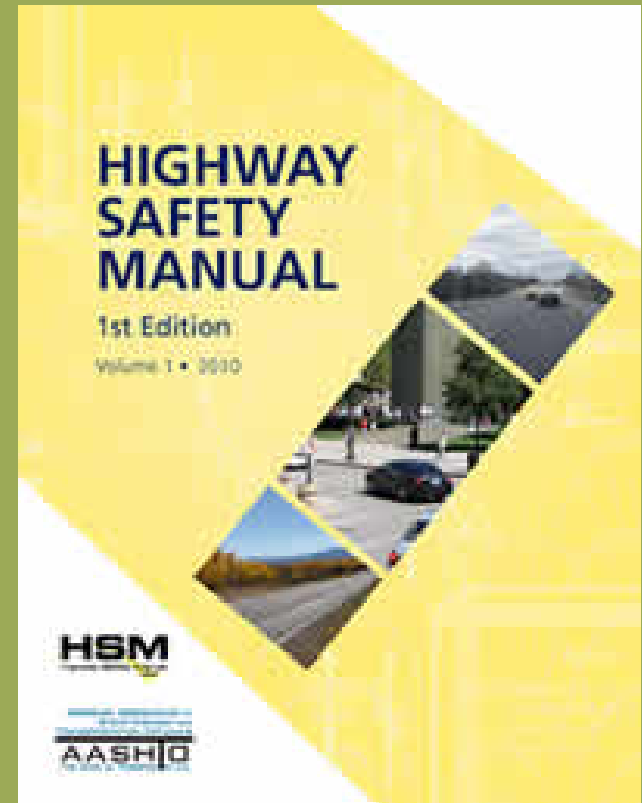# Using Roadway Safety Data

Available Tools
Highway Safety Manual (HSM)

- Estimate crash frequency and severity of sites with or without crash history.

- Estimate effect of a safety treatment by using performance functions for a roadway type.

http://www.highwaysafetymanual.org/Pages/default.aspx

Crash Modification Factor Clearinghouse

- Provides a more comprehensive listing of safety treatments that is continually updated.

- Each Treatment is rated based upon study design, sample size, standard error, potential biases, and data source.

http://www.cmfclearinghouse.org/

Interactive Highway Safety Design Model
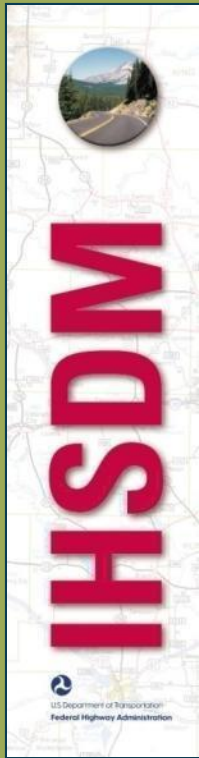
Expected Safety and Operational Performance software tools for the evaluation of geometric design decisions on highways.

http://www.fhwa.dot.gov/research/tfhrc/projects/safety/comprehensive/ihsdm/index.cfm

Unsignalized Intersection Improvement Guide (UIIG)

For Unsignalized intersections.

Provides safety treatments with discussion of prevention by crash types.

http://www.ite.org/uiig/

Systemic Safety Project Selection Tool

- A step-by-step process for conducting systemic safety planning.

- Can help determine a reasonable distribution between the implementation of spot safety and systemic safety improvements.

- Mechanism to quantify safety benefits of safety improvements implemented through a systemic approach.

http://safety.fhwa.dot.gov/systemic/fhwasa13019/

Why Should we use Systemic Safety ?

- Traditional Safety Approach of Hot Spots for high crash locations.

- Crashes are distributed throughout the state and local systems and very few locations on rural and local road networks experience high crash rates.

- The Moving Ahead for Progress in the 21st Century Act (MAP-21), places significant emphasis on Systemic Safety.

What is the Systemic approach to safety ?

- It is based upon high-risk roadway features with specific severe crash types and includes widely implemented treatments rather than spot improvements.

- Considers risk in addition to crash history.

