ASE: What is it?
ASE Background

• Controlling speed continues to be a key tool for improving roadway safety in MN
• ASE shown to be effective tool for reducing speeding & improving safety
• ASE used in 14 states and Washington D.C., and widely internationally
• Not used in Minnesota
Examples
Project Background

• Follow-up to research study completed last summer
  – Legal and political obstacles to ASE in MN

• Strategy for ASE in Minnesota:
  – Legislative authorization needed
  – Demonstration projects in school and work zones
Public Opinion of ASE in MN

• 2012 Public Opinion Survey

• Overall, ASE has majority support in MN

• Limiting deployment locations increases public’s support
Limited Locations Tested

- “On all roads”
- “On roads where many people violate speed limits”
- “On roads where many people have died”
- “On roads near schools”
- “In construction zones where workers are endangered”
Overwhelming Majority Support For ASE Use In Select Locations

- All Roads: 48% support
- Many Speed: 69% support
- Many Died: 77% support
- Schools: 82% support
- Construction: 83% support

Humphrey School of Public Affairs
University of Minnesota
Driven to Discover
Obstacles to ASE in MN

1. Need legislative authorization
   – Automated enforcement seen as politically controversial
   – Ex. Red-light camera bill failed in current session

2. Legacy of Minneapolis’s red-light cameras
   – Perception of the State v. Kuhlman decision
   – Highlighted administrative challenges

3. Lack of shared views among stakeholders about:
   i. need for ASE; and
   ii. how it would operate
Current Project Objectives

• Develop preferred scenarios for ASE demonstration projects in MN
  – Work Zones
  – School Zones

• Recommendations for methods to demonstrate and evaluate ASE and/or automated warnings
Key Steps in Methodology

- Analysis of work and school zone crash data from MnDOT
- Interview officials from states with ASE
- Convened advisory panel of Minnesota stakeholders
## Crash Problem in Work Zones

<table>
<thead>
<tr>
<th>Crash Type</th>
<th>Avg. Crashes Per Year (2003-2011)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fatal</td>
<td>8 (10 fatalities)</td>
</tr>
<tr>
<td>Injury</td>
<td>549 (21 severe)</td>
</tr>
<tr>
<td>PDO</td>
<td>1,264</td>
</tr>
</tbody>
</table>

Source: MnDOT
Causes of Work Zone Crashes

### Percent Of All Contributing Factors Cited In Work Zone Crashes (2003-2012)

<table>
<thead>
<tr>
<th>Contributing Factor</th>
<th>All Crashes (N=26,224)</th>
<th>Fatal Crashes (N=107)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver inattention or distraction</td>
<td>27%</td>
<td>27%</td>
</tr>
<tr>
<td>Following too closely</td>
<td>19%</td>
<td>2%</td>
</tr>
<tr>
<td>Illegal or unsafe speed</td>
<td>12%</td>
<td>21%</td>
</tr>
</tbody>
</table>

- Importance of speeding increases, the more severe the crash.
- “Driver distraction” and “following too closely” are related to speed.
Meaning for Work Zone Pilot

• Crash data supports perception of a work zone speeding problem

• There is a work zone speeding problem that ASE can help address
Work Zone ASE in Other States

• Illinois (2004)
  – Statewide deployment

• Washington St. (2007)
  – 2\textsuperscript{nd} round of pilot testing

• Maryland (2009)
  – Statewide deployment
Impact

• Each state found ASE reduces speeds in work zones

• Extent of reductions vary, depending in part on site specific factors

• ASE has limited “halo” effect
Impact

• Illinois
  – Substantial decrease in percent of free-flowing traffic exceeding speed limit (26 to 48 percentage point reduction)

• Washington
  – Percentage increase in vehicles complying with posted speed limit, ranging between 5% and 30%

• Maryland
  – In enforcement zones, percent of vehicles exceeding ASE enforcement speed fell from 7% to 1%.
  – Contributed to 10-year low in work zone crash fatalities and injuries in 2011
Lessons for MN: Program Design

<table>
<thead>
<tr>
<th></th>
<th>Illinois</th>
<th>Maryland</th>
<th>Washington</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type of ASE Units</strong></td>
<td>Manned, In-Vehicle</td>
<td>Manned, In-Vehicle</td>
<td>Manned, In-Vehicle</td>
</tr>
<tr>
<td><strong>Who Staffs the Unit</strong></td>
<td>State Patrol</td>
<td>Vendor</td>
<td>Vendor</td>
</tr>
<tr>
<td><strong>Liability System</strong></td>
<td>Driver</td>
<td>Owner</td>
<td>Owner</td>
</tr>
<tr>
<td><strong>Fine Amount</strong></td>
<td>$375 (1st offense)</td>
<td>$40</td>
<td>$137</td>
</tr>
<tr>
<td><strong>Impact on Driving Record</strong></td>
<td>Same as conventional ticket</td>
<td>Not on record</td>
<td>Not on record</td>
</tr>
<tr>
<td><strong>Excess Revenue</strong></td>
<td>Same as conventional ticket</td>
<td>To state patrol</td>
<td>To state patrol</td>
</tr>
</tbody>
</table>
Lessons for MN: Type of ASE Units

Use of Manned Vehicle-Based Units

Pro:
- Ease of mobility
- More similar to traditional enforcement if operated by an officer
- Operator can confirm workers present
- Reduces vandalism risk

Con:
- Need adequate shoulder space to deploy
- Reduces benefits with respect to staff time if manned by officer
Lessons for MN: Stakeholder Cooperation

• Work Zone ASE involves multiple players
  – Department of Public Safety
    • Driver & Vehicle Services
    • State patrol
  – Courts
  – MnDOT
  – Contractors

• Need general consensus among stakeholders on:
  – Concept of automated enforcement
  – Program design
  – Implementation process

• Currently, this consensus does not exist in MN
Pilot Design for MN

- Involves multiple, often interdependent variables
  - Example:
    - Who’s responsible: owner v. driver
    - Sanction: conventional v. administrative

- Some recommendations relatively easy
  - Interstates work zones best sites
  - Evaluation methodology
Pilot Design for MN

- Most variables involve difficult trade-offs along three interconnected dimensions
  1) Politics
  2) Operational
  3) Effectiveness

- Result: Range/Matrix of Scenarios for Policymakers
### Key Design Decisions

<table>
<thead>
<tr>
<th>Liability System</th>
<th>Driver</th>
<th>Owner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of ASE Unit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conventional Speeding Ticket</td>
<td>Administrative</td>
</tr>
<tr>
<td></td>
<td>Unmanned</td>
<td>Warnings</td>
</tr>
<tr>
<td></td>
<td>In-Vehicle (police)</td>
<td>In-Vehicle (vendor)</td>
</tr>
</tbody>
</table>
Next Steps

- Complete report on scenarios for ASE pilot projects
- Include ways to keep the ASE discussion moving
  - Ex. TZD subcommittee
- Continue to track developments in the red-light camera debate
Thank You

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