



# TSM&O Capability Maturity Implementation Plan July, 2014

## Business Processes (Planning and Programming) Implementation Plan Template

Details for Action 1 of 1	
<b>Action Description</b>	Develop TSM&O Program Plan
<b>Products and Desired Outcomes</b>	<ul style="list-style-type: none"> <li>TSM&amp;O Program Plan</li> <li>A process for maintaining the plan</li> <li>A set of standard analytical procedures to support Plan development/maintenance</li> </ul>
<b>Task(s)/Subtask(s)</b>	<ol style="list-style-type: none"> <li>1. Further develop the TSM&amp;O coordinating committee, including the subcommittee structure for the support of the TSM&amp;O Plan development and integration.</li> <li>2. Establish objectives and policy framework for the Plan in terms of its relationship and integration into state policy, other regional &amp; statewide plans (e.g., STIP, TIP, LRTP, Regional Architectures, Congestion Management Process), department performance objectives and resource commitments and limitations.</li> <li>3. Establish a TSM&amp;O planning context in terms of defining applicable geographic scope (statewide, regional, corridor), facility level (freeway, arterials) and priority strategy deployments.</li> <li>4. Research best practices from other states (e.g., review content of other TSM&amp;O plans, review of TSM&amp;O planning and project development).</li> <li>5. Establish standard analytical procedures for identifying deficiencies (as a result of both recurring and non-recurring congestion) and evaluating candidate projects (also see Performance Measurement Plan action item):               <ol style="list-style-type: none"> <li>a. Research available methodologies including emerging SHRP2 products</li> <li>b. Identify data and tools needed to support planning process, such a traffic modeling, simulation software, and vehicle probe data.</li> </ol> </li> <li>6. Inventory and assemble existing and currently planned TSM&amp;O activities to provide a foundation for further plan development.</li> <li>7. Align TSM&amp;O plan with Statewide ITS Architecture update, including relevant operational concepts, service packages, information flows, priority strategies, project sequencing, and partner roles and relationships.</li> <li>8. Develop the statewide TSM&amp;O Program Plan at the level of detail appropriate to serve as the basis for inclusion in statewide and regional transportation planning and programming/budgeting activities.</li> <li>9. Establish a formalized process for use, maintenance, and update of the Plan.</li> </ol>
Implementation Task Details	
<i>Details below apply to all tasks above or can be duplicated and specified for single tasks or subset of tasks.</i>	
<b>Lead</b>	Brad Freeze, Traffic Operations Division
<b>Support Staff</b>	Said El Said(TOD), Frank Horne(TOD), Mike Tugwell,(TOD) Tanisha Hall(LRP), Steve Allen (STID), Joe Kirk (IT), Liza Joffrion(Multimodal Division), Regional Directors
<b>Staff Level of Effort (person-days)</b>	Bi-weekly Meetings with core support staff team, Monthly Meeting by TSM&O Committee (First meeting was 4/4/14)



<b>Senior Leadership Support Actions</b>	Review and approve TSM&O Planning document by the TSM&O Committee. Approval of travel.
<b>Collaboration Actions and Requirements</b>	Collaboration with other key TDOT Divisions (Long Range Planning, Strategic Planning, Strategic Investments), and outside planning agencies.
<b>Technical Issues</b>	Independent TMC Networks & Programs per TDOT Regions. The lack of analytical tools for planning strategies.
<b>Key Risks</b>	Lack of participation from other TDOT Divisions, TDOT Regions, and other stakeholders in TSM&O Plan integration.
<b>Resource Requirements</b>	Peer Exchanges, SHRP2 Resources, Training
<b>FHWA Support Resources and Contact</b>	FHWA TN-Division, FHWA Resource Center Personnel
<b>Start Date</b>	June, 2014
<b>End Date</b>	June, 2015
<b>Success/Completion Indicator</b>	A completed TSM&O Program plan with buy-in from all stakeholders

