Life-Cycle Cost Assessment for Bridge Management:  
An Application to Nebraska Bridges  

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ABSTRACT

Life-cycle cost analysis (LCCA) is a necessary component in bridge management systems for assessing investment decisions and identifying the most cost-effective improvement alternatives. The LCCA helps to identify the lowest cost alternative that accomplishes project objectives by providing critical information for the overall decision-making process. The main objective of this paper is to present LCCA performed for different deck overlay alternatives using the recently developed deterioration models and latest cost data for Nebraska bridges. Deterministic and probabilistic LCCA using RealCost software for deck overlay decisions are presented. Silica fume overlay, epoxy polymer overlay, and polyester overlay are compared against bare deck with respect to the net present value.