Office of Engineering
Project Development Division
Bridge Design Section
PO Box 94245 | Baton Rouge, LA 70804-9245

John Bel Edwards, Governor
Eric Kalivoda, Ph.D., Secretary
Christopher P. Knotts, Chief Engineer

MEMORANDUM

TO: ALL BRIDGE DESIGNERS - IN-HOUSE AND CONSULTANTS

FROM: ZHENGZHENG "JENNY" FU, P.E.
BRIDGE DESIGN ENGINEER ADMINISTRATOR

Zhengzheng Fu
Digitally signed by Zhengzheng Fu
DN: cn=Zhengzheng Fu, o=LADOTD, ou=bridge design, email=zhengzheng.fu@la.gov, c=US
Date: 2023.05.14 13:40:23 -05'00'

SUBJECT: BRIDGE DESIGN TECHNICAL MEMORANDUM NO. 113 (BDTM.113)
MASH IMPLEMENTATION POLICY AND THE USE OF NON-MASH DEVICES

DATE: May 12, 2023

Effective immediately, projects not having reached 95% Final Plans and using bridge and/or roadside safety hardware including, but not limited to, guard rail, guard rail end treatments, impact attenuators, breakaway signs, cable barrier, and concrete barrier, are to comply with the attached Louisiana DOTD MASH Implementation policy, which includes Attachment A "*Documentation Procedure for Non-MASH/NCHRP-350 Details*."

Projects using NCHRP-350 and/or Non-MASH compliant roadside safety hardware devices and/or details are to comply with the Louisiana DOTD MASH Implementation Policy. Attachment A requires showing the following note and table on the plans:

THE FOLLOWING ITEMS WERE DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, THEY ARE APPROVED FOR USE ON THIS PROJECT BECAUSE AN EQUIVALENT MASH DEVICE IS NOT AVAILIBLE OR CANNOT BE USED DUE TO SITE CONSTRAINTS.

LOCATION	DEVICE	REASON FOR USE

The above table is to be completed by the Engineer of Record. The above table and note are to be placed on the plans by the Engineer of Record where it is most convenient and/or logical (*i.e. Bridge General Notes, Guard Rail Layout, Bridge General Plan, etc.*). More information on using the above table can be found in Attachment A.

Standard Plans showing the following note do not need to be accounted for in the above table:

THIS DETAIL WAS DEVELOPED AND APPROVED FOR USE UNDER NCHRP REPORT 350. AS PER LADOTD'S MASH IMPLEMENTATION POLICY, ITS CONTINUED USE IS ALLOWED WHILE A MASH ALTERNATIVE IS DEVELOPED OR EVALUATED.

Attachment A requires the Bridge Design Section to maintain a list of non-MASH/NCHRP 350 details it oversees and this list will be posted on the LADOTD Bridge Design website under "Downloads".

Commonly used non-MASH/NCHRP 350 items for projects using Guard Rail that would require listing as per the policy can be found in the table below:

Item Number	**Item Description**
704-10-00310	Guard Rail End Treatment, NCHRP 350 - 31" (TL-3 Flared)
704-10-00105	Guard Rail End Treatment (Flared, 12' - 6" Length)
704-10-00110	Guard Rail End Treatment (Flared 18' - 9" Length)
See numbers below	***T-intersection Details (BD.2.6.4.1.22-26 & BD.2.6.4.2.22-23]***
704-03-00100	Blocked Out Guard rail
704-05-00100	Guard Rail Anchor Sections (Trailing End)
704-10-00100	Guard Rail End Treatment (Flared)
704-10-00200	Guard Rail End Treatment (Tangent)

This technical memorandum is posted on the LA DOTD Website at the following LA DOTD internet location:

Inside La DOTD > *Divisions - Engineering* > *Bridge Design* > *Technical Memoranda – BDTMs.*

Please contact Kelly Kemp (kelly.kemp@la.gov or 225-379-1809) if you have questions or comments.

ZZF/cmg
Attachment

c: Christopher P. Knotts (Chief Engineer)
Chad Winchester (Deputy Chief Engineer)
Peggy Paine (Critical Projects Division Administrator)
David Smith (Project Development Division Chief)
Michael T. Donmyer (Assistant Secretary of Operations)
David Miller (Chief Maintenance Administrator)
Haylye Brown (Bridge Maintenance Administrator)
Michael Vosburg (Chief Construction Division Engineer)
Brian Owens (Construction Engineer Administrator)
Chris Nickel (Pavement and Geotechnical Engineer Administrator)
Robert Isemann (Road Design Engineer Administrator)
Mark Chenevert (Contract Services Administrator)
Mary Stringfellow (FHWA)
Charles Aziabor (FHWA)
District Administrators and ADAs of Engineering and Operations
District Bridge Engineers and Area Engineers

U.S. Department of Transportation
Federal Highway Administration

Louisiana Division Office

5304 Flanders Drive, Suite A
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225.757.7600
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February 16, 2023

In Reply Refer To:
HDA-LA

Zhengzheng "Jenny" Fu, P.E.
Bridge Design Engineer Administrator
Louisiana Department of Transportation
and Development
Baton Rouge, LA

Subject: LaDOTD MASH Implementation Policy

Dear Ms. Fu:

The enclosed LaDOTD MASH Implementation Policy has been reviewed and found acceptable by the FHWA Louisiana Division Office.

