



TxDOT Statewide TSM&O Strategic Plan Development

TSM&O Outreach Event Summary

May 4, 2017

Version 3.1 (initial release)

Prepared By:

ATKINS

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Introduction

The Texas Department of Transportation (TxDOT) is leading an initiative to develop a statewide Transportation Systems Management and Operations (TSM&O) program. TSM&O is an approach to improve mobility for all modes of transportation; people walking, biking, driving, riding transit, and others; by integrating planning and design with operations and maintenance to holistically manage the transportation network and optimize existing infrastructure. The Federal Highway Administration (FHWA), American Association of State Highways and Transportation Officials (AASHTO), and other national organizations have endorsed the TSM&O framework as a guideline to achieve best in class operations and management. TxDOT, with the help of Atkins, summarized a State of the Practice for TSM&O using TSM&O plans from transportation agencies across the country, as well as guidance documents from national organizations. To determine how TxDOT compares to other agencies regarding TSM&O, and to set a baseline to begin developing next steps, a project team (including Marco Cameron of the TxDOT Traffic Operation Division, and Jim Hanson and Olivia Brey of Atkins) gathered feedback during seven outreach events conducted across the State of Texas. During the outreach events, the project team shared information about TSM&O and walked participants through a self-evaluation survey used to perform a capability maturity model (CMM) assessment. The project team documented all questions and major discussion items and summarized them in this report. Using the results of the CMM assessment and other feedback from the outreach events as a foundation, the project team will develop a Statewide TSM&O Strategic Plan. Using the Statewide TSM&O Strategic Plan as a guideline, the districts will be in charge of developing their own customized District TSM&O Program Plans, which should be a collaborative effort with regional partner agencies. Each district's TSM&O Program Plan will define the processes, institutional arrangements and projects that need implementation in the district, and serve as a planning framework to sustain the improvements made to the district's Traffic Management System (TMS) technology and infrastructure over time.

Summary of Events

The purpose of the outreach events was to introduce TSM&O, facilitate the CMM assessment, and gather feedback. Through the CMM assessment and discussions during the outreach events, participants shared their current successes and challenges, as well as their needs for the statewide TSM&O program. The project team used the same presentation at all outreach events for continuity, with minor adjustments made for each location's time restrictions. The presentation, agendas, and sign-in sheets for each event can be found as attachments to this report. A list of the outreach events and number of attendees can be found in Table 1. The TxDOT districts were asked to forward outreach event and survey information to their partner agencies to reach as many Texas transportation agencies as possible.

Table 1: Summary of TSM&O Outreach Events

Location	Date & Time	Number of Attendees
El Paso	Tuesday, October 18, 2016 - 8 am to 12 pm	13
Dallas/Fort Worth	Wednesday, November 2, 2016 - 1 pm to 5 pm	24
Houston	Thursday, November 3, 2016 - 9 am to 12 pm	22
San Antonio	Friday, November 4, 2016 - 9 am to 12 pm	32
ITS Texas (Richardson)	Wednesday, November 9, 2016 - 4 pm to 6 pm	33
Austin	Thursday, November 17, 2016 - 8 am to 12 pm	22
Webinar	Thursday, January 26, 2017 - 10 am to 12 pm	110*
TOTAL		256

* It is likely that more than 110 individuals attended the webinar as some individuals attended as a group in a conference room at their respective locations.

The project team summarized a list of questions and feedback received during the events, which is included as an attachment to this report. In general, the outreach event participants understood the value of TSM&O and were excited about the opportunities to improve operations in their agency. Some of the concerns discussed were:

- Funding, staffing, and training for TSM&O
- Integrating TSM&O into existing planning documents
- Integrating the statewide effort with Metropolitan Planning Organization (MPO) TSM&O Plans
- Need for multimodal emphasis in TSM&O strategies
- Implementing TSM&O in rural areas
- Needing a business case and messaging regarding TSM&O for outreach to peers and administration

Most of these concerns will at a minimum be addressed at a high-level in the Statewide TSM&O Strategic Plan. While more specific solutions should be outlined in the District TSM&O Program Plans.

Summary of CMM Assessments

The purpose of the CMM is to identify the current state of TSM&O for a transportation agency and next steps for improvement. The dimensions of the CMM are defined by the AASHTO TSM&O Guidance:

- **Business Processes** (planning, programming, budgeting, project development, implementation)
- **Systems and Technology** (systems engineering, standards and interoperability, technology, regional architectures)
- **Performance Measures** (measures definition, data acquisition, analytics, utilization)

- **Culture** (technical understanding, leadership/championship, outreach, program authority)
- **Organization and Workforce** (program status, organizational structure, workforce capacity, staff development, recruitment and retention)
- **Collaboration** (partnership among levels of government, public safety agencies, and the private sector)

Each of these six dimensions of capability has four levels of maturity: performed, managed, integrated, and optimized, as shown in Figure 1. Identifying a level of maturity for each capability dimension helps determine the state of the practice for Texas and the next actionable steps for improvement.

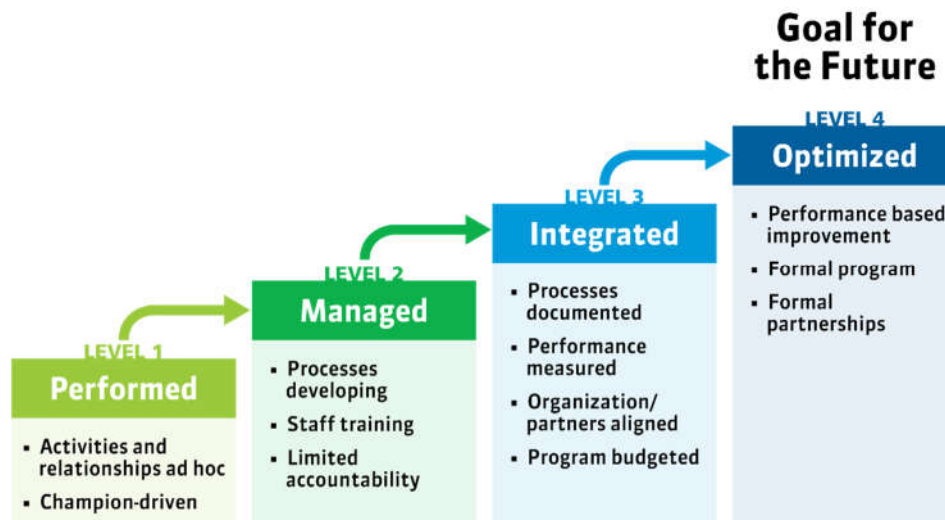


Figure 1: Levels of Capability Maturity Model (CMM)

All outreach event attendees were asked to complete a CMM assessment, ideally, as a group with their co-workers. The CMM survey asked each participant to identify their respective agency's strengths and weaknesses, and which level they felt matched their agencies' current state for each capability dimension in TSM&O. The CMM surveys were collected in person at the outreach events and online over a period of five months. A total of 53 CMM survey responses were collected and a tabulation of all the responses is included as an attachment to this report. Most agencies rated themselves around Level 2 for all capability dimensions, as shown in Figure 2. TxDOT respondents rated themselves lower than other agencies for all dimensions except for organization and workforce, and collaboration.

