ODOT Transportation Safety Programs
“It All Starts With Crash Data”

Robin Ness, Mgr. Crash Analysis & Reporting Unit
Oregon Department of Transportation (ODOT)
17th Annual Northwest Tribal Symposium
Red Lion Hotel, Jantzen Beach – Portland
April 21, 2010
ORS 811.720: When MV traffic accidents in Oregon must be reported… (summarized)

- There is more than $1,500 damage to a vehicle;
- There is more than $1,500 damage to property other than a vehicle;
- Someone is injured (no matter how minor the injury); someone is killed; or
- Any vehicle is towed due to damage resulting from the accident.
### Percent Statewide Crashes Reported By...

<table>
<thead>
<tr>
<th>YEAR</th>
<th>STATE POLICE</th>
<th>COUNTY POLICE</th>
<th>CITY POLICE</th>
<th>TRIBAL POLICE</th>
<th>OTHER POLICE</th>
<th>UNKNOWN REPORT</th>
<th>ON SCENE</th>
<th>NO RUN</th>
<th>INVOLVEMENT</th>
<th>CRASHES TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>3,115</td>
<td>4,683</td>
<td>12,471</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>10,076</td>
<td>19,931</td>
<td>50,284</td>
<td></td>
</tr>
<tr>
<td>1986</td>
<td>3,151</td>
<td>5,032</td>
<td>13,381</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>10,025</td>
<td>20,239</td>
<td>52,061</td>
<td></td>
</tr>
<tr>
<td>1987</td>
<td>3,006</td>
<td>3,265</td>
<td>13,311</td>
<td>1</td>
<td>0</td>
<td>7</td>
<td>11,654</td>
<td>20,734</td>
<td>53,743</td>
<td></td>
</tr>
<tr>
<td>1988</td>
<td>3,206</td>
<td>2,656</td>
<td>13,193</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>12,077</td>
<td>21,899</td>
<td>50,119</td>
<td></td>
</tr>
<tr>
<td>1989</td>
<td>2,204</td>
<td>4,429</td>
<td>10,709</td>
<td>1</td>
<td>0</td>
<td>24</td>
<td>11,231</td>
<td>15,659</td>
<td>40,156</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>1,788</td>
<td>4,171</td>
<td>10,176</td>
<td>0</td>
<td>0</td>
<td>11</td>
<td>12,077</td>
<td>21,899</td>
<td>50,119</td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>1,610</td>
<td>3,892</td>
<td>9,729</td>
<td>15</td>
<td>25</td>
<td>16</td>
<td>13,286</td>
<td>23,082</td>
<td>64,614</td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td>1,349</td>
<td>1,943</td>
<td>8,796</td>
<td>6</td>
<td>17</td>
<td>10</td>
<td>12,274</td>
<td>21,716</td>
<td>57,386</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td>1,219</td>
<td>3,267</td>
<td>7,949</td>
<td>7</td>
<td>19</td>
<td>3</td>
<td>13,114</td>
<td>22,091</td>
<td>57,668</td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>1,160</td>
<td>2,979</td>
<td>7,558</td>
<td>12</td>
<td>7</td>
<td>22</td>
<td>13,314</td>
<td>24,246</td>
<td>57,498</td>
<td></td>
</tr>
<tr>
<td>1995</td>
<td>816</td>
<td>2,000</td>
<td>7,832</td>
<td>7</td>
<td>15</td>
<td>8</td>
<td>15,900</td>
<td>23,320</td>
<td>66,811</td>
<td></td>
</tr>
<tr>
<td>1996</td>
<td>639</td>
<td>3,344</td>
<td>6,526</td>
<td>11</td>
<td>20</td>
<td>9</td>
<td>17,766</td>
<td>22,942</td>
<td>52,251</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>820</td>
<td>4,428</td>
<td>6,866</td>
<td>11</td>
<td>20</td>
<td>7</td>
<td>17,360</td>
<td>22,078</td>
<td>50,556</td>
<td></td>
</tr>
<tr>
<td>1998</td>
<td>2,591</td>
<td>3,136</td>
<td>6,289</td>
<td>17</td>
<td>10</td>
<td>6</td>
<td>14,496</td>
<td>23,264</td>
<td>51,764</td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>3,543</td>
<td>3,050</td>
<td>8,086</td>
<td>13</td>
<td>15</td>
<td>7</td>
<td>11,859</td>
<td>21,377</td>
<td>48,570</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>3,786</td>
<td>3,023</td>
<td>8,956</td>
<td>13</td>
<td>36</td>
<td>6</td>
<td>11,377</td>
<td>15,710</td>
<td>46,841</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>4,206</td>
<td>3,127</td>
<td>9,406</td>
<td>13</td>
<td>36</td>
<td>6</td>
<td>11,377</td>
<td>15,710</td>
<td>46,841</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>3,907</td>
<td>3,066</td>
<td>6,720</td>
<td>10</td>
<td>34</td>
<td>12</td>
<td>10,384</td>
<td>23,180</td>
<td>48,382</td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>3,952</td>
<td>3,184</td>
<td>7,493</td>
<td>14</td>
<td>36</td>
<td>7</td>
<td>13,744</td>
<td>27,125</td>
<td>51,607</td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>4,159</td>
<td>3,123</td>
<td>8,334</td>
<td>11</td>
<td>10</td>
<td>3</td>
<td>6,455</td>
<td>19,327</td>
<td>41,440</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>5,078</td>
<td>3,401</td>
<td>8,811</td>
<td>11</td>
<td>5</td>
<td>8</td>
<td>7,822</td>
<td>20,375</td>
<td>48,981</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>6,691</td>
<td>3,344</td>
<td>9,339</td>
<td>9</td>
<td>24</td>
<td>10</td>
<td>8,733</td>
<td>19,070</td>
<td>45,219</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>4,758</td>
<td>3,345</td>
<td>9,252</td>
<td>12</td>
<td>6</td>
<td>10</td>
<td>8,553</td>
<td>18,083</td>
<td>44,342</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>4,696</td>
<td>3,392</td>
<td>8,956</td>
<td>9</td>
<td>14</td>
<td>5</td>
<td>8,496</td>
<td>16,225</td>
<td>41,816</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>3,348</td>
<td>3,014</td>
<td>6,725</td>
<td>7</td>
<td>23</td>
<td>6</td>
<td>5,593</td>
<td>12,425</td>
<td>31,151</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Legislative changes to DMV’s vehicle crash reporting requirements, effective 01/01/2004, may result in fewer property damage only crashes being eligible for inclusion in the Statewide Crash Data File.
Why Some Crashes are Not in the State File

