



Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

September 14, 2018

CIRCULAR LETTER 2018-15

TRANSITION TO MASH COMPLIANCE FOR ROADSIDE HARDWARE

COUNTY ENGINEERS / SUPERINTENDENTS OF HIGHWAYS
MUNICIPAL ENGINEERS / DIRECTORS OF PUBLIC WORKS / MAYORS
METROPOLITAN PLANNING ORGANIZATIONS – DIRECTORS
TOWNSHIP HIGHWAY COMMISSIONERS
CONSULTING ENGINEERS

IDOT is in the process of implementing the American Association of State Highway and Transportation Officials (AASHTO) Manual for Assessing Safety Hardware (MASH) testing criteria for safety hardware in accordance with the January 7, 2016 AASHTO/FHWA Joint Implementation Agreement. Hardware passing testing requirements of the current (2016) edition of MASH will be required for new permanent installations and full replacements on the National Highway Systems (NHS) for lettings after the implementation dates referenced in the joint agreement and as noted below. For consistency throughout Illinois, IDOT will apply the MASH standard on all state routes as well. IDOT encourages MASH tested roadside hardware as a best practice for local public agencies.

Current implementation dates set by the AASHTO/ FHWA joint agreement, including subsequent amendments, are as follows (for lettings after these dates):

- December 31, 2017: w-beam guardrail and permanent cast-in-place concrete barriers;
- June 30, 2018: w-beam guardrail terminals;
- December 31, 2018: crash cushions
- December 31, 2019: cable barriers and cable barrier terminals, bridge rails, transitions, all other longitudinal barriers (including portable barriers installed permanently), all other terminals, sign supports, and all other breakaway hardware; and
- Temporary work zone devices, including portable barriers, manufactured after December 31, 2019 must have been successfully tested to the current edition of MASH. Such devices manufactured on or before this date, and successfully tested to National Cooperative Highway Research Program(NCHRP) 350 or the 2009 edition of MASH, may continue to be used throughout their normal service lives.

IDOT's Bureau of Safety Programs and Engineering (BSPE) is leading the transition to MASH. At this time, IDOT has addressed the w-beam guardrail, permanent cast-in-place concrete barrier and w-beam guardrail end terminal (Type 1 Special Tangent) treatments as part of transition to MASH. Concrete barrier implementation lagged by six months from the December 31, 2017

deadline, and has been fully implemented on project lettings after June 30, 2018. The w-beam and w-beam terminals met the implementation dates for those devices. Efforts to develop other devices to satisfy MASH, targeting the implementation dates listed above, are underway by industry, universities, FHWA, AASHTO and highway agencies including IDOT. Although specific timelines are not guaranteed IDOT will continue in efforts to meet these implementation dates.

Specific recent changes in Illinois are as follows:

IDOT W-Beam Guardrail:

Requirements have not changed since the original MASH requirements for this device were identified in 2009. At that time, Highway Standard 630001, which is compliant with MASH 2016, was developed and implemented as the Midwest Guardrail System (MGS). It is possible that IDOT standards would be further affected by ongoing testing of MGS located 6 inches behind curb with nested w-beam.

IDOT Cast-in-Place Concrete Barriers:

Details provided by IDOT's Bureau of Design and Environment (BDE) in early March showed the change from F-shape to single slope shape concrete median barrier. The height has changed for both 32" and 42" (2 sizes) to 44" and will now meet Test Level 5. The barrier is non-reinforced and will be used in 2-sided applications only. Detail drawings will be included in plans until Highway Standard 637001 is updated in January 2019.

IDOT W-beam Terminals (Type 1 Special, Tangent – all proprietary devices):

- NCHRP 350 Tested (Old) → MASH-tested (approved)
- ET Plus (Trinity) → SoftStop (Trinity)
- SKT-SP (Road Systems, Inc.) → MSKT (Road Systems, Inc.)
- X-Tension (Lyndsay) → MAX-Tension (Lyndsay)

For each device category, the IDOT Qualified Products List (QPL) will be updated to reflect approved products which have passed MASH testing. For categories where products tested to MASH standards are not available, agencies may use NCHRP 350 tested products on the QPL until hardware meeting MASH standards is approved and listed on the QPL.

IDOT continues to work toward meeting the MASH implementation dates for other roadside safety devices and will continue to monitor and communicate with those developing and installing hardware that satisfies the requirements of the MASH implementation plan, including the American Traffic Safety Services Association (ATSSA), AGC of Illinois, and Illinois Road Builders. IDOT is working with the Illinois State Toll Highway Authority (ISTHA) toward a consistent transition to MASH hardware.

Circular Letter 2018-15
Page 3
September 14, 2018

Ongoing work by IDOT to complete MASH implementation includes developing a reinforced constant-slope bridge parapet design and a temporary concrete barrier.

If you have any questions regarding this circular letter, please contact Tim Peters Local Policy and Technology Engineer at (217) 785-5048 or tim.peters@illinois.gov.

Sincerely,

Maureen E. Kastl, P.E.
Engineer of Local Roads and Streets



Cynthia L. Watters, P.E.
Engineer of Safety Programs and Engineering

TP

cc: David Marth, Illinois Association of County Engineers
Greg Willis, Illinois Municipal League
Bryan Smith, Township Officials of Illinois
Charlie Montgomery, Township Highway Commissioners of Illinois