



Photo: Greater Miami Conventions and Visitors Bureau

Evolution of Managed Lanes What's Next and How Do We Get There?

15th International Conference on Managed Lanes

May 4–6, 2016

Hyatt Regency Miami
Miami, Florida

Sponsored by TRB Standing Committees on
Managed Lanes
Congestion Pricing
Bus Transit Systems

Supported by
Florida Department of Transportation
Miami–Dade Expressway Authority
Florida International University
Florida Atlantic University
University of Florida Transportation Institute

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Mohammed Hadi, Florida International University
Julio Hajar, AECOM
Yvette Holt, Holt Communications
Paul Lampley, Florida Department of Transportation
Gregg Letts, AECOM
Debora Rivera, Florida Department of Transportation
Charles Robbins, C2S Engineering
Joe Sanchez, Florida Highway Patrol
Judy Solaun-Gonzalez, Florida Department of Transportation
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Thank you!

TRB sincerely appreciates the following organizations for their generous support of the 15th International Conference on Managed Lanes.

PLATINUM



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BRONZE



May 4-6, 2016



Student Scholarships

| Place | Name and University | Title of Paper |
|-------|---|---|
| 1 | Somaye Fakharian Qom <i>Florida International University</i> | Evaluation of Cooperative Adaptive Cruise Control Vehicles on Managed Lanes Utilizing Macroscopic and Mesoscopic Simulation |
| 2 | Samaneh Khazraeian <i>Florida International University</i> | Application of the Upcoming HCM Managed Lane Procedure to Pylon-Separated Managed Lane Analyses |
| 3 | Yang Zhang <i>University of Tennessee</i> | Discovering Incident Hotspots to Support Effective Lane Safety Management and Investment Location Decision Making: A Network-Based Big Data Clustering Approach |

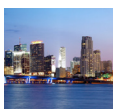
Scholarships for student participation provided by Transurban.

Virtual Tour Display

The managed lanes network in southeast Florida is taking shape. A growing population, in combination with the city's expansion, has increased driver demand over the past few years. Managed lanes have been proven to work since 2008, when 95 Express was launched as a pilot project. The project proved that a multimodal approach was a viable solution to managing growing congestion.

This virtual tour will take participants through the different projects being managed or implemented in the region. It will showcase the different stages the projects are in, and how they were designed to serve the individual needs of their respective highways. This tour is sponsored by the Florida Department of Transportation and Miami-Dade Expressway Authority.

The virtual tour display is located in the TRB registration area of the Hyatt Regency Miami at the 15th International Conference on Managed Lanes.



WELCOME

Welcome to the 15th International Conference on Managed Lanes! Whether you are a veteran practitioner or new to the profession, we hope that this opportunity to share the most recent research and project experiences, learn about the latest tools and strategies, and apply new innovations will be rewarding to you and your firm or agency. We are excited that the Florida Department of Transportation and the Miami-Dade Expressway Authority are our local host sponsors, along with Florida International University, Florida Atlantic University, and the University of Florida.

This conference brings together professionals from across the industry to discuss emerging ideas related to managed lanes, roadway pricing, and public transit—ideas that will have impacts on the operations of freeways and tollways. Conference activities and events include multiple technical sessions, a poster session, technical tours, a student paper competition, and the presentation of awards. All sponsors sincerely appreciate your participation and the support of the firms and organizations who have helped underwrite the cost of this conference. We look forward to meeting each of you and encourage your engagement in other TRB-related activities.

*–Casey Emoto, Standing Committee on Managed Lanes Cochair
Chuck Fuhs, Standing Committee on Managed Lanes Cochair
David Ungemah, Standing Committee on Congestion Pricing Chair
Baruch Feigenbaum, Standing Committee on Bus Transit Systems Lead*



Emoto



Fuhs



Ungemah



Feigenbaum

This event is cosponsored by the Transportation Research Board's Standing Committees on Managed Lanes (AHB35), Congestion Pricing (ABE25), and Bus Transit Systems (AP050).

The **Transportation Research Board** is one of seven major programs of the National Academies of Sciences, Engineering, and Medicine. The mission of the Transportation Research Board is to increase the benefits that transportation contributes to society by providing leadership in transportation innovation and progress through research and information exchange, conducted within a setting that is objective, interdisciplinary, and multimodal. The Board's varied committees, task forces, and panels annually engage about 7,000 engineers, scientists, and other transportation researchers and practitioners from the public and private sectors and academia, all of whom contribute their expertise in the public interest. The program is supported by state transportation departments, federal agencies including the component administrations of the U.S. Department of Transportation, and other organizations and individuals interested in the development of transportation.

