

The Future of Oklahoma's ITS and Transportation Operations

ITS HEARTLAND

April 30, 2024



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AGENDA



Why?

ODOT Mission:

Provide a safe, economical, and effective transportation network for the people, commerce, and communities of Oklahoma.

ODOT Vision (excerpt):

ODOT is an innovative and responsive leader in the Transportation Field.





STATEWIDE



TULSA



OKLAHOMA CITY





TMSO & ITS Strategic Plan

WHAT IS TSMO?

HOW DOES IT RELATE TO
AN ITS STRATEGIC PLAN?



What is TSMO?

MAP-21 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.



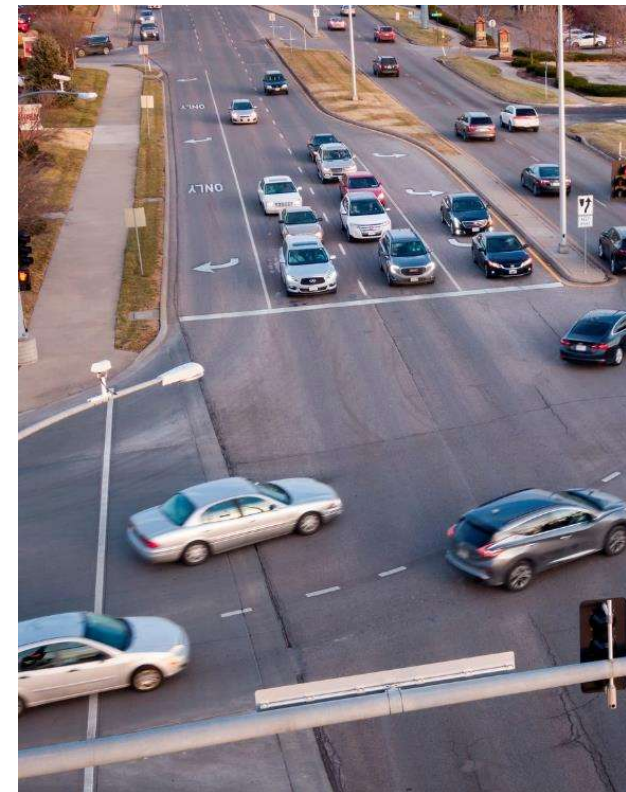
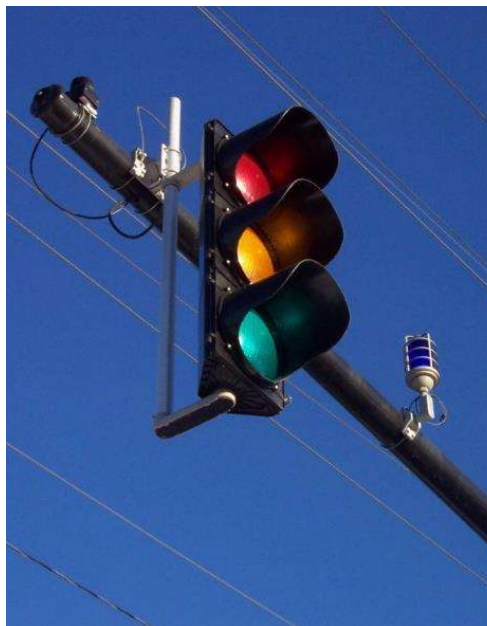
What TSMO is **NOT**

- TSMO is **NOT** just ITS
- TSMO is **NOT** an “unfunded mandate”
- TSMO is **NOT** a shiny new object
- TSMO is **NOT** a magic bullet



What TSMO IS

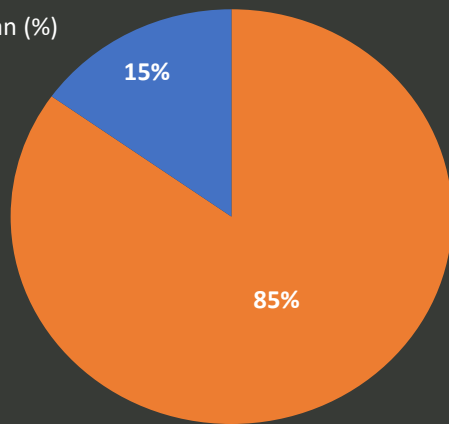
- TSMO IS both technology **and** other operational strategies
- TSMO IS a very big umbrella
- TSMO IS an operations mindset woven throughout the organization
- TSMO IS something you're already doing – *somewhat*



