Transportation Systems Management and Operations (TSMO)

Dallas-Fort Worth TSMO Program Plan Overview

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Introductions

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Virtual Workshop Etiquette

- Screen sharing for presentation and other materials
- Video will not be used to conserve bandwidth
- Polling questions throughout the workshop
- Microphones will be muted
- Chat window for questions

Outreach Workshop Objectives

1. TSMO Overview
   - We will discuss what TSMO is, why it matters in the region, and why the TxDOT Dallas-Fort Worth Districts want to involve regional partners.
2. Identify regional strengths and needs
   - As a group, we will identify TSMO needs and identify which ones are most important to stakeholders in the TxDOT Dallas-Fort Worth Districts.
3. Continue the conversation
   - We want to know who would like to talk in more detail about their TSMO-related needs.

Transportation Systems Management and Operations

U.S. Department of Transportation
Federal Highway Administration

FHWA's TSMO Definition: Integrated strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects designed to preserve capacity and improve security, safety, and reliability of the transportation system.

Texas Department of Transportation

TxDOT Goals and Objectives:

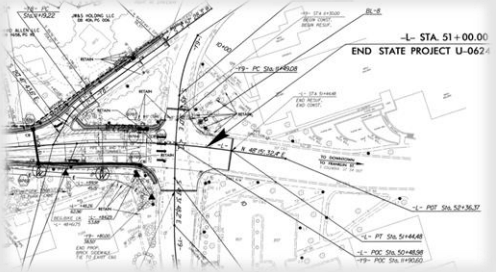
Optimize System Performance – Develop and operate an integrated transportation system that provides reliable and accessible mobility, and enables economic growth.

Promote Safety – Champion a culture of safety.

Essentially, the **purpose of a TSMO Program Plan** in your region is to evaluate how the existing transportation network is functioning with the aim of **improving operations.**

TSMO in Action across the Dallas – Fort Worth Districts

- **Collaboration:** Solid foundation with many agencies meeting quarterly. Some agencies conduct 60% and 90% review of design plans, and there is a movement to further involve agencies earlier in the process. (ex. City of Frisco Wayfinding project)
- **Traffic Management:** Freight movement is an important topic for most agencies with specific interest in safety and weather impacts.
- **Special Events:** NTTA's Lonestar platform tracks event management and lane closures; desire to share with TxDOT.
- **Traffic Incident Management:** Training and exercises are established to promote collaboration and efficiency. (ex. NCTCOG Incident Management Training Program)



Why Invest in TSMO?

What challenges can TSMO address for the Dallas-Fort Worth Districts in a changing Transportation Environment?

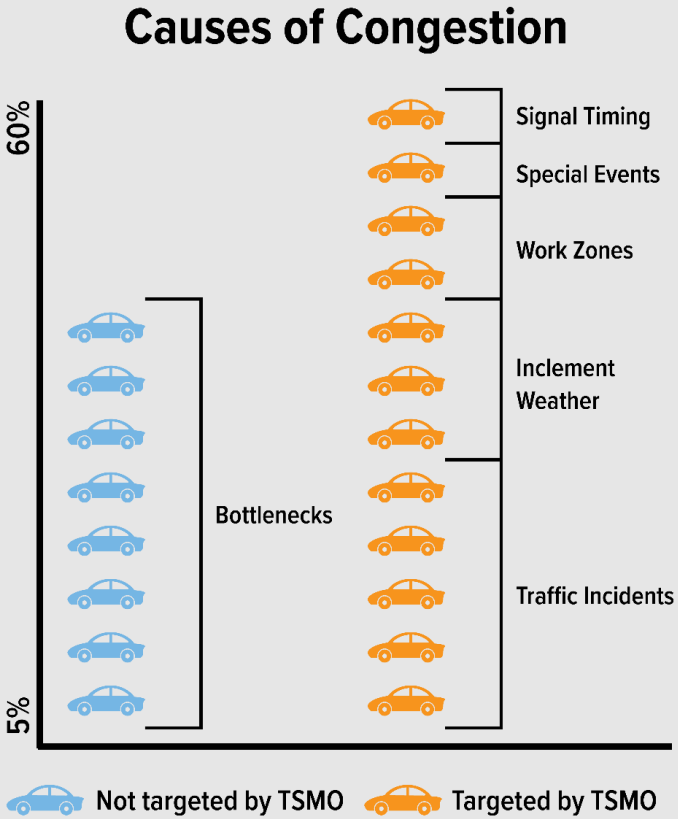
- Increasing reliance on information and technology
- Increasing customer needs and expectations as the region grows
- Growing emphasis on measuring performance
- Improving the transportation network under financial constraints
- Maintaining system safety and reliability during construction, planned special events, and traffic incidents

