

Transportation Systems Management and Operations

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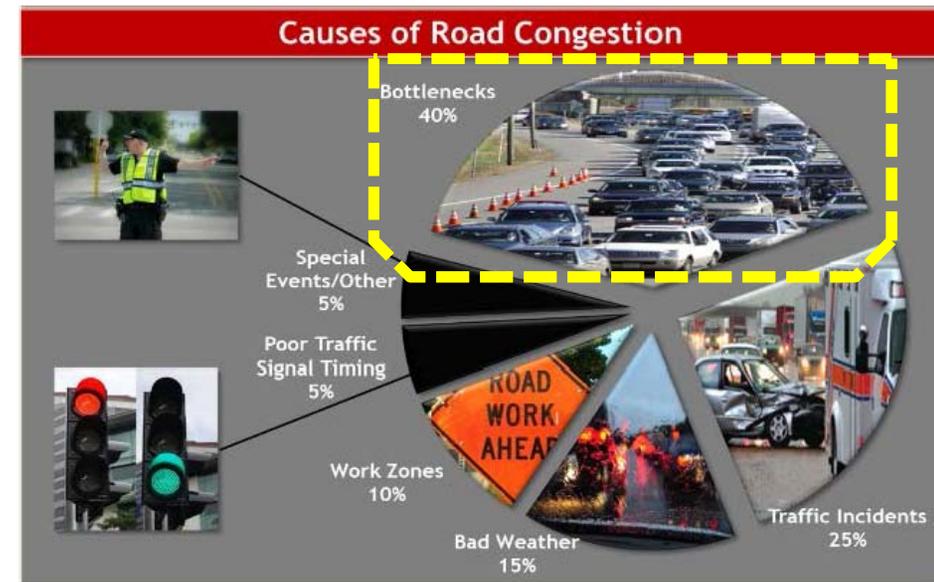


Traditional Approach to Managing Transportation

1. Predict future **traffic volumes**
2. Then **fund expensive major capital projects** to provide additional capacity

But this....

- Only addresses **40%** of the congestion problem
- Can be difficult to implement due to **physical/financial constraints**



(Source: FHWA)

The Transportation Environment is Changing – **A New Paradigm**

- Increased opportunities with **information** and **technology**
- Emergence of **Automated Vehicles**
- Emergence of **Mobility as a Service (MaaS)**
- Growing emphasis on **performance measurement**
- Increasing **financial constraints**



The Opportunity

Transportation Systems Management and Operations (TSM&O) strategies keep traffic moving by:

- **Maximizing** existing roadway capacity
- **Minimizing** impact of unexpected events
- **Improving** safety for all users
- **Improving** reliability



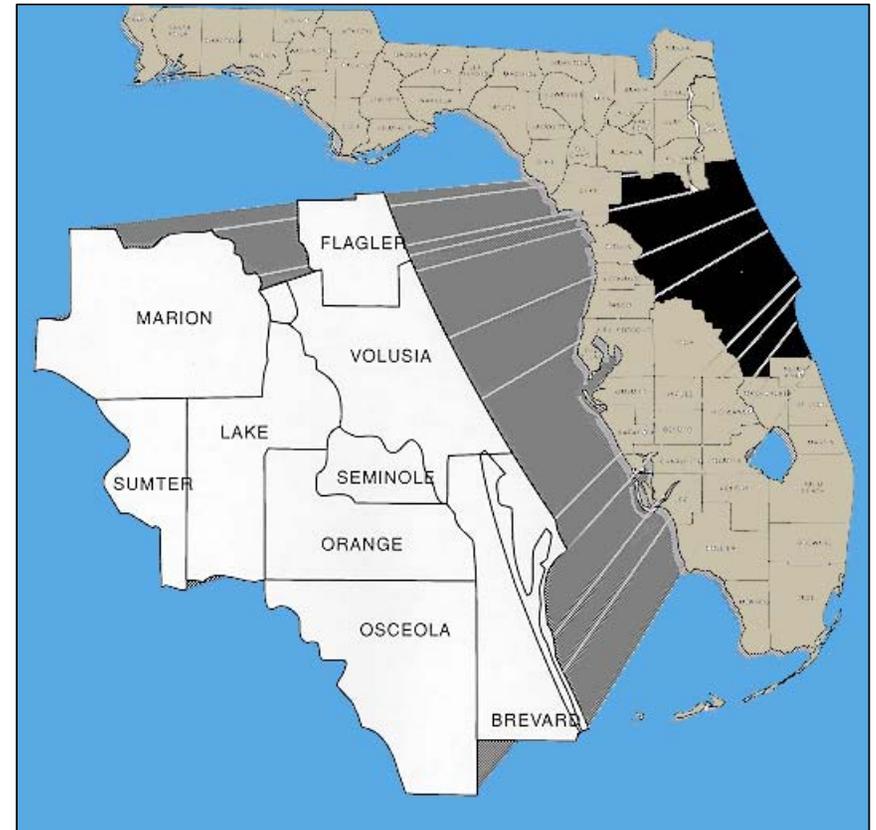
Photo: © Kevin Lee, Kittelson & Associates, Baltimore, MD