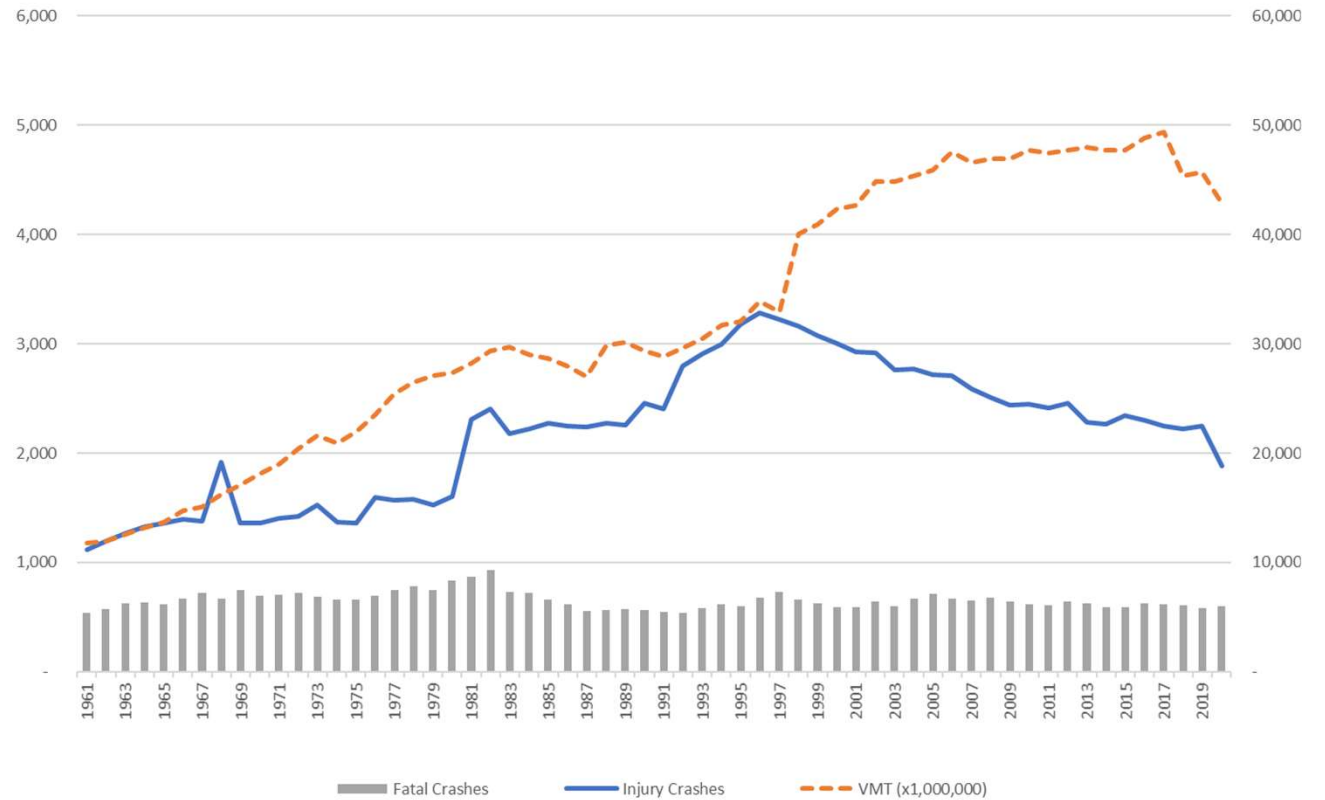
Safety

- Urban Highways:
 - 15% centerline miles
 - 62% severe crashes

■ Rural (%)
■ Urban (%)



Statewide Highway Mileage (Rural vs Urban)

