

# NOCoE Best Practices: TSMO Program Planning

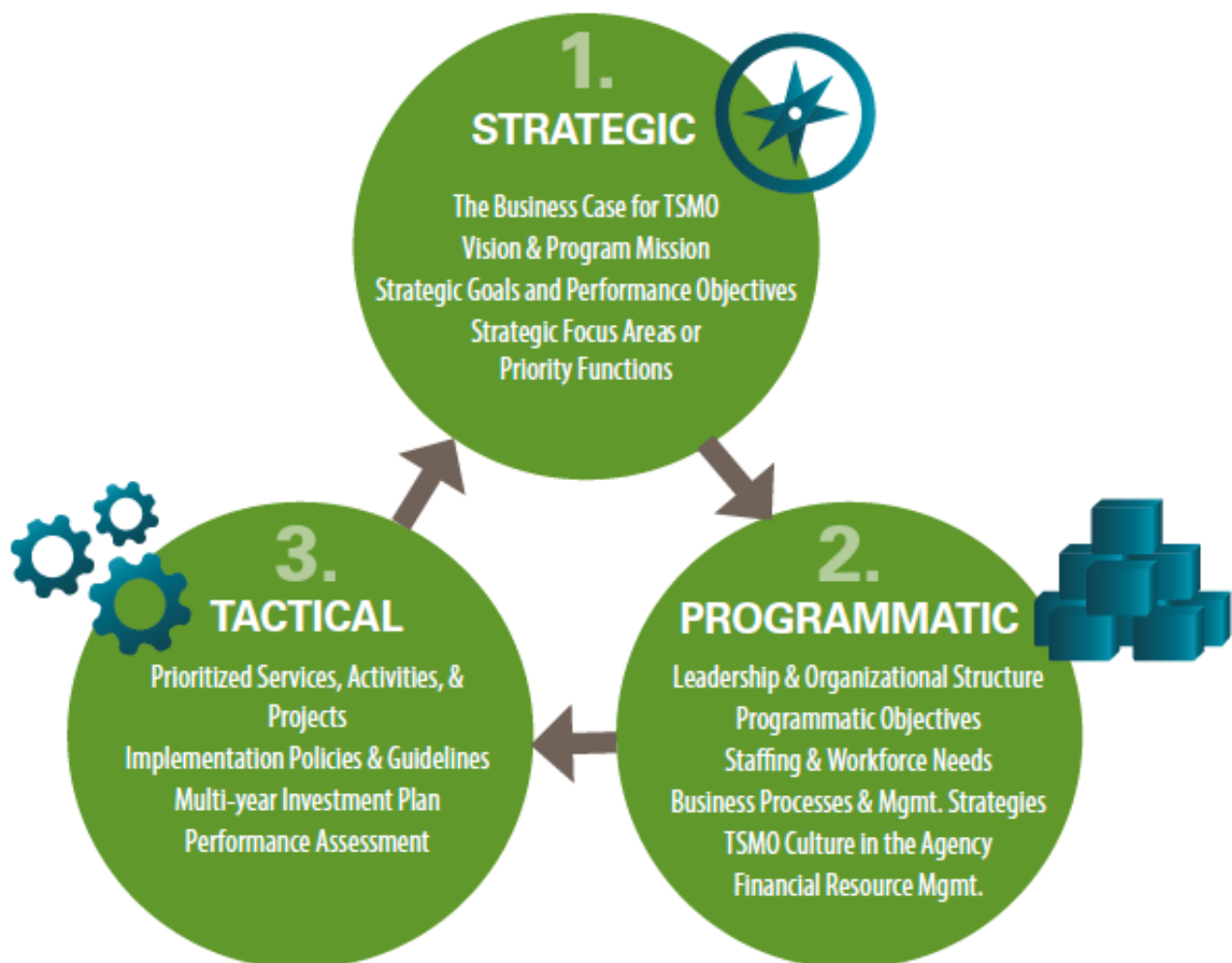
Report #1

# TSMO Program Plans

## CONCEPT

The concept of a TSMO program plan is based on the idea that to incorporate TSMO as an integrated part of a transportation agency, TSMO-specific processes, strategies, and deployments must be designed to work with already existing institutional arrangements.

A TSMO program addresses the strategic, programmatic, and tactical elements of TSMO, as outlined in the figure below.



