensitivity tests to look at growth and things like that. We wanted to make sure the upper limit was something that could sustain some growth in the corridor. With the recession and whatnot, that hasn't been a problem. We have hit the cap, but that was in the early months when the algorithm was pretty sensitive. Several years until we'll have to entertain changing that. • Last year, the highest toll we saw was $5.50 or $6, but that doesn't happen often. • One thing to point out too is that we go to HOV-only directly. It doesn't take them in, for example, take them in, override it and bump it up. We don't go to HOV-only too often, though. About a couple of times a month.
VDOT	• There is no cap and no minimum toll.

   b. Are **toll violations** enforced? If so, how is the process of **distributing the toll violation revenue** among jurisdictions/agencies?

MnDOT	• Not violating tolls, violating occupancy • Created task force that sets operational boundaries for toll enforcement • Pay enforcement officers in the corridor straight overtime to monitor managed lane
SRTA/GDOT	• Toll violation revenue goes back to SRTA • The statute provides for a $25 fine which goes to SRTA • If challenged, it goes to an administrative law judge, which can assess a $75 fee • Occupancy is a different matter – law enforcement can issue a ticket, the fee for this ticket goes to the county in which it is written, regardless of who writes the ticket • White line violation is the same as a toll violation.
Houston	• They do have officers in observation booths. Photographs are taken and transmitted to officer stationed downstream, and that officer looks for vehicle verifies occupancy

METRO	and issues citation. They get a toll evasion citation. Officer is Metro Police officer; Metro has their own police agency. No other agencies provide enforcement of HOV lanes. • A citation is issued for $75 plus the unpaid toll. • Metro does not have the authority to prevent someone from re-registering the vehicle under another tag. HECTRA, the county, can. If you don't pay them, they can prevent you from registering your vehicle. • METRO gets a collection agency and goes after the toll violator 30 days after the notice is unpaid; it is not automatically sent to collections. Typically METRO lets the violator get about 10 violations then they will send it to the collection agency.
WashDOT	• Yes, toll violations are enforced • $124 based on occupancy, returned to jurisdictions and not back to the DOT
VDOT	• Virginia State Police enforces the lanes with the help of technology. • No E-ZPass = invoice in the mail for payment of toll and an administrative fee. • State police notified of HOV's then visual check is performed.

OPERATIONS

1. How did you develop your **tolling concept**?
    a. Dynamic (varying along peak and off peak hours) or static tolls? Why?

MnDOT	• It was about traffic not revenue. Dynamic had to be based on many others issues locally such as the weather and lack of separation. Afraid static was not going to help traffic as much marketing-wise.
SRTA/GDOT	• Dynamic was chosen based on technical analyses of traffic conditions and the desire to actively manage traffic in the lane. *Why did you use the multiple gantry monitoring?* The I-85 HOV to HOT project was the first to implement multiple gantry monitoring. They chose this for the following reasons: • Constrained by existing corridor. There was little to no room to expand. • The existing HOV lane used double white line separation • There were limited shoulders • Law enforcement suggested that they can't adequately enforce the double white line crossing, so you need additional violation support

	• This provides a "mental barrier" *Please describe the system* • Put up gantries every half mile • System tracks each car as it passes • If a car exists or enters the lane in between dashed lines, the car is marked as a violator • SRTA can monitor by the entire corridor or by segment. They typically use segment monitoring, so as not to tie up customer service center. *How did you communicate this approach?* • SRTA did not specifically communicate the method of monitoring • Stuck with the simple "1,2,3 Go" message. All they needed to know was that they should get a transponder, how to understand the signs and how to access the lanes. • It was evident that people knew there were cameras, as white line violation in other HOV corridors is much worse than on HOT lane.
Houston METRO	• Minimum toll is $1. That's part of the agreement with TDOT. They wanted a minimum base toll. METRO set a maximum toll of $10. Right now, the max on the lanes is $4.50. It is the maximum for the 2 lanes that are open regardless if you drive the entire corridor. • Trying to encourage commuter to utilize entire toll facility. You'd be paying more per mile if you took a short distance. • The driver is pinged when they get in so they know where they get in. METRO pings them when they get off because there are minimum levels of speed for reporting as part of their FTA requirements from converting existing HOV lane that was built with HOV funds. • No one can make a trip without going through a verification station at least once.
WashDOT	• I actually worked in the legislature when WashDOT was trying to get authority for HOT lanes, and the other thing I would know that was helpful to legislators was that WashDOT did a great job in educating local jurisdictions. So it wasn't just WashDOT coming to the legislature. The person I represented just beyond the south end of the HOT lanes corridor, and it wasn't just WashDOT coming to her and saying this was a good idea. It was the city representatives and the other cities around that, and then her seeing it too also thought it was a good idea. • I think that the real challenge the legislature had to struggle with was dealing with the revenue and defining how it would be used. There was a group out there

	somewhat opposing HOT lanes, primarily because they felt like it was going to affect HOV users and transit. So they had a huge advocacy message about how toll revenue needed to support transit and carpools, so that's why I think our legislation was written the way it was. They were trying to make sure they could accommodate those other interests. • We made our decision to go dynamic because we really embraced the real-time management of our facilities and really want to ensure when we say you're buying in at $4 for a reliable trip, we have a solid expectation that will be provided. We didn't really consider anything else but dynamic for 167th, and we continue to be really focused on 405, that it's going to be dynamic. There are lots of other conversations in the industry on if that's really necessary, but I think that philosophy is that we really want to manage the facility in real time. Dynamic really gives you that flexibility.
VDOT	• Dynamic pricing study assumed $800 million in revenue which led to a unsolicited proposal from Fluor • Trip-based tolling

2. Are you concerned with consistency with your tolling method across **different ML corridor(s) in the region or ML network**?

MnDOT	• We are currently consistent
SRTA/GDOT	• It has been a consideration that SRTA and GDOT have definitely thought about. No resolution as of yet.
Houston METRO	• $4.50 is also consistent with I-10's managed lanes. They are 12 miles long. They were charging $4.00 for the whole thing until they increased it to $5 last month. METRO is very consistent with what they are doing on I-10. • METRO has two corridors that we will be charging $5 because they are very congested.
WashDOT	• So you're going to maintain this dynamic methodology? Moving to video? Well, that's our goal to do that. We want to do pay-by-mail option because we want consistency. We think that's really important to the drivers. It gets too confusing if you're on one facility, and tolls work this way, then you're on another facility, and the tolls work this way, especially when we have facilities that intersect each other that have toll lanes. Our main focus is being as consistent as possible. • Does that mean right now 167th is HOT 2+ and trying to go to 3+ on 405? Do you

	envision going 3+ on 167th for consistency? That's what we envision. Whether we get there or not is another story. That's definitely something that is kind of, "How can we set things up so we can get there quickly?" • The simpler we can make things, the easier it can be for people to understand how to use the facility or what they need to do to use the facility. Whatever we do… We've done some focus groups on car pool declarations, and we've done other ones on other topics. I think we consistently hear from people, "Make it as simple as possible." That means we should also make it as consistent as possible. That will make me more likely to use the facility, when I don't have to understand that 405 is this way and another road is that way.
VDOT	• None Noted

3. What **ITS strategies** and Active Traffic Demand Management (ATDM) concepts did you implement in conjunction with the ML concept? Why?