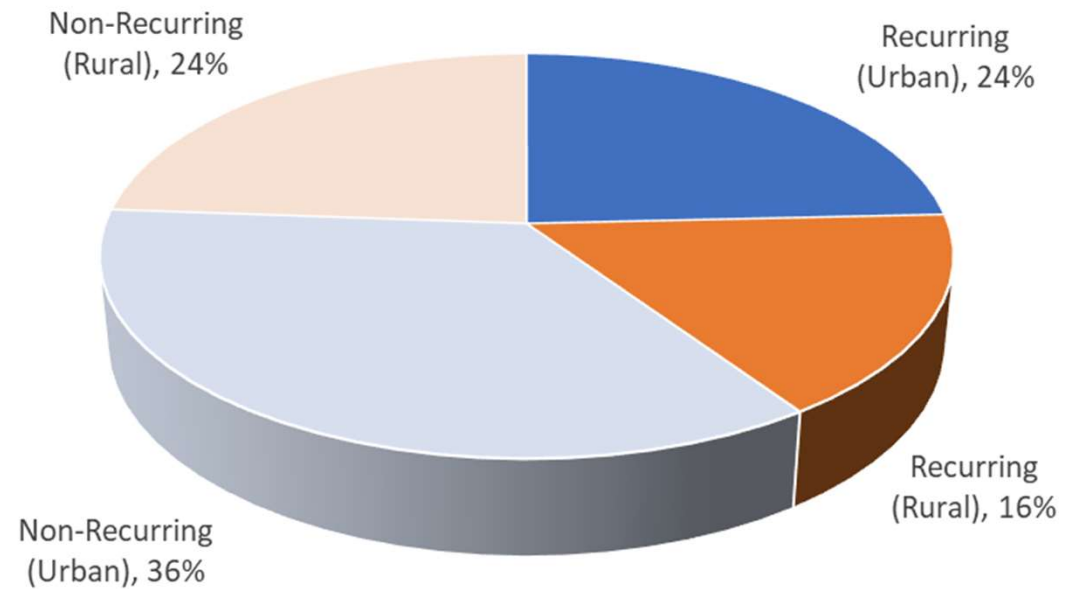


ODOT Statewide Severe Crash Data and Vehicle-Miles Traveled (1961-2020)

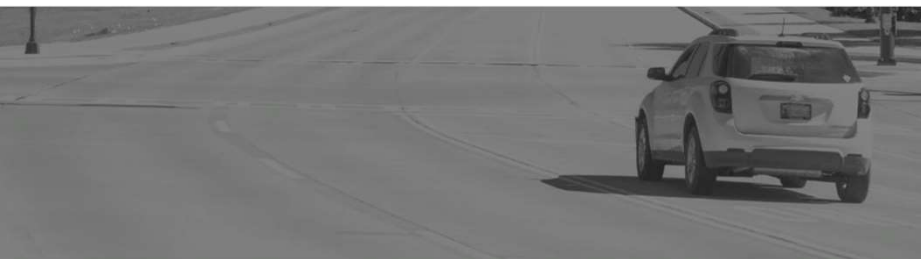


Mobility

- Recurring and non-recurring congestion
- **6 million** vehicle-hours of delay
- **60%** of that congestion was non-recurring
- **36%** urban non-recurring congestion
- **24%** rural non-recurring congestion



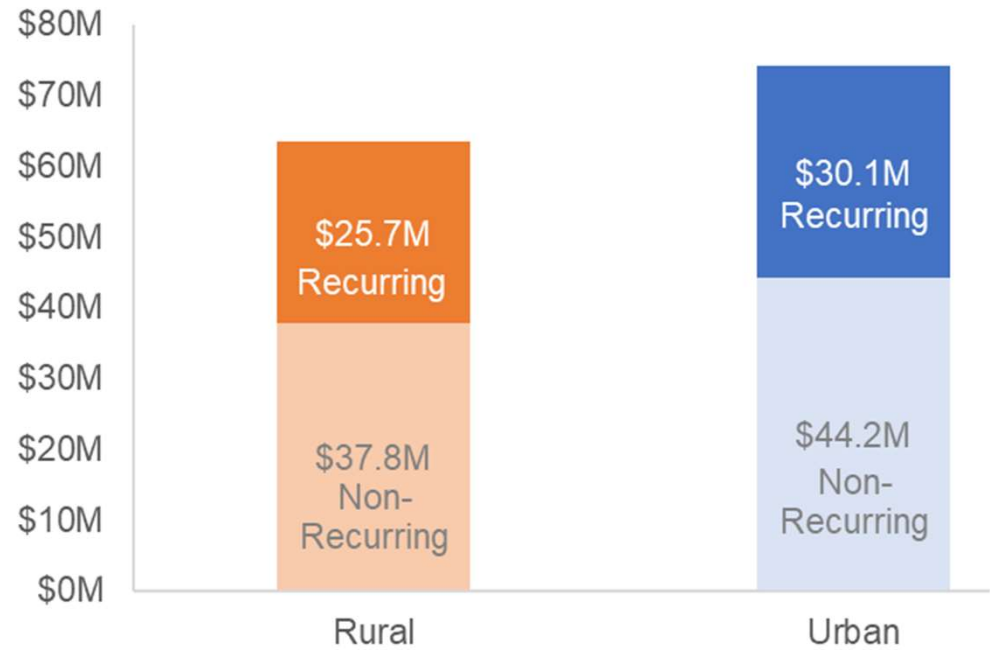
Oklahoma's Approximate Congestion Sources (Rural vs. Urban) (2019)