www.TRB.org

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CONFERENCE AT A GLANCE

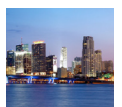
| Wednesday, May 4, 2016 | | |
|-------------------------------|--|---------------------------------|
| 7:00 a.m.–9:00 a.m. | Florida Department of Transportation District Six Tour | Brickell/Flagler Prefunction |
| 7:00 a.m.–4:00 p.m. | Registration | Brickell/Flagler Prefunction |
| 9:00 a.m.–11:00 a.m. | Congestion Pricing Subcommittee Meetings | |
| 9:00 a.m.–10:00 a.m. | Research Subcommittee [ABE25(6)] | |
| 10:00 a.m.–11:00 a.m. | Outreach Subcommittee [ABE25(1)] | Merrick 2 |
| 11:00 a.m.–Noon | Multimodal Pricing Implementation Joint Subcommittee (ABE25, AHB35) | Merrick 2 |
| 9:00 a.m.–Noon | Managed Lanes Subcommittee Meetings | |
| 9:00 a.m.–10:00 a.m. | Research Subcommittee [AHB5(2)] | Merrick 1 |
| 10:00 a.m.–11:00 a.m. | Meeting Planning Subcommittee [AHB35(3)] | Merrick 1 |
| 11:00 a.m.–Noon | Outreach Subcommittee [AHB35(1)] | Merrick 1 |
| Noon–1:00 p.m. | Economics Joint Subcommittee (ABE25, ABE20) | Merrick 2 |
| 1:00 p.m.–3:00 p.m. | Managed Lanes Committee Meeting (AHB35) | Merrick 1 |
| | ITED 2018 Conference Planning Subcommittee [ADD10(1)] | Gardenia |
| 3:00 p.m.–5:00 p.m. | Congestion Pricing Committee Meeting (ABE25) | Merrick 2 |
| 5:00 p.m.–7:00 p.m. | Transportation Economics Committee Meeting (ABE20) | Merrick 2 |
| Thursday, May 5, 2016 | | |
| 8:00 a.m.–9:00 p.m. | Continental Breakfast | Brickell/Flagler Prefunction |
| 8:00 a.m.–5:00 p.m. | Registration | Brickell/Flagler Prefunction |
| 9:00 a.m.–10:15 a.m. | <i>Opening Plenary Session</i> Emerging Trends in Managed Lanes: Opportunities and Challenges (CEO Roundtable) | Brickell/Flagler |
| 10:30 a.m.–Noon | Concurrent Breakout Sessions | |
| | Session 2: Focus on Florida's Managed Lane Projects | Brickell/Flagler |
| | Session 3: New Tools and Experiences for Demand Forecasting, Financial Analysis, and Simulation Modeling | Monroe |
| | Session 4: Tolling Policies and Technologies | Orchid |
| Noon–1:30 p.m. | Lunch and Awards Presentations | Tuttle |

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| Thursday, May 5, 2016 (continued) | | |
|--|---|------------------------------|
| 1:30 p.m.–3:00 p.m. | Concurrent Breakout Sessions | |
| | Session 5: Bus Transit Success Stories on Managed Lanes | Monroe |
| | Session 6: Operations and Enforcement Best Practices | Orchid |
| | Session 7: Design and Operational Performance | Brickell/Flagler |
| 3:00 p.m.–5:00 p.m. | <i>Poster Session</i> Session 8: Managed Lanes, Transit and Congestion Pricing for a More Sustainable Future | Upper/Lower Promenade |
| 5:30 p.m.–7:00 p.m. | Welcome Reception | Riverwalk Outdoor Terrace |
| 7:00 p.m.–9:00 p.m. | Transportation and Economic Development Committee Meeting (ADD10) | Gardenia |
| 7:00 p.m.–9:00 p.m. | Public–Private Partnership Subcommittee [ABE10(1)] | Hibiscus A |
| Friday, May 6, 2016 | | |
| 6:30 a.m.–9:00 a.m. | Continental Breakfast | Brickell/Flagler Prefunction |
| 7:00 a.m.–9:00 a.m. | Southeast Florida Managed Lanes Tour | Brickell/Flagler Prefunction |
| 7:00 a.m.–3:00 p.m. | Registration | Brickell/Flagler Prefunction |
| 8:15 a.m.–10:15 a.m. | Revenue and Finance Committee Meeting (ABE10) | Gardenia |
| 9:00 a.m.–10:15 a.m. | Concurrent Breakout Sessions | |
| | Session 9: Performance Monitoring—What Have We Learned? | Monroe |
| | Session 10: Connecting the Projects—Moving to Managed Lane Systems | Brickell/Flagler |
| | Session 11: User Perception and Public Outreach for Managed Lanes | Orchid |
| 10:30 a.m.–Noon | Concurrent Breakout Sessions | |
| | Session 12: Funding and Project Delivery—What We Are Learning | Brickell/Flagler |
| | Session 13: Introducing the NCHRP 15-49 Implementation Guide | Monroe |
| | Session 14: Innovative (and Potentially Disruptive) Technologies | Orchid |
| Noon–1:30 p.m. | Lunch and Student Paper Awards | Tuttle |
| 1:30 p.m.–3:00 p.m. | <i>Closing Plenary Session</i> “Back to the Future” with Managed Lanes (Special Roundtable and Activity) | Brickell/Flagler |

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SPEAKERS

Emerging Trends in Managed Lanes: Opportunities and Challenges CEO Roundtable

Jim Boxold

Jim Boxold was named Secretary of the Florida Department of Transportation (DOT) by Gov. Rick Scott in December 2014. As secretary, he is focused on improving the transportation network to benefit residents, visitors, and Florida's economic growth.

Under Gov. Scott, the state has significantly increased its transportation investments, providing the largest work program in the department's 100-year history two years in a row. These investments are paying off: Florida's transportation infrastructure consistently is ranked among the best in the country by the U.S. Chamber Foundation.