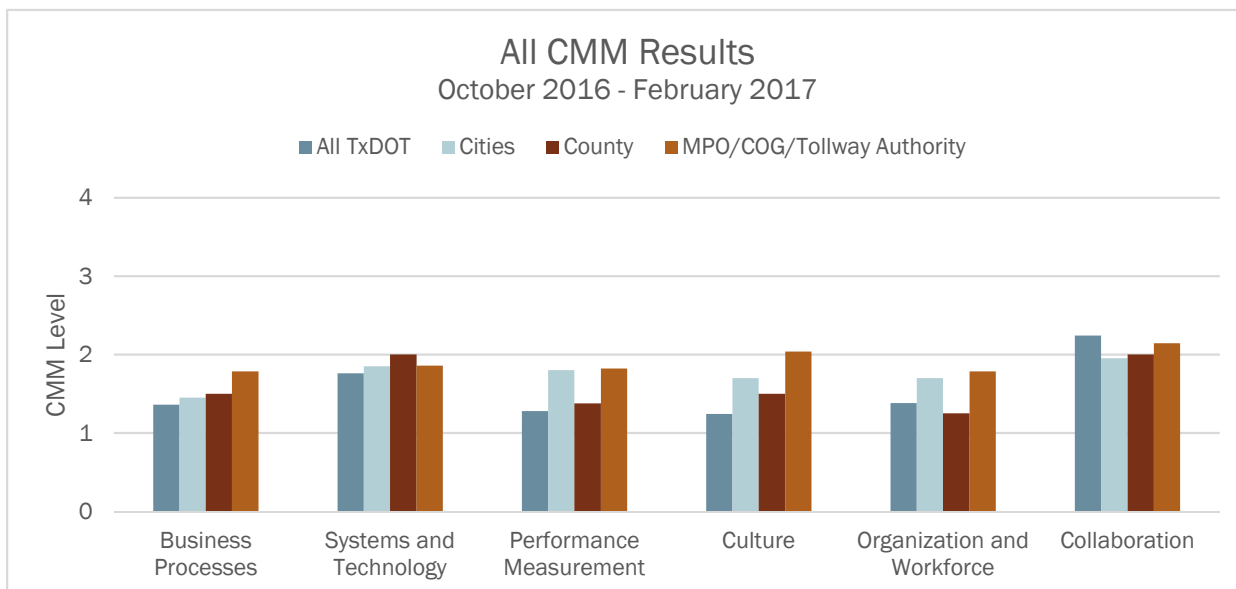


Figure 2: All CMM Results October 2016 - February 2017

The TxDOT districts fall into three categories (metro, urban, and rural) and are divided as follows:

Metro Districts

Austin
Dallas
Fort Worth
Houston
San Antonio

Urban Districts

Beaumont
Bryan
Corpus Christi
El Paso
Laredo
Lubbock
Pharr
Tyler
Waco

Rural Districts

Amarillo
Abilene
Atlanta
Brownwood
Childress
Lufkin
Odessa
Paris
San Angelo
Wichita Falls
Yoakum

Responses from the TxDOT districts included nine from the metro districts, one from the urban districts, seven from the rural districts, and five from TxDOT headquarters (e.g. central offices / divisions). With exception to business processes and culture, the metro districts rated themselves as more advanced in all TSM&O capabilities compared to the urban and rural districts, and headquarters.

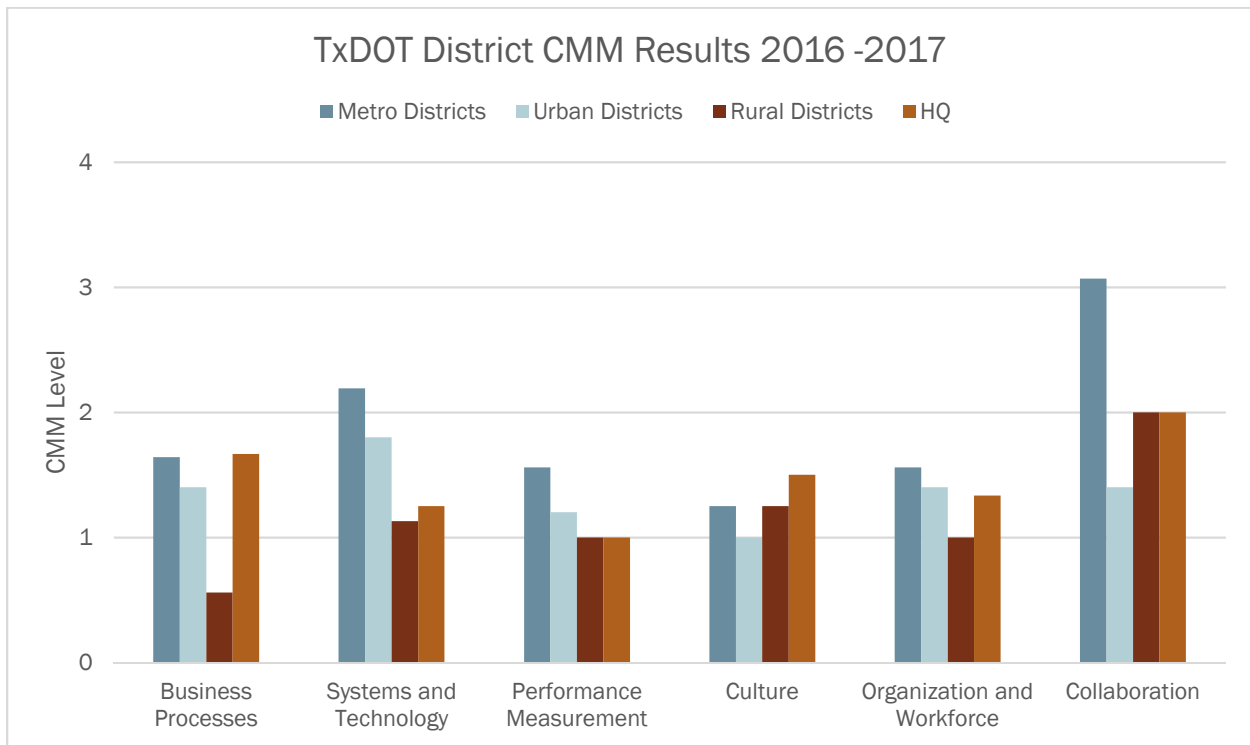


Figure 3: TxDOT District CMM Results October 2016 - February 2017

Comparing only the metro district responses, the metro districts generally rated themselves highest in collaboration, and lowest in culture with regards to TSM&O, as shown in Figure 4.

