

Geotech/
Structures

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Project Title: Development and
Crash Testing of a MASH TL-3 Bridge
Railing Transition Standardized
Buttress

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Development And Testing Of A MASH Compliant Guardrail Transition And Standardized Buttress

A standardized concrete buttress and thrie beam approach guardrail system was designed and tested to MASH 2016 criteria.

WHAT IS THE NEED?

The joint American Association of State Highway and Transportation Officials and Federal Highway Administration Implementation Agreement for the Manual for Assessing Safety Hardware (MASH) 2016 will sunset Federal Aid Eligibility for new installations of roadside safety hardware that have not been evaluated per MASH. The sunset date for bridge railing transitions is December 31, 2019. MASH crash testing criteria cites the use of different vehicles and has differences in evaluation criteria compared to the National Cooperative Research Program (NCHRP350, the previous standard for crash testing).

WHAT ARE WE DOING?

In partnership with the Transportation Pooled Fund program through Midwest Roadside Safety Facility, a concrete buttress will be developed and tested. Based on the crash test results, modifications to the buttress design may need to be implemented and re-tested to the MASH criteria for the Test Level 3 safety devices.

WHAT IS OUR GOAL?

Design and crash test, evaluate, and approve a new bridge railing transition for use in California per the MASH 2016 criteria to replace the current transition designs approved under NCHRP 350. Produce a standard transition from metal beam guardrail to a standardized concrete buttress.



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WHAT IS THE BENEFIT?

The use of a standardized buttress design simplifies the connection hardware required to transition from a bridge rail to another roadside safety appurtenance. There is a cost savings from standardizing the shape and materials required to construct a buttress, in addition to the reduction of hardware that must be inventoried for such transitions. The standardized buttress design implemented as a Standard Plan also benefits the design and construction process by reducing the design variations and needed hardware for such connections.

WHAT IS THE PROGRESS TO DATE?

The testing conducted as part of the Pooled Fund Program has been completed. The test information includes a pickup truck crash into the standardized buttress design for the approach guardrail transition element. This is the test information for the approach guardrail transitions buttress 2 (AGTB-2). However, the final report is not yet available for this testing from the Pooled Fund Program website.

In addition, a secondary set of testing was conducted on a thrie beam transition section attached to a concrete buttress of similar design to the standardized buttress tested. This test information is for the 34 inches AGT. The final report is available from the Pooled Fund Program website.

IMAGES



Picture 1: AGTB-2



Picture 2: 34 inches AGT



Picture 3: Caltrans Standardized Buttress