FAQ

Frequently Asked Questions from our Stakeholders

What is TSMO, really?

Transportation Systems Management and Operations (TSMO) is a term encompassing a set of strategies that TxDOT can use to break down barriers to improve collaboration and communication among its sections to address concerns of congestion, maintenance, safety, and operations of the transportation system. TSMO mainstreams operations and maintenance into all sections of TxDOT, including planning, design, construction, and operations and maintenance. An important part of TSMO is collaboration with external partner agencies such as the Federal Highway Administration, Federal Transit Administration, and Metropolitan Planning Organizations to collaborate on TSMO plans and programs at both a Statewide and District level.

Why do we need a Statewide TSMO Program Plan and a Program Plan for all 25 TxDOT Districts?

Can each district copy the TSMO Program Plan of other districts with already established plans?

The Statewide TSMO Program Plan will mainstream TSMO throughout Texas. However, the same technologies, programs, and institutional partnerships needed to manage the transportation system in one district may not be relevant in another district should the program plan be copied. For example, it would not be appropriate for a landlocked district such as Amarillo to copy the Houston district TSMO Program Plan which should include hurricane and flooding evacuation procedures as major components of its Road Weather Management.

How will TSMO strategies, technologies, and programs be interoperable across the state?

Through outreach efforts, common issues and needs are being identified. Systems and processes will be developed to meet those common needs through the Statewide TSMO Program Plan and the District TSMO Program Plans.

Is TSMO just another acronym for ITS or is it different?

TSMO is broader than ITS. While TxDOT and other agencies have made significant investments in building our ITS infrastructures, there are other considerations that need to be addressed. TSMO encompasses a broad range of strategies focusing on improved business processes, methods to enhance collaboration among internal and external stakeholders, changes in organization and workforce, as well as deploying applicable systems and technologies. TSMO strategies should complement each other in providing a performance-based approach to improving traffic safety, mobility, and congestion relief

What are the differences between a TSMO Strategic Plan, a TSMO Program Plan, an Intelligent Transportation System (ITS) architecture, and an ITS Master Implementation Plan?

- TSMO Strategic Plan: In 2017, TxDOT published the first draft of the Statewide TSMO Strategic Plan, which has since been updated in summer 2018. Through stakeholder outreach and input from the development of the Austin TSMO Program Plan, the Statewide Strategic Plan set the framework for implementing TSMO. This framework includes the development of a TSMO Program Plan for each of TxDOT's 25 districts.
- TSMO Program Plans: These are built on partnerships with external stakeholders and the collaboration of different TxDOT Divisions. These relationships, developed at the statewide and district level, provide accountability for each District to fulfill its needs through maintenance and operational strategies, and low-cost enhancements. TSMO Program Plans are not limited to solutions involving ITS, but can include institutional arrangements, highway assistance programs, training, and other non-technology solutions that would not be included in an ITS Architecture or ITS Master Plan.
- ITS Architecture: A detailed framework to insure involvement of stakeholders and agreement upon the technical implementation of ITS projects or groups of projects. The ITS Architecture will define which pieces of the ITS system link, and what information they share.
- ITS Master Implementation Plans: These link a region's ITS Architecture with short and long range transportation plans. ITS Master Implementation plans include specific recommendations for investing in ITS infrastructure and supporting systems (e.g., TMC upgrades, software, data analytics tools) over a defined period of time (e.g., 5 years).

Will TSMO be a replacement for providing new capacity projects?

While it is recognized that we cannot build our way out of congestion, both TSMO and new capacity projects will be needed to address our continuing growing demand in accommodating 300,000 – 400,000 additional people entering our state every year. TSMO should be viewed as a complement to adding new roadway capacity rather than as a replacement.

Does TSMO have its own funding resources or will it compete with existing funding requests?

While there are dedicated funds available to help jump start and maintain the program at the state and district level, funds needed for implementation, continuing operations, and maintenance will need to be derived from traditional sources. Therefore, it is critical that TSMO is viewed as important and receive buy-in by district decision-makers for the program to be successful.

Do rural districts really need TSMO?

TSMO is focused on improving the performance of existing transportation systems whether they are in metro, urban, or rural districts. While metro and urban districts may focus more on congestion relief and multimodal alternatives, rural districts may consider low cost enhancements to address targeted safety and operational problems to address targeted problems before they arise. TSMO makes day-to-day functions more efficient to optimize a district's limited resources.

Who will pay for the continuing operations and maintenance expenses for TSMO strategies and where will the funds come from?

TxDOT districts will need to cover the continuing operations and maintenance expenses of TSMO strategies; therefore, it is imperative that decision-makers at the district level see the added value of these projects and rank them at a sufficiently high level to assign them the funds they need. In many cases, the costs may be shared with other departments within TxDOT or other agencies. It is critical that life-cycle costs be considered before implementing a TSMO project so that the project can be sustained to achieve it's intended function after it is deployed.

Show me one example where TSMO made a difference for a rural district.

