Title: Long-term Durability Models of Concrete in Highway Bridges, and Practical Approaches to Durability-Based Design

Author: Paul J. Tikalsky

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Abstract: The paper will present a model for improving the durability and doubling the life of highway bridges. Data from a detailed characterization of highway bridges and new concrete mixture designs is presented to show the potential for simulation based reliability assessment (SBRA) for predicting chloride intrusion into bridge decks exposed to deicing salts. The paper presents performance based guidelines that can improve the long-term durability of bridges through the design and control of concrete constituents and construction practices.