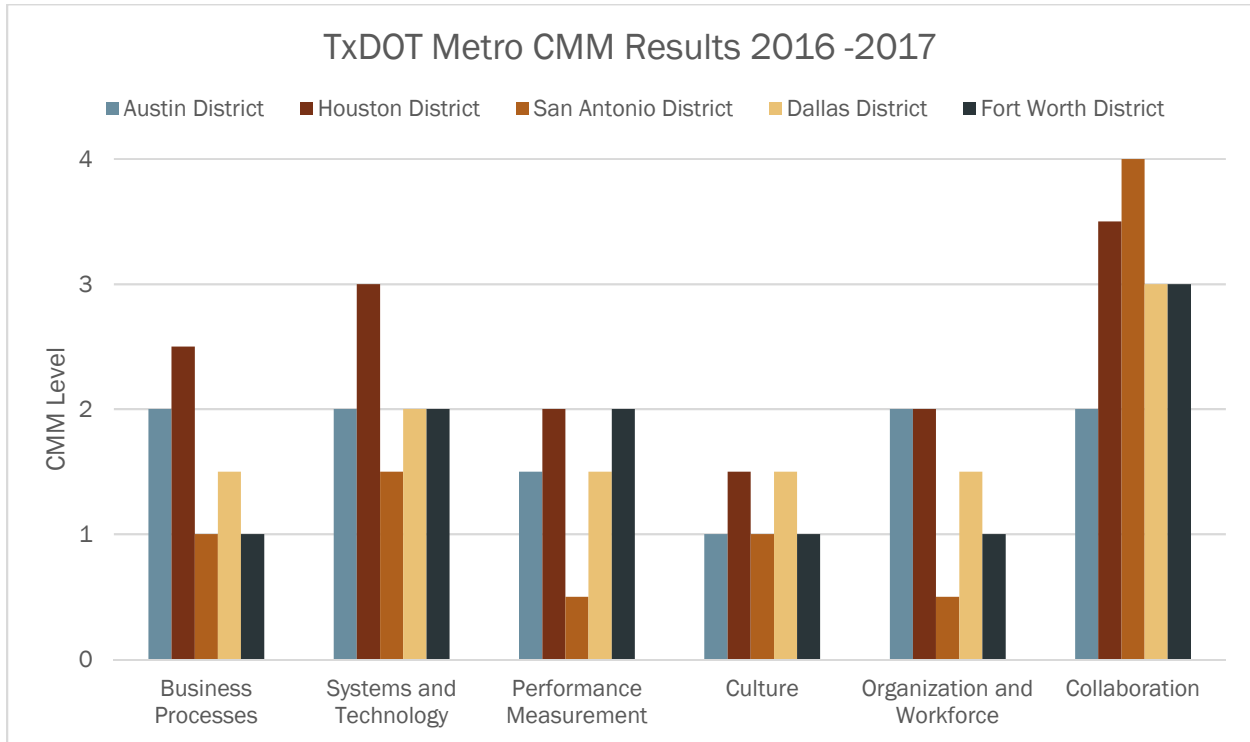


Figure 4: TxDOT Metro CMM Results October 2016 - February 2017

Recommendations

The results of the CMM assessment and other feedback obtained during the outreach events will serve as the foundation of the Statewide TSM&O Strategic Plan. The Strategic Plan will incorporate specific objectives endorsed by TxDOT Administration to improve the state's TMS, and outline an approach to provide centralized support to the districts' TMS performance. Furthermore, the Strategic Plan that is being developed as part of this project will establish the framework and structure for the District TSM&O Program Plans which will be developed separately by the districts over time, and customized to each district's individual needs.

The project team recommends that a business case for TSM&O be included in the Statewide TSM&O Strategic Plan. A business case, in addition to a statewide TSM&O mission, vision, and goals, is the anchor for TSM&O plans in many other states and was specifically requested by many outreach event participants. It can be used as the basis for discussions with constituents, executives, or other stakeholders to promote TSM&O.

All the dimensions of the TSM&O CMM have an important role in the success of a TSM&O program and are recommended to be included in the Statewide TSM&O Strategic Plan. Many concerns identified during the outreach events, such as standardizing performance measures, provide guidance on integrating TSM&O with existing planning documents and regional TSM&O plans, and funding TSM&O elements in projects, fall into one or more capability dimensions. Additionally, elements such as staffing, training, and procedures with partners were also highlighted in the TSM&O State of the Practice as key features of many successful plans and can be discussed as one or more of the capability dimensions.

The project team also recommends an overview of several TSM&O mobility strategies be included in the Statewide TSM&O Strategic Plan. It is not the intent of the strategic plan to provide an overview of an exhaustive list of TSM&O mobility strategies; however, providing a brief overview of key mobility strategies will inform districts and other agencies of potential solutions. Additionally, it is recommended that the Statewide TSM&O Strategic Plan include solutions for multimodal applications and rural areas which will address particular concerns expressed by some of the outreach event participants.

Finally, the project team recommends that a sample table of contents for District TSM&O Program Plans be included as an appendix to the Statewide TSM&O Strategic Plan to provide guidance and encourage uniformity throughout the state.

These recommendations are subject to the review of the TxDOT districts, MPOs, and other local agencies. Following the review period and resolution of comments, the Statewide TSM&O Strategic Plan will be released in mid-summer of 2017.

*APPENDIX A:
Outreach Event Agendas by Location*

Transportation Systems Management and Operations (TSM&O) Guidance



OUTREACH EVENT AGENDA - EL PASO, TX

- 8:00 a.m. – 8:30 a.m. Introductions
- 8:30 a.m. – 9:00 a.m. Introduction to TSM&O
- 9:00 a.m. – 9:15 a.m. TSM&O State of the Practice
- 9:15 a.m. – 9:30 a.m. Open up for questions
- 9:30 a.m. – 10:00 a.m. Break & pass out CMM materials
- 10:00 a.m. – 10:30 a.m. Introduction to Capability Maturity Model (CMM)
- 10:30 a.m. – 11:45 a.m. Fill out CMM survey
- 11:45 a.m. – 12:00 p.m. Regroup and next steps

Transportation Systems Management and Operations (TSM&O) Guidance



OUTREACH EVENT AGENDA - DALLAS/FORT WORTH, TX

- 1:00 p.m. – 1:30 p.m. Introductions
- 1:30 p.m. – 2:00 p.m. Introduction to TSM&O
- 2:00 p.m. – 2:15 p.m. TSM&O State of the Practice
- 2:15 p.m. – 2:30 p.m. Break & open up for questions
- 2:30 p.m. – 3:00 p.m. Introduction to Capability Maturity Model (CMM)
- 3:00 p.m. – 4:45 p.m. Fill out CMM survey
- 4:45 p.m. – 5:00 p.m. Regroup and next steps

Transportation Systems Management and Operations (TSM&O) Guidance



OUTREACH EVENT AGENDA - HOUSTON, TX

- 9:00 a.m. – 9:30 a.m. Introductions
- 9:30 a.m. – 10:00 a.m. Introduction to TSM&O
- 10:00 a.m. – 10:15 a.m. TSM&O State of the Practice
- 10:15 a.m. – 10:30 a.m. Break & open up for questions
- 10:30 a.m. – 11:00 a.m. Introduction to Capability Maturity Model (CMM)
- 11:00 a.m. – 11:50 a.m. Fill out CMM survey
- 11:50 a.m. – 12:00 p.m. Regroup and next steps

Transportation Systems Management and Operations (TSM&O) Guidance



OUTREACH EVENT AGENDA - SAN ANTONIO, TX

- 9:00 a.m. – 9:30 a.m. Introductions
- 9:30 a.m. – 10:00 a.m. Introduction to TSM&O
- 10:00 a.m. – 10:15 a.m. TSM&O State of the Practice
- 10:15 a.m. – 10:30 a.m. Break & open up for questions
- 10:30 a.m. – 11:00 a.m. Introduction to Capability Maturity Model (CMM)
- 11:00 a.m. – 11:50 a.m. Fill out CMM survey
- 11:50 a.m. – 12:00 p.m. Regroup and next steps

