THE JOYS & SORROWS OF WORKING WITH CRASH DATA

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Houston-Galveston Area Council
August 30, 2012
INTRODUCTION

• Safety data was hard to come by
• Minimal electronic collection
• Paper reports available – difficult to work with
• Need to retrieve data from Police Department
• Anecdotal information heavily relied upon
• Safety assessments were very time consuming
NHTSA’s FARS Data

- Focus on traffic-related fatalities
- Preferred for fatality assessment – “official”
- Regionally - 600 fatalities per year
- A fraction of 100,000 incidents annually
- Lot of focus on a fraction of the problem
SAFETEA-LU (Sec. 1401) requires that States:

...have in place a crash data system with the ability to perform safety problem identification and countermeasure analysis...
TxDOT’s CRIS SYSTEM

- CRIS – Crash Record Information System
- Collection/entry of Serious Crashes since 2003
- Maintains five years of crash data for State
- 500,000 records for Houston Region (2007-11)
- Crashes geocoded by TxDOT
- Dataset provided to users
- Don’t need to sift through ½-mile of reports
INFORMATION SMÖRGÅSBORD!!!

- Fatalities/Injuries/PDO
- Location of Crash
- Speed Limit on Facility
- Nature of Collision
- Date/Time of Crash
- Vehicle Direction
- Intersection Information
- Bicyclists
- Motorcyclists
- Speeding/Recklessness
- Objects Struck
- Contributing Factors
- Vehicles Involved
- Age of Drivers
- Weather Conditions
- Seat Belt Usage
- Distraction
- Pedestrians
- Trucks
- Alcohol/Drug Involvement
USES OF CRASH DATA

• Identification of Crash Hot Spots
• Identification of increased enforcement needs
• Identifying potential engineering fixes
• Identifying traffic operation needs
• Public information and outreach
• Political Motivation Tool
High Frequency Crash Locations, 2005-2007
Crash Time of Day Comparison

Crashes

12AM 1AM 2AM 3AM 4AM 5AM 6AM 7AM 8AM 9AM 10AM 11AM 12PM 1PM 2PM 3PM 4PM 5PM 6PM 7PM 8PM 9PM 10PM 11PM

- Impaired
- Single Vehicle
### TABLE 45: Total Fatalities from Young Driver Crashes

<table>
<thead>
<tr>
<th>County Name</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazoria</td>
<td>8</td>
<td>9</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>36</td>
</tr>
<tr>
<td>Chambers</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Fort Bend</td>
<td>12</td>
<td>11</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>43</td>
</tr>
<tr>
<td>Galveston</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>4</td>
<td>18</td>
</tr>
<tr>
<td>Harris</td>
<td>125</td>
<td>98</td>
<td>116</td>
<td>80</td>
<td>87</td>
<td>504</td>
</tr>
<tr>
<td>Liberty</td>
<td>4</td>
<td>11</td>
<td>5</td>
<td>5</td>
<td>9</td>
<td>34</td>
</tr>
<tr>
<td>Montgomery</td>
<td>20</td>
<td>18</td>
<td>16</td>
<td>27</td>
<td>18</td>
<td>108</td>
</tr>
<tr>
<td>Waller</td>
<td>1</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td><strong>Region Total</strong></td>
<td><strong>183</strong></td>
<td><strong>156</strong></td>
<td><strong>158</strong></td>
<td><strong>136</strong></td>
<td><strong>131</strong></td>
<td><strong>764</strong></td>
</tr>
</tbody>
</table>

### TABLE 46: Total Injuries from Young Driver Crashes (Type A, B, & C)

<table>
<thead>
<tr>
<th>County Name</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazoria</td>
<td>428</td>
<td>447</td>
<td>441</td>
<td>416</td>
<td>423</td>
<td>2,156</td>
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<tr>
<td>Chambers</td>
<td>76</td>
<td>111</td>
<td>73</td>
<td>102</td>
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<tr>
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<td>569</td>
<td>401</td>
<td>502</td>
<td>447</td>
<td>2,550</td>
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<tr>
<td>Galveston</td>
<td>544</td>
<td>447</td>
<td>404</td>
<td>366</td>
<td>341</td>
<td>2,102</td>
</tr>
<tr>
<td>Harris</td>
<td>8,469</td>
<td>6,816</td>
<td>7,140</td>
<td>6,207</td>
<td>5,506</td>
<td>34,338</td>
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<tr>
<td>Liberty</td>
<td>130</td>
<td>124</td>
<td>115</td>
<td>161</td>
<td>144</td>
<td>674</td>
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<tr>
<td>Montgomery</td>
<td>725</td>
<td>709</td>
<td>720</td>
<td>611</td>
<td>677</td>
<td>3,448</td>
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<tr>
<td>Waller</td>
<td>67</td>
<td>113</td>
<td>113</td>
<td>101</td>
<td>57</td>
<td>451</td>
</tr>
<tr>
<td><strong>Region Total</strong></td>
<td><strong>10,989</strong></td>
<td><strong>9,336</strong></td>
<td><strong>9,503</strong></td>
<td><strong>8,466</strong></td>
<td><strong>7,680</strong></td>
<td><strong>45,074</strong></td>
</tr>
</tbody>
</table>

