I N T E R O F F I C E M E M O

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DATE: January 29, 2014

TO: Craig Shike
Bridge Design Standards Manager

FROM: Jon Rooper
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SUBJECT: Proposed Revision to Bridge Design & Drafting Manual

RE: BDDM Section 1.3.2(5) – Live Loads

Problem Statement:

The current guidance in the BDDM does not allow the use of higher level techniques to calculate live load distribution factors. This is good guidance for new, replacement, and strengthening designs; however, for load rating higher level techniques may be necessary. This proposal clarifies when higher level techniques may be used and not used to calculate live load distribution factors.

Proposal:

Modify Section 1.3.2(5) as follows

1.3 Loads and Distributions

1.3.2 Live Loads [1.1.7.2]

(5) Distribution Factors—

New, Replacement, & Strengthening Bridge Designs: Use the live load distribution factors and procedures provided in the AASHTO LRFD Bridge Design Specifications to determine load effects on bridge members. Higher level techniques such as finite element analysis or grillage analysis will not be accepted as a basis for adjustment of AASHTO live load distribution factors for design of new bridges.

For single-span bridges with prismatic girders, *Figures 1.3.2B to 1.3.2E* are provided to help determine the controlling permit truck for various span lengths.

For repair and/or strengthening of prestressed concrete structures, ensure the requirements of Service I and III Limit States are satisfied using HL-93 loading.

See *Section 1.30* for additional criteria for strengthening bridges.

Bridge Load Ratings: Use live load distribution factors provided in the AASHTO LRFD Bridge Design Specifications to make the first analysis. However, if the load rating is not acceptable, a higher level technique such as finite element analysis or grillage analysis may be considered. Using a higher level technique is acceptable for load rating because we are analyzing the loading conditions on an existing bridge and trying to avoid needlessly spending money to strengthen a bridge or post a bridge that may not need it.

See the ODOT Load Rating Manual for further guidance.

Analysis / Research / Other Supporting Data:

☒ None
☐ Attached:
- [name of attachment]
- [name of attachment]

[and/or enter text here]

Bridge Engineering Section Response:

☐ Accepted for consideration as submitted ☐ Accepted for consideration as noted ☐ Proposal tabled, see Remarks ☐ Proposal not accepted, see Remarks		
Remarks:		
[name of reviewer] Bridge Design Standards Reviewer		Date
Scott Liesinger Bridge Design Standards Engineer		Date

Cc: file