Boxold has challenged Florida DOT employees to build on that success by emphasizing innovation, continuing to seek ways to be more efficient in operations, and leveraging Florida's exceptional position to improve the state's transportation system even more.



Diane Gutierrez-Scaccetti

Appointed in August 2011, Diane Gutierrez-Scaccetti serves as Executive Director and Chief Executive Officer of Florida's Turnpike Enterprise. The Enterprise is the eighth district of the Florida Department of Transportation, and is responsible for the management and operation of the Florida Turnpike System. The Enterprise also manages the tolling operations on facilities not owned by the Turnpike Department. Comprised of a 320-mile mainline and nine expansion facilities, Florida's Turnpike System is more than 480 centerline miles of tolled facilities. Two facilities under development will add another 28 lane-miles to the system. Add to that more than 145 miles of Florida DOT-owned or -operated facilities, and the Enterprise responsibility expands to more than 625 centerline miles.

Under Gutierrez-Scaccetti's leadership, the Enterprise is pioneering concepts such as express lanes on toll facilities, pursuit of regional interoperability, and the development of a Transportation Technology Center for Excellence for the State of Florida. A proven leader who brings more than 25 years of toll road experience to the Florida Turnpike Enterprise, Gutierrez-Scaccetti previously served as Executive Director of the New Jersey Turnpike Authority, retiring after a 21-year career. She holds an undergraduate degree from the University of Connecticut and a master of science degree from Rutgers University in New Jersey.

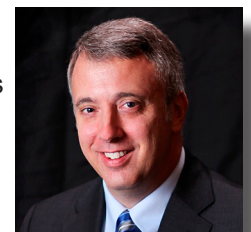
Gutierrez-Scaccetti is a member of the Executive Board of Florida DOTn, and serves on the boards of the International Bridge, Tunnel and Turnpike Association and the Alliance for Toll Interoperability. In 2006, she was honored by the Executive Women of New Jersey's Salute to the Policymakers Annual Dinner. A member of the Women's Transportation Seminar, Gutierrez-Scaccetti was named 2013 Woman of the Year by the Central Florida chapter.



Paul Steinman

Paul Steinman was named the Florida DOT District Seven Secretary in March 2013. He has more than 25 years of DOT transportation experience in Florida, Idaho, and Michigan. Steinman graduated from Michigan State University in 1989 with a bachelor's degree in civil engineering. He holds engineering licenses in Florida, Idaho, Michigan, and North Carolina.

As the District Seven Secretary, Steinman provides administrative oversight for the planning, development, and operations for all transportation modes within Citrus, Hillsborough, Hernando, Pasco, and Pinellas Counties. He is a member of the Florida DOT Executive Team, the Tampa-Hillsborough Expressway Authority Board, and the



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Tampa Bay Area Regional Transportation Authority Board. He also is an active participant in the department's effort to incorporate and implement autonomous vehicle technologies within the transportation network. Steinman has an extensive construction background and has previously served as the Florida DOT State Construction Engineer.

Debora M. Rivera

With more than 30 years of transportation experience, Debora M. Rivera has served as the Director of Transportation Operations for Florida DOT District Six since 2008. In this capacity, Rivera is responsible for all construction, traffic operations, and maintenance activities in Miami-Dade and Monroe Counties.



Since her appointment, Rivera has played an important leadership role in the DOT, serving on many task teams and leadership committees. She has championed transparency in the procurement and selection process and remains strongly committed to developing positive relationships with the consulting and contracting industries. Rivera is dedicated to improving employee satisfaction and engagement and works with local universities, mentoring students and occasionally serving as a guest lecturer.

Rivera received both a bachelor of science degree in engineering and a master of business administration degree from the University of Florida. She is a registered Professional Engineer, a member of the Institute of Transportation Engineers, and a member of the Florida Engineering Society, where she serves on the Board of Directors for the Miami Chapter. Rivera is a past recipient of the department's Ben G. Watts Leadership Award and received an Outstanding Achievement in Project Management Award from TRB.

Jim Wolfe

Jim Wolfe capped a 36-year career of public service as the Florida DOT District Four Secretary. A highlight of his Florida DOT career was when he led the \$1.8 billion expansion of I-595, the first availability payment public-private partnership (P3) highway project in the United States. Wolfe also was instrumental in the development of the South Florida Managed Lanes network, including the 95 Express in Broward County, 595 Express, and 75 Express. Wolfe is recognized as a leader in implementing creative transportation solutions.

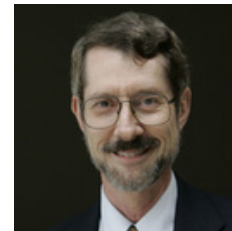


Wolfe now serves RS&H as Vice President, National P3 Market Leader, assisting public-sector clients with program management services. He holds both undergraduate and graduate degrees in civil engineering from the University of Florida.

Robert W. Poole, Jr.

Robert W. Poole, Jr., is Director of Transportation Policy and the Searle Freedom Trust Transportation Fellow at the Reason Foundation. He received his bachelor's and master's degrees in mechanical engineering from the Massachusetts Institute of Technology and did graduate work in operations research at New York University.

Poole's 1988 policy paper proposing privately financed, congestion-relief toll lanes inspired California's landmark public-private partnership pilot projects law, AB 680, which has served as the prototype for more than 20 similar laws in other states. In 1993, he directed a study that introduced the term "HOT lanes."