### TABLE 47: Total Incapacitating Injuries from Young Driver Crashes (Type A)

<table>
<thead>
<tr>
<th>County Name</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brazoria</td>
<td>35</td>
<td>42</td>
<td>55</td>
<td>24</td>
<td>42</td>
<td>198</td>
</tr>
<tr>
<td>Chambers</td>
<td>16</td>
<td>20</td>
<td>7</td>
<td>6</td>
<td>5</td>
<td>54</td>
</tr>
<tr>
<td>Fort Bend</td>
<td>14</td>
<td>49</td>
<td>39</td>
<td>30</td>
<td>35</td>
<td>193</td>
</tr>
<tr>
<td>Galveston</td>
<td>12</td>
<td>31</td>
<td>35</td>
<td>26</td>
<td>32</td>
<td>156</td>
</tr>
<tr>
<td>Harris</td>
<td>403</td>
<td>310</td>
<td>332</td>
<td>335</td>
<td>266</td>
<td>1,655</td>
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<tr>
<td>Liberty</td>
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<td>17</td>
<td>12</td>
<td>16</td>
<td>10</td>
<td>75</td>
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<tr>
<td>Montgomery</td>
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<td>88</td>
<td>63</td>
<td>67</td>
<td>62</td>
<td>344</td>
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<tr>
<td>Waller</td>
<td>6</td>
<td>10</td>
<td>13</td>
<td>17</td>
<td>2</td>
<td>48</td>
</tr>
<tr>
<td><strong>Region Total</strong></td>
<td><strong>610</strong></td>
<td><strong>576</strong></td>
<td><strong>556</strong></td>
<td><strong>527</strong></td>
<td><strong>454</strong></td>
<td><strong>2,723</strong></td>
</tr>
</tbody>
</table>
BUT...
SOURCES OF ERROR

• Data Collection and Reporting
• Data Entry and Processing
• Data Analysis and Presentation

DON’T TAKE DATA FOR GRANTED!
DATA REPORTING & COLLECTION

• Law Enforcement is primary data collector

• Law Enforcement doesn’t like filling out forms

• Information based on officer’s best judgment
DATA REPORTING & COLLECTION

- Correct assessment of the crash
- Address/Location Identification
- Proper Coding on Report
- Spelling
- Legibility
DATA ENTRY & PROCESSING

• Inaccurate data entry
• Austin not familiar with Houston area roads
• Development of inferred data
• Business Rules vs. Report Data (official record)
• Geocoding accuracy
• Not included – Narratives and Diagrams
PLACE WHERE ACCIDENT OCCURRED (County)  | HARRIS COUNTY  | CITY OR TOWN | Houston  
--- | --- | --- | ---
IF ACCIDENT WAS OUTSIDE HARRIS COUNTY, Indicate County:  |  |  |  
HARRIS COUNTY, Indicate County:  |  |  |  
DATE OF ACCIDENT  | JANUARY 21, 2008  | DAY OF WEEK | MONDAY  
TIME  | 02:15  |  
UNIT NO. 1 Business Address  | NONE  | Phone # | NONE  
UNIT NO. 2 Business Address  | NONE  | Phone # | NONE  
UNIT NO. 3 Business Address  |  | Phone # |  
UNIT NO. 4 Business Address  |  | Phone # |  
UNIT NO. 5 Business Address  |  | Phone # |  
UNIT NO. 6 Business Address  |  | Phone # |  
IF EMERGENCY VEHICLE  |  |  |  
WAS IT USING SIREN?  | YES  | NO  | INTERMITTENTLY  
STeady  | RED LIGHTS ON  |  |  
UNIT #  |  |  |  
REMARKS  |  
UNIT #1: NO STATEMENT FROM THE DRIVER, DRIVER WAS DOA AT SCENE  
WITNESS: HAWKINS, NEQUISHA CHANTEL, BF, DOB: 05/31/84  
WITNESS STATED I WAS THE PASSENGER IN THE VEHICLE WHEN THE ACCIDENT TOOK PLACE. WE RACED WITH ANOTHER CAR, WE CUT OFF WITH ANOTHER CAR, A GOLD TOYOTA CAMRY, BACK AND FORTH UNTIL WE LOST CONTROL AND HIT INTO AN ACCIDENT.  
SIGNATURE:  
HOUSTON PD  
01/21/2008  
Diagram NOT TO SCALE  
DIAGRAM NOT TO SCALE  
SCAT FROM 4000, 3203 N  
ON SCALE  
SIGNED: J.Z. L.M.  
HOUSTON PD  
01/21/2008  
Person Completing Supplement  
Department  
Date Supplement Made
Data Analysis & Assessment

• A lot of data to work with – easy to misuse

• Crash subrecords have similar-looking information

• “Geoselection” of data can lead to inaccurate results

• Failure to search for alternative/misspelled names

• Failure to look at Contributing Factors

• Larger crash totals do not necessarily mean more dangerous (normalize w/VMT)

• Misuse of data can lead to misrepresentation
CONCLUDING THOUGHTS

• Safety data are a great tool
• Critical for problem identification
• Use is multi-disciplinary
• Can assist in policy development
• Proper use can help save lives
MORE CONCLUDING THOUGHTS

• Don’t take data as Gospel!!!

• Work with Law Enforcement to address collection issues

• Work with Processors on optimizing quality

• Develop expertise in handling data

• Take care in disseminating data to end users
THANK YOU

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