

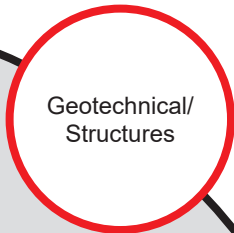


Caltrans Division of Research,
Innovation and System Information

Research



Results



Geotechnical/
Structures

MAY 2019

Project Title:

Compliance Crash Testing of a Side Mounted Bridge Rail

Task Number: 2557

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Compliance Crash Testing of a Side Mounted Bridge Rail

The ST-70 SM (Side Mounted) bridge rail was tested and evaluated to Test Level 4 of MASH (Manual for Assessing of Safety Hardware).

WHAT IS THE NEED?

There is a need for a Manual for Assessing Safety Hardware (MASH) 2009 compliant Test Level 4 (TL-4) side mounted bridge rail in the State of California. The Highway Safety Features New Products Committee recognized that crash testing of the side mounted TL-4 rated rail was a high priority due to the demand from various stake holders. Caltrans frequently encounter Right-of-Way issues or similar limitations which makes it impossible to place a regular bridge rail. Situations like this will required a side mounted bridge rail. This barrier will be used in areas where the posted speed limit will be more than 70 km/hr (45 mph).

WHAT WAS OUR GOAL?

The goal of this research project was to design, construct, test and evaluate performance of a side mounted bridge rail that meets the evaluation criteria of MASH 2009 Test Level 4 for longitudinal barriers.

WHAT DID WE DO?

This project conducted crash tests on the CA ST-70SM side mounted bridge rail that was designed by Caltrans Structures Design and constructed at the Caltrans Dynamic Test Facility. These tests met the evaluation criteria of MASH 2009 TL-4 for longitudinal barriers. Test level 4 consist of three crash tests as follows:

- 1,100 kg (2,420 lb) passenger car impacting the side mounted bridge rail at 100 km/hr (62 mph) and 25°
- 2,270 kg (5,000 lb) truck impacting the side mounted bridge rail at 100 km/hr (62 mph) and 25°
- 10,000 kg (22,000 lb) single-unit truck impacting the side mounted bridge rail at 90 km/hr (56 mph) and 15°



Caltrans provides a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability.

WHAT WAS THE OUTCOME?

The CA ST-70SM side mounted bridge rail meets the criteria set in the American Association of State Highway and Transportation Officials' (AASHTO) Manual for Assessing Safety Hardware (MASH) 2009 as a Test Level 4 longitudinal barrier. It successfully contained and redirected all three levels of vehicles and impact conditions as required.

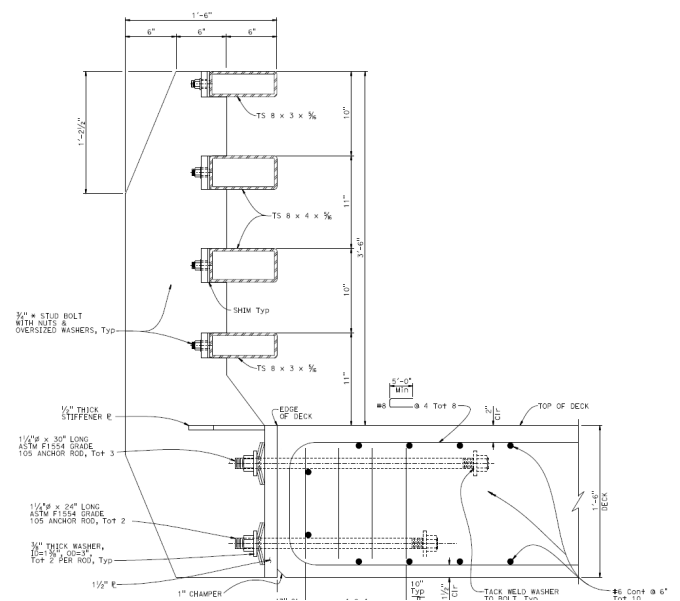
WHAT IS THE BENEFIT?

With the successful crash testing of the side mounted bridge rail, the Department has a solution for bridge deck locations that have space and Right of Way limitations. It also provides the Department with a bridge rail that has been tested to the latest roadside safety evaluation criteria set forth by the American Association of State Highway and Transportation Officials (AASHTO) and the Federal Highway Administration (FHWA).

LEARN MORE

http://www.dot.ca.gov/research/operations/roadsidesafety/Side_Mounted_Bridge_Rail.htm

IMAGES



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