



TxDOT DFW TSMO Capability Maturity Framework – Traffic Incident Management October 2020

Summary Report

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List of Abbreviations & Acronyms

AAR	After-Action-Review
CMF	Capability Maturity Framework
CMM	Capability Maturity Model
C.R.I.S.	Crash Records Information System
DFW	Dallas-Fort Worth
EMS	Emergency Medical Services
FHWA	Federal Highway Administration
GPS	Global Positioning System
HAZMAT	Hazardous Materials
NCTCOG	North Central Texas Council of Governments
NIMS	National Incident Management System
NTTA	North Texas Tollway Authority
S.A.F.E.R.	Situational Awareness for Emergency Response
TIM	Traffic Incident Management
TMC	Traffic Management Center
TMT	Traffic Management Team
TSMO	Transportation Systems Management and Operations
TxDOT	Texas Department of Transportation

Introduction

Texas Department of Transportation's (TxDOT) Dallas and Fort Worth Districts are in the process of assessing the region's transportation systems management and operations (TSMO) capabilities to support the Dallas-Fort Worth (DFW) TSMO Program Plan. The development of the DFW TSMO plan seeks to increase safety, reduce congestion, and improve transportation reliability in the DFW region by identifying cost-effective improvements in how the region operates and maintains the transportation system. In October 2020, TxDOT hosted a series of workshops to help determine a set of actions to support effective TSMO solutions and strategies. The process engaged both TxDOT staff and decision makers at stakeholder and partner agencies that regularly collaborate to manage and operate the roadway network. A previous series of Capability Maturity Model (CMM) workshops had focused on the six dimensions of CMM: culture, organization and workforce, business processes, performance measurement, systems and technology, and collaboration. Following those workshops, the Capability Maturity Framework (CMF) workshops focused on specific program areas and potential actions to advance operations.

These workshops were originally planned to occur as in-person workshops, however due to meeting restrictions related to the Coronavirus pandemic, they were conducted as virtual workshops. Kimley-Horn with Maldonado-Burkett hosted a Traffic Incident Management (TIM) Virtual Workshop via Microsoft Teams on Thursday, October 28, 2020. The participants were led in an open discussion of several topics and answered questions with responses that were captured via AhaSlides. This workshop focused discussion on how TxDOT manages traffic through the Traffic Management Center (TMC) operations in the Dallas District and the Fort Worth District, how the TMCs collaborate as well as support other districts, and how operational challenges like managing construction, weather, and planned special events can be improved. The goal of the workshop was to identify areas of strength as well as areas needing improvement. The information gathered will be used to develop an action plan that will facilitate improved traffic operations at and across district boundaries.

Virtual Workshop Overview

The CMF workshop aimed to review information about TIM strategies deployed in Texas. The purpose of this workshop was to provide an assessment of the Region's TIM capabilities with a focus on aspects of TIM not covered in the traditional TIM self-assessment survey. The workshop provided a structured focus on six categories within traffic incident management: TIM Training, Incident Response, Incident Review, Communication and Collaboration, Performance Measures, and Traffic Management Teams. Attendees were provided an overview of TSMO and TIM and were encouraged to provide feedback on the various topics discussed.

In addition to the workshop overview, this document summarizes the questions asked of participants, key discussions, and actions recommended to advance capabilities. The responses to the survey questions are summarized in **Appendix A**. The workshop presentation can be found in **Appendix B**.

Workshop Summary

Overview

On October 28, 2020, participants joined in the 2-hour virtual workshop. **Table 1** summarizes the participants, role, and representing organization.

Table 1: DFW Traffic Incident Management Workshop Attendees

Attendee	Title	Agency
Asma Tuly	Traffic Engineer	City of Allen
Chris Flanigan	Director of Engineering	City of Allen
John Romberger	Transportation Engineer	City of Carrollton
Jonathan Wheat	Engineering Director	City of Carrollton
Kevin Pike	Public Works Manager	City of Carrollton
Srinivasa Veeramallu	Senior Program Manager	City of Dallas
Rajnish Gupta	City Traffic Engineer	City of Fort Worth
Yang Jin	Engineering Manager	City of Fort Worth
Brian Moen	Assistant Director of Transportation	City of Frisco
Paul Knippel	Director of Engineering Services	City of Frisco
Paul Luedtke	Director of Transportation	City of Garland
Caryl DeVries	Traffic Engineer	City of Grand Prairie
Walter Shumac	Director of Transportation Services	City of Grand Prairie
Richard Larkins	Traffic Engineer	City of Grapevine
Alonzo Linan	Director of Public Works	City of Keller
Brian Shewski	Transportation Engineering Manager	City of Plano
Robert Saylor	Senior Transportation Engineer	City of Plano
Rama Dhanikonda	Transportation Program Manager	City of Richardson
Amelia Hayes	Safety & Transportation Operations Specialist	Federal Highway Administration (FHWA)
Dan Malsom	Consultant Team	Kimley-Horn
Kelly Nicholas	Consultant Team	Kimley-Horn
Kent Kacir	Consultant Team	Kimley-Horn
Khushboo Patel	Consultant Team	Kimley-Horn
Thomas Fowler	Program Manager	Kimley-Horn

Attendee	Title	Agency
Bhavya Sontineni	Graduate Engineer	Maldonado-Burkett
Eric Gilstrap	Graduate Engineer	Maldonado-Burkett
Jason Pang	Graduate Engineer	Maldonado-Burkett
Karen Taylor	Executive Secretary	Maldonado-Burkett
Karl Burkett	Partner	Maldonado-Burkett
Kirsten Hall	Administrative Technician	Maldonado-Burkett
Melanie Young	Senior Project Manager	Maldonado-Burkett
Rhett Dollins	Senior Project Manager	Maldonado-Burkett
Terrie Stoeffler	Administrative Technician	Maldonado-Burkett
Camille Fountain	Transportation Planner	North Central Texas Council of Governments (NCTCOG)
Natalie Bettger	Senior Project Manager	NCTCOG
David Stallings	Traffic Operations Manager	City of Flower Mound
Barbara Russell	Engineering Manager	TxDOT, Traffic Safety Division
Carlos Molina	Transportation Engineer	TxDOT, Fort Worth District
David Fowler	Stephenville Area Engineer	TxDOT, Fort Worth District
David McDonald	TIM Coordinator	TxDOT, Traffic Safety Division
Edrean Cheng	Decatur Area Engineer	TxDOT, Fort Worth District
Matthew Evans	Director of Maintenance	TxDOT, Fort Worth District
Chris Blain	Traffic Systems Administrator for Dallas District	TxDOT, Dallas District
Craig Burgan	Traffic Systems Administrator for Dallas District	TxDOT, Dallas District
Anthony White	TIM Coordinator	TxDOT, Fort Worth District
Chukwuma Osemeke	Transportation Engineer	TxDOT, Fort Worth District
Dicky White	Transportation Engineer	TxDOT, Fort Worth District
Kimberly Clarida	Contract Specialist	TxDOT, Fort Worth District
Matthew Pate	Lead TMC Operator	TxDOT, Fort Worth District
Theresa Poer	Director of Operations	TxDOT, Fort Worth District
Korin Adkins	Transportation Engineer	TxDOT, Fort Worth District
Aziz Rahman	Senior Professional Engineer	City of Fort Worth
John Forbes	Traffic Systems Specialist	TxDOT, Fort Worth District

Participants were provided an overview on the statewide TSMO Program Plan Project, then a series of questions to explore multi-agency TIM coordination and cooperation. A PowerPoint presentation was used to direct the workshop and interactive slides via AhaSlides were used to capture audience feedback.

Key Discussion and Takeaways

The presentation focused on six areas: TIM Training, Incident Response, Incident Review, Communication & Collaboration, Performance Measures and Traffic Management Team (TMT).

TIM Training

The following questions were posed to generate discussion and evaluate the TIM training availability and desires in the region.

Table 2: TIM Training Questions

TIM Training Questions

Has your agency attended NCTCOG TIM training?

What other stakeholders would benefit from TIM training?

Does your agency have on-going internal TIM training?

Which departments attend?

TIM training was characterized as an on-going need by workshop participants, as most agencies do not have the ability to conduct internal TIM training. There is an offering through NCTCOG, who hosts a two-day TIM training course that is typically offered six times per year (about half of the workshop attendees have attended this TIM training in the past).

There was a desire for the TIM training to be offered to non-traditional traffic personnel, such as Fire, Police, Emergency Medical Services (EMS), Tow Services, and TMC operators to enhance the overall knowledge of anyone that may be involved in an incident. The goals for this unified “team” approach to training would aim to:

- Improve communication among responders
- Promote efficient cooperation between responding entities
- Build partnerships which enhances cooperation and confidence

Incident Response

The following questions were posed to generate discussion and evaluate the incident response maturity in the region.

Table 3: Incident Response Questions

Incident Response Questions
How is your agency notified when there is a major incident on the freeway?
Is it clear who has control or command at the incident site?
What specific incident data is collected?
What software does your agency use to log incident data?
Is your agency identifying secondary crashes?
Is data on secondary crashes recorded independently?
Does your agency have a separate tow truck program or rotation dedicated to freeway/tollway response?
How are tow trucks dispatched?
Does your agency have special contracts for trucks that are Heavy Haul or Hazardous Materials (HAZMAT)?
If so, are the Heavy Haul or Hazmat contracts by agency or is one contract utilized by multiple agencies?
Does your agency use computer-aided dispatch for incident response?
Does your agency see a need for investing in video-sharing technology?
Does your agency have policies or procedures in place on when to adjust or modify signal timing plans to reduce queues and improve freeway/tollway operations?

There are a variety of methods to obtain notification of an incident. Those identified include:

- Twitter/Media
- TMC
- TxDOT Maintenance
- Waze
- 511dfw
- Courtesy Patrols
- Law Enforcement

Planned coordination between responders is essential for efficient and safe clearance of traffic incidents. Effective TIM reduces the duration and impacts of traffic incidents and improves the safety of motorists, crash victims and emergency responders. When it comes to cross-boundary or cross-jurisdictional incidents, the coordination component becomes even more critical. Participants noted that the cross-jurisdictional coordination for responders and the establishment of an incident command structure as needed at the onset of an incident seems to work well. Typically, the non-jurisdictional on-scene commander will relinquish command when a jurisdictional commander arrives. However, it was noted that it would be beneficial to establish a standard hierarchy of incident command.

Cities within the region are becoming more aware of the need for cross-jurisdictional cooperation and the need for a mutual aid agreement to facilitate the use of resources across jurisdictions. For many cities it is difficult to maintain the resources and agreements they may need. Building relationships between the jurisdictions would also help to improve communication.

For major incidents, such as multi-vehicle pileups or severe weather events that generate crashes, it was suggested to create a temporary incident command center where a limited number of people are processing information through one incident commander. This would improve information flow and avoid unnecessary chaos.

Participants discussed NCTCOGs desire to expand the courtesy patrol program and to establish consistent operations across the region, however it was noted that funding may be a challenge.

There is a need for improved data collection – software, database, etc. Crash Records Information System (C.R.I.S.) and Lonestar are common systems, but not all agencies have access to both. Dallas County is a leader in the region for quick clearance of crashes and have tools in-place to monitor performance.

TxDOT does not typically adjust traffic signal timing on service roads during an incident on the freeway due to the problems it causes with city traffic, but some local partners have invested in approaches to implement detour-related timing plans. Participants were interested in having incident video available to first responders before arriving at the scene. This would provide responders with the information they need to get the proper resources in place more quickly. It was noted that establishing resource sharing contracts has been a challenge. Given the benefits, most participants favored investing in video sharing technology to aid in incident response.

One other recommendation to increase the efficiency of towing services was to dispatch towers by Global Positioning System (GPS) location. Towing services are typically bound by local ordinances which cause problems for incidents near a jurisdictional boundary. It was also noted that North Texas Tollway Authority (NTTA) has its own towing agreements.

Incident Review

The following questions were posed to generate discussion and evaluate the incident review processes in the region.

Table 4: Incident Review Questions

Incident Review Questions

What improvements could be made to the process of incident clearance?

Does your agency routinely participate in incident review meetings?

If yes, what departments are included?

Is there an accountability method (list of action items or similar) to promote improvements identified in previous TIM review meetings?

After-Action Reviews (AARs) are a useful tool in determining what worked well, what didn't, and what improvements can be made. These team meetings are important to gain knowledge, familiarity and appreciation of the jobs and responsibilities of responders and agencies involved in an incident. Participants noted they hold monthly review

meetings of fatal crashes and often conduct tabletop exercises for review and training. Additionally, the National Incident Management System (NIMS) procedures and training are used.

Communication and Collaboration

The following questions were posed to generate discussion and evaluate the maturity of communication and collaboration within the region.

Table 5: Communication and Collaboration Questions

Communication and Collaboration Questions

Would it be beneficial to conduct TIM meetings at the TMC?

How is communication established between the various TMC operators of agencies involved during an incident?

In order to develop better working relationships at the TMC operator level, do you think it would be beneficial for your agency to participate in joint workshops, visits to other TMCs or other team building activities?

If so, at what frequency should meetings be held?

Participants discussed the benefits of conducting TIM Team meetings at the TMC and would be interested in hosting them at alternating locations to provide attendees the opportunity to visit other TIM-related operations centers to promote sharing of best practices in the management and organization of these facilities. To further foster collaboration and relationships, participants suggested having joint TMC operator workshops. A quarterly meeting was identified as the preferred frequency.

Performance Measures

As regional TIM performance measures are becoming increasingly important, there is a need for consistent terminology and definitions for common performance measures. Participant discussion identified performance measures of secondary crashes as a weakness that should be improved upon.

Traffic Management Team (TMT)

The following questions were posed to generate discussion and evaluate the role of the TMT in the region.

Table 6: Traffic Management Team Questions

Traffic Management Team Questions

Does your agency currently conduct TMT meetings for a specific corridor or geographical boundary?

During the reconstruction of major corridors such as I-635 East, would it be beneficial to create a TMT specific for that corridor?

Participants do see the value of the TMTs and suggested that a TMT be created for specific major corridors during a reconstruction phase.

Summary of Actions to Advance

The following action items are recommendations for improving district-to-district cooperation and coordination regarding TIM. These actions were derived from recommendations and the areas identified as needing the most improvement through input and discussion with workshop participants.

Table 7: Actions to Advance

Action	Owners	Dimension
Use a unified “team” approach to TIM training. Offer seminars, training, and other events to non-traditional traffic personnel, such as Fire, Police, EMS, Tow Services, and TMC operators to enhance the overall knowledge of anyone that may be involved in an incident.	All	Collaboration
Establish a region-wide Mutual Aid Agreement to share resources across jurisdictional boundaries and to establish a process to determine chain of command for such incidents.	All	Business Processes
Establish “Knowledge Sharing” training sessions so that agencies may learn from one another. An example would be where Dallas County was praised for championing quick and safe clearance of crashes. Another example would be Frisco’s Situational Awareness for Emergency Response (S.A.F.E.R.) program.	NCTCOG	Culture
Establish a better data collection standard for traffic incidents to enhance data sharing, reporting, and incident analysis capabilities.	NCTCOG	Performance Measurement
Conduct training sessions and quarterly meetings at alternating TMC locations to establish better relationships between TMC operators and emergency responders.	TxDOT	Organization & Workforce
Develop a methodology to regionally track the occurrence of secondary crashes.	NCTCOG	Performance Measurement
Consider NIMS training and how it could apply to regional incident management.	NCTCOG	Organization & Workforce
Evaluate use of GPS dispatch/location of tow trucks.	All	Systems & Technology
Evaluate ways to incorporate incident site video sharing into regular TIM operations, making video available to first responders prior to arriving at the scene.	TxDOT	Systems & Technology
Establish hierarchy of incident command to alleviate on-site confusion; particularly near jurisdictional boundaries.	NCTCOG	Business Processes
Develop actions plans to promote accountability after TIM meetings to take action on things discussed, follow-up.	All	Business Processes

Appendix A: Responses to AhaSlides From the Workshop

DFW Multi-Agency TIM Coordination (ahaslides.com/dfwtim)

Table 4: Responses to Yes/No Questions

Question	Yes	No	Do not know
Has your agency attended NCTCOG TIM training?	8	9	0
Does your agency have on-going internal TIM training?	5	7	4
Is it clear who has control or command at the incident site?	4	2	8
Is your agency identifying secondary crashes?	3	3	4
Is data on secondary crashes recorded independently?	3	1	5
Does your agency have a separate tow truck program or rotation dedicated to freeway/tollway response?	1	3	7
Does your agency have special contracts for trucks that are Heavy Haul or HAZMAT?	5	1	5
Does your agency use computer-aided dispatch for incident response?	4	5	2
Does your agency see a need for investing in video-sharing technology?	12	0	2
Would it be beneficial to conduct TIM meetings at the TMC?	8	0	1
Does your agency currently conduct TMT meetings for a specific corridor or geographical boundary?	3	4	3
During the reconstruction of major corridors such as I-635 East, would it be beneficial to create a TMT specific for that corridor?	11	0	1

Below are the responses to all remaining multiple choice and open-discussion questions.

What other stakeholders would benefit from TIM training?

- Police Department
- Fire Department
- EMS
- Tow and Recover
- Transportation
- DPS
- Traffic Signal Group
- TMC Operators
- 911 Dispatch

Which departments attend?

- Fire (8)
- PD (9)
- Traffic (9)
- Maintenance (4)
- Admin (1)
- Other (0)

How is your agency notified when there is a major incident on the freeway?

- 911
- 511dfw
- TMC
- Police
- TxDOT Maintenance
- Courtesy Patrol
- Twitter/Media

What specific incident data is collected?

- Time Incident Reported (8)
- Location (7)
- # Lanes Blocked (4)
- Time 911 Notified (3)
- Detected by TMC (5)
- Arrival Time of Responders (4)
- Time MAP Dispatched (0)
- Time MAP Arrived (1)
- Time Incident Cleared (8)
- Secondary Crash (5)
- Weather Conditions (5)
- Time of Return to Normal (5)
- Congestion Conditions (5)

What software does your agency use to log incident data?

- Lonestar
- 511dfw
- Crash Magic
- C.R.I.S.
- TxDOT Now

How are tow trucks dispatched?

- Police Dispatch
- By County/City
- By Individual
- Do Not Know

Are the Heavy Haul or Hazmat contracts by agency or is one contract utilized by multiple agencies?

- By Agency (1)
- Shared Contract (0)
- TxDOT (2)
- No Contract (0)
- Rely on Drivers Insurance (1)
- Do Not Know (7)

Does your agency have policies or procedures in place on when to adjust or modify signal timing plans to reduce queues and improve freeway/tollway operations?

- Yes, 50% of lanes closed, 15+ Min Duration (0)
- Yes, Full Closure, 15+ Min Duration (0)
- Yes, Lanes and Ramps Closed Ahead (1)
- Yes, If Requested (4)
- No (5)

What improvements could be made to the process of incident clearance?

- Move non-disabled vehicles
- Medical Examiner notification
- Scene video available to Dispatcher
- Coordination of Traffic/Fire/Police
- Better Collaboration
- Accountability/Review
- GPS Wrecker Dispatch
- Incident Timeline
- Share Video

Does your agency routinely participate in incident review meetings?

- Yes, After Major Incidents (1)
- Yes, Monthly (3)
- Yes, Quarterly (0)
- No (4)

If so, what departments are included?

- Fire (4)
- PD (4)
- Traffic (7)
- Maintenance (4)
- Admin (2)
- Other (0)

Is there an accountability method (list of action items or similar) to promote improvements identified in previous TIM review meetings?

- Follow Up Next Meeting (2)
- Field Visit then Follow Up (0)
- No (3)

How is communication established between the various TMC operators of agencies involved during an incident?

- Phone
- Email
- Radios

In order to develop better working relationships at the TMC operator level, do you think it would be beneficial for your agency to participate in joint workshops, visits to other TMCs or other team building activities?

- Joint TMC Operator Workshops (10)
- TMC Visits (9)
- Other (0)

Appendix B: Power Point Presentation

Click on the following link to see the Power Point Presentation.

<https://www.tsmodfw.org/wp-content/uploads/2020/10/TxDOT-DFW-TSMO-CMF-Workshop-Traffic-Incident-Management.pdf>