Crash Data Analysis

An Example of Uses and Limits
Purpose

- Support Illinois Strategic Highway Safety Program Goal, “Zero Fatalities”
- Support HSIP Goal, “achieving a significant reduction in traffic fatalities and serious injuries on all public roads.”
Screening

- Method
  - Safety Performance Functions/Potential for Safety Improvement values
  - Weighted to Support Stated Goals
  - Data Were From 2002-2006, Most Recent for Analysis
Screening

- **Weighting**
  - Fatal Crash = 25
  - Incapacitating (A-Injury) Crash = 10
  - Moderate (B-Injury) Crash = 1
## Rural Two-Lane Segments (State Highways)
(~5% of Inventory Length)

<table>
<thead>
<tr>
<th>Description</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight (K:A:B)</td>
<td>11 : 11 : 1</td>
</tr>
<tr>
<td></td>
<td>12 : 8 : 1</td>
</tr>
<tr>
<td></td>
<td>5 : 2.5 : 1</td>
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<tr>
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<td>25 : 10 : 1</td>
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<tr>
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<td>25 : 5 : 1</td>
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<tr>
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<td>50 : 2.7 : 1</td>
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</tbody>
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| Total Fatal Crashes         | 233             |
| Total A-Injury Crashes      | 1703            |
| Total B-Injury Crashes      | 1675            |
Screening
Old US 51 North of Anna to Cobden
Crashes include 7 A-Injury, 8 B-Injury
No Fatal Crashes
12 of 15 crashes of interest are Roadway Departure
Data Review for Site

- Data are from 2004-2008
- Different from Screening (2002-2006)
- Most Recent
- Represents Existing Conditions
Old US 51 Total Weighted Loss by Crash Type

- **Fixed Object**: 54 (51%)
- **Overturned**: 28 (26%)
- **Animal**: 10 (10%)
- **Head On**: 10 (9%)
- **Other Non-Collision**: 1 (1%)
- **Other Object**: 0 (0%)
- **Side-Impact Opposite Direction**: 2 (2%)
- **Side-Impact Same Direction**: 0 (0%)
- **Rear End**: 1 (1%)
- **Turning**: 0 (0%)
- **Parked Motor Vehicle**: 0 (0%)
Old US 51 Weighted Losses by Various Factors

Data

- Alch Losses
- Dark Losses
- Surf Losses
- A+D Loss
- A+S Loss
- D+S Loss
- Shld Loss
Old US 51 – Showing Crashes with Pavement NOT Dry

9 crashes, pavement not dry.
(Only three other crashes here.)
Old US 51 – Showing A and B Injury Crashes with Pavement NOT Dry

3 A or B crashes, during rain
...felt tires drop off the right side of the road. The car slid around to the left and turned over. (During rain.)

...traveled around curve and lost control on wet pavement.

...lost control of the vehicle because it hydroplaned.
...skidded on black ice.
...avoided hitting an animal in roadway. Roadway was wet from an earlier rain causing vehicle to start skidding.
...began skidding counter-clockwise on the icy roadway surface
…ran off the east side of road, overcorrected and skidded across the southbound lane… (during rain)

Expected Problems?
- Edge drop off?
- Narrow lanes (known from road data)
- Limited surface friction?
- Pavement rutting?
Problem Identification

Narrow Lanes
Water flows along edge of road
Water crosses surface of road
Water on pavement markings would obscure them.
Countermeasures

Provide shoulders to move drainage away from road edge, and manage edge drop off.

Improve drainage outlet from right side to keep water from crossing road.

Slight profile raise would provide new surface and minimize cut to widen shoulders.

(Other curve-related countermeasures were proposed for the overall segment.)

Subject to drainage and B/C study.
Summary

- Data drives identification of sites with potential for safety improvement.
- Data may show emphasis area (roadway departure)
- Data shows contributing factors (roadway surface condition)
- Data and Crash Reports generate hypothesis
- Field review confirms/reveals problems and suggests countermeasures.
Questions and Comments?

David Piper
  › Safety Design Engineer
  › IDOT Division of Highways
  › 217-785-0720
  › dave.piper@illinois.gov