MnDOT	• DMS over every lane • left (ATMS) shoulder tolled during peak • variable speeds
SRTA/GDOT	• No additional ITS or ATDM added
Houston METRO	• There is a major element of this project besides tolling, which is called ARGO – automated reversible gate operation. Since METRO has so many egress points, these are all controlled by gates. One part of project was to automate the system through Houston TranStar. A person use to manually open the gates.
WashDOT	• All of our ramps in the urban area are metered now. We already have a lot of ITS on our facilities. Beyond ramp metering we have traveler information signs. With our urban partnership project we implemented dedicated travel information signs that display what the travel times are to different destinations. I think we've been pretty good already with that, as we've looked at implementing the variable speed limit techniques. We'd like to do that in conjunction with HOT lanes. The challenge has been 167th, it was a pilot, it was kind of out there. It wasn't in the menu of options at that time. With 405, we really want to get that as part of the plan as well, but the project had already been funded, and it was already a stretch to try and get additional funds. I think long-term we really see the two going hand in hand. As I mentioned, I-5 is going to be able to do use the dynamic lane controls to be able to bring in, say shoulders, as additional HOT lanes.

	• ATM in Europe and some in the U.S., but none are using it with price. You're looking at ATM with pricing? Yes. • Currently, we use the 167th rate times to communicate open status and closed status.
VDOT	• None Noted

4. Are the following **performance measures** meeting **expectations** (pre-implementation vs. post implementation) and how frequently are you measuring them?

MnDOT	• Yes
SRTA/GDOT	• 45 mph 90% of the time during peak period (4 hrs in am, 4 hrs in pm) – this is achieved most of the time • At any given period, there is a 30 period that this is not being achieved • Lane is handling 1800 vph, which is far greater than anticipated (1200 to 1400 vph) • When pricing is working, we can move more cars through than in congested (pre-project) conditions • Should use a different metric – difference between ML and GP lane • Customer service experience – tolled vs non tolled
Houston METRO	• When the plan was changed to dynamic pricing, it really improved revenue projection. • METRO modified the ramp up period. They are within their goal. They are anticipating a 15-month period for the project to stabilize out.
WashDOT	• Travel speeds (or travel times) • Flow Rate • Violation levels
VDOT	• N/A - just implemented weeks ago

5. What kind of **advance signing information** (price information, congestion levels, network performance, travel time, etc) have you introduced (or are planning to introduce) on other roadways to describe the condition of the ML to roadway users?

MnDOT	• No advanced signing for HOT lane. Not necessary after first few weeks • One issue from public was to get rid of all access control as we could. Signed destinations we could.

SRTA/GDOT	• Built off of existing signage/messaging • GANavigator.com provides realtime traffic info • It is difficult to communicate price in advance because it changes every 15 minutes • SRTA emails toll rates to radio and other media • Cameras, which are accessed through GANavigator.com and a mobile app, show toll rates. Traffic reporters often use these to provide real-time toll rates. • Traffic reporters can have an impact on lane usage, depending on how they "sell" the lanes
Houston METRO	• Dynamic message signs are posted that tell drivers whether the lanes are open or closed at all entrances. • There are guide signs on adjacent streets to direct people how to get on the lanes. • Houston area has a lot of tolls and people are used to toll facilities.
WashDOT	• No, we don't currently have plans that put that type of information on arterial streets. We have looked at what's need on 405. When it's implemented, we'll have two direct accesses that go directly to the express toll lanes. And, so, we've been in conversation about what kind of signing is appropriate for that. Is it just letting them know it's a tolled facility, or do we go as far as providing pricing, and at one point? • How far away from that ramp do you want to start conveying a price if you're trying to guarantee a reliable trip? We're still in debate about that.
VDOT	• Yes, upcoming facilities are communicated in advance to provide option to get out • Everything is worked out within 1 mile of the transition point • Express lanes are signed on arterials ¾ miles in advance of interchange (direct access)

6. How do you currently **manage incidents** in the MLs? What are your plans for future improvements in the **incident management process**?

MnDOT	• IM Plan stepped up in paying for enforcement during peak period IM is priority though so by nature added patrol.
SRTA/GDOT	• HERO units provide incident management • No additions to this service resulted from implementation, as the physical lanes did not change • HERO units have indicated that response has been easier due to the HOT lane
Houston METRO	• There is one reversible lane. If someone breaks down, the lane is large enough for others to get to the other side. It is 20 feet wide. Traffic typically just slows down lane a little. 12 feet in between to 4 foot shoulders on the side.

	• In 10 feet lanes if someone breaks down they close the lane. *Do you have any type of centralized network contract or do individual jurisdictions deal with their sections of the ML?* • There is a program called SafeClear. Metro Police will respond and direct traffic as necessary, and then a state wrecker will fix the flat, or whatever is necessary. It's a city of Houston program. Only operates within the city limits. They put out the bid for wrecker companies to operate the freeway. TransCore has contract with them to respond to the HOV lane in that corridor. Nominal fee of $500 a month.
WashDOT	• For 167th we did pay for additional incident response teams. We call them IRT. We have dedicated trucks during the peak periods. We found it to be quite effective. Unfortunately, it was quite expensive, and we weren't covering our costs. That has been scaled back. • On 405, we have been having pretty good incident management coverage there, so we're not looking at having additional vehicles out there. Overall, how we implement these things and manage the traffic, I think there is definitely a tie, there. It's just whether or not we have existing funds.
VDOT	• No answer

PHYSICAL FEATURES

1. Were any **design exceptions** applied for (shoulder width, gantries, etc)? Why?

MnDOT	• Project 1 – no design exceptions • Project 2 – 11' lanes, 3'shoulders – these were made easier due to the project being a UPA grant project and being on tight deadlines, decisions were elevated to DC for approval
SRTA/GDOT	• No, we extended existing design exceptions.
Houston METRO	• During project study METRO did analysis of adding more access points directly form the general purpose lanes. They were not planning on implementing that until a future date.

WashDOT	• On 167th we did. We narrowed the lanes so we could get a two-foot buffer in. So we took the HOV lane and adjacent GP lane, narrowed those to 11 feet to get our two-foot buffer. Fortunately, 167th had been… when the HOV lane was constructed, the facility was built for the most part to standard. Where the gantries did go in we had to deviate the shoulders because we needed the barrier to be wider. Overall, it's still relatively to standard. 405 is also mostly standard but with some deviations
VDOT	• 11' lanes

2. Have you considered any **design changes** since the implementation of existing MLs? Is there a **design standard** for existing and/or planned MLs?