Poole has been an advisor to the Federal Highway Administration, the Federal Transit Administration, the White House Office of Policy Development, and the DOTs of California, Florida, Georgia, Indiana, Utah, Virginia, Texas, and Washington State. From 1989 to 1990 he served on the Caltrans Privatization Advisory Steering Committee and was a member of California's Commission on Transportation Investment from 1995 to 1996. He is a member of the board of the Public-Private Partnerships division of the American Road and Transportation Builders Association and a member of TRB's Managed Lanes Committee.

From 2003 to 2005, Poole served on a special TRB committee examining the long-term viability of fuel taxes for transportation funding. He was a member of the Texas Study Committee on Private Participation in Toll Roads, the Expert Review Panel on Managed Lanes for Washington State DOT, and the transition team for then-Governor Elect Rick Scott. He writes a monthly column on transportation policy issues for Public Works Financing and publishes the monthly e-newsletter, Surface Transportation Innovations.



CONFERENCE AGENDA

Wednesday, May 4

7:00 a.m.–9:00 a.m., *Brickell/Flagler Prefunction*

Florida Department of Transportation (DOT) District Six Tour

The tour will offer guests a comprehensive overview of the experience of operating 95 Express, one of the busiest managed lanes projects in the country. Attendees will learn about the challenges and successes the team have faced and how they plan to move forward as the regional network takes shape. Guests also will tour the newly redesigned SunGuide® Transportation Management Center and will see demonstrations of the District's incident management vehicles.

7:00 a.m.–4:00 p.m., *Brickell/Flagler Prefunction*

Registration

9:00 a.m.–11:00 a.m.

Congestion Pricing Subcommittee Meetings

9:00 a.m.–10:00 a.m., *Merrick 2*

Research Subcommittee [ABE25(6)]

10:00 a.m.–11:00 a.m., *Merrick 2*

Outreach Subcommittee [ABE25(1)]

11:00 a.m.–Noon, *Merrick 2*

Multimodal Pricing Implementation Joint Subcommittee Meeting (ABE25, AHB35)

9:00 a.m.–Noon

Managed Lanes Subcommittee Meetings

9:00 a.m.–10:00 a.m., *Merrick 1*

Research Subcommittee [AHB5(2)]

10:00 a.m.–11:00 a.m., *Merrick 1*

Meeting Planning Subcommittee [AHB35(3)]

11:00 a.m.–Noon, *Merrick 1*

Outreach Subcommittee [AHB35(1)]

Noon–1:00 p.m., *Merrick 2*

Economics Joint Subcommittee Meeting (ABE25, ABE20)

Noon–1:00 p.m.

Lunch (*on your own*)

1:00 p.m.–3:00 p.m., *Merrick 1*

Managed Lanes Committee Meeting (AHB35)

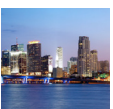
3:00 p.m.–5:00 p.m., *Merrick 2*

Congestion Pricing Committee Meeting (ABE25)

5:00 p.m.–7:00 p.m., *Merrick 2*

Transportation Economics Committee Meeting (ABE20)

Wednesday, May 4, 2016



Thursday, May 5

8:00 a.m.–9:00 a.m., *Brickell/Flagler Prefunction*

Continental Breakfast

8:00 a.m.–5:00 p.m., *Brickell/Flagler Prefunction*

Registration

9:00 a.m.–10:15 a.m., *Brickell/Flagler*

Opening Plenary Session

Emerging Trends in Managed Lanes: Opportunities and Challenges (CEO Roundtable)

Casey Emoto, Santa Clara Valley Transportation Authority, *presiding*

This session will feature CEOs of area agencies sharing their perspectives on the development and evolution of managed lanes, especially relative to what is next and how we might get there.

Welcome

Jim Boxold, Secretary, Florida DOT

Managed Lanes, Managed Arterials, and Bus Rapid Transit: A Win–Win Combination

Robert W. Poole, Jr., Director of Transportation Policy, Reason Foundation

Panelists

Diane Gutierrez-Scaccetti, Executive Director and Chief Executive Officer, Florida's Turnpike Enterprise; Debora Rivera, Director of Transportation Operations, Florida DOT District Six; Paul Steinman, Secretary, Florida DOT District Seven; and Jim Wolfe, Vice President, RS&H, Inc.

10:15 a.m.–10:30 a.m., *Brickell/Flagler Prefunction*

Morning Break

10:30 a.m.–Noon

Concurrent Breakout Sessions

Session 2: Focus on Florida's Managed Lane Projects, *Brickell/Flagler*

Javier Rodriguez, Florida DOT, *presiding*

This session will include presentations and discussions on a wide range of projects related to managed lanes, in operation and in development throughout the state of Florida, and will go into further details on the emerging opportunities and challenges relative to these projects.

Developing the Florida DOT Express Lanes Handbook

Sam Moss, HNTB, and Jennifer Fortunas, Florida DOT

Integrated Congestion Pricing Plan

Saad Shbaklo, HNTB, and Barbara Davis, Florida's Turnpike Enterprise

Express Lane Operational Analysis Experiences in Florida

Shawn Birst, RS&H, Inc.