- Do not meet Oregon’s reporting threshold.
- Involved license suspensions w/non-compliant drivers and were delayed in DMV’s process.
- Were ‘hit-n-run’ with a parked vehicle or property.
- Involved multiple driver’s who agreed not to report and no police are present to report.
- *Vehicle crash not attended by police, not reported by drivers.*
- Report doesn’t reach DMV due to serious injury litigation or ongoing criminal investigation. (This is rare but has occurred.)
- Do not involve a motor vehicle, i.e. bicycle only.
ODOT - Crash Analysis & Reporting Unit

Statewide Crash Data System

Fatality Analysis Reporting System (FARS)

Motor Carrier SafetyNet
**TRANSPORTATION DATA SECTION: CRASH ANALYSIS AND REPORTING UNIT**

**FLOW DIAGRAM: GENERAL WORKFLOW**

**Goal:** 4 weeks Turnaround Time To DMV

1. **Source**
   - Original Crash Data

2. **Coding**
   - Data to Local Storage

3. **QA**
   - Data Checking

4. **Distribution**
   - of Finalized Data

5. **Reporting**
   - Data Reports

---

**Information on MV traffic crashes is gathered continuously in both paper and digital forms. Sources include police reports, individual driver accident reports, road & highway inventory logs, and both internal and external maps.**

**Crash reports are reviewed and the information is coded into state & federal databases. Coding captures a wide variety of general data related to the crash incident, data specific to individuals involved as well as information specific to the vehicles involved.**

**Our goal is to complete coding and return the crash reports to the DMV within 4 weeks time.**

**Quality assurance (QA) is handled primarily by a computer program that validates coded data before it is uploaded to the crash data master file. In addition, analysts regularly run ad-hoc queries designed to expose inconsistencies in the data not identified by the automated validation program. Those errors are corrected before the year-end file is finalized.**

