Public Works Department

Transportation System Management & Operation (TSM&O) Program

Board of County Commissioners

August 7, 2018



- What is TSM&O?
- Completed Projects
- Existing System Inventory
- Ongoing Projects
- Programmed Projects



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A program to optimize the performance of existing infrastructure through these goals:











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Annual Signal Timing Coordination Program

- Award winning program established 2001
- Optimizes signal timing along arterials
- Timing performed by in-house staff
- Retiming every three years
- Adopted by Metroplan in 2008, funded on State roads
- Expanded by Metroplan in 2015, funded on County/City roads



Benefits Achieved

- ✓ Reduced intersection delay
- ✓ Reduced corridor travel time
- Reduced fuel consumption
- ✓ Improved air quality
- ✓ Improved constituent satisfaction
- ✓ No additional County funds



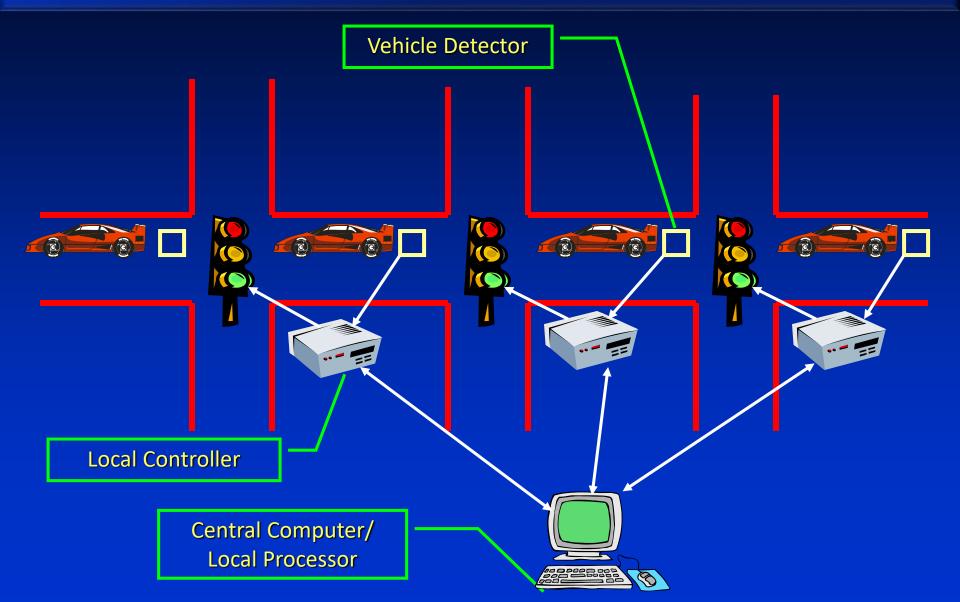
SCOOT Adaptive Signal Control



Deployed 2000 - 2012

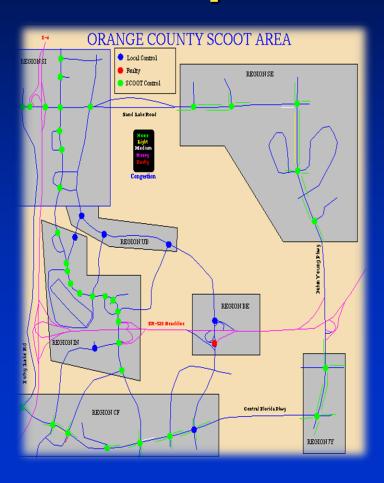


How Adaptive Control Works





SCOOT Adaptive Signal Locations



- International Dr
- Universal By
- Sand Lake Rd
- John Young Py
- Central Florida Bv

Primarily Serving:

- Convention Center
- Parking Garages
- Hotels & Restaurants
- Tourist Attractions



Operational Benefits Achieved

- ✓ Better OCCC traffic management
- ✓ Reduced travel times and delays
- ✓ No need for officer control of signals
- ✓ No need for regular timing updates
- √ Self adjust timing during lane closures



InSync Adaptive Signal Control Deployed 2013-2017



Video detection camera



Bluetooth detector Signal cabinet



UPS cabinet



Existing InSync Locations



Florida Mall

Equipment: 100% Federally funded

Installation: By OC staff

Completed 2015



Existing InSync Locations



Disney World

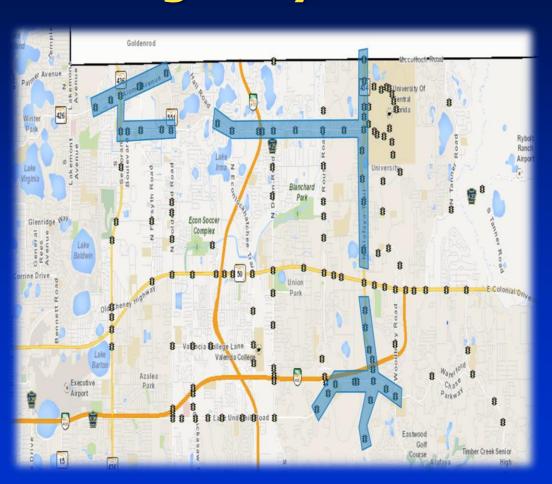
Equipment: 100% Federally funded

Installation: By OC staff

Completed 2016



Existing InSync Locations



East Orange Co

Equipment: 100% Federally funded

Installation: By OC staff

Completed 2017



Sample Benefits Achieved

Corridor

NB Orange Blossom Tr SB Orange Blossom Tr EB Sand Lake Rd WB Sand Lake Rd Travel Time Change

