Data-Driven Safety Analysis

FREE WORKSHOP

Safety Analysis of Freeway Segments and Interchanges

Two Day Workshop Agenda

Part 1: Introduction
» Overview of new HSM Chapters 18 & 19

Part 2: ISATe
» Using ISATe to analyze freeway/interchange safety

Part 3: IHSDM
» Using IHSDM to analyze freeway/interchange safety

The 2014 Supplement to AASHTO's Highway Safety Manual (HSM) introduced new material for the first time since the First Edition was published in 2010. Before 2014, it was impossible to analyze freeways or interchanges using HSM methodologies. But no longer!

FHWA is offering a free two-day workshop exploring how geometric design, traffic control, and other factors affect roadway safety. Participants will learn crash prediction methodologies for freeway segments and interchanges that were published in the HSM, First Edition Supplement (Chapters 18 and 19).

Attendees will also gain experience using two free tools that automate the application of HSM methodologies:

- Enhanced Interchange Safety Analysis Tool (ISATe)
- Interactive Highway Safety Design Model (IHSDM)

These two tools help users predict the safety effects of varying freeway segment and interchange designs.

Workshop Learning Outcomes

- Describe how freeway and interchange safety analysis can support decision-making for project design choices.
- Optimize investments by applying the most current analytical methods to quantify safety.
- List examples of how the HSM chapters on freeway segments and interchanges could be applied during project decision-making.
- Use ISATe and IHSDM to apply the HSM predictive methodology to assess safety on freeway segments and interchanges.

Workshop Time and Location

You Choose!

For more information or to schedule a workshop in your State, please contact:

Gene Amparano
FHWA Resource Center
816-329-3909
gene.amparano@dot.gov

U.S. Department of Transportation
Federal Highway Administration

FHWA-SA-16-025

Learn the ISATe and IHSDM Safety Analysis Tools

The workshop will focus on learning to use the HSM's two free companion tools to analyze design alternatives and interpret results for freeway segments and interchanges. These tools automate the process of applying crash prediction models from the HSM in Chapters 18 and 19.

The **ISATe** is a free, macro-enabled Excel workbook primarily used for small freeway segments. Users manually enter data for each individual segment, interchange, and cross street. CMF values and intermediate calculations are visible within the Excel interface sousers can follow the calculations.

The **IHSDM** (*www.ihsdm*.org) is a free, standalone software suite that implements all HSM Part C predictive methods. It can be applied to both freeway and non-freeway network components (e.g., cross-roads, connectors, local roads, and intersections) and is appropriate for both complex and simple analysis projects.
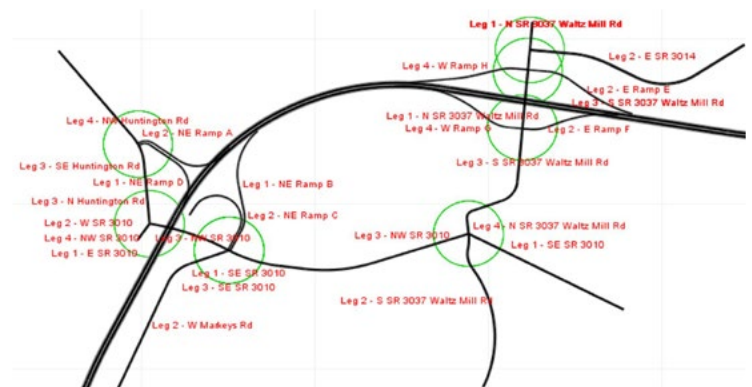
Additional features include:

• Two options for data input and analysis:

  o **Station-Based:** automatically segments the highway into homogeneous segments as per HSM Part C.

  o **Site-Based:** functions similar to a spreadsheet tool and is especially useful for projects where detailed, station-based geometry is not available.

• The ability to import LandXML files (i.e., project alignment data) from highway design software.

• A **Highway Viewer** providing graphical representations (e.g., plan view) of the design.

• A **Calibration Utility** to help agencies implement HSM calibration procedures.

• Extensive documentation, including a tutorial with step-by-step exercises.

Workshop participants will apply each tool to a real-world alternatives analysis case study. The exercise will compare analysis results for two alternative designs.
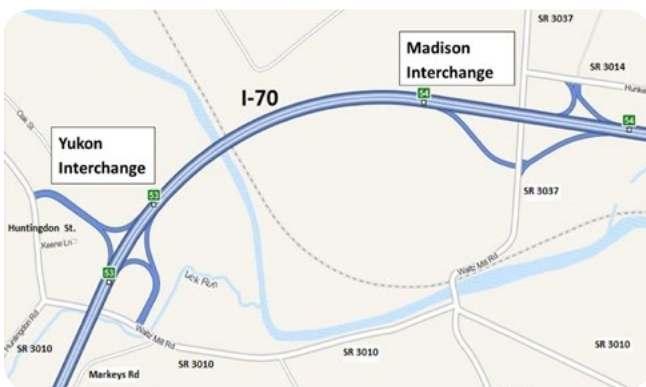
Existing Design for a Section of I-70 in Western Pennsylvania
Source: MapQuest

Alternative Design for I-70 as represented in the IHSDM Highway Viewer
Source: IHSDM Highway Viewer

More Informed Decision Making → Better Targeted Investments → **Fewer Fatalities & Serious Injuries**