**Crash data is available throughout the year via pre-formatted summary reports, data extracts, MS Access databases, and maps. Production of annual publications, based on the final file, begins June 1st. Annual reports & crash rates are published to the web and in bound books; data extracts are used to develop the SIP-SPIS and TransGIS maps, and more.**

**Requests for crash data information comes in daily from a variety of sources. It can be specific or general in nature. Sources include individuals, news media, research groups, other government agencies, or the Oregon legislature. Our goal is to respond to requests with appropriate maps, diagrams, reports, summaries, or tables within two weeks of the initial request.**
TRANSPORTATION DATA SECTION: CRASH ANALYSIS AND REPORTING UNIT

FLOW DIAGRAM: ORIGINAL DATA THRU CODING

ORIGIONAL CRASH DATA SOURCES

- Police Crash Reports
- Driver's Crash Reports
- Maps Reference
- Fatal Crash Information
- ITIS Database

Combined Crash Reports from DMV w/ Key No.

Coding
- Crash Data
- Vehicle Data
- Participant Data

QA
- Built-in validations
- Monthly SQL search for common errors
- Corrections entered into data file

Goal: 4 weeks from Data Received to Returned
Statewide Crash Database

Relational SQL database, VB and Crystal Reports (119 data elements)

- **Crash level data** – (77) includes, time, location, causes, investigation, traffic control...
- **Vehicle level** – (17) includes vehicle type, directions of travel, vehicle movements, actions, errors, safety equip,
  emergency use...
- **Participant level** – (24) includes contributing events, actions, errors, causes, age, gender, drug & alcohol involvement, safety equip. use...
Location Data Coded

Code crashes on all traffic way jurisdictions
- State highways
- City streets
- County roads
- Forest service, BLM
- Tribal Lands

Crash location detail
- Intersectional, driveway, curve, hill, segments
- Name / number of road
- GPS/GIS coordinate
- Traffic control
- Number of lanes
- Location of impact
- Work zone, school zone
- Roundabout present
- More...
Participant Data Coded

(NO PERSONAL DATA)

Drivers (autos, motorcycles, bicycles)
- License status
- Age, gender
- Safety equipment use
- Alcohol or Drug use
- Errors
- More...

Other participants (passengers, pedestrians, pedestrian on conveyance)
- Age, gender
- Safety equipment use
- Actions
- Errors
- Location and activity (pedestrians)
- Alcohol or Drug use
- More...
Program Areas Supported

**Enforcement**
- Law Enforcement - crash location spot maps, trends
- DMV – driver records

**Engineering – city, county, MPO’s, state level**
- Planning, roadway design & improvements

**Safety**
- Transportation Safety Division – safety campaigns; legislative proposals
- Motor Carrier Division – planning, safety investigations, compliance
- MADD, National Safety Council, IIHS – behavior modification

**National level research, analysis & funding**
- USDOT / National Highway Traffic Safety Administration (NHTSA)
  - Vehicle and occupant safety standards;
  - Defects investigations;
  - Vehicle improvements

**Federal Highway Administration (FHWA)**
ODOT Links- Traffic Reporting/Safety Services

www.keiko36.odot.state.or.us
- Crash Data Reporting - (soon to include local roads)
- TransGIS – ODOT GIS Mapping interface
- TPOD – Transportation Planning On-line GIS Database
- Digital Video Log (current images of all the state highways in both directions)

- Traffic Counting Websites
- Traffic Volume Tables
- Traffic Flow Maps
- Vehicle Miles Traveled (VMT)

www.oregon.gov/ODOT/TS/
- Statewide Safety Programs
- Safety Action Plan
Reporting Services

**Crash Data** *(no charges)*
- Annual Publications (on-line)
- Crash Data Reporting Tool (on-line)
- Annual Data Extracts (Excel, Access)
- Custom Access Databases
- Ad-Hoc Reporting, Custom Reporting
- GIS Crash Data
- Collision Diagrams