Transportation Systems Management and Operations (TSM&O) Guidance



OUTREACH EVENT AGENDA - ITS TEXAS

4:00 p.m. – 4:15 p.m. Introductions

4:15 p.m. – 4:45 p.m. Introduction to TSM&O

4:45 p.m. – 5:00 p.m. TSM&O State of the Practice

5:00 p.m. – 5:30 p.m. Introduction to Capability Maturity Model (CMM)

5:30 p.m. – 5:50 p.m. How to fill out CMM survey

5:50 p.m. – 6:00 p.m. Next steps

Transportation Systems Management and Operations (TSM&O) Guidance



OUTREACH EVENT AGENDA - AUSTIN, TX

- 8:00 a.m. – 8:30 a.m. Introductions
- 8:30 a.m. – 9:00 a.m. Introduction to TSM&O
- 9:00 a.m. – 9:15 a.m. TSM&O State of the Practice
- 9:15 a.m. – 9:30 a.m. Break & open up for questions
- 9:30 a.m. – 10:00 a.m. Introduction to Capability Maturity Model (CMM)
- 10:00 a.m. – 11:45 a.m. Fill out CMM survey
- 11:45 a.m. – 12:00 p.m. Regroup and next steps

Transportation Systems Management and Operations (TSM&O) Guidance



OUTREACH EVENT AGENDA - WEBINAR

10:00 a.m. – 10:10 a.m. Speaker Introductions

10:10 a.m. – 10:40 a.m. Introduction to TSM&O

10:40 a.m. – 10:55 a.m. TSM&O State of the Practice

10:55 a.m. – 11:35 a.m. Introduction to Capability Maturity Model (CMM)


11:35 a.m. – 11:50 a.m. Question and Answer

11:50 a.m. – 12:00 p.m. Next steps

*APPENDIX B:
Outreach Event Slide Presentation*

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Transportation Systems Management & Operations (TSM&O) Guidance Outreach




1

Purpose of the Outreach Event

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- Provide a definition of TSM&O
- Present TSM&O State of the Practice
- Perform self evaluation and determine local state of TSM&O
- Answer questions & receive feedback




2

Introductions

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- Name
- Job responsibilities
- Organization




3

Agenda

ATKINS

- Introductions
- Introduction to TSM&O
- TSM&O State of the Practice
- Open up for questions
- Break & pass out CMM materials
- Introduction to Capability Maturity Model (CMM)
- Fill out CMM survey
- Regroup and next steps




4

Some thoughts before we begin...

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- Wide range of experiences in the audience
- You may or may not already be familiar with concepts discussed
- We hope to have everyone at the same base level of understanding before the CMM workshop




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Agenda

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- Introductions
- **Introduction to TSM&O**
- TSM&O State of the Practice
- Open up for questions
- Break & pass out CMM materials
- Introduction to Capability Maturity Model (CMM)
- Fill out CMM survey
- Regroup and next steps



6

What is TSM&O?

Transportation Systems Management & Operations




What is TSM&O?

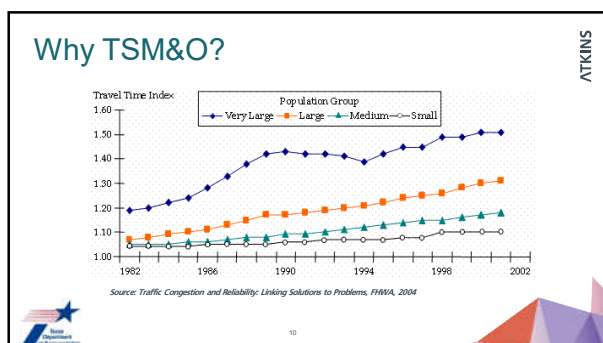




TSM&O vs Traffic Operations

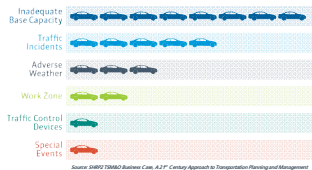


TSM&O Strategies







Why TSM&O?



- Higher value on system reliability

Why TSM&O?




1. Increasing public expectation
2. Stagnant funding
3. Increasing congestion

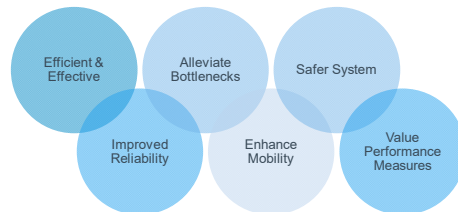

Why TSM&O?

- Supported by FHWA (SHRP 2), AASHTO (NOCoE), and other national organizations' initiatives
- Required through Moving Ahead for Progress in the 21st Century (MAP 21)
 - National goals established for performance measures (reduce congestion, improve system reliability, improve freight movement, etc.)



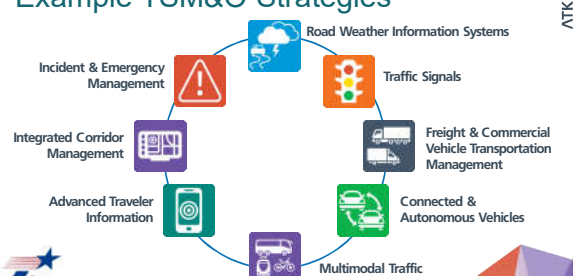

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TSM&O Benefits


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Example TSM&O Strategies





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Incident & Emergency Management




- Organize the management and clearance to disruptions and emergencies
- Ex: Towing and Recovery Quick Clearance Incentives




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Road Weather Information Systems




- Distribute future and existing information about disruptive weather conditions
- Ex: Variable speed limits based on current weather conditions




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Integrated Corridor Management




- Dynamically optimize lane use and speeds via ITS devices
- Ex: Coordinated signal timing plans on alternate routes



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Advanced Traveler Information




- Distribute current and anticipated route information (weather, incidents, timing, etc)
- Ex: In-vehicle dynamic route guidance

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Traffic Signals




- Enhance signal timing using ITS devices to improve traffic during special events, peak periods, etc.
- Ex: Adaptive Signal Timing

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Multimodal Traffic Management



- Provide and optimize transportation via buses, bicycles, and other modes
- Ex: Transit coalition to institute a transit service for multiple rural communities

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Freight & Commercial Vehicle Transportation Management




- Provide unique solutions for heavy vehicles
- Ex: Prohibit trucks from left lane

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Connected & Autonomous Vehicles



- Innovative solutions using vehicle-to-infrastructure or vehicle-to-vehicle technology
- Ex: Dynamic turn lane assignment based on volume and capacity

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Existing Resources

National Operations Center of Excellence (NOCoE)
<http://www.transportationops.org/>