-14%

-15%

-8%

-7%



Advanced Traffic Management System (ATMS) - Phase 1





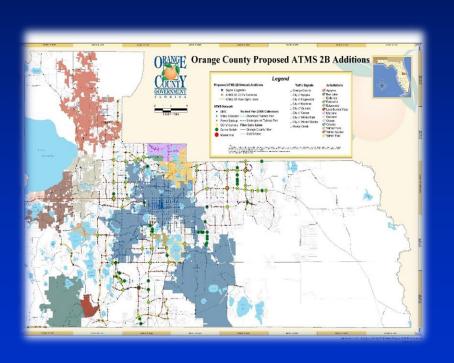


- 80 miles of fiber optic lines
- 8 CCTV cameras
- 8 Dynamic Message Signs
- New Traffic Management Center facility
- TMC video management system, servers, workstations, and communication switches

\$7.5M federal funds - Completed 2005



Advanced Traffic Management System (ATMS) - Phase 2



- 45 miles of fiber optic lines
- 60 signal controller upgrades
- 40 CCTV cameras
- 5 complete traffic signal upgrades from span wires to mast arms

\$5.5 federal funds - Completed 2014



Advanced Traffic Management System (ATMS) – Phase 3



- 41 InSync adaptive signals
- 41 Signal and UPS cabinets
- 34 Bluetooth travel time detectors
- 100 Signal controller upgrades
- 20 Wireless signal communication
- Video management system replacement

\$3.5M federal funds - Completed 2017



ATMS Benefits Achieved

- **✓** Respond faster to citizen requests
- ✓ Monitor & troubleshoot signals from TMC
- **✓** Adjust signal timing from TMC
- ✓ Reduce maintenance and operation cost
- **✓ Effectively manage OCCC events**
- **✓ Provide travel information**



LED Traffic Signal Upgrade

- ✓ Upgraded all traffic signal bulbs to LED
- ✓ Upgraded 240 internally illuminated signs to LED
- **√**Reduced energy cost by 60%
- ✓ Reduced maintenance by 80%
- **√100% funded by USDOE**

\$1M federal funds - Completed 2012



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Existing System Inventory

- 599 traffic signals
- 240 miles of fiber optic lines
- 81 InSync adaptive signals
- 21 SCOOT adaptive signals
- 62 Bluetooth detectors
- 320 school zone flashers
- 125 CCTV cameras
- 10 Dynamic Message Signs







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School Zone Time Switch Replacement

- Provides two-way communication to TMC
- Provides confirmation of running schedule
- Provides alarms of malfunctions
- Improves maintenance efficiency
- Improves school safety
- Ready for connected vehicles integration

Budget \$1M (County funds)
Scheduled completion this December





Ongoing Projects

Advanced Transportation Congestion Management Technology Deployment





Advanced Transportation Congestion Management Technology Deployment

- PedSafe: Improves pedestrian/bicyclist safety
- GreenWay: Improves transit, emergency vehicle, and signal operation efficiency
- Smart Community: Allows transit realtime travel information through kiosks

Budget \$11.9M (Federal funds)
Scheduled completion 2020

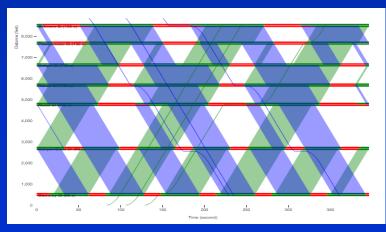


Ongoing Projects

Automated Traffic Signal Performance Measures

- Replaces 100 signal controllers
- Improves signal operation efficiency
- Prepares for automated vehicles
- Provides detailed performance measures
- Managed by FDOT for OC

\$500,000 (Federal funds)
Scheduled completion 2019





Advanced Traffic Management System - Phase 4

- 10 mile expansion of fiber optic network
- 40 wireless communication devices
- 10 Dynamic Message Sign replacements
- 150 CCTV cameras
- 200 Bluetooth travel time detectors
- 120 signal controller replacements
 Budget \$4M (Federal funds)
 Scheduled completion 2021



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Programmed Projects

Connected Vehicles Pilot Project

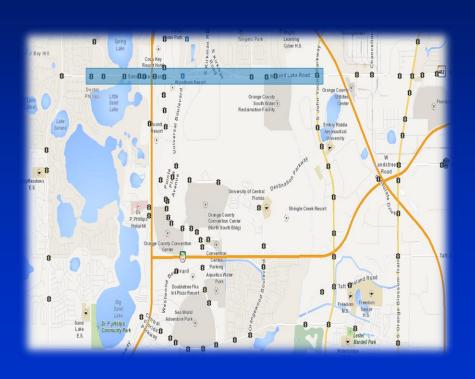
- Provides predicted signal timing and optimal speed data to drivers
- Provides wireless communication between remote signals and the TMC
- Provides real-time signal performance measures to the TMC
- License agreement underway

Cost \$0 -Scheduled completion 2020



Programmed Projects

InSync Adaptive Control Expansion



Replaces Outdated SCOOT Adaptive Control

12 Intersections Serving Dr. Phillips Retail

Deployment concurrent with Sand Lake Rd Widening



Programmed Projects

InSync Adaptive Control Expansion



Replaces Outdated SCOOT Adaptive Control

16 Intersections
Serving: Convention
Center, Theme Parks,
hotels, and retail

Deployment concurrent with I-Dr Transit Lanes











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