



## Federal Highway Administration (FHWA) Office of Operations Recent Transportation Systems Management and Operations (TSMO) Resources

### Communication Resources and Websites

#### **New Systems Engineering for ITS Website**

The new “Systems Engineering for Intelligent Transportation Systems (ITS)” website is a one-stop shop for understanding and implementing the systems engineering process. The site includes deliverable templates; suggested roles, responsibilities, and capabilities of agencies and contractors; metrics; process tailoring advice; and checklists for process tasks.

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

#### **Updates to FHWA “Organizing and Planning for Operations” Website**

The website has been 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 at the top of the page)

#### **Weather-Responsive Management Strategies Fact Sheets**

*Pathfinder: Arizona’s Coordinated Messaging on Snowstorm Impacts*

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

*Florida Department of Transportation Bridge Wind Speed Alerting System*

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop21088/fhwahop21088.pdf>

### Training

#### **NHI-133140: TSMO 101 Web-Based Training**

Web-based course that provides introductory knowledge of TSMO.

Available on the [National Highway Institute’s \(NHI’s\) Blackboard Learning Management System](#). Search for Course No. 133140.

More information at: [https://ops.fhwa.dot.gov/plan4ops/docs/NHI\\_133140\\_TSMO101\\_Course\\_Flyer.pdf](https://ops.fhwa.dot.gov/plan4ops/docs/NHI_133140_TSMO101_Course_Flyer.pdf)

#### **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 [NHI’s Blackboard Learning Management System](#). Search for Course No. 133141.

More information at: [https://ops.fhwa.dot.gov/plan4ops/docs/NHI\\_133141\\_CMM\\_Course\\_Flyer.pdf](https://ops.fhwa.dot.gov/plan4ops/docs/NHI_133141_CMM_Course_Flyer.pdf)

### **NHI-133141: TSMO Benefit-Cost Analysis**

Intermediate level Web-based course designed to equip TSMO champions with enough knowledge to conduct a benefit-cost analysis for TSMO projects.

Available on [NHI's Blackboard Learning Management System](#). Search for Course No. 133142.

More information at: [https://ops.fhwa.dot.gov/plan4ops/docs/NHI\\_133142\\_TSMOBCA\\_Course\\_Flyer.pdf](https://ops.fhwa.dot.gov/plan4ops/docs/NHI_133142_TSMOBCA_Course_Flyer.pdf)

### **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\\_sm9g9d4T1gsLWu22S5PENxLXznxkBg](https://www.youtube.com/playlist?list=PL5_sm9g9d4T1gsLWu22S5PENxLXznxkBg)

## Technical Reports and Tools

### **Toolkit and Case Studies for Improving Equity in Transportation Operations**

Set of technical resources that transportation professionals can use to ensure that transportation operational improvements, strategies, and services are implemented with transportation equity considerations in mind. Resources include case studies of current innovative practices and an online practitioner toolbox.

Available at: <https://www.ite.org/technical-resources/improving-equity-in-transportation-operations/>

### **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>

### **2023 Urban Congestion Trends Report**

Report for 2023 on congestion and reliability measure trends in the 52 largest urban areas in the United States, along with information on data tools for work zones and an operational strategy evaluation for hard shoulder running.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop24027/fhwahop24027.pdf>

### **Operations Performance Management Primer: From Performance Measures to Performance Management**

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

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

### **Safe Access for Everyone Is Good for Business**

Primer addressing questions that commonly arise with access management and its effect on business activity and the local economy.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop24003/fhwahop24003.pdf>

### **Part-Time Shoulder Use Synthesis of Practice**

Report that provides a synthesis review of recently deployed part-time shoulder use (PTSU) projects to identify planning, design, and operations approaches used for PTSU. Information from the synthesis was obtained from interviews with agencies that recently implemented PTSU. The report identifies topics that practitioners noted were needed to fill gaps in FHWA's 2016 publication [\*Use of Freeway Shoulders for Travel\*](#).

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop23066/fhwahop23066.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: Final 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 and 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>

### **Incorporation of Travel Time Reliability Concepts within FHWA's Traffic Analysis Toolbox**

Brochure describing updates to the Toolbox and an addendum for each of six Toolbox volumes:

- *Volume 2: Decision Support Methodology for Selecting Traffic Analysis Tools*
- *Volume 3: Guidelines for Applying Traffic Microsimulation Modeling Software*
- *Volume 5: Traffic Analysis Toolbox Case Studies—Benefit Applications*
- *Volume 6: Definition, Interpretation, and Calculation of Traffic Analysis Tools Measures of Effectiveness*
- *Volume 7: Predicting Performance with Traffic Analysis Tools*
- *Volume 14: Guidebook on the Utilization of Dynamic Traffic Assignment in Modeling*

Available at: <https://ops.fhwa.dot.gov/trafficanalysisitools/ttr.htm>

### **Estimation of Travel Time Distributions Applications Guide**

Reference providing information to transportation agencies, professionals, and researchers on a methodology and tools that could potentially synthesize and replicate traveler-based distributions of time travel along continuous paths regardless of facility type. Includes information on testing and application.

Available at: <https://ops.fhwa.dot.gov/publications/fhwahop20066/fhwahop20066.pdf>

### Resources Coming Soon

- *Influence of Operational Strategies on the Third Performance Management Rulemaking (PM3) and Other Travel Time-Based Measures:*
  - Part 1—Recurring Congestion Strategies Report
  - Part 2—Non-Recurring Congestion Strategies Report
- *The Role of Operations in Complete Streets:* primer, fact sheets
- *Estimation of Travel Time Distributions:* fact sheet, case study report
- 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.