

TRANSPORTATION POOLED FUND PROGRAM QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): IOWA DOT

INSTRUCTIONS:

Project Managers and/or research project investigators should complete a quarterly progress report for each calendar quarter during which the projects are active. Please provide a project schedule status of the research activities tied to each task that is defined in the proposal; a percentage completion of each task; a concise discussion (2 or 3 sentences) of the current status, including accomplishments and problems encountered, if any. List all tasks, even if no work was done during this period.

Transportation Pooled Fund Program Project # TPF-5(219)		Transportation Pooled Fund Program - Report Period: Quarter 1 (January 1 – March 31, 2014) Quarter 2 (April 1 – June 30, 2014) X Quarter 3 (July 1 – September 30, 2014) Quarter 4 (October 4 – December 31, 2014)	
Project Title: Development of a Structural Health Monitoring System to Evaluate Structural Capacity and Estimate Remaining Service Life for Bridges			
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Lead Agency Project ID: RT 329	Other Project ID (i.e., contract #): Addendum 367	Project Start Date: 3/01/10	
Original Project End Date: 2/28/15	Current Project End Date: 6/30/17	Number of Extensions:	

Project schedule status:

On schedule
 On revised schedule
 Ahead of schedule
 Behind schedule

Overall Project Statistics:

Total Project Budget	Total Cost to Date for Project	Total Percentage of Work Completed
\$869,911.00	\$382,807.32	49%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$41,915.71		2%

Project Description:

- Literature Review: Damage detection and load rating algorithms
- Literature Review: Techniques for assessing remaining service life
- Interim Report
- Development of real-time, strain-based algorithm(s)
- Development of real-time, vibration-based algorithm(s)
- Development of real-time, fused-data algorithm(s)
- Compare and contrast result(s) from Tasks 4 through 6
- Interim Report
- Development of Statistical Models to Extrapolate Time-dependent Load Ratings
- Development of Structural Models to Quantify Extrapolations
- Final Report

Progress this Quarter (includes meetings, work plan status, contract status, significant progress, etc.):

The most recent TAC meeting was held on September 23, 2014. In the current quarter we have continued to work in three primary areas. First, we are working to develop a methodology which makes interpreting the damage detection algorithm results simpler. In its current configuration, there are so many outputs in a matrix form that are output. We are working to condense that matrix to a single vector where each cell in the vector represents a single sensor (as opposed to sensor pairs). Second, we are continuing to improve the load rating algorithm by making the software more generic. Previously we had demonstrated the capability on a two lane bridge with specific characteristics. We are expanding the configuration to allow up to 5 lanes with multiple other geometric attributes. Finally, we have developed the planned experimental program related to estimating ultimate capacity from service level measurements.

Additionally, during the subject quarter we finalized the Illinois bridge system configuration and began installing select components

Anticipated work next quarter:

In the next quarter we hope to finalize the Illinois bridge system installation. Additional progress on the damage detection and load rating algorithms are also expected. Finally, by the next TAC meeting we hope to have completed at least one round of laboratory testing.

Significant Results:

Circumstance affecting project or budget (Describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope, and fiscal constraints set forth in the agreement, along with recommended solutions to those problems).

None.