Seminole County, Florida

SEMINOLE COUNTY TRAFFIC SIGNAL PROGRAM OVERVIEW

14
traffic signal program employees

387
traffic signals

861
miles of roadway

$1.5M
traffic signal program budget

TRAFFIC SIGNAL SYSTEMS CAPABILITY MATURITY SELF ASSESSMENT

	Level 1 Ad-Hoc, High Risk	Level 2 Established, Risk Acknowledged	Level 3 Measured, Managed Risk	Level 4 Managed, Low Risk
Business Processes			✔	
Systems and Technology			✔	
Performance Measurement			✔	
Organization and Workforce			✔	
Culture			✔	
Collaboration			✔	

Traffic Signal Systems Capability Maturity Self-Evaluation Tool: https://ops.fhwa.dot.gov/tsmoframeworktool/tool/tssc/

ATSPM CAPABILITY

Seminole County, Florida uses automated traffic signal performance measures (ATSPM) to support a wide range of performance metrics. Detection methods include loops, video, radar, and wireless magnetometers; all of which enable Seminole County to have lane-by-lane detection. Granular detection, coupled with ATSPM systems, has reduced the need to perform periodic traffic counts and allowed for data-driven evaluations of signal performance. Analytics provided by Seminole County's ATSPM system include:

- Approach delay
- Approach speed
- Approach volume
- Arrivals on red/green
- Coordination diagrams
- Pedestrian delay
- Phase termination
- Preemption details
- Split failure
- Split monitor
- Turning movement counts

ATSPM benefits are being achieved through evaluations of signal retiming efforts. Analyzing before and after metrics for arrivals on red, arrivals on green, number of max outs, and number of gap outs allows the County to immediately gauge performance improvements after a signal retiming effort. Likewise, the system enables Seminole County to evaluate the effectiveness of adaptive systems. System-generated Purdue Coordination Diagrams, together with comparisons of arrivals on green and red data, provide insights as to the effectiveness of an adaptive system.

Photo Credit: FDOT

"With increasing traffic and limited resources, ATSPM is a great tool to help us easily identify signal timing trouble spots and evaluate the operational efficiency of our corridors."

Charles R. Wetzel, P.E., PTOE
County Traffic Engineer
Seminole County Public Works / Traffic Engineering

U.S. Department of Transportation
Federal Highway Administration

ATSPM SYSTEM MATURITY

Seminole County's 387 signals are all recording high-resolution data. The ATSPM program began as a partnership with the Florida Department of Transportation (FDOT) and the Utah Department of Transportation (UDOT). While the system is performing well and the data has allowed for improved operations and performance, the system is still maturing. Immense data storage requirements are challenging as the system collects 3.2 terabytes of information annually. Seminole County is also actively exploring ways to leverage ATSPM data to optimize operations at the corridor scale.

BUDGET

Seminole County Public Works has just over $1.5 million annually designated for operations and maintenance of its traffic signals. Before ATSPMs and the collection of high-resolution data, the County spent $28,000 each year on tube counts, which is 70 percent of its data collection budget. ATSPMs have enabled Seminole County to reduce the need for counts in urban areas and more strategically focus data collection dollars to locations with the highest need and that provide the greatest benefit.

Source: Central Florida's public facing ATSPM website

IMPLEMENTATION RESOURCES

Seminole County has devoted considerable resources to implementing ATSPMs on all its signals. Signal controllers were all upgraded to enable high-resolution data collection and the County laid a network of fiber optic cables to provide fast, reliable system communication. Seminole County commits two engineers and 12 technicians to working on its traffic signals. The team maintains 361 miles of fiber optic network connecting its ATSPM system and other intelligent transportation systems throughout the County. Data storage for ATSPMs has proven to be an important consideration for Seminole County. The County collects almost nine gigabytes of data daily, requiring considerable storage and communication capacity over time.

ATSPM IMPLEMENTATION

Seminole County is using Trafficware 980 ATC controllers to enable ATSPMs on their signals. These signals use the County-installed fiber optic cable connections to transmit ATSPM data. Seminole County originally used UDOT's ATSPM software to collect and display ATSPM data to the public. Seminole County has since migrated their ATSPM website to FDOT's management so that other jurisdictions may also use the site as a common platform and one-stop website for Florida ATSPM data. The UDOT-developed software allows FDOT to bring ATSPM data from multiple jurisdictions across the state into one interface. The implementation of ATSPMs in Seminole County took less than two years.

ADDITIONAL RESOURCES

- To learn more, visit https://www.seminolecountyfl.gov/departments-services/public-works/traffic-engineering/ and https://atspm.cflsmartroads.com/ATSPM

More information on Automated Traffic Signal Performance Measures is available on the Every Day Counts website at https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/atspm.cfm

For additional information please contact:

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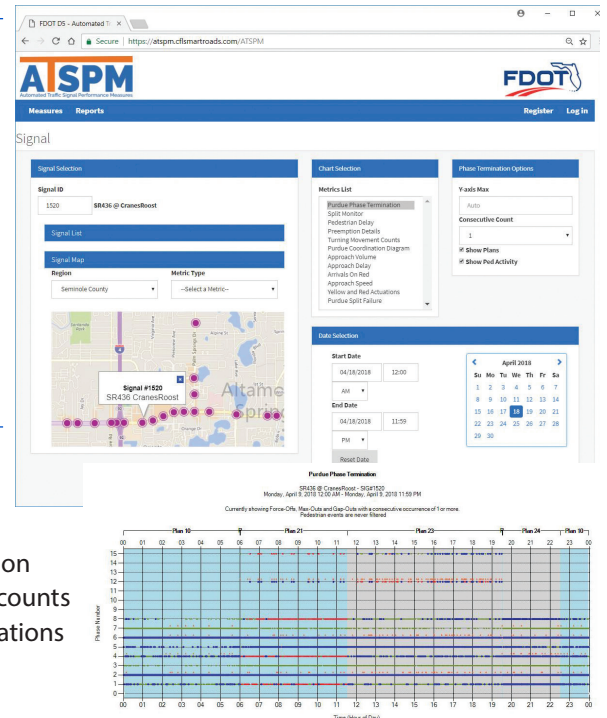
Every Day Counts (EDC), a State-based initiative of FHWA's Center for Accelerating Innovation, works with State, local, and private sector partners to encourage the adoption of proven technologies and innovations aimed at shortening and enhancing project delivery.

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