Source: <https://ops.fhwa.dot.gov/publications/fhwahop17017/ch4.htm#s1>

# TSMO Program Plans

## FUNCTIONS

The Transportation Operations Manual identifies five functions of a TSMO program plan:

1. **Articulating the business case for TSMO**; its role within the agency's mission, goals, and objectives; and its relationships with other agency programs and processes.
2. **Highlighting the value of TSMO** in responding to specific customer service needs and deficiencies, new technology and business models, and opportunities for collaboration.
3. **Specifying the TSMO-specific technical processes** required to engineer TSMO systems, and the planning and project development processes to implement them
4. **Addressing the critical roles, responsibilities, and capabilities** needed to support continuous improvement of an effective TSMO program
5. **Identifying essential resource needs**, including financial, staffing, and performance measurement resources.

Source: TOM, page 60.

An exemplary practice of this is [MnDOT's 2024 TSMO Strategic Plan](#), which sets clear goals and objectives for TSMO, highlights the value of TSMO, and details how it fits in with the MnDOT family of plans.

## TSMO GOALS and OBJECTIVES



### GOAL

Increase Safety of the Public and Workers in the Right-of-Way



### GOAL

Improve System Reliability, Mobility, and Efficiency



### GOAL

Promote, Integrate, and Sustain a MnDOT TSMO Program

# Elements of a TSMO Program Plan

## STRATEGIC

The strategic element of a plan typically includes the Business case, TSMO vision, mission, purpose, goals and objectives, and relevant TSMO strategies.

TxDOT accomplishes this with a clearly defined business case for TSMO, supported by transportation challenges in the state that TSMO can directly address. Then, the plan clearly states the TSMO Goals and objectives and how they fit in with the state:

TxDOT Statewide TSMO Goals and Objectives	
Goal	Objective
Safety	Reduce crashes and fatalities through continuous improvement of traffic management systems and procedures.
Reliability	Optimize travel times on transportation systems in critical corridors to ensure travelers are reaching their destinations in the amount of time they expected for the journey.
Efficiency	Implement projects that optimize existing transportation system capacity and throughput.
Customer Service	Provide timely and accurate travel information to customers so they can make informed mobility decisions.
Collaboration	Proactively manage and operate an integrated transportation system through multi-jurisdictional coordination, internal collaboration and cooperation between various transportation disciplines and partner agencies.
Integration	Prioritize TSMO as a core objective in the agency's planning, design, construction, operations and maintenance activities.

# Elements of a TSMO Program Plan

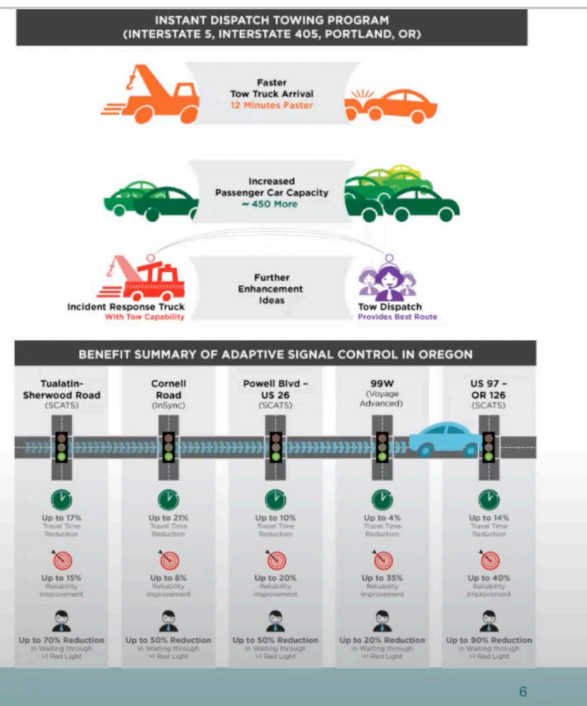
## PROGRAMMATIC

The programmatic aspect of the plan typically links the goals and objectives with the tactical needs. This includes business processes, performance management, systems and technology, workforce and organizational set-up, collaboration and communications, and culture and leadership.

Oregon's [TSMO Performance Management plan](#), developed in relation to its TSMO Program Plan, identifies not only the performance management of their TSMO and ITS systems, but also outlines how the state gathers, collects, and integrates data from various software systems. This provides not just a plan, but a map of the data environment and a transparent view into how the TSMO program functions. Galen McGill provides detail on this during a NOCoE webinar from June 2021: <https://youtu.be/EYfYRICclsc>

## Seven TSMO Program Areas

1. Traffic Incident Management
2. Mobility
3. Transportation Operations Center
4. Asset Management
5. Work Management (system RFWs)
6. Traveler Information
7. Traffic Signals



# Elements of a TSMO Program Plan

## TACTICAL

The tactical elements of a plan identifies the specific TSMO services, programs and projects which will be incorporated into the statewide transportation system. Tactics aren't just single deployment outlines, but can include TMC staffing and procedures, long-term ICM plans, and staff training.

