Multimodal Transportation Operations: Evaluation Methods & Performance Measures (TE-43)

Course Outline

MODULE ONE (2 hours)

- Introductions & Course Overview
- Your project's evaluation needs, data, performance measures, and results
- Categorizing evaluation methods and performance measures
- Mainstream Transportation Performance Measures
- Scope & Scale (and purpose) of Evaluation Techniques
    - Time (peak hour, peak period, average weekday, annual, long-term trends)
    - Location (intersection/roadway segment, corridor, sub-area, system-wide measures)
    - What decision process are the analysis results being used for?

MODULE TWO & THREE (Two 2-hour sessions)

- Traffic flow fundamentals for Intersections and Street Segments (Interrupted Flow)
- Multimodal Analysis of Signalized Intersections
- Multimodal Analysis of Unsignalized Intersections
- Multimodal Analysis of Roundabouts
- Street Segment and Facility Analysis
- Additional Pedestrian and Bicycle Performance Measures

MODULE FOUR (2 hours)

- Multimodal Analysis of Freeways
- Traffic flow fundamentals for freeways & access controlled arterials (Uninterrupted Flow)
    - Analytic Procedures: HCM version 7 Basic, Merge, Diverge, Weave
- Empirical Procedures: Direct Measurement for Before-After Studies
- Transit Data (AVL & APC data for reporting transit performance measures)
- Data Management, Summarizing the Data, Data Visualization & "Telling the Story"

MODULE FIVE (2 hours)

- Data Sources & model/analysis parameters: inputs to the analysis process
    - Caltrans PeMS (Agency provided ATMS data)
    - INRIX & HERE data (big data, probe vehicles)
    - Locally collected data & data collecting technologies: Bluetooth, probe vehicles, video vs tube, etc.

- How reliable are the analytic methods – How much can we trust the numbers?
- How reliable are the data & empirical analysis – How much can we trust the numbers?
- Combining empirical & analytic procedures for better results
- With all these analysis techniques & data sources – how to choose best data & methods for your particular project needs!

MODULE SIX (2 hours)

- Analytical and Simulation Software Tools – Tool types, criteria for selection, and performance measures (with examples)
- With all these analysis techniques & data sources – how to choose best data & methods for your particular project needs!
- Closing remarks & course summary