Oklahomans experienced an estimated **5.8 million** vehicle-hours of delay in 2019, 60% of which was caused by non-recurring sources.

Cost

- ODOT eight-year work plan:
 - 784 construction projects (\$6.5B)
 - Opportunity to incorporate TSMO strategies
- Majority of TSMO strategies address the non-recurring congestion



Estimated Annual Cost of Congestion (Oklahoma 2019)

Oklahoma's Annual Cost of Congestion is estimated at

\$147M



STRATEGIC PLAN DEVELOPMENT

1. Stakeholder Engagement
2. TSMO Program Areas
3. Current ITS
4. ITS Deployment Tactics
5. Prioritized Actions
6. Business Processes and Resources
7. ITS Architecture

Stakeholder Engagement

- Met with senior leaders and other individuals from across ODOT
- TSMO Capability Maturity Workshop with senior leadership
- Stakeholder engagement for partner agencies in each region
- Evaluated existing and new program areas
- Identified needs



Existing TSMO Program Areas

Future TSMO Program Areas

Work Zone Management

Freight Management

Road Weather Management

Special Event Management

Traffic Incident Management

Transit Management

Traveler Information System

Congestion Pricing

Traffic Management

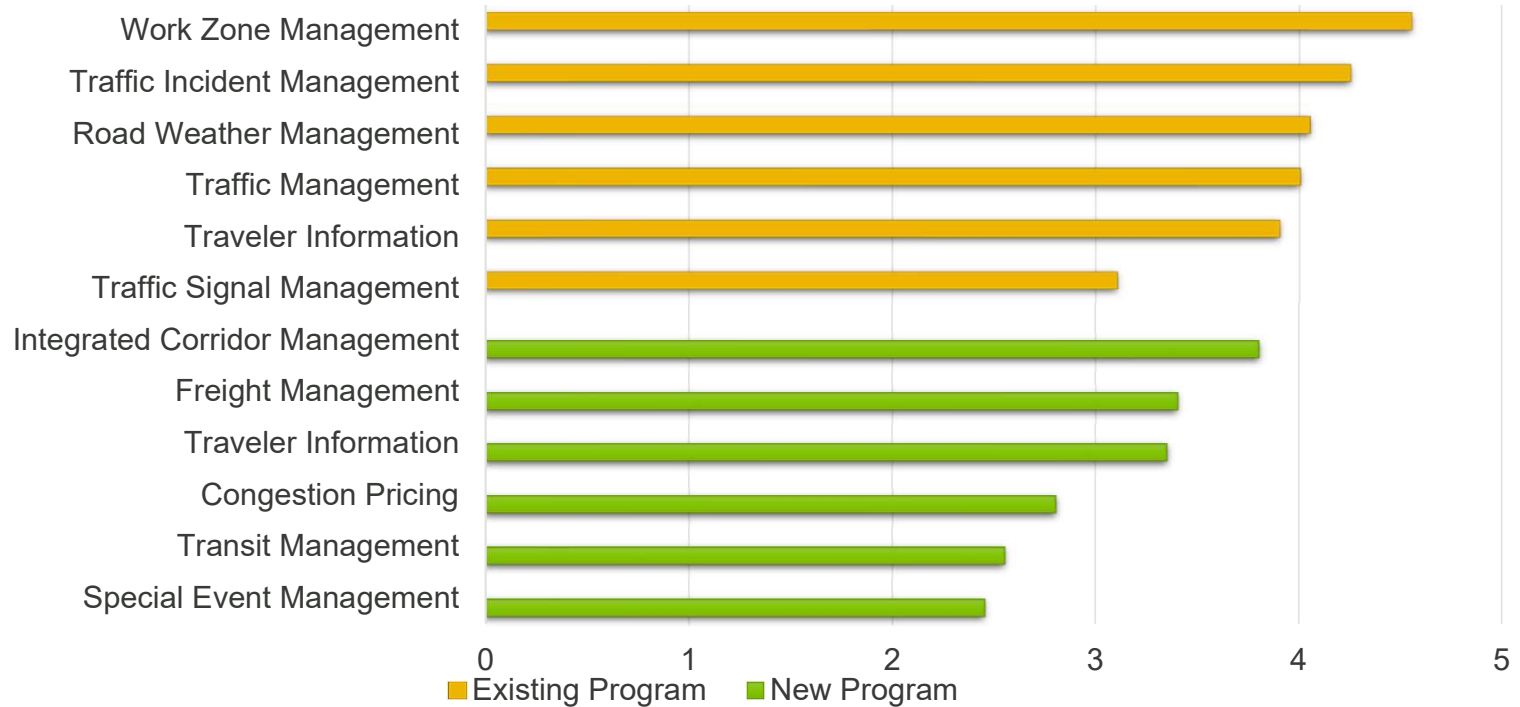
Integrated Corridor Management

Traffic Signal Management

Connected / Autonomous Vehicles



Statewide Program Area Ranking

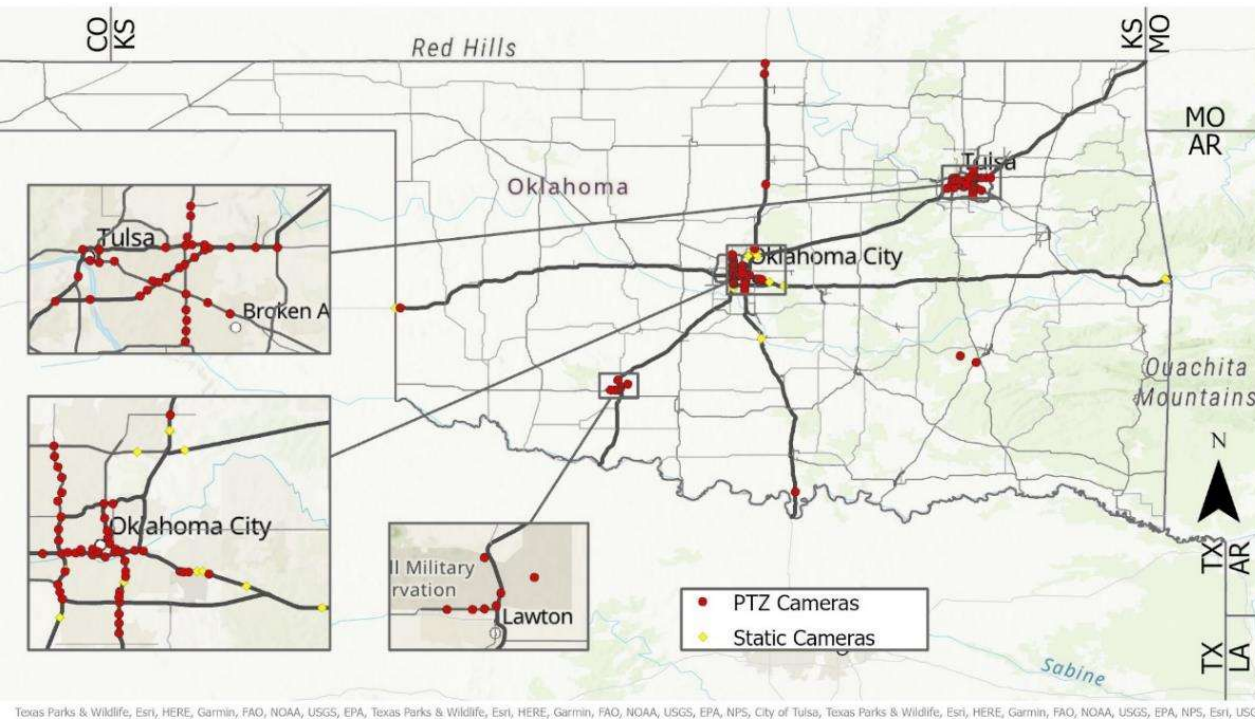


Current ITS

ITS System	Section TSMO Program					
	Traveler Info.	Traffic Mgt.	Road Weather	Work Zone	Traffic Incident	Traffic Signal
Cameras	•	•	•	•	•	•
Roadway Weather Information System	•	•	•			
Dynamic Message Signs	•	•	•	•	•	
Snowplow Integrated Mobile Observations	•		•	•		
Traffic Data Collection	•	•			•	•
Variable Speed Limits	•	•	•	•		
Dynamic Zipper Merge		•		•		
Queue Warning System	•	•		•		
Drive OK (Mobile App-Public)	•		•	•	•	
Drive OK (Mobile App-Internal)	•			•	•	
Drive OK (Web)	•				•	