- Allows for low-cost safety improvements.

Systemic Safety Project Selection Tool Planning Process

Systemic Safety Project Selection Tool Planning Process

Identify Focus Crash Types and Risk Factors

Screen and Prioritize Candidate Locations

Select Countermeasures

Prioritize Projects

Systemic Safety Project Selection Tool Data Needs

Recommended Minimum Data

- ❑ System type (e.g., state, local)

- ❑ Crash type (e.g., road departure, right angle, head-on, rear end, turning)

- ❑ Facility type (e.g., freeway, expressway, arterial, collector or local)

- ❑ Crash location type (e.g., urban vs. rural, intersection vs. segment, tangent vs. curve)

- ❑ Location characteristics (e.g., topography, intersection elements, segment elements)
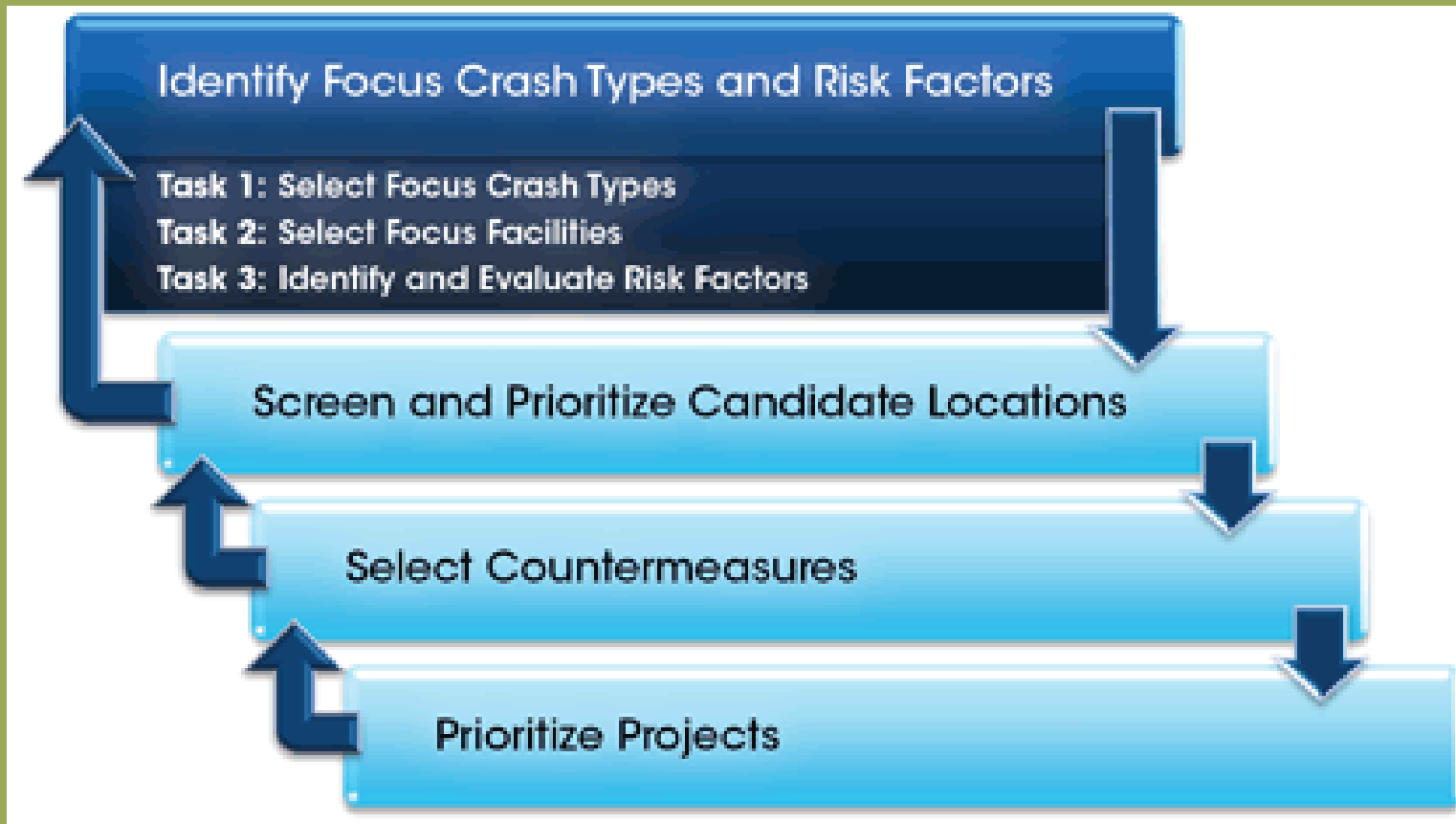
Systemic Safety Project Selection Tool Data Needs