MnDOT	• Considered changing to open access
SRTA/GDOT	• No
Houston METRO	• There is a little better signing in declaration areas so motorists would not be confused. Changed overhead signs from "all others" to "toll only". Public made a lot of comments about what does "all others" mean.
WashDOT	• Absolutely. As we were putting the paint stripes down, we thought we needed to change it. We looked at changing one of the accesses a couple of months into the projects. We made some of the accesses bigger. They weren't accommodating some of the weaving movements. We added signing. About a month ago we got some value pricing grant money and we're going to have more open access and less restricted access. That stems from two things: Minnesota thinks they're seeing real good performance with no safety issues around that. The other is the University of Washington folks studied the access, and what they found is that violators are mostly people who want to be in the HOT lane and pay, but because of where the congestion is at, the access isn't in the right location. But they're impatient. So they jump in. We want to test out opening that up more to see what kind of compliance we get. Customer satisfaction too. That would be the number one complaint on 167th: Access is too restrictive. • There are users, though, that really like the access. I've had people tell me they feel safer. There aren't people jumping in and out. So there are some people who like it. But there are some people who hit the back of the queue, there are people who want to pay and get around it.

VDOT	• No

3. How and why **did/will** you determine where the access points will be?

MnDOT	• Followed Federal guidance for access locations by looking at volume movements • Considering completely open system - let traffic decide when & where to go in and out
SRTA/GDOT	• There was minimal change to existing access points • Some were extended to full half mile length • In hindsight, dedicated ingress/egress might have been better, as the current design causes some weaving difficulties resulting in chokepoints
Houston METRO	• Most of the entrances and exits from the HOT lanes here are not directly adjacent from the general purpose lanes. (Texas T's). Safer because of lower speeds. • A couple in (5 out of 30) are in general purpose lanes.
WashDOT	• We used the information TTI put out on that kind of minimum access opening should be what the weave distance from the on-ramp to the access… We really used that as our guide point. There were a couple of locations where we knew we would have a lot more traffic use it , so we made it bigger than the minimum. But for the most part, we used that guidance that TTI put out and designed around that. • 1000 feet for every lane change coming from an on-ramp. Minimum opening 1200 to 1300 feet.
VDOT	○ Fewer ingress/egress than Capital Beltway due to operations

4. What type of separation method **did/will** you consider and why?

MnDOT	• Open system – no barrier.
SRTA/GDOT	• White papers were developed assessing striping treatments, Jersey barriers.
Houston METRO	• Through the toll zone, lanes are separated by delineators.
WashDOT	• Currently, it's designed with a buffer separation ranging between two and four feet. It has designated egress and ingress, except for where it's a single lane, and then it's similar to 167th where it's just a skip strip that happens, and people can get in and out wherever.

	• When you say buffer, you mean buffer with a flexible delineator? No. Just a paint stripe. That's been an internal debate: whether pylons are necessary. Concern is that if you're really focused on revenue, is it important to have pylons out there. Or, do you get pretty good compliance with just the double white stripe. • Could you guys actually put delineators? I think that's one of the major issues our maintenance folks have: situations when we have snow conditions and roadway plowing. So from a maintenance standpoint, there's a lot of hesitation to go in that direction.
VDOT	○ 4' wide gap, 2' striping, plastic ballards

5. What were the lessons **learned regarding crashes and incident management** with post-implementation?

MnDOT	• We have an open system – we respond to incidents just as we would in the general purpose lanes
SRTA/GDOT	• As noted previously, HERO units have noticed that incident response has been easier post implementation
Houston METRO	• They are having trouble with enforcement areas. Enforcement is a challenge when trying to pull people over in safe areas. Road was not designed for enforcement at that time. It was really designed for transit use and carpooling. It's not something they are proud of.
WashDOT	• Only from an accident standpoint: Todd went back and got his masters right when it opened up. His paper was about safety. From one year of info, it appeared HOT lanes did make the roadway a bit safer. I talked to one of the University of Washington professors, and he seems to see the same kind of trend. So how much of that's contributed to the amount of buffer that's out there, I'm sure it added to it, but I'm sure a lot more research would need to go into it to understand what's going on. • One of the things that will be challenging to pull out but will be valuable to know: Is it the fact that you limited access or restricted access to get in and out, or is it that you added that extra space between the GP and the HOV lane. That question becomes: Is it a matter of that space being there, or do you have to treat that space somehow to achieve that benefit? Could you just have an extra wide lane, or do you have to have delineators and striping. • It's too hard to know when you see a crash at any location where it started, and what actually started it. It could be completely isolated from HOT lanes.

	• We're good about getting people to get their vehicles out of traffic and into the shoulders. That also makes it hard. It may have happened in the adjacent GP, but they pushed themselves toward the median.
VDOT	• None yet

6. **Did/Will** you provide **designated areas/crossovers** to deal with incident response and/or enforcement?

MnDOT	• We have an open system – we respond to incidents just as we would in the general purpose lanes
SRTA/GDOT	• No
Houston METRO	• There were already some gates in the barrier that could be opened to allow traffic out. They had not been used for years. They exist but never used. Only used for major incidents. • They have to remove stalled vehicle within 30 minutes. Except for something that is uncontrollable such as a car fire. A soft closure is used for this type of incident. When they do close there are no issues with motorists because there are gates instead of delineators.
WashDOT	• Will 405 have full shoulders? Enforcement area? For 167th, we have at least an eight-foot shoulder in the southern half. One of the challenges is we are relying on the beacon. A light that signals if the user paid so they know who to look for. Fortunately, they're tied very closely to the beacon locations. It made enforcement pretty predictable. Only a certain number of those can sit comfortably and count people in the vehicle and watch the beacon. It's amazing they are able to do as well as they do. It's usually the right-hand shoulder. The other thing is they're a little gun shy on pulling people over. 30 percent are false or there's a baby in the back. • Within Washington State, we don't have any other toll agencies. The DOT is the toll agency. But that gives us a lot of options than in Florida where you have multiple entities looking at multiple implementations. A downside for us is that because we are integrated in the department, we have a traffic management center that isn't part of the toll division. We have a working relationship with them. As they're working with traffic issues, we're working on issues on the system end.
VDOT	• Not answered

OTHER RELEVANT INFORMATION

Houston METRO History/Overview: it has been a very successful program for HOV over the years since late 1970s. Use to have 6 different HOV lanes within 6 different corridors. I-10 West was converted to managed lanes as part of reconstruction of I-10 in 2009 (2003-2009) and Harris County Toll Road Authority (HCTRA) was very involved and contributed money towards the project. HOV lanes within that corridor went away and there are 2 lanes in each direction right now as part of HCTRA's program and METRO does not have anything to do with that program anymore. METRO's program for the conversion of the remaining HOV to HOT lanes involves 5 other corridors along I-45 North going towards Dallas, I-45 South going towards Galveston, 59 North, 59 South, and US 290 which totals about 83.4 miles of conversion starting at varying lengths of 13.5 miles with longest corridor being 20.2 miles. All HOV lanes are one lane reversible barrier separated with multiple access points and multiple exit locations which made the program very unique and different than any other conversion than they had seen in the nation. Each corridor has 6 or 7 entry points and same number of exit points. It was a challenge to come up with signing for the tolling schemes, so tried to implement the simplest with one zone tolling where users pay same toll regardless of where they enter. Program was modeled to be dynamic pricing up until last November and there were changes with upper management and their Board so it was switched to time of day tolling. 45 South Corridor was completed first on Feb 20, 2012 and 59 South was opened in July of this year. 290 corridor is the only corridor that from 6:45 – 8 a.m. has quick ride program (FHWA sponsored pilot program). 3 plus requirement all others operate with 2 plus requirements. Currently working on I-45 North is current that they are working on an it should be completed in the next couple of months. Entire program should be complete by May/June 2013.

