

Subject: Guidelines and Strategies for Preventive Maintenance of Bridges

Background and Problem Statement: The Wisconsin Department of Transportation (WisDOT) is in need of a comprehensive Asset Management System that can be utilized to take full advantage of preventative maintenance actions to help preserve the roughly 13,647 bridge structures in its inventory. The main objective of this research is to develop new guidelines to be utilized by WisDOT and other state DOTs in the region to employ the use of preventative maintenance actions.

Consistent strategy and project selection guidelines are important for maximizing programmatic benefits. Because the timing of bridge preservation impacts the cost-effectiveness, bridge elements that meet a minimum Remaining Service Life (RSL) criterion are eligible for preservation treatment.

Research Tasks (suggested):

1. Identify preventative maintenance actions along with criteria for use and associated costs. The researcher should collect information from Wisconsin DOT and at least two other state DOTs.
2. Identify models to forecast deterioration with and without preventative maintenance
3. Create tools for tradeoff analysis given budgetary restrictions
4. Demonstrate feasibility of the tools for one or more regions/districts of each state using actual data if available

Expected products:

- Identification of preventive maintenance strategies and criteria for their use. Strategies must fall on the list of Federal Highway Administration (FHWA) approved maintenance actions as eligible for HBRRP funding at one or more of the participating states.
- Guidelines for selecting bridge preservation projects.
- Preservation planning procedures for anticipating preservation maintenance needs and budget.
- Program management tools for evaluating projects given budgetary constraints. The tools should optimize the long term effect of bridge preservation dollars.
- Recommendations for integrating preservation maintenance into the overall bridge management decision-making process.
- Recommendation for on-going program evaluation, continuous improvement, and performance measurement. Program assessment is a way to measure long-term savings and to refine the process for bridge preservation

Benefits: The ultimate benefit would be to better define preventative maintenance priorities statewide and throughout the Upper Midwest Region and to use HBRRP funding for preventative maintenance actions.

Partnering Arrangements: Proposals which contain partnerships, either in terms of funding or sharing of resources, will be considered favorably.

Time: 12 months

Maximum Funds Available: \$50,000

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