# 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 #<br>*TPF-5(219)* | Transportation Pooled Fund Program - Report Period:<br>Quarter 1 (January 1 – March 31, 2014)<br>Quarter 2 (April 1 – June 30, 2014)<br>Quarter 3 (July 1 – September 30, 2014)<br>X  Quarter 4 (October 1 – December 31, 2014) |
|---|---|
| **Project Title:** Development of a Structural Health Monitoring System to Evaluate Structural Capacity and Estimate Remaining Service Life for Bridges | |

| **Project Manager:**<br>Ahmad Abu-Hawash | **Phone:**<br>515-239-1393 | **E-mail:**<br>ahmad.abu-hawash@dot.iowa.gov |
|---|---|---|
| **Project Investigator:**<br>Brent Phares | **Phone:**<br>515-294-5879 | **E-mail:**<br>bphares@iastate.edu |

| **Lead Agency Project ID:**<br>RT 329 | **Other Project ID (i.e., contract #):**<br>Addendum 367 | **Project Start Date:**<br>3/01/10 |
|---|---|---|
| **Original Project End Date:**<br>2/28/15 | **Current Project End Date:** 6/30/17 | **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 |
|---|---|---|
| $869,911.00 | $439,860.15 | 51% |

***Quarterly* Project Statistics:**

| Total Project Expenses<br>This Quarter | Total Amount of Funds<br>Expended This Quarter | Percentage of Work Completed<br>This Quarter |
|---|---|---|
| $57,052.83 | | 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 December 23, 2014.  In the current quarter we finalized the installation of the SHM system in Illinois.  The status of this system has been continually monitored and where needed, modifications made.  All-in-all the system seems to be working properly.  Additionally, as was discussed at length with the TAC, we have started working on integrating identifying "structurally" significant changes in behavior and how this can be used to calibrate certain parameters within the damage detection algorithm.  Additionally, we have begun finalizing the automated load rating software.

**Anticipated work next quarter:**

In the next quarter we hope have continued making progress on calibrating our models to identify "structurally" significant changes.  Additionally, it is anticipated that the laboratory test program will have been initiated.

**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.