

ABSTRACT

Conceptual Model of Bridge Service Life

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Service life is an important yet somewhat nebulous consideration in the planning of suspension bridge rehabilitation projects. While it is often thought of in terms of time to physical failure of the asset, bridge service life is also defined by non-physical factors such as changing traffic loads and alternate levels of evaluation. This paper develops a conceptual model that defines service life as a function of physical and non-physical factors, thus offering a fresh perspective from which to base a more rational discussion on heavy trucks and their impact on bridge service life. An illustrative example demonstrates how this model may be applied in practice at the project level. Finally, federal truck weight reform is a pressing issue in the USA, and this paper concludes with a discussion on the implications this model has for network level studies concerning the impact of truck weight reform on bridge service life.

Published in *Bridge Structures*, June 2006, Vol. 2, No. 2, pp. 107-116