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ENGINEERING DIRECTIVE

Patricia A. Leavenworth, P.E. (signature on Original)

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CHIEF ENGINEER

Temporary Barrier Systems for Construction and Maintenance Operations

Over the next three years (2017-2019) FHWA is phasing out the safety hardware performance requirements contained in the *National Cooperative Highway Research Program ("NCHRP") Report 350* published in 1993, in favor of the newer performance requirements contained in the *Manual for Assessing Safety Hardware ("MASH")* first published in 2009.

MassDOT is taking a proactive approach to the transition to MASH requirements for its temporary barrier systems. Therefore, MassDOT is implementing various measures to ensure that all temporary barrier systems deployed on its roadways or on its projects meet MASH requirements and are designed, installed and maintained in accordance with all relevant MassDOT and manufacturer's requirements.

As part of this transition process, MassDOT is discontinuing the use of its standard Precast Portable Concrete Barrier in all locations that require a barrier system that has passed a Test Level 3 Crash Test and that is approved for use on the NHS by FHWA.

Effective immediately, Designers, Contractors and MassDOT personnel shall follow the relevant procedures described below.

Design

Design Engineers are responsible for designing and specifying appropriate work zone positive protection on all projects. This involves identifying work zone clear-zone widths, designing protection from fixed objects and drop-off conditions, determining minimum Test Level requirements that devices used in the work zone shall be certified for, determining the maximum allowable width of Dynamic Deflection behind each barrier run, preparing site-specific temporary traffic control plans and special provisions, and reviewing shop drawings submitted by Contractors to ensure compliance with the contract documents and other requirements.

Construction

Contractors are responsible for obtaining, installing and maintaining temporary barrier systems, including temporary impact attenuators, that meet the requirements of the contract and that are approved and appropriate for use in the intended locations. This involves the use of devices that meet the specified Test Level, Dynamic Deflection and Length of Need requirements for each

location and that are approved for use by MassDOT and FHWA. Contractors are also responsible for preparing and submitting shop drawings for approval by MassDOT.

Maintenance and Inspection

MassDOT Contractors and MassDOT personnel are responsible for routinely inspecting in-service temporary barrier systems deployed on their active projects and for replacing or repairing any components that are compromised, exhibit unacceptable damage, or that no longer meet their intended requirements. Workers are also responsible for ensuring that temporary barrier is delineated per subsection 850.69 of the Supplemental Specifications.

Implementation of MASH Performance Requirements

- Projects under design and not yet advertised:
  - All projects under design shall utilize MASH performance requirements for deployments of temporary barrier.
- Projects already advertised or under construction:
  - For all projects already advertised or under construction where temporary barrier are not yet deployed the Designer is responsible for ensuring that temporary barrier systems are designed and specified in accordance with MASH performance requirements.
  - For all projects currently under construction where the in-service temporary barrier systems will not be removed and reset for phased construction operations but will be removed from the road before November 15, 2016, the Resident Engineer shall perform a visual inspection of the temporary barrier systems and shall direct the Contractor to repair or replace any portions that exhibit unacceptable levels of deterioration or that otherwise no longer meet their intended requirements. The Contactor is required to perform this work with no additional compensation under the contract.
  - For all projects currently under construction where the in-service temporary barrier systems will be removed and reset for phased construction operations prior to November 15, 2016, or where temporary barrier systems will remain deployed after November 15, 2016, the Designer shall review the temporary traffic control plans and shall ensure that all temporary barrier meets MASH performance requirements.
  - For locations that will require temporary barrier systems that are not specified in the current contract, the Resident Engineer shall request a proposal from the Contractor to provide any newly specified temporary barrier system in accordance with MASH performance requirements.

Additional Guidance

Recognizing there may be unique challenges during this transition phase due to product availability and impacts to project delivery, provisions of this Engineering Directive may be waived for certain active construction projects at the discretion of the Chief Engineer.

A list of approved temporary barrier systems can be found on the Qualified Traffic Control Equipment List.