



Department of Transportation


ENGINEERING
INSTRUCTION

EI
20-007

Title: **MASH-COMPLIANT CABLE BARRIER SYSTEMS – DESIGN GUIDANCE**

**SUPERSEDED BY
EB 26-015
EFFECTIVE 12/31/26**

Approved:


Richard D. Wilder, P.E.,
Deputy Chief Engineer (Design)


Date

ADMINISTRATIVE INFORMATION:

- Effective Date: This Engineering Instruction (EI) is effective immediately upon signature.
- Superseded Issuances: No issuances are hereby superseded.
- Superseded Shelf Notes/Special Notes: No Shelf Notes/Special Notes are hereby superseded.
- This EI is being concurrently issued with EB 20-020 *MASH-Compliant Cable Barrier Systems – Specifications*.
- Disposition of Issued Materials: The design guidance will reside in this EI until incorporated into chapter 10 of the Highway Design Manual.

PURPOSE: To announce the availability of cable barrier system(s) that are MASH-compliant (AASHTO Manual for Assessing Safety Hardware) and to require their use for new cable installations where a Test Level 3 system is required.

TECHNICAL INFORMATION:

- [EI 17-008](#) "Restrictions on Use of Weak-Post W-Beam, HPBO Terminals, and Half-Section Concrete Barrier" provides background on the MASH testing requirements.
- [Highway Design Manual \(HDM\) Chapter 10 Roadside Design](#) provides guidance on barrier selection, placement and the test levels (TL1 through TL6) used by MASH.
- The generic NY cable barrier is being redesigned and tested for TL3 under MASH-16.
- There are MASH-tested cable barrier systems that have passed TL3 (for posted speeds of 50 mph or higher). The newly added MASH compliant cable systems use 4 cables with a greater separation between the cables to capture and redirect larger vehicles.
- Where roadside or median cable barrier is proposed on roads with a posted speed of 50 mph or higher, a MASH-compliant TL3 cable system is to be used.
- In lower speed situations where TL2 (posted speed of 35-45 mph) or TL1 (posted speed of 30 mph or less) can be used, designers may specify the standard NY cable system.
- Maintenance may repair/replace any damaged cable system in kind.
- MASH-16 imposed additional testing requirements on cable systems used in median barrier applications.
- Absent additional successful testing to MASH-2016 criteria, cable barrier systems should not be placed on slopes steeper than 1V:10H. In median applications where reverse side impacts can be expected, cable barrier systems should not be placed adjacent to slopes steeper than 1V:10H.

- As new MASH-compliant cable systems are approved by the Department, they will be added to the Department's Approved List. The newly added MASH cable systems will be immediately available for Contractor's use on existing contracts at no additional cost to the State.
- Until a bid history is established, use of MASH-compliant cable guide rail and median barrier should be expected to result in a price increase of 75% over the current *generic NY cable barrier* item. The price increase should be expected to be higher for shorter runs.

IMPLEMENTATION:

- All projects let on or after May 1, 2020 shall follow the above policy with regards to cable barrier. If a redesign cannot be done in a timely manner by amendment, then the use of a MASH-compliant cable system or a different TL3 system shall be installed by order-on-contract.
- For projects let before May 1, 2020, if materials were purchased by the Contractor prior to March 6, 2020, there will be no need for a redesign as per the new cable policy. If the materials have not been purchased, a MASH-compliant cable system or a different TL3 system shall be designed and installed by order-on-contract.
- Disapproved Specifications:
 - 606.01020009 – High-Tension Cable Barrier (Direct Driven Post).
 - 606.01040009 – High-Tension Cable Barrier End Terminal.
- New Specifications:
 - 606.01010015 – MASH-Compliant Cable Barrier (Socketed Post) – Design Deflection 11 feet
 - 606.01020015 – MASH-Compliant Cable Barrier (Socketed Post) – Design Deflection 8 feet
 - 606.01050015 – MASH-Compliant Cable Barrier End Terminal

TRANSMITTED MATERIALS: None

BACKGROUND: The NCHRP 350 TL3 compliant standard 3-cable NY guide rail and 4-cable median barrier are undergoing MASH-16 testing. Design changes are being made to make NY cable MASH-compliant at TL-3. Since there currently are MASH-compliant TL3 cable system(s) available, the existing NY cable guide rail and median barrier will now be limited to TL1 (posted speed of 30 mph or less) and TL2 (posted speed of 35 mph to 45 mph) installations.

REFERENCES: AASHTO *Manual for Assessing Safety Hardware (MASH)*, 2016.

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