There are 2 agencies operating the corridors. Before they converted HOV lanes they had an agreement with TDOT for operation and maintenance of the lanes. Once tolling was introduced they entered into a new agreement. They also entered into an agreement with HCTRA to be able to run the lanes.

Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

Appendix C: Modeling Memo

MODELING MEMO

Introduction

Express lanes describe facilities that employ pricing and vehicle eligibility and occupancy management techniques as a mechanism to preserve free-flow conditions and provide safe mobility option for customers in these dedicated lanes. One of the key elements to ensure the success of the express lane concept is to determine what lane configuration and which operations and toll rates are appropriate at any given time, and at what point it is necessary to change operations and toll rates in order to maintain high efficiency within the express lanes.

Travel demand modeling and traffic simulation modeling are tools that can be used to perform operational assessment of a range of design, operating alternatives of express lanes. Different express lane configuration and system scenarios can be evaluated on a similar set of modeling conditions to determine which scenario and lane configuration most favorably influences the utilization and operation of the express lane. In addition, a fixed variable toll schedule could be developed based on the modeling analysis to respond to varying demand in direction of travel, time of day, level of congestion, mileage traveled and/or time spent on a express lane.

This memo presents a summary of industry models/tools that are used for express lane modeling, and a summary review of local studies in south Florida with respect to express modeling procedures and assumptions. The review of state-of-practice express lane modeling and the local studies was conducted primarily for the purpose of investigating, developing and recommending the methodology and plan to enhance the Southeast Florida Express Lanes network modeling in the future.

State-of-Practice Express Lane Models/Tools Review

Several approaches and models have been developed in the United States for express lane modeling. They are: traditional 4-step travel demand models, activity-based models, dynamic traffic assignment models, and microscopic simulation models. These approaches and models are summarized in the following subsections.

Travel Demand Models

Travel demand models are widely used as a mathematic tool in most metropolitan areas in the United States to forecast roadway and transit travel demand based on projected socio-economic data and expected roadway and transit improvements. Travel demand models can be adapted to estimate optimal toll rates and forecast the travel demand and toll revenue from managed/express lane applications.

The current state-of-practice includes numerous travel demand modeling approaches that have been applied and used in different metropolitan areas for a variety of express lane feasibility studies. Some examples include Northwest Corridor and I-75 South Express Lanes in Atlanta, Georgia; High Occupancy Toll (HOT) Lanes on Hwy 217 in Portland, Oregon; I-15, I-5 and I-805 managed lanes in San Diego, CA; and HOT Lane on I-95 in Miami, Florida. In general, the sophistication of the applied approaches relies on the structure of the regional travel demand model and can be generally grouped into the following categories:

Traditional 4-step Models

The traditional 4-step travel demand model (trip generation, trip distribution, mode-choice, and trip assignment) is used more widely to forecast roadway and transit travel in the United States when compared to the activity-based model. To evaluate the operation and assess the impacts of express lanes, travel demand models can be modified and enhanced to include the tolling component in the mode choice model and/or incorporate toll variables in the highway assignment process.

Maricopa Association of Governments, Phoenix, Arizona

The Maricopa Association of Governments (MAG) is currently working on implementing a more robust toll modeling process in its regional travel demand model, especially for analyzing tolled managed lane traffic. The toll modeling process would allow the model to separate the trips between the best tolled route and the best non-tolled route for a given origin-destination zonal pair in each iteration of the equilibrium highway assignment process. The toll choice model uses a binary logit model to calculate the probability of selecting a toll road by either trip modes (single-occupancy vehicles, high-occupancy vehicles and trucks) or trip purposes. The logit model will consider the tradeoff between travel time savings and the associated toll costs, and other traveler's characteristics such as income and electronic transponder ownership.

Atlanta Managed Lane System Plan, Atlanta, Georgia

The Georgia Department of Transportation has developed a Managed Lane System Plan (MLSP) for Metro Atlanta that utilized and expanded the current high occupancy vehicle (HOV) system footprint. The MLSP investigated various managed lane investment policies, including high occupancy toll (HOT) lanes, express toll lanes (ETL), truck only toll (TOT) lanes, and mixed-use express toll lanes (Mixed ETL), and it was the first system-wide evaluation of urban area managed lanes performed in the United States.

As part of managed lane evaluation on traffic operations and revenue potentials, Atlanta Regional Commission's regional 4-step travel demand model was modified and enhanced to incorporate willingness-to-pay (WTP) methodology into the standard equilibrium highway assignment process. The WTP curves were developed based on the stated preference surveys conducted in the Atlanta metro

region and vary by vehicle type (autos, medium-duty and heavy duty trucks), trip purposes (home-based-work, home-based-other and non-home-based), time-of-day (AM peak, PM peak and off-peak) and trip distance. The WTP methodology eliminates the all-or-nothing toll assignment based on converted travel cost using value of time and helps determine a driver's probability of using the managed lanes and/or truck only toll lanes based on the various tradeoffs regarding travel time savings, toll cost, and other trip characteristics.

Houston-Galveston Area Council, Texas

The Houston-Galveston Regional Travel Models are cooperatively developed by the Houston-Galveston Area Council (H-GAC), the Texas Department of Transportation (TxDOT) and the Metropolitan Transit Authority (METRO). This model developed within the Cube/Voyager includes a nested logit mode choice structure to address various auto modes by tolling: (1) Drive alone non-toll; (2) Drive alone toll; (3) 2-person auto non-toll; (4) 2- person auto toll; (5) 3-person auto non-toll; (6) 3-person auto toll; (7) 4+ person auto non-toll; (8) 4+ person auto toll. Special path choice nests are developed to differentiate between a toll and non-toll path. In addition, two additional variables - coefficients on toll cost and coefficients on travel time savings are developed and utilized in the mode choice and multi-class equilibrium assignment process. Coefficients on toll cost are stratified by income group and household size while coefficients on travel time savings were set differently for drive alone and high occupancy vehicles. The inclusion of these two additional variables enables the regional model to be sensitive to different modes as well as different travelers' attributes.

