TRANSPORTATION SYSTEMS
MANAGEMENT & OPERATIONS
TSM&O

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Florida Department of Transportation
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OVERVIEW

• What is TSM&O
• Vision for Operations in Florida
• Progress to Date
• Examples of TSM&O
• Next Steps
• Strategies – Now and Future
TSM&O

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

• TSM&O is a 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
• Benefit/Cost ratio of operational projects prove they are cost-effective solutions
CONGESTION

• Annually, in Florida’s seven urbanized areas
  – 216 million gallons of excess fuel are wasted
  – 274 million person-hours are spent in congestion resulting in
    • A total annual cost of congestion of $6.4 billion

2010 Urban Mobility Report, Schrank D., Lomax T., Texas Transportation Institute
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
PROGRESS TO DATE

• TSM&O Task Team
  – Strategic Plan
  – Tier 2 Business Plan
  – Draft Outreach Plan
  – Performance Measures Dashboard
  – Policy and Procedures updates

• TSM&O Leadership Team

• District TSM&O Workshops
DESIRED WORKSHOP OUTCOMES

- Help participants better understand TSM&O
- Foster understanding that all functional areas have a role in planning for and implementing TSM&O
- Identify District focus area for implementation
- Develop action items to continue TSM&O implementation
TSM&O
STRATEGIC PLAN OVERVIEW

• Lays groundwork for establishing and maintaining TSM&O Program

• Recommends actions to be taken in next five years to successfully establish TSM&O Program
  – District focus areas selected
  – District champions identified
  – Pilot programs initiated
  – Dashboards created to report results
EXAMPLE OF TSM&O IMPLEMENTATION
INTERLOCAL AGREEMENT

• Single regional traffic management system
  – Partners with Sarasota and Manatee Counties, and Cities of Sarasota and Bradenton
  – Regional signal coordination and arterial incident management
EXAMPLE OF TSM&O IMPLEMENTATION

NETWORK MANAGEMENT

• Defined TSM&O network
• Central Broward County advanced traffic management system – 2011/2012
  – Will provide ATMS infrastructure to support real-time operations and management on initial TSM&O deployment network
• System integration
  – Arterials, freeways, transit
EXAMPLE OF TSM&O IMPLEMENTATION
REAL TIME OPERATIONS

• CCTV footage of construction zones being monitored at Operations Centers
• Actively monitoring travel times on I-4 and SR 417
EXAMPLE OF TSM&O IMPLEMENTATION
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 percent
  - Better travel time reliability
EXAMPLE OF TSM&O IMPLEMENTATION IMPROVEMENT PROJECT

• Efficiency/high location projects Anderson Mainline Toll Plaza
• Lane configuration increased throughput, improved overall design
• Small scope - $53,000 project
NEAR-TERM IMPLEMENTATION ACTIONS
FY 2011/2012

• Central Office
  – Implement a formal program within FDOT
  – Provide tools, guidance, and policy
  – Finalize/publish Strategic Plan and Tier 2 Business Plan
  – Develop accountability mechanisms (dashboard)
  – Conduct TSM&O workshops statewide

• Districts
  – Select focus areas under program
  – Identify a champion in each District
  – Districts define networks (freeways, arterials) for performance-based management through TSM&O
System Performance
--------Peak Hour Travel Time Index--------

Organizational Performance
--------Operating and Maintenance Benefit/Cost Ratio--------

District-Wide Travel Time Index

<table>
<thead>
<tr>
<th>Districts</th>
<th>Two Year Average TTI</th>
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</thead>
<tbody>
<tr>
<td>District 1</td>
<td>1.26</td>
</tr>
<tr>
<td>District 2</td>
<td>1.20</td>
</tr>
<tr>
<td>District 3</td>
<td>1.29</td>
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<tr>
<td>District 4</td>
<td>1.44</td>
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<tr>
<td>District 5</td>
<td>1.41</td>
</tr>
<tr>
<td>District 6</td>
<td>1.46</td>
</tr>
<tr>
<td>District 7</td>
<td>1.41</td>
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</tbody>
</table>

