



Memorandum

Subject: **INFORMATION:** Roadside Safety
Hardware –Federal-Aid Reimbursement
Eligibility Process

Date: MAY 21 2012

From: Tony Furst
Associate Administrator for Safety

In Reply Refer To:
HSST

To: Division Administrators
Federal Lands Highway Division Engineers

The purpose of this memorandum is to describe the Federal-aid reimbursement eligibility process for roadside safety hardware. This process is relevant to all roadside safety hardware, including longitudinal barriers, crash cushions, attenuators, end terminals, breakaway supports, and work zone hardware used on Federal-aid projects. Key features of the process include:

- FHWA letters will state whether roadside hardware is eligible for reimbursement under the Federal-aid highway program. The letters will not state that hardware is "acceptable for use" as experience shows the intent of such language can be misinterpreted. All eligibility letters shall originate from the Office of Safety in Headquarters.
- Finite element analysis (FEA) will be required in support of requests for non-significant structural modifications to previously crash tested hardware where the effect of the modifications is uncertain and additional crash testing is not performed. This is discussed in detail in section II.B. of the attached process.
- Submissions can now be done electronically and we are streamlining the submission process by using a PDF form.

The process for eligibility determinations is described in detail in Attachment A.

Federal-aid reimbursement eligibility determination

As of November 1, 2011, FHWA letters state whether roadside hardware is eligible for reimbursement under the Federal-aid highway program. The purpose of these letters is to establish eligibility for Federal-aid reimbursement. The decision on whether to use particular hardware, and how to use it, is the State's discretion. All eligibility letters shall originate from FHWA's Office of Safety. Previous letters issued by the Office of Safety prior to the date of this memorandum continue in effect for the purpose of eligibility for Federal-aid reimbursement.

New and modified hardware

FHWA's eligibility review of new hardware will primarily consider full-scale physical crash testing under the AASHTO Manual for Assessing Safety Hardware (MASH). A hardware developer may wish to include FEA as supplemental information in its original submission. FEA may be used to determine the effect of proposed modifications on the performance of existing successfully crash tested hardware.

Any structural change to the hardware where the effect on the crash test performance of the hardware is uncertain will require a FEA and verification and validation (V&V) analysis to demonstrate the expected performance of the structural change. FHWA may consider the FEA and V&V analysis as a basis for eligibility if results of this analysis are within MASH-prescribed parameters. When FEA and V&V analysis determine the proposed modification is not within MASH prescribed parameters, physical crash testing according to the MASH test criteria will be required.

FEA specifies dynamic 3-D finite element analysis (e.g., LS-DYNA software) and V&V procedures as detailed in the report of NCHRP project 22-24 (Recommended Procedures for Verification and Validation of Computer Simulations used for Roadside Safety Applications (V&V)) at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w179.pdf. The AASHTO Technical Committee on Roadside Safety has endorsed the use of NCHRP 22-24 V&V procedures when designers and developers use numerical simulation in evaluating roadside safety hardware. The use of V&V as part of the documentation supporting an eligibility request is covered in the attached guidance.

Please note that although the Federal-aid reimbursement eligibility process includes procedures to incorporate FEA and V&V, these do not replace physical crash test requirements for new hardware or for significant changes (as defined in section II.B. of the process, Attachment A) made to hardware that was previously determined to be eligible for Federal-aid reimbursement.

Electronic submissions

The Office of Safety developed an electronic method for submitting requests to FHWA for determining Federal-aid reimbursement eligibility using Adobe® Form format. This new electronic format is available for immediate use and serves to streamline the existing submission process by reducing the time currently required for review. It should be used for submitting requests related to new hardware or modifications to hardware previously determined to be eligible for Federal-aid funding. A full description of this process and a link to the form can be found at: [Roadside Hardware Policy and Guidance - FHWA Safety Program](#).

Informing States

Division Offices should inform State transportation agencies about the Federal-aid reimbursement eligibility process, including use of electronic submissions. *Beginning June 1, 2012, the PDF form should be used for submitting all requests for Federal-aid reimbursement eligibility determinations for both new and modified safety hardware.*

While some States do test and submit hardware for review, most submissions come from private industry. The Office of Safety will conduct outreach to hardware manufacturers, crash test laboratories, and others in the roadside safety and work zone traffic control device industries.

Attachment A of this memorandum describes the Federal-aid reimbursement eligibility process, which includes a flow chart. It is posted with this memorandum on the FHWA Policy and Guidance Center. If you have any questions or comments on this policy, please contact Mr. Nicholas Artimovich at nick.artimovich@dot.gov or Mr. William Longstreet at will.longstreet@dot.gov, in the FHWA Office of Safety Technologies.

Attachment

cc: Directors of Field Services

Safety Field

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