San Diego Association of Governments, California

The San Diego Association of Governments (SANDAG) added capabilities to evaluate HOV lanes, managed lanes and toll roads in their regional travel demand model. This model developed in TransCAD includes a nested logit mode choice structure to address various auto modes by tolling: (1) Drive alone non-toll trips; (2) Drive alone toll trips; (3) 2-person auto non-toll/non-HOV trips; (4) 2-person non-toll/HOV trips; (5) 2-person toll/HOV trips; (6) 3-person auto non-toll/non-HOV trips; (7) 3-person non-toll/HOV trips; (8) 3-person toll/HOV trips. The time and cost coefficients and the value of time that were used to compute utilities measures in the mode choice model vary by income levels (Low, Mid and High) and by trip purposes (Home-Based Work, Home-Based Other and Non-Home Based). The monetary costs related to tolls are calculated based on segment length and the associated value of time for the model (Auto and Light-Duty Trucks $0.50/Min, Medium-Duty Trucks $0.51/Min, Heavy-Duty Trucks $0.72/Min) and are used in the multi-modal multi-class highway assignment process. To maintain level-of-service "D" in the managed lanes, the SANDAG model included a post assignment procedure to simulate optimal managed lane operations by: (1) shifting traffic from over-capacity general purpose lanes to adjacent managed lanes that have excess capacity; and (2) shifting traffic from over-capacity managed lanes to adjacent freeway main.

Activity-Based Models

Portland Metropolitan Area, Portland, Oregon

Portland Metro is one of the first MPOs in the United States to experiment with, and implement, the activity-based model. The model was developed initially as part of travel model improvement program and designed to capture the sensitivity of traveler's choice to activity (purpose and priorities) and travel conditions (timing, mode and destination) within the Portland-Vancouver metropolitan area.

The value pricing and toll modeling was built in this activity-based travel demand model and it is one of the most sophisticated ABM currently developed. Key characteristics of the Portland Metro model with respect to its tolling application include: (1) Route choice, mode choice, and generalized costs are explicitly modeled and are all sensitive to tolls. The destination choice model is also sensitive to tolls by using multi-modal accessibilities. (2) The choice of route itinerary or path is determined by the equilibrium highway assignment as a function of travel time and cost only, but it does not consider other factors that affect toll route choice such as trip distance and reliability. (3) Value of time (VOT) varies by vehicle type (auto and trucks), trip purpose (home-based work, home-based college, home-based other and non-home-based) and household income. In addition, different VOTs are utilized for business travel and non-business travel in the ancillary model for airport ground access travel. (4) Toll cost varies by level of congestion. Toll rates are converted to the time cost and added to the travel time to calculate the composite travel cost, which is used in the multi-class user equilibrium assignment. A special toll cost volume delay function was implemented to calculate time-equivalent toll for each individual tolled link based on the supply and demand.

Atlanta Regional Commission, Atlanta, Georgia

Atlanta Regional Commission (ARC) initiated their dual-track method in 2010 to maintain the traditional 4-step trip-based model and the implementation of an Activity-Based Model (ABM) process based on CT-RAMP (Coordinated Travel Regional Activity-Based Modeling Platform).

Because of the dual-track method, ARC was able to compare the calibration and forecasting results for both the 4-step traditional model and the ABM. ARC has been getting similar forecasting results for both models for base year and future years. When compared to the 4-step model, ARC's ABM model contains the following key characteristics with respect to its tolling application include: (1) Nested logit mode choice model includes both toll and non-toll nest for price sensitivity. (2) ABM considers congestion and pricing effects on time-of-day and peak spreading and operates at a detailed temporal (half-hourly) level.

Dynamic Traffic Assignment and Microscopic Simulation Model

In recent years, increasing numbers of practitioners and researchers have applied or are applying Dynamic Traffic Assignment (DTA) and micro-simulation models to support modeling efforts related to the managed lanes.

A study, *Hierarchical Evaluation of HOT Lane Operations Using Dynamic Network Models* conducted by Eil Kwon and Csaba Kelen, proposed a hierarchical structure consisting of dynamic traffic assignment and microscopic simulation assignment for evaluating the effects of HOT lanes on network traffic patterns. A hypothetical HOT lane operation on I-394 in Minneapolis, Minnesota was designated as the pilot corridor for this analysis. PARAMICS, a suite of microscopic simulation modules was used to evaluate a complete range of real world traffic and transportation problems.

Another study done by Beverly Kuhn, Kevin Balke, et al. also used DTA to evaluate the outcome of managed lanes and ramps. DYNASMART-P simulation was selected to simulate driver route choice (and/or departure time choice) behavior due to various factors such as roadway time-dependent congestion levels, perceived value-of-time for auto and truck, toll charges for single-occupancy vehicle, high-occupancy vehicle and truck, vehicle class restriction and accessibility and roadway traffic information. Multi-mode choice assignment which follows the typical simulation DTA algorithmic procedure was then used to distinguish different paths with different generalized cost for each vehicle class that travels from the same origin-destination. Once all vehicles classes are assigned, they are loaded into the network for micro-simulation. The process is repeated until system convergence.

Overall, it is found that the combination of dynamic assignment with a microscopic simulation model greatly improves estimations of the effects of different toll options on a network-wide traffic pattern and operational level.

Review of Local Studies - Express Lane Modeling Summary

There have been several project development and environmental (PD&E) studies and traffic and revenue (T&R) studies within southeast Florida evaluating express lanes for various corridors. As part of the RCTO effort, these studies were reviewed in order to understand their express lane modeling methodology and key assumptions with respect to express lane system network, physical configurations, vehicle eligibility, regional growth and value of time.

PD&E Studies

The following PD&E studies conducted by Florida Department of Transportation (FDOT) District Six were reviewed as part of this analysis:

- Golden Glades Interchange PD&E Study;
- SR 826/Palmetto Expressway PD&E Study; and
- SR 826 Express Lanes (North – South) PD&E Study.

It was found that all three PD&E studies were performed in the similar time frame and utilized a consistent modeling methodology, summarized as following:

Model Description and Enhancements

The South East Regional Planning Model Version 6.5 (SERPM) was used for these PD&E studies. SERPM 6.5 follows a traditional four-step process (trip generation, trip distribution, mode-choice and trip assignment) and has a 2005 base year and a 2035 horizon year. As part of these PD&E studies, sub-area models were extracted and further validated to minimize the differences between traffic counts and modeled volumes within the study area for the following time periods:

- AM-Peak Period (6:30 – 9:30 am);
- PM-Peak Period (3:30 – 6:30 pm); and
- Off-Peak Period (9:30 am – 3:30 pm, 6:30 pm – 6:30 am).

Adjustments made on trip tables during the 2005 sub-area validation process were carried out to future years for traffic forecasting. In addition, an existing validation check was performed for the year 2010 to verify that the major roadways within the area of influence have the acceptable volume/count ratio and modeled volumes on I-95 express lanes are close to the traffic counts.

Growth Assumption

The SERPM 6.5 model contains the 2005 base year socio-economic data and 2035 MPO-approved socio-economic forecasts. Socio-economic data for 2010 and 2040 was initially developed using linear interpolating and extrapolating methodology based on the 2005 and 2035 zonal data. Adjustments were then made to account for impacts due to the recent economic recession using 2009 Bureau of Economic and Business Research (BEBR) medium level growth trends. For year 2040, additional Traffic Analysis Zone (TAZ) data developed for the Homestead Extension of the Florida Turnpike (HEFT) Widening PD&E Study were also incorporated in the socio-economic forecasts to ensure consistency with other studies.

