



U.S. Department  
of Transportation

Federal Highway  
Administration

# Memorandum

Subject: INFORMATION: FHWA Roadside Safety Hardware Testing  
and Acceptance

Date: November 27, 2006

From:   
Jeffrey A. Lindley  
Associate Administrator for Safety

Reply to  
Attn. of:  
HSA-10/WZ-245

To: FHWA Safety Field Specialists

This memorandum deals with two safety hardware issues: 1) The FHWA's contractor assistance for acceptance letter processing, and 2) Crash testing of Category IV trailer – mounted devices.

1) Contractor assistance for processing FHWA Acceptance Letters

~~Effective immediately, the FHWA Office of Safety Design will use the services of a contractor, SAIC, and their subcontractor, Synectics, to support the safety hardware product acceptance process and more expeditiously move requests to completion. All requests for formal FHWA acceptance should be sent directly to the SAIC subcontractor:~~

~~Synectics Transportation Consultants  
Attention: Brian Malone, P.E.  
President  
36 Hiscott Street, Suite 100  
St. Catharines, Ontario L2R 1C8  
Canada~~

~~Synectics will review acceptance requests to ensure the submission is complete with test reports, video documentation, and engineering drawings in the proper format, etc. They will also conduct an initial analysis of compliance with the NCHRP Report 350 and the FHWA crash test guidance. As part of their review Synectics may contact the submitter directly as may be needed to request missing documentation or clarification on test or hardware details. It is not intended that they will return applications as "rejected," rather they will work with submitters to ensure that a complete and acceptable submittal package is received such that product acceptance can be achieved.~~



~~The FHWA will continue to perform the final engineering review and retain responsibility for the final content of product acceptance letters. Synectics will also assist the FHWA in preparing the Acceptance Letters and attachments for posting on our web site. The assistance provided under this contract with SAIC/Synectics will last 1 year, with an option for a second year.~~

~~Those submitting requests for acceptance will be responsible for providing complete documentation to support the crashworthiness of their device. The contractor will expect that all crash tests specified in the NCHRP Report 350 matrix for that category of device will be included in each submission, or that documentation from the FHWA waiving specific tests will be included. This documentation may consist of the email correspondence that is exchanged between the FHWA and the submitter prior to the beginning of the test effort. Please note that when modifying a previously tested device, copies of earlier FHWA acceptance letters and the previous test reports that support that request should be included if they also apply to the modified device.~~

~~In addition, effective January 1, 2007, each request for formal acceptance shall also include a drawing or drawings in the format detailed by the AASHTO/AGC/ARTBA Task Force 13 Standardization of Road and Bridge Hardware. Drawings in this format will be posted on our web site as well as included in the Task Force 13 on-line publications dealing with highway barrier hardware, bridge rails and transitions, ground-mounted small sign supports, and lighting pole hardware.~~

~~The drawing specifications and templates may be found at:  
<http://aashtotf13.tamu.edu/Guide/standards.html>.~~

~~For interpretations of existing acceptance that do not require a formal, written response, you may continue to contact Mr. Nicholas Artimovich ([nick.artimovich@dot.gov](mailto:nick.artimovich@dot.gov)) for questions dealing with barriers (longitudinal barriers, bridge railings, attenuators) and roadside design in general, and you may contact Mr. Matt Lupes ([matt.lupes@dot.gov](mailto:matt.lupes@dot.gov)) for questions dealing with breakaway supports and crashworthy work zone traffic control devices.~~

## 2) Crash testing of Category IV trailer – mounted devices.

Crash testing will not be required for work zone Category IV trailer-mounted devices.

The 1993 NCHRP Report 350 “Recommend Procedures for the Safety Performance Evaluation of Highway Safety Features” was the first to provide guidance for testing of temporary/portable work zone traffic control devices. When the FHWA adopted Report 350 we did not require crash testing for arrow boards, changeable message signs, portable traffic signals, and other trailer mounted devices commonly used in work zones. We believed that the state-of-the-art in design of these devices was not to a point where it would be cost effective to mandate a fully crashworthy design. Neither did we know if they were causing numerous or severe injuries in work zone crashes. To require them to be redesigned, or to be shielded with a temporary barrier to prevent collisions could cause agencies to reevaluate their desire to use these helpful and conspicuous devices.

Since 1993 we have monitored studies of such devices including two by the Highway Safety Information Service (1995, 2002), and one by Mr. James Bryden, which will be presented at the TRB 2007 Annual Meeting. The studies show there is very little evidence that these devices are being struck frequently enough, nor are they causing injury severities that warrant either shielding with a barrier, or complete redesign of the trailers to make them crashworthy. Indeed, Mr. Bryden noted that his review of work zone accident reports shows that, on average, impacts into work zone barriers and crash cushions are *more severe* than impacts into Category IV devices.

A crash test matrix for Category IV devices is being included in the procedures that will replace Report 350. Manufacturers who wish to build and test a crashworthy device will use these test procedures. Although we have encouraged the industry to develop safer trailers, crash testing of Category IV devices will not be required by the FHWA in the foreseeable future. Proper placement of arrow panels and changeable message signs can help reduce the potential for crashes. Guidelines for placing and delineating these work zone trailers may be found in MUTCD Sections 6F-52 and 6F-53, AASHTO Roadside Design Guide, Chapter 9, Section 9.4.2.4 and in the FHWA Acceptance Letter WZ-45. The North Carolina DOT Policy for Use of Changeable Message Signs that we excerpted in that WZ-45 memo may still be found on the Internet at: <http://www.ncdot.org/doh/preconstruct/traffic/congestion/docs/cmsopera.pdf>.

cc: Task Force 13  
AASHTO TCRS

FHWA:HSA-10:NArtimovich:tb:x61331:11/2/06

File: s://directory folder/nartimovich/Memo to Safety Field 11-3-06.doc

cc: HSA-10 (Reader, HSA-1; Chron File, HSA-10; N.Artimovich, HSA-10;  
MMcDonough, HSA-10)