

Defect-Based Urgency Index for Bridge Maintenance Ranking and Prioritization

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Abstract : Bridge condition assessment and rating provide essential information needed for bridge management. This paper reviews bridge inspection and condition rating practices and introduces a defect-based urgency index. The index is estimated at the element-level based on the extent and severity of the different defects typical to the bridge element. The urgency index approach has the following advantages: (1) It facilitates judgment submission, i.e. instead of rating the bridge element with a specific linguistic overall expression (which can be subjective and used differently by different people), the approach is based on assessing the defects; (2) It captures multiple defects that can be present within a deteriorated element; and (3) It reflects how critical the element is through quantifying critical defects and their severity. The approach can be further developed and validated. It is expected to be useful for practical purposes as an early-warning system for critical bridge elements.

Keywords : condition rating, deterioration, inspection, maintenance

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