Why Invest in TSMO?

Congestion Problem Continues to Worsen

- Cost of gridlock estimated at $166 billion per year
- Travel delay per year is 8.8 billion hours
- Average commuter loses 54 hours per year to congestion

Source: Federal Highway Administration



Road to Zero

The Texas Transportation Commission adopted a formal goal to achieve zero deaths on our roadways by 2050 with a midway goal to cut fatalities in half by 2035.

November 7, 2000 is the last deathless day on Texas roadways.

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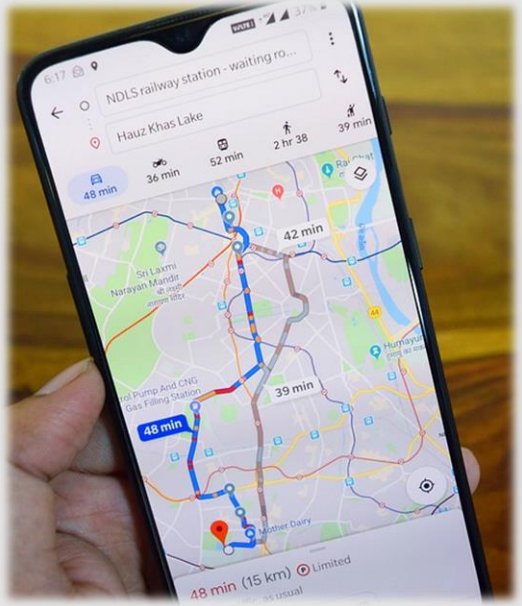
Why Invest in TSMO?

Transportation Environment is Changing

- Changes that may redefine the DOT's roles and responsibilities (e.g. Connected and Autonomous Vehicles)
- Increased reliance on information and technology
- Increasing customer needs and expectations
- Growing emphasis on measuring performance
- Technology offers opportunities to better manage congestion and traffic incidents, thus reducing unexpected delay and improving safety