**Traffic Counting Data**
- Annual Publications (on-line)
- Monthly Trends (on-line, mailings)
- Ad Hoc Reports

**Transportation Safety**
- 16 Safety Programs – support / reports
- Statewide Safety Plan
Products Examples

- GIS Mapping Interface (TransGIS)
- Annual Publications
- Crash Data Extracts / Access Databases
- Reports Formats
- Statewide Local Road Crash Spot Map
- Statewide Tribal Land (2002 -2008) Reported Crash Charts
- Crash Data Information Support
### On-line Summary

**2008 Total Crashes by Collision Type**

**OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION - CRASH ANALYSIS AND REPORTING UNIT**

**CRASH SUMMARIES BY YEAR BY COLLISION TYPE**

**ALL COUNTIES 01/01/2008 to 12/31/2008**

<table>
<thead>
<tr>
<th>COLLISION TYPE</th>
<th>TOTAL CRASHES</th>
<th>PEOPLE KILLED</th>
<th>PEOPLE INJURED</th>
<th>TRUCKS</th>
<th>DAY SURF</th>
<th>WET SURF</th>
<th>INTER-SECTION</th>
<th>INTER-SECTION RELATED OFF-ROAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANGLE</td>
<td>20</td>
<td>21</td>
<td>2,192</td>
<td>40</td>
<td>12</td>
<td>12</td>
<td>4,190</td>
<td>32</td>
</tr>
<tr>
<td>BACKING</td>
<td>1</td>
<td>1</td>
<td>1,277</td>
<td>802</td>
<td>1</td>
<td>170</td>
<td>617</td>
<td>177</td>
</tr>
<tr>
<td>FIXED / OTHER OBJECT</td>
<td>148</td>
<td>172</td>
<td>3,200</td>
<td>241</td>
<td>3,141</td>
<td>3,085</td>
<td>3,257</td>
<td>3,027</td>
</tr>
<tr>
<td>HEAD-ON</td>
<td>44</td>
<td>43</td>
<td>3,444</td>
<td>583</td>
<td>3</td>
<td>300</td>
<td>165</td>
<td>55</td>
</tr>
<tr>
<td>MISCELLANEOUS</td>
<td>3</td>
<td>3</td>
<td>385</td>
<td>3</td>
<td>300</td>
<td>750</td>
<td>155</td>
<td>61</td>
</tr>
<tr>
<td>NON-COLLISION</td>
<td>30</td>
<td>40</td>
<td>398</td>
<td>21</td>
<td>241</td>
<td>3,141</td>
<td>3,085</td>
<td>3,257</td>
</tr>
<tr>
<td>PARKING MOVEMENTS</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>PEDESTRIAN</td>
<td>48</td>
<td>43</td>
<td>3,404</td>
<td>573</td>
<td>50</td>
<td>655</td>
<td>7</td>
<td>413</td>
</tr>
<tr>
<td>REAR-END</td>
<td>57</td>
<td>52</td>
<td>6,666</td>
<td>7,443</td>
<td>422</td>
<td>9,508</td>
<td>462</td>
<td>10,316</td>
</tr>
<tr>
<td>SIDEWIDETE - MEETING</td>
<td>13</td>
<td>14</td>
<td>32</td>
<td>3</td>
<td>337</td>
<td>375</td>
<td>223</td>
<td>256</td>
</tr>
<tr>
<td>SIDEWIDE - OVERTAKING</td>
<td>11</td>
<td>14</td>
<td>599</td>
<td>2,149</td>
<td>5</td>
<td>621</td>
<td>341</td>
<td>1,928</td>
</tr>
<tr>
<td>TURNING MOVEMENTS</td>
<td>24</td>
<td>24</td>
<td>3,684</td>
<td>5,279</td>
<td>24</td>
<td>5,662</td>
<td>378</td>
<td>1,261</td>
</tr>
</tbody>
</table>

**YEAR 2008 TOTAL**

<table>
<thead>
<tr>
<th>TOTAL CRASHES</th>
<th>PEOPLE KILLED</th>
<th>PEOPLE INJURED</th>
<th>TRUCKS</th>
<th>DAY SURF</th>
<th>WET SURF</th>
<th>INTER-SECTION</th>
<th>INTER-SECTION RELATED OFF-ROAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>367</td>
<td>23,207</td>
<td>41,599</td>
<td>414</td>
<td>24,671</td>
<td>1,906</td>
<td>26,631</td>
<td>12,076</td>
</tr>
</tbody>
</table>

