

Traffic Safety Workshop: *Performance-Based Crash Analysis*

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The National Challenge:

The long standing FHWA National Strategic Objectives are “to reduce the rate and number of highway-related fatalities and injuries.” In 2003, the objectives are the same; however for the first time, they are now expressed in *performance-based goals*, national fatality crash rate targets of 1.0 fatalities per 100 million vehicle miles traveled (*M VMT*) by 2008.

The challenge to improve safety is repeated in the 2003 SAFETEA transportation bill before Congress. States could be required to implement a *four-step performance-based safety analysis process*.

1. Establish strategic and *performance-based goals* (e.g., crash rate targets),
2. Improve traffic and crash data collection,
3. Improve crash data analysis, and
4. Employ a collaborative planning and evaluation effort of the State, MPO's and the public.

Workshop Focus: The workshop is aimed at highway safety engineers, planners, law enforcers and policy makers. The challenge is clear. Professionals must use *performance-based* measures; more rigorous crash data analyses and communicate their results to the public in a meaningful and understandable way. The state of the art of traffic safety analysis is emerging from theory into practice.

The workshop focuses on hazardous highway identification. A participant will:

1. Receive a better appreciation of the traffic safety problem in the U.S.
2. Learn the basic principals of *performance-based crash analysis*.
3. Be energized to do a better job at work.

Textbook: Each participant will receive Chapter 3, “Identification of ‘Hazardous Locations’” from *Planning Safety in 2004 and Beyond*, Paul J. Ossenbruggen, 2004 and copy of workshop slides. The document contains a detailed, step-by-step description of *performance-based crash analysis*. The chapter includes an explanation of the need for a national safety standard, and various “hazardous” roadway identification analysis techniques are introduced and critiqued.

The workshop is aimed at the practitioner. With the exception of forming a ratio for calculating relative risk, no mathematical equations are used in the workshop. For those interested in the theory and development of *performance-based crash analysis*, mathematical details with fourteen illustrative examples are given in the textbook.

Agenda & Workshop Structure

There will be six 50-minute sessions with 10-minute breaks in-between along with a 1-hour lunch break (Lunch on your own).

Session 1. 8:30 – 9:20 AM

The Challenge or “Is traffic safety a major public health issue?”

- a. Technical and political issues.
 - b. Cost to the nation.
- Exercise 1. Roadway safety standards.

Session 2. 9:30 – 10:20 AM

Strategic Planning or “How do we make sense out of all the crash data and expert opinions?”

- c. Risk assessment.
 - d. The Haddon matrix
 - e. Changing the social norm.
- Exercise 2. Conventional wisdom.

Session 3. 10:30 – 11:20 AM

Relative Risk or “How do we communicate with the public?”

- f. Statistical summaries: Counts, Percents and Rates.
 - g. Probability and relative risk, measures of rare random crash events.
- Exercise 3. Risk communication.

Lunch 11:20 – 12:30

Session 4. 12:30 – 1:20 PM

“Hazardous” Roadway Identification Principles or “How do we know a roadway is safe or hazardous?”

- h. FHWA Targets -> Roadway safety standards
 - i. Analysis Strategies:
 - i. Jurisdictional models.
 - ii. Corridor models.
 - iii. Local roadway models.
- Exercise 4. Acceptable risk.

Session 5. 1:30 – 2:20 PM

Rare, Random Crash Events or “How can we better analyze crash data for decision-making?”

- j. Understanding and dealing with uncertainty.
 - k. The benefits of crash data aggregation.
 - l. A synergistic modeling approach.
- Exercise 5. The probability of violating a roadway safety standard.

Session 6. 2:30 – 3:30 PM

A Real-World Problem or “NH 11 Corridor Traffic Safety Study”

- m. Problem Description
 - n. Case Study Results
- Discussion and Wrap up