

WEBINAR

An Overview of a Network-wide Probabilistic Life Cycle Cost Analysis Methodology and Implementation Framework for New Concrete-based Materials and Construction Techniques

ABSTRACT

The reconstruction of the nation's infrastructure should take into consideration the life cycle costs of major projects, including cost of new construction, replacement, maintenance and repair, cost of work zone delays, and various social-economic costs resulting from these activities. **Life Cycle Cost Analysis (LCCA)** is an effective tool that can assist decision-makers to develop optimum investment strategies by accurately assessing long-term internal and external costs of various types transportation projects while satisfying budget constraints imposed by transportation agencies. Recently, many new innovative concrete based materials and construction techniques have been developed to achieve a more sustainable transportation infrastructure. However, it remains a challenge to reliably estimate costs and technical performance of these new construction technologies / materials due to the very limited field implementation and historical data. This webinar will present a comprehensive implementation framework to quantify the life cycle costs of these conventional and new high performance materials/construction technologies including novel methodologies to link laboratory-measured parameters to actual field performance. A computationally efficient probabilistic quantification methodology is also integrated into the proposed framework to be able to deal with the high level of uncertainty due to the length of analysis period as well as the lack of real-world performance data especially in the case of novel materials. A web-based user-friendly software tool that makes use of the existing network-wide infrastructure data allowing prospective users to perform state-wide LCCA will also be presented. This webinar will be concluded with a review of future work and challenges in the area of network-wide probabilistic LCCA with a focus on novel construction materials and technologies in the presence of limited field data.

Presented by:



M. Kaan Ozbay, Ph.D.

Prof. of Transportation Engr.

New York University

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Location:

209 Computer Science