AASHTO TSM&O Guidance
<http://www.aashtotsmguidance.org/>

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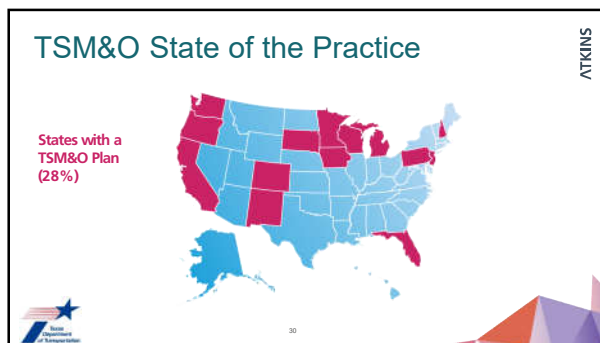
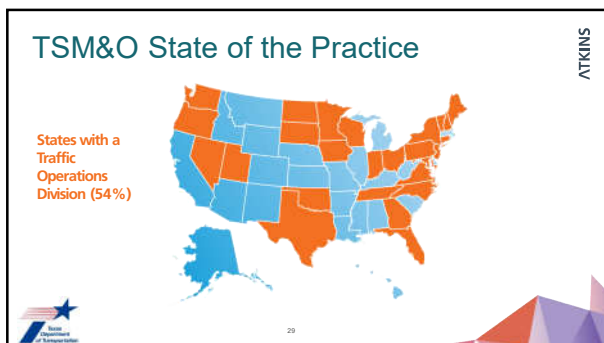
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- ### Expected Project Outcomes
- Determine the initial state
 - Determine the target state
 - Identify what the steps are to get from initial to target
 - Continuous improvement

- ### Agenda
- Introductions
 - Introduction to TSM&O
 - **TSM&O State of the Practice**
 - Open up for questions
 - Break & pass out CMM materials
 - Introduction to Capability Maturity Model (CMM)
 - Fill out CMM survey
 - Regroup and next steps

- ### TSM&O State of the Practice
- **Purpose: to understand existing state of TSM&O across the country to see where Texas fits in and gather best practices**
 - **Literature review conducted of over 40 statewide TSM&O plans and national guidance documents**



TSM&O State of the Practice

States with a TSM&O Division (6%)

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TSM&O State of the Practice

- Case Study: Florida
- Decentralized agency structure
- Statewide TSM&O Strategic Plan – 2013
- Each district responsible for implementing TSM&O

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TSM&O State of the Practice

- Case Study: Colorado
- Centralized agency structure
- Statewide TSM&O Plan – 2015
- TSM&O required for all projects, through TSM&O Evaluation

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TSM&O State of the Practice

Occurring Frequency of TSM&O Capability Dimensions in Statewide TSM&O Plans

Capability Dimension	Frequency (%)
Business Processes	~95%
Systems & Technology	~85%
Performance Measurement	~80%
Organization & Workforce	~75%
Collaboration	~70%
Culture	~60%

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TSM&O Plan Best Practices

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TSM&O Plan Best Practices


- South Dakota CMM Implementation Plan
- Outlined action items, products, and desired outcomes
- Detailed steps to implement actions

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TSM&O Plan Best Practices

- Southwest Washington Regional Transportation Council
- Identified TSM&O Contribution to meet the Metro Transportation Plan Goals



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State of the Practice in Texas

- Will be better understood after compiling CMM results
- TxDOT Administration assessed the current state of Traffic Management Systems (TMS)
 - August 2015 – October 2015

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Statewide Traffic Management Program Goals

- 1. **Prioritize, measure, and invest in traffic management** – in alignment with agency planning and balancing with construction/maintenance activities
- 2. **Coordinate with regional partners, across district boundaries and along highest congested corridors**
- 3. **Manage planned and unplanned events to "keep roads clear"**
- 4. **Get "eyes on the road" with effective asset deployment and management**
- 5. **Proactively communicate effective information with the traveling public**
- 6. **Influence transportation demand using elements of active transportation demand management**

Source: Traffic Management Improvement Initiative, BCG

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Agenda

- Introductions
- Introduction to TSM&O
- TSM&O State of the Practice
- **Open up for questions**
- Break & pass out CMM materials
- Introduction to Capability Maturity Model (CMM)
- Fill out CMM survey
- Regroup and next steps

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Pause

- Questions?
- Feedback?
- Break

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Agenda


- Introductions
- Introduction to TSM&O
- TSM&O State of the Practice
- Open up for questions
- Break & pass out CMM materials
- **Introduction to Capability Maturity Model (CMM)**
- Fill out CMM survey
- Regroup and next steps

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Capability Maturity Model (CMM)


- Purpose: assess existing performance and develop path to improvement
- Identify strengths and weaknesses
- Develop action items

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Capability Maturity Model (CMM)



- Business Processes
- Systems & Technology
- Performance Measures
- Culture
- Organization & Workforce
- Collaboration

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Why these 6 dimensions?

- Key process & institution capabilities
- Relate to improving effectiveness
- Closely associated with more effective TSM&O activities

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How will the CMM be used?

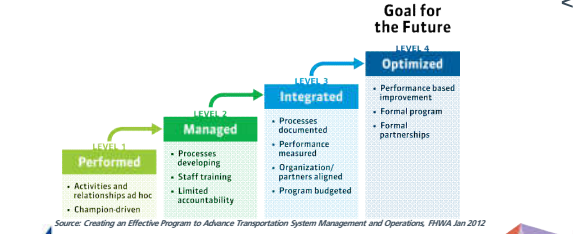
- Results of the survey will be compiled to summarize the state of Texas' TSM&O capabilities
- A TSM&O Implementation Guidance will be developed based on existing practices

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Capability Maturity Model (CMM)



Goal for the Future

LEVEL 4 **Optimized**

- Performance based improvement
- Formal program
- Formal partnerships

LEVEL 3 **Integrated**

- Processes documented
- Performance measured
- Organization/partners aligned
- Program budgeted

LEVEL 2 **Managed**

- Processes developing
- Staff training
- Limited accountability

LEVEL 1 **Performed**

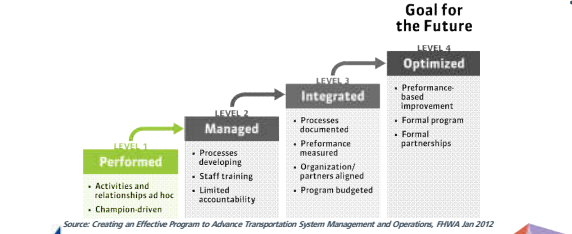
- Activities and relationships ad hoc
- Champion-driven

Source: Creating an Effective Program to Advance Transportation System Management and Operations, FHWA Jan 2012

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Capability Maturity Model (CMM)



Goal for the Future

LEVEL 4 **Optimized**

- Performance-based improvement
- Formal program
- Formal partnerships

LEVEL 3 **Integrated**

- Processes documented
- Performance measured
- Organization/partners aligned
- Program budgeted

