Alcohol Related Hot Spot Analysis and Implementation

Bill Schneider, The University of Akron
Alcohol Crashes are Bad
Data-Driven Approach Benefits

• Two fold approach-
  – Current: Informative for courtrooms, education, local law enforcement (driving for dollars).
Benefits of Current Analysis

- **Geo-statistical based** algorithms and applications that determine statistically clustered crash locations.
  - Identify high risk crash areas.
  - Provide unbiased statistical justification of problem areas.
Application of Hot Spots to Traffic Stops

- Application of law enforcements patrol of drivers.
- Examines relationship of hot spots to traffic stops.
- Identify statistical differences between stops inside and outside of hot spots.
### Application of Hot Spots to Traffic Stops

<table>
<thead>
<tr>
<th></th>
<th>Number of Stops</th>
<th>Number of OVIs</th>
<th>Arrests per Stop</th>
<th>Arrest Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In Cluster</strong></td>
<td>2,258</td>
<td>99</td>
<td>0.044</td>
<td>1 in 23</td>
</tr>
<tr>
<td><strong>Out-of-Cluster</strong></td>
<td>1,719</td>
<td>32</td>
<td>0.019</td>
<td>1 in 53</td>
</tr>
</tbody>
</table>
### Application of Hot Spots to Traffic Stops

<table>
<thead>
<tr>
<th></th>
<th>Average Cost per Stop</th>
<th>Average Cost Per OVI</th>
<th>Average Cost Per Speeding Ticket</th>
<th>Average Cost of Seatbelt Citation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In-Cluster</strong></td>
<td>$25.66</td>
<td>$630.12</td>
<td>$193.88</td>
<td>$436.62</td>
</tr>
<tr>
<td><strong>Out-of-Cluster</strong></td>
<td>$16.41</td>
<td>$1,037.68</td>
<td>$83.01</td>
<td>$922.38</td>
</tr>
</tbody>
</table>

**STARK COUNTY OVI TASK FORCE**

![Badges and Images of Law Enforcement Agencies]
Application of Hot Spots to Traffic Stops

- Significant effects on stops resulting in speeding or seatbelt citations.

- Alcohol related crashes per year were reduced in 2 year enforcement within hot spots.
Spatial-Temporal Hot Spot Analysis

- Movement allows safety blitzes to be placed where/when necessary during an critical time period.
- Movement averages 11.1 miles from one blitz site to the next, with a standard deviation of 5.80 miles.
Thank you for your time