

# **SUMMARY REPORT 262-3(S)**

## **A PORTABLE TRAFFIC BARRIER FOR WORK ZONES**

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## **A Portable Traffic Barrier for Work Zones**

by

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The number of injuries and fatalities among Texas highway construction and maintenance personnel has increased greatly over the past several years. In one Texas highway maintenance district, traffic accidents have caused 39 injuries and 12 fatalities among highway construction and maintenance personnel during the past two years. Examination of these accidents has revealed that most of the injury and fatality producing accidents have occurred at construction sites or routine maintenance sites where all blocked travel lanes were to be cleared at the end of each work period. Normal traffic control for this type operation includes arrow boards and cones for traffic channelization. However, many of the cones are knocked down and drivers can become confused and return to the blocked lane. Errant motorists also enter work zones as a result of collisions with other motorists or roadside objects.

Initial efforts to reduce the number of accidents in these work areas included increased law enforcement personnel, increased efforts to replace cones that have been knocked down, reducing the length of the work zones, and conducting the work only during periods of very light traffic. However, none of these alternatives have proven very effective. Therefore it was concluded that an effort should be made to develop a highly portable, positive barrier for use in certain critical work zones.

Conventional construction zone positive barriers include portable precast concrete barriers and W-beam on barrels. These barriers cannot be erected and removed quickly enough to allow their use in construction and maintenance zones where all blocked lanes are to be cleared at the end of each work period.

Therefore research was undertaken to develop a truly portable positive work zone barrier that would be 1) portable enough for use in maintenance zones that are to be in place only a few hours; 2) crashworthy for use in construction zones; and 3) be relatively inexpensive to construct and maintain.

A truly portable construction zone barrier should be brought to the work site and set up in a matter of only a few minutes. No

heavy machinery or specialized equipment should be necessary since these may not be available at the site. Further, the barrier must be capable of redirecting an errant vehicle without deflecting excessively and thereby endangering workers standing behind it. Finally, the barrier should be relatively inexpensive to build and maintain.

After examining many portable construction zone barrier concepts, researchers concluded that a used car barrier was the most promising design considered. This barrier consists of a line of cars connected together with tow bars. The barrier is extremely portable since it can actually be driven to the work site. No special equipment is required for its setup, and the barrier is relatively inexpensive when compared to other barriers considered.

It is constructed from used cars and three-beam guardrail. Two full-scale vehicular crash tests of the portable barrier were conducted that demonstrate its adequacy in terms of impact performance. The barrier can be used in construction zones where conventional positive barriers have been impractical.

The published version of the report may be obtained by addressing your request as follows:

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