

Transportation Systems Management & Operations

TSM&O

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Florida Department of Transportation

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measure + operate + manage

TSM + O

= multimodal mobility



Overview

- What is TSM&O and Why Now?
- Progress to Date
- Current Challenges and Issues
- Vision for Operations in Florida
- Examples of TSM&O
- Next Steps



Endorsement of TSM&O Recommendations

- **Items for Review Today**

- **Definition**
- **Tier 2 Business Plan**
- **Strategic Plan Outline**
- **High Level Policy Actions**



- **Request endorsement of these items at May Meeting**

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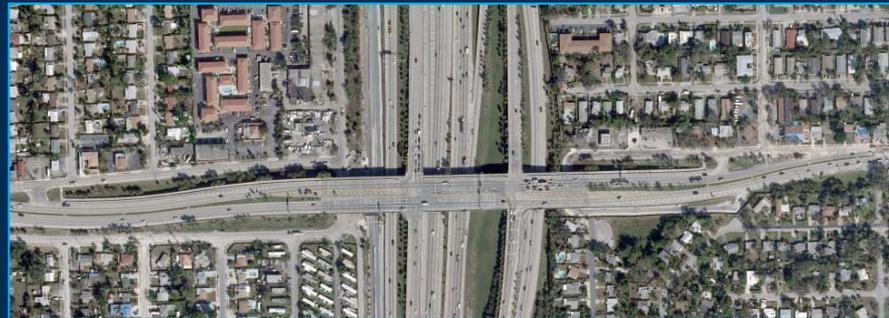
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TSM&O Definition

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Integrated *program* to optimize the *performance* of existing *multimodal* infrastructure through implementation of systems, services, and projects to preserve capacity and improve the security, *safety and reliability* of our transportation system



TSM&O

Clarifying Statement

T S M + O

- **TSM&O is a new program within the Department of Transportation**
 - **Based on measuring performance**
 - **Actively managing the multimodal transportation network**
 - **Delivering positive safety and mobility outcomes to the traveling public in Florida**



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Arterial Management

**Emergency / Incident
Management**

Freeway Management

Special Event Management

Work Zone Management

**Transit Operations &
Management**

Traveler Information

Travel Demand Management

Freight Management

Travel Weather Management

Planning & Development

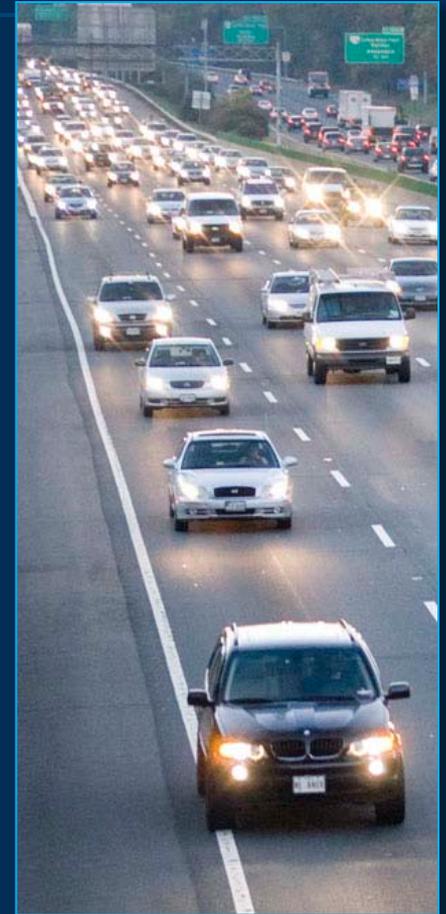
Construction

System Operations

Maintenance

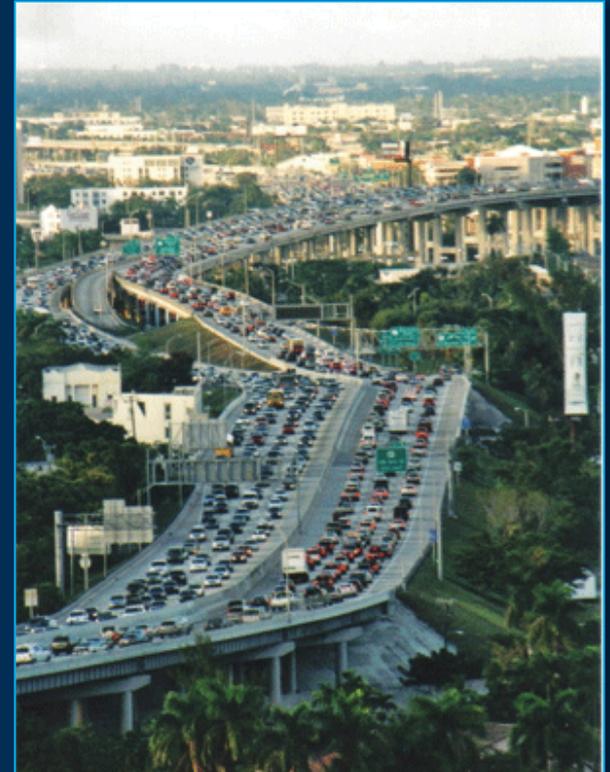
Progress to Date

- Central Office Task Team
- Previous Executive Board Presentation
- Tier 2 Business Plan
- Strategic Plan Outline
- District Achievements