If you have any questions, please contact me at 225-757-7610.

Sincerely yours,

Mary M. Stringfellow
Program Delivery Team Leader

Enclosure: (1)

Louisiana DOTD MASH Implementation Policy
March 12, 2021

The American Association of State Highway and Transportation Officials (AASHTO) and FHWA have agreed upon the implementation of the 2016 AASHTO Manual for Assessing Safety Hardware (MASH) crash standards for roadside safety hardware and have established sunset dates for non-MASH compliant devices. The Louisiana Department of Transportation and Development (LADOTD) MASH Implementation Policy will be followed for all new safety hardware installations and when existing, non-compliant devices are damaged beyond repair.

To assist with this implementation, LADOTD has created the MASH Implementation Review Committee (MIRC), comprised of representatives from Bridge Design, Road Design, Construction, Highway Safety, Traffic Engineering, Maintenance, and FHWA, to evaluate new highway safety products and details as they become available. The MIRC will determine if a product is MASH compliant by reviewing the following information:

- **FHWA Eligibility Letter** - Eligibility letter issued by FHWA if available. Proprietary products will require an FHWA eligibility letter.

- **Report issued from an ISO 17025 Testing Facility** – This may include use of a partial test matrix as deemed appropriate by the testing facility.

- **Research** - This includes NCHRP reports as well as miscellaneous research methodologies such as computer simulation, component testing, crash testing, etc. A 3rd party (ex. ISO 17025 testing facilities, researchers, consultants, etc.) could potentially be used to help review the data and assess the results.

- **Approval by Other States** – This includes all information, analysis, test results, etc. used by the original approving state as a basis for their approval. A 3rd party (ex. ISO 17025 testing facilities, researchers, consultants, etc.) could potentially be used to help review the data and assess the results.

If deemed MASH compliant, the MIRC will determine if the product meets the needs of LADOTD based on the ease/clarity of installation, cost, maintenance requirements, and in-service performance (in Louisiana or other states). Qualifying as a MASH device does not guarantee approval if the product does not meet the needs of LADOTD.

Once approved, LADOTD will update the standard plans and the Approved Materials List (AML) when necessary. Supporting documentation used in conjunction with these reviews will be retained in the Bridge Design Section for each approved item.

Existing NCHRP-350 products will remain eligible for use until such time that an equivalent MASH system is available and approved by the MIRC. LADOTD will maintain documentation of non-MASH / NCHRP 350 devices used on new projects along with supporting justification. See “Attachment A” for documentation procedure.

As per FHWA’s memo on MASH implementation dated January 7, 2016, temporary work zone devices that were manufactured before December 31, 2019 and meet the requirements of NCHRP 350 or a previous version of MASH may be used provided the device is still within its normal service life.

Changes made to a previously approved MASH product by the manufacturer / sponsor will require certification that the proposed changes do not affect the system’s ability to be MASH compliant and shall include supporting information, analysis, etc. The MIRC will review the proposal and may choose to accept the changes, reject the changes and prohibit

the product from future use, or require the submitter to obtain a letter from an ISO 17025 testing facility confirming the manufacturer's certification.

Attachment A:

Documentation Procedure for Non-MASH / NCHRP 350 Details

For non-MASH / NCHRP 350 details that appear on LADOTD standard plans, the following note will be added to those sheets:

> This detail was developed and approved for use under NCHRP Report 350. As per LADOTD's MASH implementation policy, its continued use is allowed while a MASH alternative is developed or evaluated.

For non-MASH / NCHRP 350 devices or details that are used in specific projects, the following note and table shall be added to the plans and completed by the Engineer of Record:

> The following items were developed and approved for use under NCHRP Report 350. As per LADOTD's MASH Implementation policy, they are approved for use on this project because an equivalent MASH device is not available or cannot be used due to site constraints.

Location*	Device	Reason for Use**

*(e.g. Station number and offset, control section and log mile, coordinates, etc.)

**(e.g. Interference with driveway or roadway, lack of available MASH details, etc.)

The Bridge Design Section will maintain a list of non-MASH / NCHRP 350 details which will be posted on the LADOTD Bridge Design website under "Downloads".