



Structures Engineering Instructions (SEI)

Distribution: Structures, Director PDD, Assistant Director PDD, PDD Section Managers, Chief of Contract Admin., Director Ops., Assistant Director Ops., Consultants

Approved: Wm. Michael Hedges **Date:** 7/9/08
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Structures Program Manager

Subject: **Design and Load Rating Methodology**

Administrative Information:

Effective Date: This SEI shall be effective for the Structures Section projects and load ratings from the date of approval.

Superseded SEI: None.

Exceptions: Exceptions must be approved by the Program Manager.

Disposition of SEI Content: The content of this SEI will be incorporated into a future revision to the Structures Manual.

Purpose:

To document the design and load rating methodology for VTrans Structures Section projects and bridge inventory.

Technical Information:

Design Methodology for Highway Projects:

New bridges, earth retaining structures, and buried structures that have not progressed beyond the Preliminary Plan Stage as of October 1, 2007 shall be designed utilizing the AASHTO Load and Resistance Factor Design (LRFD) specifications.

New bridges, earth retaining structures, and buried structures that have progressed beyond the Preliminary Plan Stage as of October 1, 2007 may be designed either with the AASHTO LRFD specifications or with the AASHTO Standard Specifications. The superstructures for new bridges designed using with the AASHTO Standard Specifications shall be designed using the Load Factor Design (LFD) methodology.

Maintenance or rehabilitation of existing bridges, earth retaining structures, and buried structures located on the National Highway System (NHS) shall be designed using AASHTO LRFD methodology. Except that maintenance or rehabilitation projects involving historic timber trusses and historic arches located on the NHS shall be designed utilizing the AASHTO Standard Specifications with the Allowable Stress Design (ASD) methodology.

Maintenance or rehabilitation of existing bridges, earth retaining structures, and buried structures not located on the NHS may be designed either using the design methodology which was used in the original design or AASHTO LRFD methodology. Except that maintenance or rehabilitation projects involving historic metal and/or timber trusses and historic arches shall be designed utilizing the AASHTO Standard Specifications with the Allowable Stress Design (ASD) methodology.

Load Rating Methodology for Highway Projects/Existing Bridges:

All New or rehabilitated bridges or buried structures that are designed utilizing the AASHTO LRFD methodology shall be load rated using AASHTO Load and Resistance Factor Rating (LRFR).

New or rehabilitated bridges or buried structures that are designed utilizing the AASHTO Standard Specifications and the LFD methodology shall be load rated using AASHTO Load Factor Rating (LFR). Rehabilitated historic metal and/or timber trusses and historic arches bridges that are designed utilizing the AASHTO Standard Specifications and the ASD methodology shall be load rated using AASHTO Allowable Stress Rating (ASR).

Existing bridges and buried structures on the NHS shall be rated using AASHTO LFR or LRFD as determined by the Bridge Management and Inspection Engineer. Except that existing and historic timber bridges and historic arches on the NHS shall be rated using the AASHTO Allowable Stress Rating (ASR).

Existing bridges and buried structures not located on the NHS shall be rated using either AASHTO LFR, ASR or LRFD as determined by the Bridge Management and Inspection Engineer. Except that existing and historic metal and/or timber bridges and historic arches shall be rated using the AASHTO Allowable Stress Rating (ASR).

Implementation:

The content of this SEI will be implemented immediately on all projects and ratings.

Transmitted Materials:

FHWA Load and Resistance Factor Design (LRFD) Memo
FHWA Clarification of LRFD Policy Memorandum
FHWA Bridge Load Ratings for the National Bridge Inventory