Potential Strategies

Traveler Information

Managed Lanes

Tratraffic Signal Coordination

Special Event Management

Road Weather Management

Freight Management

Integrated Corridor Management

Work Zone Management

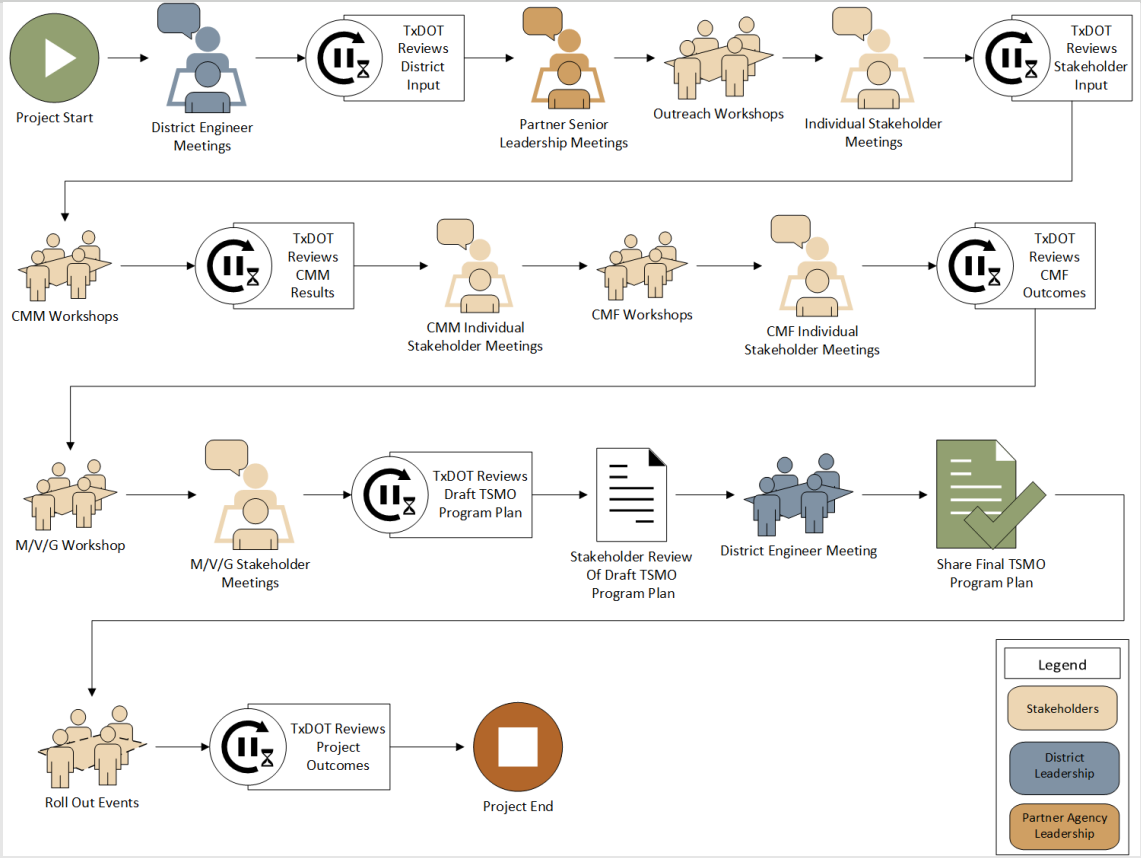
Traffic Incident Management

Active Traffic Management

Key Contents of the TSMO Program Plan

- **Business Case for TSMO**
  A cost-benefit analysis of adopting a TSMO mindset
- **Key Priorities Identified by Stakeholders**
  “Where we are” vs. “Where we want to be”
- **Project Recommendations Focused on 0-5 Year Deployments**
  Projects and programs to address regional priorities
- **Recommended Institutional Changes**
  Recommendations for business process, performance measures, organizational, and staffing changes to support improved operations

Stakeholder Outreach for the TSMO Program Plan



TSMO Activities

- Activity Discussions:
  - Traffic Incident Management (TIM)
  - Traffic Management
  - Planned Special Events
  - Work Zone Management
  - Traffic Signal Systems
  - Road Weather Systems

Traffic Incident Management (TIM)

- Tell us about your current TIM program.
  - How is the TIM Program structured?
  - What policies or procedures do you have in place for TIM?
  - How is it funded?
  - What training is offered or required?
  - What metrics are you using to measure success?

Traffic Management

- Describe your traffic management program.
  - Describe your traffic management program. Is it a priority?
  - How is it funded?
  - Have you adopted new traffic management technologies?
  - What metrics do you use to measure performance?
  - Do you collaborate with other private or public agencies for traffic management?

Planned Special Events (PSE)

- Tell us about your Planned Special Events operations.
  - What agencies are typically involved?
  - What systems do you have in place for PSE operations?
  - Do you have the staff, support, and collaboration you need for PSE?
  - How is success measured for PSE operations?
  - Are the challenges of PSE operations recognized within TxDOT?

Work Zone Management (WZM)

- Describe your work zone management program
  - Tell us about your transportation management plans.
  - How do you coordinate for multiple projects on a corridor?
  - Have you implemented any new technology recently? Why or why not?
  - What performance metrics do you use to evaluate success?
  - What knowledge, skills, and abilities are needed for work zone management?

