Speed Management &
Arizona Automated Speed Enforcement Program

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Mr. Jeff King
FHWA Arizona Division
Safety Specialist
(Retired AZ DPS State Troopers)
(Former Municipal Officer in Emmetsburg, West Bend and Algona, Ia.)

Paradigm Shift: Safe Systems Approach

Safety is an exercise of managing kinetic energy.

What determines the level of transferable kinetic energy in a crash?

\[ K = \frac{1}{2}mv^2 \]
Most drivers are aware of the exponential change in stopping distance.

<table>
<thead>
<tr>
<th>Speed (mph)</th>
<th>Stopping Distance (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>22/2</td>
</tr>
<tr>
<td>30</td>
<td>30/3</td>
</tr>
<tr>
<td>40</td>
<td>40/4</td>
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<tr>
<td>50</td>
<td>50/5</td>
</tr>
<tr>
<td>60</td>
<td>60/6</td>
</tr>
<tr>
<td>70</td>
<td>70/7</td>
</tr>
</tbody>
</table>

Stopping distances are based on tests made by the Federal Highway Administration with a driver reaction time of 3/4 second.

The difference in energy between 75 and 85 mph is 186,883 ft/lbs. The added energy is equivalent to 40 mph!

(843,894 – 657,011 = 186,883 ft/lbs of Kinetic Energy)
Vulnerable Users

Speeding Related Crash Data

- Speeding:
  - Speed In Excess of Posted
  - Speed too Fast for Conditions

https://icsw.nhtsa.gov/nhtsa/fars/speeding_data_visualization/
AZ Speeding related Crash Data

- 31% of all fatal crashes were coded speeding related.

NTSB Speeding Safety Study

ASE-Pros

- ASE as a force multiplier
  - Frees up limited law enforcement resources to be used for other purposes.
- Can be placed where making traffic stops are too dangerous.
- A 2005 systematic review of 14 studies of ASE programs in Canada, Europe, Australia, and New Zealand found crash reductions of 5 to 69%, injury reductions of 12 to 65%, and fatality reductions of 17 to 71% at ASE locations after ASE program implementation.
• ASE does not stop a driver at the time of the speeding offense, the driver may continue to speed and/or be unaware of the offense.
• Purpose: Revenue vs Safety
• Due Process
• Privacy

• The Arizona ASE Statewide Program
  – At the time Arizona and Washington DC were the only two with ASE specific laws “specifically allowing ASE” jurisdiction wide.
  – Arizona program was the only of its kind on high volume urban freeway applications.
  – However there were two prior pilot programs in AZ before the AZ law was enacted.
    • Scottsdale 101 Fixed Camera Sites
    • Two Mobil units deployed statewide.
• Pilot programs operated using existing speed laws.
  – Depending on speed, citations were either issued under criminal or civil law.
  – All citations carried points on license
  – ASE collected the evidence, Officers handled the cases as a normal speed citations under existing laws.

Equipment Set Up - Fixed
Front Camera & Flash

System detects that the vehicle is offending and captures an image of the driver in the offending vehicle. This is the first image of the evidence capture.

Rear Camera & Flash

System then captures an image of the rear license plate of the offending vehicle. This is the second image of the evidence capture.
Required Signage

Was the SAE Effective?
Was the SAE Effective?

![Graph showing the impact of SAE effectiveness.](image)

**Figure 5:** Estimated impact of SAE on crashes by crash type and crash severity:
**RA method using correction for traffic flow.**

Comprehensive Statewide Program Legislation

- Funding source provided by new legislation
  - $165 fine for civil violations
  - No points for civil violations
  - Criminal violations (20 over and School zones) to be cited the same as non-photo enforcement violations
  - Provision for vendor to review and certify civil citations
  - Allows for use of Administrative Office of the Courts contract vendor to collect fines to reduce court load
  - Notice of violation vs. citations
Comprehensive Statewide Program

Arizona Division Office

• 36 Fixed Speed Systems
  – Primarily in Phoenix Metro area
  – Deployment locations determined in partnership with ADOT
  – Initial emphasis on major junction areas based on speed related collision statistics
  – Three cameras per approach
    • Spaced ¼ mile apart, beginning ⅛ mile from major interchanges.

Comprehensive Statewide Program

Arizona Division Office

• 40 Mobile Speed Enforcement Units
  – 2-3 assigned to each District Commander
  – Deployment scheduled by District Officer/Sgt
  – Units originally staffed by vendor as Agents of Department (later automated).
  – Deployed based upon collision statistics
    • Locations determined by PE District officers and ADOT Traffic Safety Engineer
    • Detailed site maps provided to vendor for setup

10/23/2019
Unexpected Support for ASE

Arizona Division Office

AASN 2013 PLENARY PAPER

Impact of speed cameras on trauma centers
Jeffrey Siabao, DO, Steven Valloco, Cheng Xiong Xiong, PhD, Nino Patel, MD, Steven R. Johnson, MD, and Christopher Salvia, MD, Phoenix, Arizona

BACKGROUND: While media, mostly from Europe and Australia, have continued the myths of speed cameras on minor-vehicle collisions, initial data and analyses have far less impact on drivers, and the number of collision in a city 2,500 over the past 2 years. Because of conflicting perceptions and data on their value, speed cameras were implemented in Boston, where they opened for 6 months in 2006 but were removed.

Lessons Learned

Arizona Division Office

• ASE is a tool for, rather than a replacement of patrol officers
• Need for policy regarding responder, “activations.”
• Staff to follow-up on major violators and crimes.
• Fall out related to perceived privacy issues
Thank You!

Safety Specialist Jeff King
FHWA Division Office
Jeffrey.king@dot.gov
602-382-8991