



Federal Highway Administration Office of Operations Recent TSMO Resources

Communication Resources and Websites

Updates to FHWA Organizing and Planning for Operations Website

Website updated to improve presentation and accessibility and update content of FHWA resources that support the institutional elements of operations programs. The Resources menu categorizes the various types of resources for easier navigation.

Available at: <https://ops.fhwa.dot.gov/plan4ops/index.htm> (Resources menu on the top of the page)

Asset Management for Operations

Website update to add links to current Transportation Asset Management Plans (TAMPs), which include transportation system management and operations (TSMO) assets and a sampling of links to TSMO plans that include asset management elements.

Available at: https://ops.fhwa.dot.gov/resources/news/news_detail.asp?ID=1207

Weather-Responsive Management Strategies (WRMS) Fact Sheet - Pathfinder: Arizona's Coordinated Messaging on Snowstorm Impacts

Fact sheet that summarizes Arizona Department of Transportation (ADOT) and National Weather Service (NWS) collaboration to improve messaging related to snowstorm impacts using Pathfinder, a collaborative effort for proactive system management ahead of, during, and after adverse weather events. It facilitates partnerships between the NWS, State departments of transportation (DOTs), and State DOT private weather-service providers who provide road weather information.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop22054/fhwahop22054.pdf>

Training

Planning for Operations Web-Based and Web-Conference Training

Three virtual training courses that address planning for TSMO to enhance the ability of agencies to further integrate TSMO into transportation planning, project development, and ongoing TSMO programs:

NHI-133131: Planning for TSMO—Introduction (web-based, independent, asynchronous):

https://www.nhi.fhwa.dot.gov/course-search?tab=0&key=planning+for+tsmo&sf=0&course_no=133131

NHI-133132: Planning for TSMO—Concepts and Applications (web-based, independent, asynchronous):

https://www.nhi.fhwa.dot.gov/course-search?tab=0&key=planning+for+tsmo&sf=0&course_no=133132

NHI-133133: Planning for TSMO—Putting Concepts into Action (web conference, facilitator-led, synchronous):

https://www.nhi.fhwa.dot.gov/course-search?tab=0&key=Planning+for+tsmo&sf=0&course_no=133133

NHI-133140: TSMO 101 Web-Based Training

Web-based course that provides introductory knowledge of TSMO..

Available on the [National Highway Institute's Blackboard Learning Management System](#). Search for Course# 133140.

NHI-133141: Understanding and Applying the CMM to Advance TSMO Programs Web-Based Training

Web-based course designed to equip TSMO champions with enough knowledge about the capability maturity model (CMM) to lead a self-assessment of their agency and partners' capabilities to deliver TSMO.

Available on the [National Highway Institute's Blackboard Learning Management System](#). Search for Course# 133141

Travel Time Reliability Video Training Series

Six videos to help practitioners understand the benefits of travel time reliability analysis and the steps needed to conduct a reliability analysis. The six modules cover topics such as why reliability matters, tools, data collection, and visualization approaches used in travel time reliability analyses.

Available at: https://www.youtube.com/playlist?list=PL5_sm9g9d4T1gslWu22S5PENxLXznxBq

Technical Reports and Tools

Planning For TSMO Practitioner Reference

Reference document that enables transportation planners, operators, and others to plan for TSMO by identifying operations objectives, performance measures, strategies, implementation, and management considerations. It also features excerpts from an example transportation plan.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop22019/fhwahop22019.pdf>

Operations Performance Management: From Performance Measures to Performance Management

Primer discussing ways to approach operations performance management as an expansion of operations performance measurement. It also includes an operations performance measure and management capability maturity framework.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop24005/>

How Pavement and Bridge Conditions Affect Transportation System Performance

Report that considers how pavement and bridge conditions can contribute to system performance areas, such as highway safety, freight mobility, or reliability. It includes three example transportation asset management plan (TAMP) chapters (performance gap analysis, risk assessment, and investment strategies) illustrating how the TAMP could directly support multiple transportation performance objectives.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop22077/fhwahop22077.pdf>

Approaches to Forecasting the Third Performance Management Rulemaking (PM3) Measures for Target Setting

Step-by-step calculation guide describing three forecasting methods that support target setting for the PM3 travel time-based performance measures.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop21014/>

Approaches for Communicating PM3 Measures, Metrics, and Targets

Report that highlights communication approaches agencies can use when discussing or presenting the PM3 measures, metrics, and targets to various audiences.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop22069/fhwahop22069.pdf>

