



FDOT Central Office TSM&O Implementation Plans

By Florida Department of Transportation Central Office

Benefits Statement

The Florida TSM&O program developed a strategy to mature its organizational capabilities in a process-driven, uniform, and measurable manner. The TSM&O program incorporates aspects of its program like wrong way driver detection, connected vehicles, rapid incident scene clearance, improving travel time reliability, and preventing secondary crashes into the entire project lifecycle. This helps the Department save dollars, hours, and lives. For example, since the inception of its Strategic Plan the Department has seen a significant reduction in roadway clearance time which has translated to an 11% decrease in hours of delay.

In this case study you will learn:

1. How combining FDOT's ITS and TSMO strategic programs resulted in better data based decision making.
2. How strategically implementing TSMO thinking with ITS resulted in 11% decrease in hours of traffic delay.
3. How integration of TSM&O strategies within the project development process, including analysis across the life cycle from planning through operations and maintenance resulted in document and policy updates.

NOCoE Case Study

AGENCY IMPROVEMENT

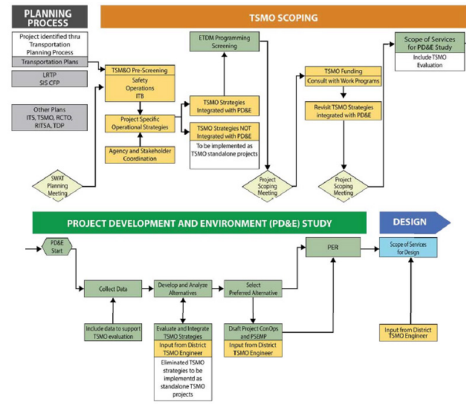
BACKGROUND

Prior to 2017, the Florida Department of Transportation’s (FDOT’s) Central Office Transportation Systems Management and Operations (TSM&O) Program worked alongside the Intelligent Transportation Systems (ITS) Program. This led to the publishing of documents such as the Department’s TSM&O Tier II Business Plan in March of 2011, the TSM&O Strategic Plan in December of 2013, and Florida’s ITS Strategic Plan in November of 2014. During this time, the programs collaborated with additional FDOT Offices including the Construction and Design offices. While both of those activities produced great results, the disconnected processes resulted in delayed success. The TSM&O program developed a strategy to mature its organizational capabilities in a process-driven, uniform, and measurable manner. FDOT Central Office deployed a two-pronged approach to mainstream the TSM&O Program:

- Internal solution: Integrate the longstanding ITS program into the TSM&O program.
- External solution: Mainstream the program and functional strategies across FDOT’s organization to better advance the TSM&O program

TSMO PLANNING, STRATEGIES AND DEPLOYMENT

The internal strategy of combining the TSM&O and ITS programs resulted in a holistic TSM&O Strategic plan which was deployed in 2017 with a 2021 update rereleased in mid-2022. The Strategic Plan established the vision to increase the delivery rate of a fatality-free and congestion-free transportation system through TSM&O strategies. This vision directly supports FDOT’s Vital Few goals to improve safety, enhance mobility, and inspire innovation.



The Strategic Plan directly supported numerous TSM&O organizational enhancements, including Traffic Incident Management (TIM), Arterial Management, Connected and Automated Vehicles (CAV) and Managed Lanes (ML). The FDOT planned for expansion of these core areas through the implementation of further refined documents under the TSM&O organizational structure. For example, improving Arterial Management was addressed by the 2018 Statewide Arterial Management Program (STAMP) Action Plan. Similarly, the Florida Traffic Incident Management Strategic Plan and Florida’s Connected and Automated Vehicles (CAV) Business Plan were both released in 2019.

The FDOT Central Office TSM&O program deployed the external solution of mainstreaming by regularly coordinating with stakeholders throughout all levels of the Department and supporting the integration of TSM&O elements with the processes of other offices. Similarly, regular meetings were held with the Districts to support the establishment of goals and implementation strategies.

