**Latest Developments:**

⇒ The NCHRP-350 sunset date for crash cushions was January, 2019. The Department will continue to utilize NCHRP-350 hardware until additional MASH compliant hardware is developed and evaluated.

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

⇒ **Type E Anchor Assemblies** — MASH tested Type E anchor assemblies are currently required on NHS routes. Beginning in April, 2020, MASH tested Type E anchor assemblies are required on new construction projects on all routes. NCHRP-350 devices may be repaired with approved NCHRP-350 device hardware when damaged.

⇒ **Sand Barrels**—Traffix Barrels and CrashGard have both passed MASH testing and are available on the Office of Roadway Engineering Approved Products List.

⇒ **Portable Concrete Barrier**—ODOT has adopted a new F-shape portable concrete barrier based on a design developed by TTI. The new barrier is a pin and loop design and details can be found on *Standard Construction Drawing RM-4.2*. The current New Jersey shape may be used for the next 10 years if in acceptable condition. A new J-J Hook F-shape is also available for use (see the Office of Roadway Engineering Approved Products List for additional J-J Hook design details).

**For more information contact:**
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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 MASH.

- 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.

- ODOT continues to allow NCHRP-350 crash cushions 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.

- A new precast concrete barrier has been selected.

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.