Highlights From the PM3 Peer Exchange Series for State DOTs

Fact sheet on highlights from a 2021 peer exchange for State DOTs on the PM3. The report includes highlights of the topics discussed and a list of potential research and technical assistance topics.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop22079/fhwahop22079.pdf>

Urban Congestion Trends Reports (2021 and 2022)

Reports for 2021 and 2022 on congestion and reliability measure trends in the 52 largest urban areas in the United States, along with information on data tools and an operational strategy evaluation (2021 on optimized traffic signal timing, 2022 on crowdsourced data).

Available at:

2021 Report: <https://ops.fhwa.dot.gov/publications/fhwahop22028/index.htm>

2022 Report: <https://ops.fhwa.dot.gov/publications/fhwahop23010/fhwahop23010.pdf>

Climate Resilience Risk Assessment Tool and Guide: Literature Review, Technology Scan, and Interviews

Report that identifies current and emerging data collection, infrastructure surveillance and monitoring technologies, and similar approaches for monitoring changing environmental and weather conditions. It also examines the use of risk-based analysis tools to identify road locations potentially vulnerable to such changing conditions.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop23047/fhwahop23047.pdf>

Integrated Modeling for Road Condition Prediction (IMRCP) - Phase 4 Report

Report describing the phase 4 development, demonstration, evaluation, and assessment of IMRCP. FHWA's Road Weather Management Program developed the IMRCP system to provide data and decision support for TSMO in weather events.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop23003/fhwahop23003.pdf>

Secondary Crash Research - A Multistate Analysis

Report describing research to leverage various data collection approaches (e.g., traffic crash reports, advanced traffic management systems) to create a multistate dataset on secondary crashes to better understand factors surrounding these crashes using descriptive statistics and case studies.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop23043/fhwahop23043.pdf>

Application of Travel Time Data and Statistics to Travel Time Reliability Analyses

Handbook and supporting materials that describe working with travel time data in the development of travel time reliability performance assessment and reporting.

Report: <https://ops.fhwa.dot.gov/publications/fhwahop21058/>

Fact Sheet: <https://ops.fhwa.dot.gov/publications/fhwahop22086/>

Travel Time Reliability Reference Guide

Guide that describes key elements for including travel time reliability evaluation within traffic analysis approaches. It includes information on observing the system; defining the problem; collecting and preparing data for analysis; creating the model; verifying, calibrating, and validating; and data processing, analysis, and presentation, as well as some examples.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop21015/fhwahop21015.pdf>

Traffic Analysis Toolbox (TAT) Volume II Addendum: Decision Support Methodology for Selecting Traffic Analysis Tools

Report providing up-to-date information on incorporating travel time reliability in TAT Volume II, which provides an overview of the role of traffic analysis tools in the transportation analysis process and provides a detailed decision support methodology for selecting the appropriate type of analysis tool for the job.

Available at: https://ops.fhwa.dot.gov/trafficanalysistools/tat_vol2/Vol2_Methodology_addendum.pdf

TAT Volume VI Addendum: Definition, Interpretation, and Calculation of Traffic Analysis Tools Measures of Effectiveness

Report presenting the results of an investigation into the definition, interpretation, and computation of measures of effectiveness (MOEs) for traffic operations and capacity improvements, including which MOEs should be produced and how they can be interpreted, defined, and calculated in traffic analysis tools.

Available at: https://ops.fhwa.dot.gov/publications/fhwahop08054/fhwahop08054_addendum.pdf

Resources Coming Soon

- *2023 Urban Congestion Trends Report*
- *Estimation of Travel Time Distributions Applications Guide*
- *Influence of Operational Strategies on the PM3 and Other Travel Time-Based Measures:*
 - *Part 1—Recurring Congestion Strategies Report*
 - *Part 2—Non-Recurring Congestion Strategies Report*
- *Operations in Complete Streets Primer and Factsheets*
- Three videos on mainstreaming TSMO
- *TSMO Strategy Toolkit*
- *Regional Operations Leadership Forums Final Report*
- *Travel Time Reliability Compendium Guide*

Non-Binding Contents

Except for the statutes and regulations cited, the contents of this document do not have the force and effect of law and are not meant to bind the States or the public in any way. This document is intended only to provide information regarding existing requirements under the law or agency policies.