MASH Implementation

A summary of implementation issues and the latest developments

Updated February, 2019

Latest Developments:

⇒ The NCHRP-350 sunset date for **crash cushions** passed (1/2019) with no Type 1 or Type 2 devices available. Therefore, the Department will continue to utilize NCHRP-350 hardware until compliant hardware is developed and evaluated.

⇒ **Midwest Guardrail System (MGS) with reduced post spacing** — **Allowed** on all routes (to be tested by TTI, 2019)

⇒ **MGS with round wood posts** — **Allowed** (passed crash testing with reduced embedment depth, report from TTI pending, see CMS 606.01 for changes to guardrail posts)

⇒ **ODOT Permanent Single Slope Barrier** — **Allowed** (crash tested by the MwRF)

⇒ **Type B Anchor Assemblies** — With no MASH compliant devices approved, **NCHRP-350** products still allowed on all routes

⇒ **Type E Anchor Assemblies** — MASH approved Type E anchor assemblies are required on NHS routes.

Current Issues:

ODOT is reviewing available generic portable concrete barriers and is in the process of selecting a new barrier system. Discussions continue with the Ohio Contractors Association as a timeline for MASH implementation is developed.

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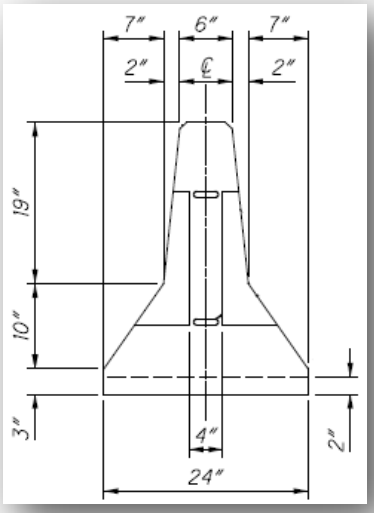
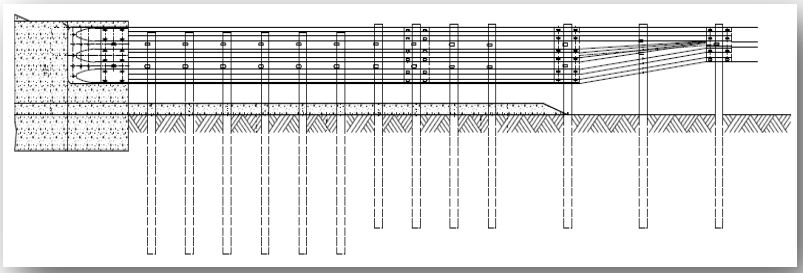


Current ODOT New Jersey Shape PCB—NCHRP-350 compliant only

NCHRP-350 Sunset Dates & Status



January 1, 2018—all new installations of longitudinal w-beam and cast-in-place concrete barriers are to be compliant with MASH.

- MASH compliant Midwest Guardrail System adopted to replace Type 5 guardrail. Type 5 is still allowed on non-NHS routes. Modifications to the MGS including MGS behind a curb, and with a reduced post spacing are being tested. These modifications continue to be accepted.
- ODOT single slope concrete barrier successfully passed a Test Level 3 crash test with a pickup truck.

June 30, 2018—All new installations of W-Beam terminals are to be compliant with

- ODOT added the SoftStop and MSKT to the approved products list for use on NHS routes where MASH devices are required.
- No Type B anchor assemblies have passed MASH crash criteria. NCHRP-350 devices are allowed on all routes.

January 1, 2019—All new installations of cable barrier, transitions, terminals and crash cushions are to be compliant with MASH

- With no MASH compliant cable barriers available, NCHRP-350 hardware is still allowed on all routes.
- Standard construction drawing MGS-3.1 details a MASH compliant guardrail to concrete barrier transition.
- No Type 1 or Type 2 crash cushions are available. ODOT continues to allow NCHRP-350 devices on all routes.

January 1, 2020—all newly fabricated precast concrete barriers, and newly installed sign supports, bridge railing, work zone devices and other breakaway devices and barriers are to be compliant with MASH

- ODOT is currently working to meet the approaching sunset date for these products.

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Acceptable Methods for Approving New Hardware

Method 1: FHWA Eligibility Letter

Method 2: ISO 17025 Testing Facility—may include a partial test matrix

Method 3: Researched Based—includes NCHRP reports, simulation, and component testing. May require 3rd party evaluation.

Method 4: Approval from other States—may require 3rd party evaluation

Method 5: Existing Systems with no MASH Equivalent—NCHRP-350 products to remain eligible. Action plan developed.

Method 6: Revisions to an Approved System—may require evaluation by a 3rd party.