In the rural areas of the San Antonio District, Road Weather Management has been implemented through the high water detection system (HWDS). Each unit costs approximately $75,000 to implement and can alert drivers when a road ahead of them is flooded. Maintenance crews at TxDOT can monitor the sites of implementation to know when to set up barricades.

Show me one example where TSMO made a difference for an urban or metro district.

An integrated corridor management project in Dallas deployed ITS infrastructure and combined stakeholders into a single TMC to streamline traveler information, build a smart parking system at transit stations, and provided route and mode information. Over a year, the system performed more reliably (3%), 1 million gallons of fuel were saved, and 740,000 hours of travel were saved, all with a cost-benefit ratio of almost 20:1.

If I have a TSMO strategy that I would like to implement, where do I start?

You should develop the TSMO strategy to the point where you can document and present it to your District TSMO Coordinator for initial feedback. Assuming the project is worth advancing, the TSMO Coordinator will work with you to advance the project by introducing you to other partners and provide guidance in developing an implementation plan.

Are TSMO strategies limited to physical and operational improvements?

While many TSMO strategies focus on specific physical and operational improvements, they can also include other components such as improving processes and procedures; changing the composition and organization of the workforce to address TSMO needs; applying systems and technologies; and using performance measures to continuously improve operations in alignment with predefined performance measure definitions and targets.

Does TSMO qualify for federal funding including grants?

TSMO qualifies for the same funding as traditional transportation projects. TSMO projects should be mainstreamed as part of other transportation improvement projects at each phase (i.e., planning through operations). TSMO funding should also be considered as a component to federal grant applications in making the proposed funding request more attractive.

How does TSMO address emerging technologies?

TSMO and emerging technologies go “hand-in-hand.” One will not succeed without the other. As emerging technologies generate more data, TSMO has the potential to apply this information to generate data-driven decisions in real-time (and in a predictive manner) to stay ahead of congestion and crashes rather than reacting to it.

Are other states developing similar TSMO programs?

TSMO is a national program where each state is encouraged to implement similar programs. For more information, please consult the USDOT website: https://ops.fhwa.dot.gov/plan4ops/focus_areas/integrating/transportation_sys.htm

Do TSMO strategies include transportation modes other than vehicles (e.g., trains, buses, pedestrians, bicycles, e-scooters)?

TSMO should consider alternative modes of transportation to balance the supply and demand for transportation without solely relying on roadway capacity. This will require a change in travel behavior where TSMO can provide incentives to make this a reality over time.

How will we know if TSMO strategies are successful after they are implemented?	Performance measures are a critical component to a TSMO program in assessing its return on investment. Performance measures and targets will need to be defined; data acquisition plans developed; and key performance indicators monitored and applied to continuously improve the performance of the transportation system.
How can TSMO strategies improve traffic safety and save lives?	TSMO can improve traffic safety and save lives through a wide range of strategies. Such strategies may include smart work zones; wrong way detection and prevention systems; connected vehicle applications at signalized intersections; road weather management systems; big data applications to improve traffic incident management; and others.
Will the new federal transportation bill have dedicated funding sources to support the implementation, operation, and maintenance of TSMO?	The "Fixing America's Surface Transportation Act" Reauthorization is still in the process of being developed and approved as well as the anticipated economic stimulus as a result of the Covid-19 crisis. While several elements of TSMO are anticipated to be addressed, there does not appear to be a separate funding category for TSMO by itself. Therefore, mainstreaming TSMO as part of other transportation improvement programs will continue to be needed.
Does the TSMO program have a research and development component or is it just focused on proven strategies?	TSMO spans every TxDOT department including research and development. As new innovations are identified, tested and approved, they will be rolled out to the district level for application to serve regional needs. Similarly, as districts identify TSMO innovations, they should be shared with TRF in providing two-way communication to standardizing successful innovations and enabling interoperability among districts and external stakeholders.
What incentives do TSMO strategies provide to encourage travelers to switch transportation modes?	TSMO may include a variety of incentives to use transportation modes other than a single occupancy vehicle. Such incentives may include traveling at free flow highway speeds by using managed lanes; schedule reliability, comfort, convenience, and cost savings in using trains and buses; as well as flexible trip planning and integrated fare payment by using mobility on demand applications.
Where should TSMO strategies be implemented and what's in it for me?	TSMO should be implemented at "hotspot" locations that have been identified as a traffic safety problem, a traffic congestion problem, or a transportation corridor problem where demand exceeds available capacity. Remote monitoring, data analysis, and internal coordination can optimize staff assignments since all TxDOT districts are feeling the lack of available staff to fulfill certain roles. TSMO should also be considered in a broader context where changes in policies and procedures, or new ways to use emerging technologies, can improve the performance of the transportation system and provide a better travel experience for the user.
Are TSMO strategies resilient to changing policies, funding priorities, and emerging technologies and are there assurances that these strategies will not be obsolete in the future?	TSMO strategies should be implemented within the context of "future-proofing" our transportation system and maintaining a higher level of performance. Therefore, future trends in emerging technologies (e.g., connected and automated vehicles, digital transformation, congestion pricing) should address how TSMO will support the transportation needs of today and tomorrow.