Express Lane Modeling

The SERPM 6.5 model includes features for evaluating managed lanes. The main assumptions and methodology are as follows:

- Employs link-based and time equivalent toll methodology. Tolls are converted to the time units in minutes based on region or facility specific CTOLL value and added to the travel time to calculate the overall travel impedance for path building and route assignment. Default CTOLL value is set as 0.079 – which can be converted to $12.66/hour.
- Has the capable of evaluating facility with different toll type (1=coin, 2=card, 3=automatic vehicle identification – AVI) / (1=freeway booths, 2=ramp booths, 3=no deceleration/

acceleration). The model can also reflect the delay due to acceleration and deceleration and dwell time at traditional toll booths.

- Develops separate trip tables for Drive alone (DA), Shared-Ride-2 (SR2), Shared-Ride-3+ (SR3+) and trucks and has the capability to have 2+ and 3+ share-ride trips on different part of the networks and regions in the same scenario/alternative.
- Implements a dynamic and demand-responsive toll methodology in the assignment process, therefore tolls are varied based on congestion (Volume/Capacity ratio) of the tolling facility. In the time-of-day model, the volume/delay function and equilibrium assignment allocate traffic to the available roadways in the network. After each equilibrium iteration, a logit function adjusts the toll rate on each HOT link as a function of the Volume/Capacity on the link with the goal of maintaining a 45 mph speed on the HOT links. A maximum and minimum toll rate/mile is specified, so the tolls will vary between these limits.

As part of those PD&E Studies, the logit toll curve of the SERPM 6.5 model that determines the HOT lane toll was modified. The original toll curve in SERPM 6.5 model has a 13 cents/mile minimum toll and 35 cents/mile maximum toll. The minimum and maximum toll values were changed to match the existing typical rates of 2.5 cents/mile and 35 cents/mile. The formula for the logit toll curve is:

$$\text{Logit} = \text{mintoll} + (\text{maxtoll} - \text{mintoll}) / [1+\exp(\text{slope} - k^* (V/C)]$$

where:
Mintoll = Minimum Toll = 2.5 cents
Maxtoll = Maximum Toll = 35 cents
Slope = Equation Slope = 6
K = Bias Coefficients = 8
V/C = Volume/Capacity Ratio

I-75/S.R. 826 Managed Lanes Traffic and Revenue Study

The Florida Department of Transportation (FDOT) Districts Four and Six jointly conducted a Traffic and Revenue Study for the proposed managed lanes on Interstate 75 (I-75) and State Route 826/Palmetto Expressway (S.R. 826) in Broward and Miami-Dade Counties. The traffic and toll revenue forecasts were developed primarily using the two tools/models. The SERPM was used to develop corridor traffic forecasts by three time periods and on daily basis; and the Express Lanes Time-of-Day (ELTOD) was used to forecast managed lanes usage and associated toll rates on hour-by-hour basis.

The I-75/S.R. 826 Managed Lanes Traffic and Revenue Study investigated both the toll choice model developed for the I-95 Corridor Planning Study and the toll logit curve model utilized in the PD&E studies described previously in SERPM. The toll choice model employed a multinomial logit model to allocate trips on the basis of impedance and cost, to either a general purpose path, a toll path, or a HOT path. It

then assigned a probability of toll lane choice using cost and time coefficients (value of time) in a utility equation. Upon review of the model results from both procedures, it was found that both procedures yielded similar results in the daily and peak period assignments. The modified toll logit curve model was eventually selected for this analysis due to its dynamic and demand-responsive toll methodology and it is consistent with methodology used in other PD&E studies.

Future Express Lane Modeling Enhancements and Recommendations

This section outlines a series of enhancements and recommendations for future express modeling approaches. This will allow FDOT District 4 and District 6 to identify/adapt the best practice available, make improvements to the SERPM regional model, and use it to enhance the Southeast Florida Express Lanes Network modeling in the future.

Enable Evaluation of Different Managed Lane Investment Policies

In conjunction with a pricing strategy, various vehicle eligibility policies are often used in managed lanes to preserve free-flow conditions and provide safe mobility option for customers in these dedicated lanes. One form of vehicle eligibility is occupancy policy, which distinguishes between vehicles that can travel for free or for a discounted charge in a managed lane versus those which have to pay the full toll charge. Another form of eligibility is lane usage by vehicle type. The five most prevalent options for defining vehicle eligibility for express lanes are high occupancy vehicles (HOV) lanes, high occupancy toll (HOT) lanes with 2+, 3+ or 4+ occupancy requirements, express toll lanes (ETL), truck only lanes (TOL) and truck only toll (TOT) lanes.

The current SERPM 6.5 model considers HOT3+ as the only managed lane policy. Under the HOT3+ policy, vehicles with three or more occupants can use HOT lanes/managed lanes without paying a toll; vehicles with two or fewer occupants must pay a toll to use HOT lanes/managed lanes; and trucks are not allowed in HOT lanes/managed lanes.

An enhancement to the current approach would be to expand the facility type and managed lane code to include different managed lane investment policies, such as HOT2+ lanes, HOT3+ lanes, express toll lanes, etc. Since under different managed lane polices, the eligible free vehicles could erode managed lane capacity and limit the ability to successfully manage traffic flow in these lanes. It is crucial that travel demand model volumes under different occupancy requirements are validated to existing conditions.

Integrate Tolls in the Mode Choice Model

The current SERPM 6.5 model uses a nested mode choice mode that splits total person trips into 15 different sub-modes in a hierarchical fashion. Person trips are split into auto and transit modes. Auto

trips are further divided into sub-modes base on vehicle occupancy – drive alone, auto with two occupants and auto with 3-or-more occupants.

Another enhancement could be to integrate tolls in the mode choice model. The three sub-modes under auto can be further split into drive alone toll, drive alone non-toll, 2-person share-ride toll, 2-person share-ride non-toll, 3+person share-ride toll, 3+person share-ride non-toll. This will allow a wide range of trip and traveler's characteristics (household income levels, trip purposes, etc.) to be considered and evaluated in the mode choice stage before the traffic assignment begins.

In addition, the toll in the mode choice model should be implemented in the feedback process with both trip distribution and traffic assignment. The congested time and toll cost at the end of the highway assignment procedure would be fed back to the trip distribution and mode choice step as part of the feedback loop, in order to respond to the congested travel time and toll rates and reflect the effects of the enhanced toll diversion.

Enhance Toll Route Choice Model and Incorporate Different Value of Time (VOT)

A toll route choice model can be built into the highway traffic assignment step that allows the model to separate the trips that are willing to use express lanes or toll roads and those that choose to continue on the free alternatives for a given origin-destination zonal pair in each iteration of the equilibrium highway assignment process. The toll route choice model could be structured as a logit model for each of the trip modes (drive alone, HOV2, HOV3+, trucks) depending on various managed lane policies or could employ a willingness-to-pay methodology that estimates the fraction of the population who are willing to pay based on the travel time savings and associated toll costs.

