

DATA UNCERTAINTY IN BRIDGE MANAGEMENT

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ABSTRACT

The effectiveness of bridge management decisions is based on the quality of data, and the data collected has some amount of uncertainty, which may impact management decisions. This document describes a two-part procedure that has been developed for measuring the level of uncertainty in bridge condition assessment data. In the first part of the procedure, a bridge deterioration model (using Pontis Software) was used to estimate the future condition of a bridge. In the second part of the procedure, reliability theory was applied to estimate the structural reliability of the bridge. The structural reliability of the bridge components was estimated on the basis of load carrying capacity (resistance of the structure) and the actual loads present on the structure. The results from reliability model and deterioration model were compared and based on the variations between the results, an uncertainty scale was produced which quantified data uncertainty.