LEVEL 2 **Managed**

- Processes developing
- Staff training
- Limited accountability

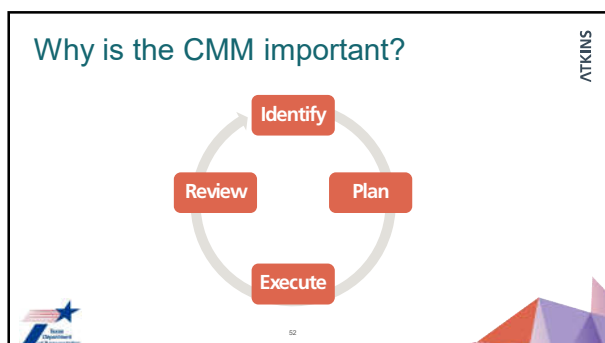
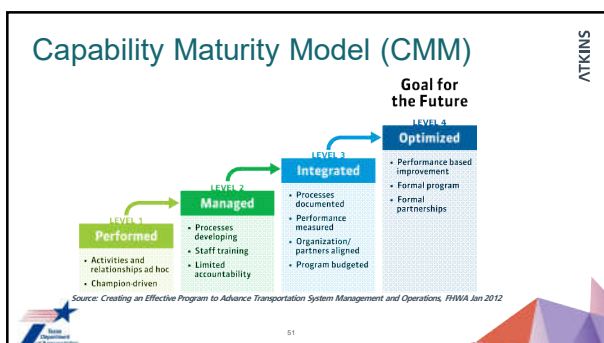
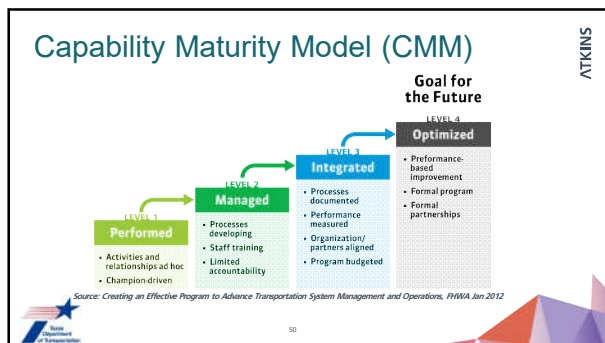
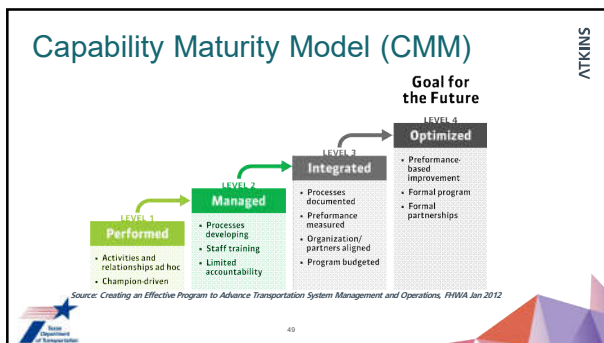
LEVEL 1 **Performed**

- Activities and relationships ad hoc
- Champion-driven

Source: Creating an Effective Program to Advance Transportation System Management and Operations, FHWA Jan 2012

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Filling Out the CMM Survey

- Paper Copy
- Online Survey

Accessing the CMM Online



TxDOT Transportation Systems Management and Operations (TSM&O) Guidance Survey

Filling Out the CMM Survey

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ToDOT Transportation Systems Management & Operations (TSMO) Implementation Plan Capability Maturity Model (CMM) Survey

Name: _____
Title: _____
Position: _____
Agency: _____
Location of Personnel Center: _____
Date of Survey: _____



Filling Out the CMM Survey



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CMM Business Processes

1.1

Business Process	Table 1	Table 2	Table 3	Table 4
Business Process 1	Table 1 description	Table 2 description	Table 3 description	Table 4 description
Business Process 2	Table 1 description	Table 2 description	Table 3 description	Table 4 description

Business is Addressed by the Survey



Filling Out the CMM Survey



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CMM Business Processes

1.1

Business Process	Table 1	Table 2	Table 3	Table 4
Business Process 1	Table 1 description	Table 2 description	Table 3 description	Table 4 description
Business Process 2	Table 1 description	Table 2 description	Table 3 description	Table 4 description

Business is Addressed by the Survey



Filling Out the CMM Survey



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CMM Business Processes

1.1

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Business is Addressed by the Survey



Filling Out the CMM Survey



ATKINS

CMM Business Processes

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Filling Out the CMM Survey



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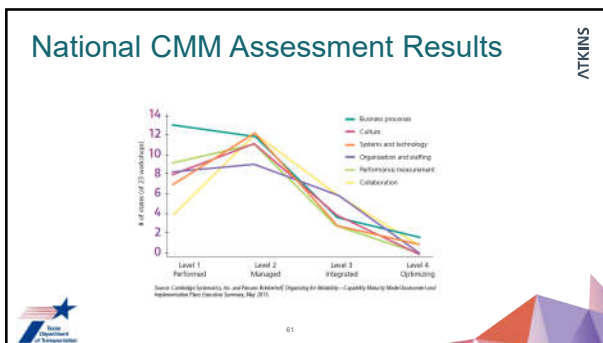
CMM Business Processes

1.1

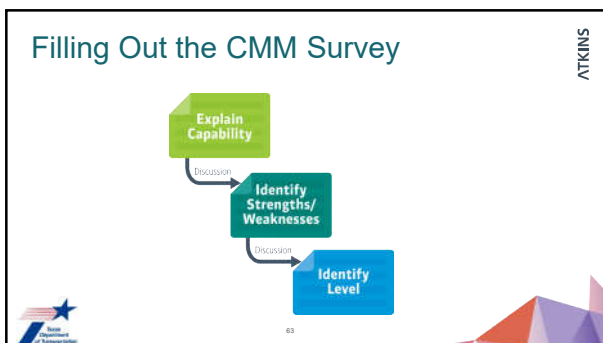
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Business is Addressed by the Survey

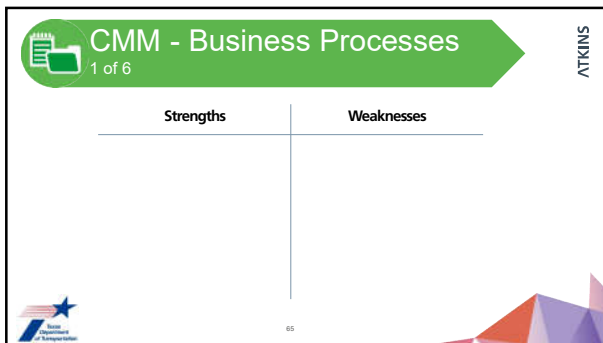




- ### Agenda
- Introductions
 - Introduction to TSM&O
 - TSM&O State of the Practice
 - Open up for questions
 - Break & pass out CMM materials
 - Introduction to Capability Maturity Model (CMM)
 - **Fill out CMM survey**
 - Regroup and next steps



- ### CMM - Business Processes
- 1 of 6
- Planning
 - Programming
 - Budgeting
 - Project Development
 - Implementation



- ### CMM - Business Processes
- 1 of 6
- **Level 1 – Performed**
 - Process related to TSM&O activities ad hoc and un-integrated
 - **Level 2 – Managed**
 - Multiyear statewide TSM&O plan and program exists with deficiencies, evaluation, and strategies
 - **Level 3 – Integrated**
 - Programming, budgeting, and project development processes for TSM&O standardized and documented
 - **Level 4 – Optimizing**
 - Processes streamlined and subject to continuous improvement

CMM – Systems & Technology
2 of 6

- Systems engineering
- Standards/Interoperability
- Technology
- Regional architectures

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CMM – Systems & Technology
2 of 6

Strengths	Weaknesses
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CMM – Systems & Technology
2 of 6

- **Level 1 – Performed**
- Ad hoc approaches outside systematic systems engineering
- **Level 2 – Managed**
- Systems engineering employed and consistently used for ConOps, architecture and systems development
- **Level 3 – Integrated**
- Systems and technology standardized, documented and trained statewide, and new technology incorporated
- **Level 4 – Optimizing**
- Systems and technology routinely upgraded and utilized to improve efficiency performance

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CMM – Performance Measurement
3 of 6

- Measures definition
- Data acquisition
- Analytics
- Utilization

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CMM – Performance Measurement
3 of 6

Strengths	Weaknesses
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CMM – Performance Measurement
3 of 6