Florida DOT District Six: Palmetto/I-75 Express Lanes

Judy Solaun-Gonzalez, Florida DOT District Six

Florida DOT District Two Express Lanes Projects

Stephen Browning, Florida DOT District Two

Thursday, May 5, 2016



Session 3: New Tools and Experiences for Demand Forecasting, Financial Analysis, and Simulation Modeling, *Monroe*

Barney Allison, Nossaman LLP, *presiding*

This session will focus on the planning and development aspects for evaluating managed lanes, including the latest in demand forecasting, financial analysis, and simulation approaches for managed lanes projects.

Financial Analysis Tools

Amy Causseaux, Florida DOT

Dynamic Express and Managed Lane Simulation for the I-95 Express Lane Corridor Plan

John Duesing, Cambridge Systematics, and Ken Jeffries, Florida DOT District Six

Express Lane Time of Day Model and Traffic and Revenue

Xiao Cui, Florida's Turnpike Enterprise

Evaluation of Cooperative Adaptive Cruise Control Vehicles on Managed Lanes Utilizing Macroscopic and Mesoscopic Simulation (*student paper*)

Somaye Fakharian Qom, Yan Xiao, and Mohammed Hadi, Florida International University

Investigating Preference Heterogeneity in Value of Time and Value of Reliability Estimation for Managed Lanes

Md Sakoat Hossan, Florida International University

Session 4: Tolling Policies and Technologies, *Orchid*

Richard (Trey) Baker, Texas A&M Transportation Institute (TTI), *presiding*

This session will feature existing practices in managed lane in particular in relation to tolling policies and will highlight experiences with managed lanes and other technologies for managing traffic, new challenges relative to tolling policies, and the emerging role that smartphone apps and other technologies may play when it comes to tolling.

Expanding the Applicability and Positive Impact of Managed Lanes with the Convergence of Integrated Corridor Management and Reversible Lanes

Daniel Rathbone, Lindsay Transportation Solutions, and Pierre Pretorius, Kimley-Horn and Associates, Inc.

Flexibility Must Be Built into All Facets of the Managed Lane Facility Lifecycle

Matthew MacGregor, Michael Baker International, and Patrick Vu, Silicon Transportation Consultants

SR-237 Express Lanes: Policy Implications and Lessons Learned After Four Years of Operations

Murali Ramanujam, Casey Emoto, and Gene Gonzalo, Santa Clara Valley Transportation Authority

General Tolling Requirements for Express Lanes

John Easterling, Florida's Turnpike Enterprise

Noon–1:30 p.m., *Tuttle*

Lunch and Awards Presentations by Three Sponsoring TRB Committees

1:30 p.m.–3:00 p.m.

Concurrent Breakout Sessions

Session 5: Bus Transit Success Stories on Managed Lanes, *Monroe*

Baruch Feigenbaum, Reason Foundation, *presiding*

Thursday, May 5, 2016



This session will address both the challenges and opportunities that have occurred on various projects in Florida and elsewhere that have involved public transit applications with managed lanes.

Success of Express Bus on Florida Express Lanes

Diane Quigley, Florida DOT

Edens Expressway Bus on Shoulder Study

Srikanth Panguluri, CH2M

Israel Fastlane, High-Occupancy Toll (HOT) Lane: Changes in Demand Modal Split, and the Factors Behind Them

Rimon Rafiah, Economikr

Managed Lane Public–Private Partnerships and Transit: Can They Successfully Coexist?

Nicholas Farber, Colorado High Performance Transportation Enterprise

Session 6: Operations and Enforcement Best Practices, *Orchid*

Mike Davis, RS&H, Inc., *presiding*

This session focuses on recent experiences in project operations, enforcement, and maintenance practices in dealing with commonly addressed issues that affect violations, incident management, and facility preservation.

Incident Management and Enforcement Lessons Learned

Joe Snyder, AECOM

Nexus Between Enforcement Approaches and Technologies on Occupancy and Vehicle Eligibility

Jennifer Frankl and Patrick Vu, Silicon Transportation Consultants

Early Findings from an Automated Occupancy Enforcement Pilot Project on Interstate 110

Kathy McCune, Los Angeles County Metropolitan Transportation Authority

Traffic Management Center Reconfiguration to Accommodate Express Lanes

Bob Edelstein, AECOM

Optimizing Express Lane Operations

Charles J. Robbins, C2S Engineering, LLC

Session 7: Design and Operational Performance, *Brickell/Flagler*

Carlos Campo, Traffic Technologies, Inc., *presiding*

This session will cover the latest research and operational experience in managed lane design and the implications this research has on specific roadway design features including separation, access, signing, and markings.

TEXpress Lanes: Food for Thought

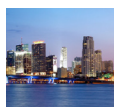
Alberto Gonzalez, LBJ Express

Safety Implications of Managed Lane Cross-Sectional Elements

Kay Fitzpatrick, TTI

Express Lanes Standard Signing Sequence

Shannon Pike, Florida's Turnpike Enterprise



Current Practice and Considerations in At-Grade Managed Lane Access Design

Marcus Brewer, TTI

Managed Freeways: A Holistic Approach for Fully Controlling Freeway Operations

Darren Henderson, David Ungemah, and Scott Pitera, WSP-Parsons Brinckerhoff

3:00 p.m.–3:30 p.m., *Brickell/Flagler Prefunction*

Afternoon Break

3:00 p.m.–5:00 p.m.

