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3.5 LOAD FACTORS AND LOAD COMBINATIONS

3.5.1 General

Commentary: For long-span bridges classified as lifeline bridges in accordance with Clause 4.4.2, partial live load shall be included in ULS Combination 5. Percentage of live load to be included in the load combination shall be determined on a project-specific basis by the Ministry. Effects of live load on bridge inertia mass for dynamic analysis need not to be considered for this special load case.

If a vertical design spectrum is considered explicitly in a site-specific study, the load factor for dead load, α_D , shall be taken as 1.0 in ULS Combination 5.

For long-span lifeline bridges, presence of partial live load during a major seismic event shall be considered. The percentage of live load to be included in ULS Combination 5 should be determined on a project-specific basis by the Ministry. Application of Turkstra's rule for combining uncorrelated loads indicates that 50% of live load is reasonable for a wide range of values of average daily truck traffic (ADTT). This issue has been considered for the first time in the third edition of the AASHTO LRFD Bridge Design Specifications, 2004.

The maximum (1.25) and minimum (0.8) values of load factor for dead load, α_D , are intended to account for, in an indirect way, the effects of vertical accelerations. If these effects are considered explicitly by using a vertical design spectrum, the load factor for dead load, α_D , should be taken as 1.0.

3.6

DEAD LOADS

Dead loads shall include an allowance for a future 50 mm concrete overlay over the full area of the bridge deck to account for future deck rehabilitation and also to partially account for any unanticipated dead loads that may be added to the structure following construction.

For bridges with waterproof membrane and asphalt overlay on a concrete deck, the minimum dead load for design shall be either the design asphalt thickness or 100 mm of asphalt, whichever is greater.

3.8

LIVE LOADS

3.8.3

CL-W Loading

CL-625 is the designated live load unless Approved otherwise.

3.8.4 Application

3.8.4.5 Dynamic Load Allowance

3.8.4.5.1 General

The use of dynamic load allowance factors other than specified requires the written Approval.

3.13 EARTHQUAKE EFFECTS

Delete the second sentence in the clause.

3.14 VESSEL COLLISION

3.14.2 Bridge Classification

The Ministry shall determine the bridge classification for vessel collision design purposes.

3.16 CONSTRUCTION LOADS AND LOADS ON TEMPORARY STRUCTURES

3.16.1 General

It shall be the responsibility of the Contractor to ensure that loads developed as a result of the construction methods can be properly carried unless a specific construction methodology is required by the designer. Assumed construction staging and loads shall be indicated on the drawings by the designer.

A3.3 VESSEL COLLISION

Method II analysis is required for "Class I" bridges while either method can be used for "Class II" bridges.

Commentary: *This is consistent with the approach taken by AASHTO 1991.*