COMMUNICATIONS PLANNING AND EXECUTION

The Department’s decision to fold the ITS program into the TSM&O program was broadly communicated through established platforms, including coordination meetings with FDOT Leadership, the Florida Transportation Builders Association, the FDOT Districts, MPOs, and local agencies. The communication, planning, and

execution of TSM&O mainstreaming was based on three priorities:

- **Integration of TSM&O strategies within the project development process**, including analysis across the life cycle from planning through operations and maintenance. These resulted in document updates which included considerations during the project development phase, highlighting the potential for time and cost savings by incorporating TSM&O strategies to improve the safety, operations and maintainability of a transportation facility.

The following table contains a listing of policies and manuals that will be assessed for opportunities to include, update, or reference TSM&O content:

| Offices | Plan / Handbook / Program / Manual / Policy |
|------------------------------------|--|
| Design | FDOT Design Manual; Standard Plans; Complete Streets Policy; Complete Streets Handbook; Florida Greenbook; Drainage Manual; Structures Manual; CADD Manual. |
| Emergency Management | Comprehensive Emergency Management Plan; Emergency Response Guidebook; Florida Public Assistance Program |
| Program Management | Utility Accommodation Manual (UAM); Local Agency Program Manual; Standard Specifications for Road and Bridge Construction; Maintenance Specifications; Specifications Handbook; Specification Development Procedure; Specification Package Preparation Procedure |
| Safety | 2020 Florida Highway Safety Plan (HSP); 2020 Highway Safety Improvement Program (HSIP); 2020 Highway Safety Improvement Program (HSIP) Implementation Plan; Florida Strategic Highway Safety Plan; Safety and Loss Prevention Manual; Florida Pedestrian and Bicycle Strategic Safety Plan; Florida HSIP Guidelines Manual |
| Freight and Multimodal Operations | Grade Crossing Opening Closure Program; Intermodal Logistics Center (LC) Infrastructure Support Program; Freight Mobility and Trade Plan; Rail System Plan; Highway-Rail Grade Crossing Safety Action Plan; Motor Carrier Safety Plan; Rail Handbook Procedure; Rail Handbook |
| Environmental Management | Project Development and Environment (PDE) Manual; Cultural Resource Management Handbook; Cumulative Effects Evaluation Handbook; Environmental Policy Efficient Screening Tool (EST) Handbook; Efficient Transportation Decision Making (ETDM) Manual; Traffic Noise Modeling and Analysis Practitioner Handbook |
| Systems Implementation | Strategic Intermodal System Policy Plan; Access Management Guidebook; Interchange Access Request Users Guide (IARUG); Quality Level of Service Handbook; Lane Repurposing Handbook; Traffic Analysis Handbook; Project Traffic Forecasting Handbook; Transportation Site Impact Handbook |
| Traffic Engineering and Operations | Aging Road Users Strategic Safety Plan; Florida Highways Guide Sign Program; Manual on Intersection Control Evaluation; Manual on Uniform Traffic Studies; Speed Zoning Manual; Traffic Engineering Manual; ITS Integration Guidebook; TM Strategic Plan; CV Business Plan; CSMP Active Plan; FDOT Managed Lane Policy; OTSA Program; RTSA Program; Systems Engineering and ITS Architecture Procedure; systems engineering report templates; SELS |
| Transportation Data and Analytics | District Quality Evaluation (DQE) Handbook; Quality Assurance Monitoring Plan (QAMP); Quality Assurance Review (QAR) Handbook; Roadway Characteristics Inventory (RCI) Handbook; RCI Roadway Inventory Tracking Application (BITA) User Manual; RCI Straight-Line Diagram (SLD) Handbook; RCI User Manual; Traffic Monitoring Handbook; Transportation System Jurisdiction and Numbering Handbook; Urban Boundary and Functional Classification of Roadways Handbook |
| Work Program and Budget | Work Program Instructions; Program and Resource Plan |
| Policy Planning | Florida Transportation Plan; Metropolitan Planning Organization (MPO) Program Management Handbook |