Tolls within the current modeling framework are expressed as a monetary cost (fixed fee or per-mile rate); they are then converted to time costs or time penalties using value of time (VOT) information (CTOLL value). In this context, VOT can be described as a roadway user's willingness to pay to avoid delay, measured in dollars per hour. Drivers who perceive a higher value of travel time are willing to pay more than drivers who perceive a lower value of travel time for the same amount of travel time saved. Research shows that both traveler characteristics (household income, electronic transponder ownership, etc.) and trips characteristic (trip purposes, trip time, trip length, etc.) will potentially affect the willingness of commuters to use a managed lane or express lane. Therefore, different or distributed VOT by trip purposes and traveler's characteristics needs to be considered in the toll route choice model. Distributed VOT can be initially estimated based on stated preference surveys conducted in the southeast Florida region, paired with information derived from national sources. Over the time, these values should be further adjusted based on the calibration of the model using revealed preferences results of toll facilities and express lane facilities (such as I-95 express lanes) in the region.

Refine Time-of-day Model

The current version of SERPM has 3 time-periods represented: AM-Peak Period (6:30 – 9:30 am); PM-Peak Period (3:30 – 6:30 pm); and Off-Peak Period (9:30 am – 3:30 pm, 6:30 pm – 6:30 am). This time-of-day model has some drawbacks. Travel conditions may vary widely within these time periods. For example, the off-peak period is especially long and poorly represents the variation in midday period, early evening period and middle-of-the-night period. In addition, all those periods have very different travel patterns with different composition of trip purposes. Since the utilization of managed lanes/ express lanes largely depend on the congestion level of the corridor and travel time savings could be provided by those dedicated lanes, adding finer temporal resolution and time-of-day periods to SERPM would improve the accuracy of the express lane modeling.

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Southeast Florida EXPRESS LANES
Regional Concept for Transportation Operations

FDOT

Appendix D: FDOT Express Lane Policies

Approved:

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

Department of Transportation

DIRECTIVE EXPIRES: August 30, 2014

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.

REFERENCES

Sections 338.116 (4)(5)(6), 338.151, 338.155, 338.166, 348.1334.30 (1)(7) (8)(12), 335.02(3), and 338.221, Florida Statutes (F.S.)
FAC 14-100-004

Department Procedure 350-090-001 Economic Feasibility Development Process (applies to Florida Turnpike Enterprise facilities only)

GENERAL:

Tolling shall be implemented across the state, where deemed appropriate.

DEFINITIONS:

Express Lanes – a type of managed lane where dynamic pricing through electronic tolling is applied to lanes with through traffic, having fewer access points. Express lanes can co-locate within an existing non tolled facility to manage congestion and provide a more reliable trip time.

Managed Lanes – Highway facilities or sets of lanes within a highway facility where operational strategies are proactively implemented and managed in response to changing conditions with a combination of tools. These tools may include accessibility, vehicle eligibility, pricing, or a combination thereof. Types of managed lanes include high occupancy vehicle (HOV) lanes, high occupancy toll (HOT) lanes, truck only lanes, truck only toll lanes, bus rapid transit lanes, reversible lanes, and express lanes.

Multi-Axle Vehicles– vehicles with 3 or more axles

1. TOLLING

The Department shall consider tolling strategies for all new limited access facilities on the SHS, lanes added to existing limited access facilities on the SHS, new major bridges on the SHS over waterways and replacements for existing major bridges on the SHS over waterways. Tolling strategies may include congestion pricing to reduce peak period traffic volumes to optimal levels or toll roads financed with the toll paying, fully or partially, for the cost of such projects.

1.1 NEW LIMITED ACCESS FACILITIES ON THE SHS

On a new limited access facility, the toll may be applied to the overall facility. Strategies for tolling the overall facility may include a fixed toll on all lanes to maximize revenue, a toll applied only during periods of heavy usage to maximize overall person throughput, or a combination of fixed and dynamic pricing to manage congestion when throughput is a concern and generate additional revenue when throughput is not a concern.

1.2 ADDITIONAL LANES OR GROUP OF LANES FOR AN EXISTING FACILITY ON THE SHS

1.2.1 Limited Access

When adding capacity to an existing limited access facility on the SHS, Express Lanes shall be implemented across the state, where deemed appropriate through the transportation planning process. These lanes will provide a congestion-free choice for drivers in those corridors and will also provide a fixed guide way for public transit buses, which will realize the travel time benefits of the express lanes at no additional cost.

Express Lanes shall use dynamic congestion pricing to maximize overall throughput on the facility.

Dynamic tolls are to be applied to the additional lanes only. The number of additional tolled lanes must not take away from the number of existing non tolled or general purpose lanes. The number of non tolled lanes must remain the same as before the construction of additional capacity.

1.2.2 Controlled Access

All new capacity on non limited access state highway facilities (controlled access principle, major, or minor arterials) at a minimum shall consider managed lanes. These lanes may be priced or non-priced and combined with other TSM&O strategies such as Advanced Traffic Management Systems (ATMS), Emergency/Incident management, Arterial Management, Work Zone Traffic Management, etc.

1.3 BRIDGES AND TUNNELS

1.3.1 Tolling shall be used when constructing a new major bridge on the SHS over waterways, to pay fully for partially for the cost of the project. Tolling shall be used on replacements of existing major bridges on the SHS over waterways to pay, fully or partially, for the cost of such projects.

1.3.2 Tolling shall be used when constructing a tunnel or a ferry crossing to pay fully for partially for the cost of the project.

2. EXPRESS LANES

All additional capacity on the interstate shall be express lanes. These lanes provide a congestion-free choice for drivers and a fixed guide way for public transit buses, which will realize the travel time benefits of the express lanes at no additional cost.

1.4 TOLLING RESTRICTIONS AND VEHICLE ELIGIBILITY

1.4.1 Multi-Axle vehicles (vehicles with 3 or more axles) shall not be permitted to use express lanes, unless they are designated as emergency vehicles responding to specific incidents, they are being used for the purpose of repair or maintenance of express lane facilities, they are authorized for emergency evacuation by the secretary or secretary's designee, or they are public transit buses.

1.4.2 Except where toll exemptions are granted in accordance with Chapter 338.155, F.S., exemptions shall not be provided on express lane facilities.

1.4.3 The department shall use only electronic toll collection (ETC) via SUNPASS for collecting tolls within express lanes; no other method will be used.

1.4.4 Toll collection activities within Express Lane (priced managed lane) facilities will be administered by the Turnpike Enterprise's existing electronic toll collection system

1.5 FINANCE

All tolls collected on state owned and operated facilities shall cover the operating and maintenance costs of the facility from which the toll is collected.

1.5.1 All preliminary and investment grade Traffic and Revenue studies will be conducted by a general support consultant team under contract with the Turnpike Enterprise, allowing for consistency in assumptions and agency consideration of project feasibility. The District is responsible for covering the cost of the Traffic and Revenue study

1.5.2 Minimum toll rates shall be established by ***Rule 14-100.003, F.A.C.*** and, at a minimum, shall cover per trip costs of collecting the tolls.