Poster Session

Session 8: Managed Lanes, Transit and Congestion Pricing for a More Sustainable Future,

Upper/Lower Promenade

Don Samdahl, Fehr and Peers, *presiding*

This poster session presents the latest research findings and technological applications connecting managed lanes, transit, and congestion pricing for a more sustainable future for transportation. The poster session will allow conference attendees an opportunity for direct communication with presenters.

Application of the Upcoming HCM Managed Lane Procedure to Pylon-Separated Managed Lane Analyses *(student paper)*

Samaneh Khazraeian, Florida International University

Design of High-Occupancy Toll Lane Facilities

Stephen Zitzow and John Hourdos, University of Minnesota

Position of Vehicles Within a Managed Lane

Kay Fitzpatrick, TTI

Refuge Areas for Drivers on Freeway Managed Lane Corridors *(student paper)*

Marcus Brewer, TTI

Overview of Outreach Initiatives for Federal Highway Administration (FHWA) Congestion Pricing Program

Angela Jacobs, FHWA; Myron Swisher and Mafruhatul Jannat, Leidos, Inc.

We Already Paid For It!

Colleen Grants, PRR; LaDetra White, Nobel Insight; and Angela Jacobs, FHWA

Application of Multiresolution Modeling on Performance of Managed Lane Facilities

Somaye Fakharian Qom, Florida International University

New Tools for Quickly and Cost-Effectively Evaluating Conceptual Managed Lane Alternatives

Matt Huggins and Brian Smalkoski, Kimley-Horn and Associates, Inc.

Making Our Freeway Better

Satya Kolluru and Kari Bishop, Arcadis U.S., Inc.

Developing Innovative Solutions to Close the Gap on the I-680 Northbound Managed Lane

Eddie Barrios, Fehr & Peers; Kevin Chen, Metropolitan Transportation Commission (MTC); and Ross Chittenden, Contra Costa Transportation Authority

Multisegment and Multiphase Managed Lanes Implementation: I-95 Phase 3 Experience

Xuesong (Alex) Zhu, HDR, Inc.

Thursday, May 5, 2016



**Driver Behavior Model Calibration at the Basic Managed Lanes Segments:
South Florida Case Study**

Soheil Sajjadi, PTV Group; Alexandra Kondyli, University of Kansas; and Kyle Bright

Decision Support System for Dynamic Pricing of Managed Lanes

Maryam Zabihi, Siamik A. Ardekani, and Mahmut Yasar, University of Texas at Arlington

Transform 66 Outside the Beltway: Multimodal Solutions from 495 to Haymarket

Jiaxin Tong, Kimley-Horn and Associates, Inc.

Congestion Pricing Analysis of I-15 HOT Lanes in Utah

Cameron Kergaye, Utah DOT

Development of a High-Capacity Transit Plan for Managed Lanes Using Demand Forecasting

Jessica Alvarez, Foursquare Integrated Transportation Planning, Inc.

Recommendations for Users of a HOT Lane with Auction-Based Metering in Minnesota

Rafael Olarte and Ali Haghani, University of Maryland, College Park

Managing Mobility on Treasure Island with Pricing

Liz Justison, WSP-Parsons Brinckerhoff, and Eric Cordoba, San Francisco County Transportation Authority

Discovering Incident Hotspots to Support Effective Lane Safety Management and Investment

Location Decision Making: A Network Based Big Data Clustering Approach (*student paper*)

Yang Zhang and Lee Han, University of Tennessee, Knoxville

Different Types of High-Occupancy Vehicle Access Control

Guoyuan Wu, Kanok Boriboonsomsin, and Matthew Barth, University of California, Riverside, and Ramakrishna Tadi, Caltrans

5:30 p.m.–7:00 p.m., *Riverwalk Outdoor Terrace*

Welcome Reception

7:00 p.m.–9:00 p.m., *Gardenia*

Transportation and Economic Development Committee Meeting (ADD10)

7:00 p.m.–9:00 p.m., *Hibiscus A*

Public-Private Partnership Subcommittee [ABE10(1)]

Friday, May 6

6:30 a.m.–9:00 a.m., *Brickell/Flagler Prefunction*

Continental Breakfast

7:00 a.m.–9:00 a.m., *Brickell/Flagler Prefunction*

Southeast Florida Managed Lanes Tour

The tour will showcase five highway projects in Miami-Dade and Broward Counties. The projects are in different stages of deployment and were designed to serve the individual needs of their respective highways. Attendees will tour each project and hear from representatives of the challenges and success each system faced while still working to solve the regional needs of the network. The tour will include a drive along through SR 836, Palmetto Express, 75 Express, 595 Express, and 95 Express.

Thursday, May 5, and Friday, May 6, 2016



7:00 a.m.–3:00 p.m., *Brickell/Flagler Prefunction*

Registration

8:15 a.m.–10:15 a.m., *Gardenia*

Revenue and Finance Committee Meeting (ABE10)

9:00 a.m.–10:15 a.m.

Concurrent Breakout Sessions

Session 9: Performance Monitoring—What Have We Learned?, *Monroe*

Ben Perez, WSP–Parsons Brinckerhoff, *presiding*

This session will highlight the role performance monitoring is serving in helping operators better understand how their projects are meeting expectations and what we are learning from user, financial, and performance perspectives.