- **Level 1 – Performed**
- No regular performance measurement related to TSM&O
- **Level 2 – Managed**
- TSM&O strategies measurement largely via outputs, with limited after-action analyses
- **Level 3 – Integrated**
- Outcome measures identified and consistently used for TSM&O strategies improvement
- **Level 4 – Optimizing**
- Mission-related outputs/outcomes data routinely utilized for management, reported internally and externally and archived

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CMM – Culture
4 of 6

- Technical understanding
- Leadership/Championship
- Outreach
- Program Authority

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CMM – Culture
4 of 6

Strengths	Weaknesses

74

CMM – Culture
4 of 6

- **Level 1 – Performed**
- Value of TSM&O not widely understood beyond champions
- **Level 2 – Managed**
- Agency-wide appreciation of the value and role of TSM&O
- **Level 3 – Integrated**
- TSM&O accepted as a formal core program
- **Level 4 – Optimizing**
- Explicit agency commitment to TSM&O as key strategy to achieve full range of mobility, safety and livability/sustainability objectives

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CMM – Organization/Workforce
5 of 6

- Program status
- Organizational structure
- Workforce capability
- Staff development
- Recruitment and retention

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CMM – Organization/Workforce
5 of 6

Strengths	Weaknesses

77

CMM – Organization/Workforce
5 of 6

- **Level 1 – Performed**
- Fragmented roles based on legacy organization and available skills
- **Level 2 – Managed**
- Relationship among roles and units rationalized and core staff capacities identified
- **Level 3 – Integrated**
- Top level management position and core staff for TSM&O established in central office and districts
- **Level 4 – Optimizing**
- Professionalization and certification of operations core capacity positions including performance incentives

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CMM – Collaboration
6 of 6

- Partnerships among levels of government
- Partnerships with public safety agencies
- Partnerships with private sector

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CMM – Collaboration
6 of 6

Strengths	Weaknesses

80

CMM – Collaboration
6 of 6

- Level 1 – Performed**
 - Relationships on informal, infrequent and personal basis
- Level 2 – Managed**
 - Regular collaboration at regional level
- Level 3 – Integrated**
 - Collaborative interagency adjustment of roles/responsibilities by formal interagency agreements
- Level 4 – Optimizing**
 - High level of operations coordination institutionalized among key players –public and private

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Agenda

- Introductions
- Introduction to TSM&O
- TSM&O State of the Practice
- Open up for questions
- Break & pass out CMM materials
- Introduction to Capability Maturity Model (CMM)
- Fill out CMM survey
- Regroup and next steps**

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CMM Survey Responses

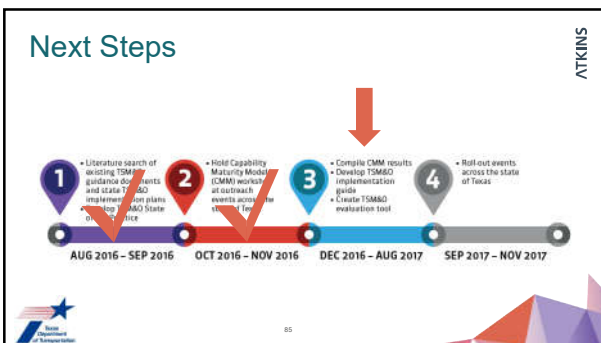
- Completed surveys will be collected
- Use the following link to complete the survey online:
 - <https://goo.gl/forms/07cHKAxACygbBq92>
- This link will be sent to everyone that signed in

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Upcoming Webinar & ITS Texas

- ITS Texas – Wed, November 9 at 4pm
- Webinar – November
- Discuss most of the information we went over today, without the workshop component
- Feel free to attend if you'd like, share with colleagues, etc.

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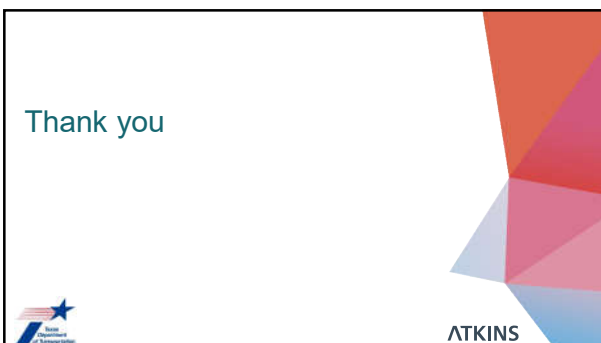


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APPENDIX C
Outreach Event Participant Contact Information by Location

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ITS Texas

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*APPENDIX D:
Outreach Event Questions and Notes*

Memo

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From:	Olivia Brey, Atkins	Email:	olivia.brey@atkinsglobal.com
Phone:	303-221-7275	Date:	Nov 29, 2016
Subject:	Outreach Event Questions and Notes		

El Paso

- None

Dallas/Fort Worth

- None

Houston

- Other cities aren't here to participate
- Where are we going to incorporate policies and other strategies? What step in the process does that come in?
- Have other parts of the state done the CMM and how will those be incorporated? (Tony Voigt, TTI)
- TranStar is a collaborative effort itself and we have a plan/facility to provide information and other TSM&O-like strategies. (Eliza Paul, TxDOT)
- Do you see TSM&O as an alternative to planning studies? Want to be invited to speak to Metro areas about the Congestion Management System Process Document that has already been developed. (Barbra Koslov, Harris County)
- Need to take prior H-GAC work into consideration (Jeff Kaufman, H-GAC)
- Quick clearance issues and legal battles? (Jeanette Rash, Houston SAFEClear)

San Antonio

- Add FHWA's formal definition of TSM&O to agenda/documents (Toni Whitfield, FHWA)
- Any plans for VSL across the state? (Dale Picha, TxDOT)
- Need, purpose, culture shift – need stronger messaging on moving the people and a stronger emphasis on strategies working together? Also need to emphasize looking across agencies to collaborate. As population increases, we don't have a choice but to work together to move people. (Clay Smith, VIA)
- Is implementing TSM&O a political reality since Texas is much more hands-off than other states? (Dale Picha, TxDOT)
- TSM&O needs to happen due to necessity (e.g. population, air quality, etc) (Tim Juarez, TxDOT)

ITS Texas

- None

Austin

- Many great anecdotes from Austin and across the state (e.g. CAP Metro Austin – Transit Priority)
- Multimodal is not well represented in this project (Clarence Rumancik, FHWA)
- How are context sensitive solutions being incorporated in plans you have reviewed? How are cost-benefit analyses being incorporated in plans you have reviewed? Will they be part of the TxDOT guidelines? (Steve Ratke, FHWA)

Memo

- How have other states integrated with law enforcement in plans you've reviewed? Will that be part of the TxDOT guidelines? (Philip Tindall, CAMPO)
- How was funding documented in TSM&O plans you've reviewed? Will that be part of the TxDOT guidelines? (John Nevares, TxDOT)
- How do you overall see this [the CMM] if we do some things well, some things not so well? Do an average? (John Nevares, TxDOT)
- How often would you recommend we do a CMM? Annually? (John Nevares, TxDOT)
- We need unified messaging/story. TSM&O means different things to different people (John Nevares, TxDOT)

