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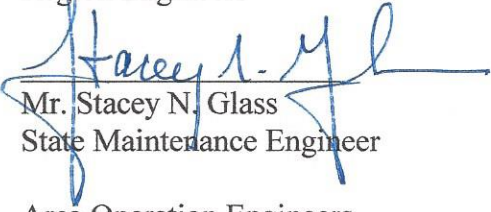
Kay Ivey  
Governor

John R. Cooper  
Transportation Director

May 21, 2018

**MEMORANDUM**

TO: Bureau Chiefs  
Region Engineers

FROM:   
Mr. Stacey N. Glass  
State Maintenance Engineer

ATTN: Area Operation Engineers  
Area Maintenance Engineers

RE: Implementation of MASH Standards for Routine Maintenance Activities

The AASHTO Manual for Assessing Safety Hardware (MASH) is the state of the practice for the crash testing of safety hardware devices for use on the National Highway System (NHS). MASH updates and replaces NCHRP Report 350.

On May 15, 2017, Mr. Steve Walker's memo stated, "the Department will begin implementing the first phase of new MASH compliant standards for new and replacement installations of roadside safety hardware guardrail beginning with the July 28, 2017 letting". The implementation of MASH compliant standards affects both NHS and State maintained highways. Mr. Walker's memo did not address routine maintenance repair activities in relation to roadside safety hardware.

This memo provides guidance regarding MASH compliant hardware for routine maintenance repairs by ALDOT forces on NHS and State maintained roadways. The following shall be used to determine if an in-place roadside hardware system will be replaced with a MASH compliant system:

- In no case shall a previously installed MASH compliant device be replaced with non-MASH hardware systems.
- Purchase of non-MASH compliant hardware should immediately cease unless there are no suitable alternatives for replacement. It is permissible to use current ALDOT non-MASH inventories unless otherwise specified.

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- If not on contract, MASH compliant hardware may be purchased utilizing current emergency letter “guardrail items, sign supports, etc.”. MASH compliant hardware purchased must be shown on ALDOT’s Materials, Sources and Devices with Special Acceptance Requirements (MSDSAR) list.
- The implementation of the new height requirement for MASH hardware does not in itself require the replacement of all existing guardrail that satisfies the 26-½” height guidance from the 2011 Roadside Design Guide.
- W-beam Approach Terminals/End Treatments –
  - On NHS (non-Interstate) and non-NHS routes, if a NCHRP 230 compliant guardrail end treatment is damaged or destroyed, it may not be repaired, but may be replaced with existing ALDOT NCHRP 350 inventories. If a NCHRP 350 compliant guardrail end treatment is damaged or destroyed, it may be repaired or replaced with existing ALDOT NCHRP 350 inventories.
  - On Interstate routes, if a NCHRP 350 compliant guardrail end treatment is damaged or destroyed, it may be repaired or replaced with existing NCHRP 350 inventories.
  - When existing ALDOT NCHRP 350 inventories are depleted, then the damaged/destroyed non-MASH end treatment shall be replaced with a MASH compliant end treatment.
- W-beam barrier/Guardrail –
  - If a section of non-MASH compliant w-beam guardrail is damaged it shall be replaced with a MASH compliant rail and installed per Special Project Detail drawing, Index 326, 326A and 327 (GR-630-S). If the existing section of guardrail that is damaged is less than 27 ¾” in height and the damaged length is less than 25’, repair the guardrail like-in-kind. No steel block outs shall be used in the repairs.
  - If a section of non-MASH compliant w-beam guardrail is damaged within 100’ from a terminus end of guardrail (not including end anchor) or a previously MASH upgraded section, then the entire length from the damaged section to the terminus end of guardrail or previously MASH upgraded section shall be replaced with a MASH compliant guardrail.
  - On runs of non-MASH compliant guardrail that are greater than 300’, following any damage repairs if less than 200’ of the non-compliant undamaged rail (not including end anchor) remains, then the entire rail section shall be replaced with MASH compliant guardrail.
- Cast-in-place concrete barriers, bridge rails and guardrail to bridge rail transitions shall remain in service for their useful life. Damage repairs shall be made like-in-kind.
- Cable barriers, cable barrier terminals, and crash cushions shall remain in service for their useful life. Damage repairs shall be made in accordance with manufacturer’s recommendations.
- All other longitudinal barriers (such as Box Beam rails), and all other terminals: if 50% of other longitudinal barriers or other terminals are damaged, then the entire barrier or terminal shall be removed and a MASH compliant device shall be installed. Otherwise, repair like-in-kind.



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- Sign supports, and all other breakaway hardware may be repaired/replaced with current ALDOT non-MASH hardware inventories until they are exhausted. Thereafter, they shall be replaced with a MASH compliant devices.

For any maintenance contract, EP-10, purchase order work, etc., that is to be performed by other than State forces on the National Highway System (NHS) and any state-maintained route:

- Only safety hardware evaluated using the 2016 edition of MASH criteria will be allowed for guardrail end treatment repairs or replacements.
- Damaged non-MASH compliant end treatment shall not be repaired, but must be replaced with a MASH compliant device.
- Guardrail repairs shall follow repair/replacement recommendations as previously noted within this memo for routine maintenance repairs by ALDOT forces.
- New guardrail permanent installations and full replacements must use MASH compliant devices.

If you have any questions pertaining to this matter please contact Mark Waits at (334) 242-6274.

SNG/MTW/mw

cc: Mr. George Conner  
Mr. Don Arkle  
Maintenance Bureau Assistants  
File