Load Rating of Impaired Bridges Using a Dynamic Method

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ABSTRACT

Local Government in Australia is responsible for the operational management and maintenance of over 20,000 bridges. More than 70% of these bridges comprise aging timber bridges, the load capacity and structural adequacy of many of which have been impaired over time. This is partly due to increased vehicular loads with little attention to consequence of such increases. It is now necessary to determine the load carrying capacity of these bridges using simple yet reliable methods to allow local authorities to upgrade, replace or sign post at-risk bridges. In this paper a novel dynamic based method is presented by which the in-service stiffness of the bridge is estimated first. From this stiffness the load carrying capacity of the bridge is estimated following a statistically based analysis.