

Office of Bridge Design

Technical Memorandum

Date: February 6, 2014

To: All Bridge Engineering Staff

From: Kevin Goeden
Chief Bridge Engineer


Subject: Technical Memorandum BTM07.1.2
Load Rating of New Bridge Superstructure and Box Culvert Designs


As part of the design process for new bridges and cast-in-place box culverts, the engineer responsible for the check design shall perform a load rating analysis. The load rating should be conducted after the bridge superstructure or box culvert design check process is complete and prior to initial plans preparation. Precast box culverts shall be rated by the Fabricator and this requirement will be noted in the construction plans. Ratings for precast boxes shall be submitted with the shop drawings.

The load rating shall be accomplished using the AASHTOWare Bridge Rating software product. For bridges, the main superstructure support system shall be completely described using schedule based input and the resulting data stored in the database titled "Bridge Design". The most up to date design data for the bridge superstructure or box culvert alternative selected should be used for load rating.

Ratings shall be done using the Load and Resistance Factor method (LRFR). This shall include evaluation at the Design Load rating for the HL93 truck at both the Inventory and Operating levels. A Legal Load rating shall also be performed for the three SD legal trucks (Type 3, 3S2 & 3-2). A Legal Load rating (specialized hauling) shall also be performed for the notional rating load and the four specialized hauling vehicles noted in the *AASHTO Manual for Bridge Evaluation*. All sections of the main supporting superstructure members or box culvert shall rate at HL93 or better (Inventory Level). The three SD Legal Loads, the notional load and the four specialized hauling vehicles shall rate greater than 1.0 at legal load rating level.

An AASHTOWare Bridge Rating load rating output copy of the results summary for each new superstructure or cast-in-place box culvert shall be attached to the 90% complete structure plans set routed for Office Review. Upon completion of final plans and submittal for project letting, the engineer responsible for final plans submittal shall notify the Bridge Management Engineer and identify which superstructure or box culvert alternatives were used for final design.

Reviewed by:  Date: 2/6/14

Approved by: , Chief Bridge Engineer, Date: 2-6-2014