ITS System	Section TSMO Program					
	Traveler Info.	Traffic Mgt.	Road Weather	Work Zone	Traffic Incident	Traffic Signal
Traffic Signals						•
Video Management Software	•	•	•	•	•	•
Advanced Traffic Management System		•				
The Construction App	•	•		•		
Maintenance Tracker Workflow		•				•
Asset Management	•	•		•	•	•
Traffic Operations Center	•	•	•	•	•	•
Communications Infrastructure	•	•	•	•	•	•
Fiber Optics	•	•	•	•	•	•
Wireless	•					•
Cellular	•	•	•	•	•	•
Network Hardware	•	•			•	

CCTV Cameras



Existing

- 770 cameras in operation
 - 115 Pan-tilt-zoom (PTZ) cameras
 - 350 Fixed position cameras
 - 99 Security cameras
 - 206 Sensor cameras
- Fiber-optic and cell modem connections

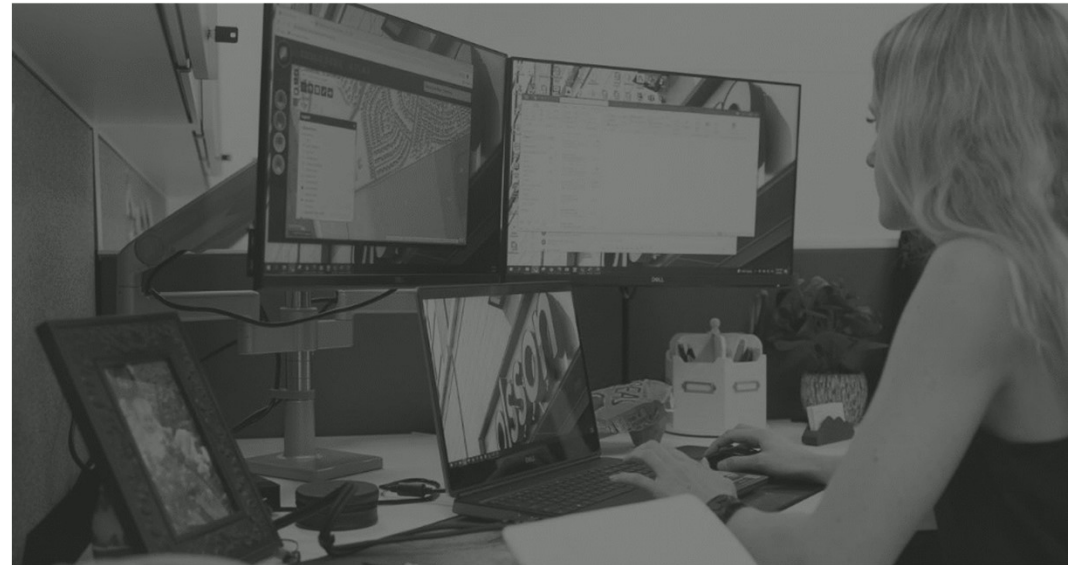
Deployment Tactics

- High Priority Segments
- Interstates
- Key Locations
- Temporary Uses



TSMO Program Actions

- Actions from:
 - Initial stakeholder Input
 - Best practices and recommended actions from CMM toolbox
- Prioritization based on additional stakeholder input



Work Zone Management Program Area

RECOMMENDED ACTIONS

Action	Initiative Status	Assigned to
Specifications and Special Provisions	Ongoing	Traffic
Work Zone Safety Education	Ongoing	Chief Engineer
Work Zone Safety Education for Public	Ongoing	Chief Engineer
Work Zone Coordinator	New	Traffic
Strengthen Collaboration	Ongoing	ITS/Traffic