## Systems and Technology Implementation Plan Template

Details for Action 1 of 2	
<b>Action Description</b>	Develop ITS Qualified Product List
<b>Products and Desired Outcomes</b>	<ul style="list-style-type: none"> <li>• A set of ITS Qualified Product Lists</li> <li>• A process for periodic review/updating and testing of the ITS/QPL</li> </ul>
<b>Task(s)/Subtask(s)</b>	<ol style="list-style-type: none"> <li>1. Identify major items for which ITS/QPLs will be developed.</li> <li>2. Define a process for how decisions about what equipment will be placed on the QPLs will be made.</li> <li>3. Define a process for periodically reviewing/updating QPLs.</li> <li>4. Assemble latest specifications used by TDOT for equipment purchases in the identified categories.</li> <li>5. Research/assemble other information, including:               <ol style="list-style-type: none"> <li>a. Specifications used by other states</li> <li>b. Vendor product cut sheets</li> <li>c. National standards</li> </ol> </li> <li>6. Identify constraints relative to:               <ol style="list-style-type: none"> <li>a. Compatibility with chosen statewide software</li> <li>b. Capacities/abilities of maintenance staff</li> </ol> </li> <li>7. Develop specifications for equipment categories to guide QPL selections by following the System Engineering Analysis needs and requirements.</li> <li>8. Research equipment procurement options in compliance with state and federal regulations.</li> <li>9. Develop and publish ITS/QPLs.</li> </ol>



<b>Implementation Task Details</b>	
<i>Details below apply to all tasks above or can be duplicated and specified for single tasks or subset of tasks.</i>	
<b>Lead</b>	Said El Said
<b>Support Staff</b>	Rob Benshoof (TOD), Donald Gedge (TOD), Mike Tugwell (TOD), Darrell Bost (HQ Construction), Ali Hangul (Design), Joseph Kerstetter (M&T), Danny Lane (D&T), Michael Nichols (IT), Regional Operations Directors
<b>Staff Level of Effort (person-days)</b>	A Development Committee for the ITS/QPL has started by holding its first meeting on 3/25/2014. Assuming the quarterly meeting and preparation for needed documents, about 60 to 70 person-days will be needed.
<b>Senior Leadership Support Actions</b>	<ul style="list-style-type: none"> <li>• Cross divisions involvement and support</li> <li>• Funding authorization and travel approvals</li> </ul>
<b>Collaboration Actions and Requirements</b>	<ul style="list-style-type: none"> <li>• Visiting other state DOTs with ITS/QPL testing labs</li> <li>• Participating in events where information can be shared with lessons learned</li> <li>• Software and license sharing with regional TMCs</li> </ul>
<b>Technical Issues</b>	<ul style="list-style-type: none"> <li>• In-house knowledge on technical components and advanced network design. Specialized training is needed for internal staff</li> <li>• The need for bench testing devices with a simulated ITS IP network</li> <li>• Bench testing laboratory with hardware and software components similar to the currently deployed ITS network</li> </ul>
<b>Key Risks</b>	<ul style="list-style-type: none"> <li>• Maintaining compliance with state and federal regulations</li> <li>• Testing products prior to approval to ensure compliance with TDOT ITS infrastructure</li> <li>• Not limiting participation to validated items installed on recent deployments</li> <li>• Market research and the need for periodical updates</li> </ul>
<b>Resource Requirements</b>	<ul style="list-style-type: none"> <li>• Starting a TDOT testing laboratory to allow for testing major ITS devices (DMS, RDS, CCTV, Switches, Video encoders) prior to qualifying products to the ITS/QPL. DMSs electronics will be tested without the structure for function, communication and synchronization</li> <li>• Advanced network design training for TOD/ITS staff</li> </ul>
<b>FHWA Support Resources and Contact</b>	Nick Renna Operations Program Manager Federal Highway Administration Tennessee Division Office
<b>Start Date</b>	March, 2014
<b>End Date</b>	March, 2015
<b>Success/Completion Indicator</b>	FHWA approved ITS Qualified Product List



