

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, 2015) Quarter 2 (April 1 – June 30, 2015) X Quarter 3 (July 1 – September 30, 2015) Quarter 4 (October 1 – December 31, 2015)	
Project Title: Development of a Structural Health Monitoring System to Evaluate Structural Capacity and Estimate Remaining Service Life for Bridges			
Project Manager: Ahmad Abu-Hawash		Phone: 515-239-1393	E-mail: ahmad.abu-hawash@dot.iowa.gov
Project Investigator: Brent Phares		Phone: 515-294-5879	E-mail: bphares@iastate.edu
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	\$456,924.26	60%

Quarterly Project Statistics:

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
\$6,443.54		3%

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.):

As was discussed in great detail, we have made very good progress in the development of a full suite of software programs that execute the various algorithms for damage detection and load rating.

Also, we began work on the development of a remaining life prediction model. To start this effort we began by developing lists of items that may cause changes in condition and therefore remaining life. This lists includes such items as temperature, traffic, application of salts, etc. Further, we initiated efforts to identify the types of models that might be appropriate for such an application. We have also begun trying to tie structural behavior, of say the deck, to current condition. This would allow us to create a series of analytical models that would allow us to predict the behavior of the bridge (changes in behavior in reality) that could be related to current condition and therefore make a remaining life estimate.

Anticipated work next quarter:

In addition, we will continue working on our remaining life models. This will include doing some preliminary testing of several bridges to explore potentially viable instrumentation schemes.

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.