Bridges for Service Life Beyond 100 Years

Roughly 30 percent of the nation's bridges are structurally or functionally deficient, which makes bridge repair, maintenance and replacement a major economic as well as public safety concern. The University of Nebraska–Lincoln has received a $2 million, four-year grant from the National Academy of Sciences' Transportation Research Board to find ways to extend the life of U.S. bridges and to design new ones that last a century or more.

A highway bridge's typical service life is about 75 years. This research aims to: identify technologies and designs that extend life to 100 years or more; improve methods for predicting bridge lifespan so governments can better anticipate maintenance needs; and develop guidelines for designing longer-lasting new bridges. Ninety-five percent of the nation's bridges span 300 feet or less so researchers will concentrate on solutions for bridges of this size.

This project will be conducted through UNL's National Bridge Research Organization, which brings together UNL faculty, industry leaders and government agencies to research and develop bridge design technology. It is one of numerous transportation-related research programs collaborating with the Nebraska Transportation Center at UNL. The university established the center in 2006 to integrate and strengthen transportation and safety programs on all four University of Nebraska campuses under one umbrella organization.

Title of Grant: Bridges for Service Life Beyond 100 Years: Innovative Systems, Subsystems and Components

Award: $1,999,637 over four years

Funding Agency: National Academy of Sciences Transportation Research Board

Project Leader (Principal Investigator): Atorod Azizinamini, professor of civil engineering and director, National Bridge Research Organization at UNL.

UNL Project Team Members: Maher Tadros, Leslie D. Martin Professor of Civil Engineering, who is co-principal investigator; Andrzej (Andy) Nowak, professor of civil engineering and Robert W. Brightfelt Professor of Engineering.

Other Collaborators Include: HDR Engineering, PBS&J, two major U.S. design companies, Vector Corrosion, KTA, Georgia Institute of Technology, University of Delaware, Ozyildrim, William Kenneth Consulting and COWI, a major European design and construction company.