DRISI
Caltrans Division of Research,
Innovation and System Information

Research Results

Review of Equipment and Accessories for Truck Mounted Attenuator (TMA) Trucks

A study to evaluate various accessories and equipment available for TMA trucks that can improve the safety and the function of TMA truck operations.

Maintenance

MAY 2022

Project Title:
Review of Truck Mounted Attenuator Accessories

Task Number: 3685

Start Date: November 1, 2019

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WHAT WAS THE NEED?

California Department of Transportation (Caltrans) maintenance workers are exposed to risk of vehicle impact, particularly in temporary highway work zones. These work zones also present hazards to the traveling public related to the presence of fixed and mobile equipment and vehicles. Caltrans needed to evaluate TMA accessories that could reduce the frequency and severity of shadow truck impacts, and risk to personnel and traveling public.

WHAT WAS OUR GOAL?

The key objective of the current research was to identify new technologies that offer the potential to improve the safety of temporary highway maintenance work zone operations, specifically truck-mounted safety accessory technologies, which could potentially reduce errant vehicle impacts with shadow vehicles in Caltrans temporary highway maintenance work zones.

WHAT DID WE DO?

The Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center conducted a search of innovative, commercially-available shadow vehicle Truck-Mounted Attenuator Accessory (TMAA) safety technology. Working with the Caltrans project advisory panel (panel), the researchers identified and procured the designated equipment and accessories for installation. These safety technologies were then to be integrated onto legacy shadow truck(s) by

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the Caltrans Division of Equipment (DOE) and deployed to the Caltrans Division of Maintenance (DOM) for deployment in Caltrans highway maintenance operations. The safety technology upfitted shadow trucks would then be used to evaluate the shadow truck safety products and accessories in actual Caltrans highway operations. AHMCT evaluated:

- Radar speed feedback sign
- Camera system/DVR able to record multiple views
- Communication system to alert drivers of a moving closure
- Panic/warning light to capture driver's attention

WHAT WAS THE OUTCOME?

This research succeeded in identifying, procuring, customizing, and demonstrating key shadow truck safety equipment technologies that increase highway safety by enhancing motorist responsiveness when encountering temporary highway work zones. The specific technologies deployed included an innovative radar speed feedback display sign capable of displaying the absolute speed of approaching vehicles while the truck and signboard are moving, video camera systems able to continuously record multiple views around the shadow truck, an automated highway work zone reporting system, and a shadow truck driver-activated panic/warning system. These innovative vehicle equipment accessories were combined into a safety Technology Package that can now be commercially purchased for installation on Caltrans TMA shadow trucks to improve safety in highway maintenance work zones.

WHAT IS THE BENEFIT?

Each of the technologies evaluated will provide benefits for Caltrans moving closure operations. The benefits include

- Improved driver responsiveness when approaching temporary highway work zones
- Reduced frequency and severity of highway work zone vehicular impacts
- Reduced amount of traffic passing temporary work zones
- Documentation of incidents and near misses for training and liability
- Improved worker and driver safety

LEARN MORE

The project final report can be downloaded from Duane Bennett and Ty Lasky, "Review of Equipment and Accessories for Truck-Mounted Attenuator Trucks," UCD-ARR-22-04-30-01, 2022 (http://ahmct.ucdavis.edu/pdf/UCD-ARR-22-04-30-01.pdf)

IMAGES

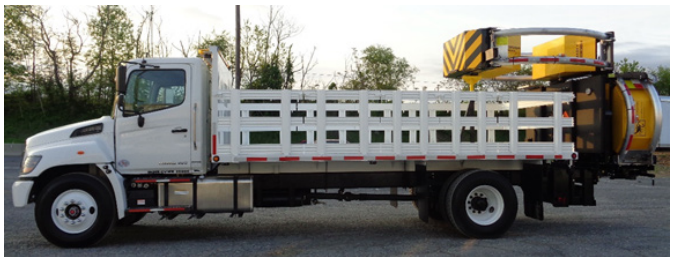
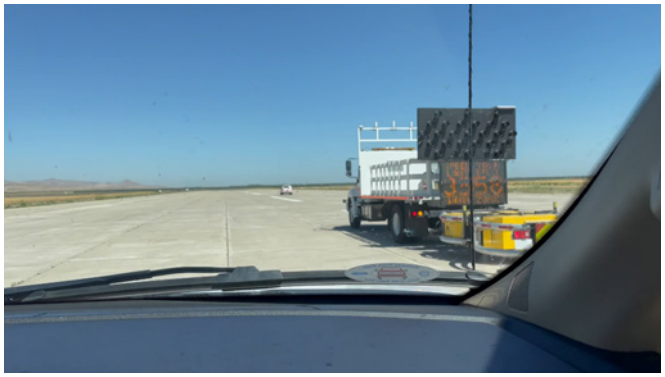


Image 1



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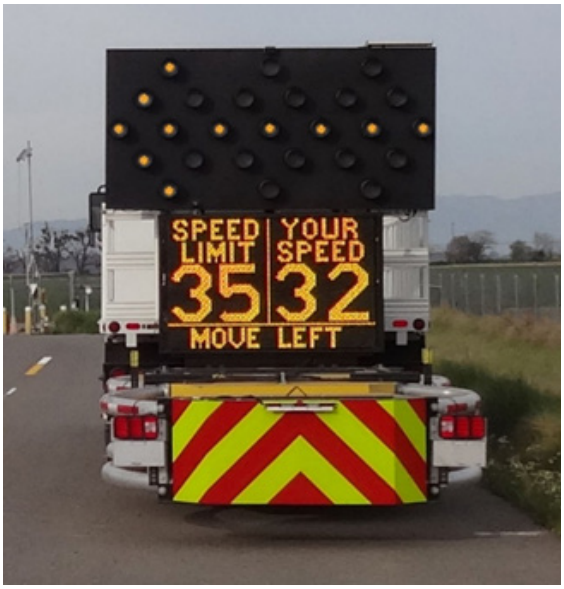

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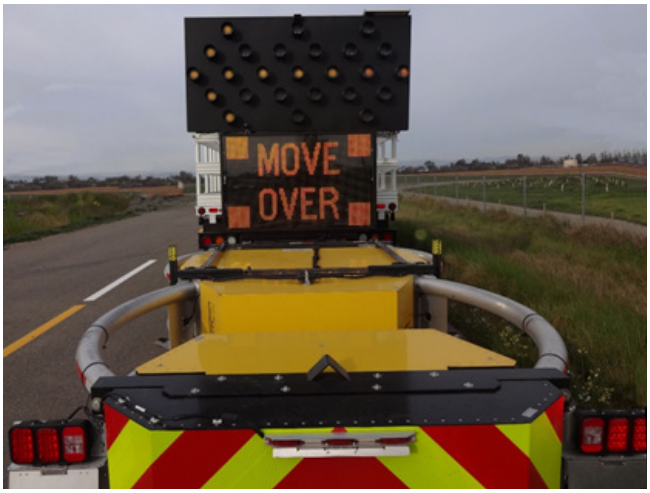

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