Review of Load Rating and Posting Procedures and Requirements

Introduction

All states are required to load rate and post bridges in order to comply with federal standards. Load ratings are performed to determine the safe live load capacity of a bridge while considering the existing conditions of the bridge. Load posting or strengthening is determined based on the load ratings.

The Indiana Department of Transportation (INDOT) was notified that its practice for load rating and posting did not satisfy 23 CFR 650.313, which states that bridges shall be load rated and posted according to an American Association of State Highway and Transportation Officials (AASHTO) manual. The purpose of this study was to summarize and compare load rating and posting procedures used in other states and to provide recommendations and information necessary to modify the load rating and posting procedures in INDOT’s Bridge Inspection Manual (Part 3: Load Rating) in order to satisfy 23 CFR 650.313.

To understand how load rating and posting is performed in other states, we examined department of transportation (DOT) manuals, sent questionnaires to various states, and surveyed additional states of interest. We also reviewed AASHTO’s The Manual for Bridge Evaluation, Second Edition (MBE, 2nd Edition), which is the current specification for load rating and posting bridges, as well as older AASHTO bridge evaluation manuals. With this information, we proposed revisions to the INDOT Bridge Inspection Manual (Part 3: Load Rating) to eliminate current deficiencies.

Findings

The information we collected on load rating and posting included, but was not limited to, the AASHTO manual used for load rating and posting, application of allowable stress rating (ASR), application of load factor rating (LFR), application of load and resistance factor rating (LRFR), legal vehicles, and posting signage. On the basis of our review of the information collected, we concluded the following:

- The majority of states are using the AASHTO MBE, 2nd Edition, which is the current specification for load rating and posting bridges.
- Many states are not using the ASR method for load rating and posting of bridges. Most states that are using the ASR method are only using the method for select applications.
- Almost all states prefer or accept both the LFR method and the LRFR method for load rating and posting of bridges.
- It appears that the few states that are currently not using the LRFR method plan to use the method in the future.
- The majority of states are using the AASHTO prescribed legal loads, or similar state variations of these loads, for load rating and posting of bridges.

![Common restrictive weight limit signs (FHWA, 2009)](image-url)
Implementation

We recommend that INDOT take the following actions:

- Adopt the current AASHTO MBE, 2nd Edition, and subsequent interims and clearly state how to use this document.
- Use the AASHTO prescribed legal loads, or similar state variations of these loads, in load rating and posting.
- Adopt the load posting requirements prescribed by the AASHTO MBE, 2nd Edition, replacing the current posting procedures. This may, in some instances, result in the repair or closure of existing bridges that presently require posting.

References


Recommended Citation for Report


View the full text of this publication here: http://dx.doi.org/10.5703/1288284315513

Published reports of the Joint Transportation Research Program are available at http://docs.lib.purdue.edu/jtrp/.

AASHTO specialized hauling vehicles (AASHTO, 2011)

AASHTO legal trucks (AASHTO, 2011)