Evaluation of Innovative Traffic Safety Devices at Short-Term Work Zones

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KDOT
Sweet Sixteen

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Why?
...to investigate and evaluate the usage and effectiveness of innovative traffic control devices that can be used in short-term work zones.

What was done?
...a literature review of previously published research, a nationwide usage survey, and a field test for a selected device - portable plastic rumble strip (PPRS).
What Was Found?

Adhesive Rumble Strips - Some of [the strips] were found ineffective, especially for trucks. ....36 percent of states commented that these types of rumble strips were ineffective at speed reductions.

(Source: Fontaine 2010)

FIGURE 2.1
The Installation of Orange Rumble Strips
What Was Found?

Portable Plastic Rumble Strips (PPRS) are removable and reusable temporary portable rumble strips produced by Plastic Safety Systems Industries (2009). KDOT purchased some units as part of the research.
What Was Found?

**Intrusion Alert System** - 44 percent of states believe that this type of device was ineffective.

(Source: Hatzì 1997)

**FIGURE 2.3**
The Installation of Microwave Intrusion Alarm

(Source: The Transpo Group 2010)

**FIGURE 2.5**
The Installation of SonoBlaster Intrusion Alarms Devices
What Was Found?

Portable Changeable Message Signs (PCMS)
PCMSs were commonly used in all states and were considered very effective ... in decreasing traveling speeds and the [%] of speeding traffic.
What Was Found?

**Portable Speed Monitoring Displays (PSMD)** - Previous research and this survey found that **PSMDs were very effective** in both speed reduction and in decreasing the percentage of speeding traffic.
What Was Found?

*Radar [Detector] Drones* - responses from the various state transportation agencies frequently commented that *this device was not actually effective.*
What Was Found?

**CB Wizard Alert System** - More than 50 percent of responding state transportation agencies **considered this device to be effective.**

(Source: Trimarc)

FIGURE 2.10
The Installation of CB Wizard Alert System
What Was Found?

**Vehicle-Activated Signs (VAS)** - Although not many states have applied this device, it *holds a great deal of potential* ...due to the fact that this device is simple to install and maintain.

(Source: Mattox III et al. 2007)

FIGURE 2.8
The Installation of Vehicle Activated Sign
What Was Found?

**Truck Mounted Attenuators (TMA)** - TMAs are currently used in short-term work zones by *every* state...
What Was Found?

**Mobile Barriers** - used in at least four states. Research studies and crash tests have found these devices to be very effective...
The adaptive queue warning system is intended to provide distributed speed-advisory signaling which automatically adapts to the current traffic flow situation in the work zone.
Where to now...

PPRS – under implementation phase
- KDOT’s Highway Sign Manual has been updated
- developing a construction spec
- have been used on projects at the Contractor’s request
- Have purchased additional rumble strips for Maintenance
Where to now...

PCMS, PSMD, TMA – already implemented

Mobile Barriers – cost prohibitive

ITS & QWS – one project in KC area

VAS – using KS Highway Patrol
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