



LRRB Research Need Statement 543

Date:	July 27, 2018
Need Statement Champion:	Paul Oehme
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Idea Submitted by:	Jerry Zhao, University of Minnesota Humphrey School of Public Affairs
Idea Originated from:	952-227-1169

Select Program:

MnDOT OR Local Road Research Board (LRRB)

Research OR Implementation

Need Statement Title:

The Impact of Deferred Maintenance in Minnesota

Need Statement: Describe the problem or the opportunity. Include background and objective.

In allocating transportation funding, local governments need to balance between new construction and maintenance. Because regular maintenance activities are less visible than the construction of new facilities, maintenance costs often take a backseat in a transportation improvement plan. When local governments encounter fiscal stress, necessary maintenance costs may be deferred to free up funding for other purposes. The failure to keep up with maintenance, however, may have significant negative impacts to asset life and lead to higher overall life cycle costs.

The project should build upon MnDOT research project “Remaining Service Life Asset Measure, Phase 1” and a MnDOT transportation research synthesis titled “Quantifying the Impact of Bridge Maintenance Activities on Deterioration: A Survey of Practice and Related Resources”. As part of a proposal, the respondent should identify state and local roads and bridges in Minnesota that have sufficient data for this type of analysis. These data would include:

- Initial cost and design,
- Maintenance history and associated costs,
- Preservation history and associated costs,
- Rehabilitation history and associated costs,
- Roads/bridges with comparable designs, traffic/loads and environmental factors, and
- Pavement condition and bridge condition history.



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A case study approach is suggested for part of the project. Another aspect of the study will be to look at history of maintenance funding across systems and tie it to asset performance life.

The goal will be to better understand the impact of deferring maintenance on life cycle cost.

Provide a summary of the potential benefits:

According to the American Society of Civil Engineers, in its 2017 Infrastructure Report Card, driving on roads in need of repairs in Minnesota costs each driver \$480 per year. Deferring transportation maintenance investments increases the overall cost and risks of an aging infrastructure system. We propose to analyze patterns for maintenance expenditures across different localities (cities or counties). In addition, we would like to analyze how the current fiscal conditions affect maintenance expenditures and the impacts of deferring maintenance.

One of the key outcomes or benefits will be information that city engineers and county engineers can use in discussions with elected officials. Some of the goals or benefits are maintain an appropriate steady level of funding for maintenance, and less new construction but better roads for the public.

How does this project build upon previous research (include title or reference to a completed research effort)?

- MnDOT research project “Remaining Service Life Asset Measure, Phase 1” (Contract 1003325, Work Order 33). - final report to be published August 2018
- MnDOT transportation research synthesis 1509 “Quantifying the Impact of Bridge Maintenance Activities on Deterioration: A Survey of Practice and Related Resources”

Provide names to consider for a technical advisory panel:

- Paul Oehme, City of Chanhassen;
- Kaye Bieniek, Olmsted County;
- Sarah Sondag, MnDOT Bridge Office;
- Amber Blanchard, MnDOT Bridge Office;
- A State Aid Bridge representative
- Chris Berrens, MnDOT Office of Transportation System Management;
- Additional city and county engineers;
- TAP Members from MnDOT research project “Remaining Service Life Asset Measure, Phase 1”
 - MnDOT employees Glenn Engstrom, Joel Ulring, Curt Turgeon, Kevin Western, Greg Paulson, Jerry Geib, Mark B Nelson, David Solsrud, John Wilson, Elliot Keyes