Congestion

- Annually, in Florida's seven urbanized areas
 - **198 million gallons** of excess fuel are wasted
 - **293 million person-hours** are spent
- in congestion resulting in
- A total annual cost of congestion of **\$5.9 billion**



2009 Urban Mobility Report, Schrank D., Lomax T., Texas Transportation Institute.

Safety

- In 2008 Florida
 - Experienced **2,978** traffic fatalities, a rate **33%** higher than the national average
 - Average fatality has economic costs of **\$977,000** while costs associated with a critically injured crash survivor surpasses \$1 million



National Highway Traffic Safety Administration.

Current Operations Challenges

● Congestion

- Variability in travel time as a result of less than optimal operation of system
- Inconsistent operating treatment of freeways/arterials (ITS and incident management)

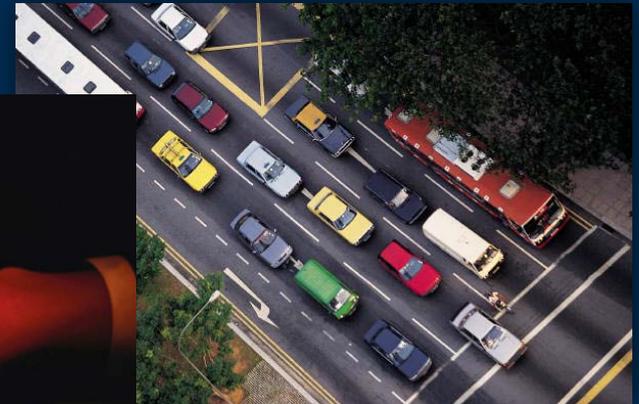
● Processes

- Inconsistent approaches and plans for operating improvements
- Variety of stakeholders involved



Vision for Arterial and Freeway Operations

- To operate our transportation system at the highest-level of cost effective performance resulting in
 - Reduced excess delay on arterials AND freeways
 - Real time management and traveler information for all modes
 - Seamless Coordination with ALL operating agencies



D1 - Example of TSM&O Interlocal Agreement

- **Single regional Traffic Management System**
 - Each agency involved - FDOT will be at the center for handling freeway management operations
- **Created an ITS Management Team to operate and maintain system**
- **Progress to date**
 - Traffic Management Center built
 - Manatee ATMS under construction
 - Sarasota ATMS under design and funded for construction
 - Freeway Management System for Sarasota/Manatee Counties scheduled for construction in 2011/2012



Districts 2, 3 and 5 - Examples of TSM&O

● D2

- City of Gainesville use of grant funding for signal retiming in Gainesville

● D3

- I-10/I-110 Construction coordination

● D5

- Real Time traffic data in Operations centers



D4 - Example of TSM&O

- Defined TSM&O network
- Central Broward County ATMS – 2011/2012
 - **will provide the ATMS infrastructure** to support real-time operations and management on initial TSM&O Deployment Network
- One Year Plan
- Five Year Plan
- System Integration
 - Arterials, Freeways, Transit



D6 - Example of TSM&O I-95 Express



- **Combination of congestion pricing, ramp management, express bus and carpools on I-95 in Miami-Dade**
- **Peak Hour Operations:**
 - **Pre-Implementation**
 - General Use Lane – 20mph, HOV Lanes – 20mph
 - **Post-Implementation**
 - General Use Lanes – 41mph, Express Lanes – 57mph
 - Person throughput increased by 12%
 - Better travel time reliability

D7 - Example of TSM&O

Pinellas County

- Implemented a modern traffic control system on key corridors
- Including traffic adaptive strategies where signal timing varies in response to measured demands
- Before-after study showed
 - Travel time improvements from five to 24% at varying times of day
 - Injury crashes were reduced by 12% to 36% in these corridors



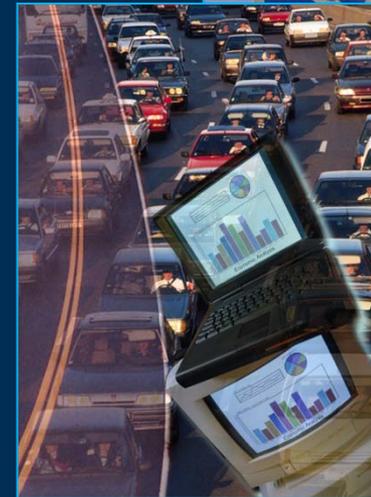
Turnpike - Example of TSM&O Towing and Roadside Repair Program

- **Seven contractors (10 zones) are meeting the Quick Response commitments (less than 30 minutes) approximately 88 percent of the time**
- **Overall average arrival time by contractors is approximately 20 min.**
- **Florida's Turnpike Lane Closure Duration times**
 - **Have continued to decrease for all levels of incidents in 2009**
 - **Largest decrease in Level 2 incidents where the Turnpike experienced an 11 minute reduction on average**