Iowa DOT accomplishes this via its service layer plans, which provide technical guidance on each of its eight service areas, including assessments of existing conditions, analysis of opportunities and challenges, and a five-year plan cost estimate to reach the goals.

**Table 1 Relationship of CAT Supporting Objectives to TSMO Strategic Goals and Objectives**

TSMO Strategic Goal: Objective	CAT Supporting Objectives
1. <b>Safety:</b> Reduce crash frequency and severity.	<b>Objective 1:</b> Manage the Iowa digital CAT infrastructure in order to increase Iowa's AV readiness.
2. <b>Reliability:</b> Improve transportation system reliability, increase system resiliency, and add highway capacity in critical corridors.	
3. <b>Efficiency:</b> Minimize traffic delay and maximize transportation system efficiency to keep traffic moving.	
4. <b>Convenience:</b> Provide ease of access and mobility choices to customers.	<b>Objective 2:</b> Ease the entry and ongoing operations of connected and automated vehicles in Iowa through appropriate physical infrastructure additions.
5. <b>Coordination:</b> Engage all DOT disciplines, and external agencies and jurisdictions to proactively manage and operate the transportation system.	<b>Objective 3:</b> Identify and define the business processes needed to allow and support CAT within Iowa.
6. <b>Integration:</b> Incorporate TSMO strategies throughout DOT's transportation planning, design, construction, maintenance, and operations activities.	
7. <b>Security:</b> Prepare for and mitigate potential physical and cyber security issues.	<b>Objective 4:</b> Secure Iowa travelers, transportation providers, residents, and physical and digital infrastructure against intentional or unintentional threats.

Other states have adopted this service layer plan approach, connecting the deployment of TSMO tactics with the larger TSMO strategy and statewide goals, but also ensure a detailed deployment plan to implement the specific TSMO service.

# Elements of a TSMO Program Plan

## MPO TSMO PROGRAM PLANS

Metropolitan Planning Organizations can also benefit from a TSMO program plan. Though MPOs are not normally owner-operators, they can benefit from a TSMO program plan that focuses on the strategic elements as well as the tactical elements for the purposes of planning.

Oregon Metro demonstrates the value of regional TSMO program plans with its clarity on how their priorities and actions fit within the broader regional needs and objectives. A robust visualization of each action is seen below.

### 15. Deploy regional traveler information systems.

Planning

Concepts, Capabilities, & Infrastructure

Listening & Accountability

Data Sources

#### Action Description

Create a traveler information and educational campaign with Black, Indigenous, people of color, people with low incomes, and people with limited English proficiency. The campaign should also start deploying traveler information systems (TIS) where community-voiced need and multiple transportation options are present, building into a methodology TIS priorities that may involve transit stops, public buildings, major destinations within regional centers and on-vehicle displays. The TIS should incorporate a broad cross section of traveler needs which may include travel time, route, and real-time transit and shared-use mobility information.

#### Further Objectives

- 2.3 Collaborate with and educate travelers.
- 3.1 Prioritize reaching underrepresented groups when providing traveler information and community outreach and ensure that modal access and traveler information is free from technological and financial barriers.

#### References to other Plans and Projects

ODOT's TripCheck Program: <https://tripcheck.com>

TriMet Third Party Apps: <https://trimet.org/apps/>

#### Priority

Low Medium **High**

#### Timeline

Ongoing  
'21 '22 '23 '24 '25 '26 '27 '28 '29 '30 '31

#### Responsibility

Metro for convening and scoping

# Elements of a TSMO Program Plan

## MPO TSMO PROGRAM PLANS

The Treasure Valley TSMO Strategic Plan of the Community Planning Association of Southwest Idaho (COMPASS), provides a coordinated approach to TSMO in both its urban and rural service areas.

### 1.2 Why TSMO in the Treasure Valley?

#### A Vision for Active Traffic Management

Regional agencies developed a TSMO Vision for the Treasure Valley in 2014 as part of the development of the region's first TSMO plan.

Following review by participating agencies, this vision remains unchanged for the 2020 plan update.

The vision reflects the value of TSMO to the region and the commitment to cooperative approaches to operations and management of the multi-modal transportation system.

