AUGUST 2024

ABOUT THIS PROJECT

PROJECT NAME: Qualitative Relationship Between Increased Legal Loads and Reduced Bridge Service Life

PROJECT NUMBER: TR-831

PROJECT FUNDING PROGRAM:
Iowa Highway Research Board

PROJECTED END DATE: December 2026

PROJECT CHAMPION:
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RESEARCH IN PROGRESS

Measuring the impact of increasing load weights on bridge life

Increasing the amount of cargo in a truck — and, thus, its weight — can have fiscal and environmental benefits. However, bridges suffer some degree of deterioration every time a truck passes over, with heavier vehicles and axles causing more damage. Currently no methodology is available to effectively determine how much a bridge deteriorates from heavier loads. This project will quantify the impact of heavier loads on bridge service life in Iowa to provide valuable information to executives, legislators, and engineers for analyzing bridge load policies.

Bridge service life and cost information for Iowa bridges will be provided in two ways. First, an examination of Iowa bridge performance data, bridge construction and maintenance costs, weigh-in-motion data, and other pertinent information will indicate the impact of heavier loads on Iowa bridges. Second, major bridge components placed under increasing load weights will be tested to failure to demonstrate reductions in service life.

This project represents a more comprehensive approach to examining the issue, including conducting unique physical testing. A set of Iowa-specific statistics and details will be collected and used throughout the evaluation to provide valuable data and information regarding the life of a bridge when subjected to increased truck loads.

“We often get requests for higher weight limits for bridges, but don’t have the necessary tools available to determine if it is a good option,” explained Scott Neubauer, bridge maintenance engineer, Iowa DOT Bridges and Structures Bureau. “But the methods developed in this project will provide additional information to make more informed decisions regarding increasing bridge weight limits.”

The research is expected to conclude in December 2026.

To learn more about this project and subscribe to updates, visit Idea #3625.

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