

WSDOT Local Technical Assistance Program (LTAP Center) announces the following training:

Federal Highway Administration (FHWA) Data-Driven Analytics Workshop

(Traffic Analysis Toolbox, Volume III) *2-day class, No Fee*

This FHWA workshop is based on materials from FHWA guidance on how modern analytic resources (data, tools, and computational platforms) can be systematically embedded within the transportation system management process; and an update of guidelines which includes significantly enhanced technical guidance on data collection and analysis, model calibration, and alternatives analysis.

The target audience is state/local decision makers, transportation engineers, data analysts, and simulation practitioners. The objective of day one morning session will be to describe how analytic resources (data, tools, and computational platforms) can be cost-effectively integrated within the transportation system management process. The objective of the remainder of time is focused on:

- Identifying data-driven travel conditions using cluster analysis,
- Applying an improved calibration process that replaces subjective calibration criteria with criteria that are both statistically valid and derived from observed data, and
- Applying improved alternatives analysis utilizing travel conditions analysis to provide more accurate results, resulting in more informed decision-making using microsimulation analysis.

TWO DATES/LOCATIONS TO CHOOSE FROM:

Olympia: Wed, Nov.30 & Thu, Dec.1, 2022 (8am–5pm each day)

Location: Hampton Inn & Suites, Olympia Lacey

4301 Martin Way East, Olympia WA 98516 (ph.360-459-5000)

Instructors: Chung Tran and Anthony DePrator, FHWA

Spokane: Tue, Dec.13 & Wed, Dec.14, 2022 (8am–5pm each day)

Location: WSDOT Eastern Region HQ – Spokane Cty.E/W Conference Room

2714 N. Mayfair Street, Spokane WA 99207 (ph.509-324-6000)

Instructors: Chung Tran and James Colyer, FHWA

REGISTER: <https://fmdata.wsdot.wa.gov/LTAPtraining/registration.php>

For questions or registration assistance, please send email to: LTAPTraining@wsdot.wa.gov

More details and class agenda on the following pages.

Federal Highway Administration (FHWA) Data-Driven Analytics Workshop

The Promise of Data-Driven Analytics. Improvements in commercial analytic software, advanced computational platforms, and an increasingly data-rich environment enables the modern analyst to model large and dynamic surface transportation systems. Together, modern tools and data can powerful insights on patterns of system performance, root causes of poor performance, and the potential impact of mitigating actions and investments. Realizing this potential depends on overcoming two key challenges:

- **Challenge: Integrating the Isolated Analyst.** Gains made by the individual analyst have often outstripped the gains made by the organizations that manage transportation systems to capitalize on new analytic techniques. These analysts remain largely isolated from the mission of improving surface transportation system performance. Data and models developed for past projects are discarded, lost, or documented so poorly that they cannot be leveraged for future projects. There is a lack of advanced institutional models to systematically and consistently leverage the power of transportation analytics embedded within the broader transportation system management mission. In response, FHWA has developed guidance¹ on how modern analytic resources (data, tools, and computational platforms) can be systematically embedded within the transportation system management process.
- **Challenge: Replacing Outdated Technical Practices.** Traffic microsimulation is a commonly applied tool for the assessment of highway and street systems, transit, and pedestrians. Microsimulation can provide a wealth of information. However, applications of these tools are often hampered by outdated practices developed in the relatively data-poor past dependent on the analysis of averages or the assumption that unrealistic “normal” conditions always prevail. FHWA has recently updated guidance on the appropriate application of microsimulation models, with a focus on conducting data-driven, statistically-valid alternatives analysis. The 2018 Update² of the original 2004 guide includes significantly enhanced technical guidance on data collection and analysis, model calibration, and alternatives analysis.

Workshop. FHWA workshop based on materials from the two guides with a target audience of state/local decision makers, transportation engineers, data analysts, and simulation practitioners. The objective of day one morning session will be to describe how analytic resources (data, tools, and computational platforms) can be cost-effectively integrated within the transportation system management process. The objective of the remainder of time, focused on the second guide²:

- Identifying data-driven travel conditions using cluster analysis,
- Applying an improved calibration process that replaces subjective calibration criteria with criteria that are both statistically valid and derived from observed data, and
- Applying improved alternatives analysis utilizing travel conditions analysis to provide more accurate results, resulting in more informed decision-making using microsimulation analysis.

Target Audience. The target audience of the workshop is an advanced user (i.e., traffic engineers, analysts, and modelers) of microsimulation tools. The workshop is designed for up to 30 participants.

¹ *Scoping and Conducting Data-Driven 21st Century Transportation System Analyses* (November 2016), <https://ops.fhwa.dot.gov/publications/fhwahop16072/>

² *Traffic Analysis Toolbox Volume III Update: Guidelines for Applying Traffic Microsimulation Modeling Software* (February 2018), to be available online.

Proposed Workshop Agenda:

Day 1 Agenda: Integrating Data-Driven Analytics in Transportation System Management

Time	Lesson Title
8:30 AM–8:45 AM	Welcome by Local Agency Host, Self-Introductions, and Logistics
8:45 AM–9:45 AM	Background and Objectives
9:45 AM–10:45 AM	Interactive Discussion of Approach and Applicability to the Participating Agencies and Individuals
10:45 AM–11:00 AM	Break
11:00 AM – 12:00 PM	Module 1. Characterizing System Dynamics and Diagnosing Problems
12:00 PM–1:00 PM	Lunch
1:00 PM–1:45 PM	Module 2. Data-Driven Transportation Analysis Project Scoping
1:45 PM–2:45 PM	Interactive Exercise Using the Scoping Tool
2:45PM–3:00 PM	Break
3:00 PM–3:30 PM	Module 3. Preparing Data to Conduct a Transportation Analysis
3:30 PM–4:00 PM	Module 4. Conducting and Documenting Transportation Analyses
4:00 PM–4:30 PM	Discussion of Key Takeaways

Day 2 Agenda: Applying Data-Driven Microsimulation Methods

Time	Lesson Title
8:30 AM–8:50 AM	Module 1: Introductions and Course Overview
8:50 AM–9:35 AM	Module 2: Overview of Guidelines for Applying Microsimulation
9:35 AM–9:45 AM	Break
9:45 AM–12:00 PM	Module 3: Identifying Travel Conditions Using Cluster Analysis
12:00 PM –1:00 PM	Lunch
1:00 PM –3:15 PM	Module 4: Calibration
3:15 PM–3:30 PM	Break
3:30 PM–4:30 PM	Module 5: Alternatives Analysis
4:30 PM–5:00 PM	Module 6: Workshop Wrap-Up and Assessment

Suggested Background for Microsimulation Participants. Will focus on the main updates to the TAT Volume III, including identification of data-driven travel conditions using cluster analysis, improved calibration criteria computation, and alternative analysis using statistical methods and travel conditions analysis. The workshop will make use of a series of hands-on activities that necessitates the following basic knowledge/experience:

- Knowledge of concepts detailed in TAT Volume III Guide
- Significant experience in the application of microsimulation tools in complex analyses
- Adept at performing simple mathematical computations using MS Excel
- Understanding of the fundamentals of statistical analysis