Safety Issues: Automated Speed Enforcement, Intelligent Speed Adaptation, and National Leadership

Nathan Doble
Transportation Research Analyst
Automated Speed Enforcement (ASE)

• Speed detection system coupled with a camera
• Citations mailed to vehicle owners or drivers
• Types
  • Fixed
  • Semi-fixed
  • Mobile

Source: Washington, DC, Department of Transportation
ASE Effectiveness

- 2010 systematic review of 28 ASE studies
  - Every study found crash reductions
  - All crashes reduced 8 to 49%
  - Serious or fatal injury crashes reduced 11 to 44%
- Safety benefits extend beyond ASE sites
- Recognized as effective by NHTSA and CDC
ASE Usage in United States

April 2017: 141 Active ASE Programs in 14 States + DC

1986: First 2 ASE Programs

Source: IIHS
## ASE and State Law

The table below summarizes the number of states with and without ASE programs,以及 those that authorize ASE with restrictions, those without ASE laws, and those prohibiting ASE.

<table>
<thead>
<tr>
<th></th>
<th>States Authorizing ASE with Restrictions</th>
<th>States without ASE Laws</th>
<th>States Prohibiting ASE</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>States with ASE Programs</td>
<td>10</td>
<td>4</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>States without ASE Programs</td>
<td>5</td>
<td>24</td>
<td>7</td>
<td>36</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
<td><strong>28</strong></td>
<td><strong>7</strong></td>
<td><strong>50</strong></td>
</tr>
</tbody>
</table>

Source: IIHS
ASE and State Law

• Stakeholders reinforced importance of state-level enabling legislation

• Restrictions in state law limit ASE effectiveness
  • School zones, work zones
  • Officer present
ASE Best Practices

• *Speed Enforcement Camera Systems Operational Guidelines*

• 63% of ASE program administrators unaware of guidelines

• In 11 of 35 areas, less than 40% of programs aligned with guidelines

• Guidelines do not reflect latest technologies and operating practices
Point-to-Point Enforcement

• Uses time-synchronized camera system to measure average vehicle speed between two points
• Used in Europe, Australia, New Zealand
• Best suited for limited-access highways
Point-to-Point Enforcement

• Benefits compared to fixed/mobile ASE
  • Encourages driving speed limit over longer distance
  • Avoids problem of drivers slowing only at ASE site
• 2014 review of effectiveness
  • 51% decline in crashes at fixed ASE sites
  • 56% decline on point-to-point segments
• Not evaluated in US or included in guidelines
Intelligent Speed Adaptation (ISA)

- In-vehicle system determines speed limit in effect via GPS database and/or sign-detecting camera
- Alerts driver or actively prevents vehicle from exceeding speed limit
Current ISA Implementations

- Advisory systems available in US
- Related capabilities also offered
  - Adaptive cruise control
  - Fixed speed limiters
- Active ISA available in Europe

Source: Ford Motor Company
ISA Effectiveness

• 2001, Sweden
  • 284 vehicles with active ISA for 5 to 11 months
  • 85th percentile speeds decreased 0.6 to 4.7 mph

• 2014, Maryland
  • 78 “chronic speeders” used advisory ISA for 4 weeks
  • Speeding > 8 mph decreased from 18 to 13%
National Leadership

• Few negative social consequences to speeding
• No national leader for issue
• Drivers underappreciate risks
• Changing behavior requires coordinated effort
Traffic Safety Campaigns

- Effective for several traffic safety issues
  - Impaired driving
  - Occupant protection
- Successful for speeding at local level
- No NHTSA-coordinated national speeding campaign
- State participation incomplete and inconsistent
Incentivizing Speed Management Activities

• Highway Safety Program
  • 10 focus areas, including speeding
  • Allocated by state population, road miles

• National Priority Safety Program
  • Seven priority areas, not including speeding
  • States apply for incentive grants
DOT Speed Management Team

- Established in 2000 with representatives from FHWA, NHTSA, FMCSA
- Published *Speed Management Program Plan* in 2014
  - 71 planned actions
  - 35 ongoing, 8 completed as of December 2016
  - 5 year timeline
- Planned actions complement or enhance recommendations proposed in this safety study
Making transportation safer
Yesterday, Today, Tomorrow.
1967 - 2017
National Transportation Safety Board