Additional Data for Identifying Risk Factors

❑ Traffic volumes for segments and intersections

❑ Roadway features (e.g., number of lanes, shoulder type and width, road edge features and quality, number and type of access, radius and super-elevation of horizontal curves, density of horizontal curves, speed limit, speed differential between curves and tangents, medians, pavement condition and friction)

❑ Intersection features (e.g., number of approaches, skew, proximity to horizontal and vertical curves, number of approach lanes, signal timing, proximity to railroad crossing, traffic control devices, presence of street lighting, presence of commercial development.

Systemic Safety Project Selection Tool Planning Process

Systemic Safety Project Selection Tool
SHSP Emphasis Areas

http://www.t2center.uconn.edu/shsp.php

Systemic Safety Project Selection Tool
Crash Types

Use The Crash Data Repository

Examples Include:

- Roadway Departures
- Intersections
- Pedestrians / Cyclists

Systemic Safety Project Selection Tool
Focus Facility Type

❑ Ownership State or Local

❑ Segment (Type of road) and Intersection

❑ Segment and Intersection Control Type

❑ Curve of Tangent Sections

❑ Speed Limit

Systemic Safety Project Selection Tool

Risk Factors

❑ Road Configuration and Geometry

❑ Roadway Elements and Features

❑ Traffic Volumes and Composition

❑ Speed Limits

❑ Land use

Systemic Safety Project Selection Tool
Screening and Prioritizing

Systemic Safety Project Selection Tool Screening and Prioritizing

- ❑ Evaluate Data

- ❑ Conduct Risk Assessment on chosen facilities by using a Systemic Approach

- ❑ Prioritize by evaluating relative risk by looking at crash percentage and risk probability

Systemic Safety Project Selection Tool
Selecting Countermeasures

Identify Focus Crash Types and Risk Factors

Screen and Prioritize Candidate Locations

Select Countermeasures

Task 1: Assemble Comprehensive List of Countermeasures
Task 2: Evaluate/Screen Countermeasures
Task 3: Select Countermeasures for Deployment

Prioritize Projects

ConneCT to Safety
EVERY LIFE COUNTS

Systemic Safety Project Selection Tool
Proven Safety Countermeasures

[Roundabouts](#)

[Corridor Access Management](#)

[Backplates with Retroreflective Borders](#)

[Longitudinal Rumble Strips and Stripes on Two-Lane Roads](#)

[Enhanced Delineation and Friction for Horizontal Curves](#)

[Safety Edge$_{SM}$](#)

[Medians and Pedestrian Crossing Islands in Urban and Suburban Areas](#)

[Pedestrian Hybrid Beacon](#)

[Road Diet](#)

ConneCT to Safety
EVERY LIFE COUNTS

Systemic Safety Project Selection Tool
Proven Safety Countermeasures

http://safety.fhwa.dot.gov/provencounterme asures/

Systemic Safety Project Selection Tool Planning Process

Identify Focus Crash Types and Risk Factors

Screen and Prioritize Candidate Locations

Select Countermeasures

Prioritize Projects

Task 1: Create Decision Process for Countermeasure Selection
Task 2: Develop Safety Projects
Task 3: Prioritize Safety Project Implementation

ConneCT to Safety
EVERY LIFE COUNTS

Systemic Safety Project Selection Tool Planning Process

Systemic Safety Project Selection Tool
Planning Process

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