

DATE: October 15, 2018
Meg B. Pirkle
FROM: Meg B. Pirkle, P.E., Chief Engineer

TO: Divisions of Engineering, Construction, Operations, Local Grants and Field Districts, Program Delivery, P3, and the Offices of Engineering Services and TIA

SUBJECT: **Roadside Safety Hardware (Implementation of MASH Testing Criteria)**
AMENDED – October 15, 2018

In June and August 2018, AASHTO and FHWA revised their Joint Implementation Agreement for use of MASH testing criteria on roadside safety hardware. As a result, the Georgia Department of Transportation has amended its policy titled "Implementation of AASHTO-MASH criteria for Roadside Safety Hardware". The previous amended document dated April 10, 2018, will be superseded by this letter and the attached amended document dated **October 15, 2018**. Both are published on the Department's R.O.A.D.S. webpage under Policy Announcements at:

<http://www.dot.ga.gov/PS/DesignManuals>

The attached amended GDOT policy makes the following clarifications:

- Even-though AASHTO/FHWA has moved the sunset date for NCHRP 350 "flared" terminals to December 31, 2019, GDOT maintains its earlier decision to require that only MASH tested "tangent" terminals be installed for all new permanent installations and full replacements of W-Beam end-treatments. NCHRP 350 "flared" terminals may be used under the following conditions:
 1. If required per the manufacturer's specifications on cable barrier installations.
 2. For repairs of existing "flared" configurations of W-Beam end-treatments where there is no MASH tested equivalent.
- For contracts with a Letting date after December 31, 2019, all new permanent installations and full replacements of cable barrier and cable barrier terminals shall meet MASH testing criteria.

The target audiences for this information are:

- Manufacturers of roadside safety hardware;
- Contractors that install the hardware; and
- GDOT Offices responsible for planning, designing, and constructing new construction projects, widening and reconstruction projects, 3R and Pavement Reconstruction projects, Preventative Maintenance activities, and repairs to roadside safety hardware.

If you have any questions, feel free to contact Frank Flanders or Holly Cross at (404) 631-1978.

MBP:HP:BAS
Attachment

Georgia Department of Transportation

Implementation of AASHTO-MASH criteria for Roadside Safety Hardware (*Amended 10-15-18*)

The implementation dates below apply to the installation of roadside safety hardware on state routes and roadways on the National Highway System in Georgia. All references to the AASHTO *Manual on Assessing Safety Hardware* (MASH) refer to the latest edition unless otherwise noted. All references to “new permanent installations” involve the installation of a roadside safety system in a permanent application where none previously existed. All references to “full replacements” involve the replacement of all components (also referred to as a full-run) of an existing roadside safety system including longitudinal barrier (e.g., guardrail, cable, cast-in-place concrete), transitions, terminal units, and other roadside hardware elements.

January 1, 2016: 31-inch height W-beam guardrail and either NCHRP 350 or MASH accepted end-treatments on GDOT QPL shall be installed as outlined below: (NCHRP 350 testing requirements for end-treatments will be superseded by the June 30, 2018 *and December 31, 2019* MASH testing requirements below).

1. **New construction, widening and/or reconstruction:** For new permanent installations and full replacements.
2. **Resurfacing, Restoration, Rehabilitation (3R) and Pavement Reconstruction:** Where the existing guardrail height is less than 27 $\frac{3}{4}$ inches or as defined in Chapter 11 and Table 11.1 of the GDOT Design Policy Manual.
3. **Preventative Maintenance (PM) activities:** Where the existing guardrail height is less than 27 $\frac{3}{4}$ inches. PM activities will either address needed upgrades during the course of work or identify and schedule the needed upgrades with one of the following:
 - a. Future scheduled 3R project,
 - b. Future scheduled pavement reconstruction work,
 - c. Future standalone guardrail project,
 - d. Future programmed roadway project, or
 - e. District Maintenance Contract.
4. **Repairs:**
 - a. The repair of more than 25 ft (> 25 ft) of damaged W-beam guardrail where the height is less than 27 $\frac{3}{4}$ inches shall be replaced at 31-inch height. This (25 ft) represents two 12 $\frac{1}{2}$ -ft W-beam panels or one 25-ft W-beam panel.
 - b. The repair of 25 ft or less (≤ 25 ft) of W-beam guardrail may match existing guardrail height.
 - c. If an existing end-treatment is connected to a damaged W-beam guardrail that is being repaired at 31-inch height, then the end-treatment shall be replaced at 31-inch height.
 - d. Damaged end-treatments shall be replaced with NCHRP 350 or MASH accepted products according to the manufacturer’s installation manual. (NCHRP 350 testing requirements for end-treatments will be superseded by the June 30, 2018 *and December 31, 2019* MASH testing requirements below).
 - e. A decision to replace a full-run of guardrail during a repair will be the discretion of the Department’s engineer in the field.