Traffic Signal Systems

- Describe your traffic signal systems program
  - What kind of technology is used for signal systems? How much control do you have?
  - What coordination occurs with other signal operating agencies?
  - Are the systems scalable and interoperable?
  - How proactive is TxDOT with signal operations?
  - What metrics do you use to measure performance?
  - How responsive is the signals program to changing traffic demands?
  - Do you have enough staff to cover the workload?

Road Weather Management (RWM)

- Tell us about your road weather management activities.
  - What are the most challenging road weather events you deal with?
  - What technology do you rely on for RWM? Is it sufficient?
  - What are some of the recurring RWM needs?
  - Is there a need to expand the RWM program?
  - What metrics do you use to measure success of RWM?
  - Do you have the staff, support, and collaboration you need for RWM?

TSMO - Recap

What were some of the common themes from this discussion?

Workshop Summary

- Knowledge of TSMO –
  - most have participated
  - some heard about it, but not participated
- Biggest Impact
  - Traffic Signal Coordination
  - Integrated Corridor Management
  - Traffic Incident Management
  - Special Event and Freight

Workshop Summary

- Traffic Signal Systems
  - Upgrading all detection to support better timing plans
  - Looking to connect real time data back to central
  - Traffic signals management is more reactive currently – better data should help target resources
  - Challenge with coordination on frontage roads that cross multiple jurisdictions
  - Need alternate plans for when traffic diverted from freeways
  - Most major corridors (plus heavy freight) could be better coordinated
  - Most corridors are coordinated. Need a proactive approach to retiming of corridors.

Workshop Summary

- Traffic Signal Systems – continued
  - Maintain Xsheets of coordinated corridors to manage maintenance strategies.
  - Try to focus on 3 – 5 year window of retiming.
  - Growth and development are a factor in prioritizing
  - Signal shop has 3 staff members to manage timing plans; Work through other groups to get those implemented
  - Signal Design team has 3 staff members focused on
  - Signal Timing Plans rely on consultants
  - Signal Maintenance conducted through signal shop; resource constraints make this reactive; using some maintenance contracts to supplement

Workshop Summary

- Traffic Signal Systems – continued
  - Also have to manage inspection of municipal maintenance activities to correspond with reimbursements
  - Need to look at a strategy to integrate TSMO plan into construction projects
  - Some implementations can be a challenge based on the need to work through multiple agencies
  - COG has a process where cities identify corridors
  - Need better internal coordination around construction projects;
  - Need formal processes in project planning to ensure signals are involved in the project development

Workshop Summary

- Traffic Signal Systems – continued
  - Construction management is a component of project delivery to involve signals
  - Need to ensure all operational strategies are considered, integrated

Workshop Summary

- Traffic Incident Management
  - Communication is one of the biggest obstacles
  - Looking at different avenues of communication
    - Testing ground for radio communications
    - Listening to partners communications for situational awareness
    - Have been able to reduce response by 20-25 minutes based on first responders radio comm
  - Looking to use other strategies to also reduce incident clearance times
    - Photogrammetry
    - Drones

Workshop Summary

- Traffic Incident Management - continued
  - Establishing focused TIM teams to assist in reducing incident clearance
    - Stronger relationships
    - Can respond based on local characteristics
    - Builds on local knowledge with local agencies
  - Information Processing is number 1 challenge
    - Once a plan is developed, takes time to get all partners up to speed and implementing all facets
    - Different internal processes

Workshop Summary

- Traffic Incident Management - continued
  - Ego is another critical challenge
    - Toes can get stepped on and feelings can get hurt during a response
    - Have to focus on building relationships to mitigate this
    - Human factors in support of implementation creates challenges
  - Turnover within agencies can introduce new dynamics
    - Continuous development of relationships is critical
  - Need 911 dispatch to notify TMC earlier in the incident timeline
  - Allows TMC to facilitate traffic control to improve safety
  - Working on checklist of details that can drive actions during a response

