Florida Department of Transportation Research

Evaluation of Project Processes in Relation to Transportation System Management and Operations (TSM&O)

March 2018

Project Number
BDV34-977-07

Project Managers
Raj Ponnaluri
Melissa Ackert
FDOT Traffic Engineering and Operations Office

Principal Investigator
Thobias Sando
University of North Florida

Current Situation

The transportation system managed by the Florida Department of Transportation (FDOT) is massive, involving all levels of government, private contractors, and businesses. The administrative and budgetary challenges can be daunting, and the current and future needs of the system must be constantly evaluated, resulting in continuous cycles of planning, designing, construction, operation, and maintenance.

An early example of TSM&O in Florida involved the conversion of I-95 HOV lanes to variable toll lanes.

Transportation System Management and Operations (TSM&O) is both a management approach and a set of strategies for optimizing the performance of the transportation system, preserving its capacity, and improving safety and reliability. Implementation of strategies such as HOT lanes or advanced traffic monitoring requires management that reaches across traditional boundaries of project management; therefore, integrating TSM&O into an organization can take study and careful implementation. At FDOT, TSM&O has been adopted in a few projects and in specific phases of the project development and delivery process, which begins with planning and ends with construction.

Research Objectives

In this project, University of North Florida researchers examined the extent of TSM&O adoption in the FDOT projects and determined what is needed to implement TSM&O throughout the project development and delivery process.

Project Activities

The researchers conducted a comprehensive review of FDOT guidelines for TSM&O. In two surveys, they examined the use of TSM&O in all FDOT districts and identified projects where a TSM&O strategy was used to address a capacity or safety issue. The identified projects served as case studies to show the extent of TSM&O use in FDOT projects. Another survey explored TSM&O best practices at other state DOTs. Based on the current state-of-practice, the researchers recommended training, coordination, procedures, and policies that would help mainstream TSM&O throughout FDOT's project development and delivery process.

Many TSM&O strategies involve Intelligent Transportation Systems (ITS), so alternative project development, procurement, and budgeting options for these projects were also explored. The researchers recommended a two-phase approach: Phase I would focus on identifying equipment that is compatible with existing FDOT infrastructure, and Phase II would focus on purchasing and setting up the equipment. They recommended a newer project management method called Agile for Phase I and the more traditional Waterfall approach for Phase II.

Project Benefits

TSM&O strategies have been shown to benefit the transportation system in terms of improving efficiency and economy. More widespread use of TSM&O management can bring the benefits of these strategies to a broader range of FDOT projects.

For more information, please see www.fdot.gov/research/.