EVALUATING CRASH DATA SYSTEMS IN THE WESTERN US

Presented by
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ABOUT US

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Traffic Safety Data

Used to evaluate key areas for safety improvements by government agencies, engineers, policymakers, and the general public.
COMMON DIFFERENCES

Access
Methods of accessing data

Formatting
Ways in which data is presented

Definitions
Data breakdown, categorizations
To promote a more complete and reliable crash database for identifying and correcting deficiencies on unsafe roadways toward a vision of zero deaths.
ANALYSIS AREA

Four main jurisdictions

50 million citizens residing along the coast

Nearly 1 million square miles of land

Data from two different jurisdictions with conflicting definitions or inconsistent attributes cannot be properly compared
CRASH DATA DEFINED

frequency - rate - type - severity

Per FHWA’s Highway Safety Improvement Manual
Model Minimum Uniform Crash Criteria (MMUCC)

Prepared by the National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration (FHWA)
MMUCC ATTRIBUTES

Identifiers
Date, time, location

Severity
Injuries and fatalities

Conditions
Weather, light, roadway surface

Other Contributors
Alcohol/drug involvement, school bus-/work zone-related

Numbers
Vehicles, motorists, non-motorists involved

And More
27 unique attributes
<table>
<thead>
<tr>
<th>Department</th>
<th>#/27</th>
<th>Missing Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alaska DOT&amp;PF</td>
<td>27</td>
<td>N/A</td>
</tr>
<tr>
<td>ODOT</td>
<td>26</td>
<td># of vehicles</td>
</tr>
<tr>
<td>CHP</td>
<td>23</td>
<td>drug involvement ● source of information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>type of intersection ● work zone-related</td>
</tr>
<tr>
<td>WSDOT</td>
<td>17</td>
<td># of non-motorists ● alcohol &amp; drug involvement</td>
</tr>
<tr>
<td></td>
<td></td>
<td>day of the week ● manner of crash/collision impact</td>
</tr>
<tr>
<td></td>
<td></td>
<td>roadway environment ● school bus- &amp; work zone-related</td>
</tr>
<tr>
<td></td>
<td></td>
<td>source of information ● type of intersection</td>
</tr>
</tbody>
</table>
New Level of Victim Degree of Injury

CHP has added three additional classifications of injury status based on the Model Minimum Uniform Crash Criteria (MMUCC) 5th Edition released in 2017. The MMUCC is a standardized method for reporting traffic collisions and the vehicles, persons, and environment involved.

<table>
<thead>
<tr>
<th>New Victim Degree of Injury</th>
<th>Old Definition of Victim Degree of Injury</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 - Suspected Serious Injury</td>
<td>2 - Severe Injury</td>
</tr>
<tr>
<td>6 - Suspected Minor Injury</td>
<td>3 - Other Visible Injury</td>
</tr>
<tr>
<td>7 - Possible Injury</td>
<td>4 - Complaint of Pain</td>
</tr>
</tbody>
</table>

For the purpose of analysis across multiple years with old definition (2, 3, and 4), we combined injury status categories using the latest definitions (5, 6 and 7); i.e., all victims coded as "Severe Injury" or "Suspected Serious Injury" are shown as "Suspected Serious Injury" in our tools.
User Experience

Features that add to data quality attributes
USER EXPERIENCE FEATURES

Availability
Public/private use, secure vs accessible

Format
comma-separated values (.csv)

Compatibility
Location data and visual mapping

Coordinate System
Latitude/longitude vs plane coordinates
STATE VS LOCAL SYSTEMS

Features

1. Publicly available ● ● ● ● ●
2. Tabular format ● ● ● ● ●
3. Data Decoded* ● ● ● ● ●
4. GIS Compatible** ● ● ● ● ●
5. GIS Web App ● ● ● ● ●
6. Common GCS ● ● ● ● ●

*Data attributes are fully described and do not require a code/key to identify
**Available in shapefile/GIS-ready tabular format
STATE VS LOCAL SYSTEMS

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## WSDOT CRASH DATA

**OFFICER REPORTED CRASHES THAT OCCURRED ON THE FOLLOWING STATE ROUTE (SR) SEGMENT**

SR 5 (MP 188.09 - 201.21) FROM SR 526 INTERCHANGE TO 88th ST INTERCHANGE

**01/01/2013 - available 2018**

Under 23 U.S. Code § 409 and 23 U.S. Code § 148, safety data, reports, surveys, schedules, lists compiled or collected for the purpose of planning the safety enhancement of potential crash sites, hazardous roadway conditions, or railway-highway crossings are not subject to evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence addressed in such reports, surveys, schedules, lists, or data.

<table>
<thead>
<tr>
<th>JURISDICTION</th>
<th>COUNTY</th>
<th>CITY</th>
<th>TRAFFICWAY</th>
<th>MILEPOST</th>
<th>A/B</th>
<th>SR ONLY HISTORY</th>
<th>REPORT NUMBER</th>
<th>DATE</th>
<th>TIME</th>
<th>SEVERITY LEVEL</th>
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<tbody>
<tr>
<td>State Route</td>
<td>Snohomish</td>
<td>Everett</td>
<td>005</td>
<td>188.09</td>
<td>No</td>
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<td>E319909</td>
<td>04/09/2014</td>
<td>17:00</td>
<td>PD</td>
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<td>Snohomish</td>
<td>Everett</td>
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<td>188.09</td>
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<td>C</td>
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<td></td>
<td>E478117</td>
<td>10/03/2015</td>
<td>09:25</td>
<td>PD</td>
</tr>
</tbody>
</table>
# WSDOT Crash Data

## Format
Excel file only
State plane coordinates

## Features
No decoding required

## Issues
Requires significant analysis to comprehend, summarize, or visualize

<table>
<thead>
<tr>
<th>JURISDICTION</th>
<th>COUNTY</th>
<th>CITY</th>
<th>PRIMARY TRAFFICWAY</th>
<th>MILEPOST</th>
<th>A/B</th>
<th>SR ONLY HISTORY / SUSPENSE IND</th>
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<td></td>
<td>10/03/2015</td>
<td>09:25</td>
<td>PD</td>
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</table>
# ODOT Crash Data

## Format
Excel, text, or database file
Latitude/Longitude

## Features
Online public data portal

## Issues
Requires decoding of variables

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<td>Online public data request portal</td>
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<td>8504029&quot;,2018,20180802,0101,20180101,0024,&quot;18&quot;,&quot;310&quot;,&quot;1&quot;,&quot;5&quot;,&quot;5&quot;,&quot;0101&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,&quot;0&quot;,</td>
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UI EXAMPLE - SFMTA’S TRANSBASE

Query
By street, neighborhood, intersection, or user-defined boundaries

Filter
By date, time, severity, type, and others

Data
Available in PDF, CSV, and shapefile (GIS) formats
However
The dataset only matches 17/25 relevant MMUCC attributes

Missing attributes include number of non-motorists involved, school and work-zone relations drug and alcohol involvement, and roadway environment
UI EXAMPLE - SDOT

Available on SDOT ArcGIS Online Portal

Query
By attributes

Filter
N/A

Data
Available in Excel, KML (Google Earth) and shapefile (GIS) formats
CONCLUSIONS & RECOMMENDATIONS

All systems lacked either standardized attributes or a user-friendly interface

Need for a quality system for viewing, sorting, and analyzing data to promote the efficient use of safety data
THANKS

Questions?

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