Workshop Summary

- Traffic Incident Management – continued
  - Currently partner with the COG to provide TIM responder training
    - There is not a policy for who should attend the training
    - Feel like maintenance staff and others should be required to attend
    - Have seen growth and commitment to TIM training
    - Police must attend the 4-hour course to graduate from police academy
    - Need to involve the towing industry – currently they see training as a loss in revenue
  - Look at data collection and sharing
    - How can they date be used to drive project development
    - How can it be used for corridor studies; building the business case

Workshop Summary

- Work Zone Management
  - Education for designer of WZ plans of what resources are available
  - Know when WZ is backing up queues onto surface streets.
    - Integrate with signal timing to mitigate
    - Needs to be included in the long term plan for development
  - Major projects should involve a traffic operations engineer
  - Growth and development is continuously changing the environment from design to construction

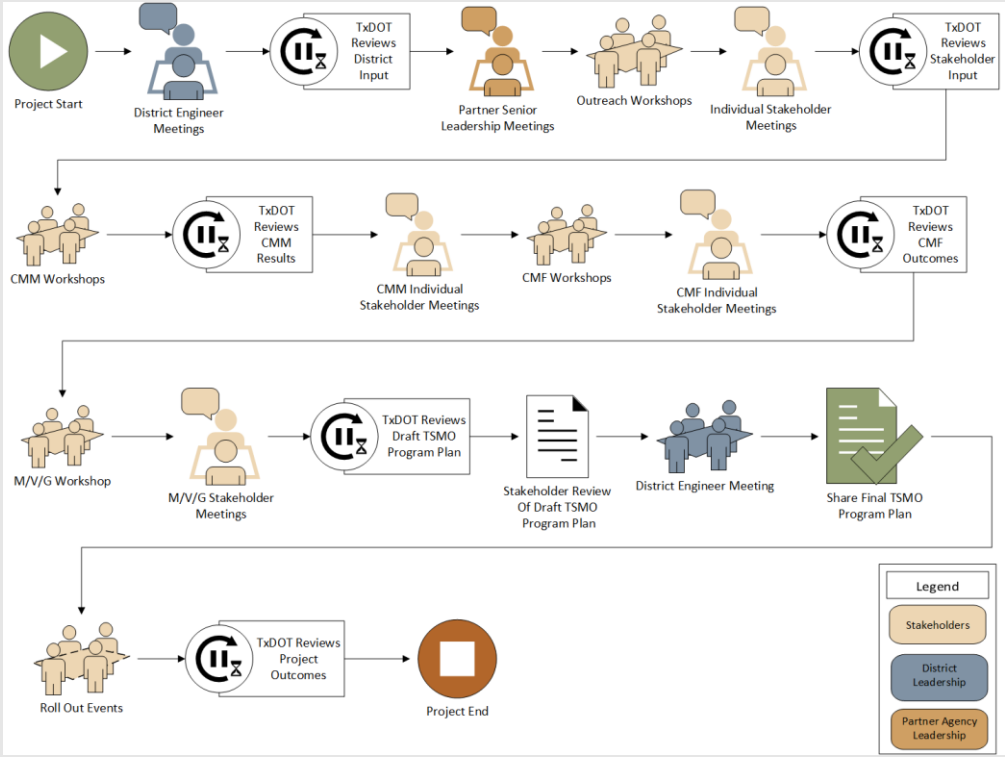
Workshop Summary

- Freight Management
  - Looking at Smart corridors to help manage freight
  - Cost is a huge consideration of Smart corridors
  - Some challenges with access routes to truck parking facilities
  - Study exists on truck capacity and parking needs
  - Use of a business roadway as opposed to major roadways – higher wear and tear on smaller agency routes with smaller turning radii

Continued Involvement

Interested in contributing to the Dallas-Fort Worth TSMO Program Plan?

- Sign-up for a future small group meeting or conference call
- Speak with Craig Burgan or Theresa Poer (TxDOT Project Engineers)



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Project Webpage: **www.tsmodfw.org**

TxDOT TSMO Webpage: **www.txdot.gov/inside-txdot/division/traffic/tsmo.html**