Florida: Driver Interactions with Pedestrian Features at Signalized Intersections

Concept to Countermeasure – Research to Deployment Using the SHRP2 Safety Databases

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Florida DOT

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Goal for Phase 1:
Develop a repeatable method that fully explores and understands the interaction of driver with pedestrian features at signalized intersections.
<table>
<thead>
<tr>
<th>Category</th>
<th>DOTs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pedestrian</td>
<td>Florida DOT, Nevada DOT, New York State DOT</td>
</tr>
<tr>
<td>Roadway Departure</td>
<td>Iowa DOT</td>
</tr>
<tr>
<td>Speeding</td>
<td>Michigan DOT, Washington DOT</td>
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<tr>
<td>Work Zones</td>
<td>Minnesota DOT</td>
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<td>Horizontal &amp; Vertical Curves</td>
<td>North Carolina DOT</td>
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<tr>
<td>Interchange Ramps</td>
<td>Utah DOT</td>
</tr>
<tr>
<td>Adverse Conditions</td>
<td>Wyoming DOT</td>
</tr>
<tr>
<td>Roadway Lighting</td>
<td>Washington DOT</td>
</tr>
</tbody>
</table>
Pedestrian Crashes in Florida

Figure 1-1. Pedestrian fatality rates per 100,000 persons.

Source: NHTSA FARS.
# Pedestrian Crashes in Florida

## TABLE 1

Large metro areas, ranked by Pedestrian Danger Index

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Orlando-Kissimmee, FL</td>
<td>583</td>
<td>2.75</td>
<td>1.1</td>
<td>244.28</td>
</tr>
<tr>
<td>2</td>
<td>Tampa-St. Petersburg-Clearwater, FL</td>
<td>874</td>
<td>2.97</td>
<td>1.6</td>
<td>190.13</td>
</tr>
<tr>
<td>3</td>
<td>Jacksonville, FL</td>
<td>359</td>
<td>2.48</td>
<td>1.4</td>
<td>182.71</td>
</tr>
<tr>
<td>4</td>
<td>Miami-Fort Lauderdale-Pompano Beach, FL</td>
<td>1,539</td>
<td>2.58</td>
<td>1.8</td>
<td>145.33</td>
</tr>
<tr>
<td>5</td>
<td>Memphis, TN-MS-AR</td>
<td>239</td>
<td>1.72</td>
<td>1.3</td>
<td>131.26</td>
</tr>
<tr>
<td>6</td>
<td>Birmingham-Hoover, AL*</td>
<td>148</td>
<td>1.33</td>
<td>1.1</td>
<td>125.60</td>
</tr>
<tr>
<td>7</td>
<td>Houston-Sugar Land-Baytown, TX</td>
<td>1,034</td>
<td>1.70</td>
<td>1.4</td>
<td>119.64</td>
</tr>
<tr>
<td>8</td>
<td>Atlanta-Sandy Springs-Marietta, GA</td>
<td>839</td>
<td>1.59</td>
<td>1.3</td>
<td>119.35</td>
</tr>
<tr>
<td>9</td>
<td>Phoenix-Mesa-Scottsdale, AZ</td>
<td>840</td>
<td>1.86</td>
<td>1.6</td>
<td>118.64</td>
</tr>
<tr>
<td>10</td>
<td>Charlotte-Gastonia-Concord, NC-SC</td>
<td>254</td>
<td>1.65</td>
<td>1.5</td>
<td>111.74</td>
</tr>
</tbody>
</table>
Pedestrian Crashes in Florida

Figure 2-8. Statewide pedestrian crashes by site location.

Source: FDOT CAR System.
Research Objectives

• Assist the Florida DOT assess:
  1. Driver interactions with pedestrian features, such as pedestrian traffic signals, yield-to-pedestrian signs, and crosswalks at signalized intersections when pedestrians are or are not present
  2. Effectiveness of pedestrian features
  3. Impact of gender and age group on driver interactions
  4. Specific interactions between drivers and pedestrians
  5. Impact and types of driver attention and/or distraction on driver interactions with pedestrian features and pedestrians
Data Acquisition- Phase I

• Review the Event Dataset (crashes and near crashes) to understand established interactions.
• Work through a series of behavioral structures that will identify potential interactions in the video and sensor data.
• Combine automatically recorded and manually identified conflict information to use in the analysis.
NDS InSight Data

- 13 conflicts with pedestrians and 8 with bicycles are pre-identified in the Florida data.
- Additional instances of conflict or near-conflict in the available data will be studied in this project.
Trip/ Crash/ Near Crash Data

- **Vehicle Data** – identified type and condition of each vehicle participating in the study
- **Trip Summary Data** – provides summary of continuous time series data records by trip and reports detailed information about the individual trips
- **Time Series Data** – Shows continuous data records collected by the on-board acquisition system
- **Event Data** – Provides subset of events (crashes, near crashes, baseline events) identified using event analysis protocol
- **Participant Data** – Includes self-reported information about the driver
Progress

• IRB Approval – **Completed**
• Obtain RID data - **Completed**
• NDS – **Preparing data request**
• Developing methodology for analysis
• Developing machine vision tools

Project completion date - September 2015
Questions?

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