Action	Initiative Status	Assigned to
Coordinate Design and Construction	New	Traffic/ Districts/ Roadway
University Partnerships	Ongoing	ITS
Central WZM Performance Data Repository	New	ITS
Develop Guidelines	Ongoing	Roadway
Work Zone Location Reporting	Ongoing	ITS/Traffic



Business Processes and Resources

- Workforce development and qualifications
- Programming and budget
- Communications, marketing, and outreach
- Data management
- Leadership and organization
- Collaboration with other organizations
- Performance measurement and management

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Transportation

Implementation Process

Coordinated by the
ODOT TSMO Committee

PRIORITIZE AND EXECUTE TASKS

STEP 1: TASK PRIORITIZATION

STEP 2: DETAILED TASK ANALYSIS

STEP 3: TASK IMPLEMENTATION

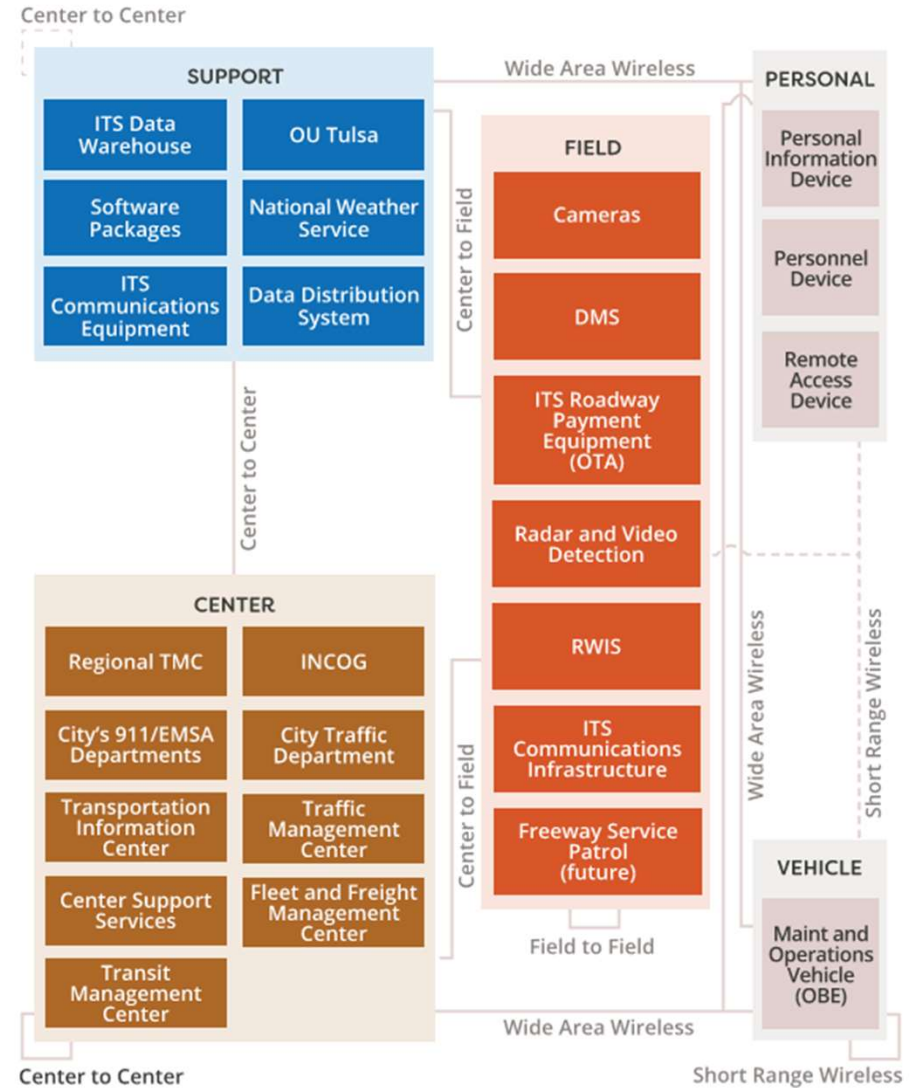


ITS Architecture

REGIONAL ITS ARCHITECTURE IS:

“ a regional framework for ensuring institutional agreement and technical integration for the implementation of ITS projects or groups of projects.* ”

**Required for Federal Funding!*



TULSA REGIONAL ITS ARCHITECTURE OVERVIEW



THE ROAD AHEAD...

THANK YOU!

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