## Systems and Technology Implementation Plan Template

Details for Action 2 of 2	
<b>Action Description</b>	Develop a TSM&O Asset Management System
<b>Products and Desired Outcomes</b>	<ul style="list-style-type: none"> <li>• A TSM&amp;O Asset Management System</li> <li>• A plan to effectively use the information it produces</li> </ul>
<b>Task(s) / Subtask(s)</b>	<ol style="list-style-type: none"> <li>1. Establish a working group to guide the development process.</li> <li>2. Create an inventory of existing equipment.</li> <li>3. Determine Interest/needs/existing methods used by other TDOT organizational units.</li> <li>4. Research and review vendor product offerings and systems used by other states.</li> <li>5. Develop system requirements and cost estimates.</li> <li>6. Enunciate implications for TDOT staff and processes to effectively use the system.</li> <li>7. Identify budget and initiate procurement process.</li> <li>8. Implement the system and modify processes to effectively use the information it produces.</li> <li>9. Integrate Asset Management System with performance reporting system.</li> </ol>
Implementation Task Details	
<i>Details below apply to all tasks above or can be duplicated and specified for single tasks or subset of tasks.</i>	
<b>Lead</b>	Don Gedge
<b>Support Staff</b>	Said El Said (TOD), Michael Nichols (IT), Carl Berry (IT), Chris Harris (Maintenance HQ), Mike Tugwell (TOD), & John Paul Saalwaechter (Construction), Regional Operations Directors
<b>Staff Level of Effort (person-days)</b>	Monthly Meetings (90 minutes)
<b>Senior Leadership Support Actions</b>	<ul style="list-style-type: none"> <li>• Travel Approval for Peer Exchanges &amp; Training</li> <li>• Approval of implementation strategies</li> <li>• Budget approvals</li> </ul>
<b>Collaboration Actions and Requirements</b>	Collaboration between Regions, and other TDOT Division (Maintenance, Construction, IT, & Programming).
<b>Technical Issues</b>	Database creation/modifications, reports, accessibility.
<b>Key Risks</b>	Office of Information Technology Support, Budget, and Full integration into existing department processes and procedures.
<b>Resource Requirements</b>	Funding for peer exchanges, training, and staff.
<b>FHWA Support Resources and Contact</b>	FHWA TN-Division, FHWA Resource Center Personnel.
<b>Start Date</b>	June, 2014
<b>End Date</b>	June, 2015
<b>Success/Completion Indicator</b>	TSM&O Asset Management System



## Performance Measurement Implementation Plan Template

Details for Action 1 of 1	
<b>Action Description</b>	Develop a TSM&O Performance Measurement Plan
<b>Products and Desired Outcomes</b>	A TSM&O Performance Measurement Plan that supports TDOT’s overall approach to performance management
<b>Task(s)/Subtask(s)</b>	<ol style="list-style-type: none"> <li>1. Establish a subcommittee to guide development and monitoring/updating of the Plan as part of the TSM&amp;O Oversight Committee subcommittee structure.</li> <li>2. Monitor MAP-21 rulemaking activities on performance management related to congestion reduction and system performance.</li> <li>3. Coordinate with other TDOT and MPO performance measurement activities.</li> <li>4. Consider different contexts:               <ol style="list-style-type: none"> <li>a. Statewide, regional, corridor</li> <li>b. Inputs (from asset management), outputs and outcomes</li> <li>c. Project/TSM&amp;O strategy/Circumstantial (e.g., incident management, weather, work zones, etc.)</li> <li>d. Customer satisfaction</li> </ol> </li> <li>5. Review peer states’ plans and experience relative to performance measurement, including:               <ol style="list-style-type: none"> <li>a. Measures used</li> <li>b. Data availability and acquisition</li> <li>c. Analytical methods</li> <li>d. Use of measures for project selection/prioritization and resource allocation</li> <li>e. Internal and external reporting – audiences/needs/methods</li> <li>f. Evaluations of completed projects</li> </ol> </li> <li>6. Develop a Performance Measurement Plan that, at a minimum, addresses the points in #3 and #4 above.</li> <li>7. Coordinate development of the Plan with development of the TSM&amp;O Program Plan.</li> </ol>
Implementation Task Details	
<i>Details below apply to all tasks above or can be duplicated and specified for single tasks or subset of tasks.</i>	
<b>Lead</b>	Mike Tugwell (TOD)
<b>Support Staff</b>	Said El Said (TOD), Frank Horne,(TOD), Tanisha Hall(LRP), Steve Allen (STID), Joe Kirk (IT), Regional Directors
<b>Staff Level of Effort (person-days)</b>	Bi-weekly Meetings
<b>Senior Leadership Support Actions</b>	<ul style="list-style-type: none"> <li>• Approve Performance Management Plan</li> <li>• Approve travel &amp; training for staff</li> </ul>
<b>Collaboration Actions and Requirements</b>	Collaboration between Long Range Planning, Traffic Operations, Strategic Investment Division, & Outside Planning Agencies.
<b>Technical Issues</b>	Data availability, and automated analysis systems
<b>Key Risks</b>	Insufficient link to future plans and processes within TDOT and beyond
<b>Resource Requirements</b>	Funding for Peer Exchanges



<b>FHWA Support Resources and Contact</b>	FHWA TN-Division, FHWA Resource Center Personnel
<b>Start Date</b>	June, 2014
<b>End Date</b>	June, 2015
<b>Success/Completion Indicator</b>	Finalized Performance Measurement plan included in TSM&O Program Plan