1.5.3 An Internal Rate of Return (IRR) analysis is required to show the point in time that the express lanes project will have positive cash flow. Annual gross toll revenue, at a minimum, should cover the annual toll collection costs as defined in the financial test of feasibility for express lanes. When bond funding is used for construction of the Express Lanes, a Certification of Covenant to Pay Costs of Operations and Maintenance (O&M) for the Express Lane system may come from moneys in the State Transportation Trust Fund (STTF). In this case, gross revenues are available first to pay debt service on related bonds and then to repay the STTF for O&M costs related to the regional express lane networks.

1.5.4 With the authority outlined in ***Section 338.166, F.S.*** the following summarizes the use of toll revenue. The department may continue to collect tolls on express lanes after the discharge of any bond indebtedness related to such project. All tolls so collected shall first be used to pay the annual cost of O&M of the express lanes followed by annual cost of O&M of the express bus service only for the route operating in the express lanes. The accounting for each type of O&M (express lanes and transit operating in the express lanes) shall be kept separate. A typical example of the order of which so collected tolls can be used is outlined.

1. Debt Service
2. Annual cost of O&M of express lanes
3. Annual cost of O&M of express bus route
4. Pay back State Transportation Trust Fund- O&M debt and other covenant to pay construction cost
5. Improvements to express lanes project or associated transportation system
6. Construction, maintenance or improvements of any road on the SHS within the county or counties in which the toll revenue was collected

OR to support express bus service on the facility where the toll revenues were collected.

1.6 CONCEPT OF TRANSPORTATION OPERATIONS

A Concept of Operations document shall be developed for any tolling project. The Concept of Operations document shall be a formal memorandum of understanding or interagency agreement in place for operating defined transit, arterial, and freeway systems which involve tolling.

1.6.1 For Express Lanes, each region of the state shall develop a Regional Concept of Transportation Operations (RCTO) based on the area's express lane network long term vision. The RCTO document will outline the agreements between the different stakeholders of the region on how to operate the Express Lane Network. Building off of the RCTO, each Express Lanes project shall develop a project Concept of Operations during the Planning Phase continuing through Project Development and Environment (PD&E) Phase. The project Concept of Operations shall be frequently updated throughout the life of the project at a minimum of every 6 months.

1.6.2 Once an express lane project has started the PD&E phase, the traffic operations engineer shall be consulted for input on how the facility will operate. Operation of the facility shall include complimentary TSM&O strategies. Coordination between the Design Team and Traffic Operations Team shall take place when the project enters the design phase and be documented as part of the routine update to the RCTO and project Concept of Operations

3. TRAINING

None

4. FORMS

None

14-100.003 Express Lane Tolling.

(1) Purpose. The intent of this rule is to establish criteria for express lane tolling by the Florida Department of Transportation.

(2) Definitions. Unless defined below, words, phrases, or terms contained herein shall have the definitions set forth in Chapters 316, 334, and 338, F.S. As used in this rule the following words, phrases, or terms shall mean:

(a) "Authorized user" means any person operating a motor vehicle in an express lane with an active SunPass transponder or interoperable transponder-based pre-paid account having sufficient funds to pay the applicable toll, or operating a motor vehicle which is exempt from payment of the applicable toll pursuant to Rule 14-100.004, F.A.C.

(b) "Department" means Florida Department of Transportation.

(c) "Electronic toll collection point" means the physical location at which a SunPass transponder or interoperable transponder is read and a separate toll assessed for operation of a motor vehicle in an express lane or general toll lane.

(d) "Express lane" means a travel lane delineated or physically separated from a general use lane or general toll lane within a roadway corridor in which toll amounts are set based on traffic conditions.

(e) "Free-flow" means conditions under which travel is unimpeded and motor vehicles are able to safely operate at speeds of at least 45 miles per hour in the express lanes.

(f) "General toll lane" means a tolled roadway lane within a toll facility that is not an express lane and for which the applicable toll amount for its use is not established by variable tolling.

(g) "General use lane" means an untolled roadway lane.

(h) "Multi-axle" means a vehicle with three or more axles.

(i) "Point of entry" means either the location at which a vehicle enters an express lane, or the location at which a vehicle on an express lane passes an electronic message sign where toll amount information is displayed.

(j) "Point of exit" means either the location at which a vehicle exits an express lane, or the location at which a vehicle on an express lane passes an electronic message sign where toll amount information is displayed.

(k) "Trip" means that portion of an express lane travelled by a vehicle between the point of entry and the point of exit from an express lane.

(l) "Variable tolling" means the setting of toll amounts in an express lane for authorized users based on the toll amount criteria set forth in this rule.

(m) "Violator" means the registered owner of a motor vehicle operated in an express lane without being an authorized user.

(3) Toll Rate Criteria for Variable Tolling:

(a) Toll amounts for authorized users in an express lane will be established and adjusted through the collection and analysis of traffic data such as traffic volume, operating speeds, level of service, and trend data in the express lane, general use lanes, general toll lanes, or a combination thereof, to promote free-flow traffic conditions.

(b) The minimum toll amount for authorized users of an express lane that is not on the Turnpike System will be $0.50. The minimum toll amount for authorized users of an express lane on the Turnpike System will be at least $0.25 greater than the SunPass toll amount for the general toll lane.

(c) The maximum toll amount for authorized users of the express lanes on Interstate 95 between Mile Marker 4 and Mile Marker 12 will not exceed $1.50 per mile. If those express lanes reach the maximum toll amount on any 45 days in a six month period, the maximum toll amount will increase by $0.50 per mile effective the first day of the following month. The maximum toll amount for authorized users of those express lanes will increase by $0.50 in any subsequent six month period meeting the same condition.

(4) Payment of express lane tolls is performed electronically through the SunPass transponder and associated pre-paid account or interoperable transponder and associated pre-paid account.

(5) Multi-axle vehicles are not allowed to operate on an express lane unless otherwise indicated by regulatory signage. If the Department allows multi-axle vehicles on an express lane, the multi-axle toll amount will be equal to the applicable two-axle toll amount divided by two, multiplied by the number of axles.

(6) Display of Toll Amounts:

(a) To the extent feasible, an electronic message sign in advance of each point of entry to an express lane from a general use lane will display the current toll amount from the point of entry to one or more exit locations. The current toll amount also will be displayed for one or more additional exit locations if travel is continued in the express lanes beyond the exit locations displayed on the signage prior to the point of entry.

(b) To the extent feasible, an electronic message sign in advance of each point of entry to an express lane from a general toll lane will display the current additional toll amount for the express lane above the toll amount for the general toll lane, from the point of entry to one or more exit locations.

(7) Violators shall be charged $25.00 per trip plus the applicable toll amount. A violator must pay the total invoice amount within 30 days from the date on the invoice. If an invoice is not paid in full within 30 days from the date on the invoice, a second invoice will be sent. If the toll violation amounts are not paid within 30 days after the date on the second invoice, a Uniform Traffic Citation will be issued or the amounts owed by the violator will be pursued to collection.

Rulemaking Authority 334.044(2), 338.155(1), 338.166(4) FS. Law Implemented 316.1001, 316.640(1), 318.14(12), 334.044(16), 338.155(1), 338.165, 338.166(4), 338.2216, 338.231 FS. History–New 5-8-08, Amended 2-19-14.