What is TSM&O?

Regional integration is a central component

All strategies require **inter-agency collaboration**, including:

- Signal Timing
- Incident Response
- Security



What is TSM&O?

Different Cost Model

- Requires **continued investment** versus **large upfront costs**
- Solutions **MUST BE MAINTAINED** to work!

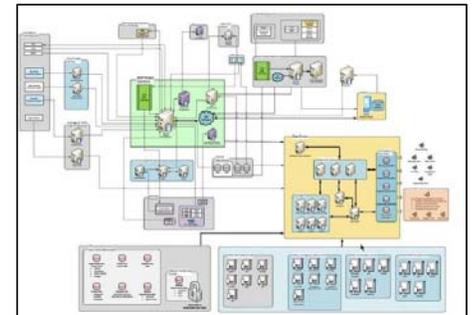


TSM&O in Support of Mobility and Safety

TSM&O Strategy	Example Benefits	Used Here
Adaptive Signal Control	<ul style="list-style-type: none"> • Delay reduced 4-40% 	✓
Transit Signal Priority	<ul style="list-style-type: none"> • Bus times improved 2 - 15% • Minimal impact to side streets 	✓
Integrated Corridor	<ul style="list-style-type: none"> • Estimated B/C ratio of 5-10 : 1 	✓
Dynamic Shoulder Running	<ul style="list-style-type: none"> • Travel times reduced up to 25% • No impact on safety 	
Dynamic Speed Limits	<ul style="list-style-type: none"> • Crashes reduced 10-30% • Secondary crashes reduced 50% • Improved reliability 	
Ramp Metering	<ul style="list-style-type: none"> • Crashes reduced 15-40% • Travel times increased 10% + 	

TSM&O Examples in Central Florida

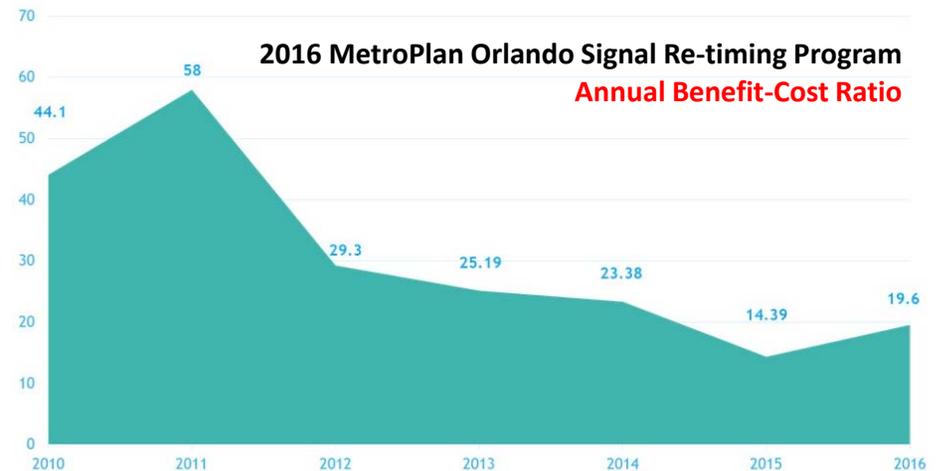
- Automated Traffic Signal Performance Measures (ATSPM)
- Integrated Corridor Management (ICM)
- Software platforms, Big Data, and Data Management
- Coordination with UCF
- Signal Technician Training with Orange Technical College
- Standardizing practices
- Working with LYNX to develop a Technology Master Plan



