**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(183)* | **Transportation Pooled Fund Program - Report Period:** Quarter 1 (January 1 – March 31, 2014) X Quarter 2 (April 1 – June 30, 2014) Quarter 3 (July 1 – September 30, 2014) Quarter 4 (October 1 – December 31, 2014) |
| **Project Title:** Improving the Foundation Layers for Concrete Pavement |
| **Project Manager: Phone: E-mail:**Linda Narigon 239-1471 linda.narigon@dot.iowa.gov |
| **Project Investigator: Phone: E-mail:**David White 294-1463 djwhite@iastate.edu |
| **Lead Agency Project ID:**RT 0314 | **Other Project ID (i.e., contract #):**Addendum 352 | **Project Start Date:**3/16/09 |
| **Original Project End Date:** 3/15/14 | **Current Project End Date:** 3/15/20**16** | **Number of Extensions:**On-going pooled fund project |

Project schedule status:

□ On schedule x 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** |
| $875,000 | $577,386.14 | 96 |

***Quarterly*** Project Statistics:

|  |  |  |
| --- | --- | --- |
|  **Total Project Expenses** **This Quarter** |  **Total Amount of Funds**  **Expended This Quarter** | **Percentage of Work Completed** **This Quarter** |
| $11,000 |  | 2 |

**Project Description:**

The objective of this research is to improve the construction methods, economic analysis and selection of materials, in-situ testing and evaluation, and development of performance-related specifications for the pavement foundation layers. The outcome of this study will be conclusive findings that make pavement foundations more durable, uniform, constructible, and economical. Although the focus of this research will be PCC concrete pavement foundations, the results will likely have applicability to ACC pavement foundations and, potentially, unpaved roads. All aspects of the foundation layers will be investigated including thickness, material properties, permeability, modulus/stiffness, strength, volumetric stability and durability. Forensic and in-situ testing plans will be conceived to incorporate measurements using existing and emerging technologies (e.g. intelligent compaction) to evaluate performance related parameters as opposed to just index or indirectly related parameter values. Field investigations will be conducted in each participating state. The results of the study will be compatible with each state’s pavement design methodology and capable for use with the Mechanistic-Empirical Pavement Design Guide (MEPDG). Evaluating pavement foundation design input parameters at each site will provide a link between what is actually constructed and what is assumed during design. There are many inputs to the pavement design related to foundation layers and this project will provide improved guidelines for each of these. The study will benefit greatly from maximizing the wide range of field conditions possible within the framework of a pooled fund study.

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

The main research activities during this quarter involved the following [related research task number is in the parenthesis].

* Conducting in-situ test data analysis on field projects and developing field project reports [Sub Tasks 1.5, 1.7, 3.1, 3.2, 3.4,]
* Obtaining temperature sensor array data on Iowa Hwy 30 project and conducting in-situ testing [Sub Task 3.1].
* Continuing analysis of resilient modulus and freeze-thaw performance data.

Instrumentation on US Highway 30, Iowa: A summary of instrumentation installed on the US30 project is provided in the last QPRs. Temperature data is being continuously collected and periodically downloaded since fall 2011. The data is being analyzed and incorporated into the US30 project report.

A summary of reports and products being developed as part of the project was summarized in the previous QPR. The following three project report final drafts have been completed by the research team and are currently in review by the InTrans publication staff:

1. Michigan I-96 Report – ISU
2. Wisconsin US-10 Report – ISU
3. Iowa I-29 Report – ISU
4. Pennsylvania SR-422 Report – ISU
5. MEPDG Sensitivity Analysis Report – UofI
6. Non-Uniformity Analysis Report – UofI

These reports were updated for formatting requirements and include a new method for interpreting the FWD and DCP profiles.

Additional analysis is being conducted by two graduate students working on the project to better evaluate resilient modulus test results and freeze/thaw performance data. The students are also working on improved guidance for field QC/QA testing methods and test frequencies.

Manual of Practice: The research management team held internal meetings to develop the publication details for the Manual. Additional meetings will be conducted over the next quarter.

**Anticipated work next quarter:**

* Complete field project reports. The FWD-DCP data needs to be updated.
* Continue working on the “Manual of Practice”. Finish the basic formatting requirements and layout. Complete 1 draft chapter for internal team review.
* Begin planning for TAC meeting early next quarter to review final project reports and provide update on manual.
* Send out several reports on CEER FTP site for TAC review and comment.

**Significant Results:**

Most significant of this quarter is updating field data analysis from project sites and updating the reports listed above.

**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).**

TAC committee:

