



Advancing Transportation Systems Management and Operations (TSMO) in Rural Areas

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U.S. Department of Transportation
Federal Highway Administration



Why Rural TSMO?

- Opportunities in rural areas
- TSMO's connection with safety
- Importance of travel time reliability, especially with the freight community

What is TSMO?



An integrated set of 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.

23 U.S.C. 101(a)(30)(A)

TSMO Strategies



- Work Zone Management
- Traffic Incident Management
- Special Event Management
- Road Weather Management
- Transit Management
- Freight Operations
- Traffic Signal Coordination
- Traveler Information
- Ramp Management
- Congestion Pricing
- Active Transportation and Demand Management
- Integrated Corridor Management
- Access Management
- Improved Bicycle and Pedestrian Crossings
- Connected and Automated Vehicle Deployment

Paradigm Shift



- Operating completed projects
- Static and reactive
- Average travel time, level of service
- Adding capacity
- Integration throughout the project life cycle
- Responsive, proactive, and predictive
- Travel time reliability
- Preserving and restoring existing capacity

Paradigm Shift



- Focus on individual facilities and jurisdictions
- Moving the car/truck from point A to point B
- Individual strategies
- Entire transportation system
- Moving the person/cargo from point A to point B
- Integrated strategies

Urban vs. Rural Congestion

CAUSE OF DELAY		CONTEXT		
		Large Urban Areas > 1m	Small Urban Areas 0.1-1.0m	Rural
RECURRING CAUSES	Demand greater than capacity	29-37%	20-26%	0%
	Poor signal timing	4-5%>	7-13%	2%
TOTAL RECURRING		33-42%	32-33%	2%
NON-RECURRING CAUSES	Crashes	35-36%	19-26%	26%
	Breakdowns	6-7%	6-10%	25%
	Work zones	8-19%	26-27%	39%
	Weather	5-6%	7-10%	7%
	Special events, other	1	<1%	0%
TOTAL NON-RECURRING		58-67%	67%	98%

Incidents



Source: Washington DOT

Source: Wisconsin State Patrol





Weather



Source: FHWA

Work Zones

Source: FHWA



Source: FHWA

Special Events



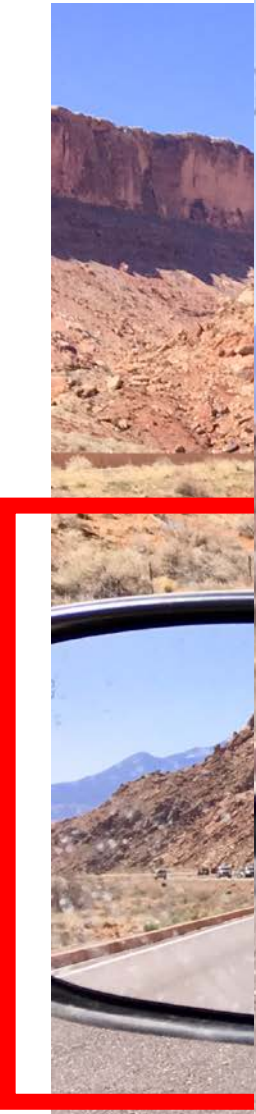
Source: Minot Air Force Base

Source: FHWA





Recreat



Feedback on Rural TSMO

- Based on feedback in various workshops and venues
- General approach
- Making the business Case
- Data and information
- Incident management
- Staffing



Source: Wyoming DOT



General Approach

- Ad hoc approach to non-recurring congestion
- Statewide vs district focus
- Participation by rural districts
- Local governments
- Corridor coalitions

Making the Business Case

- TSMO provides value in rural areas
- No Recurring Congestion

Source: Tracy Scriba, FHWA



Making the Business Case

- The benefit-cost of investing in performance measurement and data collection systems
- Technology not warranted for rural roads/remote areas
- Need to further educate rural staff on the benefits and purpose of TSMO strategies



Source: FHWA

Data and Information

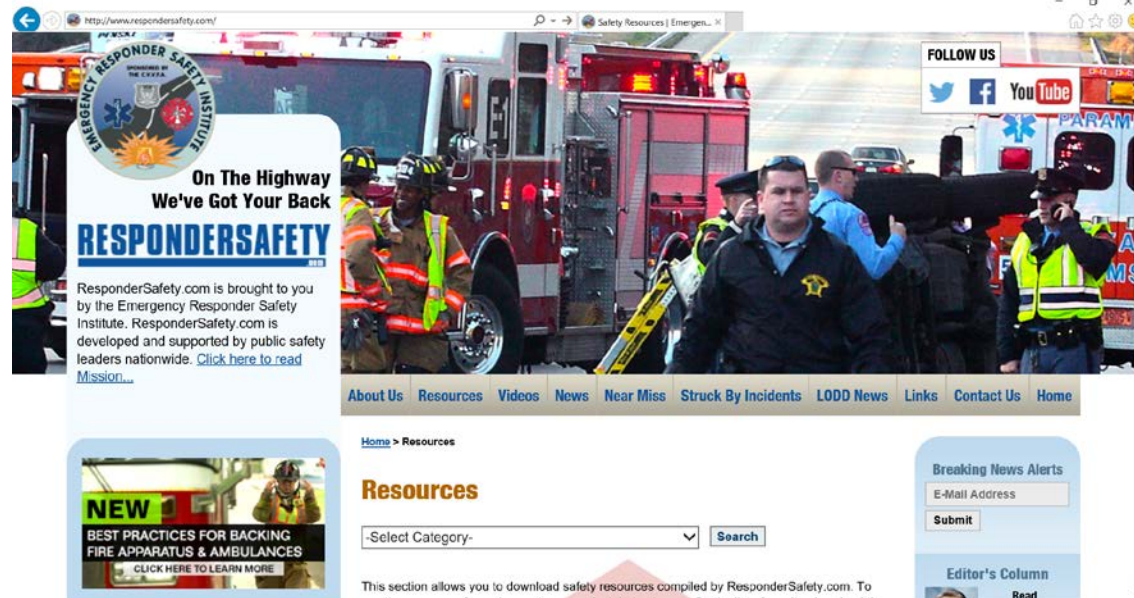
- Need for information in rural areas
- Need for more cameras
- Connectivity in the rural areas



Source: FHWA

Incident Management

- Rural response agencies are small with limited resources
- Response time can still be an issue in the rural areas of the state
- Coordination challenges with rural/remote responders



www.respondersafety.com

Incident Management

- Collaboration challenges with land use and access management
- Limited options for collaborating on alternate routes
- Tow Incentive and Recovery programs



Source: Oregon DOT



Staffing

- Capacity of rural groups
- Staff retention
- The re-organization of State DOT districts toward TSMO
- Citizen Reporter Program

Other Feedback

- Intelligent Transportation Systems (ITS) test runs
- Geographic Information Systems (GIS)
- Community outreach



Source: FHWA

I-35 Work Zone Traveler Interface

The screenshot displays the 'Traveler Information - I-35 Waco District' web interface. On the left, a list of closures is shown with details for each. On the right, a map of the I-35 corridor from Waco to Hillsboro shows current delays for various segments.

Traveler Information - I-35 Waco District

CLOSURES | **ALERTS** | **SIGNS** | **TRIP PLANNER** | **WEATHER**

SIGN UP to receive I-35 closure updates

Click on a heading below to toggle zooming to that closure.

- NB I-35 At FM 1242, Abbott**
 - ROADWAY I-35 Entrance Ramp (starting at MM 358.0)
 - CLOSED Ramp closed
 - TIME Daily, 8AM - 8AM. Ends 10/31
 - ACTIVITY Repairing retaining wall and shoulder pavement.
- NB FM 1242 to FM 1304, Abbott**
 - ROADWAY I-35 Mainlanes (starting at MM 358.0)
 - CLOSED Right lane
 - TIME Continuously, Ends 10/31 @ 8AM
 - ACTIVITY Repairing retaining wall and shoulder pavement.
- SB I-35 At Forrest St, Waco**
 - ROADWAY I-35 Entrance Ramp (starting at MM 336.0)
 - CLOSED Ramp closed
 - TIME Continuously, Ends 8/31 @ 7PM
 - ACTIVITY Drainage installation.
- SB Martin Luther King Jr Blvd to 4th St, Waco**
 - ROADWAY I-35 Mainlanes (starting at MM 336.0)
 - CLOSED Right lane
 - TIME Continuously, Ends 8/23 @ 7AM
 - ACTIVITY Bridge construction.
- NB I-35 At University Parks Dr, Waco**

Map Delay Callouts:

- Hillsboro (MM 368) to Waco (MM 334) SB: Current Delay 10 minutes, As of 2:25 PM
- Waco (MM 334) to Hillsboro (MM 368) NB: Current Delay 0 minutes, As of 2:25 PM
- Waco (MM 334) to Temple (MM 301) SB: Current Delay 0 minutes, As of 2:25 PM
- Temple (MM 301) to Waco (MM 334) NB: Current Delay 0 minutes, As of 2:25 PM
- Temple (MM 301) to Salado (MM 279) SB: Current Delay 0 minutes, As of 2:25 PM
- Salado (MM 279) to Temple (MM 301) NB: Current Delay 0 minutes, As of 2:25 PM

Credit – Tom Kearney, FHWA

Questions to ask in Advancing TSMO



- Who owns what routes in the transportation system? (freeways, arterials, local roads)
- Are we coordinating with the right stakeholders? (State/local DOT's, cities, counties, metropolitan planning organizations, transit authorities, first responders, etc.)
- Is TSMO integrated into current processes, such as planning and project development?
- Do we have goals and objectives for TSMO in our State or region? Are they reflected in our existing plans and processes or will new ones need to be developed?

Questions to ask in Advancing TSMO



- Does our staff have the right skill sets to advance TSMO?
- How are we tracking and monitoring the performance of our transportation system?
- How can we best utilize the data and metrics we have?
- What technology needs should we address to advance TSMO? Is our technology interoperable with other related systems and jurisdictions?
- Do senior leadership and other departments understand TSMO?

FHWA TSMO Website

The screenshot shows the FHWA TSMO website interface. At the top, there is a dark blue header with the U.S. Department of Transportation Federal Highway Administration logo on the left and "FHWA Home | Feedback" on the right. Below this is a light blue navigation bar with links for Home, About, Focus Areas, Resources, Glossary, Links, Sitemap, and Contact. A search bar is also present. The main content area has a breadcrumb trail: Home / Focus Areas / Integrating Operations into Planning and Programming / What is Transportation Systems Management and Operations (TSMO)?

What is TSMO?

The following list of questions relates to TSMO.

- [What is Transportation Systems Management and Operations \(TSMO\)?](#)
- [What is meant by "an integrated set of strategies"?](#)
- [What is meant by "the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects"?](#)
- [What are examples of TSMO strategies and solutions?](#)
- [Why should I consider TSMO?](#)
- [Does TSMO replace capacity building projects?](#)
- [Does TSMO only include technology-based strategies?](#)

TSMO

An integrated set of 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.

MAP-21, SECTION 1103 (a)
(30) (A)



Questions?

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