References:

- [GDOT Design Policy Manual](#)
Chapter 11 for examples of 3R and Pavement Reconstruction projects, and PM activities.
- [GDOT Construction Standards](#)
guardrail and end treatments,
4380 – 4392.

December 31, 2017: For contracts with a Letting date after December 31, 2017, all new permanent installations and full replacements of W-beam guardrail and cast-in-place concrete barriers shall meet MASH testing criteria.

1. **W-Beam Guardrail:** GDOT adopted 31-inch height W-Beam guardrail on July 1, 2012. The GDOT Construction Standards for 31-inch height W-Beam guardrail reflect a MASH tested non-proprietary system.

Georgia Department of Transportation

2. **Cast-In-Place Barrier:** Projects that propose to replace or extend less than 60-ft in length of existing Jersey Barrier shall use the GDOT Standards for Jersey Barrier. Projects that propose to replace or extend 60-ft or greater in length of existing Jersey Barrier shall use the current GDOT Single-Slope Barrier Special Details or Standards.

Repairs: Repairs of existing Jersey Barrier shall use the GDOT Standards for Jersey Barrier.

June 30, 2018: For contracts with a Letting date after June 30, 2018, all new permanent installations and full replacements of W-beam end-treatments shall meet MASH testing criteria.

NOTE: Regarding the June 30, 2018 sunset date, an AASHTO/FHWA exception and clarification notice states that this date now covers "tangent" terminals only. For new permanent installations and full replacements of W-beam end-treatments, GDOT continues to require the use of MASH tested "tangent" terminals and does not allow the use of "flared" terminals, except as required per manufacturer's specifications on cable barrier terminal installations.

Repairs: Effective June 30, 2018, and until further notice, repairs to damaged end-treatments shall use a MASH tested product. If there is no MASH tested equivalent for the existing configuration of end-treatment (i.e., flared or tangent), then an NCHRP 350 tested product shall be used.

December 31, 2018: For contracts with a Letting date after December 31, 2018, all new permanent installations and full replacements of crash cushions shall meet MASH testing standards.

Repairs: Effective December 31, 2018, repairs shall use MASH tested products. However, if there is no MASH tested product that conforms to the location restraints of the impact attenuator that is being replaced, an NCHRP 350 tested product shall be used.

December 31, 2019:

1. For contracts with a Letting date after December 31, 2019, all new permanent installations and full replacements of bridge rail, transitions, longitudinal barrier (including portable barriers installed permanently), *cable barrier, cable barrier terminals*, all other terminals (*i.e., double-sided or median terminals and terminals installed on a flare*), sign supports, and all other breakaway hardware shall meet MASH testing criteria. *Note: "Terminals installed on a flare" is NOT the same application as the use of "flared" terminals.*
2. Temporary work zone devices, including portable barriers, manufactured after December 31, 2019, must have been successfully tested under MASH requirements. Such devices manufactured on or before this date, and successfully tested under either NCHRP Report 350 or the 2009 edition of MASH, may continue to be used throughout their normal service lives.

NOTE: If the Department determines that a reasonable number of MASH accepted products are available between January 1, 2016, and any of the implementation dates listed above, then these implementation dates may be revised to earlier dates and notice provided.