



Caltrans Division of Research,  
Innovation and System Information

# Research

# Notes

Transportation  
Safety and  
Mobility

AUGUST 2022

Project Title:  
Midwest Roadside Safety Facility  
Pooled Fund TPF-5(430)

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## Midwest Roadside Safety Facility Pooled Fund TPF-5(430)

Various highway roadside appurtenances were crash tested to ensure they meet criteria established nationally. Under the pooled fund program, Midwest Roadside Safety Facility (MWRSF) performed research and Department of Transportation (DOT) supported full scale crash testing.

### WHAT IS THE NEED?

Road owner and operators, such as State DOTs, including California Department of Transportation (Caltrans), are required to meet federal crash testing safety guidelines. In order to have non-proprietary designs available for use, they need to be developed, tested, analyzed and submitted to Federal Highway Administration (FHWA) for evaluation. This work requires specific expertise and for the testing lab to be accredited by the International Organization for Standardization (ISO) 17025. In addition, Caltrans has a large tort liability for vehicle accidents in our right of way. Caltrans can improve safety for the traveling public as well as reduce legal judgment costs by partnering with other DOTs on research to continually improving roadside safety systems.

### WHAT ARE WE DOING?

As one of more than 20 state Department of Transportation, Caltrans is participating in the MWRSF Roadside Safety Pooled fund project to improve safety for California and the nation. Caltrans participates through a fund transfer to the pooled fund lead state, Nebraska State DOT. Caltrans also participates in the pooled fund project prioritization process, project meetings, as well as the annual and mid-year pooled fund meetings. Lastly, we work with our internal Caltrans customers to review and help implement MWRSF developed and tested hardware.

### WHAT IS OUR GOAL?

Caltrans' goal in participating in this pooled fund project is to benefit by sharing expertise and receiving nonproprietary roadside safety hardware designs for use on its highways while realizing savings in terms of shared costs.



DRISI provides solutions and  
knowledge that improves  
California's transportation system

## WHAT IS THE BENEFIT?

Caltrans benefits by sharing expertise and receiving roadside safety details and designs for use on our highways. The result is a statewide improvement in safety, reducing injuries and deaths for run of road accidents. There is also a reduction in Caltrans tort liability for accidents, ultimately resulting in significant savings for the state of California.

## WHAT IS THE PROGRESS TO DATE?

See the following links for the pooled fund quarterly reports and the Midwest Roadside Safety Facility Research Hub for completed research:

<https://pooledfund.org/Details/Study/653> and  
<https://mwrsf.unl.edu/researchhub.php>

MwRSF recently completed a project called "MASH 2016 Test Level 4 Evaluation of MNDOT Concrete Parapet with Brush Curb and Upper Beam and Post Rail with New Tapered End Section". The test article successfully met MASH evaluation criteria. While the project was conducted for MNDOT, other states including California may benefit from this research. Some photos of the project and the three full-scale crash tests are shown below.

## IMAGE



Image 1: View of Tapered End Section



Image 2: Close up View of Barrier at a Rail Splice

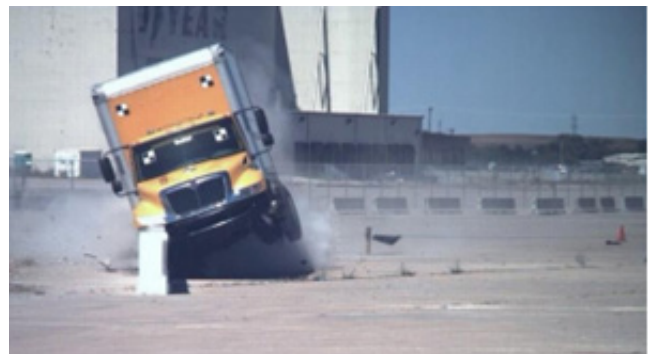


Image 3: Test 4-12 During Impact

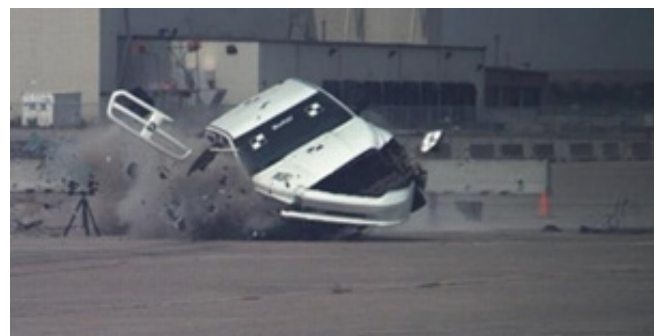


Image 4: Test 4-11 During Impact

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Image 5: Test 4-10 During Impact