Webinar

- City of Frisco, Texas also has the TSS Audi connection (Robert Saylor, Richardson)
- Is TSM&O replacing the TxDOT Project Development Process Manual? or are TSM&O items going to be included in a future revision? (Eugene Palacios)
 - TSM&O will not replace, but supplement/compliment.
 - As TSM&O programs advance in other states, we've ensured it supports existing programs
 - We may want to update the Project Development Process Manual?
- Is TSM&O is consider in the categories for STIP (Statewide Transportation Improvement Plan)? (Alfonso Vallejo)
 - Not at this time, but it may be in the future as the maturity of TSM&O in TxDOT improves
 - Some ask if TSM&O is required for federal funding – this is outlined in MAP 21 and should be considered further in the future.
- As part of the multimodal component, I would like to encourage the integration and support of moving people. The purpose of TSM&O should be the effective and efficient movement of people in order to better align with other modes. (Clay Smith)
 - Will probably be handled further in regional plans. Unique solutions should be considered to accomplish effective movement of people.
- What was the name of the rural TSM&O agency you're describing? (Julie Montgomery)
 - National Operations Center for Rural Road Safety
- Will the final guidelines document detailed recommendations for performance metrics along signalized corridors and how best to gather them? Standardize? Or will be a summary of what is gathered from surveys?
 - Yes, these are being developed internally and will be developed for both freeways and arterials.
 - Additionally, Districts have all done different things so guidance to work towards standards on performance measures, but the regional plans will include more details of these.
 - For more questions what will or will not be included – this is a collaborative effort and please provide your input into CMM so we know what you would or would not like to be included.

*APPENDIX E:
TSMO CMM Results*

TSMO CMM Results
October 2016 - February 2017

Agency:	Agency Type	Urban or Rural or Metro?	Location of Outreach Event:	Business Processes	Systems and Technology	Performance Measurement	Culture	Organization and Workforce	Collaboration
TxDOT - El Paso District	TxDOT	Urban	El Paso	1	2	2	1	1	2
Ysleta del Sur Pueblo	City		El Paso						
City of Plano	City		DFW	2	2	2	1	1	2
TxDOT - Dallas	TxDOT	Metro	DFW	1	1	2	1	1	3
North Texas Tollway Authority	MPO/COG/Tollway		DFW	3	3	3	4	3	2
TxDOT - FTW	TxDOT	Metro	DFW	1	2	2	1	1	3
City of North Richlands	City		DFW	1	2	2	1	2	2
TxDOT- Atlanta, Abilene, Wichita Falls, rural districts	TxDOT	Rural	DFW	1	1	1	2	1	1
City of Arlington	City		DFW	3	4	4	4	4	4
NCTCOG	MPO/COG/Tollway		DFW	4	2	2	4	3	3
City of Longview	City		DFW	1	2	1	1	1	1
Harris County CCD Office of Transit Services	County		Houston	2	2	1	1	1	2
Harris County	County		Houston						
TxDOT - Houston	TxDOT	Metro	Houston		3	2	1.5	2	3
Fort Bend County	County		Houston	1	1	1	1	1	1
Harris County Toll Road Authority (HCTRA)	MPO/COG/Tollway		Houston	1	3	3	2	2	2

TSMO CMM Results
October 2016 - February 2017

Agency:	Agency Type	Urban or Rural or Metro?	Location of Outreach Event:	Business Processes	Systems and Technology	Performance Measurement	Culture	Organization and Workforce	Collaboration
TxDOT - Houston	TxDOT	Metro	Houston	2.5	3	2	1.5	2	3.5
TxDOT	TxDOT	Rural	Houston	1	1	1	1	1	2
Houston-Galveston Area Council, TTI	MPO/COG/Tollway		Houston	1	1.5	3	2.5	2.5	1
TxDOT - TPP	TxDOT	HQ	San Antonio	1					
City of Corpus Christi	City		San Antonio	1.5	1.5	2	1	2	1.5
Bexar County Public Woks	County		San Antonio	1	1	1.5	1	1	2
TxDOT - TRF	TxDOT	HQ	San Antonio			1	2	1	2
TxDOT - Yoakum	TxDOT	Rural	San Antonio	0.25	1.5	1	1	1	3
Brownsville MPO	MPO/COG/Tollway		San Antonio	2	1	1.5	2	1	3
Alamo Area MPO	MPO/COG/Tollway		San Antonio	1	1	1	2	1	2.5
Via Metropolitan Transit	MPO/COG/Tollway		San Antonio	2	4	1	1	1.5	3
TxDOT - San Angelo	TxDOT	Rural	San Antonio	0	1	1	1	1	2
TxDOT - Pharr	TxDOT	Urban	San Antonio	1	2	1	1	1	2
TxDOT - San Antonio	TxDOT	Metro	San Antonio	1	1.5	0.5	1	0.5	4
City of Seguin	City		San Antonio	1	1	1	1	1	2
City of San Antonio	City		San Antonio	2	1	2	2	2	1
City of New Braunfels	City		San Antonio	1	1	1	1	1	1

TSMO CMM Results
October 2016 - February 2017

Agency:	Agency Type	Urban or Rural or Metro?	Location of Outreach Event:	Business Processes	Systems and Technology	Performance Measurement	Culture	Organization and Workforce	Collaboration
TxDOT - Corridor Planning Branch, Transportation Planning and Programming Division	TxDOT	HQ	Austin				1		
TxDOT	TxDOT	HQ	Austin	1	1.5	1	1	1	1
Capital Area MPO	MPO/COG/Tollway		Austin	2	2	2	2	2	2
TxDOT - Austin	TxDOT	Metro	Austin	2	2	2	1	2	
ATS	N/A		Austin	2	2	2	3	2	2
TxDOT - Lubbock	TxDOT	Urban	Austin	2	2	1	1	2	1
TxDOT - Lubbock	TxDOT	Urban	Austin	2	2	1	1	2	1
TxDOT - Bryan	TxDOT	Urban	Austin	1	1	1	1	1	1
Central Texas Regional Mobility Authority	MPO/COG/Tollway		Austin	1	1.5	1	1	1	1.5
City of Round Rock	City		Austin	1	2	1	2	1	1
City of Houston Department of Public Works and Engineering	City		Houston	1	2	2	3	2	4
Brownsville MPO	MPO/COG/Tollway		Brownsville, Texas	3	3	2	2	2	2
Texarkana MPO	MPO/COG/Tollway		Webinar	1	1	1	1	1	2
BROWNSVILLE MPO	MPO/COG/Tollway		WEBINAR	1	1	2	1	3	2
Brownsville MPO	MPO/COG/Tollway		San Antonio / District office/ Dec. 2016	1	1	2	2	1	1

TSMO CMM Results
October 2016 - February 2017

Agency:	Agency Type	Urban or Rural or Metro?	Location of Outreach Event:	Business Processes	Systems and Technology	Performance Measurement	Culture	Organization and Workforce	Collaboration
TxDOT Austin District	TxDOT	Metro	Jan. 26, 2017 Webex	2	2	1	1	2	2
TxDOT	TxDOT	HQ	Web	3	1	1	2	2	3
Capital Area Council of Governments	MPO/COG/Tollway		Webinar on Thursday 1/26/2017	2	1	1	2	1	3
Fort Bend County Public Transportation	County		TXDOT - Houston	2	4	2	3	2	3
TxDOT - Dallas	TxDOT	Metro	Arlington, Texas	2	3	1	2	2	3