



BRIDGE BULLETIN 2016-1

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To: All Bridge Designers

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Subject: ADOT Bridge Design Guidelines

Web Site: <http://www.azdot.gov/business/engineering-and-construction/bridge/guidelines>

This bulletin addresses a revision to the ADOT Bridge Design Guidelines in addition to a clarification in the Bridge Bulletin 2015-4 (Issue Date 07-29-2015).

Clarification in the BRIDGE BULLETIN 2015-4 (Issue Date 07-29-2015):

In the summary of updates, the revisions for both Section 5 and Section 6 incorrectly stated that the Operating Load Rating (Using HL93 live load) shall be 1.8 for Concrete structures and 1.7 for Steel Structures. The actual guidelines were updated to reflect an Operating Load Rating (Using HL93 live load) of 2.0 for concrete structures and 1.8 for steel structures. This clarification is made to reflect that the statements within the guidelines are to be used and not the statements in the summary of updates, which accompanied the bulletin.

Please note the following ADOT Bridge Design Guidelines have been updated:

SECTION 5 - CONCRETE STRUCTURES

5.1 SCOPE

5.14.1.2 Precast Beams

SECTION 6 - STEEL STRUCTURES

6.1 SCOPE

The following pages summarize all of the updates.

Summary of the Updates

SECTION 5 - CONCRETE STRUCTURES

5.1 SCOPE

This Section contains guidelines to supplement provisions of Section 5, Concrete Structures, of the AASHTO LRFD Bridge Design Specifications. These provisions apply to the design of bridges, retaining walls, and other appurtenant highway structure components constructed of normal density concrete reinforced with steel bars, welded wire reinforcement, prestressing strands, prestressing bars, or prestressing wires. Concrete deck design criteria are specified in Section 9 of these guidelines.

All design engineers are advised to review the example problems in Appendix – A of these guidelines for proper and correct application of various provisions of the AASHTO LRFD Specifications and these guidelines for design of bridge structural components.

Minimum vertical clearance for a bridge should be established based on future roadway configuration. For bridges spanning over railroads, minimum vertical clearance shall be based on the most recent railroad grade separation guidelines.

Design level load ratings of all bridges shall be performed per MBE (The Manual for Bridge Evaluation) latest edition, while the stress limits for concrete shall conform to ADOT Bridge Design Guidelines. For new bridges the design Operating Load Rating (using HL93 live load) shall be 2.0 **or more, unless approved by ADOT Bridge Group for bridges with specific circumstances.** For widening of bridges the minimum design Operating Load Rating (using HL93 live load) shall be the Operating Load Rating (using HL93 live load) of the existing bridge or 1.5, whichever is greater. Coordination and approval from ADOT Bridge Group will be required in instances where these provisions cannot be met, for widening of existing bridges.

5.14.1.2 Precast Beams

Precast prestressed girders shall be designed as simply supported beams using composite section properties for dead and transient loads. The superstructure shall be constructed continuous over the intermediate supports and designed for transient and composite dead load. The design should include the effects of shrinkage and creep for all strength limit states. Additional non-prestressed reinforcement shall be provided in the deck slab to account for continuity over the intermediate supports. The design shall be based on the strength of concrete of the closure pour. Additional continuity reinforcement shall ~~meet the requirements of AASHTO LRFD~~ **be designed per Section 5, AASHTO LRFD Bridge Design Specifications including Article 5.11.1.2.3, 5.14.1.4.8, and 5.14.1.4.9.**

Due to the increase in the number of overweight permits, precast prestressed girder spacing shall not exceed 10.0 feet unless approved by ADOT Bridge Group.

SECTION 6 - STEEL STRUCTURES

6.1 SCOPE

This section contains guidelines to supplement provisions of Section 6 of the AASHTO LRFD Bridge Design Specifications for the analysis and design of steel components, splices and connections for beam and girder structures, frames, trusses and arches, as applicable. Metal deck systems in relation to steel stay-in-place formwork are covered in Section 9 of these guidelines.

Minimum vertical clearance for a bridge should be established based on future roadway configuration. For bridges spanning over railroads, minimum vertical clearance shall be based on the most recent railroad grade separation guidelines.

Design level load ratings of all bridges shall be performed per MBE (The Manual for Bridge Evaluation) latest edition. For new bridges the design Operating Load Rating (using HL93 live load) shall be 1.8 **or more, unless approved by ADOT Bridge Group for bridges with specific circumstances**. For widening of bridges the minimum design Operating Load Rating (using HL93 live load) shall be the Operating Load Rating (using HL93 live load) of the existing bridge or 1.5, whichever is greater. Coordination and approval from ADOT Bridge Group will be required in instances where these provisions cannot be met, for widening of existing bridges.