- **Formalize the integration by incorporating the appropriate TSM&O content within the relevant FDOT policies, procedures, manuals, and guides.** The TSM&O program met with FDOT divisions within the Central Office to coordinate the content for consistency and maximizing the benefits. A key outcome of those meetings was the identification of functional area guides, standards, and specifications for updating with TSM&O content. This was carried forward with updated guides and manuals that provided consistency with TSM&O strategies for planning and execution.
- **Focused outreach efforts, both within FDOT and with partner agencies was undertaken.** Significant training on the mission and goals were made while improving the TSM&O mainstreaming. This focused outreach effort resulted in further understanding of the required organizational changes necessary in the areas of workforce development, culture,

performance measures, and increased data management and analytics.

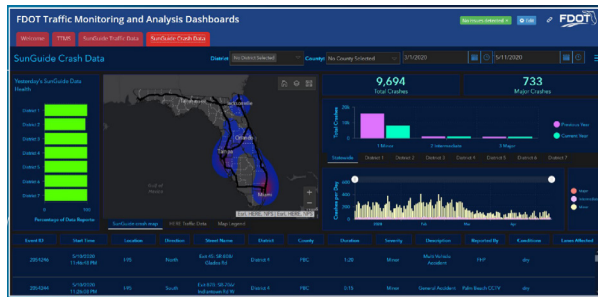
OUTCOME, LEARNINGS AND PUBLIC BENEFIT

The outcome of the TSM&O mainstreaming has been transformative. While performing mainstreaming outreach many of the FDOT Districts, contractors, and other members of industry the Central Office TSM&O program commented that Workforce Development is an area that could benefit from more TSM&O content. This resulted in FDOT Central Office producing a series of computer-based trainings (CBTs). These trainings were geared towards helping construction engineers and installers develop a working knowledge of ITS devices, a course on Systems Engineering for ITS projects, and a number of CBTs on signalized intersections. The TSM&O program incorporates aspects of its program like wrong way driver detection, connected vehicles, rapid incident scene clearance, improving travel time reliability, and preventing secondary crashes into the entire project lifecycle. This helps the Department save dollars, hours, and lives. For example, since the inception of its Strategic Plan the Department has seen a significant reduction in roadway clearance time which has translated to an 11% decrease in hours of delay.

The mainstreaming of TSM&O has helped sharpen the Department's focus on becoming a data-based decision-making organization. Since the implementation of the latest Strategic Plan TSM&O data has been applied to monitor performance measures in the following applications:

- The FDOT Traffic Data Dashboard – This interface pulls in live traffic data from the Department's ITS field equipment near construction projects. This tool was used by the State of Florida early in the Covid pandemic to evaluate if traffic levels were low enough to facilitate expanded lane closures and expedite construction. Since the TSM&O data showed that to be true, Florida fast tracked several projects

throughout the state in order to create jobs and provide economic relief.



- The FDOT ATMS Crash Data Dashboard – This is another Covid-era tool developed with TSM&O data to monitor performance on the roadway. With many businesses in the State shutting down the Department noticed that there were much fewer motorists on the roads, but no significant decrease in crashes. This application collected crash information including date, time, roadway, direction of travel, incident severity and even the weather before displaying it in an interactive and intelligent solution.
- TSM&O Strategic Plan Implementation Tracker – This dashboard tracks each FDOT District’s progress on the goals it set as part of the TSM&O Strategic Plan. Goals can range from improving their planning time index and ITS network uptime to reducing their average lane clearance duration time.

Lastly, mainstreaming with other project areas has resulted in increased TSM&O capabilities such as Florida’s Regional Advanced Mobility Elements (FRAME) and Bike-Ped Safety projects. FRAME projects leverage vehicle-to-infrastructure and vehicle-to-vehicle technologies to reduce crashes, improve mobility and make trips more reliable. Bike-Ped Safety projects are a type of projects that utilize vehicle-to-everything and vehicle-to-pedestrian technologies to improve safety to pedestrians.