TSM&O in Action

Traffic Signal Re-timing along State Facilities

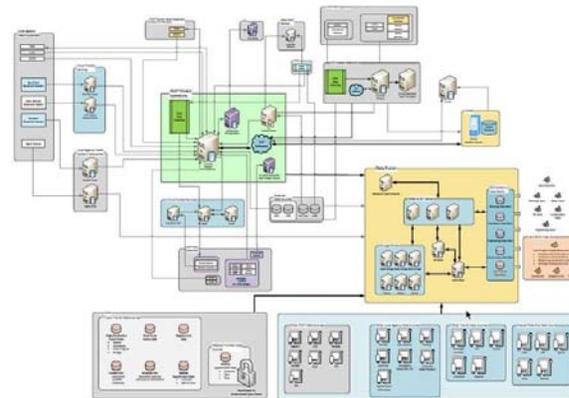
- District Five is responsible for operating and maintaining **1,629 signals**
 - **Signals Retimed** : ~ **922 signals (57%)** (from 2013 through 2017)



- For reference, a recent MetroPlan Orlando study determined the annual **Benefit-Cost ratio** ranges of signal re-timing from **14.4 to 58:1**

Successes Here

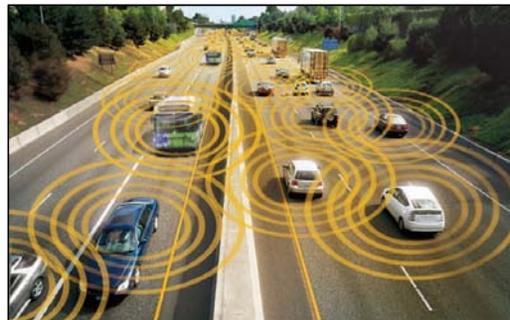
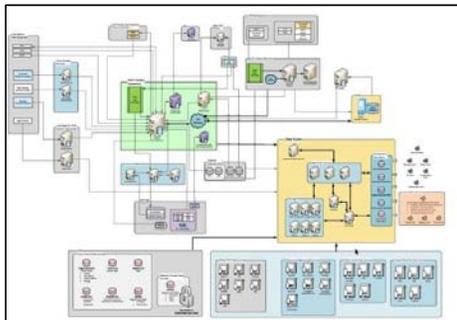
- **ITS Master Plans**
 - District 5, MetroPlan Orlando, SCTPO, R2CTPO, Sumter, Lake
- **Smart Cities designation**
- Central Florida Automated Vehicle Partners (CFAVP); USDOT Automated Vehicle Proving Ground Pilot Site designation
- TSM&O Program (Documentation, Consortium, etc.)
- **ATCMTD Grant - \$11.9 million (largest single recipient)**



Reaching the Full Potential of TSM&O

A **successful TSM&O program** must include:

- Supportive business/technical processes – “**Mainstreaming TSM&O**”
- Preparation for **future needs and technologies**
- Key **stakeholder buy-in**
- Consistent **inter-agency / inter-departmental collaboration**
- Constant **performance measurement**



Next Steps

- **For Consideration at the Next MPO Alliance Meeting**
 - Five-year plan of regional TSM&O projects
 - Seeking approval to be incorporated into Strategic Regional Plan
 - Coordination towards an I-4 Corridor regional project

Summary

For additional information, please contact:

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or visit

www.CFLSmartRoads.com