TRANSPORTATION POOLED FUND PROGRAM
QUARTERLY PROGRESS REPORT

Lead Agency (FHWA or State DOT): <u>IOWA DOT</u>

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: X Quarter 1 (January 1 – March 31, 2013) Quarter 2 (April 1 – June 30, 2013) Quarter 3 (July 1 – September 30, 2013) Quarter 4 (October 4 – December 31, 2013)
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:**	**Number of Extensions:**

Project schedule status:

X 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
$500,000.00	$253,366	40%

***Quarterly* Project Statistics:**

Total Project Expenses This Quarter	Total Amount of Funds Expended This Quarter	Percentage of Work Completed This Quarter
$20,711		13%

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.):

Meetings with the TAC were held on March 1, 2013 and March 26, 2013. Progress on the project and an opportunity for scope expansion were discussed.

During the current quarter, we finalized the installation of the SHM system on the demonstration bridge (I-80). We also made significant progress on the development of the automated load rating/capacity algorithm. The modal-based damage detection algorithm has also started to be beta tested with the new I80 data. Once we are confident in the systems operation we will create the artificial damage.

We anticipate that Phase II is approximately 6 months behind schedule. We hope to be able to get back on schedule with appropriate staffing changes.

Anticipated work next quarter:

We will work on completing the Phase II plan. This will include finalizing algorithm development and then fusing algorithms as appropriate.

Significant Results:

Our technique for determining load ratings from random, unknown vehicles appears to be working well and is a first of its kind.

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.