Statewide Express Lane Performance Measures

Doug McLeod, Florida DOT

North Tarrant Express Managed Lanes: Key Facts After the First Year of Operations

Alberto Gonzalez, LBJ Express

Assessing Performance: Access, Algorithms, and Operations

Tyler Patterson, Washington State DOT

High-Resolution Performance Monitoring in Managed Lane Evaluation

Randall Guensler, Michael Hunter, Michael O. Rodgers, and Yanzhi Xu, Georgia Institute of Technology, and Khaled Abdelghany, Southern Methodist University

Session 10: Connecting the Projects—Moving to Managed Lane Systems, *Brickell/Flagler*

Lisa Klein, MTC, *presiding*

This session will focus on how managed lane systems are emerging from separate projects, and the issues that are being confronted in this effort.

Operations-Based Planning for Managed Lanes Systems

Benjamin Perez, WSP–Parsons Brinckerhoff, and Gregory Jones, FHWA

MTC Express Lanes: Lessons Learned After Five Years of Planning and Developing a Network

John Lowery, WSP–Parsons Brinckerhoff, and Lisa Klein, MTC

Evolution of Second-Generation Pricing Projects

Don Samdahl, Fehr & Peers, and Angela Jacobs, FHWA

Regional Concept of Transportation Operations for Express Lanes

Jennifer Fortunas, Florida DOT

Best Practices for Signing on a Multisegment Managed Lanes Network

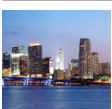
Gregory Jones, FHWA, and Chris Swenson, WSP–Parsons Brinckerhoff

Session 11: User Perception and Public Outreach for Managed Lanes, *Orchid*

Dennis Hinebaugh, Center for Urban Transportation Research, University of South Florida, *presiding*

This session will focus on the various ways in which outreach and messaging have worked to build understanding in projects being developed. It also will focus on what has been learned about users of managed lanes, emerging techniques for reaching out to the public, and lessons learned about traveler information and signing.

Friday, May 6, 2016



The Next Step in Managed Lanes: Going Beyond Creating Choices to Changing Behavior

Alan Brick-Turin, Gannett Fleming

Lessons Learned on Public Outreach for Express Lanes

Kim Poulton, Florida's Turnpike Enterprise, and Alicia Torrez, Florida DOT District Six

Information Needs for Managed Lanes Users: Fifteen Years of Research on Traveler Information Systems and Traffic Control Devices

Susan Chrysler, TTI

Warning: Confused Driver on Board—Challenges, Lessons Learned, and Questions for Further Research for Signing Managed Lane Projects in Florida

James M. Sumislaski, Kimley-Horn and Associates, Inc., and David Wantman, Wantman Group, Inc.

10:15 a.m.–10:30 a.m., *Brickell/Flagler Prefunction*

Morning Break

10:30 a.m.–Noon

Concurrent Breakout Sessions

Session 12: Funding and Project Delivery—What We Are Learning, *Brickell/Flagler*

Matthew MacGregor, Michael Baker International, *presiding*

This session will address funding and financing and the role that design–build, public–public, and public–private partnering is playing in the implementation of managed lane projects across the United States.

I-66 Corridor Improvements Outside the Capital Beltway in Northern Virginia: Case Study for Funding of Transit Service and Transportation Demand Management Strategies Through Managed Lanes

R. John Martin, Kimley-Horn and Associates, Inc.

Florida Project Finance Perspective

Leon Corbett, Florida DOT

Incentivizing Efficient Multimodal Transportation on Managed Lanes through Public–Private Partnerships

Patrick DeCorla-Souza, FHWA

Managed Lane Design–Build Best Practices

Shubhendu Mohanty and Keith Kunst, Arcadis, Inc.

Session 13: Introducing the NCHRP Project 15-49 Implementation Guide, *Monroe*

Joseph Rouse, California Department of Transportation, *presiding*

This session will highlight the latest national guidance—to be published this year—that addresses planning, design, operation, and related topics involved in implementing managed lanes.

Overview of NCHRP Project 15-49 Guidelines

Kay Fitzpatrick, TTI

Introduction to Managed Lanes

Chuck Fuhs

Planning Considerations

Nick Wood, TTI

Design Elements

Marcus Brewer, TTI

Friday, May 6, 2016



Traffic Control Devices

Susan Chrysler, TTI

Implementation, Deployment, Operations, and Maintenance

David Ungemah, WSP–Parsons Brinckerhoff

Session 14: Innovative (and Potentially Disruptive) Technologies, *Orchid*

Jennifer Fortunas, Florida DOT, *presiding*

User information systems, connected and autonomous vehicles, smart apps, active traffic management, managed motorways, and a host of other technologies will be explored and presented, along with the impacts these may have on managed lanes.

Disruptive Innovation in the Transportation Sector and Managed Lanes

Richard (Trey) Baker, TTI

Simulation of Evolutionary Introduction of Cooperative Adaptive Cruise Control–Equipped Vehicles into Traffic

Peng (Patrick) Su, Leidos, Inc.