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*Treasure Valley TSMO Vision:  
Provide active management of the  
Treasure Valley's multimodal  
transportation system through agency  
partnerships and investment in ITS  
technology, as an essential regional  
strategy to maximize the performance of  
the transportation system*

#### TSMO Is Important to the Region's Mobility Future

The Treasure Valley routinely ranks as one of the fastest-growing metropolitan areas in the United States. Along with rapid population growth comes substantial pressure on the regional transportation system across an expanding urbanized area.



# Elements of a TSMO Program Plan

## MPO TSMO PROGRAM PLANS

By coordinating the regional assets and needs and identifying the capabilities and profiles of each of its stakeholders, COMPASS uses this TSMO strategic plan to enable small local agencies to combine their efforts and deliver a full regional TSMO focused transportation system.

Table 9: Self-Identified Priority TSMO Projects by Agency (2019)

Agency	TSMO Implementation Plan Priorities
<b>ITD Headquarters</b>	<ul style="list-style-type: none"> <li>• Upgrade StateComm central systems</li> <li>• Implement incident traffic management in the Treasure Valley</li> <li>• Replace ITS control software</li> <li>• Integrate 511 with other agencies and programs</li> <li>• Decommission HAR systems</li> </ul>
<b>ITD District 3</b>	<ul style="list-style-type: none"> <li>• Implement Eagle Road traffic signal performance measures</li> <li>• Develop regional concept for transportation operations to determine shared regional objectives for transportation operations and determine what is needed to achieve the object. This will be used for the future regional virtual TMC</li> <li>• Prepare I-84 Corridor Operations Plan</li> </ul>
<b>Ada County Highway District</b>	<ul style="list-style-type: none"> <li>• Complete Three Cities River Crossing ITS deployment</li> <li>• Install Advanced Traffic Signal performance measures System</li> <li>• Update signal timing</li> <li>• Update/develop standard specifications (ITS and communications)</li> </ul>
<b>Valley Regional Transit</b>	<ul style="list-style-type: none"> <li>• Implement Transportation Wallet fare integration system</li> <li>• Implement AVAIL Business Intelligence Module</li> <li>• Implement upgrades to public transportation scheduling software</li> <li>• Implement digital mobile advertising</li> <li>• Report on existing TSP applications and identify opportunities for future expansion.</li> </ul>
<b>City of Nampa</b>	<ul style="list-style-type: none"> <li>• Design/build TMC</li> <li>• Upgrade fiber optic communication</li> </ul>
<b>City of Caldwell</b>	<ul style="list-style-type: none"> <li>• Develop/update roadway sections and signal standards</li> <li>• Develop wireless traffic signal interconnections</li> </ul>
<b>COMPASS</b>	<ul style="list-style-type: none"> <li>• Prepare I-84 Corridor Operations Plan</li> <li>• Facilitate virtual traffic management strategy</li> </ul>

# Resources

- [Alabama DOT Statewide TSMO Master Program Plan](#)
- [Florida TSMO Strategic Plan](#)
- [Iowa DOT TSMO Program Plan](#)
- [Maryland DOT SHA TSMO Strategic Plan](#)
- [Michigan DOT: Development and Maintenance of TSMO Implementation and Strategic Plan](#)
- [Minnesota DOT TSMO Program Plan](#)
- [Missouri DOT TSMO Program and Action Plan](#)
- [Nevada DOT Statewide TSMO Program Plan](#)
- [North Carolina DOT Statewide TSMO Strategic Plan, Programmatic Plan, and Service Layer Plans](#)
- [Ohio DOT: Transportation Systems Management & Operations website](#)
- [Pennsylvania DOT TSMO Program Plan](#)
  - [Pennsylvania DOT Highway Safety and Traffic Operations Roadmap](#)
- [South Dakota DOT TSMO Program Plan](#)
- [Texas DOT Statewide TSMO Strategic Plan and District Program Plans](#)
- [Washington State DOT: A Workforce Shift Toward TSMO](#)

## **Regional TSMO Resources**

- [Atlanta Regional Commission TSMO website](#)
- [Community Planning Association of Southwest Idaho: Treasure Valley Transportation System: Operations, Management, and ITS](#)
- [Delaware Valley Regional Planning Commission Transportation Operations Master Plan](#)
- [Genesee-Finger Lakes Regional Transportation System Management and Operations \(TSMO\) Plan](#)
- [Maricopa Association of Governments Systems Management and Operations Plan](#)
- [Oregon Metro: Regional TSMO Plan](#)