

DATE: October 22, 1993

TO: All Bridge Designers

FROM: A. J. Siccardi

SUBJECT: Technical Memorandum #14
Use of Load Factor and Allowable Stress Design Methods

CDOT's policy has been to use Allowable Stress Design (ASD, or Service Load Design Method); however, the benefits to using Load Factor Design (LFD, or Strength Design Method) has received our serious consideration for the past several years. In recognition of current trends in our field and in anticipation of the eventual adoption of AASHTO load and resistance factor specifications for bridges, the time to begin using LFD has arrived.

Load Factor Design will now be used on all CDOT projects. Projects where final structure design is either substantially in progress or complete as of the date of this memorandum will be excluded if changing from ASD to LFD would adversely impact the schedule.

This policy applies where the AASHTO Standard Specifications provides the option of using either LFD or ASD, or requires the use of LFD. Where the option is not provided, and only ASD provisions are given, ASD shall be used. Section 2 of the AASHTO Standard Specifications on railings and Section 13 on timber structures are examples of where ASD is to be used per the specifications.

Generally existing structures will be rated using the same methodology as employed for their design. For the time being, the ASD ratings we have on file for existing structures will not be converted to LFD; however, LFD shall be used when evaluating existing structures for rehabilitation.

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In accordance with this new policy bridge designers are directed to thoroughly familiarize themselves with the LFD provisions of the AASHTO Standard Specifications. When using LFD give special attention to intermediate load cases during construction (for example, girder top flange compression during the deck pour), the LFD serviceability requirements (for example, fatigue in structural steel, cracking in concrete, and deflections in both materials), and AASHTO's group IB load case. The Colorado Permit Vehicle defined in Subsection 3.2 of the CDOT Bridge Design Manual shall be used for load group IB. This load group shall be checked on all highway bridge designs.

The CDOT Bridge Design Manual will be revised as necessary to conform with this memorandum. Until that time, this memorandum shall govern over the contents of the manual as stipulated in Article 1.1.4.A of the CDOT Bridge Design Manual.

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