Automated Vehicle and Connected Vehicle Efforts in Florida

Ed Hutchinson, Florida DOT

Exploring the Potential of Autonomous and Connected Vehicles on the Bay Area’s Express Lanes

John Lowery, Liz Justison, and Lauren Isaac, WSP–Parsons Brinckerhoff, and Virginia Lingham, MTC

Noon–1:30 p.m., *Tuttle*

Lunch

Presentation of Student Paper Scholarship Awards

Keynote Address

Potential Evolution of Autonomous Vehicle Technology in Managed Lanes

Tom Byron, Assistant Secretary of Intermodal Systems Development, Florida DOT

1:30 p.m.–3:00 p.m., *Brickell/Flagler*

Closing Plenary Session

“Back to the Future” with Managed Lanes (*Special Roundtable and Activity*)

Katherine Turnbull, TTI, *presiding*

This session will provide a wrap up of what was learned at the conference, with speakers offering predictions of where the development and implementation of managed lanes may be headed—especially with the rapid pace of change in the world around us. The session may also include an audience participation activity with a “Back to the Future” theme.

The Future of Managed Lanes from (A)utonomous Vehicles to (Z)ero Emissions

Chuck Fuhs, Cochair, Managed Lanes Committee

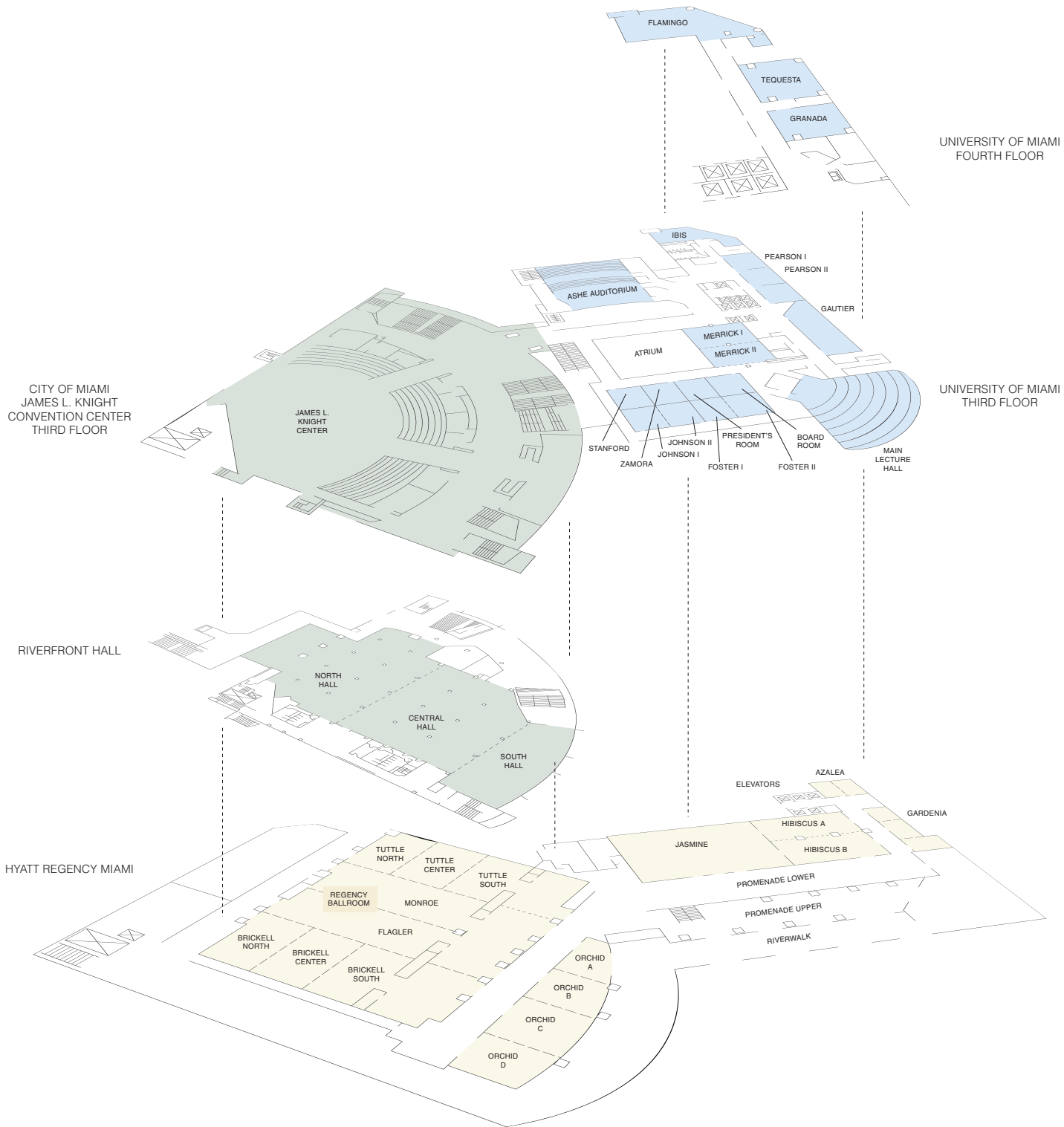
Panelists

Thomas F. Barry, Jr., Atkins; Lisa Klein, MTC; Debora Rivera, Florida DOT District Six; David Ungemah, WSP–Parsons Brinckerhoff; Baruch Feigenbaum, Reason Foundation; Matthew Click, HNTB

Friday, May 6, 2016



HOTEL FLOOR PLAN



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