## Culture Implementation Plan Template

Details for Action 1 of 1	
<b>Action Description</b>	Publish an annual report describing recent TSM&O success stories and outcomes
<b>Products and Desired Outcomes</b>	<ul style="list-style-type: none"> <li>• An Annual TSM&amp;O report</li> <li>• Delivery of core messages via other means taking advantage of other opportunities</li> </ul>
<b>Task(s)/Subtask(s)</b>	<ol style="list-style-type: none"> <li>1. Establish a subcommittee to guide development of the report as part of the TSM&amp;O Coordinating Committee subcommittee structure.</li> <li>2. Define the audience groups that the annual report is intended to address.</li> <li>3. Develop core messages for each of these audience groups.</li> <li>4. Prepare the report with the involvement of Regions, Office of Community Transportation, and Community Relations staff.</li> <li>5. Identify other opportunities to deliver core messages to defined audience groups, working with the Regions, Office of Community Transportation, and Community Relations staff and prepare appropriate materials.</li> <li>6. Take advantage of event-related opportunities to craft/deliver messages (e.g., post weather, crash, and special events).</li> </ol>
Implementation Task Details	
<i>Details below apply to all tasks above or can be duplicated and specified for single tasks or subset of tasks.</i>	
<b>Lead</b>	John Hall (TOD)
<b>Support Staff</b>	Said El Said(TOD), Frank Horne(TOD), Mike Tugwell(TOD), BJ Doughty (CRD), Regional Directors
<b>Staff Level of Effort (person-days)</b>	Unknown at this time. This is our first effort at this type of publication.
<b>Senior Leadership Support Actions</b>	Approval of final Annual Report
<b>Collaboration Actions and Requirements</b>	All areas of Traffic Operations will recommend and supply success stories and/or pictures as needed from across the state.
<b>Technical Issues</b>	None
<b>Key Risks</b>	<ul style="list-style-type: none"> <li>• Not getting our message of success out clearly</li> <li>• Loss of confidence by Departmental Leadership due to risk #1</li> </ul>
<b>Resource Requirements</b>	<ul style="list-style-type: none"> <li>• MS Publisher</li> <li>• Publishing of final report in a slick and finished edition</li> </ul>



<b>FHWA Support Resources and Contact</b>	FHWA TN-Division, FHWA Resource Center Personnel
<b>Start Date</b>	June, 2014
<b>End Date</b>	First annual report by January, 2015
<b>Success/Completion Indicator</b>	Final Report approved by Traffic Operations Director, Brad Freeze

## Organization and Staffing Implementation Plan Template

Details for Action 1 of 1	
<b>Action Description</b>	Provide technical training for TDOT staff to ensure efficient delivery of systems and services
<b>Products and Desired Outcomes</b>	<ul style="list-style-type: none"> <li>• Development and execution of staff training plans</li> <li>• Establishment of a mentoring program</li> <li>• Staff participation in national forums</li> </ul>
<b>Task(s)/Subtask(s)</b>	<ol style="list-style-type: none"> <li>1. Establish training requirements for TSM&amp;O focused staff.</li> <li>2. Identify existing training courses/materials that will meet identified training needs. Develop materials/methods for addressing needs unmet by existing courses/materials.</li> <li>3. Review opportunities to develop joint training with appropriate peer states.</li> <li>4. Consider opportunities to cooperate with key collaborators in TSM&amp;O service delivery (public safety agencies, local government, coalitions, colleges and universities).</li> <li>5. Develop staff training plans and schedules and the budget necessary to support their accomplishment-</li> <li>6. Establish a mentoring program for junior staff to support professional development and clarify paths of career advancement.</li> <li>7. Support staff participation in national forums and associations such as AASHTO, TRB, ITE, and others.</li> </ol>
Implementation Task Details	
<i>Details below apply to all tasks above or can be duplicated and specified for single tasks or subset of tasks.</i>	
<b>Lead</b>	Brad Freeze
<b>Support Staff</b>	Mike Tugwell(TOD), Said El Said(TOD), Frank Horne(TOD), Clay Culwell (M&T), Jerry Hatcher (Maintenance), Avery Poor (HR), Regional Directors
<b>Staff Level of Effort (person-days)</b>	Monthly Meetings
<b>Senior Leadership Support Actions</b>	Approve Travel, Approve Staff Training Plans
<b>Collaboration Actions and Requirements</b>	Peer State Programs, Colleges & Universities, Collaborating Agencies
<b>Technical Issues</b>	Some training may be outside of FHWA programs
<b>Key Risks</b>	Loss of staff, and the sustainability of the training program
<b>Resource Requirements</b>	Funding for initial training programs



