

## Performance Measures Report

FHWA/MT-24-005/10336-933

### More Info:

The research is documented in Report FHWA/MT-24-005/10336-933

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## SIGNIFICANT FACTORS OF BRIDGE DETERIORATION

<https://www.mdt.mt.gov/research/projects/bridge-deterioration.aspx>

The Montana Department of Transportation (MDT) research project “*Significant Factors of Bridge Deterioration*” identified and ranked factors contributing to bridge deterioration in Montana. Two statistical analysis models were used with the National Bridge Inventory (NBI) data for bridges with reinforced concrete bridge decks from 2022 to evaluate over 20 bridge variables. A second task accomplished as part of the research was the creation of a general condition rating (GCR) analysis procedure within BrM to estimate the number of bridges that are in good, fair, and poor condition over selected time periods.

Researchers and the technical panel agreed that the GCR optimization analyses require several assumptions related to bridge repair (maintenance and construction), cost, and timing which are currently not available. Realistic optimization scenarios can only be performed after reliable parameters are established, which will require additional MDT bridge resources and future research. Without these optimization scenarios, an accurate performance measure of this research is difficult to obtain. The significant factors and GCR analysis developed in this project (Phase II), along with the deterioration curves developed in the previous research project (Phase I), can be used collectively to estimate meaningful repair strategies for bridges in Montana once accurate repair scenarios are established. When these optimizations are performed in a future Phase III collaborative research effort with MDT bridge engineers, the performance measures will be measured by significant maintenance and construction efficiencies combined with longer bridge service lives.

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