

FDOT'S TSMO PROGRAM

By Florida Department of Transportation – State Traffic Engineering and Operations Office

IN THIS CASE STUDY YOU WILL LEARN:

- 1 How Florida Department of Transportation was able to combine a long standing ITS program into a more encompassing TSMO Strategic Plan.
- 2 How the TSMO Strategic Plan was instrumental in developing a Statewide Arterial Management Program (STAMP) Action Plan.
- 3 How the TSMO Strategic Plan also supported the development of a Connected and Automated Vehicle (CAV) Business Plan.

BACKGROUND

Prior to 2017, the Florida Department of Transportation (FDOT) had separate Intelligent Transportation Systems (ITS) and Transportation Systems Management and Operations (TSMO) plans. The FDOT published *Florida's ITS Strategic Plan* in August 1999 with subsequent updates in 2005 and 2014. The *TSMO Tier II Business Plan* was published in March 2011, and the first *TSMO Strategic Plan* was published in 2013.

In March 2016, the FDOT assessed its TSMO program areas using a capability maturity model (CMM) survey. The survey determined that the program areas of freeway management, incident management, freeway operations, and infrastructure maintenance were well understood

and well implemented. The survey also revealed that the FDOT should focus more on arterial management, connected vehicles (CV), and TSMO policy development. The assessment was timely because arterial management was emerging as a statewide focus area and CV was in its initial. At the time, active arterial or integrated corridor management and CV projects were champion-driven rather than priority-driven programs formed on outcome-based performance measures.

Building upon the CMM assessment, the FDOT held a traffic signals systems CMM workshop in July 2017 using the business processes tool from the Strategic Highway Research Program 2 (SHRP2). Before 2017, coordination and collaboration between stakeholders to ensure continuous development and expansion of the state-of-the-art practice depended upon individuals rather than processes. There were few if any technical resources, standards, guides, or training materials to support statewide arterial and CV programs.



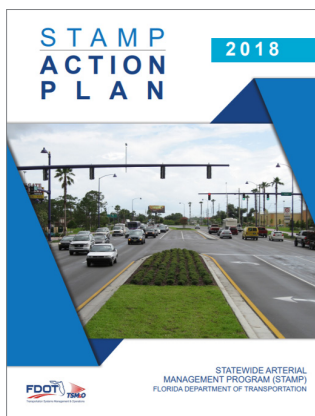
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TSMO PLANNING, STRATEGIES AND DEPLOYMENT

In 2016, the FDOT began the development of a new statewide *TSMO Strategic Plan*. The 2017 *TSMO Strategic Plan* incorporated themes from the earlier plans such as the development of a TSMO Leadership Team, mainstreaming TSMO, staff resources, capacity building, measuring success, and focus areas. The Plan also merged the ITS and TSMO Strategic Plans for a more cohesive and consistent program. The FDOT *TSMO Strategic Plan* was developed to be consistent with the FDOT's focus on safety, management, and operations documented in the *Florida Transportation Plan*. The *TSMO Strategic Plan* presents the FDOT's vision, mission, goals, objectives, and priority focus areas. It poses specific, measurable, accountable/achievable, relevant, and time-bound action plans to be accomplished over the next three to five years.

The *TSMO Strategic Plan* identified six priority focus areas:

- TSMO Mainstreaming
- Arterial Management
- Connected Vehicles (CV)
- Express Lanes
- Freeway Management
- Information Systems



The *TSMO Strategic Plan* was instrumental in developing the 2018 *Statewide Arterial Management Program (STAMP) Action Plan*. The *STAMP Action Plan* addresses the arterial management focus area of the *TSMO Strategic Plan*. The *Action Plan* identified action items to support the deployment of field technologies, traffic control strategies, traffic management center technologies, and operations

and maintenance. The FDOT is planning to conduct another CMM assessment to update the *STAMP Action Plan*. The 2021 *STAMP Action Plan* will be an updated version of the 2018 *STAMP Action Plan* and is being developed to support the mission and vision of the *TSMO Strategic Plan*.

