

NCHRP Project 10-72 - Bridge Deck Design Criteria and Testing Procedures

Introduction and Background

Although not often recognized for their significance by the motoring public, deck elements of highway bridges are important components for an efficient highway system. Robust performance of these components over the long-term is critical for smooth daily traffic operations as well as adequate bridge system performance during extreme events. Failure of bridge deck systems results in direct economic costs associated with maintenance, repair, and replacement to potentially threatening life safety. There are further costs associated with maintenance and repair or premature replacement due to poor performance including traffic delays to the motoring public and environmental impacts of energy consumption and generation of construction and demolition waste.

Presently, there are no recognized uniform national specifications for the design, performance, or construction installation of deck systems. As has been previously demonstrated with many other bridge components, in the absence of specifications, the lowbid process often results in less durable products because manufacturers design, fabricate, and install components to achieve the lowest initial cost. This can be especially true for proprietary systems where open source information is lacking and fair comparisons cannot be made with alternatives. Unfortunately, outcomes from the current approach have sometimes resulted in poor performance and unreasonably short service lives.

The research program is directed toward developing realistic and practical design and testing protocols for the most common types of deck elements.

- The Research Team includes Robert J. Connor and Judy Liu from Purdue University and Christopher Higgins from Oregon State University.
- Sponsor – National Academy of Science, NCHRP
- Looking for Student