**FINAL TOTAL**

<table>
<thead>
<tr>
<th>TOTAL CRASHES</th>
<th>PEOPLE KILLED</th>
<th>PEOPLE INJURED</th>
<th>TRUCKS</th>
<th>DAY SURF</th>
<th>WET SURF</th>
<th>INTER-SECTION</th>
<th>INTER-SECTION RELATED OFF-ROAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>367</td>
<td>23,207</td>
<td>41,599</td>
<td>414</td>
<td>24,671</td>
<td>1,906</td>
<td>26,631</td>
<td>12,076</td>
</tr>
</tbody>
</table>

The information contained in this report is compiled from individual driver and police crash reports submitted to the Oregon Department of Transportation as required in ORS 814.720. The Crash Analysis and Reporting Unit is committed to providing the highest quality crash data to customers. However, because submission of crash report forms is the responsibility of the individual driver, the Crash Analysis and Reporting Unit can not guarantee that all qualifying crashes are represented, nor can assurances be made that all details pertaining to a single crash are accurate.
Crashes Reported on Tribal Lands

COUNT OF CRASHES REPORTED ON TRIBAL LAND BY RESERVATION 2002 TO 2008

- UMATILLA RESERVATION: 31
- MCDERMITT RESERVATION: 1
- GRAND RONDE RESERVATION: 0
- SILETZ RESERVATION: 0
- BURNS RESERVATION: 1
- WARM SPRINGS RESERVATION: 113
Percent of Crashes Reported on Tribal Land by Injury Severity

CRASHES REPORTED ON TRIBAL LAND
BY INJURY SEVERITY
2002 TO 2008

- FATAL CRASHES: 12%
- MAJOR INJURY CRASHES: 3%
- MODERATE INJURY CRASHES: 18%
- MINOR INJURY CRASHES: 14%
- PROPERTY DAMAGE ONLY: 53%
Count of Crashes on Tribal Land by Roadway Type

COUNT OF CRASHES REPORTED ON TRIBAL LAND
BY ROAD TYPE
2002 TO 2008

- Highway: 59
- County Road: 86
- City Street: 0
Count of Crashes Reported by Self Reporting or Law Enforcement Agency

COUNT OF CRASHES REPORTED ON TRIBAL LAND BASED ON REPORTING SOURCES OR LAW ENFORCEMENT AGENCY
2002 TO 2008
Driver Injury Severity by Age Group

Drivers by Age and Injury Severity in crashes on tribal land

Drivers Age Group

Drivers by age and injury severity in crashes on tribal land
Future Improvements

- **TransViewer On-line Reports** (Summer)
  - On-line queries for local road crash data
- **Crash Magic On-line Collision Diagramming** (Fall)
  - Local governments licenses
- **Crash Data User Training** (Fall)
  - Improve the ability to make better decisions
- **SPIS/GIS** (next fall)
  - Providing a visual statewide look at safety needs
- **TransInfo Project (2011)**
  - Merging two major road inventory data systems – improving accessibility roadway asset data i.e., guardrails etc.
Traffic Records Grant Information

Contact

Kelly Mason, Interim TRCC Program Manager
235 Union Street NE
Salem, OR 97301-1054
Voice: 503-986-4202
FAX: 503-986-3143

Email: Kelly.M.Mason@odot.state.or.us

Kelly will be able to help you or will direct you to the appropriate Region contacts
ODOT - Statewide Crash Data

Contacts

Crash Data Program
Robin Ness, Manager
(503) 986-4236
Robin.A.Ness@odot.state.or.us

Custom Reports, Publications
Theresa Heyn
(503) 986-4233
Theresa.a.heyn@odot.state.or.us

Databases and Custom Requests
Kelly Zobrist
(503) 986-4235
Kelly.r.zobrist@odot.state.or.us

Statewide Reports, Diagrams and Data
Sylvia Vogel
(503) 986-4240
sylvia.m.vogel@odot.state.or.us

Fatal Crash Reports and Data – Fatality Analysis Reporting System (FARS)
Kathy Jones
(503) 986-4248
katharine.m.jones@odot.state.or.us

Motor Carrier Crash Reports and Data
Charles Elliott
(503) 986-3507
charles.t.elliott@odot.state.or.us