District-wide Incident Duration

<table>
<thead>
<tr>
<th>Districts</th>
<th>Quarterly Incident Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>District 1</td>
<td>64</td>
</tr>
<tr>
<td>District 2</td>
<td>35</td>
</tr>
<tr>
<td>District 4</td>
<td>44</td>
</tr>
<tr>
<td>District 5</td>
<td>52</td>
</tr>
<tr>
<td>District 6</td>
<td>31</td>
</tr>
<tr>
<td>District 7</td>
<td>54</td>
</tr>
</tbody>
</table>

Note: Incident duration data for District 3 is not available

Outreach Effort

Business Plan Development Progress

Percent of Work Zones Managed

<table>
<thead>
<tr>
<th>Percent of Work Zones Managed</th>
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</thead>
<tbody>
<tr>
<td>Work Zones Managed</td>
</tr>
<tr>
<td>Work Zones Not Managed</td>
</tr>
</tbody>
</table>

District 4

Limited Access Facilities

Arterial

Note: Incident duration data for District 3 is not available
LONGER-TERM IMPLEMENTATION ACTIONS
FY 2011/2013

• TSM&O formally considered in FDOT/MPO, planning, PD&E processes, and manuals
• TSM&O reflected in key FDOT policies/procedures
• Construction
  – Maintenance of traffic plans incorporate TSM&O strategies
• Maintenance/materials
  – Real-time infrastructure monitoring through remote sensors
<table>
<thead>
<tr>
<th>Focus Areas</th>
<th>Benefit</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ramp Signals</td>
<td>Regulates flow of traffic entering freeway</td>
<td>District 6</td>
</tr>
<tr>
<td>ATMS</td>
<td>Enhanced signal coordination</td>
<td>Statewide</td>
</tr>
<tr>
<td>Severe Incident Response</td>
<td>Central point of contact at major incidents</td>
<td>District 4</td>
</tr>
<tr>
<td>Vehicles</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focus Areas</td>
<td>Benefit</td>
<td>Location</td>
</tr>
<tr>
<td>--------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Managed Lanes</td>
<td>Road managed in response to changing conditions, creating a more effective and efficient freeway</td>
<td>District 6</td>
</tr>
<tr>
<td>Arterial Management</td>
<td>More effectively managing traffic on arterial roadways</td>
<td>Districts 1 and 4</td>
</tr>
</tbody>
</table>
## TOOL BOX STRATEGIES NOW

<table>
<thead>
<tr>
<th>Focus Areas</th>
<th>Benefit</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Incident Management</td>
<td>Improve safety for motorists and responders, reduce congestion, improve safety</td>
<td>Statewide</td>
</tr>
<tr>
<td>Work Zone Traffic Management</td>
<td>Improve safety and enhanced traffic management in work zones</td>
<td>District 1</td>
</tr>
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</table>
# TOOL BOX STRATEGIES
## 2015-2017

<table>
<thead>
<tr>
<th>Focus Areas</th>
<th>Benefit</th>
<th>Location</th>
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</thead>
<tbody>
<tr>
<td>Active Traffic Management</td>
<td>Maximizes efficiency by increasing throughput, capacity and trip reliability</td>
<td>Statewide</td>
</tr>
<tr>
<td>Virtual Freight Network</td>
<td>Improves freight movement</td>
<td>Statewide</td>
</tr>
<tr>
<td>Focus Areas</td>
<td>Benefit</td>
<td>Location</td>
</tr>
<tr>
<td>---------------------</td>
<td>-----------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Connected Vehicle</td>
<td>Reduce number of incidents, improve safety of travelling public</td>
<td>Statewide</td>
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BENEFITS OF TSM&O

• Making the most of the existing infrastructure
• Improving coordination between transportation operators
• Better incident management
• Improving travel time reliability
• Better flow through work zones
• Cost savings $
QUESTIONS?