



Connecticut DOT

Number: ECD-2019-8

Bureau of Engineering and Construction

Date: May 23, 2019

## ENGINEERING & CONSTRUCTION DIRECTIVE

\_\_\_\_\_  
Chief Engineer

### **Process for Determining MASH-Compliant Roadside Safety Hardware**

FHWA's longstanding policy is that all roadside safety hardware installed on the NHS be crashworthy. The American Association of State Highway and Transportation Officials (AASHTO) and FHWA have agreed upon the implementation of the 2016 Manual for Assessing Safety Hardware (MASH) crash standards for roadside safety hardware and sunset dates for non-MASH compliant devices. The MASH testing criteria replaces NCHRP-350 testing criteria and better reflects the impact of the current vehicle fleet with barrier.

The Department has existing policies in place to allow only crashworthy systems on its roadway when new systems are installed, existing non-compliant roadside safety hardware are upgraded, or when existing devices are damaged beyond repair and replaced. The crashworthiness of existing Department-approved NCHRP-350 systems was established through different methods and is not covered by this process.

As new proprietary and non-proprietary MASH hardware become available, the Department's Research Liaison Committee (RLC) will evaluate them for use on our roadways. The RLC includes members who are involved in the design layout, procurement, installation, and maintenance of roadside safety hardware devices and provides the necessary expertise needed to determine the crashworthiness of a system or product. In addition to crashworthiness, the RLC will determine if a product meets the Department's needs based on other considerations such as ease/clarity of installation, cost, maintenance requirements and in-service performance. All these factors will be considered prior to a product's approval. Information supporting the approval will be documented in the minutes of the RLC Meeting and stored in ProjectWise. The approved hardware will be placed on the Department's [Qualified Products List](#) (QPL) noting the crash test standard (MASH 2016, MASH 2009, etc.), test level (TL-2, TL-3, etc.) basis for approval, and date of approval. In conjunction with any approvals, the RLC will coordinate with others in the Department when new design layout, installation or maintenance guidance is required, or Standard Drawings need to be revised or created.

The following methods will be used to determine if a product or system is MASH compliant:

- **Eligibility Letter** - Eligibility letter issued by FHWA or successor system put in place after FHWA sunsets their program.
- **Crash Test Report from an Accredited Facility** - Department will evaluate the testing results and recommendations contained in the report issued by an accredited testing facility. Use of a partial test matrix as deemed appropriate by the testing facility will be allowed.
- **Research Report** - This includes NCHRP reports or any other published report prepared by recognized experts in the field. Research methodologies that include computer simulation, component testing, crash testing, comparative evaluations, etc. will be considered. Approval would be based upon Department review and acceptance of the applicable research.
- **Engineering Analysis:** Approval will be based on analysis and opinion by the Department or an accredited crash-test facility on specific systems or modifications to existing systems where no direct testing or research report has been prepared.
- **Approval by Other States** – Documentation used by original approving state will be reviewed prior to Department approval.
- **Revisions to Approved Proprietary System** - Changes to existing approved proprietary MASH systems will require certification by the manufacturer and a 3<sup>rd</sup> party review by an accredited testing facility or qualified expert concurring with the manufacturer's conclusions.