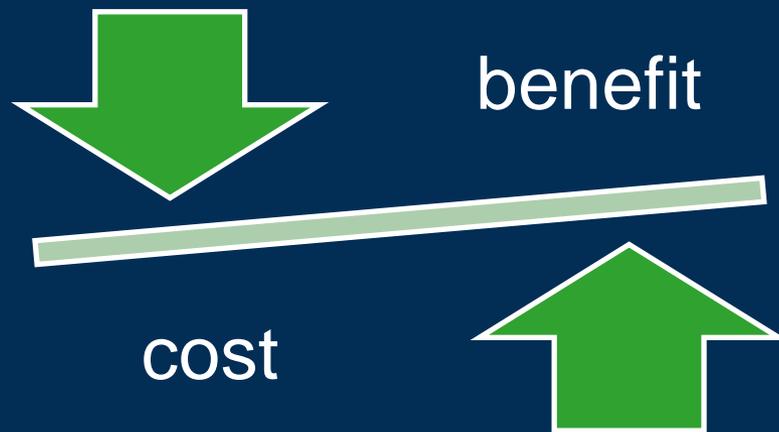
Benefits of TSM&O

- Making the most of the infrastructure we already have
- Improved coordination between planning/MPOs/operations
- Better incident management
- Improved travel time reliability
- Better flow through work zones
- Cost savings \$



Benefit/Cost of TSM&O

“Overall, the benefit-cost ratio of systems-operations measures (enabled by intelligent transportation systems) has been estimated at about 9 to 1, far above the addition of conventional highway capacity, which has a benefit-cost ratio of 2.7 to 1”



Source – The Information Technology & Innovation Foundation January 2010

TSM&O – We are not there yet!

- **Need defined networks, performance measurement and better tracking of Benefit/Cost (B/C) of ALL projects**
- **Tier 2 Plan Organizational Performance results**
 - **Executive Board endorsement of program**
 - **Report of performance measures regularly (delay, incident duration, incident clearance)**
 - **Calculate B/C or Net Present Value (NPV)**

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Near-Term High-Level Policy Actions

FY 2011/2012



● Central Office

- Develop a formal program within FDOT
- Provide tools, guidance, and policy
- Finalize/publish strategic plan and Tier 2 Business Plan
- Develop accountability mechanisms (dashboard)

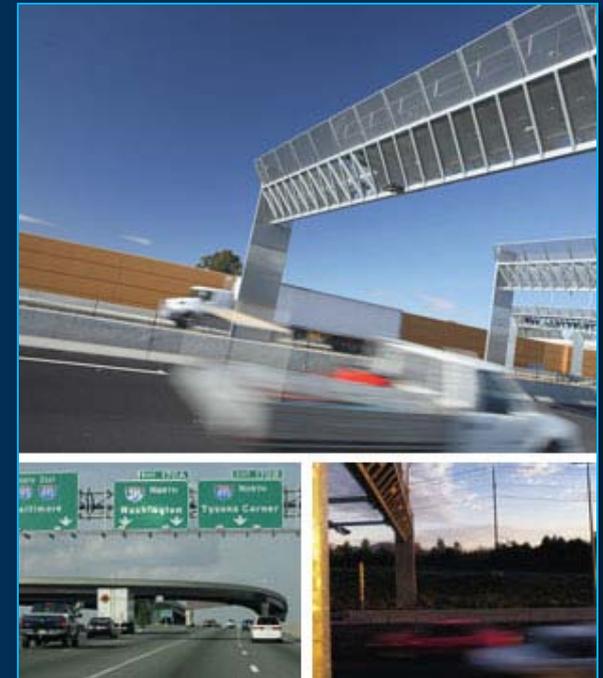
● Districts

- Select focus areas under program
- Identify a champion in each district
- Districts define applicable networks (freeways, arterials, other?) for performance-based management through TSM&O
- Require District to develop/update Tier Business Plan for TSM&O

Longer Term Policy Action Items

FY 2011-2013

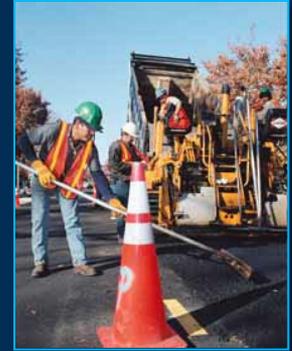
- TSM&O formally considered in FDOT/MPO, planning, PD&E processes
- TSM&O reflected in key FDOT policies/procedures
- Defined Statewide Program for ATMS operation/maintenance support
- Defined interagency TSM&O policies/procedure/protocols



Longer Term Policy Action Items

FY 2011-2013

- **TSM&O related activities to occur throughout the Department**
 - **Project Development**
 - PD&E Manual and Interstate Master Plans
 - **Construction**
 - Maintenance of Traffic Plans incorporate TSM&O strategies
 - **Maintenance/Materials**
 - Real-time infrastructure monitoring through remote sensors
 - **Operations Centers**
 - Real-time monitoring of work zone traffic operation where appropriate



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