<b>FHWA Support Resources and Contact</b>	FHWA TN-Division, FHWA Resource Center Personnel
<b>Start Date</b>	June, 2014
<b>End Date</b>	June, 2015
<b>Success/Completion Indicator</b>	Finalized staff training plan included in TSM&O Program Plan

## Collaboration Implementation Plan Template

Details for Action 1 of 1	
<b>Action Description</b>	Establish methods for more effectively and efficiently capturing and sharing roadway incident information
<b>Products and Desired Outcomes</b>	<ul style="list-style-type: none"> <li>• Agreements with other agencies regarding what information will be shared and how</li> <li>• Establishment of a major incident debriefing process</li> <li>• Exploration of the TMC Fusion Center concept</li> <li>• Exploration of CAD information integration</li> </ul>
<b>Task(s)/Subtask(s)</b>	<ol style="list-style-type: none"> <li>1. Establish a Traffic Incident Management/Systems Operations Working Group(s) consisting of both field and TMC personnel and including representation from TDOT, state patrol and local government agencies.</li> <li>2. Develop mutually acceptable performance metrics (also see Performance Measurement Plan action item) to establish a basis for measuring the relationship between changes in procedures and improved performance.               <ol style="list-style-type: none"> <li>a. Collect and analyze performance data for incidents, emergencies, and events of different types</li> </ol> </li> <li>3. Identify information transfer needs and obtain agreement on data items, formats and sequences and how information will be communicated at each stage in incident and emergency management.               <ol style="list-style-type: none"> <li>a. Continue to develop and promote use of the new SWIFT system</li> <li>b. Engage in continuing discussions with local agencies for sharing of CCTV camera and surveillance information</li> </ol> </li> <li>4. Establish a major incident and emergency debriefing process for review and rationalization of responsibilities and procedures as developed above.</li> <li>5. Explore the creation of TMC Fusion Centers where representatives from TDOT, local agencies, state patrol, and local emergency responders would be co-located.</li> <li>6. Explore the possibility of Computer Aided Dispatch information integration as a method for prompt incident identification, addressing potential interoperability issues, reluctance and privacy concerns.</li> </ol>





<b>Implementation Task Details</b>	
<i>Details below apply to all tasks above or can be duplicated and specified for single tasks or subset of tasks.</i>	
<b>Lead</b>	Frank Horne
<b>Support Staff</b>	Region Operation Directors, Said El Said(TOD), Mike Tugwell(TOD), Tennessee Highway Patrol Representative, Michael Nichols (IT), Kevin Speakman (TOD)
<b>Staff Level of Effort (person-days)</b>	Meet monthly, estimate 90 minute planning and development work session
<b>Senior Leadership Support Actions</b>	<ul style="list-style-type: none"> <li>• Travel and scheduling support</li> <li>• Approval of implementation strategies</li> <li>• Expedite MOU process</li> <li>• Budget approvals</li> </ul>
<b>Collaboration Actions and Requirements</b>	Communicate with other divisions within TDOT, other response agencies
<b>Technical Issues</b>	CAD and fusion center integration
<b>Key Risks</b>	Securing buy-in from other agencies, jurisdictions, funding issues
<b>Resource Requirements</b>	Funding for information exchanges, training of staff
<b>FHWA Support Resources and Contact</b>	TN-Div FHWA, SHRP2 resources, Resource Centers
<b>Start Date</b>	June 1, 2014
<b>End Date</b>	June 1, 2016
<b>Success/Completion Indicator</b>	<ul style="list-style-type: none"> <li>• Effective After Action Review process fully integrated in the program</li> <li>• Developed Fusion and CAD integration</li> <li>• Established protocol for information sharing with other agencies</li> </ul>



I hereby certify that the Tennessee Department of Transportation endorses the Transportation Systems Management & Operations (TSM&O) Capability Maturity Implementation Plan presented in this document.

A handwritten signature in blue ink, appearing to read "John C. Schroer", written over a horizontal line.

**JOHN C. SCHROER**  
Commissioner

7/9/2014

Date

A handwritten signature in blue ink, appearing to read "Paul Degges", written over a horizontal line.

**Paul Degges**  
Deputy Commissioner

7/9/2014

Date