Safety Smackdown – Data as the Hammer

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OTREC Summit, September 11, 2009
Portland State University
Outline

- Safety Data
  - Strengths, Gaps, Challenges
- Building a Safety Data Archive
  - Examples
We’ve been at it a long time

- National Conference on Street and Highway Safety, 1924
  - safety data “are so vital to any comprehensive understanding and treatment of the safety problem that their collection and analysis in every State and community are essential” (Griffith, 2003).
Crash

- Driver Files
- Enforcement
- Highway Geometry
- Court Records
- Exposure Data
- Emergency Medical Services
Data Hungry Tools and Research
Strengths

- Openness
- Continued improvement
- Tools and software continually improving
Gaps

- Not integrated (limited linkages)
- Not collected
Challenges

- Citizen reporting
- Location issues
- User familiarity
Location Issues

- **State Highway**
  - Highway and milepost

- **City**
  - Intersecting street numbers

- **County**
  - Either mileposted or intersecting street numbers
OrTSDA

Oregon Traffic Safety Data Archive

**MISSON STATEMENT**

The mission of the Oregon Traffic Safety Data Archive is to build the knowledge base of traffic safety data in Oregon. The archive hopes to become a valuable traffic safety data resource with researchers, practitioners, and community supporters.

**OREGON ONLINE CRASH DATA**

Coming soon! The OrTSDA has partnered with the Oregon Department of Transportation to provide access to the 2006 Oregon State crash data. This tool is a work in progress and provides the user with summary graphs and tables based on their parameters.

**2005 DATA**

- 488 fatalities
- 29,022 injuries
- 44,878 crashes
- 3,336 stations

**NEWS**

- New data added to the archive!

**RESEARCH 1**

Coming soon! We provide a number of useful data summaries compiled from various sources that track the performance of the Oregon transportation system.

**RESEARCH 2**

Coming soon! In the course of our research, we have assembled a number of common data sources that are useful for safety analyses. These data are provided for your use with helpful instructions. Also, some data sets processed for research are stored in their final format for others to use and validate our research.

[Portland State University ITS logo]

[OTREC logo]
Mission

- The mission of the Oregon Traffic Safety Data Archive is to build the knowledge base of traffic safety data in Oregon. The archive hopes to become a valuable traffic safety data resources with researchers, practitioners, and community supporters.
Goals of OrTSDA

- Make data accessible to those that don’t often use it
- Make things quicker for advanced users
- Provide tools for analysis
- Once we figure something out, let’s keep it!
Welcome to the Portland Transportation Archive Listing (PORTAL). The purpose of this project is to implement the U.S. National ITS Architecture’s Archived Data User Service for the Portland metropolitan region. This system is being developed at Portland State University by students and faculty in the Intelligent Transportation Systems Laboratory under the direction of Dr. Robert Berdini. We are working in close cooperation with the Oregon Department of Transportation, Metro, the City of Portland, TriMet and other regional partners. This work is supported by the National Science Foundation.*

We welcome your participation in our project. The current PORTAL system archives the Portland metropolitan region’s freeway loop detector data at its most detailed level and also archives area weather data. We plan to expand the capabilities of our system and to include multimodal data sources from both Oregon and Washington. We provide access to the system by password. To request access to the system click on the Request Account link to the left.

*The material is based upon work supported by the National Science Foundation under Grant No. IIS-0326947. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.
What’s in the PORTAL Database?

Loop Detector Data
20 s count, lane occupancy, speed from 500 detectors (1.2 mi spacing)

Incident Data
140,000 since 1999

Bus Data
1 year stop level data
140,000,000 rows

Weather Data
Every day since 2004

VMS Data
19 VMS since 1999

WIM Data
22 stations since 2005
30,026,606 trucks

Crash Data
All state-reported crashes since 1999 ~580,000

Days
Since July 2004
About 300 GB
4.2 Million
Detector Intervals

001497
Main Menu

- Dashboard
- Enforcement
- Intersections
- Segments
- Mapping
Dashboard

- Time series of key crash parameters
  - Severity
  - Behavior
    - Alcohol
    - Drugs
    - Seatbelts
  - Vehicle and crash type
- Option to compare to a “peer” group
Summary Crash Data

- Each page has filters for:
  - Time
  - Year or Month
  - Spatial
  - City or County
Mapping

- 2007 data has latitude-longitude
- Key to linking many data
- Can we go back and repopulate past years?
  - Maybe…
Fixed objects – no state highways
Intersections / Segments

- Map driven queries
- Summary performance data for comparison
  - By facility type
  - By geometry
- Some trend identification plots
  - Examples for data mining
Crash Patterns

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Collision Type by Functional Class
Fatal and Injury A Crashes

State Highways Only, 2003-2007
Research Archive

- Statewide Intersection Safety
- High-speed Intersection Safety
- Illumination
Questions

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