The 2021 *STAMP Action Plan*, which is under review and not yet adopted, has five focus areas:

- **Upgrade systems and infrastructure:** Examine infrastructure preparedness including general facility designs, software updates, and hardware upgrades.
- **Manage data:** Develop a data management platform for actively managing data on the arterial systems in coordination with the FDOT Districts and local agencies.
- **Measure and assess performance:** Enhance performance assessment and decision making.
- **Manage arterials with emerging technologies:** Achieve the benefits of active arterial management, integrated corridor management, connected and automated vehicles, and other programs and systems.
- **Maintain and operate arterials:** Ensure effective field infrastructure, central systems, and technologies.



Another *TSMO Strategic Plan* priority focus area was CV with a corresponding action plan to conduct regional workshops. These Connected and Automated Vehicle (CAV) workshops were held in 2018 to discuss opportunities, challenges, and roles for delivering the safety and mobility benefits of CAV deployment. In response to workshop input, the FDOT adopted the *CAV Business Plan* in January 2019 to establish its approach to technology in transportation and demonstrate the FDOT's commitment to using CAV technologies to achieve safety, mobility, and economic goals.

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The *CAV Business Plan* addresses the CV priority focus area of the *TSMO Strategic Plan* and contains seven priority focus areas designed to mainstream the program:

- **Policies and governance:** Develop and communicate an institutionalized framework for planning, designing, and deploying CAVs.
- **Program funding:** Prioritize and allocate funding.
- **Education and outreach:** Create a unified message and awareness as well as provide opportunities for preparing current and future workforce.
- **Industry outreach and partnerships:** Foster economic development and leverage relations with industries, universities, and others.
- **Technical standards and specifications development:** Create a framework for consistent infrastructure preparedness, including general facility design, software updates, and hardware upgrades.
- **Implementation readiness:** Create a statewide CAV-ready environment for deployment of infrastructure and meeting any identified needs.
- **Deployment and implementation:** Move from planning to full-scale CAV deployment and implementation using various applications to achieve safety, mobility, and economic goals.

COMMUNICATIONS PLANNING AND EXECUTION

Several workshops and plans were enhance implementation across divisions.

TSMO Strategic Plan:

The *TSMO Strategic Plan* was developed following direction from District Traffic Operations Engineers (DTOEs), and the FDOT Central Office Leadership Team. The TSMO Division of the State Traffic Engineering and Operations Office (STEEO) collaborated with the Statewide TSMO Task Team, District TSMO Program Engineers and staff, other offices, divisions from FDOT's Central Office and District Offices, and industry stakeholders.

STAMP CMM Surveys and Workshops:

- 2016 CMM Survey: March 2016 self-assessment survey
- 2017 CMM Workshop on traffic signals
- 2021 planned CMM survey on arterial management

These surveys and workshops informed the *TSMO Strategic Plan*, the 2018 *STAMP Action Plan*, and the planned 2021 *STAMP Action Plan*.

CAV Workshops and Outreach:

- **Central Office:** On July 25th, 2018, leaders of over 20 FDOT offices at the headquarters in Tallahassee discussed opportunities, challenges, and roles for delivering safety and mobility benefits of CAV. Before the workshop, an online survey requested input on opportunities, challenges, roles, safety, mobility, and economic impacts of CAV implementation in Florida.
- **Districts:** On September 27th, 2018, leaders from over 15 FDOT offices within headquarters met with leaders from the FDOT District Design, Planning, and Traffic Operations Offices to discuss opportunities, challenges, and roles for delivering safety and mobility benefits from CAV deployment. Similarly, a pre-workshop survey tallied District input on the same themes as presented in the Central Office survey.
- **Solicited feedback requests:** The FDOT solicited feedback from the FDOT District and specialty offices as well as non-FDOT entities such as: Jacksonville Transportation Authority, Orange County, the Intelligent Transportation Society of Florida, and Florida State University.

The CAV workshops and outreach informed the 2019 *CAV Business Plan*.

OUTCOME, LEARNINGS AND PUBLIC BENEFIT

As a result of the FDOT's outreach programs to develop the *STAMP Action Plan* and the *CAV Business Plan*, all levels of the FDOT and applicable stakeholders are fully vested in achieving the goals and objectives of the two plans and the *TSMO Strategic Plan*. Consequently, the FDOT is investing in arterial management systems implementation, operations, and infrastructure maintenance. The FDOT is also advancing both the state of the art and state of the practice through emerging CAV technology demonstration and implementation projects.