ITS Software

Intelligent Transportation Systems (ITS) Software includes several programs utilized by Traffic Operations and Maintenance. The largest is the State's Advanced Transportation Management System software known as, SunGuide®.

The SunGuide software system is used for freeway and incident management, interoperability of the Department's Regional Transportation Management Centers (RTMCs),), and data archiving. SunGuide works in companion with the Statewide and Regional ITS Architectures to manage and promote integrated regions, corridor, and projects. SunGuide provides unified ITS traffic data and information and management systems for the state of Florida. This website contains the programs coordinated through the SunGuide Software and Architecture.

The Statewide Express Lanes Software (SELS) is the program used in operation of managed lanes. It takes inputs from SunGuide (Vehicle Speed, Volume, etc.) and the District RMTCs to calculate toll amounts, set tolling schedules, post messages to dynamic message signs, and more.

Florida 511 is the Department's Advanced Traveler Information System. It provides real time traffic information including a real time traffic map with travel times, traffic incident details, weather observations and traffic cameras.

The ITS Facility Management (ITSFM) software is used by the Department to share accurate ITS information with FDOT Districts, Florida Tolling Authorities, city, and county transportation departments. The Data Integration and Video Acquisition System (DIVAS) software enables FDOT to share data and video images between districts, the central office, and other agencies.

FDOT is implementing a statewide Lane Closure Notification System (LCNS) to share lane closure information with then national Work Zone Data Exchange (WZDx) and with private traveler information service providers.

District Offices also work with local traffic signal operating agencies to implement Advanced Transportation Management System (ATMS) software to provide central control of traffic signals. Some districts are also developing and supporting decision support system (DSS) software to assist with active arterial management (AAM) and/or integrated corridor management (ICM) systems.

It may be necessary to use modified special provisions (MSP) or technical special provisions (TSP) to procure software, software updates, integration, and/or configuration.

Systems Engineering for TSM&O Projects

The Department's System Engineering and Intelligent Transportation Systems (ITS) Procedure #750-040-003, or "***Procedure***," covers systems engineering analysis requirements for federally funded projects with ITS or TSM&O elements. Figure 1 from the ***Procedure*** is a pictorial description of the systems engineering process.

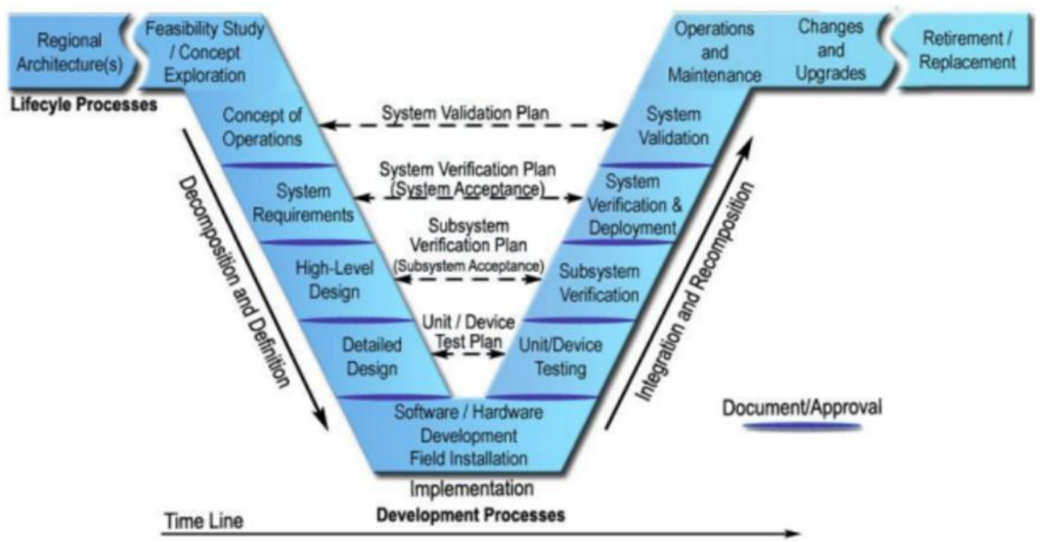

Figure 1: Typical Systems Engineering Process Depicted as a Vee Diagram

The ***Procedure*** recommends tailored systems engineering analysis based on project risk and complexity. The ***Procedure*** requires Project Managers to confer with the District TSM&O Program Engineer to determine the level of systems engineering analysis for federally funded projects and for complex or high-risk state or locally funded projects. Complex and high-risk projects typically involve one or more of these attributes: multiple agencies, custom software development or updates, cutting edge or emerging technologies, new information flows or interfaces, system requirements needing further development, operating procedures needing further development, and/or planned use of end-of-service life technologies. Systems engineering analysis includes completion of these two forms, as a minimum:

- Project Risk Assessment and Regulatory Compliance Checklist (FDOT Form #750-040-005)
- Systems Engineering Project Checklist (FDOT Form #750-040-006)

Other systems engineering documents that may be required for high risk and complex projects are listed below. FDOT provides templates for these and other systems engineering documents on the Systems Engineering website. The Project Manager should ensure the proper level of systems engineering analysis is included in scopes and schedules for consultants and/or construction contracts.

- Concept of Operations (ConOps)
- Regional Concept of Transportation Operations (RCTO)
- Project Systems Engineering Management Plan (PSEMP)
- Requirements Traceability Verification Matrix (RTVM)
- Requirements Validation Plan
- System Verification Plan

As depicted in the Typical Systems Engineering Process diagram, above, a Regional ITS Architecture (RITSA) is the first step in the systems engineering Vee Diagram. The Statewide Intelligent Transportation Systems Architecture (SITSA) and the RITSAs represent a shared vision of how each agency's ITS elements work together now and, in the future, share information and resources to provide a safer, more efficient, and more effective transportation system for travelers in the State of Florida. The latest versions of the SITSA and the seven RITSAs are posted at https://teo.fdot.gov/architecture/. For each TSM&O project, as new stakeholder roles, ITS services, ITS projects, and/or interconnects are identified or as project features are completed, the Project Manager should submit an ITS Architecture Change Request Form (FDOT Form #750-040-04) to document changes to the SITSA or RITSA. The form is submitted to the District TSM&O Program Engineer

and the Central Office. The ***Procedure*** describes roles and responsibilities for use, maintenance, and updating the SITSA and RITSAs.

ITS Training Resources

- Developing and coordinating ITS training enhances the quality and quantity of the state's ITS workforce. Transportation Systems Management and Operations (TSM&O) and ITS training links are provided on the website. Some of the courses provide Professional Development Hours (PDHs) for professional engineers.

The ITSFM program has a library of available trainings on its website. For more information please contact the FDOT ITSFM Staff at: FDOT-ITSFM-Trainer@dot.state.fl.us